Table A-47. Summary of Casual Recreational User Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Shallow Zone Decision Units in 300 Area Source OU

Waste Site/Decision Unit	Chemical Cancer Risk	Chemical Risk Drivers	Radiological Cancer Risk	Radiological Risk Drivers	Total Non-Rad and Rad Risk	Non-Cancer Hazard Index	Hazard Drivers
618-8_Shallow	9.03E-07	--	8.76E-08	--	9.91E-07	1.76E-02	--
618-9_Shallow_Focused	1.04E-05	Aldrin (1.17e-06) Aroclor-1254 (1.51e-06) Aroclor-1260 (1.51e-06) Arsenic (2.56e-06)	2.99E-07	--	1.07E-05	5.44E-01	--
628-4_Shallow	1.41E-06	--	1.53E-07	--	1.56E-06	3.38E-02	--
UPR-300-17_Shallow	1.87E-06	--	7.85E-07	--	2.65E-06	1.53E-01	--
UPR-300-46_Shallow	1.22E-06	--	3.41E-07	--	1.56E-06	1.29E-01	--

Table A-48. Summary of Casual Recreational User Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Staging Pile Area Decision Units in 300 Area Source OU

Waste Site/Decision Unit	Chemical Cancer Risk	Chemical Risk Drivers	Radiological Cancer Risk	Radiological Risk Drivers	Total Non-Rad and Rad Risk	Non-Cancer Hazard Index	Hazard Drivers
300-272_Overburden_Focused	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
300-44_Overburden_Focused	2.01E-06	Arsenic (2.01e-06)	3.16E-08	--	2.04E-06	3.60E-02	--
300-49_Overburden	1.94E-06	Aroclor-1254 (1.16e-06)	1.31E-07	--	2.07E-06	3.39E-01	--
300-50_Overburden	1.62E-06	Arsenic (1.52e-06)	8.56E-07	--	2.48E-06	1.18E-01	--
316-1_Overburden	0.00E+00	--	2.43E-06	--	2.43E-06	0.00E+00	--
600-259_Overburden	0.00E+00	--	3.39E-08	--	3.39E-08	0.00E+00	--
618-2_Overburden	5.95E-07	--	1.23E-07	--	7.18E-07	1.17E-02	--
618-4_Overburden_2	5.51E-07	--	1.51E-07	--	7.02E-07	9.90E-03	--
618-4_Overburden_3	0.00E+00	--	5.82E-08	--	5.82E-08	0.00E+00	--
618-4_Overburden_4	0.00E+00	--	1.02E-07	--	1.02E-07	0.00E+00	--
618-5_Overburden	7.49E-07	--	4.88E-07	--	1.24E-06	1.37E-02	--
628-4_Overburden	7.44E-07	--	1.19E-07	--	8.62E-07	1.34E-02	--

Table A-49. Summary of Casual Recreational User Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Overburden Area Decision Units in 300 Area Source OU

Waste Site/Decision Unit	Chemical Cancer Risk	Chemical Risk Drivers	Radiological Cancer Risk	Radiological Risk Drivers	Total Non-Rad and Rad Risk	Non-Cancer Hazard Index	Hazard Drivers
300-109_Staging Pile Area_Focused	6.28E-07	--	2.55E-07	--	8.83E-07	8.37E-02	--
618-2_Staging Pile	6.75E-07	--	6.98E-07	--	1.37E-06	1.43E-02	--
618-5_Staging Pile_4	7.27E-07	--	1.23E-07	--	8.50E-07	1.31E-02	--
618-5_Staging Pile_5	5.95E-07	--	2.40E-07	--	8.34E-07	1.07E-02	--

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	5.20E+01	2.58E+03	2.01E-08	98.71%	--	--	--
300 ASH PITS_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	9.60E+01	4.05E+05	2.37E-10	1.16%	1.43E+07	6.73E-06	92.66%
300 ASH PITS_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	7.60E+01	2.98E+06	2.55E-11	0.13%	1.43E+08	5.33E-07	7.34%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**2.04E-08**	--	--	**7.27E-06**	--
Total Non-Radiological and Radiological Risk Estimate						--	**2.04E-08**	--	--	--	--
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	1.35E+04	4.54E+03	2.97E-06	99.98%	2.53E+05	5.35E-02	99.97%
300-10_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	2.00E+02	4.05E+05	4.94E-10	0.02%	1.43E+07	1.40E-05	0.03%
300-10_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	2.30E+02	2.98E+06	7.72E-11	0.00%	1.43E+08	1.61E-06	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**2.98E-06**	--	--	**5.35E-02**	--
300-10_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.37E+00	1.09E+03	1.25E-07	100.00%	--	--	--
Total Radiological Risk Estimate						--	**1.25E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**3.10E-06**	--	--	--	--
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	1.22E+02	2.58E+03	4.72E-08	59.50%	1.31E+04	9.31E-03	99.14%
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	3.97E+01	2.58E+03	1.54E-08	19.36%	--	--	--
300-109_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	1.24E+00	1.72E+02	7.20E-09	9.07%	--	--	--
300-109_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	2.30E+00	1.72E+03	1.34E-09	1.68%	--	--	--
300-109_Shallow_Focused	non-Rad	Chrysene	218-01-9	µg/kg	1.77E+00	1.72E+04	1.03E-10	0.13%	--	--	--
300-109_Shallow_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	1.40E+01	1.72E+03	8.13E-09	10.25%	--	--	--
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	2.20E+01	--	--	--	2.74E+05	8.03E-05	0.86%
300-109_Shallow_Focused	non-Rad	Pyrene	129-00-0	µg/kg	1.56E+00	--	--	--	2.01E+07	7.77E-08	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**7.93E-08**	--	--	**9.39E-03**	--
300-109_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.40E+00	5.81E+03	2.41E-08	16.03%	--	--	--
300-109_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.38E+00	1.09E+03	1.26E-07	83.97%	--	--	--
Total Radiological Risk Estimate						--	**1.50E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**2.30E-07**	--	--	--	--
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	3.68E+01	2.58E+03	1.42E-08	23.80%	1.31E+04	2.81E-03	99.89%
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	1.94E+01	2.58E+03	7.51E-09	12.55%	--	--	--
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	2.08E+00	1.72E+03	1.21E-09	2.02%	--	--	--
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	3.30E+00	1.72E+02	1.92E-08	32.02%	--	--	--
300-109_Staging Pile Area_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	1.31E+00	1.72E+03	7.61E-10	1.27%	--	--	--
300-109_Staging Pile Area_Focused	non-Rad	Fluoranthene	206-44-0	µg/kg	5.14E+00	--	--	--	2.68E+07	1.92E-07	0.01%
300-109_Staging Pile Area_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	2.92E+01	1.72E+03	1.70E-08	28.34%	--	--	--
300-109_Staging Pile Area_Focused	non-Rad	Pyrene	129-00-0	µg/kg	6.96E+00	--	--	--	2.01E+07	3.47E-07	0.01%
300-109_Staging Pile Area_Focused	non-Rad	Tin	7440-31-5	µg/kg	1.45E+03	--	--	--	5.48E+08	2.65E-06	0.09%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**5.98E-08**	--	--	**2.81E-03**	--
300-109_Staging Pile Area_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	2.54E+00	5.81E+03	4.37E-08	17.15%	--	--	--
300-109_Staging Pile Area_Focused	Rad	Uranium-238	U-238	pCi/g	2.31E+00	1.09E+03	2.11E-07	82.85%	--	--	--
Total Radiological Risk Estimate						--	**2.55E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**3.15E-07**	--	--	--	--
300-259_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	3.22E+02	--	--	--	3.65E+05	8.83E-04	33.52%
300-259_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	4.80E+05	--	--	--	2.74E+08	1.75E-03	66.48%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**0.00E+00**	--	--	**2.64E-03**	--
300-259_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.59E+00	5.81E+03	2.74E-08	18.21%	--	--	--
300-259_Shallow	Rad	Uranium-238	U-238	pCi/g	1.35E+00	1.09E+03	1.23E-07	81.79%	--	--	--
Total Radiological Risk Estimate						--	**1.51E-07**	--	--	--	--

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.51E-07**	**--**	**--**	**--**	**--**
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	9.22E+02	--	--	--	3.65E+05	2.53E-03	50.26%
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	µg/kg	8.36E+03	--	--	--	1.82E+08	4.58E-05	0.91%
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	7.33E+04	--	--	--	3.65E+07	2.01E-03	39.96%
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	5.37E+02	--	--	--	4.56E+06	1.18E-04	2.34%
300-260_Shallow_Focused	non-Rad	Silver	7440-22-4	µg/kg	2.06E+02	--	--	--	4.56E+06	4.52E-05	0.90%
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	7.74E+04	--	--	--	2.74E+08	2.83E-04	5.63%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**0.00E+00**	**--**	**--**	**5.03E-03**	**--**
300-260_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	2.51E-01	2.95E+02	8.51E-08	17.78%	--	--	--
300-260_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.30E+00	1.09E+03	3.93E-07	82.22%	--	--	--
Total Radiological Risk Estimate						**--**	**4.78E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**4.78E-07**	**--**	**--**	**--**	**--**
300-275_Shallow_1	non-Rad	Acenaphthene	83-32-9	µg/kg	9.60E+02	--	--	--	4.01E+07	2.39E-05	1.14%
300-275_Shallow_1	non-Rad	Antimony	7440-36-0	µg/kg	2.60E+02	--	--	--	3.65E+05	7.12E-04	33.89%
300-275_Shallow_1	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	1.30E+00	1.72E+02	7.55E-09	86.15%	--	--	--
300-275_Shallow_1	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	1.87E+00	1.72E+03	1.09E-09	12.39%	--	--	--
300-275_Shallow_1	non-Rad	Chrysene	218-01-9	µg/kg	2.20E+00	1.72E+04	1.28E-10	1.46%	--	--	--
300-275_Shallow_1	non-Rad	Copper	7440-50-8	µg/kg	4.29E+04	--	--	--	3.65E+07	1.18E-03	55.96%
300-275_Shallow_1	non-Rad	Fluoranthene	206-44-0	µg/kg	2.30E+03	--	--	--	2.68E+07	8.60E-05	4.09%
300-275_Shallow_1	non-Rad	Fluorene	86-73-7	µg/kg	8.11E+01	--	--	--	2.68E+07	3.03E-06	0.14%
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	µg/kg	1.67E+01	--	--	--	2.74E+05	6.08E-05	2.89%
300-275_Shallow_1	non-Rad	Strontium	7440-24-6	µg/kg	2.02E+04	--	--	--	5.48E+08	3.69E-05	1.76%
300-275_Shallow_1	non-Rad	Tin	7440-31-5	µg/kg	1.48E+03	--	--	--	5.48E+08	2.71E-06	0.13%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**8.76E-09**	**--**	**--**	**2.10E-03**	**--**
300-275_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	7.72E+00	5.81E+03	1.33E-07	11.56%	--	--	--
300-275_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.00E+00	2.95E+02	3.39E-07	29.49%	--	--	--
300-275_Shallow_1	Rad	Uranium-238	U-238	pCi/g	7.41E+00	1.09E+03	6.77E-07	58.95%	--	--	--
Total Radiological Risk Estimate						**--**	**1.15E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.16E-06**	**--**	**--**	**--**	**--**
300-275_Shallow_2	non-Rad	Acenaphthene	83-32-9	µg/kg	3.60E+00	--	--	--	4.01E+07	8.97E-08	0.06%
300-275_Shallow_2	non-Rad	Fluoranthene	206-44-0	µg/kg	5.60E+01	--	--	--	2.68E+07	2.09E-06	1.34%
300-275_Shallow_2	non-Rad	Fluorene	86-73-7	µg/kg	2.60E+00	--	--	--	2.68E+07	9.72E-08	0.06%
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	µg/kg	2.80E+01	--	--	--	2.74E+05	1.02E-04	65.49%
300-275_Shallow_2	non-Rad	Strontium	7440-24-6	µg/kg	2.71E+04	--	--	--	5.48E+08	4.95E-05	31.70%
300-275_Shallow_2	non-Rad	Tin	7440-31-5	µg/kg	1.15E+03	--	--	--	5.48E+08	2.10E-06	1.35%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**0.00E+00**	**--**	**--**	**1.56E-04**	**--**
300-275_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.31E+00	5.81E+03	2.25E-08	10.38%	--	--	--
300-275_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	2.37E-01	2.95E+02	8.03E-08	37.08%	--	--	--
300-275_Shallow_2	Rad	Uranium-238	U-238	pCi/g	1.24E+00	1.09E+03	1.14E-07	52.55%	--	--	--
Total Radiological Risk Estimate						**--**	**2.17E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.17E-07**	**--**	**--**	**--**	**--**
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	µg/kg	1.03E+01	7.38E+04	1.40E-10	0.12%	4.59E+04	2.24E-04	2.33%
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	µg/kg	1.64E+01	2.58E+03	6.35E-09	5.31%	--	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	1.90E+02	2.58E+03	7.35E-08	61.55%	--	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	8.44E+01	2.58E+03	3.27E-08	27.35%	1.31E+04	6.44E-03	66.70%

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	1.73E+01	2.58E+03	6.69E-09	5.60%	--	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	2.28E+02	2.98E+06	7.65E-11	0.06%	1.43E+08	1.60E-06	0.02%
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	1.60E+01	--	--	--	2.74E+05	5.84E-05	0.60%
300-33, 300-41, 300-256_Shallow	non-Rad	Methylene chloride	75-09-2	µg/kg	2.91E+00	3.37E+05	8.65E-12	0.01%	3.57E+07	8.16E-08	0.00%
300-33, 300-41, 300-256_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	4.86E+02	--	--	--	4.56E+06	1.06E-04	1.10%
300-33, 300-41, 300-256_Shallow	non-Rad	Silver	7440-22-4	µg/kg	7.82E+02	--	--	--	4.56E+06	1.71E-04	1.78%
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	7.26E+03	--	--	--	2.74E+06	2.65E-03	27.47%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.19E-07**	**--**	**--**	**9.65E-03**	**--**
300-33, 300-41, 300-256_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.14E+00	5.81E+03	3.68E-08	10.84%	--	--	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	3.38E-01	2.95E+02	1.15E-07	33.73%	--	--	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-238	U-238	pCi/g	2.06E+00	1.09E+03	1.88E-07	55.43%	--	--	--
Total Radiological Risk Estimate						**--**	**3.40E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**4.59E-07**	**--**	**--**	**--**	**--**
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	3.30E+02	2.58E+03	1.28E-07	43.02%	--	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	3.85E+02	2.58E+03	1.49E-07	50.19%	1.31E+04	2.94E-02	100.00%
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	5.20E+01	2.58E+03	2.01E-08	6.78%	--	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	2.21E+00	3.37E+05	6.56E-12	0.00%	3.57E+07	6.19E-08	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**2.97E-07**	**--**	**--**	**2.94E-02**	**--**
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	3.02E+00	5.81E+03	5.20E-08	20.76%	--	--	--
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	2.17E+00	1.09E+03	1.99E-07	79.24%	--	--	--
Total Radiological Risk Estimate						**--**	**2.51E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**5.47E-07**	**--**	**--**	**--**	**--**
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	1.00E+02	2.58E+03	3.87E-08	3.03%	1.31E+04	7.63E-03	100.00%
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	3.20E+03	2.58E+03	1.24E-06	96.97%	--	--	--
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.28E-06**	**--**	**--**	**7.63E-03**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.28E-06**	**--**	**--**	**--**	**--**
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	9.10E+03	4.54E+03	2.01E-06	100.00%	2.53E+05	3.60E-02	100.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**2.01E-06**	**--**	**--**	**3.60E-02**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.01E-06**	**--**	**--**	**--**	**--**
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	4.10E+03	--	--	--	3.65E+05	1.12E-02	14.37%
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	1.69E+04	4.54E+03	3.72E-06	100.00%	2.53E+05	6.69E-02	85.63%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**3.72E-06**	**--**	**--**	**7.82E-02**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**3.72E-06**	**--**	**--**	**--**	**--**
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	8.60E+01	2.58E+03	3.33E-08	97.89%	--	--	--
300-45_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	2.90E+02	4.05E+05	7.17E-10	2.11%	1.43E+07	2.03E-05	100.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**3.40E-08**	**--**	**--**	**2.03E-05**	**--**
300-45_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.20E+00	1.09E+03	1.10E-07	100.00%	--	--	--
Total Radiological Risk Estimate						**--**	**1.10E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.44E-07**	**--**	**--**	**--**	**--**
300-49_Overburden	non-Rad	1,2,4-Trichlorobenzene	120-82-1	µg/kg	3.05E+01	2.57E+05	1.19E-10	0.01%	1.30E+06	2.36E-05	0.01%
300-49_Overburden	non-Rad	1,4-Dichlorobenzene	106-46-7	µg/kg	2.88E+01	6.39E+04	4.50E-10	0.04%	5.10E+07	5.64E-07	0.00%

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	µg/kg	1.89E+01	1.82E+04	1.04E-09	0.09%	1.42E+06	1.33E-05	0.01%
300-49_Overburden	non-Rad	2-Chlorophenol	95-57-8	µg/kg	5.13E+01	--	--	--	4.56E+06	1.13E-05	0.00%
300-49_Overburden	non-Rad	4-Chloro-3-methylphenol	59-50-7	µg/kg	4.60E+01	--	--	--	7.13E+07	6.45E-07	0.00%
300-49_Overburden	non-Rad	Acenaphthene	83-32-9	µg/kg	3.07E+01	--	--	--	4.01E+07	7.65E-07	0.00%
300-49_Overburden	non-Rad	Antimony	7440-36-0	µg/kg	2.32E+02	--	--	--	3.65E+05	6.36E-04	0.26%
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	µg/kg	3.01E+03	2.58E+03	1.16E-06	95.71%	1.31E+04	2.29E-01	93.46%
300-49_Overburden	non-Rad	Copper	7440-50-8	µg/kg	5.36E+05	--	--	--	3.65E+07	1.47E-02	5.98%
300-49_Overburden	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	5.16E+01	--	--	--	7.13E+07	7.24E-07	0.00%
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	µg/kg	3.97E+01	8.09E+02	4.91E-08	4.04%	--	--	--
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	µg/kg	4.98E+01	3.47E+04	1.44E-09	0.12%	1.61E+07	3.09E-06	0.00%
300-49_Overburden	non-Rad	Phenol	108-95-2	µg/kg	5.00E+01	--	--	--	2.14E+08	2.34E-07	0.00%
300-49_Overburden	non-Rad	Pyrene	129-00-0	µg/kg	4.01E+01	--	--	--	2.01E+07	2.00E-06	0.00%
300-49_Overburden	non-Rad	Silver	7440-22-4	µg/kg	7.03E+02	--	--	--	4.56E+06	1.54E-04	0.06%
300-49_Overburden	non-Rad	Zinc	7440-66-6	µg/kg	1.42E+05	--	--	--	2.74E+08	5.19E-04	0.21%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.22E-06**	**--**	**--**	**2.45E-01**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.22E-06**	**--**	**--**	**--**	**--**
300-49_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	1.76E+02	--	--	--	3.65E+05	4.82E-04	77.99%
300-49_Shallow	non-Rad	Silver	7440-22-4	µg/kg	6.21E+02	--	--	--	4.56E+06	1.36E-04	22.01%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**0.00E+00**	**--**	**--**	**6.18E-04**	**--**
300-49_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.32E+00	5.81E+03	2.27E-08	11.26%	--	--	--
300-49_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	2.40E-01	2.95E+02	8.13E-08	40.39%	--	--	--
300-49_Shallow	Rad	Uranium-238	U-238	pCi/g	1.06E+00	1.09E+03	9.74E-08	48.35%	--	--	--
Total Radiological Risk Estimate						**--**	**2.01E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.01E-07**	**--**	**--**	**--**	**--**
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	µg/kg	3.34E+01	2.58E+03	1.29E-08	0.80%	1.31E+04	2.55E-03	8.00%
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	µg/kg	2.29E+02	2.58E+03	8.87E-08	5.47%	--	--	--
300-50_Overburden	non-Rad	Arsenic	7440-38-2	µg/kg	6.90E+03	4.54E+03	1.52E-06	93.73%	2.53E+05	2.73E-02	85.63%
300-50_Overburden	non-Rad	Copper	7440-50-8	µg/kg	6.45E+04	--	--	--	3.65E+07	1.77E-03	5.54%
300-50_Overburden	non-Rad	Silver	7440-22-4	µg/kg	1.20E+03	--	--	--	4.56E+06	2.63E-04	0.83%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.62E-06**	**--**	**--**	**3.19E-02**	**--**
300-50_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	6.03E+00	5.81E+03	1.04E-07	12.97%	--	--	--
300-50_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	4.49E-01	2.95E+02	1.52E-07	19.00%	--	--	--
300-50_Overburden	Rad	Uranium-238	U-238	pCi/g	5.95E+00	1.09E+03	5.45E-07	68.03%	--	--	--
Total Radiological Risk Estimate						**--**	**8.01E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.42E-06**	**--**	**--**	**--**	**--**
300-50_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	3.00E+03	--	--	--	3.65E+05	8.22E-03	44.40%
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	1.26E+02	2.58E+03	4.89E-08	99.90%	1.31E+04	9.64E-03	52.05%
300-50_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	1.93E+01	4.05E+05	4.77E-11	0.10%	1.43E+07	1.35E-06	0.01%
300-50_Shallow	non-Rad	Silver	7440-22-4	µg/kg	2.99E+03	--	--	--	4.56E+06	6.56E-04	3.54%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**4.89E-08**	**--**	**--**	**1.85E-02**	**--**
300-50_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	7.89E+00	5.81E+03	1.36E-07	12.02%	--	--	--
300-50_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	6.64E-01	2.95E+02	2.25E-07	19.90%	--	--	--
300-50_Shallow	Rad	Uranium-238	U-238	pCi/g	8.41E+00	1.09E+03	7.70E-07	68.08%	--	--	--
Total Radiological Risk Estimate						**--**	**1.13E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.18E-06**	**--**	**--**	**--**	**--**

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
316-1_Overburden	Rad	Cobalt-60	10198-40-0	pCi/g	3.18E-01	6.31E+01	5.04E-07	21.69%	--	--	--
316-1_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	1.30E+01	5.81E+03	2.23E-07	9.59%	--	--	--
316-1_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	1.08E+00	2.95E+02	3.66E-07	15.75%	--	--	--
316-1_Overburden	Rad	Uranium-238	U-238	pCi/g	1.35E+01	1.09E+03	1.23E-06	52.97%	--	--	--
Total Radiological Risk Estimate						**--**	**2.32E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.32E-06**	**--**	**--**	**--**	**--**
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	µg/kg	3.00E+03	2.58E+03	1.16E-06	21.70%	--	--	--
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	µg/kg	1.90E+04	4.54E+03	4.19E-06	78.30%	2.53E+05	7.53E-02	99.99%
316-1_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	6.86E+01	4.05E+05	1.69E-10	0.00%	1.43E+07	4.81E-06	0.01%
316-1_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	9.77E+01	2.98E+06	3.28E-11	0.00%	1.43E+08	6.85E-07	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**5.35E-06**	**--**	**--**	**7.53E-02**	**--**
316-1_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.21E+00	2.95E+02	4.11E-07	13.96%	--	--	--
316-1_Shallow_1	Rad	Uranium-238	U-238	pCi/g	2.77E+01	1.09E+03	2.53E-06	86.04%	--	--	--
Total Radiological Risk Estimate						**--**	**2.95E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**8.30E-06**	**--**	**--**	**--**	**--**
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	µg/kg	4.90E+02	--	--	--	3.65E+05	1.34E-03	2.26%
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	µg/kg	9.82E+01	2.58E+03	3.80E-08	86.39%	1.31E+04	7.49E-03	12.61%
316-1_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	3.42E+02	4.05E+05	8.46E-10	1.92%	1.43E+07	2.40E-05	0.04%
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	µg/kg	5.05E+04	--	--	--	1.37E+09	3.69E-05	0.06%
316-1_Shallow_3	non-Rad	Copper	7440-50-8	µg/kg	1.37E+06	--	--	--	3.65E+07	3.74E-02	63.02%
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	µg/kg	3.20E+00	6.22E+02	5.14E-09	11.68%	9.27E+03	3.45E-04	0.58%
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	µg/kg	1.11E+03	--	--	--	2.74E+05	4.03E-03	6.79%
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	µg/kg	9.47E+04	3.19E+10	2.97E-12	0.01%	1.82E+07	5.19E-03	8.73%
316-1_Shallow_3	non-Rad	Phenol	108-95-2	µg/kg	2.80E+01	--	--	--	2.14E+08	1.31E-07	0.00%
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	µg/kg	1.44E+03	--	--	--	4.56E+06	3.17E-04	0.53%
316-1_Shallow_3	non-Rad	Silver	7440-22-4	µg/kg	1.32E+04	--	--	--	4.56E+06	2.89E-03	4.87%
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	µg/kg	8.20E+04	--	--	--	2.74E+08	3.00E-04	0.50%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**4.40E-08**	**--**	**--**	**5.94E-02**	**--**
316-1_Shallow_3	Rad	Cobalt-60	10198-40-0	pCi/g	2.32E+00	6.31E+01	3.69E-06	53.62%	--	--	--
316-1_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	2.27E+01	5.81E+03	3.91E-07	5.69%	--	--	--
316-1_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	2.64E+00	2.95E+02	8.94E-07	13.00%	--	--	--
316-1_Shallow_3	Rad	Uranium-238	U-238	pCi/g	2.08E+01	1.09E+03	1.90E-06	27.70%	--	--	--
Total Radiological Risk Estimate						**--**	**6.88E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**6.92E-06**	**--**	**--**	**--**	**--**
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	µg/kg	6.20E+01	2.58E+03	2.40E-08	100.00%	1.31E+04	4.73E-03	100.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**2.40E-08**	**--**	**--**	**4.73E-03**	**--**
316-1_Shallow_4	Rad	Cobalt-60	10198-40-0	pCi/g	1.20E-01	6.31E+01	1.90E-07	8.93%	--	--	--
316-1_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	1.61E+01	5.81E+03	2.78E-07	13.05%	--	--	--
316-1_Shallow_4	Rad	Uranium-235	15117-96-1	pCi/g	1.05E+00	2.95E+02	3.56E-07	16.71%	--	--	--
316-1_Shallow_4	Rad	Uranium-238	U-238	pCi/g	1.43E+01	1.09E+03	1.31E-06	61.30%	--	--	--
Total Radiological Risk Estimate						**--**	**2.13E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.15E-06**	**--**	**--**	**--**	**--**
316-2_Shallow_1	Rad	Cobalt-60	10198-40-0	pCi/g	9.22E-02	6.31E+01	1.46E-07	1.21%	--	--	--
316-2_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	8.64E+01	5.81E+03	1.49E-06	12.32%	--	--	--
316-2_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.22E+01	2.95E+02	4.14E-06	34.27%	--	--	--

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
316-2_Shallow_1	Rad	Uranium-238	U-238	pCi/g	6.88E+01	1.09E+03	6.30E-06	52.20%	--	--	--
Total Radiological Risk Estimate						--	**1.21E-05**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.21E-05**	--	--	--	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	µg/kg	6.97E+02	2.58E+03	2.70E-07	82.09%	--	--	--
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	µg/kg	4.20E+01	2.58E+03	1.63E-08	4.95%	1.31E+04	3.20E-03	100.00%
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	µg/kg	1.10E+02	2.58E+03	4.26E-08	12.96%	--	--	--
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**3.28E-07**	--	--	**3.20E-03**	--
316-2_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	4.53E-01	6.31E+01	7.18E-07	4.71%	--	--	--
316-2_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.15E+02	5.81E+03	1.97E-06	12.94%	--	--	--
316-2_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	1.11E+01	2.95E+02	3.76E-06	24.67%	--	--	--
316-2_Shallow_2	Rad	Uranium-238	U-238	pCi/g	9.62E+01	1.09E+03	8.80E-06	57.69%	--	--	--
Total Radiological Risk Estimate						--	**1.53E-05**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.56E-05**	--	--	--	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	µg/kg	8.00E+03	4.54E+03	1.76E-06	99.96%	2.53E+05	3.17E-02	99.94%
316-2_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	2.60E+02	4.05E+05	6.43E-10	0.04%	1.43E+07	1.82E-05	0.06%
316-2_Shallow_3	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	1.80E+02	2.98E+06	6.04E-11	0.00%	1.43E+08	1.26E-06	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**1.76E-06**	--	--	**3.17E-02**	--
316-2_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	9.09E-01	2.95E+02	3.08E-07	12.11%	--	--	--
316-2_Shallow_3	Rad	Uranium-238	U-238	pCi/g	2.44E+01	1.09E+03	2.24E-06	87.89%	--	--	--
Total Radiological Risk Estimate						--	**2.54E-06**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**4.31E-06**	--	--	--	--
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	3.80E+01	1.72E+03	2.21E-08	98.24%	--	--	--
316-5_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	1.46E+02	4.05E+05	3.61E-10	1.61%	1.43E+07	1.02E-05	93.59%
316-5_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	1.00E+02	2.98E+06	3.35E-11	0.15%	1.43E+08	7.01E-07	6.41%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**2.25E-08**	--	--	**1.09E-05**	--
316-5_Shallow_1	Rad	Americium-241	14596-10-2	pCi/g	4.79E-01	2.57E+03	1.86E-08	0.11%	--	--	--
316-5_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	2.31E+00	1.00E+02	2.31E-06	13.75%	--	--	--
316-5_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.86E+01	2.95E+02	6.30E-06	37.54%	--	--	--
316-5_Shallow_1	Rad	Uranium-238	U-238	pCi/g	8.92E+01	1.09E+03	8.16E-06	48.60%	--	--	--
Total Radiological Risk Estimate						--	**1.68E-05**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.68E-05**	--	--	--	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	µg/kg	1.40E+02	1.21E+04	1.16E-08	81.16%	3.65E+06	3.84E-05	4.55%
316-5_Shallow_2	non-Rad	2-Butoxyethanol	111-76-2	µg/kg	2.40E+02	--	--	--	3.56E+08	6.73E-07	0.08%
316-5_Shallow_2	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	1.80E+02	4.05E+05	4.45E-10	3.12%	1.43E+07	1.26E-05	1.50%
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	1.10E+02	2.98E+06	3.69E-11	0.26%	1.43E+08	7.72E-07	0.09%
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	µg/kg	3.80E+01	1.72E+04	2.21E-09	15.46%	--	--	--
316-5_Shallow_2	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	1.46E+02	--	--	--	7.13E+07	2.05E-06	0.24%
316-5_Shallow_2	non-Rad	Silver	7440-22-4	µg/kg	3.60E+03	--	--	--	4.56E+06	7.89E-04	93.54%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**1.43E-08**	--	--	**8.44E-04**	--
316-5_Shallow_2	Rad	Americium-241	14596-10-2	pCi/g	1.24E-01	2.57E+03	4.83E-09	0.04%	--	--	--
316-5_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	1.71E+00	1.00E+02	1.71E-06	15.35%	--	--	--
316-5_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	1.18E-01	6.31E+01	1.87E-07	1.68%	--	--	--
316-5_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	9.04E+00	2.95E+02	3.06E-06	27.50%	--	--	--
316-5_Shallow_2	Rad	Uranium-238	U-238	pCi/g	6.75E+01	1.09E+03	6.18E-06	55.43%	--	--	--
Total Radiological Risk Estimate						--	**1.11E-05**	--	--	--	--

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.12E-05**	**--**	**--**	**--**	**--**
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	5.70E+01	2.58E+03	2.21E-08	31.63%	--	--	--
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	7.00E+01	2.58E+03	2.71E-08	38.84%	1.31E+04	5.34E-03	99.36%
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	5.20E+01	2.58E+03	2.01E-08	28.85%	--	--	--
316-5_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	1.90E+02	4.05E+05	4.70E-10	0.67%	1.43E+07	1.33E-05	0.25%
316-5_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	1.50E+03	--	--	--	7.13E+07	2.10E-05	0.39%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**6.97E-08**	**--**	**--**	**5.37E-03**	**--**
316-5_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.83E+00	1.00E+02	1.83E-06	21.33%	--	--	--
316-5_Shallow_Focused	Rad	Europium-155	14391-16-3	pCi/g	7.19E-02	5.87E+03	1.23E-09	0.01%	--	--	--
316-5_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	7.67E+00	2.95E+02	2.60E-06	30.36%	--	--	--
316-5_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.52E+01	1.09E+03	4.13E-06	48.29%	--	--	--
Total Radiological Risk Estimate						**--**	**8.56E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**8.63E-06**	**--**	**--**	**--**	**--**
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	µg/kg	2.50E+01	1.67E+04	1.50E-09	0.40%	--	--	--
331 LSLDF_Shallow_Focused	non-Rad	Acetone	67-64-1	µg/kg	5.90E+02	--	--	--	7.89E+08	7.48E-07	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	µg/kg	5.60E-01	3.33E+02	1.68E-09	0.45%	2.14E+04	2.62E-05	0.04%
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	µg/kg	3.90E-01	8.99E+02	4.34E-10	0.12%	5.70E+06	6.84E-08	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	3.60E+02	--	--	--	3.65E+05	9.86E-04	1.46%
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	8.50E+02	2.58E+03	3.29E-07	88.50%	1.31E+04	6.48E-02	95.96%
331 LSLDF_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	9.10E+02	4.05E+05	2.25E-09	0.61%	1.43E+07	6.38E-05	0.09%
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	3.40E+02	2.98E+06	1.14E-10	0.03%	1.43E+08	2.38E-06	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	µg/kg	1.30E+01	3.54E+02	3.67E-08	9.88%	3.56E+04	3.65E-04	0.54%
331 LSLDF_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	9.80E+01	--	--	--	7.13E+07	1.37E-06	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan I	959-98-8	µg/kg	1.90E+00	--	--	--	4.28E+06	4.44E-07	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	µg/kg	3.10E+00	--	--	--	4.28E+06	7.25E-07	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	1.10E+02	--	--	--	2.74E+05	4.01E-04	0.59%
331 LSLDF_Shallow_Focused	non-Rad	Methoxychlor	72-43-5	µg/kg	3.30E+00	--	--	--	3.56E+06	9.26E-07	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	1.10E+01	3.37E+05	3.26E-11	0.01%	3.57E+07	3.08E-07	0.00%
331 LSLDF_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	5.90E+02	--	--	--	4.56E+06	1.29E-04	0.19%
331 LSLDF_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	µg/kg	9.50E+03	--	--	--	1.46E+09	6.51E-06	0.01%
331 LSLDF_Shallow_Focused	non-Rad	Silver	7440-22-4	µg/kg	1.10E+03	--	--	--	4.56E+06	2.41E-04	0.36%
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	1.37E+05	--	--	--	2.74E+08	5.00E-04	0.74%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**3.72E-07**	**--**	**--**	**6.76E-02**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**3.72E-07**	**--**	**--**	**--**	**--**
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	µg/kg	2.79E+02	--	--	--	2.68E+06	1.04E-04	0.65%
600-243_Shallow	non-Rad	Anthracene	120-12-7	µg/kg	3.13E+01	--	--	--	2.01E+08	1.56E-07	0.00%
600-243_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	1.30E+03	--	--	--	3.65E+05	3.56E-03	22.28%
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	2.70E+01	2.58E+03	1.04E-08	2.90%	1.31E+04	2.06E-03	12.88%
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	1.84E+01	2.58E+03	7.12E-09	1.98%	--	--	--
600-243_Shallow	non-Rad	Barium	7440-39-3	µg/kg	2.92E+05	--	--	--	1.82E+08	1.60E-03	10.01%
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	4.33E+01	1.72E+03	2.51E-08	6.98%	--	--	--
600-243_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	4.27E+01	1.72E+02	2.48E-07	68.83%	--	--	--
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	4.63E+01	1.72E+03	2.69E-08	7.47%	--	--	--
600-243_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	3.18E+01	1.72E+03	1.84E-08	5.12%	--	--	--
600-243_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	2.08E+03	3.45E+09	6.02E-13	0.00%	1.82E+06	1.14E-03	7.13%
600-243_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	4.32E+02	4.05E+05	1.07E-09	0.30%	1.43E+07	3.03E-05	0.19%
600-243_Shallow	non-Rad	Boron	7440-42-8	µg/kg	2.94E+05	--	--	--	1.82E+08	1.61E-03	10.09%

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
600-243_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	7.93E+02	4.60E+09	1.72E-13	0.00%	8.21E+05	9.66E-04	6.04%
600-243_Shallow	non-Rad	Chrysene	218-01-9	µg/kg	6.26E+01	1.72E+04	3.63E-09	1.01%	--	--	--
600-243_Shallow	non-Rad	Copper	7440-50-8	µg/kg	5.40E+04	--	--	--	3.65E+07	1.48E-03	9.25%
600-243_Shallow	non-Rad	Dibenzofuran	132-64-9	µg/kg	7.85E+01	--	--	--	9.13E+05	8.60E-05	0.54%
600-243_Shallow	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	3.72E+01	--	--	--	7.13E+07	5.22E-07	0.00%
600-243_Shallow	non-Rad	Fluoranthene	206-44-0	µg/kg	7.91E+01	--	--	--	2.68E+07	2.96E-06	0.02%
600-243_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	2.80E+01	1.72E+03	1.63E-08	4.51%	--	--	--
600-243_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	1.87E+03	--	--	--	4.56E+06	4.10E-04	2.56%
600-243_Shallow	non-Rad	Naphthalene	91-20-3	µg/kg	2.04E+02	6.16E+04	3.31E-09	0.92%	2.24E+06	9.08E-05	0.57%
600-243_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	2.14E+04	3.19E+10	6.71E-13	0.00%	1.82E+07	1.17E-03	7.33%
600-243_Shallow	non-Rad	Pyrene	129-00-0	µg/kg	7.00E+01	--	--	--	2.01E+07	3.49E-06	0.02%
600-243_Shallow	non-Rad	Selenium	7782-49-2	µg/kg	5.71E+03	--	--	--	4.56E+06	1.25E-03	7.83%
600-243_Shallow	non-Rad	Silver	7440-22-4	µg/kg	5.00E+02	--	--	--	4.56E+06	1.10E-04	0.69%
600-243_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	8.41E+04	--	--	--	2.74E+08	3.07E-04	1.92%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**3.60E-07**	**--**	**--**	**1.60E-02**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**3.60E-07**	**--**	**--**	**--**	**--**
600-47_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.36E+00	5.81E+03	2.34E-08	13.94%	--	--	--
600-47_Shallow	Rad	Uranium-238	U-238	pCi/g	1.58E+00	1.09E+03	1.45E-07	86.06%	--	--	--
Total Radiological Risk Estimate						**--**	**1.68E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.68E-07**	**--**	**--**	**--**	**--**
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	2.64E+02	2.58E+03	1.02E-07	83.15%	1.31E+04	2.01E-02	99.44%
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	5.35E+01	2.58E+03	2.07E-08	16.85%	--	--	--
618-1_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	3.10E+01	--	--	--	2.74E+05	1.13E-04	0.56%
618-1_Shallow	non-Rad	Nitrogen in Nitrite and Nitrate	NO2⊡N	µg/kg	3.00E+02	--	--	--	1.46E+09	2.05E-07	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.23E-07**	**--**	**--**	**2.02E-02**	**--**
618-1_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.93E+00	5.81E+03	3.32E-08	19.39%	--	--	--
618-1_Shallow	Rad	Uranium-238	U-238	pCi/g	1.51E+00	1.09E+03	1.38E-07	80.61%	--	--	--
Total Radiological Risk Estimate						**--**	**1.71E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.94E-07**	**--**	**--**	**--**	**--**
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	1.22E+07	--	--	--	9.12E+08	1.34E-02	14.24%
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	4.55E+02	--	--	--	3.65E+05	1.25E-03	1.33%
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	3.51E+01	2.58E+03	1.36E-08	3.27%	--	--	--
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	9.81E+02	2.58E+03	3.80E-07	91.50%	1.31E+04	7.48E-02	79.68%
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	5.60E+01	2.58E+03	2.17E-08	5.22%	--	--	--
618-1_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	1.95E+04	--	--	--	1.37E+09	1.42E-05	0.02%
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	2.38E+04	--	--	--	3.65E+07	6.52E-04	0.69%
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	1.98E+02	--	--	--	2.74E+05	7.23E-04	0.77%
618-1_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2⊡N	µg/kg	2.60E+02	--	--	--	1.46E+09	1.78E-07	0.00%
618-1_Shallow_Focused	non-Rad	Silver	7440-22-4	µg/kg	1.12E+03	--	--	--	4.56E+06	2.45E-04	0.26%
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	µg/kg	7.08E+03	--	--	--	2.74E+06	2.59E-03	2.75%
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	6.81E+04	--	--	--	2.74E+08	2.49E-04	0.26%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**4.15E-07**	**--**	**--**	**9.39E-02**	**--**
618-1_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.13E+01	5.81E+03	1.95E-07	15.18%	--	--	--
618-1_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	9.87E-01	2.95E+02	3.35E-07	26.10%	--	--	--
618-1_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	8.23E+00	1.09E+03	7.53E-07	58.73%	--	--	--
Total Radiological Risk Estimate						**--**	**1.28E-06**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.70E-06**	**--**	**--**	**--**	**--**

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
618-12_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	8.56E+03	4.54E+03	1.89E-06	99.99%	2.53E+05	3.39E-02	99.99%
618-12_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	6.30E+01	4.05E+05	1.56E-10	0.01%	1.43E+07	4.42E-06	0.01%
618-12_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	6.00E+01	2.98E+06	2.01E-11	0.00%	1.43E+08	4.21E-07	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**1.89E-06**	--	--	**3.39E-02**	--
618-12_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	4.71E-01	2.95E+02	1.59E-07	14.00%	--	--	--
618-12_Shallow	Rad	Uranium-238	U-238	pCi/g	1.07E+01	1.09E+03	9.80E-07	86.00%	--	--	--
Total Radiological Risk Estimate						--	**1.14E-06**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**3.02E-06**	--	--	--	--
618-13_Shallow	non-Rad	Acetone	67-64-1	µg/kg	8.64E+00	--	--	--	7.89E+08	1.09E-08	0.00%
618-13_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	3.12E+02	--	--	--	3.65E+05	8.55E-04	99.76%
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	µg/kg	5.12E+00	3.37E+05	1.52E-11	100.00%	3.57E+07	1.43E-07	0.02%
618-13_Shallow	non-Rad	Tin	7440-31-5	µg/kg	1.05E+03	--	--	--	5.48E+08	1.92E-06	0.22%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**1.52E-11**	--	--	**8.57E-04**	--
618-13_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.92E+00	5.81E+03	3.31E-08	17.53%	--	--	--
618-13_Shallow	Rad	Uranium-238	U-238	pCi/g	1.70E+00	1.09E+03	1.56E-07	82.47%	--	--	--
Total Radiological Risk Estimate						--	**1.89E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.89E-07**	--	--	--	--
618-13_Shallow_Focused	non-Rad	Acetone	67-64-1	µg/kg	5.90E+00	--	--	--	7.89E+08	7.48E-09	0.00%
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	2.33E+02	--	--	--	3.65E+05	6.38E-04	91.89%
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	µg/kg	1.50E+02	9.86E+07	1.52E-12	9.25%	2.74E+06	5.48E-05	7.89%
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	5.03E+00	3.37E+05	1.49E-11	90.75%	3.57E+07	1.41E-07	0.02%
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	µg/kg	7.45E+02	--	--	--	5.48E+08	1.36E-06	0.20%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**1.64E-11**	--	--	**6.95E-04**	--
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.14E+00	5.81E+03	1.96E-08	100.00%	--	--	--
Total Radiological Risk Estimate						--	**1.96E-08**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.96E-08**	--	--	--	--
618-2_Overburden	non-Rad	Selenium	7782-49-2	µg/kg	1.00E+03	--	--	--	4.56E+06	2.19E-04	97.80%
618-2_Overburden	non-Rad	Tin	7440-31-5	µg/kg	2.70E+03	--	--	--	5.48E+08	4.93E-06	2.20%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**0.00E+00**	--	--	**2.24E-04**	--
Total Non-Radiological and Radiological Risk Estimate						--	**0.00E+00**	--	--	--	--
618-2_Shallow	non-Rad	Tin	7440-31-5	µg/kg	2.40E+03	--	--	--	5.48E+08	4.38E-06	0.26%
618-2_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	4.53E+03	--	--	--	2.74E+06	1.65E-03	99.74%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**0.00E+00**	--	--	**1.66E-03**	--
618-2_Shallow	Rad	Americium-241	14596-10-2	pCi/g	8.13E-01	2.57E+03	3.16E-08	1.13%	--	--	--
618-2_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	2.24E+00	1.00E+02	2.24E-06	79.60%	--	--	--
618-2_Shallow	Rad	Plutonium-239/240	PU-239/240	pCi/g	7.67E+00	3.34E+03	2.29E-07	8.17%	--	--	--
618-2_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.20E+00	5.81E+03	3.79E-08	1.35%	--	--	--
618-2_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	2.14E-01	2.95E+02	7.25E-08	2.58%	--	--	--
618-2_Shallow	Rad	Uranium-238	U-238	pCi/g	2.20E+00	1.09E+03	2.01E-07	7.17%	--	--	--
Total Radiological Risk Estimate						--	**2.81E-06**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**2.81E-06**	--	--	--	--

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	µg/kg	5.02E+03	--	--	--	2.74E+06	1.83E-03	100.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**0.00E+00**	--	--	**1.83E-03**	--
618-2_Staging Pile	Rad	Americium-241	14596-10-2	pCi/g	8.18E-01	2.57E+03	3.18E-08	5.28%	--	--	--
618-2_Staging Pile	Rad	Plutonium-239/240	PU-239/240	pCi/g	1.00E+01	3.34E+03	2.99E-07	49.61%	--	--	--
618-2_Staging Pile	Rad	Tritium	10028-17-8	pCi/g	2.33E+00	1.54E+04	1.52E-08	2.51%	--	--	--
618-2_Staging Pile	Rad	Uranium-233/234	U-233/234	pCi/g	2.04E+00	5.81E+03	3.51E-08	5.82%	--	--	--
618-2_Staging Pile	Rad	Uranium-235	15117-96-1	pCi/g	1.22E-01	2.95E+02	4.14E-08	6.87%	--	--	--
618-2_Staging Pile	Rad	Uranium-238	U-238	pCi/g	1.97E+00	1.09E+03	1.80E-07	29.91%	--	--	--
Total Radiological Risk Estimate						--	**6.03E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**6.03E-07**	--	--	--	--
618-3_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	7.96E+01	5.81E+03	1.37E-06	13.36%	--	--	--
618-3_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.79E+00	2.95E+02	1.62E-06	15.83%	--	--	--
618-3_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	7.94E+01	1.09E+03	7.26E-06	70.81%	--	--	--
Total Radiological Risk Estimate						--	**1.03E-05**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.03E-05**	--	--	--	--
618-4_Overburden_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.30E+00	5.81E+03	2.24E-08	14.79%	--	--	--
618-4_Overburden_2	Rad	Uranium-238	U-238	pCi/g	1.41E+00	1.09E+03	1.29E-07	85.21%	--	--	--
Total Radiological Risk Estimate						--	**1.51E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.51E-07**	--	--	--	--
618-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	3.22E+00	5.81E+03	5.54E-08	16.49%	--	--	--
618-4_Shallow	Rad	Uranium-238	U-238	pCi/g	3.07E+00	1.09E+03	2.81E-07	83.51%	--	--	--
Total Radiological Risk Estimate						--	**3.36E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**3.36E-07**	--	--	--	--
618-5_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	4.14E+00	5.81E+03	7.13E-08	14.60%	--	--	--
618-5_Overburden	Rad	Uranium-238	U-238	pCi/g	4.56E+00	1.09E+03	4.17E-07	85.40%	--	--	--
Total Radiological Risk Estimate						--	**4.88E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**4.88E-07**	--	--	--	--
618-5_Staging Pile_4	Rad	Uranium-233/234	U-233/234	pCi/g	1.15E+00	5.81E+03	1.98E-08	16.08%	--	--	--
618-5_Staging Pile_4	Rad	Uranium-238	U-238	pCi/g	1.13E+00	1.09E+03	1.03E-07	83.92%	--	--	--
Total Radiological Risk Estimate						--	**1.23E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.23E-07**	--	--	--	--
618-5_Staging Pile_5	Rad	Uranium-233/234	U-233/234	pCi/g	1.52E+00	5.81E+03	2.62E-08	10.93%	--	--	--
618-5_Staging Pile_5	Rad	Uranium-235	15117-96-1	pCi/g	1.68E-01	2.95E+02	5.69E-08	23.77%	--	--	--
618-5_Staging Pile_5	Rad	Uranium-238	U-238	pCi/g	1.71E+00	1.09E+03	1.56E-07	65.30%	--	--	--
Total Radiological Risk Estimate						--	**2.40E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**2.40E-07**	--	--	--	--
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	µg/kg	5.60E+02	--	--	--	3.65E+05	1.53E-03	53.87%
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	µg/kg	4.43E+01	--	--	--	2.74E+05	1.62E-04	5.68%
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	µg/kg	2.10E+04	3.19E+10	6.58E-13	100.00%	1.82E+07	1.15E-03	40.36%

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
618-7_Shallow_1	non-Rad	Tin	7440-31-5	µg/kg	1.55E+03	--	--	--	5.48E+08	2.83E-06	0.10%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**6.58E-13**	--	--	**2.85E-03**	--
618-7_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	3.61E+00	5.81E+03	6.22E-08	12.14%	--	--	--
618-7_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	3.64E-01	2.95E+02	1.23E-07	24.05%	--	--	--
618-7_Shallow_1	Rad	Uranium-238	U-238	pCi/g	3.57E+00	1.09E+03	3.27E-07	63.81%	--	--	--
Total Radiological Risk Estimate						--	**5.13E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**5.13E-07**	--	--	--	--
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	µg/kg	6.60E+02	--	--	--	3.65E+05	1.81E-03	95.98%
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	µg/kg	2.00E+01	--	--	--	2.74E+05	7.30E-05	3.87%
618-7_Shallow_2	non-Rad	Tin	7440-31-5	µg/kg	1.50E+03	--	--	--	5.48E+08	2.74E-06	0.15%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**0.00E+00**	--	--	**1.88E-03**	--
Total Non-Radiological and Radiological Risk Estimate						--	**0.00E+00**	--	--	--	--
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	µg/kg	4.50E+02	--	--	--	3.65E+05	1.23E-03	94.17%
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	µg/kg	2.00E+01	--	--	--	2.74E+05	7.30E-05	5.58%
618-7_Shallow_3	non-Rad	Tin	7440-31-5	µg/kg	1.80E+03	--	--	--	5.48E+08	3.29E-06	0.25%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**0.00E+00**	--	--	**1.31E-03**	--
Total Non-Radiological and Radiological Risk Estimate						--	**0.00E+00**	--	--	--	--
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	µg/kg	2.50E+02	--	--	--	3.65E+05	6.85E-04	99.81%
618-7_Shallow_4	non-Rad	Tin	7440-31-5	µg/kg	7.10E+02	--	--	--	5.48E+08	1.30E-06	0.19%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**0.00E+00**	--	--	**6.86E-04**	--
Total Non-Radiological and Radiological Risk Estimate						--	**0.00E+00**	--	--	--	--
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	µg/kg	1.50E+02	--	--	--	4.01E+07	3.74E-06	0.03%
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	9.80E+02	--	--	--	3.65E+05	2.68E-03	24.17%
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	6.70E+00	2.58E+03	2.59E-09	0.51%	--	--	--
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	8.80E+01	1.72E+03	5.11E-08	10.12%	--	--	--
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	6.60E+01	1.72E+02	3.83E-07	75.92%	--	--	--
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	5.20E+01	1.72E+03	3.02E-08	5.98%	--	--	--
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	1.10E+01	1.72E+03	6.39E-09	1.27%	--	--	--
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	4.70E+02	4.05E+05	1.16E-09	0.23%	1.43E+07	3.30E-05	0.30%
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	6.20E+03	4.60E+09	1.35E-12	0.00%	8.21E+05	7.56E-03	68.02%
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	6.59E+04	--	--	--	1.37E+09	4.81E-05	0.43%
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	µg/kg	6.90E+01	1.72E+04	4.01E-09	0.79%	--	--	--
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	2.50E+04	--	--	--	3.65E+07	6.85E-04	6.17%
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	µg/kg	4.50E+01	1.72E+03	2.61E-08	5.18%	--	--	--
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	3.30E+01	--	--	--	7.13E+07	4.63E-07	0.00%
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	µg/kg	4.80E+01	--	--	--	2.68E+07	1.79E-06	0.02%
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	2.00E+01	--	--	--	2.74E+05	7.30E-05	0.66%
618-7_Shallow_Focused	non-Rad	Pyrene	129-00-0	µg/kg	4.10E+02	--	--	--	2.01E+07	2.04E-05	0.18%
618-7_Shallow_Focused	non-Rad	Tin	7440-31-5	µg/kg	1.20E+03	--	--	--	5.48E+08	2.19E-06	0.02%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						--	**5.05E-07**	--	--	**1.11E-02**	--
618-7_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.09E+01	5.81E+03	1.88E-07	16.98%	--	--	--
618-7_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	9.74E-01	2.95E+02	3.30E-07	29.87%	--	--	--
618-7_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	6.42E+00	1.09E+03	5.87E-07	53.14%	--	--	--
Total Radiological Risk Estimate						--	**1.11E-06**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**1.61E-06**	--	--	--	--

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
618-8_Shallow	non-Rad	Selenium	7782-49-2	µg/kg	8.46E+02	--	--	--	4.56E+06	1.85E-04	100.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**0.00E+00**	**--**	**--**	**1.85E-04**	**--**
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.19E+00	5.81E+03	2.05E-08	100.00%	--	--	--
Total Radiological Risk Estimate						**--**	**2.05E-08**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.05E-08**	**--**	**--**	**--**	**--**
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	µg/kg	1.10E+02	1.21E+04	9.10E-09	0.09%	3.65E+06	3.01E-05	0.01%
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	µg/kg	6.80E+02	--	--	--	7.89E+08	8.62E-07	0.00%
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	µg/kg	3.90E+02	3.33E+02	1.17E-06	11.26%	2.14E+04	1.82E-02	4.19%
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	µg/kg	1.90E+03	7.38E+04	2.57E-08	0.25%	4.59E+04	4.14E-02	9.52%
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	µg/kg	1.90E+03	1.99E+03	9.55E-07	9.18%	--	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	µg/kg	1.90E+03	1.99E+03	9.55E-07	9.18%	--	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	µg/kg	1.90E+03	2.58E+03	7.35E-07	7.07%	--	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	1.90E+03	2.58E+03	7.35E-07	7.07%	--	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	3.90E+03	2.58E+03	1.51E-06	14.51%	1.31E+04	2.97E-01	68.38%
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	3.90E+03	2.58E+03	1.51E-06	14.51%	--	--	--
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	1.16E+04	4.54E+03	2.56E-06	24.58%	2.53E+05	4.59E-02	10.56%
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	5.20E+03	4.05E+05	1.29E-08	0.12%	1.43E+07	3.65E-04	0.08%
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	2.70E+03	2.98E+06	9.06E-10	0.01%	1.43E+08	1.89E-05	0.00%
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	µg/kg	6.90E+01	1.89E+04	3.65E-09	0.04%	4.10E+05	1.68E-04	0.04%
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	µg/kg	9.00E+00	1.05E+04	8.56E-10	0.01%	4.91E+06	1.83E-06	0.00%
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	7.20E+03	--	--	--	7.13E+07	1.01E-04	0.02%
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	µg/kg	4.40E+01	6.22E+02	7.07E-08	0.68%	9.27E+03	4.75E-03	1.09%
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	µg/kg	7.60E+02	7.26E+04	1.05E-08	0.10%	7.13E+05	1.07E-03	0.25%
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	µg/kg	1.70E+04	4.05E+05	4.20E-08	0.40%	7.13E+05	2.38E-02	5.48%
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	3.30E+02	--	--	--	2.74E+05	1.20E-03	0.28%
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	2.30E+03	3.37E+05	6.83E-09	0.07%	3.57E+07	6.44E-05	0.01%
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	µg/kg	1.67E+06	--	--	--	6.48E+09	2.58E-04	0.06%
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	µg/kg	9.20E+02	1.03E+04	8.97E-08	0.86%	6.84E+06	1.35E-04	0.03%
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	µg/kg	9.00E+00	--	--	--	6.38E+07	1.41E-07	0.00%
618-9_Shallow_Focused	non-Rad	Trichloroethene	79-01-6	µg/kg	2.00E+00	7.17E+03	2.79E-10	0.00%	2.94E+06	6.80E-07	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.04E-05**	**--**	**--**	**4.35E-01**	**--**
618-9_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	3.00E+00	1.09E+03	2.74E-07	100.00%	--	--	--
Total Radiological Risk Estimate						**--**	**2.74E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.07E-05**	**--**	**--**	**--**	**--**
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	6.09E+01	4.05E+05	1.51E-10	100.00%	1.43E+07	4.27E-06	100.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.51E-10**	**--**	**--**	**4.27E-06**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**1.51E-10**	**--**	**--**	**--**	**--**
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	µg/kg	4.24E+01	2.58E+03	1.64E-08	2.94%	--	--	--
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	1.12E+03	2.58E+03	4.32E-07	77.55%	--	--	--
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	2.43E+02	2.58E+03	9.40E-08	16.88%	1.31E+04	1.85E-02	100.00%
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	3.78E+01	2.58E+03	1.46E-08	2.63%	--	--	--
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**5.57E-07**	**--**	**--**	**1.85E-02**	**--**
628-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.13E+00	5.81E+03	1.94E-08	33.88%	--	--	--
628-4_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	1.12E-01	2.95E+02	3.79E-08	66.12%	--	--	--
Total Radiological Risk Estimate						**--**	**5.74E-08**	**--**	**--**	**--**	**--**

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
Total Non-Radiological and Radiological Risk Estimate						**--**	**6.14E-07**	**--**	**--**	**--**	**--**
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	µg/kg	1.17E+02	--	--	--	4.01E+07	2.91E-06	0.00%
UPR-300-17_Shallow	non-Rad	Anthracene	120-12-7	µg/kg	7.01E+00	--	--	--	2.01E+08	3.49E-08	0.00%
UPR-300-17_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	3.59E+02	--	--	--	3.65E+05	9.82E-04	1.46%
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	1.97E+03	2.58E+03	7.62E-07	58.63%	--	--	--
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	4.50E+02	2.58E+03	1.74E-07	13.39%	1.31E+04	3.43E-02	51.12%
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	1.13E+02	2.58E+03	4.38E-08	3.37%	--	--	--
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	5.92E+01	1.72E+03	3.44E-08	2.65%	--	--	--
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	4.38E+01	1.72E+02	2.54E-07	19.55%	--	--	--
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	3.27E+01	1.72E+03	1.90E-08	1.46%	--	--	--
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	9.94E+00	1.72E+03	5.77E-09	0.44%	--	--	--
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	µg/kg	3.90E+03	--	--	--	1.82E+08	2.14E-05	0.03%
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	µg/kg	3.93E+01	1.72E+04	2.28E-09	0.18%	--	--	--
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	µg/kg	3.53E+01	--	--	--	2.68E+07	1.32E-06	0.00%
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	µg/kg	2.93E+00	--	--	--	2.68E+07	1.09E-07	0.00%
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	5.85E+00	1.72E+03	3.40E-09	0.26%	--	--	--
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	6.90E+01	--	--	--	2.74E+05	2.52E-04	0.38%
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	µg/kg	4.79E+01	6.16E+04	7.78E-10	0.06%	2.24E+06	2.14E-05	0.03%
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	5.64E+05	3.19E+10	1.77E-11	0.00%	1.82E+07	3.09E-02	46.00%
UPR-300-17_Shallow	non-Rad	Pyrene	129-00-0	µg/kg	3.41E+01	--	--	--	2.01E+07	1.70E-06	0.00%
UPR-300-17_Shallow	non-Rad	Silver	7440-22-4	µg/kg	3.40E+02	--	--	--	4.56E+06	7.45E-05	0.11%
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	1.57E+05	--	--	--	2.74E+08	5.74E-04	0.86%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**1.30E-06**	**--**	**--**	**6.71E-02**	**--**
UPR-300-17_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	6.15E+00	5.81E+03	1.06E-07	13.48%	--	--	--
UPR-300-17_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	9.14E-01	2.95E+02	3.10E-07	39.44%	--	--	--
UPR-300-17_Shallow	Rad	Uranium-238	U-238	pCi/g	4.04E+00	1.09E+03	3.70E-07	47.08%	--	--	--
Total Radiological Risk Estimate						**--**	**7.85E-07**	**--**	**--**	**--**	**--**
Total Non-Radiological and Radiological Risk Estimate						**--**	**2.09E-06**	**--**	**--**	**--**	**--**
UPR-300-46_Shallow	non-Rad	Acenaphthene	83-32-9	µg/kg	1.31E+01	--	--	--	4.01E+07	3.26E-07	0.00%
UPR-300-46_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	3.81E+02	--	--	--	3.65E+05	1.04E-03	2.71%
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	8.79E+02	2.58E+03	3.40E-07	57.16%	--	--	--
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	4.90E+02	2.58E+03	1.89E-07	31.84%	1.31E+04	3.73E-02	96.97%
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	8.44E+01	2.58E+03	3.27E-08	5.49%	--	--	--
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	3.88E+00	1.72E+03	2.25E-09	0.38%	--	--	--
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	3.40E+00	1.72E+02	1.98E-08	3.32%	--	--	--
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	5.40E+00	1.72E+03	3.13E-09	0.53%	--	--	--
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	2.78E+00	1.72E+03	1.62E-09	0.27%	--	--	--
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	µg/kg	5.58E+00	1.72E+04	3.24E-10	0.05%	--	--	--
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	µg/kg	1.25E+00	1.72E+03	7.26E-10	0.12%	--	--	--
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	µg/kg	9.55E+00	--	--	--	2.68E+07	3.57E-07	0.00%
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	µg/kg	2.15E+00	--	--	--	2.68E+07	8.03E-08	0.00%
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	7.55E+00	1.72E+03	4.38E-09	0.74%	--	--	--
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	2.92E+01	--	--	--	2.74E+05	1.07E-04	0.28%
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	µg/kg	3.57E+01	6.16E+04	5.80E-10	0.10%	2.24E+06	1.59E-05	0.04%
UPR-300-46_Shallow	non-Rad	Pyrene	129-00-0	µg/kg	4.44E+00	--	--	--	2.01E+07	2.21E-07	0.00%
Total Non-Radiological Risk Estimate and Hazard Index Estimate						**--**	**5.95E-07**	**--**	**--**	**3.85E-02**	**--**
UPR-300-46_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.77E+00	5.81E+03	3.05E-08	11.26%	--	--	--
UPR-300-46_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	2.43E-01	2.95E+02	8.24E-08	30.41%	--	--	--
UPR-300-46_Shallow	Rad	Uranium-238	U-238	pCi/g	1.73E+00	1.09E+03	1.58E-07	58.32%	--	--	--

Table A-50. Casual Recreational User Scenario Risk Estimates and Noncancer Hazards for 300 Area Source OU Waste Site Decision Units Without Background Contribution

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	EPC	Cancer Effects PRG	Cancer Risk Estimate	Percent Contribution	Noncancer Effects PRG	Noncancer Hazard Quotient	Percent Contribution
Total Radiological Risk Estimate						--	**2.71E-07**	--	--	--	--
Total Non-Radiological and Radiological Risk Estimate						--	**8.66E-07**	--	--	--	--

Table A-51. Summary of Casual Recreational User Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Shallow Zone Decision Units in 300 Area Source OU Without Background Contribution

Waste Site/Decision Unit	Chemical Cancer Risk	Chemical Risk Drivers	Radiological Cancer Risk	Radiological Risk Drivers	Total Non-Rad and Rad Risk	Non-Cancer Hazard Index	Hazard Drivers
300 ASH PITS_Shallow	2.04E-08	--	0.00E+00	--	2.04E-08	7.27E-06	--
300 VTS_Shallow	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
300-10_Shallow_Focused	2.98E-06	Arsenic (2.97e-06)	1.25E-07	--	3.10E-06	5.35E-02	--
300-109_Shallow_Focused	7.93E-08	--	1.50E-07	--	2.30E-07	9.39E-03	--
300-18_Shallow	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
300-223_Shallow_Focused	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
300-23_Shallow_Focused	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
300-259_Shallow	0.00E+00	--	1.51E-07	--	1.51E-07	2.64E-03	--
300-260_Shallow_Focused	0.00E+00	--	4.78E-07	--	4.78E-07	5.03E-03	--
300-272_Shallow_Focused	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
300-275_Shallow_1	8.76E-09	--	1.15E-06	--	1.16E-06	2.10E-03	--
300-275_Shallow_2	0.00E+00	--	2.17E-07	--	2.17E-07	1.56E-04	--
300-33, 300-41, 300-256_Shallow	1.19E-07	--	3.40E-07	--	4.59E-07	9.65E-03	--
300-33, 300-41, 300-256_Shallow_Focused	2.97E-07	--	2.51E-07	--	5.47E-07	2.94E-02	--
300-37_Shallow_Focused	1.28E-06	Aroclor-1260 (1.24e-06)	0.00E+00	--	1.28E-06	7.63E-03	--
300-44_Shallow_Focused	3.72E-06	Arsenic (3.72e-06)	0.00E+00	--	3.72E-06	7.82E-02	--
300-45_Shallow_Focused	3.40E-08	--	1.10E-07	--	1.44E-07	2.03E-05	--
300-49_Shallow	0.00E+00	--	2.01E-07	--	2.01E-07	6.18E-04	--
300-50_Shallow	4.89E-08	--	1.13E-06	--	1.18E-06	1.85E-02	--
300-8_Shallow	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
316-1_Shallow_1	5.35E-06	Aroclor-1248 (1.16e-06) Arsenic (4.19e-06)	2.95E-06	--	8.30E-06	7.53E-02	--
316-1_Shallow_3	4.40E-08	--	6.88E-06	--	6.92E-06	5.94E-02	--
316-1_Shallow_4	2.40E-08	--	2.13E-06	--	2.15E-06	4.73E-03	--
316-2_Shallow_1	0.00E+00	--	1.21E-05	--	1.21E-05	0.00E+00	--
316-2_Shallow_2	3.28E-07	--	1.53E-05	--	1.56E-05	3.20E-03	--
316-2_Shallow_3	1.76E-06	Arsenic (1.76e-06)	2.54E-06	--	4.31E-06	3.17E-02	--
316-5_Shallow_1	2.25E-08	--	1.68E-05	--	1.68E-05	1.09E-05	--
316-5_Shallow_2	1.43E-08	--	1.11E-05	--	1.12E-05	8.44E-04	--
316-5_Shallow_Focused	6.97E-08	--	8.56E-06	--	8.63E-06	5.37E-03	--
331 LSLDF_Shallow_Focused	3.72E-07	--	0.00E+00	--	3.72E-07	6.76E-02	--
600-243_Shallow	3.60E-07	--	0.00E+00	--	3.60E-07	1.60E-02	--
600-259_Shallow	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
600-259_Shallow_Focused	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
600-47_Shallow	0.00E+00	--	1.68E-07	--	1.68E-07	0.00E+00	--
618-1_Shallow	1.23E-07	--	1.71E-07	--	2.94E-07	2.02E-02	--
618-1_Shallow_Focused	4.15E-07	--	1.28E-06	--	1.70E-06	9.39E-02	--
618-12_Shallow	1.89E-06	Arsenic (1.89e-06)	1.14E-06	--	3.02E-06	3.39E-02	--
618-13_Shallow	1.52E-11	--	1.89E-07	--	1.89E-07	8.57E-04	--
618-13_Shallow_Focused	1.64E-11	--	1.96E-08	--	1.96E-08	6.95E-04	--
618-2_Shallow	0.00E+00	--	2.81E-06	--	2.81E-06	1.66E-03	--
618-3_Shallow	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
618-3_Shallow_Focused	0.00E+00	--	1.03E-05	--	1.03E-05	0.00E+00	--
618-4_Shallow	0.00E+00	--	3.36E-07	--	3.36E-07	0.00E+00	--
618-5_Shallow	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
618-7_Shallow_1	6.58E-13	--	5.13E-07	--	5.13E-07	2.85E-03	--
618-7_Shallow_2	0.00E+00	--	0.00E+00	--	0.00E+00	1.88E-03	--
618-7_Shallow_3	0.00E+00	--	0.00E+00	--	0.00E+00	1.31E-03	--
618-7_Shallow_4	0.00E+00	--	0.00E+00	--	0.00E+00	6.86E-04	--
618-7_Shallow_Focused	5.05E-07	--	1.11E-06	--	1.61E-06	1.11E-02	--

Table A-51. Summary of Casual Recreational User Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Shallow Zone Decision Units in 300 Area Source OU Without Background Contribution

Waste Site/Decision Unit	Chemical Cancer Risk	Chemical Risk Drivers	Radiological Cancer Risk	Radiological Risk Drivers	Total Non-Rad and Rad Risk	Non-Cancer Hazard Index	Hazard Drivers
618-8_Shallow	0.00E+00	--	2.05E-08	--	2.05E-08	1.85E-04	--
618-9_Shallow_Focused	1.04E-05	Aldrin (1.17e-06) Aroclor-1254 (1.51e-06) Aroclor-1260 (1.51e-06) Arsenic (2.56e-06)	2.74E-07	--	1.07E-05	4.35E-01	--
628-4_Shallow	5.57E-07	--	5.74E-08	--	6.14E-07	1.85E-02	--
UPR-300-17_Shallow	1.30E-06	--	7.85E-07	--	2.09E-06	6.71E-02	--
UPR-300-46_Shallow	5.95E-07	--	2.71E-07	--	8.66E-07	3.85E-02	--

Table A-52. Summary of Casual Recreational User Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Overburden Area Decision Units in 300 Area Source OU Without Background Contribution

Waste Site/Decision Unit	Chemical Cancer Risk	Chemical Risk Drivers	Radiological Cancer Risk	Radiological Risk Drivers	Total Non-Rad and Rad Risk	Non-Cancer Hazard Index	Hazard Drivers
300-272_Overburden_Focused	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
300-44_Overburden_Focused	2.01E-06	Arsenic (2.01e-06)	0.00E+00	--	2.01E-06	3.60E-02	--
300-49_Overburden	1.22E-06	Aroclor-1254 (1.16e-06)	0.00E+00	--	1.22E-06	2.45E-01	--
300-50_Overburden	1.62E-06	Arsenic (1.52e-06)	8.01E-07	--	2.42E-06	3.19E-02	--
316-1_Overburden	0.00E+00	--	2.32E-06	--	2.32E-06	0.00E+00	--
600-259_Overburden	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
618-2_Overburden	0.00E+00	--	0.00E+00	--	0.00E+00	2.24E-04	--
618-4_Overburden_2	0.00E+00	--	1.51E-07	--	1.51E-07	0.00E+00	--
618-4_Overburden_3	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
618-4_Overburden_4	0.00E+00	--	0.00E+00	--	0.00E+00	0.00E+00	--
618-5_Overburden	0.00E+00	--	4.88E-07	--	4.88E-07	0.00E+00	--
628-4_Overburden	1.51E-10	--	0.00E+00	--	1.51E-10	4.27E-06	--

Table A-53. Summary of Casual Recreational User Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Staging Pile Area Decision Units in 300 Area Source OU Without Background Contribution

Waste Site/Decision Unit	Chemical Cancer Risk	Chemical Risk Drivers	Radiological Cancer Risk	Radiological Risk Drivers	Total Non-Rad and Rad Risk	Non-Cancer Hazard Index	Hazard Drivers
300-109_Staging Pile Area_Focused	5.98E-08	--	2.55E-07	--	3.15E-07	2.81E-03	--
618-2_Staging Pile	0.00E+00	--	6.03E-07	--	6.03E-07	1.83E-03	--
618-5_Staging Pile_4	0.00E+00	--	1.23E-07	--	1.23E-07	0.00E+00	--
618-5_Staging Pile_5	0.00E+00	--	2.40E-07	--	2.40E-07	0.00E+00	--

A-54. Summary of Residential Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Calculated Total Uranium for the Shallow Zone Decision Units in 300 Area Source OU

Waste Site/Decision Unit	Radiological Cancer Risk	Radiological Risk Drivers	Non-Cancer Hazard Index	Hazard Drivers
300 ASH PITS_Shallow	1.52E-06	--	1.02E-02	--
300-10_Shallow_Focused	2.53E-06	--	1.70E-02	--
300-109_Shallow_Focused	2.55E-06	--	1.71E-02	--
300-18_Shallow	7.06E-07	--	4.75E-03	--
300-259_Shallow	2.41E-06	--	1.62E-02	--
300-260_Shallow_Focused	7.95E-06	--	5.33E-02	--
300-275_Shallow_1	1.38E-05	--	9.29E-02	--
300-275_Shallow_2	2.31E-06	--	1.55E-02	--
300-33, 300-41, 300-256_Shallow	3.32E-06	--	2.23E-02	--
300-33, 300-41, 300-256_Shallow_Focused	4.01E-06	--	2.69E-02	--
300-44_Shallow_Focused	5.42E-07	--	3.63E-03	--
300-45_Shallow_Focused	2.24E-06	--	1.50E-02	--
300-49_Shallow	1.85E-06	--	1.24E-02	--
300-50_Shallow	1.42E-05	--	9.54E-02	--
300-8_Shallow	1.47E-06	--	9.88E-03	--
316-1_Shallow_1	5.16E-05	--	3.46E-01	--
316-1_Shallow_3	3.92E-05	--	2.63E-01	--
316-1_Shallow_4	2.67E-05	--	1.79E-01	--
316-2_Shallow_1	1.31E-04	Total_U_Isotopes (1.31e-04)	8.75E-01	--
316-2_Shallow_2	1.81E-04	Total_U_Isotopes (1.81e-04)	1.21E+00	Total_U_Isotopes (1.21)
316-2_Shallow_3	4.54E-05	--	3.05E-01	--
316-5_Shallow_1	1.69E-04	Total_U_Isotopes (1.69e-04)	1.13E+00	Total_U_Isotopes (1.13)
316-5_Shallow_2	1.27E-04	Total_U_Isotopes (1.27e-04)	8.54E-01	--
316-5_Shallow_Focused	8.58E-05	--	5.75E-01	--
331 LSLDF_Shallow_Focused	8.71E-07	--	5.83E-03	--
600-47_Shallow	2.67E-06	--	1.79E-02	--
618-1_Shallow	2.62E-06	--	1.76E-02	--
618-1_Shallow_Focused	1.55E-05	--	1.04E-01	--
618-12_Shallow	1.99E-05	--	1.34E-01	--
618-13_Shallow	3.14E-06	--	2.11E-02	--
618-13_Shallow_Focused	1.77E-06	--	1.19E-02	--
618-2_Shallow	3.63E-06	--	2.44E-02	--

A-54. Summary of Residential Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Calculated Total Uranium for the Shallow Zone Decision Units in 300 Area Source OU

Waste Site/Decision Unit	Radiological Cancer Risk	Radiological Risk Drivers	Non-Cancer Hazard Index	Hazard Drivers
618-3_Shallow	1.38E-06	--	9.25E-03	--
618-3_Shallow_Focused	1.48E-04	Total_U_Isotopes (1.48e-04)	9.96E-01	--
618-4_Shallow	4.63E-06	--	3.11E-02	--
618-5_Shallow	1.77E-06	--	1.19E-02	--
618-7_Shallow_1	6.72E-06	--	4.50E-02	--
618-7_Shallow_2	9.78E-07	--	6.54E-03	--
618-7_Shallow_3	1.77E-06	--	1.19E-02	--
618-7_Shallow_4	1.28E-06	--	8.58E-03	--
618-7_Shallow_Focused	1.22E-05	--	8.17E-02	--
618-8_Shallow	1.20E-06	--	8.08E-03	--
618-9_Shallow_Focused	5.57E-06	--	3.73E-02	--
628-4_Shallow	1.96E-06	--	1.32E-02	--
UPR-300-17_Shallow	7.71E-06	--	5.17E-02	--
UPR-300-46_Shallow	3.04E-06	--	2.04E-02	--

A-55. Summary of Residential Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Calculated Total Uranium for the Shallow Zone Decision Units in 300 Area Source OU without Background Contribution

Waste Site/Decision Unit	Radiological Cancer Risk	Radiological Risk Drivers	Non-Cancer Hazard Index	Hazard Drivers
300 ASH PITS_Shallow	0.00E+00	--	0.00E+00	--
300-10_Shallow_Focused	2.53E-06	--	1.70E-02	--
300-109_Shallow_Focused	2.55E-06	--	1.71E-02	--
300-18_Shallow	0.00E+00	--	0.00E+00	--
300-259_Shallow	2.41E-06	--	1.62E-02	--
300-260_Shallow_Focused	7.95E-06	--	5.33E-02	--
300-275_Shallow_1	1.38E-05	--	9.29E-02	--
300-275_Shallow_2	2.31E-06	--	1.55E-02	--
300-33, 300-41, 300-256_Shallow	3.32E-06	--	2.23E-02	--
300-33, 300-41, 300-256_Shallow_Focused	4.01E-06	--	2.69E-02	--
300-44_Shallow_Focused	0.00E+00	--	0.00E+00	--
300-45_Shallow_Focused	2.24E-06	--	1.50E-02	--
300-49_Shallow	0.00E+00	--	0.00E+00	--
300-50_Shallow	1.42E-05	--	9.54E-02	--
300-8_Shallow	0.00E+00	--	0.00E+00	--
316-1_Shallow_1	5.16E-05	--	3.46E-01	--
316-1_Shallow_3	3.92E-05	--	2.63E-01	--
316-1_Shallow_4	2.67E-05	--	1.79E-01	--
316-2_Shallow_1	1.31E-04	Total_U_Isotopes (1.31e-04)	8.75E-01	--
316-2_Shallow_2	1.81E-04	Total_U_Isotopes (1.81e-04)	1.21E+00	Total_U_Isotopes (1.21)
316-2_Shallow_3	4.54E-05	--	3.05E-01	--
316-5_Shallow_1	1.69E-04	Total_U_Isotopes (1.69e-04)	1.13E+00	Total_U_Isotopes (1.13)
316-5_Shallow_2	1.27E-04	Total_U_Isotopes (1.27e-04)	8.54E-01	--
316-5_Shallow_Focused	8.58E-05	--	5.75E-01	--
331 LSLDF_Shallow_Focused	0.00E+00	--	0.00E+00	--
600-47_Shallow	2.67E-06	--	1.79E-02	--
618-1_Shallow	2.62E-06	--	1.76E-02	--
618-1_Shallow_Focused	1.55E-05	--	1.04E-01	--
618-12_Shallow	1.99E-05	--	1.34E-01	--
618-13_Shallow	3.14E-06	--	2.11E-02	--
618-13_Shallow_Focused	0.00E+00	--	0.00E+00	--
618-2_Shallow	3.63E-06	--	2.44E-02	--

A-55. Summary of Residential Scenario Risk Estimates, Noncancer Hazards, and Primary Contributors to Risk for Calculated Total Uranium for the Shallow Zone Decision Units in 300 Area Source OU without Background Contribution

Waste Site/Decision Unit	Radiological Cancer Risk	Radiological Risk Drivers	Non-Cancer Hazard Index	Hazard Drivers
618-3_Shallow	0.00E+00	--	0.00E+00	--
618-3_Shallow_Focused	1.48E-04	Total_U_Isotopes (1.48e-04)	9.96E-01	--
618-4_Shallow	4.63E-06	--	3.11E-02	--
618-5_Shallow	0.00E+00	--	0.00E+00	--
618-7_Shallow_1	6.72E-06	--	4.50E-02	--
618-7_Shallow_2	0.00E+00	--	0.00E+00	--
618-7_Shallow_3	0.00E+00	--	0.00E+00	--
618-7_Shallow_4	0.00E+00	--	0.00E+00	--
618-7_Shallow_Focused	1.22E-05	--	8.17E-02	--
618-8_Shallow	0.00E+00	--	0.00E+00	--
618-9_Shallow_Focused	5.57E-06	--	3.73E-02	--
628-4_Shallow	0.00E+00	--	0.00E+00	--
UPR-300-17_Shallow	7.71E-06	--	5.17E-02	--
UPR-300-46_Shallow	3.04E-06	--	2.04E-02	--

Appendix F

Fate and Transport Modeling Documentation

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Environmental Calculation Cover Page

Part 1: Completed by the Responsible Manager

Project: 300 Area FF-5 RI/FS Modeling Support **Date: December 12, 2011**

Calculation Title & Description: Groundwater Flow and Uranium Transport Modeling in support of the 300 Area FF-5 RI/FS document

Preparer: William. Linderfelt; Jami Ludwig	**Basis of Qualification: Education and Experience**
Checker: Helalur. Rashid	**Basis of Qualification: Education and Experience**
Senior Reviewer: Christelle. Courbet	**Basis of Qualification: Education and Experience**

Part 2: Completed by Preparer

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Preparer:

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Terms

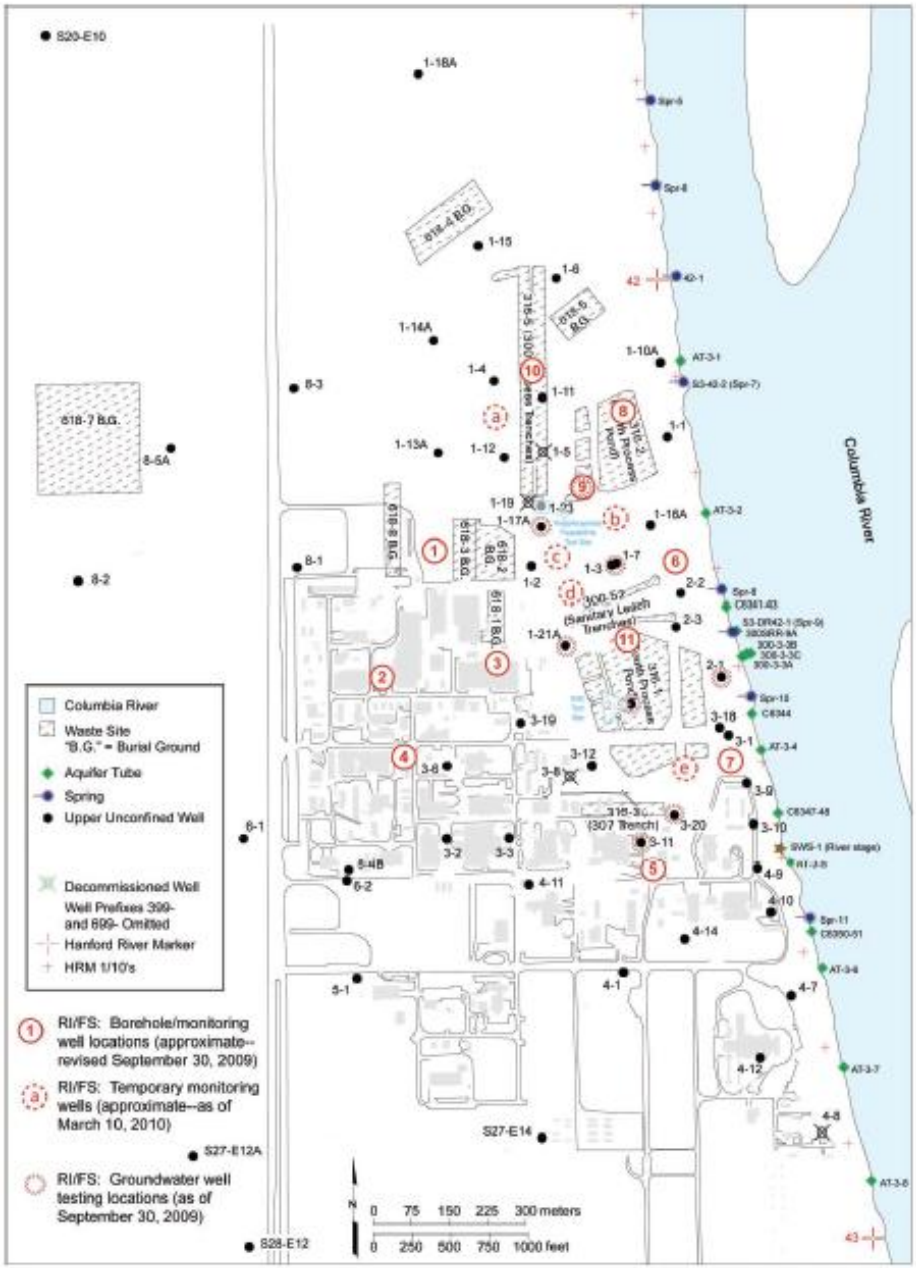
AWLN	automated water level network
CVP	contamination verification package
EC	electrical conductivity
FEPs	features, events, and processes
HEIS	Hanford Environmental Information System (database)
HSU	hydrostratigraphic unit
LFI	limited field investigation
PNNL	Pacific Northwest National Laboratory
PRG	preliminary remediation goal
PRZ	periodically rewetted zone
OU	operable unit
RA	remedial alternative
RI/FS	remedial investigation/field study
STOMP	Subsurface Transport Over Multiple Phases (software)
UCL	upper confidence limit

1 Purpose

The purpose of this calculation is the simulation of the fate and transport of uranium contaminant in the vadose zone and unconfined groundwater aquifer associated with the 300-FF-5 Groundwater Operable Unit (OU) located in the 300 Area of Department of Energy's Hanford Site. A location map for 300-FF-5 OU relevant to the uranium groundwater modeling is shown in Figure 1-1. This map shows the locations of the wells discussed in this report along with their proximity to the Columbia River.

The modeling results will be used to estimate the time at which the uranium groundwater concentrations will decrease to below the regulatory limit within the unconfined aquifer in support of the Remedial Investigation/Feasibility Study for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units document.

This effort includes the simulation of a no-action scenario based on current conditions and also a series of simulations which will describe the impact of proposed future remedial actions on the uranium groundwater concentrations. The objectives of the modeling effort will be to provide a basis for making informed remedial action decisions based on description of current and expected future groundwater contaminant concentrations.



Source: Figure ES-2 from DOE/RL-2009-30

Figure 1-1. Location Map for the 300-FF-5 Operable Unit

2 Methodology

The approach to the groundwater fate and uranium transport modeling within the 300-FF-5 OU utilizes a mathematical hydrogeological construct to represent the physical conditions within the vadose zone and unconfined aquifer. It also involves developing a conceptual model by incorporating the important

Features, Events, and Processes (FEPs) that control the uranium transport. Some of the important FEPs that are considered in the model development are discussed below:

- The seasonal fluctuations of flow in the Columbia River at the 300 Area can result in over three meters (m) of change in river stage between the high discharge period (May-June) and the low discharge period (December-January) (Figure 2-1). These seasonal fluctuations are the driving mechanism for the rise and fall of the water table beneath the 300 Area for extended periods of time and also for creating the dynamic hydraulic and geochemical environment found in the unconfined aquifer of the 300 Area. Also shown in Figure 2.1, the seasonal fluctuations in river stage also lead to remobilization of the sorbed uranium mass from the lower part of the vadose zone near 399-1-17A (Figure 1-1) due to rise in water table elevations.

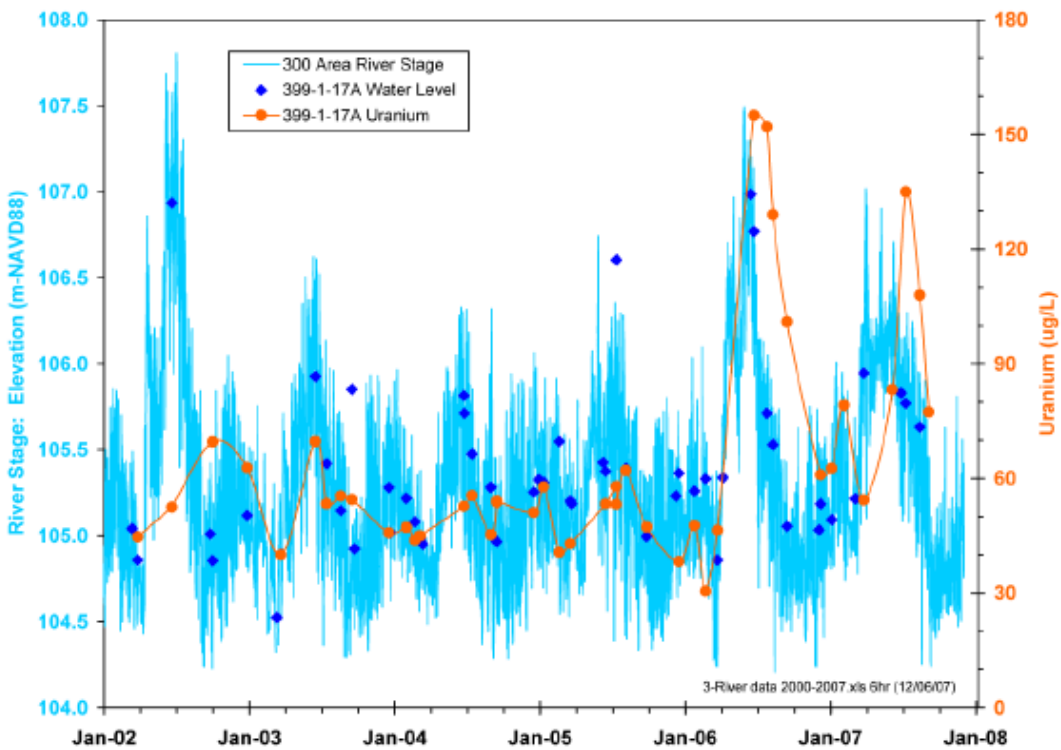


Figure 2-1. Columbia River Stage Fluctuations and Effect on Water Levels and Dissolved Uranium Concentration at Well 399-1-17A

- The seasonal river stage fluctuations lead to changes in the flow direction within the aquifer. Considerable variability in the flow direction also exists spatially as well within the same season. Changing flow directions can cause redistribution of uranium in the aquifer as well as in the periodically rewetted zone above the water table.

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- Effect of variably-saturated conditions need to be considered in the modeling. The river stage fluctuations can temporally and spatially increase the water saturation and vary the chemical conditions that can lead to variable transport of uranium. Therefore a coupled vadose-zone and saturated-zone flow and transport needs to be considered.
- The change in groundwater chemistry (i.e., alkalinity) within the unconfined aquifer due to mixing of groundwater with river water needs to be considered in the context of adsorption/desorption of uranium.
- Due to variable flow and chemical conditions the sorption/desorption of uranium may be kinetically limited and full equilibrium may not be established between dissolved and sorbed mass of uranium. The modeling should consider evaluating both equilibrium and non-equilibrium (kinetic) sorption.

The Pacific Northwest National Laboratory (PNNL) developed flow and transport simulator STOMP (Subsurface Transport Over Multiple Phases) (PNNL-15782) was selected to develop the uranium transport model as the above mentioned FEPs can be incorporated in the simulator.

The steps utilized in the development of the model and its application include:

1. Construct representative two-dimensional (2-D) models for the 300-FF-5 OU using site-specific descriptions of the local physical and hydrogeologic conditions,
2. Calibrate the groundwater flow and transport model (river-tracer model) to selected measured water levels and observed groundwater/river water mixing (electrical conductivity as the conservative tracer),
3. Conduct alkalinity mixing simulations (alkalinity model) to capture the spatial and temporal change in water chemistry due to groundwater/river water mixing,
4. Develop an empirical relationship that defines the partition coefficient (K_d) for uranium between the aquifer material (Hanford formation) and water as a function of alkalinity, based on laboratory experiments conducted with 300 Area specific sediment samples and equivalent water chemistry,
5. Develop the non-equilibrium (kinetic) uranium desorption rate based on laboratory experiments conducted with 300 Area specific sediment samples and equivalent water chemistry,
6. Develop a three-dimensional (3-D) solid geologic model of the unconfined aquifer in the 300 Area,
7. Develop the 3-D distribution of the uranium groundwater concentrations within the 300 Area unconfined aquifer using current groundwater monitoring results,
8. Develop the 3-D distribution of uranium soil concentrations within the 300 Area subsurface using all available soil sample analysis results,
9. Develop the information and method for extrapolating uranium soil concentrations from <2-mm grain size fraction to field-textured soil (gravel correction) and for determining the labile fraction,
10. Implement the gravel-corrected labile uranium distributions as initial starting conditions for the selected 2-D cross-sections modeled using STOMP,

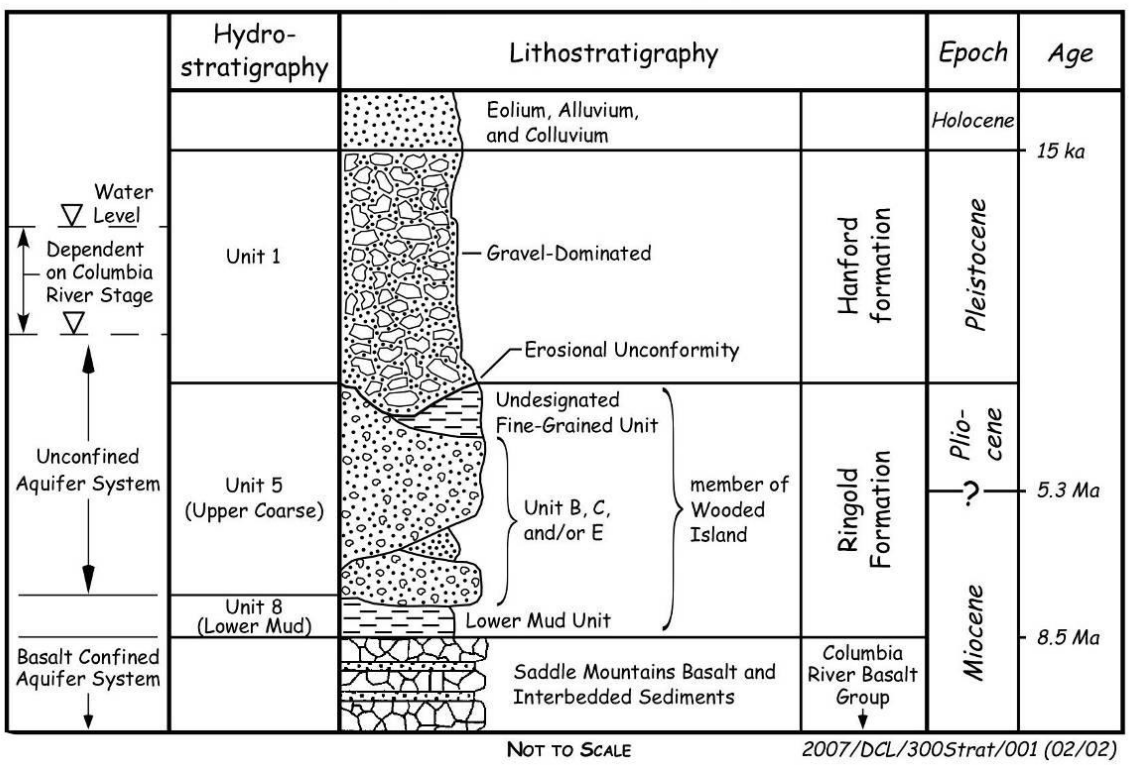
11. Exercise the 2-D uranium transport model to calculate the change in soil and groundwater uranium concentrations over time for the No-Action scenario and for selected remedial alternatives, and
12. Post-process and reduce the simulation results to produce usable graphic presentations of the simulation in meaningful units.

3 Assumptions and Inputs

This section provides all the relevant assumptions and inputs necessary to perform the calculation, including a very brief explanation of the basis for each.

3.1 Hydrostratigraphy of the 300 Area

This section describes the hydrostratigraphic units within the 300 Area subsurface that are relevant to the 300-FF-5 OU shallow unconfined aquifer system. This information was summarized from the 300 Area Remedial Investigation/Field Study (RI/FS) Work Plan (DOE/RL-2009-30). Figure 3.1 provides the principle hydrostratigraphic features of 300 Area.



Source: Figure 2-17 from DOE/RL-2009-30

Figure 3-1. Hydrostratigraphic Column for the 300 Area

3.1.1 Ringold Formation: Lower Mud Unit

The Ringold Formation Lower Mud Unit is an aquitard which underlies the shallow unconfined aquifer within the 300-FF-5 OU. This unit is comprised of silty clay to silty sand sediments. The Lower Mud unit

has very low permeability and separates the shallow unconfined aquifer from the underlying Columbia River Basalt Group.

3.1.2 Ringold Formation: Coarse Gravel

In the FF-5 OU, the coarse gravel lithofacies of Ringold Formation overlies the Lower Mud Unit. This section is comprised of gravel to silty/sand gravel fluvial sediments. The permeability of this gravel dominated unit is less than the overlying Hanford formation gravel deposits due to a greater percentage of silts and clay, and a greater degree of consolidation.

3.1.3 Ringold Formation: Undesignated Finer-Grained Interval

In the 300 Area, a finer-grained interval of sediment is located intermittently within the upper portion of the Ringold Formation at the contact with the overlying Hanford formation. This lithofacies is comprised of sediments ranging in grain size from silt to coarse-grained sand. Where present, this facies acts as a barrier to vertical flow and contaminant migration.

3.1.4 Hanford Formation

The Hanford formation overlies the Ringold Formation and is comprised of mainly pebble to boulder sized gravel with a matrix of poorly sorted fine to coarse grained sand and silt. Within the 300 Area, the water table is located within the Hanford formation. The hydraulic conductivity of the Hanford can be over several orders of magnitude greater than the Ringold Formation so most of the flow within the unconfined aquifer is attributed to the Hanford formation gravels.

3.1.5 Surface Deposits

Overlying the Hanford formation is 1 to 6 m of eolian silt, rework sandy gravels from the Hanford formation, or surface fill from site operations. Three surface soil types have been identified within the 300 Area. These are the Ephrata Sandy Loam, Burbank Sandy Loam and Rupert Sand (PNNL-14702 Rev. 1). Prior to recent demolition actions conducted within the 300 Area, a large portion of the 300 Area was covered by industrial operations (buildings, foundations, roads, etc…) thereby limiting the areal coverage for recharge.

3.1.6 Solid Model

Leapfrog Hydro™[1] V1.3 (ARANZ Geo Limited, 2010) software was used to create a 3-D solid hydrogeologic model within the 300 Area (Figure 3-2). Hydrostratigraphic data was compiled for the 300 Area from two main sources: the hydrostratigraphic unit (HSU) database maintained by Freestone (version updated 12/15/2009, ECF 200BP5-10-00344, Rev 0) and Table 4.1 of PNNL-17034. Additional borehole log data, in draft form, were provided for the following new RI wells: 399-1-55, 399-1-56, 399-1-57, 399-1-58, and 300-2-32. The HSUs detailed in the 3-D model include the following designations: Hanford, Ringold Fine Grained, and Ringold E. Leapfrog Hydro uses radial basis functions to interpolate contact surfaces between units based on the HSU data. The units between contact surfaces are then assigned a user-specified HSU to create the 3-D layered model. Cross-sections were extracted from the 3-D model and used to produce the 2-D STOMP flow and transport model grids. The 2-D grids were truncated vertically above the mud to reduce the computational nodes in the model. This was justified since contamination was not observed in the lower parts of Ringold E and flow within the unconfined aquifer is predominantly in the Hanford formation.

[1] Leapfrog Hydro is a trademark of ARANZ Geo Limited, Christchurch, New Zealand.

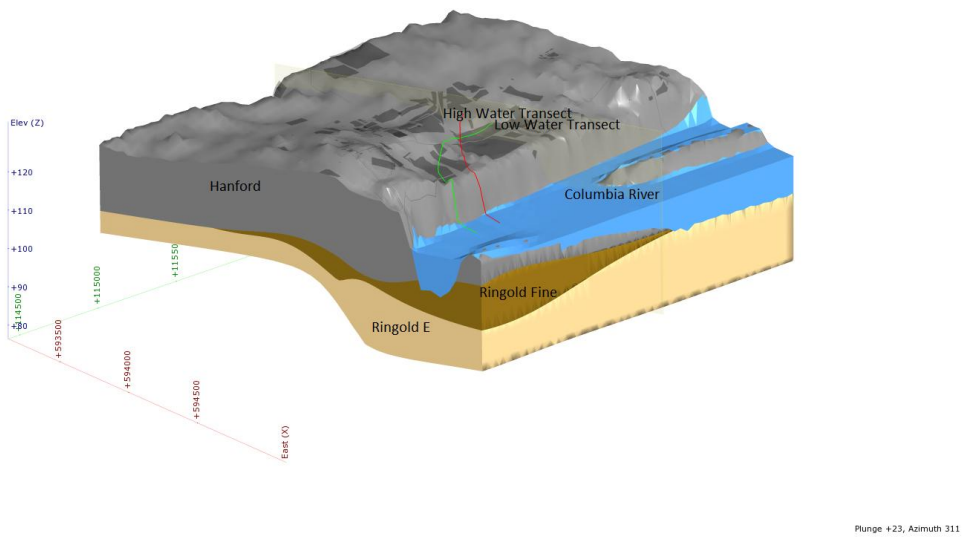


Figure 3-2. 300 Area Solid Model Developed using Leapfrog Hydro

3.2 Development of 2-D Model Domain

The seasonal river stage fluctuations lead to changes in the flow direction within the aquifer. Considerable variability in the flow direction also exists spatially as well within the same season. To evaluate the changes in flow direction water table maps were created for each month of Year 2009. The water level elevations for the wells were taken from HEIS by selecting a specific date for each month when data from maximum number of wells were available. Limiting the dataset to a specific date of measurement reduces the temporal variability that is introduced by the short-term (hourly) variable discharge through the Columbia River. The water table maps were generated by interpolation using the ordinary kriging geostatistical technique. The results for the month of June 2009 (high water-table) and December 2009 (low water-table) are shown in Figure 3-3 along with dissolved uranium concentration in groundwater. An inferred flow path is shown for both months for flow south of the Process Trench (316-5 waste site), the area that is known to have high sorbed uranium concentration in the vadose zone and a potentially big contributor of uranium mass to the groundwater. The comparison of flow paths among the two months indicate that the flow direction is northwest-southeast in June 2009 (high water-table) and changes to more southerly direction in December 2009 (low water-table). The flow paths in other months fall between the two flow directions but seem to be closer to the June 2009 flow path. The variability in flow direction can result in the extent of mixing of river water and groundwater, which influences the alkalinity variation in the aquifer and thereby the uranium mobility (based on K_d).

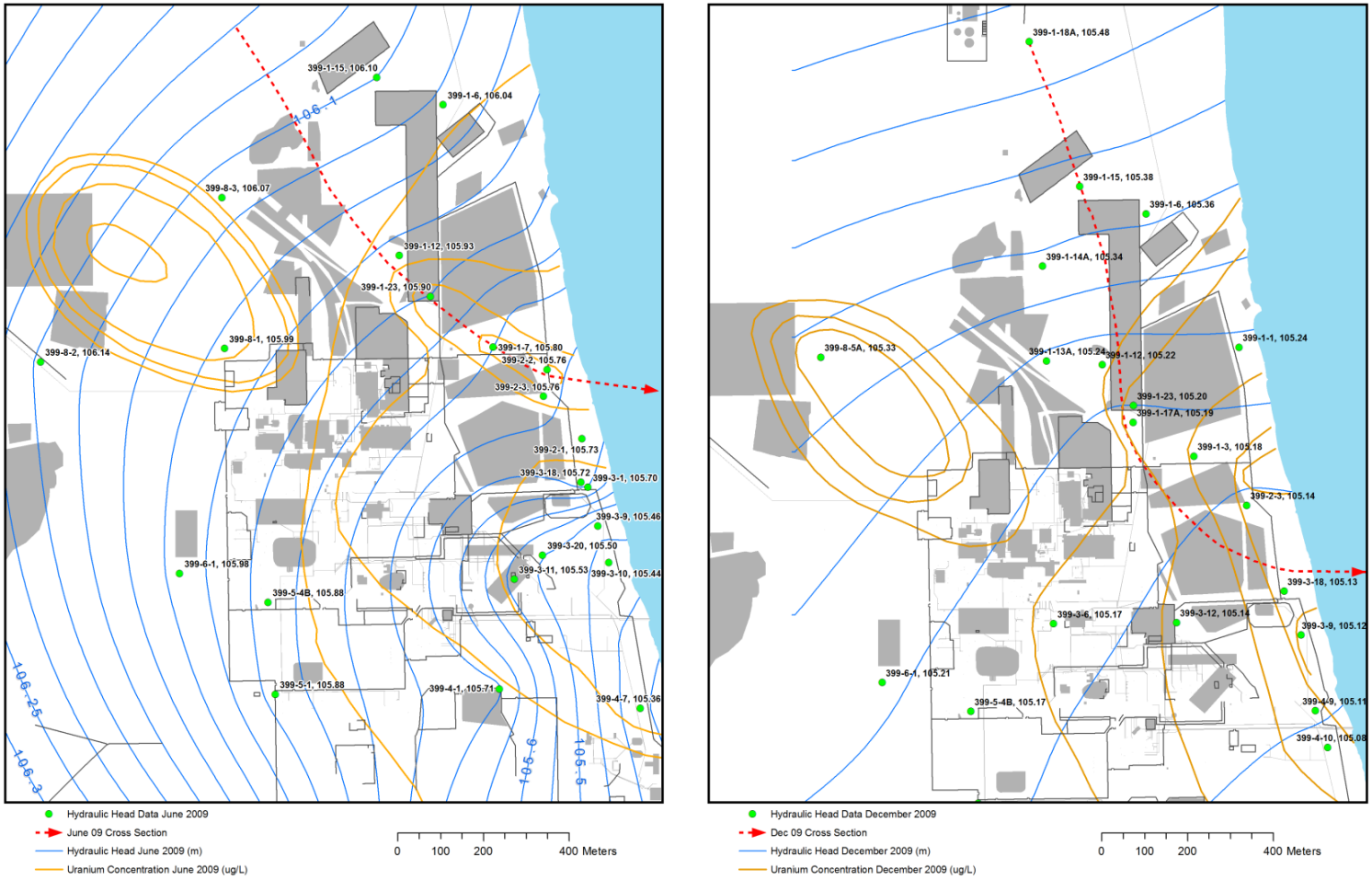
To evaluate the influence of mixing of river water and groundwater under seasonally variable flow directions, 2-D cross-sectional modeling was performed separately along predominant flow path for June and December. These two months encompass the range in flow path variation and thus evaluating the effect of mixing among these flow paths can lead to understanding of uranium transport over time.

Two transects were chosen to represent cross section models of the 300-FF-5 OU. The June-North transect was determined from the evaluation of high water levels and uranium groundwater

concentrations in June 2009 (Figure 3-3a and c). This transect was designed such that it followed a flow path that intersected the highest concentrations of the uranium groundwater concentration plume. Laterally the flow model domain extends from the vicinity of well 399-1-13A curving southeast towards the Columbia River. The transect skirts the southern sides of the Process Trenches and North Process Pond before ending beneath the Columbia River.

The December-North transect represented low water level conditions observed during the fall and winter months and was determined based on water levels and groundwater uranium concentrations in December 2009 (Figure 3-3b and c). This transect extended from the vicinity of well 399-1-4 heading mostly southward through the Process trench. It intersects the June-North transect before curving eastward toward the river where it continues through the South Process trench before terminating beneath the Columbia River.

The model domain and finite-difference grid chosen for both transects is shown in Figures 3-4 and 3-5. Vertically both models extended from ground surface into the Ringold Unit E or fine grained formations. The vertical grid spacing was chosen to be 0.5 m. Horizontally, the grid spacing varied from 1.0 to 5.0 m. A horizontal grid spacing of 1.0 m was assigned in the vicinity of the river boundary to provide better resolution in describing the river alluvium adjacent to the river. A grid spacing of 2.0 m was assigned in the vicinity of the high soil uranium concentrations near the southern end of the Process Trench. Elsewhere the grid spacing was 5.0 m with the grid spacing transitioning between the smaller and larger cells by increasing cell size by no more than 1.5 times the adjacent cell size. A maximum grid spacing (Δx) of 5.0 m spacing was determined based on the Peclet number ($Pe = \Delta x/\alpha L$) with a maximum Pe of 10 and a dispersivity of 0.5 m (William et al.,2008). Ultimately the maximum Peclet number was less than 1.0 based on the calibrated longitudinal dispersivity of 8.75 m.



(a) (b)

Figure 3-3. Plan-view Maps Showing the Water-level Contours (blue lines), the Dissolved Uranium Groundwater Concentrations (orange lines) and the Inferred Flow Paths for (a) June 2009 and (b) December 2009, and (c) Displays Final Modeled Transects Relative to Well Locations

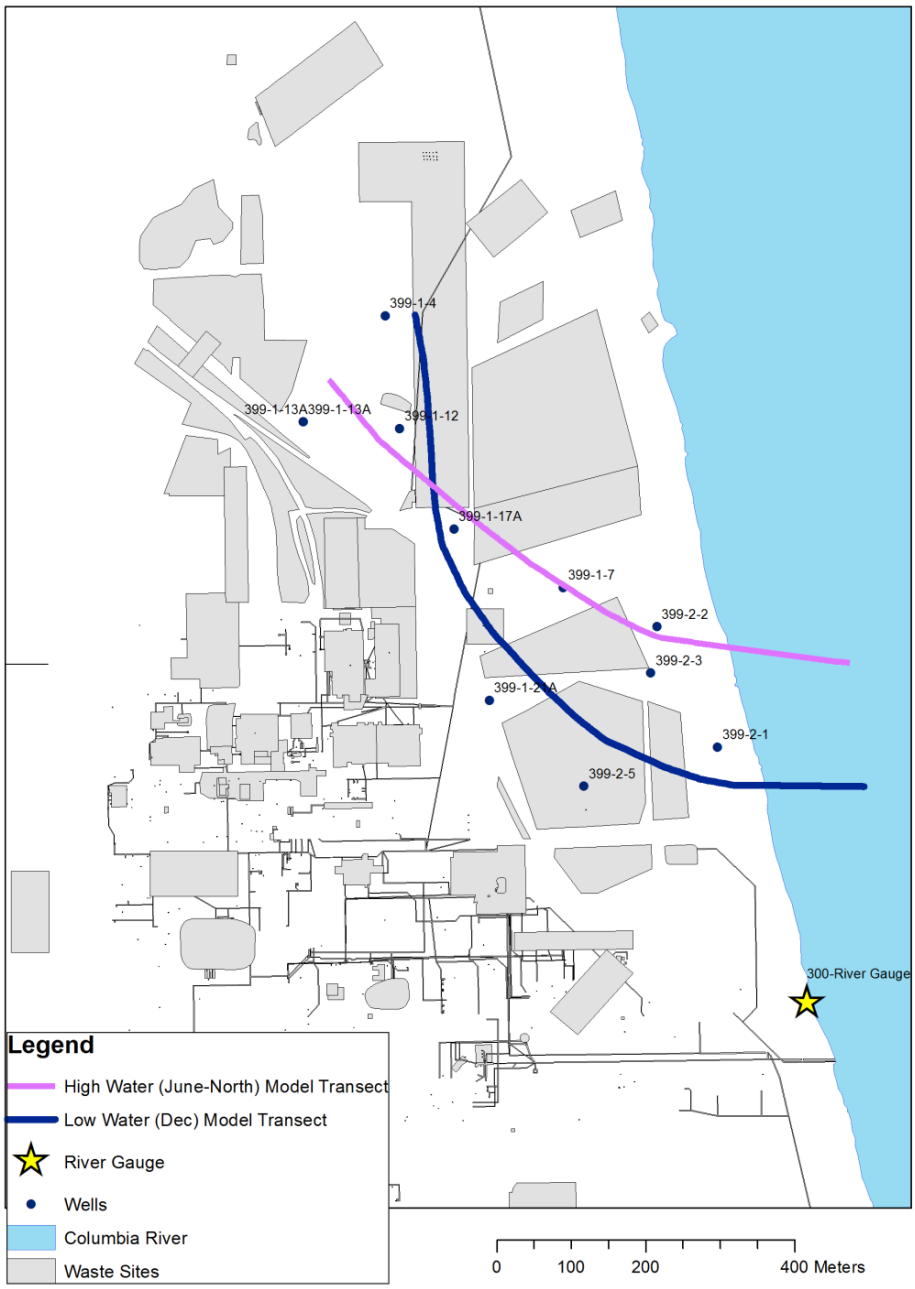


Figure 3-3 (continued). Plan-view Maps Showing the Water-level Contours (blue lines), the Dissolved Uranium Groundwater Concentrations (orange lines) and the Inferred Flow Paths for (a) June 2009 and (b) December 2009, and (c) Displays Final Modeled Transects Relative to Well Locations

3.3 Processes simulated and limitations

The 300-FF-5 OU groundwater flow and uranium transport model simulates the following processes:

- Variably saturated flow,
- Transient hydraulic boundary conditions,
- Advective transport,
- Dispersive transport
- Diffusive transport, and
- Sorption of uranium.

Separate transport models were developed to address the sensitivity of uranium transport to equilibrium and kinetic (non-equilibrium) sorption models.

Fluid density variations due to fluid chemistry, contaminant concentrations, or temperature variations are assumed to be negligible.

The limitations to the calculation follow from the governing equations, boundary conditions, initial conditions, parameter values, and discretization employed in the model development. The calculation results are dependent on the current understanding of these components. Hence, discovery of new data regarding these components may cause the models and their results to change. For example, new data about the lithology and hydraulic properties of an area of concern could require changes to the grid discretization, hydraulic property distribution, and initial condition. An additional limitation results from the usage of a 2-D model to simulate the groundwater flow and transport in a 3-D system. The selection of the 2-D model transect location limits the usage of the modeling results to the transects. The extrapolation of the calculation results to other areas within the 300 Area will be uncertain given the differences in flow direction and uranium source term.

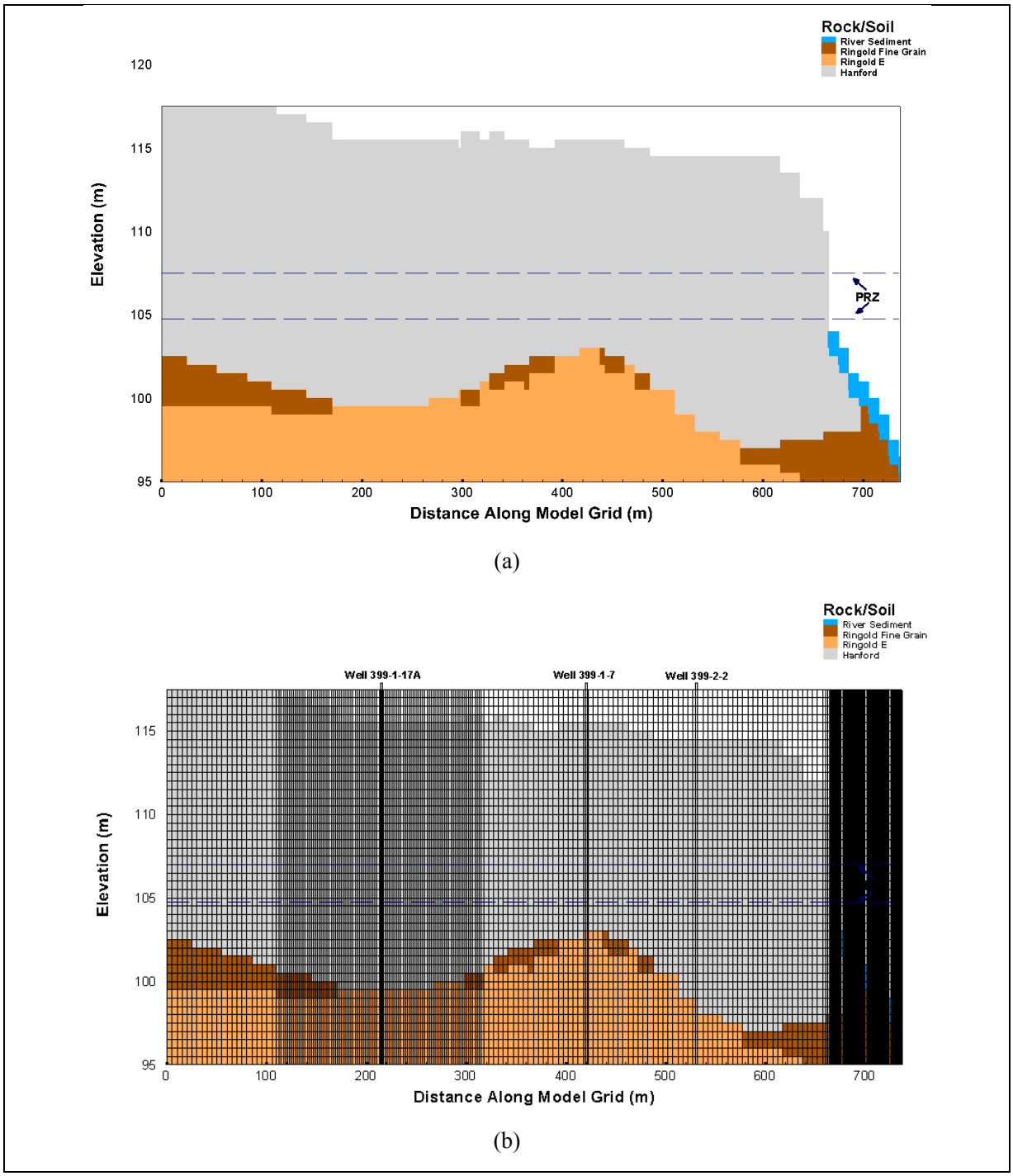


Figure 3-4. Model Domain for the June-North (high water) Transect showing the (a) Assigned Hydrostratigraphy and (b) Overlain with the Model Grid

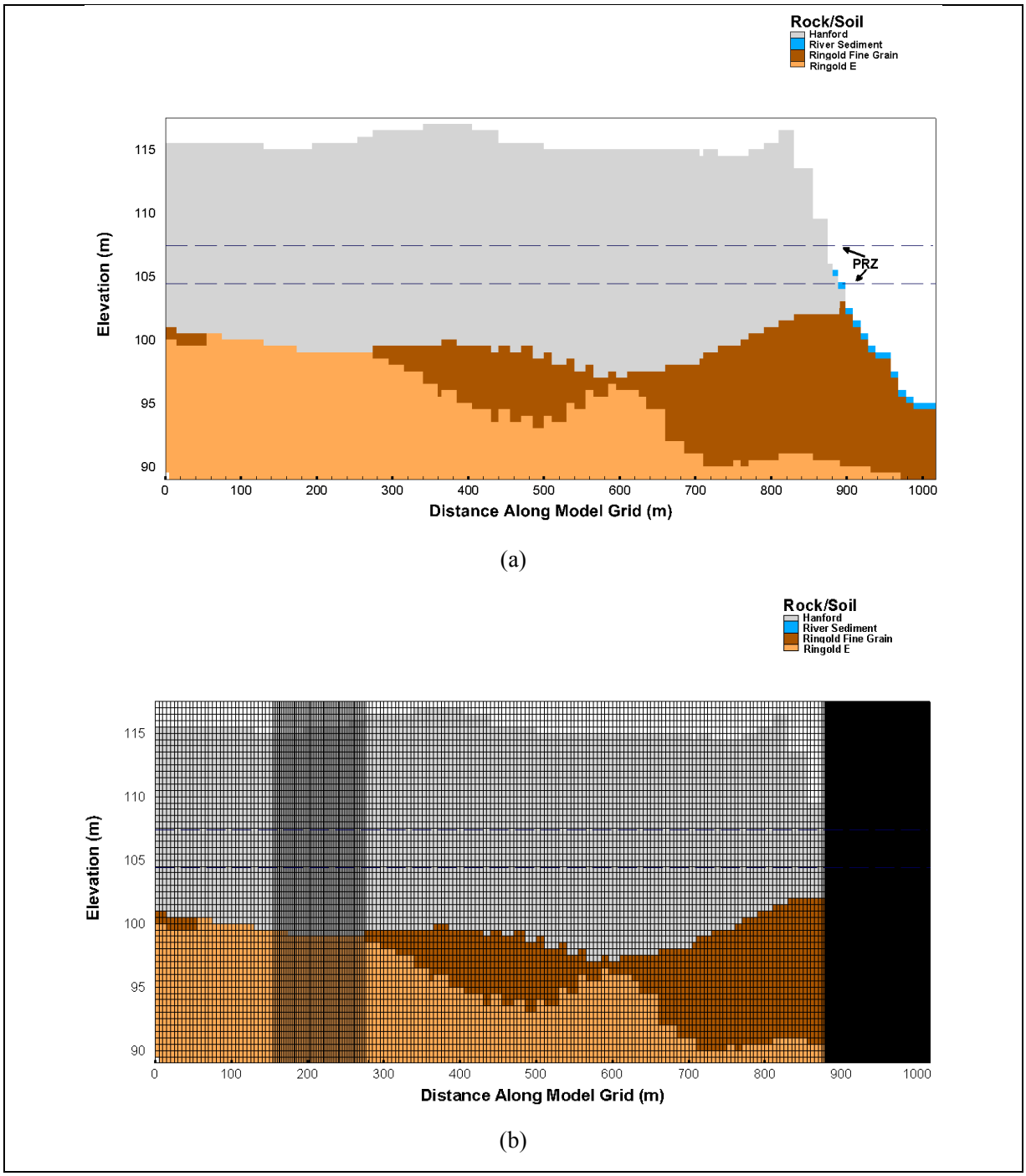


Figure 3-5. Model Domain for the December-North (low water) Transect showing the (a) Assigned Hydrostratigraphy and (b) Overlain with the Model Grid

3.4 Groundwater Flow

3.4.1 Boundary Conditions

3.4.1.1 Recharge

The aerially-applied recharge rate was based on the analysis reported in PNL-10285 of lysimeter drainage at the South Caisson located in the Buried Waste Test Facility of the 300 North Area over the period July 1985 to June 1993. Over the 8-year period of record, the recharge ranged from 2.4 to 11.1 cm/yr with an average of 5.54 cm/yr. Drainage data from the lysimeter reflects a non-vegetated cover and medium to coarse sand. The recharge boundary condition in the model was specified as a Neumann (specified flux) boundary condition with a flux rate of 5.54 cm/yr.

3.4.1.2 River Stage

Columbia River stage is a major driver in the hydrologic system in the 300 Area. Changes in Columbia River stage reflect the release of water upstream at the Priest Rapids Dam to meet electric power demand. The seasonal cycle in river stage is related to the timing and volume of snowpack and snowmelt in the watershed with lower river stages typically occurring during fall and winter. The average range of diurnal fluctuations is ~0.5 m. At >1,000 m inland from the river, this diurnal river fluctuation is larger than the average piezometeric head drop of ~0.2 m resulting in twice daily groundwater flow reversals (Yabusaki et. al., 2008). Weekly, daily, and sub-daily cycles are also evident from the river stage data.

Hourly Columbia River stage data from the river stage recorder in the 300 Area (SWS-1) were used to set a time-varying hydrostatic pressure at the river boundary. The SWS-1 gage is located on the west bank of the Columbia River slightly south of the transect lines (see Figure 3.3c). The river stage data was collected manually beginning in 1991 at approximately at monthly intervals until collection of automated hourly measurements began in January 2004. The river stage data were implemented in the model by averaging the hourly data over a daily cycle for the period starting from January 1, 2008 through December 31, 2009 (2008-2009) (Figure 3-6). Over this time period, the minimum and maximum river stage was 104.3 m and 107.6 m, respectively. The median stage over this time period was 105.1 m. During initial model development, simulations were run with hourly, daily, and monthly boundary condition intervals. Monthly-averaged boundary conditions were shown to produce too much error in terms of simulated heads when compared to heads at groundwater monitoring wells. The daily-averaged boundary conditions resulted in insignificant error such that all further simulations were carried out with daily boundary condition intervals as opposed to hourly boundary conditions that resulted in much longer run times.

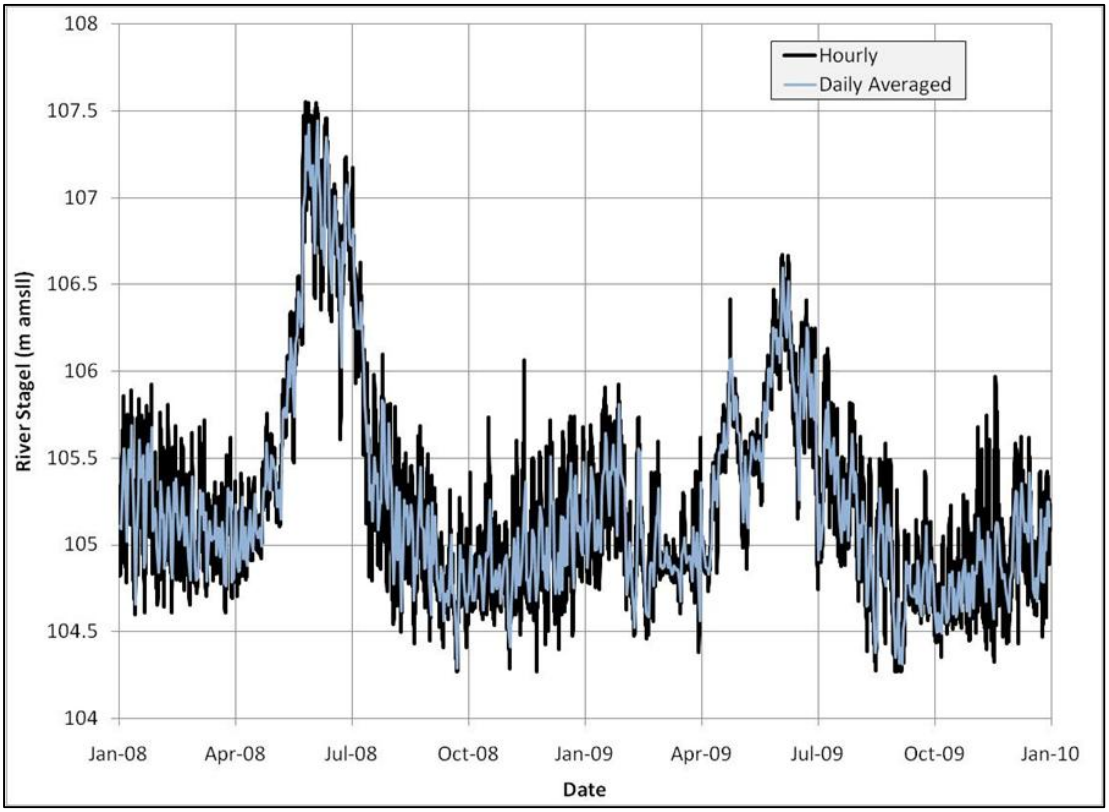


Figure 3-6. Comparison of the Hourly and the Daily Averaged River Stage Data for the Columbia River at the 300 Area.

3.4.1.3 Automated Water Level Network

Hourly water-level measurements from the automated water level network (AWLN) were used to assign flow boundary conditions on the in-land edge of the model grid. There are 27 AWLN gages in the 300 Area, some of which were used for model evaluation. Most of the AWLN gages in the 300 Area began recording in January of 2008 which resulted in the decision to select the 2008-2009 time period as the representative model period.

The water level data at AWLN gage 399-1-13A, the well located closest to the inland end of the June-North 2-D model grid (Figure 3-3c), was used to set time-varying hydrostatic pressures at that boundary (Figure 3-7). The inland boundary condition for the December-North model grid was based on a combination of water level data from nearby wells (399-1-4, 399-1-12, and 399-1-4) as shown in Figure 3-3c . This is because the closest well 399-1-4 is not part of the AWLN and therefore daily water level dataset was not available. During the months of February through October (representing relatively high water table) daily boundary conditions from well 399-1-13A were used. During the months of November through January (representing low water table) the water levels from downgradient well 399-1-12 modified by a constant +0.12 m were used. The 0.12 m correction was based on comparing the trends between the measured water levels for 399-1-4 and 399-1-12 and taking the average offset. The final modified water level time series along with the contributing time series are shown in Figure 3-8. This method resulted in better water level and tracer concentration matches when compared to using only one set of data from any single well.

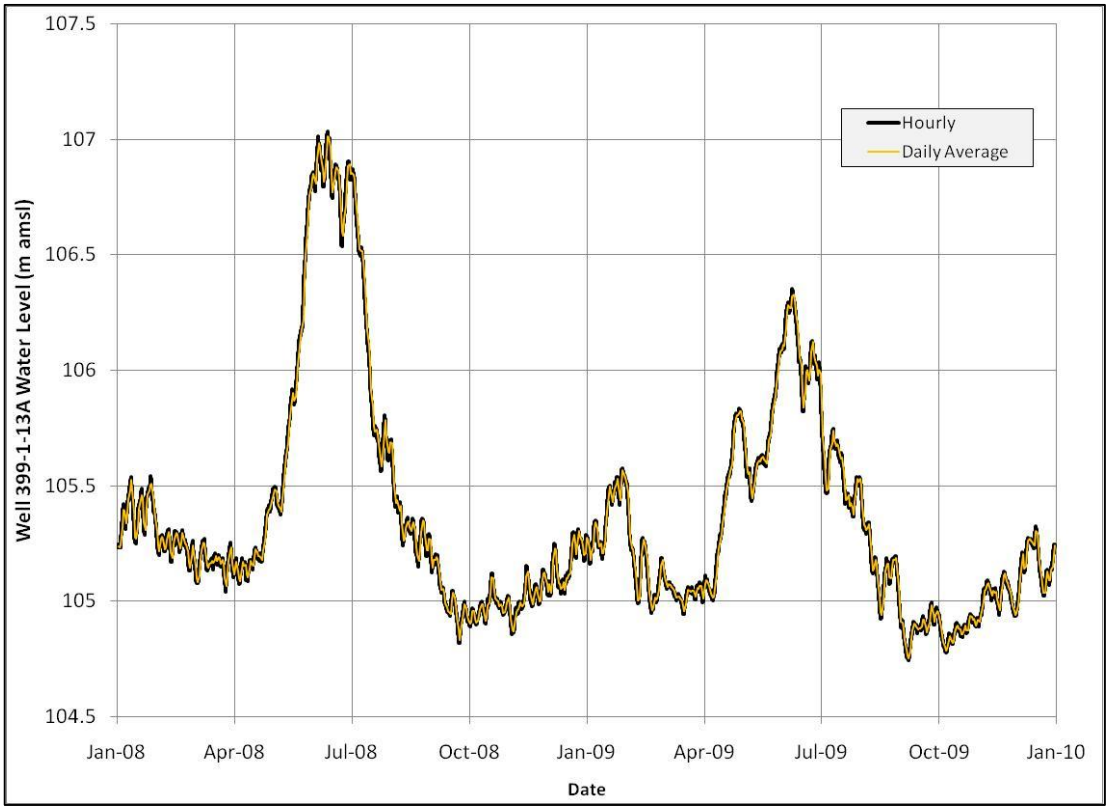


Figure 3-7. Comparison of the Hourly and the Daily Averaged Water Level Data for Well 399-1-13A

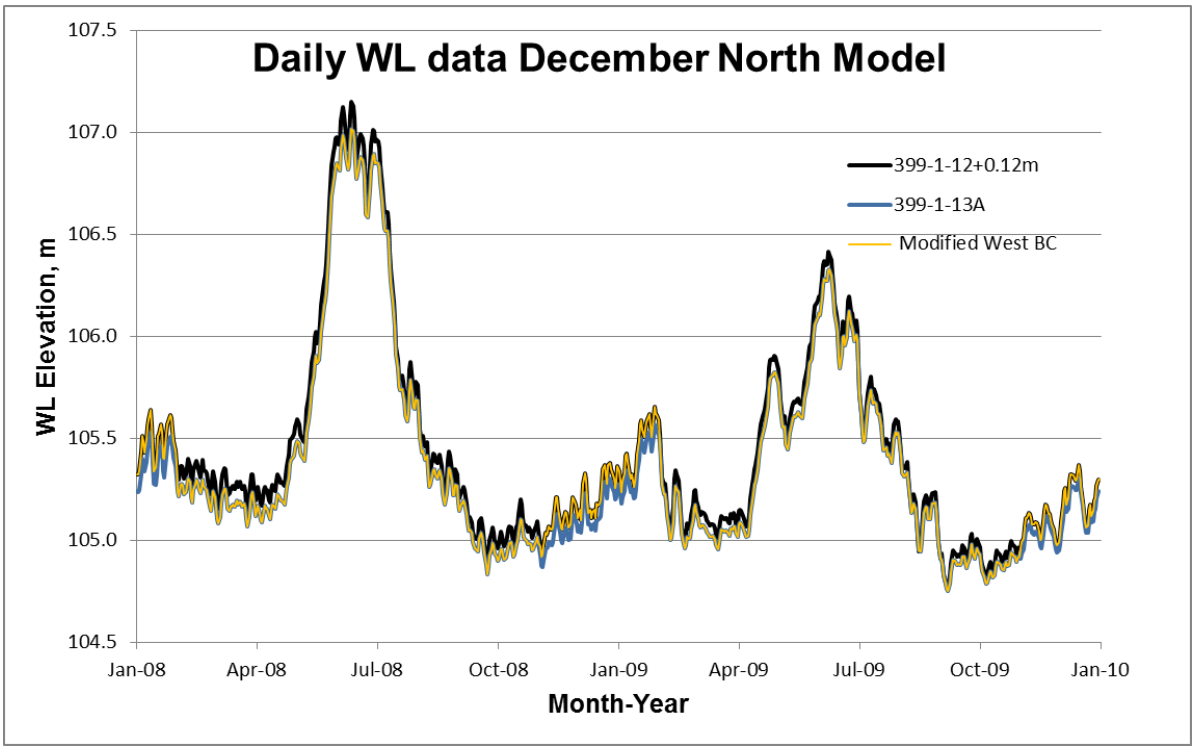


Figure 3-8. Water Level Data at Well 399-1-12 and Modification for the December-North Model Inland Boundary Conditions

The hourly water levels for both models were averaged over a daily time-step for the 2008-2009 period as was done for the river stage data. As with the river stage data, the model was run with hourly, daily, and monthly boundary condition intervals with daily boundary conditions considered the best option. Results using daily averages indicate that, at the position of well 399-1-17A in the June-North (high-water) model, the difference in simulated water levels using hourly and daily boundary condition specifications was minimal relative to the vertical model discretization, on the order of 2 to 6 cm. Daily boundary conditions were found to adequately capture the transient nature of the data without prohibitively long simulation run times.

Over the 2008-2009 simulation time period the minimum and maximum water levels at 399-1-13A were 104.8 m and 107.0 m, respectively. The median water level over this period was 105.2 m. The period of sustained high water levels generally occurs during the months of May through August.

3.4.2 Simulation Periods

Simulations were initially conducted over the 2 year period from January 1, 2008 through December 31, 2009. This period coincides with complete water level data sets available for the inland and river model boundaries from well 399-1-13A and the river gage, respectively. Additional wells along or close to the cross section also had complete or nearly complete data sets for the same 2 year period that were useful in the calibration process. Of the 2008-2009 period, 2008 exhibits the highest river stage and corresponding aquifer water levels while the maximum river stage and aquifer water levels measured in 2009 are lower. High water levels are thought largely responsible for the interaction of groundwater with labile uranium soil concentrations towards the top of the periodically wetted zone (PRZ). This in turn is surmised to be

responsible for generating periodic pulses to the uranium groundwater plumes with concentrations exceeding 60 to 90 μg/L. The high river stage during summer of 2009 is lower than that observed in 2008 such that groundwater does not intersect soils near the top of the PRZ containing higher soil uranium concentrations. Thus the use of data from the 2008-2009 period provides a sampling of different flow behaviors and resulting uranium transport in the aquifer.

3.4.3 Initial Hydraulic Head Distribution

The 2-year simulation period was run in a cyclic fashion for the three different models developed: the river-tracer model, the alkalinity model, and the uranium transport model. Initial heads for the river-tracer model were established by setting boundary pressures from observed data at the east and west model boundaries. These boundary conditions were based on a hydrostatic head distribution. The river-tracer model was run for 5 cycles (10 years) in order to remove any effects of the initial condition and to establish an initial head condition for subsequent model simulations. Heads in the model rapidly equilibrated and initial conditions were seen to diminish within the first 2-year cycle. Based on the rapid equilibration of the flow system, the alkalinity model was run for 2 cycles (4 years) using the final head distribution from the 10 year river-tracer model as initial heads. Running the alkalinity model for 2 cycles (4 years) allowed equilibration of the initial alkalinity distribution. The uranium transport model also used the final heads from the 10 year river-tracer model as initial heads. In order to extend the uranium transport model run time, the 2-year simulation cycle was repeated for 100 cycles for a total of 200 years.

Initial heads for the start of a new 2-year model cycle were taken from the final restart file of the previous 2-year cycle. The restart file was accessed by STOMP using the 'Restart' option in the Solution Control Card of the STOMP input file (PNNL-15782).

3.4.4 Flow and Transport Parameters

Four different material property zones were characterized for the hydrologic system: (1) Hanford formation gravel and sand, (2) Ringold Unit E gravel and sand, (3) undesignated fine grained subunit of the Ringold Formation consisting of gravel, sand, and silt, and (4) river alluvium representing the hyporheic zone of the Columbia River. The Hanford formation gravel and sand zone was further divided into saturated and vadose zones for purposes of assigning different dispersivities. Groundwater flow and transport parameters used in the model include:

- Hydraulic conductivity
- Dispersivity
- Porosity
- Particle density
- Saturation-pressure and relative permeability relationships
- Molecular diffusion
- Specific storativity

3.4.4.1 Hydraulic Conductivity

The hydraulic conductivity of the Hanford formation has been reported to be difficult to determine from aquifer testing due to its highly transmissive nature. Constant rate aquifer tests conducted at wells screened in the Hanford formation within the 300 Area resulted in values of horizontal hydraulic conductivity ranging from approximately 980 m/d to 15,000 m/d (WHC-SD-EN-TI-052). Re-evaluation

of these tests (William et al., 2008) identified recharge boundary effects in some cases leading to unreliable results. Aquifer test results with hydraulic conductivities >5,000 m/d were considered uncertain due to the low drawdown obtained during the tests (<0.1 m) making accurate analysis difficult. Horizontal hydraulic conductivity of the Hanford formation are reported for previous 2-D and 3-D numerical modeling studies: 2,000 to 10,000 m/d (PNNL-17708), 1,500 m/d (Yabusaki et al, 2008), and 7,000 m/d (Ma et al., 2010). Hydraulic conductivity for the Hanford formation was adjusted as part of the model calibration.

Hydraulic testing of the Ringold formation gave reliable horizontal hydraulic conductivity estimates of between 2 and 51 m/d (PNNL-17708). Of these estimates, horizontal hydraulic conductivity of 42 m/d was reported in WHC-SD-EN-TI-052 for pumping tests conducted at well 399-1-16A while an averaged result of 43.25 m/d was reported by Swanson (1992) for pumping tests conducted further from the current study but within the 300 Area (see PNNL-17708). In previous 2-D and 3-D numerical modeling studies the assigned Ringold E hydraulic conductivity value ranges from 15 m/d (Yabusaki et al., 2008) to 40 m/d (PNNL-17708 and Ma et al., 2010). A horizontal hydraulic conductivity of 42 m/d was assigned to the Ringold E and was not adjusted during model calibration.

The Ringold fine grained unit was previously simulated with an assigned hydraulic conductivity between 1 m/d (PNNL-17708; Ma et al., 2010) and 1.5 m/d (Yabusaki et al., 2008). Previously 3-D modeling assigned a horizontal hydraulic conductivity of 1 m/d to the Ringold fine grained unit (PNNL-16435). The Ringold fine grained was assigned a hydraulic conductivity of 1 m/d and was not adjusted during model calibration.

The hydraulic conductivity of alluvium in the hyporheic zone of the Columbia River adjacent to the 300 Area has been estimated between 0.63 and 103.68 m/d (Fritz and Arntzen, 2007) based on slug tests conducted in nine piezometers with depths to top of screen ranging from 19 to 180 cm. Hydraulic conductivities were shown to be smaller near the water-sediment interface and increasing exponentially with depth. An effective vertical hydraulic conductivity was determined for three of the piezometers and ranged from 0.37 to 7.0 m/d. Based on the hyporheic zone study, the thickness of the river alluvium was modeled at 1 m vertically and 2 m horizontally in the June-North model and 1 m horizontally and 0.5 m vertically in the December-North model. Hydraulic conductivity of the river alluvium was adjusted as part of model calibration.

The vertical hydraulic conductivity of the Hanford and Ringold formations were set to 0.01 times the horizontal conductivity which is consistent with previous groundwater modeling studies that assume the vertical hydraulic conductivity of the Hanford and Ringold range from 0.01 to 0.1 times the horizontal conductivity (PNNL-16396; PNNL-17708; Yabusaki et al., 2008). The river alluvium was simulated as isotropic. The previous study that explicitly simulated river sediments, the PNNL-17708 study, also used an isotropic conductivity.

3.4.4.2 Dispersitivity

The initial longitudinal dispersivity used in the models was 8.75 m for the Hanford and Ringold Unit E. A dispersivity of 8.75 m reflects the value derived using the weighted least squares method of Xu and Eckstein (1995; EPA, 2011) based on the approximate plume length. The longitudinal dispersivity was set to 1.0 m for both the Ringold fine grained and the river alluvium units. These values are comparable to previous modeling studies that assigned values of 1 m to 3 m for Hanford longitudinal dispersivity and values of 0.5 to 3.0 m for both Ringold units (PNNL-17708, Ma et al., 2010, PNNL-16396).

For all material property zones, except the Hanford vadose zone, the vertical transverse-to-longitudinal dispersivity ratio was set to 0.01 during calibration of the model. Previous modeling studies at Hanford

have set the transverse-to-longitudinal dispersivity ratio from 0.01 to 1.0 (PNNL-16396, PNNL-17708, Ma et al., 2010). Dispersivity parameters were adjusted for the Hanford and Ringold Unit E units during calibration. Longitudinal dispersivity for the Hanford vadose zone (above the PRZ) was set at one-tenth of Hanford formation longitudinal dispersivity while the transverse dispersivity remained unchanged. This was done because the dispersivity in the unsaturated media is typically less than that in the saturated zone.

3.4.4.3 Porosity

Total porosity refers to both isolated and connected pore space. Diffusive porosity refers to the connected pore space and is the porosity through which flow and transport occurs in the model. For purposes of assigning values of diffusive porosity in the model, the diffusive porosity was assumed equal to values of total porosity listed in the literature. Total and diffusive porosity was specified as 0.177 cm^3/cm^3 for the Ringold Formation units and the river alluvium (PNNL-14702 Rev. 1, Table 4.5, Soil Class Rg). Porosity for the Hanford formation was specified as 0.167 cm^3/cm^3 (PNNL-14702 Rev. 1, Table 4.5, Soil Class Hg).

3.4.4.4 Particle Density

The bulk density for the Hanford formation was taken as 2.23 g/cm^3 and reflects the modal value of measurements for sandy gravel at the 300 Area (PNNL-17708, Table A.3). A bulk density of 2.23 g/cm^3 is also reasonable given the range of bulk densities for Hanford coarse gravel of 1.56 to 2.42 g/cm^3 for a gravel content ranging from 50% to 85% respectively (PNNL-14702 Rev. 1, Table B-21). The particle density for the Hanford formation was 2.68 g/cm^3 based on a porosity of 0.167 cm^3/cm^3 and a bulk density of 2.23 g/cm^3.

A particle density of 2.63 g/cm^3 and 2.66 g/cm^3 was reported (William et al. 2008, Appendix A) for the Ringold E and fine grained formations for the 300 Area with an average value of 2.65 g/cm^3 assigned to both of these units in the model. Using a porosity of 0.177 for the Ringold units gives a bulk density of 2.18 g/cm^3 and is nearly identical to the value of 2.17 g/cm^3 for Ringold sandy gravel for 82% gravel (PNNL-14702 Rev. 1, Table B-27).

The particle density of 2.76 g/cm^3 was used to represent the river alluvium (PNNL-17708). Using a diffusive porosity of 0.177 gives a bulk density of 2.27 g/cm^3.

3.4.4.5 Saturation-Pressure and Relative Permeability Relationships

The relationship between capillary pressure and saturation was characterized using the van Genuchten function (van Genuchten, 1980) and the Mualem pore distribution model (Mualem, 1976). In the models developed for the 300 Area, only the Hanford formation has the potential to be variably saturated. The parameters needed to describe the van Genuchten function include the fitting parameters α and n, and the residual water content (θ_r), and n is the fitting parameter used in the Mualem equation. The van Genuchten n parameter and the residual water content (θ_r) were based on laboratory measurements summarized in PNNL-14702 Rev. 1, Table 4.5 for sandy gravel. The α parameter was initially taken as 0.017 1/cm for sandy gravel (PNNL-14702 Rev. 1, Table 4-5). This value was thought to represent too large of an air entry potential and capillary fringe ($\propto 1/\alpha$) for the Hanford gravel. As a result, α was assigned a value of 0.1 1/cm. The default option was used for the van Genuchten m parameter where $m = 1 - 1/n$. The default option was used for the Mualem m parameter where the Mualem m parameter is equal to the van Genuchten m parameter.

3.4.4.6 Molecular Diffusion

The molecular diffusion option used in the model was 'conventional' with a molecular diffusion coefficient of 2.5 x 10^{-9} m^2/s and solute partition option of 'continuous'. The molecular diffusion coefficient was held constant during all simulations and not included as a calibration parameter in the model.

3.4.4.7 Specific Storativity

The specific storativity used in the model was taken as the default value where specific storativity = 1×10^{-7} × diffusive porosity. The specific storativity was held constant during all simulations and not included as a calibration parameter in the model.

3.4.5 Calibration Metrics

3.4.5.1 Flow and Transport Parameters

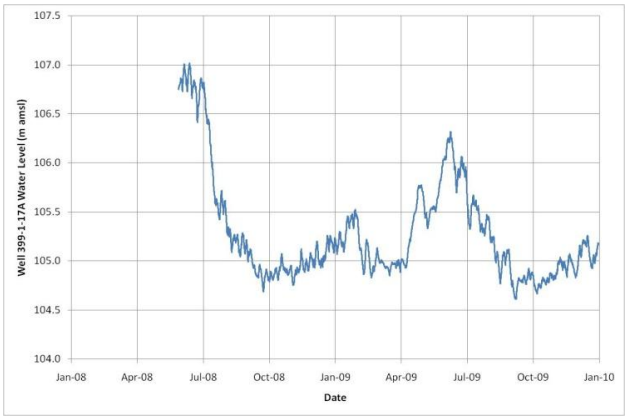
Even though the 2-D cross section models presented herein are not fully capable of completely representing all of the processes that are occurring in the fully 3-D groundwater flow system, the orientation of the models is designed to capture the range in groundwater flow pathways and migration of dissolved uranium towards the river. As such, flow and transport parameters were adjusted such that simulated water level and electrical conductivity (EC) at various well locations along or near the cross section reasonably matched observed values within screened intervals at those wells. Determination of overall fit of simulated to observed water level and EC was done by visual inspection. The EC data was the primary calibration variable since it was the most sensitive to flow and transport parameters that were adjusted during the calibration process. Simulated water levels provided a close match to measured water levels for a wide range of hydraulic conductivity which was the only flow parameter adjusted during calibration.

The wells where water level and EC data were collected and used in the calibration process for June-North model included 399-1-17A, 399-1-7, and 399-2-2 (Figure 3-9 and 3-11). Water level and EC data is nearly complete for these wells with well 399-1-7 having the only significant gaps in the time series in September, October and November 2008. The wells used in the December-North model included 399-2-1, 399-3-18, 399-2-5, and 399-3-21a (Figure 3-10 and 3-12), along with 399-3-17a (Figure 3-9 and 3-11).

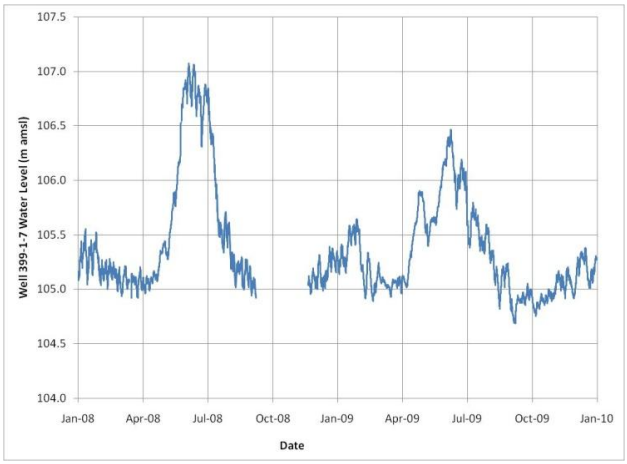
The EC data for each well was normalized in order to make it directly comparable to the simulated river-tracer concentrations ranging from 0 to 1. The data were normalized using the following:

$$EC_{Norm} = 1 - \ EC_{measured} - EC_{min} \quad EC_{max} - EC_{min}$$

where EC_{Norm} is the normalized EC, $EC_{measured}$ is the measured EC, and EC_{min} and EC_{max} are representative minimum and maximum EC values. The minimum EC of 120 microsiemens per centimeter (µS/cm) was observed closest to the river and in all cases was used to represent the river EC. The river EC of 120 µS/cm was determined from minimum EC measured during 2008-2010 at wells 399-2-1 (120 µS/cm) and 399-3-18 (121 µS/cm), both of which are close to the river, and EC measured in the river averaging 123.6 µS/cm (PNNL-11516, Table 4.1). The maximum EC was determined separately for each well and taken as the 95th percentile of the measured data for that well. This approach takes into consideration the spatial variability of groundwater EC.



(a)



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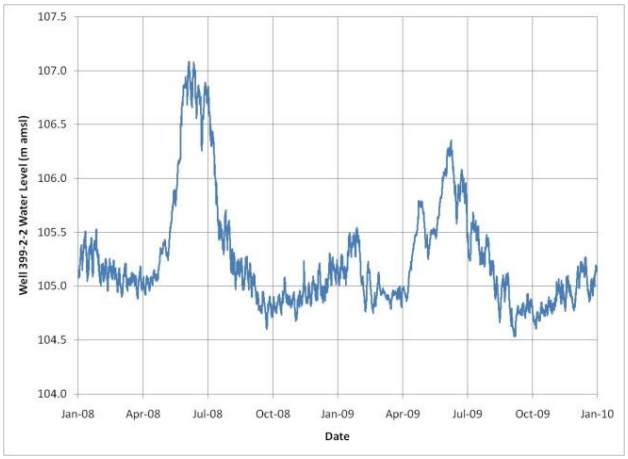
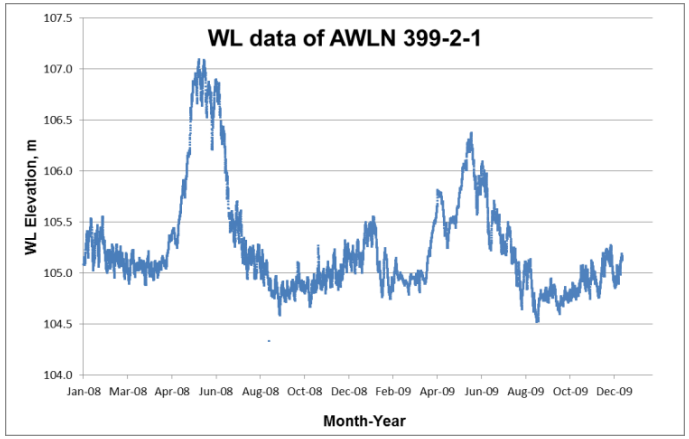
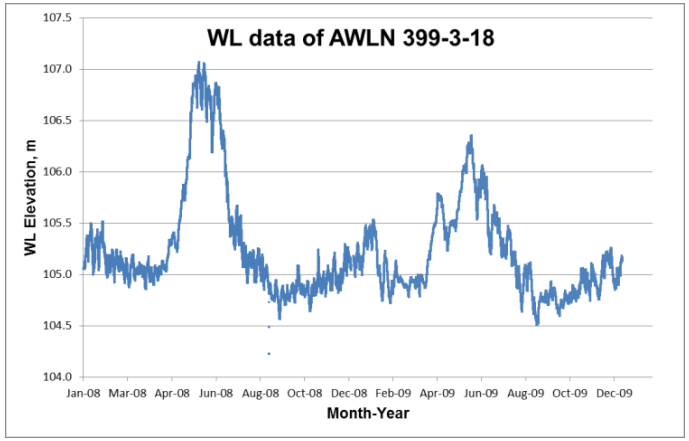


(c)

Figure 3-9. Measured Water Levels for 2008 and 2009 at Wells a) 399-1-17A, b) 399-1-7, and c) 399-2-2



(a)



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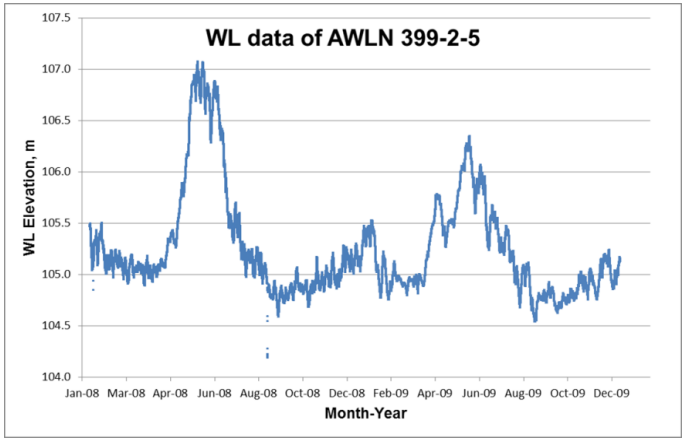

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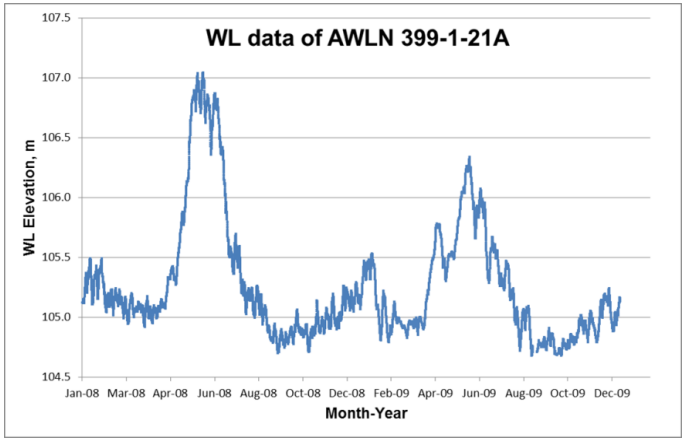
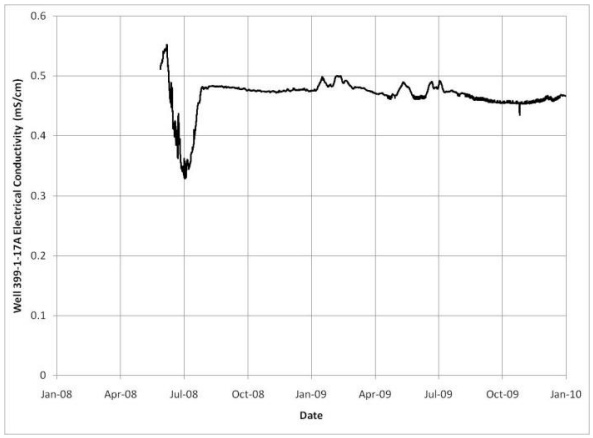
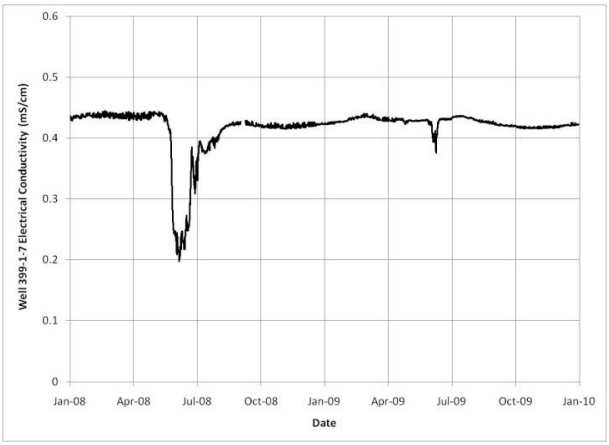


(d)

Figure 3-10. Measured Water Levels for 2008 and 2009 at Wells: a) 399-2-1, b) 399-3-18, c) 399-2-5, d) 399-1-21A



(a)



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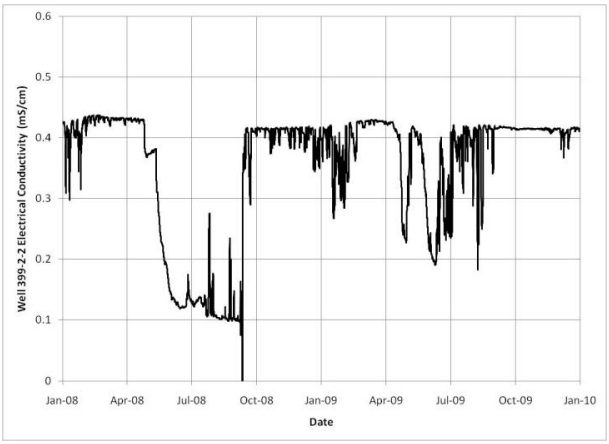


(c)

Figure 3-11. Electrical Conductivity Values, Corrected to 25°C, during 2008 and 2009 at Wells a) 399-1-17A, b) 399-1-7, and c) 399-2-2

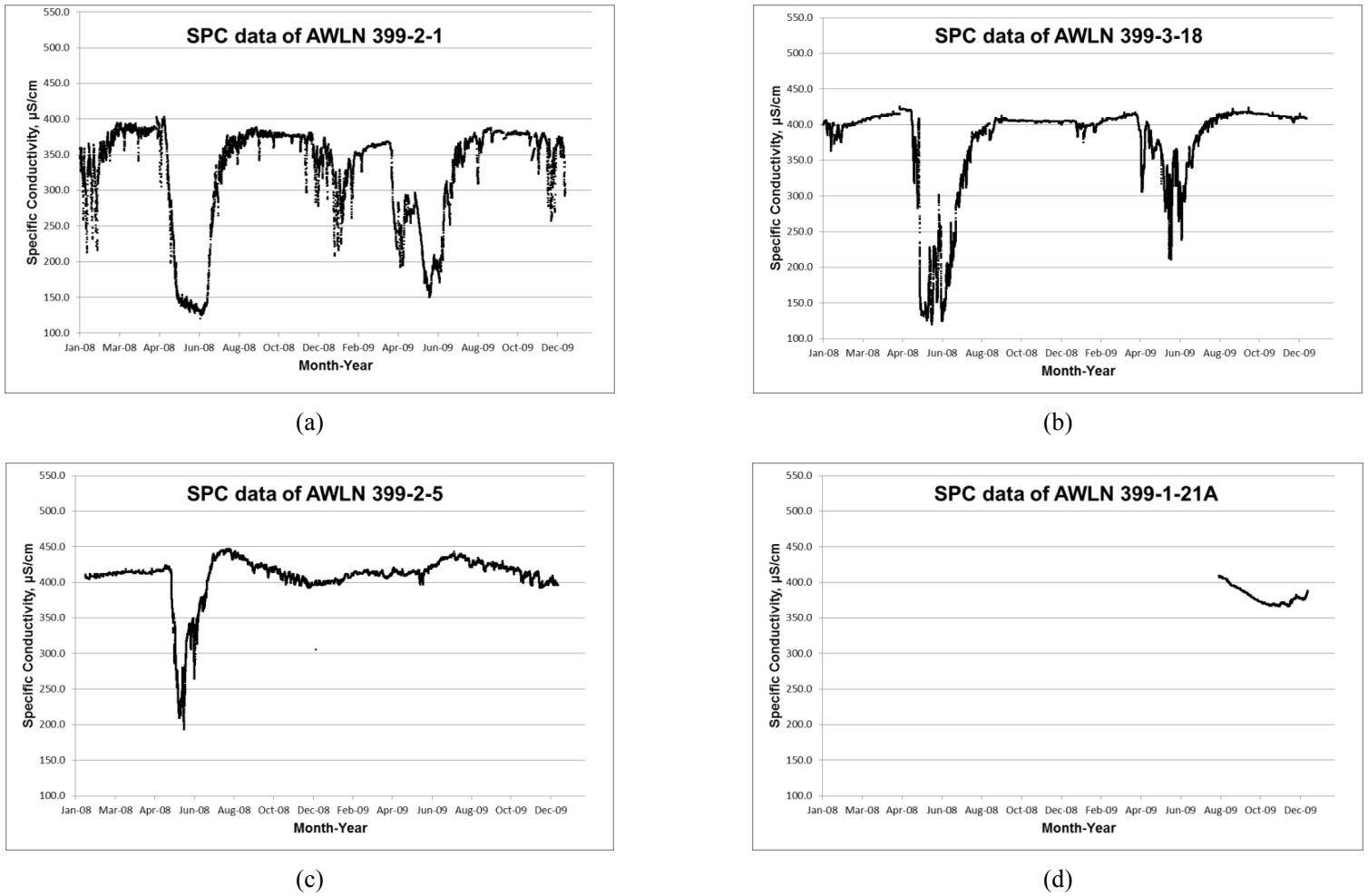


Figure 3-12. Electrical Conductivity Data used in the December-North Model Calibration: a) 399-2-1, b) 399-3-18, c) 399-2-5, and d) 399-1-21A

The river-tracer model was used to model the influx of low EC water during periods of high river stage. For this model, all boundary conditions were assigned a tracer concentration of 0 except for the river boundary which was assigned a value of 1. The simulated tracer concentrations were monitored at different well locations. The simulated well was comprised of model nodes representing the screened interval in the saturated zone. Water saturations were used to determine if nodes were saturated. If a node was saturated for a particular output time the tracer concentration for that node was included in the average concentration determined for that well. All well-nodes with saturations less than 1 were not included in the average for that particular time period.

The parameters adjusted during calibration included:

- hydraulic conductivity (both horizontal and ratio of vertical-to-horizontal) of the Hanford formation and river alluvium, and
- longitudinal dispersivity and ratio of transverse-to-longitudinal dispersivity of the Hanford and Ringold E (same dispersivity for both).

During model calibration, the vadose zone above the top of the PRZ was identified as a separate unit and assigned a longitudinal dispersivity one-tenth that of the regular Hanford unit. During the calibration process it was also deemed necessary to adjust the van Genuchten parameter for the Hanford formation. The value of 0.017 1/cm (PNNL-14702 Rev. 1, Table 4.5) provided an air entry pressure that was much too large and contributed to large capillary fringes uncharacteristic of sandy gravel. A value for α of 0.1 1/cm was deed more appropriate and provided more realistic results. The diffusive porosity of the Hanford unit was adjusted to evaluate the sensitivity of the model results to that parameter but the original values were retained in the calibrated model.

3.4.5.2 Uranium Model History Matching

Initial soil uranium concentrations used in the uranium transport model were based on data collected from 1991 through 2010. The resulting simulated groundwater uranium concentrations at representative well locations along the June-North transect were compared to measured concentrations at those wells to determine if adjustments in initial soil uranium concentrations were needed. Uranium transport modeling was not conducted using the December-North transect.

3.5 Contaminant Transport

3.5.1 Initial contaminant distribution

Leapfrog Hydro (ARANZ Geo Limited, 2010) was used to interpolate the 3-D uranium soil concentration distribution within the subsurface of the 300 Area. Input data consisted of spatially referenced soil concentrations with sample dates ranged from 1991 through 2010 for soil. Soil concentrations of U-238 in pCi/g were compiled from HEIS (Hanford Environmental Information System), PNNL-17793 (Tables 5.11, 5.22 and 5.47) and PNNL-16435 (TableD2). Additional data from Peterson (2010) in the form of a letter report is included in Appendix A. All soil concentrations for uranium were reported by analyzing grain size of <2 mm (by removing the gravel fraction). The location of the soil samples is presented in Figure 3-13 based on four depth ranges as noted.

Contamination Verification Package (CVP) samples from HEIS were filtered by removing duplicate samples and overburden/staging pile area measurements. Also measurements that were subsequently excavated were removed from the dataset. The CVP data did not come with discrete depth measurements. Depths were assigned at 5 m and 7.5 m for measurements classified as “Shallow” and “Deep”, respectively. The “Shallow” data were set at the lowest probable depth while the “Deep” data were set the midpoint of possible depths. Additionally, for soil samples, results based on one lab method

(UISO_Plate_AEA) were used for consistency and comparability of data. This method detects the isotopes of uranium using alpha spectroscopy. All data for soil that were below the detectable limit were set to zero. The soil concentration results for U-238 isotope were used in the calculations for uranium modeling since almost all (99.3%) of the uranium is composed of U-238.

Since the soil sample analyses were based on grain size of <2 mm, the soil concentrations were corrected for gravel content for the purpose of modeling on the bulk volume basis. The gravel correction factor was derived by determining the fraction of <2 mm grain size in the 300 Area soils. The unconsolidated sediment samples collected at various depths during the drilling of four limited field investigation (LFI) boreholes were analyzed for grain-size distribution. Particle-size analyses were performed on the bulk sediments for 20 samples, five from each of the four boreholes (PNNL-16435, Appendix D). The results are presented in Table 3-1 as a percentage of gravel, sand, silt, and clay sizes. The relative distribution of the <2 mm size (sand+silt+clay) and the gravel size is presented in Figure 3-14 indicating that the gravel size fraction in the sediments is predominant, while the <2 mm size fraction varies from 6.5% to 37.5%. The <2 mm size fraction gives an average percentage of 18.89%, which is rounded up to 20% (fraction of 0.2). This is the average volume (and mass) fraction occupied by the <2 mm size compared to the bulk volume. The remaining 80% of the volume was assumed to be occupied by gravels.

The soil concentrations were adjusted for the gravel content as the uranium concentrations are applied in the model on the bulk volume basis. All soil concentrations, determined from the <2 mm fraction, were adjusted (gravel correction) by multiplying by 0.20. Thus, using a background U-238 soil concentration of 3.21 µg/g (1.06 pCi/g, DOE/RL-96-12) converts to a value of 0.642 µg/g after gravel correction. Prior to setting initial concentrations, the data was adjusted for the component that would be exchangeable, or labile, which was assumed to be 60% (see Section 3.5.2). The gravel corrected data was multiplied by 0.6 and plumes were re-interpolated. This set the background labile uranium concentration to 0.385 µg/g.

Soil interpolation concentrations were constrained within the soil column from 15 ft below ground surface and above the Ringold units as indicated by the data. Leapfrog Hydro (ARANZ Geo Limited 2010) uses radial basis functions for the interpolation. An ellipsoid ratio favoring the XY plane was applied at a ratio of 8-1. The resulting concentrations were used to set initial concentrations for STOMP transport modeling.

These uranium concentrations were then interpolated onto the model grid to set initial concentrations for predictive simulations of saturated and unsaturated flow and contaminant transport in the 300 Area (Figure 3-15). All concentrations initially interpolated onto the grid less than background were set to background.

Subsequent to this modeling effort, depth errors were revealed in some of the depth discrete HEIS dataset. Upon correcting the dataset and after a thorough evaluation it became clear that in the original dataset some of the samples showing the highest U-238 concentrations that were located at the south end of the 300 Area Process Trenches were taken prior to the excavation and no post-excavation sample was taken at that location (DOE/RL-92-32). However, high dissolved uranium concentrations continue to persist in a nearby well (399-1-17A) just downgradient from this location strongly indicating the presence of uranium source in the vadose zone at that locale. This prompted the decision to retain the high concentration samples at the bottom of the excavated area. Following these corrections a new uranium mass distribution was developed and compared to the one that was developed with the original dataset used for modeling (as initial concentrations). While the new distribution did deviate somewhat from the original distribution it was not sufficient to warrant new simulation. The extent of the change to uranium concentrations was deemed to be small in relation to the level of uncertainty in both distributions. As stated previously, majority of the final compiled soil U-238 dataset was composed of CVP data without

specific depth information. The lack of discrete depth for many of the samples causes great uncertainty in the resulting distribution of mass.

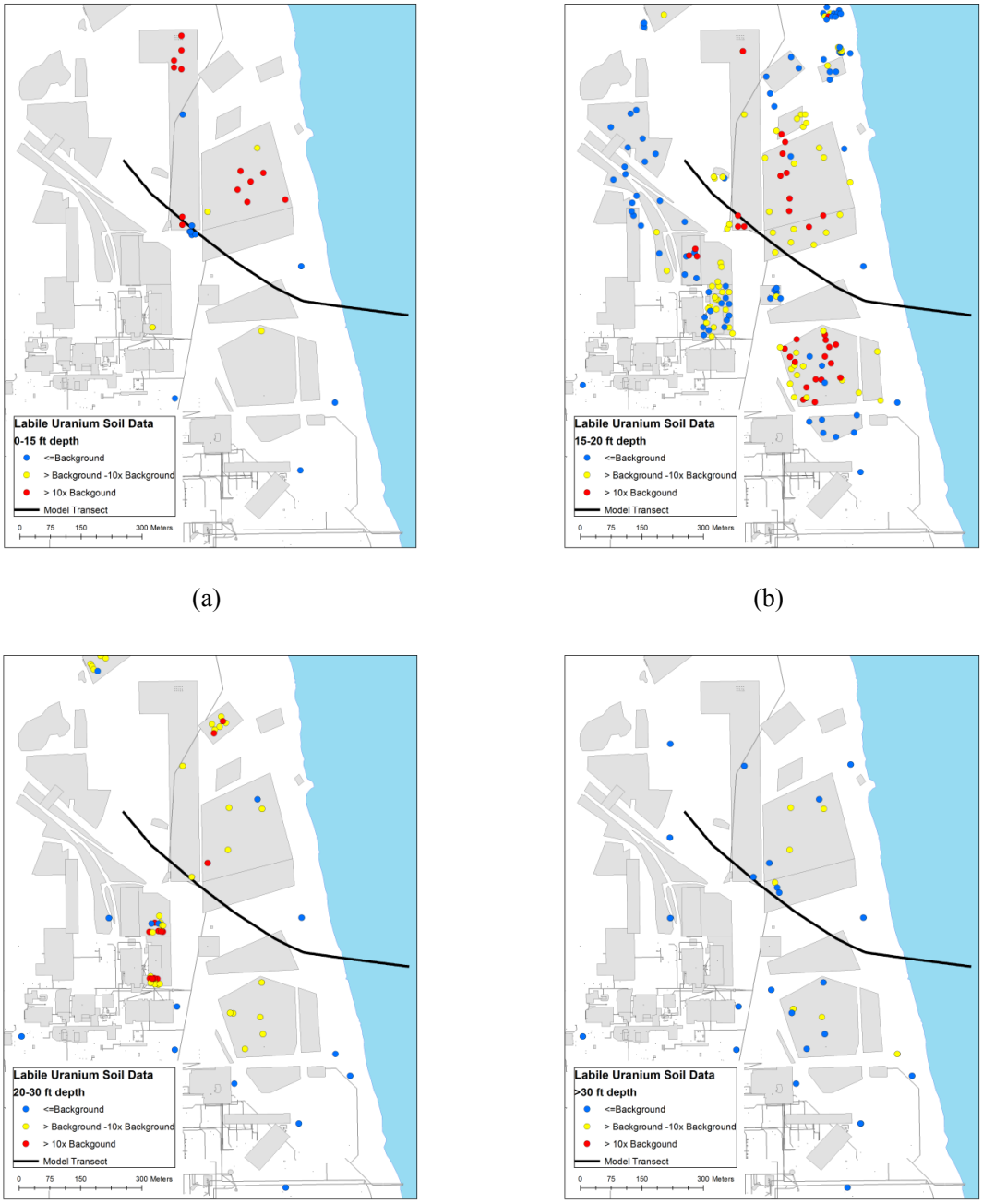


Figure 3-13. Location of Uranium Soil Samples at a Depth Range of a) 0 to 15 ft bgs, b) 15 to 20 ft bgs, c) 20 to 30 ft bgs, and d) Greater than 30 ft bgs

Table 3-1 Grain Size Distribution for Various Sediments Collected during Drilling of LFI Boreholes

Well	Depth(ft bgs)		%Gravel	%Sand	%Silt	%Clay	% Sand + Silt + Clay
399-3-18	22.5	23.5	93.28	3.98	1.11	1.63	6.72
	31	32	86.94	9.61	2.37	1.08	13.06
	35	36	82.75	11.39	4.47	1.39	17.25
	36	37	71.48	16.35	8.71	3.45	28.51
	41	42	93.31	4.42	1.73	0.55	6.7
399-1-23	24.5	25.5	71.78	21.15	4.16	2.92	28.23
	31.5	32.5	76.18	19.43	3.02	1.37	23.82
	33.5	34.5	70.59	22.12	5.34	1.95	29.41
	35.5	36.5	76.45	19.73	2.55	1.26	23.54
	53.5	54.5	82.77	13.18	3.03	1.02	17.23
399-3-19	20.5	21.5	62.57	33.5	2.19	1.73	37.42
	33.5	34.5	93.53	4.64	1.05	0.78	6.47
	40	41	83.2	14.21	1.89	0.7	16.8
	46.5	47.5	80.36	18.16	1.05	0.42	19.63
	53	54	83.46	15.6	0.63	0.31	16.54
399-3-20	21	22	80.15	15.96	3.13	0.76	19.85
	39	40	80.35	14.31	2.92	2.43	19.66
	48	49	85.69	12.19	1.47	0.65	14.31
	54	55	86.56	12.72	0.51	0.21	13.44
	80.5	81.7	80.84	16.93	1.91	0.32	19.16
						Average	**18.89**

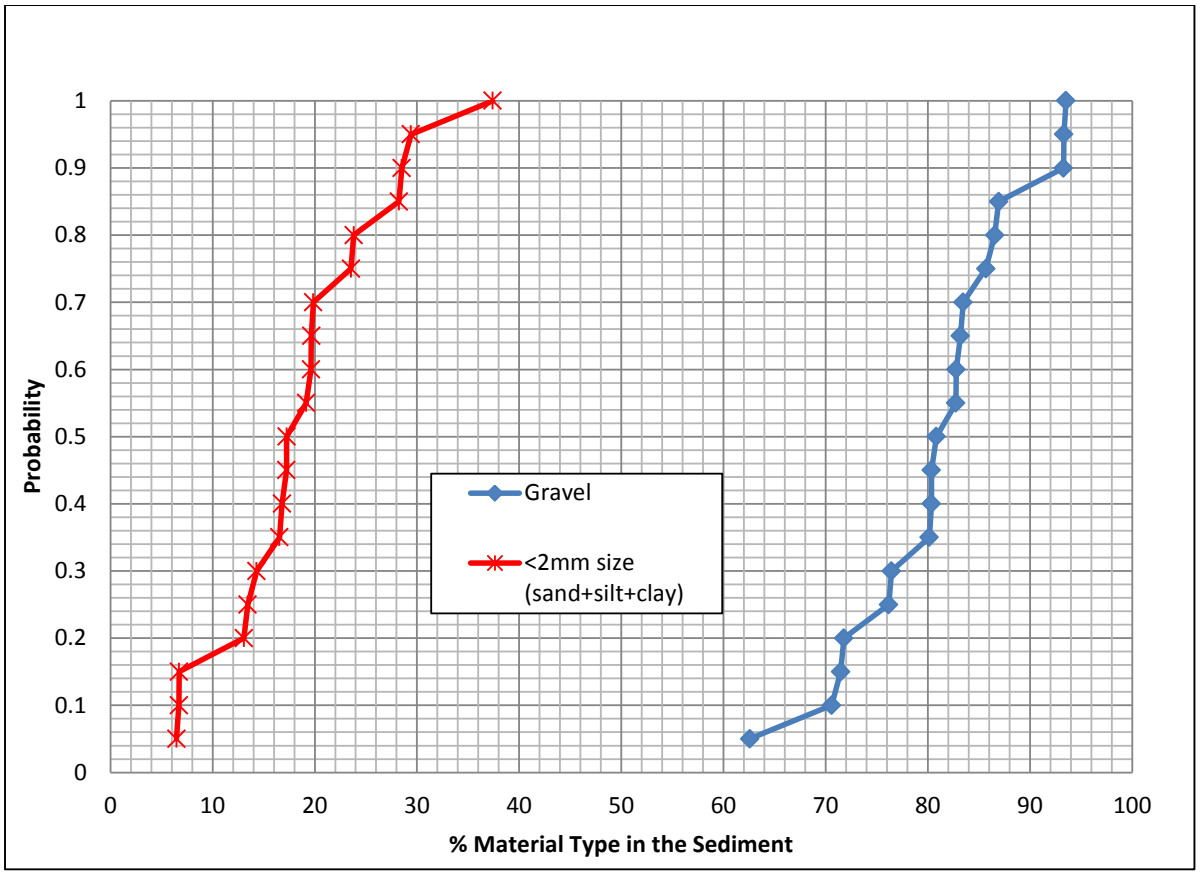
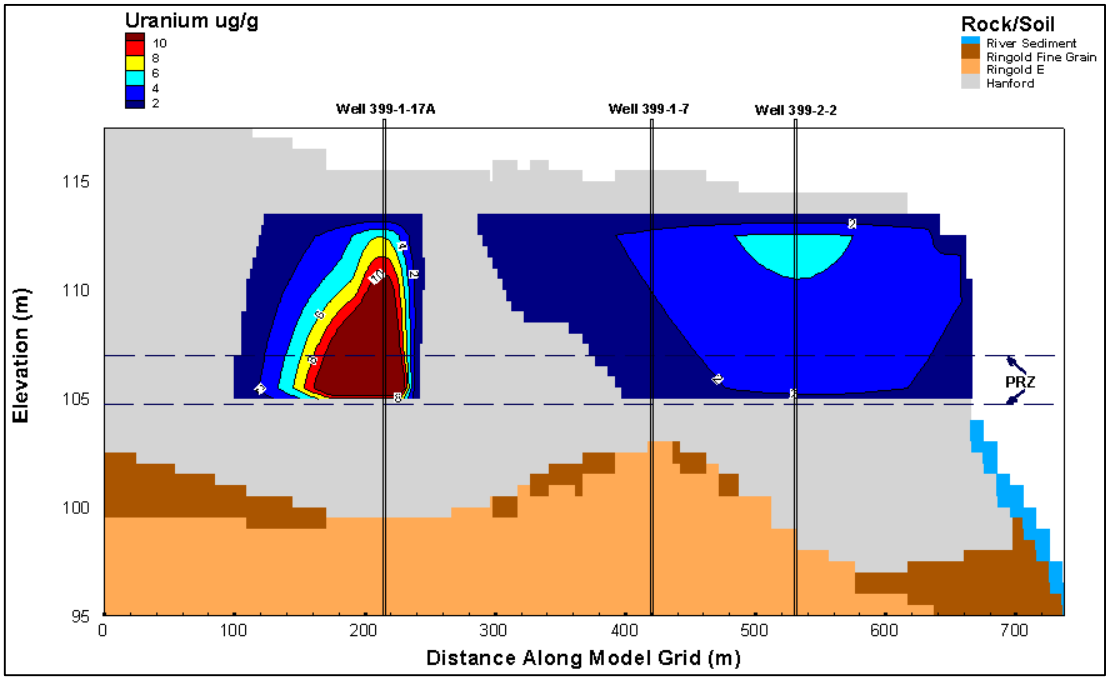


Figure 3-14. Relative Grain Size Distribution of Gravel and <2 mm Size (sand+silt+clay) in the Sediments Collected from Various Depths during the LFI Borehole Drilling



Note: The well locations (vertical lines) are shown for geographic reference only and do not indicate the actual depths and screened intervals.

Figure 3-15. Initial Soil Labile Uranium Concentration Distribution, June-North Model

3.5.2 Transport Parameters

The uranium sorption/desorption parameters applied in the model are developed based on the desorption experiments conducted by Bond et al. (2008) and Liu et al. (2008). The results presented in these papers are internally consistent and comprehensive and therefore are used exclusively for the purpose of developing the sorption parameters. The sorption/desorption related information available from other reports (e.g., PNNL-16435) was evaluated for corroboration of results. The sorption/desorption parameters presented here apply specifically to uranyl ion, which has the chemical formula of $[UO_2]^{2+}$ resulting in oxidation state of +6. For simplicity it is referred in this report as U(VI). The uranyl ion forms from hydrolysis of uranium mineral during water-mineral interaction.

Batch sorption experiments were conducted by Bond et al. (2008) on sediments taken from the 300-Area North and South Processing Ponds, the two main disposal basins that were active from 1943 to 1975. Experiments related to desorption of U(VI) were conducted by Bond et al (2008) on <2 mm grain size sediments by contacting them with artificial groundwater of varying alkalinities to mimic the pore water compositions based on groundwater and river water mixing. These batch desorption experiments were conducted for varying lengths of time but the ones for which most information is available are those that were conducted for 96 hours, which are considered of sufficient duration where quasi-equilibrium conditions are established in terms of dissolved U(VI) concentrations in solution. A total of 68 desorption experiments were conducted, some of which are presented in Figures 14.15 and 14.16 of Bond et al. (2008). A complete dataset was made available via a personal communication. This dataset is presented in Table 3-2. The changes in Log K_d for U(VI) (ml/g) as a function of alkalinity of the water is presented in Figure 3-16. The results indicate that as the alkalinity increases the K_d of U(VI) decreases in general. This

is consistent with the expected results as increasing alkalinity increases the carbonate and bicarbonate content in the water which leads to increased aqueous complexation of U(VI) thereby reducing the K_d.

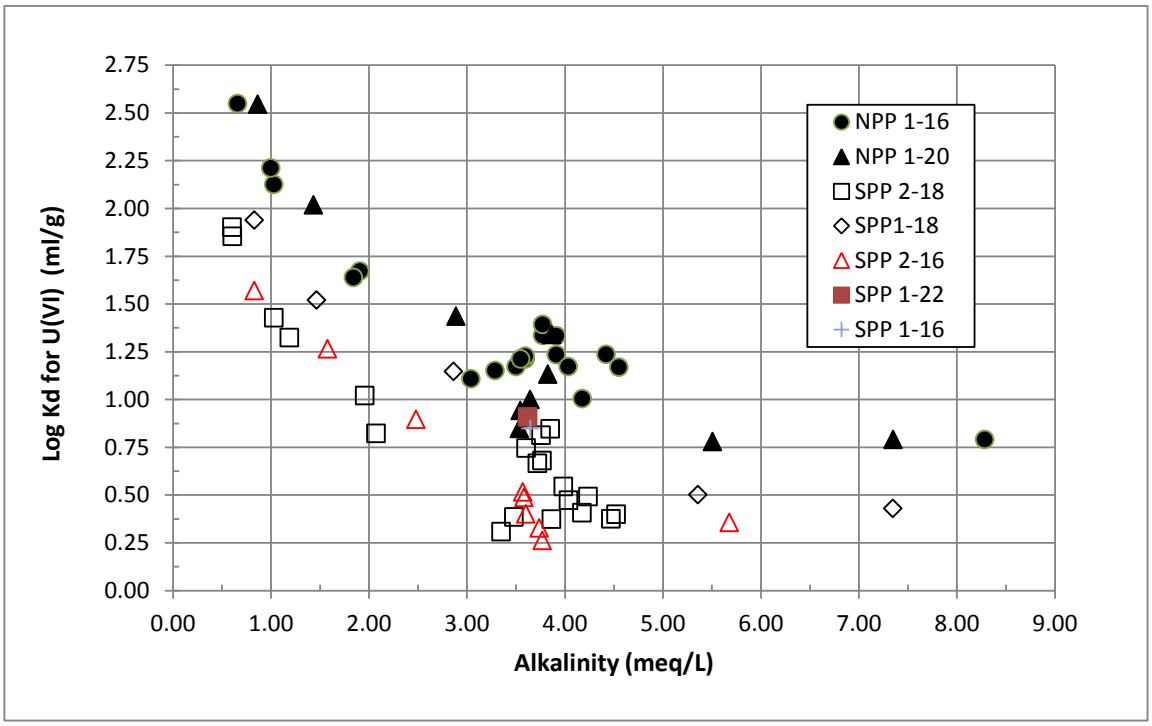


Figure 3-16. Log K_d of U(VI) as a Function of Alkalinity (meq/L) based on Desorption Experiments Conducted by Bond et al. (2008) on <2 mm size Contaminated Sediments

A multiple regression analysis was undertaken to investigate the effect of various parameters listed in Table 3-2 on the Log K_d. The independent parameters considered were sediment concentration (solid to water ratio), alkalinity of the waters, and labile U(VI) concentration of the contaminated sediments. The labile U(VI) concentration for a soil type provides a practical limit on the amount of U(VI) mass that is available for exchange and can be desorbed. The labile concentration is determined based on exchange with ^{233}U(VI) isotope through spiking the concentration in the secondary stock. All three parameters were evaluated in the regression analysis initially and then dropped sequentially. The coefficient of determination (R^2) was found to be largely dependent on alkalinity. Inclusion of other two parameters in the regression analysis marginally increased the R^2 (from 0.47 to 0.53) and thus those two parameters were not considered in the subsequent calculations. A separate regression analysis indicated that by taking the square root of the alkalinity considerably increased the R^2 (from 0.47 to 0.56). The result of the regression analysis is shown in Figure 3-17, which indicates that a linear relationship exists between the square root of alkalinity and the Log K_d. About 56% of the total variation in Log K_d can be explained by this linear relationship. The regression analysis leads to the following linear relationship model:

$$\text{Log } K_d = 2.62 - 0.885 * \text{SQRT(Alkalinity)} + \varepsilon \quad \text{----------[1]}$$

where, ε is the error term describing the unexplained variance.

The predicted Log K_d based on the regression equation (ignoring the error term) are compared to the measured Log K_d in Figure 3-18. The uniform scatter around the 1:1 line indicates that the regression model is reasonable. An analysis of the residuals (difference between the predicted and measured) is

undertaken and found to have a mean of 0 and standard deviation of 0.37. Plotting the quantiles of the residuals to that of the standard normal (using a q-q plot) shows a good fit (Figure 3-19) indicating that the residuals are normally distributed. As a result, the error term in Equation 1 can be quantified by a truncated normal distribution with mean of zero and standard deviation of 0.37 that is truncated at ±1 standard deviation. However, to implement this in a transport model a full uncertainty treatment of the Log K_d would be needed through stochastic modeling. Since the calculations being performed for the current analysis are deterministic in nature, the error term can be dropped leading to the following regression equation:

$$\text{Log } K_d = 2.62 - 0.885 * \text{SQRT(Alkalinity)} \qquad \text{----------[2]}$$

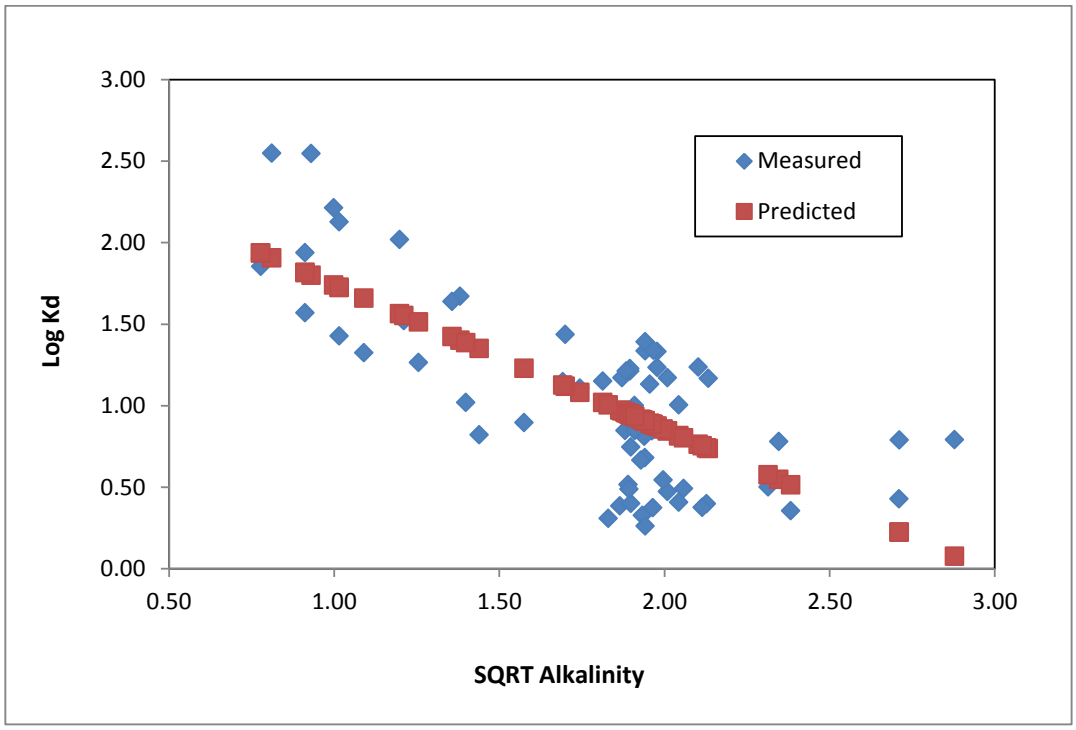


Figure 3-17. Regression Analysis Comparing the Measured to the Predicted Values

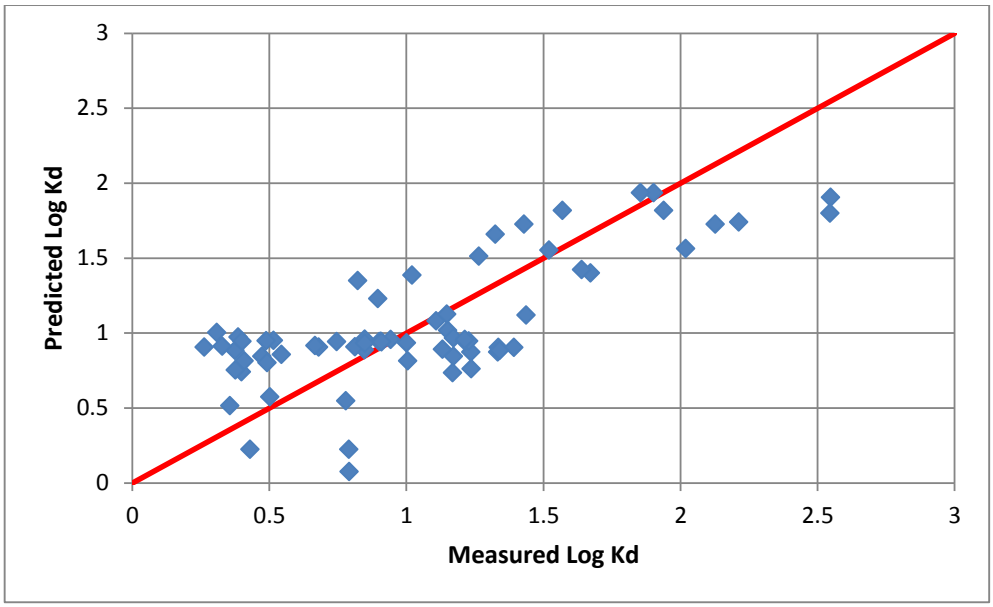


Figure 3-18. Measured Log K_d versus Predicted Log K_d based on the Regression Equation

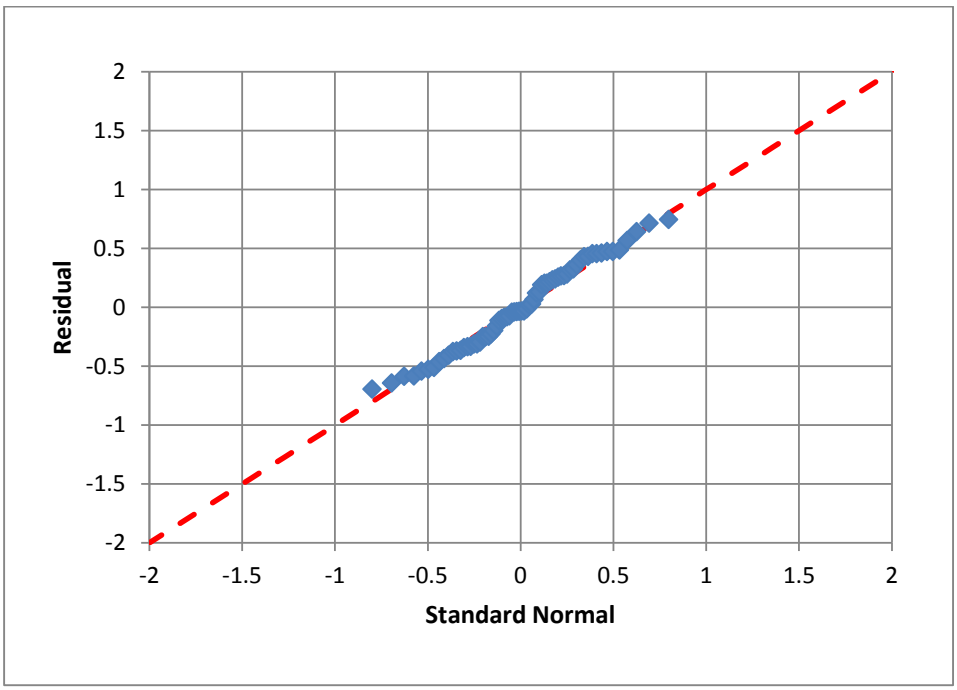


Figure 3-19. Quantile-Quantile Plot of the Residuals against the Standard Normal Distribution

Three different end-member water types are present in the aquifer that may mix in various proportions spatially and temporally. These are: (1) upgradient groundwater; (2) river water; and (3) pore water in the vadose zone (above PRZ). The alkalinity in these water types are different and are summarized in Table 3-3. The average groundwater alkalinity is considered to be 2.574 meq/L based on the average bicarbonate content from 42 wells in the 300 Area while the average river water alkalinity is considered

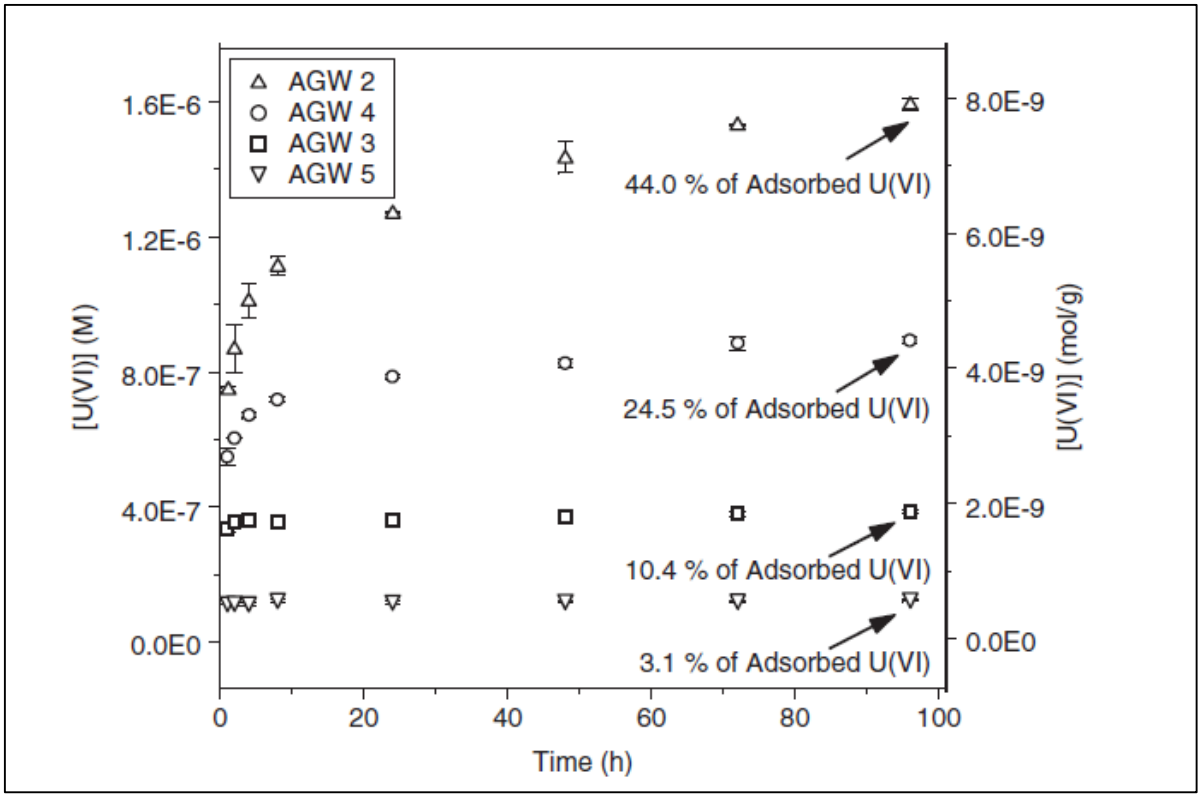
to be 1.128 meq/L based on the average of values during Year 2001-2007 (Ma et al., 2010, Table 2). The average pore water alkalinity is taken to be 3.2 meq/L based on the average value reported for the LFI boreholes (PNNL-16435) using the ultracentrifugation (UFA) based pore water extraction method.

Since alkalinity is considered a conservative quantity, the alkalinity of waters at any location within the model domain can be calculated based on the relative fraction of end member waters present. This property is used in simplifying the transport simulations. The K_d field within the model domain is calculated based on Equation 2 and by determining the alkalinity of the water based on mixing calculations performed in the initial runs. Note that the K_d value generated is for the <2 mm grain size and needs to be corrected for application to the bulk volume in a similar manner as the soil concentrations are corrected as described in Section 3.5.1. For the purpose of correcting the K_d values (to bulk volume), the average fraction of <2 mm size was deemed to be the size fraction where all of the sorption of U(VI) occurs. No sorption was assumed in other size fractions. As a result the K_d value calculated earlier is multiplied by 0.2 representing ratio of the volume (or mass) occupied by <2 mm grain size to the bulk volume (or mass).

Kinetic Sorption

Desorption experiments conducted by Bond et al. (2008) indicated that desorption of U(VI) from contaminated sediments taken from 300 Area varied as a function of time and alkalinity of the water (and holding the sediment mass to water ratio constant). Desorption results from sediment sample, NPP1-16 (at 200 g/L sediment concentration) during reaction with artificial groundwater solutions of varying alkalinities is shown in Figure 3-20. Based on these results the first order desorption rates were determined as shown in Figure 3-21. In almost all experiments it is observed that the amount of desorption is high initially but slows down within a couple of hours. From the modeling point of view, where the calculations are to be performed over time length scale of several years, only the long-term desorption rates are considered. It is observed that the long term desorption rates typically decrease with decreasing alkalinity from 2e-3 1/hr at alkalinity of 9 meq/L to 1e-4 1/hr at the alkalinity of 2 meq/L. The desorption rates are much smaller at alkalinity of 1 meq/L for the experimental conditions. Because the groundwater in the aquifer has alkalinity of about 2.6 meq/L and is likely to control much of the desorption (ignoring some mixing with river water and vadose zone pore waters), the desorption rates are expected to be in the range of 1e-4 to 7e-4 1/hr. Note that these results are based on batch experiments conducted on <2 mm size fraction for one particular sediment type.

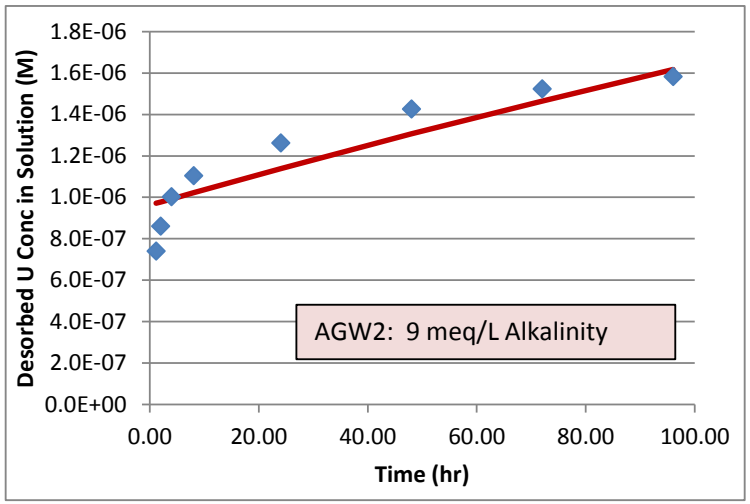
The results presented by Bond et al. (2008) based on bicarbonate extraction and isotopic exchange indicate that the labile fraction (the exchangeable uranium fraction) typically ranges from 30% to 60% of the total uranium present in the soil. The labile fraction tends to be lower for soil samples with higher uranium concentration (above 50 ug/g) and typically varies from 30% to <50%. For the purpose of modeling, a 60% labile fraction is chosen initially but for the higher soil concentration regions the labile fraction was adjusted lower (but still within the range) as part of the model calibration exercise.



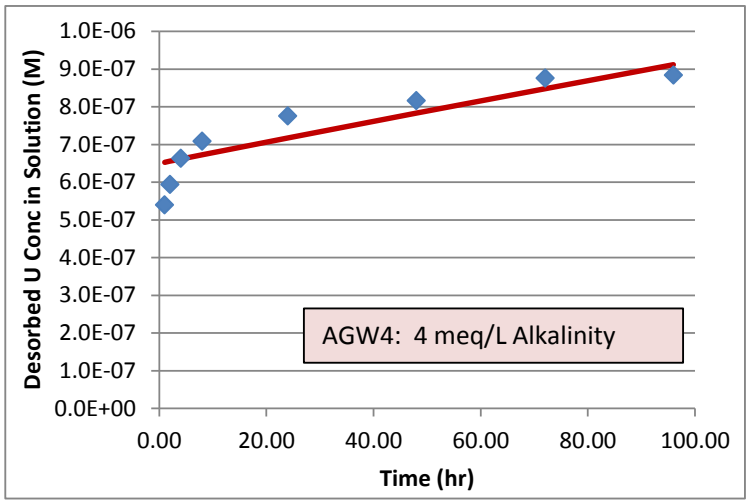
Source: Bond et al., 2008

Figure 3-20. Uranium [U(VI] Desorption from Sediment Sample, NPP1-16 (200 g/L), during Reaction with Artificial Groundwater Solutions of varying Alkalinity: AGW2 = 9 meq/L; AGW4 = 4 meq/L, AGW3 = 2 meq/L, and AGW 5 = 1 meq/L (Total Adsorbed U(VI) for the Sample was Estimated from the Amount of Labile U(VI) Determined in 336 h Isotopic Exchange Experiments)

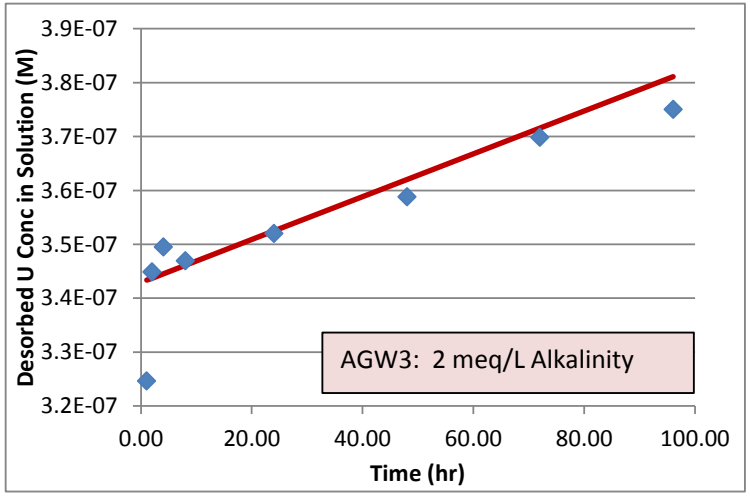
Liu et al. (2008) conducted column experiments to investigate the scale-dependent desorption of uranyl [U(VI)] from contaminated sediment collected at a depth of about 3 m below ground surface from the 300 Area North Process Pond. Based on the chemical analysis the bulk sediment contained 4.0 nmol/g of U(VI), however the <2 mm size contained 47.8 nmol/g of U(VI) indicating that almost all of the sorbed U(VI) is associated with <2 mm size fraction, in proportion to its mass fraction (8.3% of total mass). Spectroscopic analysis indicated that majority of sorbed U(VI) was present as a surface complex composed of uranyl carbonate and uranyl hydroxide consistent with the observations of Bond et al. (2008) and others (e.g., PNNL-16435). Liu et al. (2008) performed flow through desorption experiments on the <2 mm size sediments as well as on the bulk sediments (referred as field-textured sediments) and fitted the data using a multi-component kinetic model with the assumption of multiple sites each having its own desorption rate constant. The kinetic desorption rate constants were sampled from a broad log-normal distribution with a geometric mean (median) of 6.4e-5 1/hr that spans over five



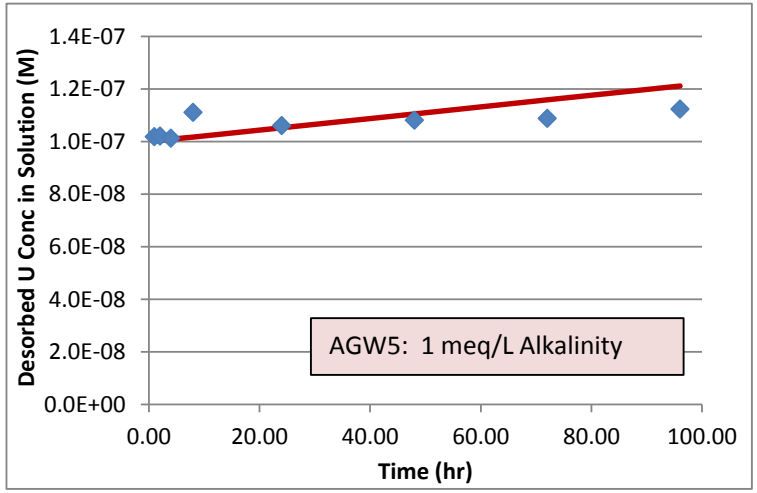
(a) Desorption Rate = 2.07e-03 1/hr



(b) Desorption Rate = 7.8e-04 1/hr



(c) Desorption Rate = 1.1e-04 1/hr



(d) Desorption Rate = 2.2e-10 1/hr

Figure 3-21. First order U (VI) Desorption Rates Derived from Experiments Presented in Bond et al. (2008, Figure 3.5.2-6)

orders of magnitude range (from <1e-7 1/hr to >1e-2 1/hr). The arithmetic mean of the distribution is 2.5e3 1/hr. This distribution was derived by matching the U(VI) effluent concentration profiles based on desorption experiments on <2mm size and assuming fifty domains (i.e., fifty distinct kinetic rate constants sampled from the distribution) that are distributed within the sample (also called the distributed rate model).

The flow through desorption experiments on field-textured sediments were also performed and the parameters derived from fitting the desorption data on fine grained sediments were used to predict the desorption on field-textured sediments. The predictive calculations generally performed well at the peak concentrations but tended to overpredict the dissolved concentrations. Liu et al. (2008) used a dual-porosity approach to modify the calculations and to derive better fits to the data. However, this approach was not adopted in the calculations discussed in this report. It was felt that the concept of dual porosity within unconsolidated glacio-fluvial deposits was not well understood at the field-scale to support the RI/FS work. Estimating the mass transfer coefficients between the mobile and immobile domains (within dual porosity concept) and applying at the scale of the model would be extremely difficult with the current state of information. Furthermore, the mass transfer coefficients derived by Liu et al. (2008) were more or less fitting functions on tracer breakthrough and thus do not represent the transfer among mobile and immobile domains in a mechanistic manner. Instead a single porosity (single continuum) approach was adopted to support the RI/FS modeling. Separate reactive transport modeling was performed to simulate the laboratory scale desorption experiments and back calculate representative desorption rate for application to the field-scale kinetic sorption-desorption model.

The reactive transport equations that are being solved are shown below:

$$\theta \frac{\partial C}{\partial t} = \theta D \frac{\partial^2 C}{\partial x^2} - \theta v \frac{\partial C}{\partial x} - \rho_b \frac{\partial q}{\partial t} \qquad \text{..... [3]}$$

$$\rho_b \frac{\partial q}{\partial t} = \alpha_f \theta C - \alpha_r \rho_b q \qquad \text{..... [4]}$$

$$\alpha_f = \alpha_r K_d \left(\frac{\rho_b}{\theta} \right) \qquad \text{..... [5]}$$

where

C = aqueous concentration [μmol of dissolved uranium/cm^3-water]

q = amount of solute sorbed per unit weight of solid [μmol of sorbed uranium/g-solid]

θ = water content [water volume/ bulk volume]

ρ_b = bulk density [g-solid/cm^3- bulk volume]

D = dispersion coefficient [cm^2/h]

v = pore velocity or average linear velocity [cm/h]

α_f = forward reaction rate constant [1/h]

α_r = backward reaction rate constant [1/h]

K_d = equilibrium constant [cm^3-water/g-solid].

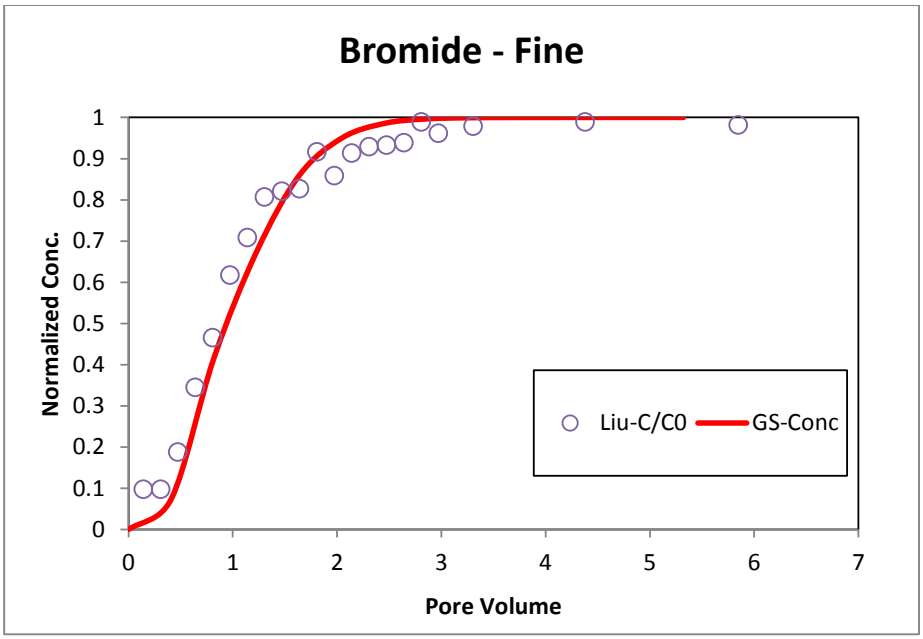
Note that of the two rate constants only the backward reaction rate constant is needed. The forward rate constant is derived based on Equation 5.

The calculations were performed using a finite difference solution technique using GoldSim Pro®[2] Version 10.11 (GoldSim Technology Group, 2009). The cell-pathway capability of GoldSim was used to solve the reactive transport equations to match the results of flow-through column experiments. A cell pathway is mathematically equivalent to a mixing cell and can explicitly represent the mass transport processes. When multiple cells are linked together via advective and diffusive mechanisms, the behavior of the cell network is mathematically described using a coupled system of differential equations. In effect, a network of Cells is mathematically equivalent to a finite difference network of nodes. GoldSim numerically solves the coupled system of equations to compute the contaminant mass present in each cell (and the mass fluxes between cells) as a function of time.

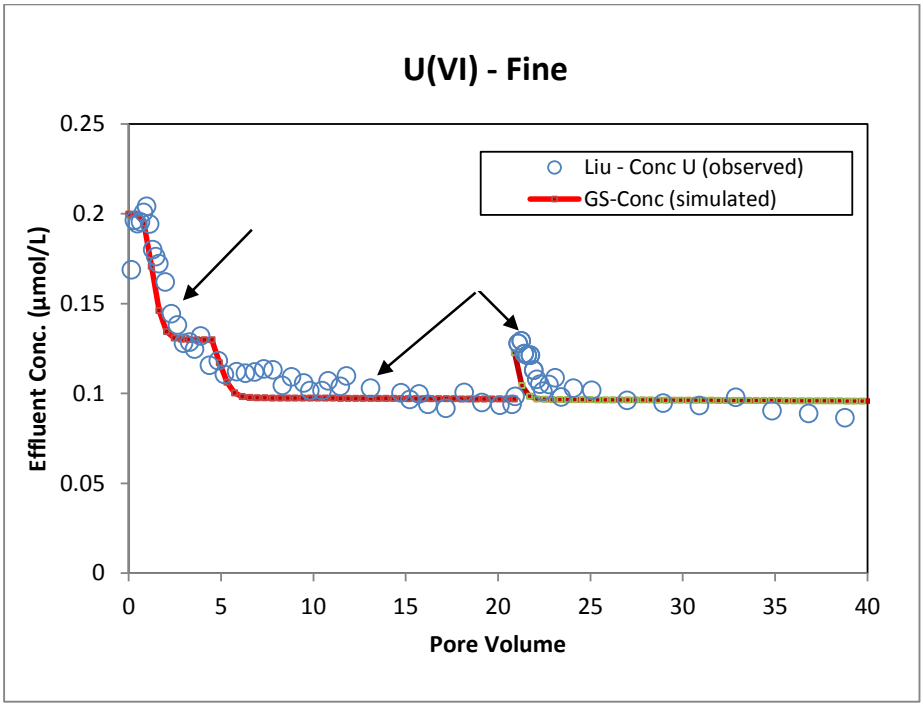
Two separate flow through column experiments were conducted in Liu et al. (2008), one on the <2 mm size fraction (in a cylinder of length 10.5 cm and diameter of 2.4 cm) and the other on the field-textured sediments including cobbles and gravels (in a cylinder of length 80 cm and diameter of 15 cm) which also included the fines. Since the experiments included injection of bromide (a conservative non-sorbing species) and desorption of U(VI) (from the contaminated sediments) both processes were simulated based on the experimental conditions. A finite-difference grid composed of ten grid blocks (or cell pathway elements) was created to discretize the transport domain for each experiment in one-dimension (vertical downwards). The boundary conditions imposed were similar to the experimental conditions (specified flow and concentration at the top boundary and a discharge boundary with zero concentration at the bottom) along with other flow and transport parameters. The flow and transport parameters are described in Liu et al. (2008).

The simulations were performed for several pore volumes including a 24-hour stop-flow event. For the fine-grained (<2 mm size) experiments one pore volume is equivalent to approximately 1.22 hours while for the field-textured experiments one pore volume is equivalent to approximately 22.85 hours. The simulation results for the fine-grained column experiments are presented in Figure 3-22. The breakthrough time for bromide matches well at the outflow boundary indicating that the transport modeling in one-dimension is adequate. The U(VI) desorption is simulated using kinetic sorption-desorption model. The desorption rate constant is varied between the geometric mean (median) value (6.4e-5 1/hr) and the arithmetic mean value (2.5e-3 1/hr) of the five order magnitude range used by Liu et al. (2008) to get the best fit to the data using manual calibration. It was observed that the desorption rate declined gradually over time. This observation is consistent with the surface complexation theory which recognizes the variability in the binding energies of various sorption sites. The low affinity sorption sites (also called weak sites) tend to desorb U(VI) at a rate greater than the high affinity sites (also called strong sites) and thus control the early desorption of U(VI). The high-affinity sites however control the long-term release. The desorption rate constant over the long-term (from 5 to 40 pore volumes) was found to be about 6.3e-4 1/hr (Figure 3-22).

[2] GoldSim Pro® is a registered trademark of GoldSim Technologies, Inc., Issaquah, Washington.



(a)



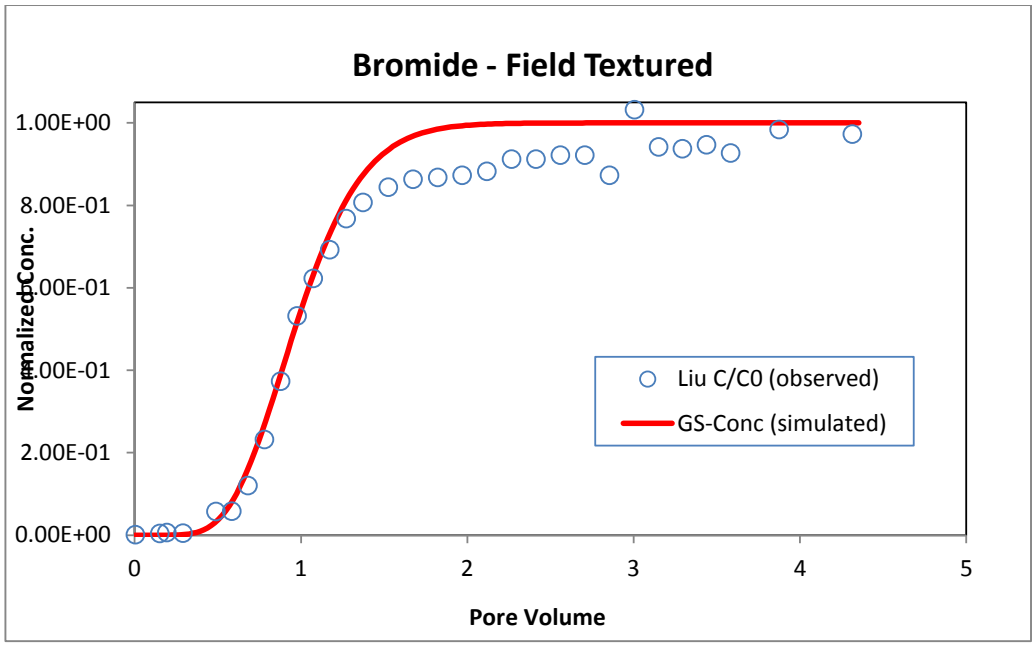
(b)

Figure 3-22. Simulated versus Observed Bromide and Uranium Concentrations based on Flow Through Experiments on Fine Grained (<2 mm size) Column (the discontinuity in Uranium concentration observed around pore volume of 21 is due to stoppage of flow for 24 hours followed by restart)

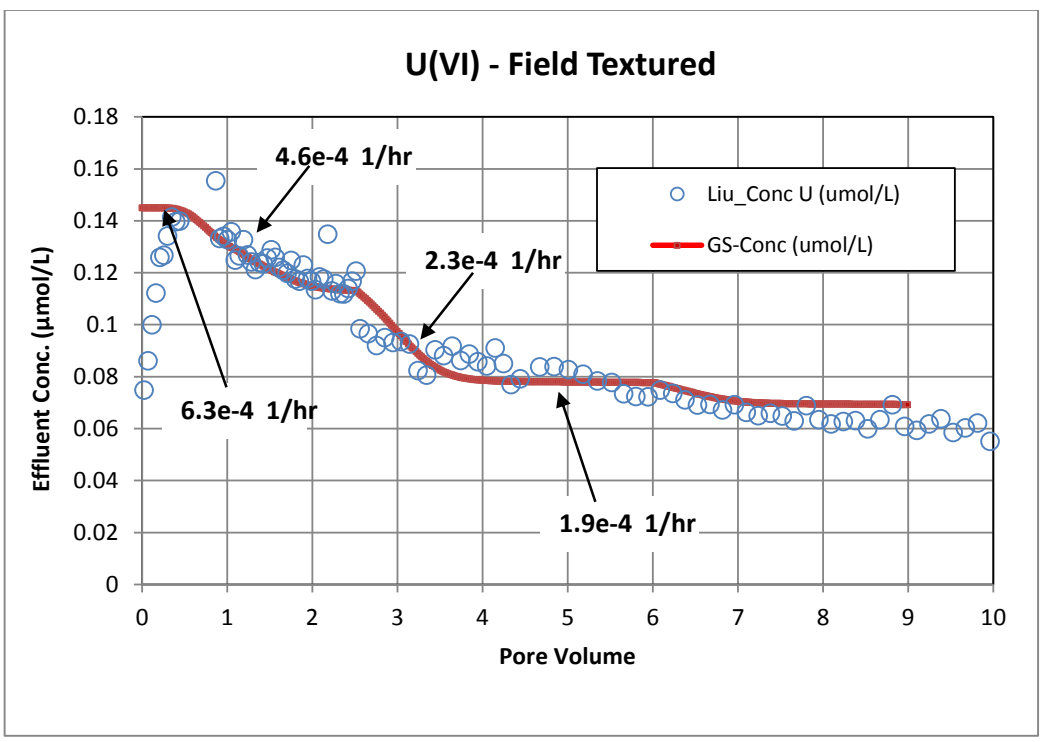
A similar yet separate calculation was performed to match the results of flow-through column experiments conducted on field-textured sediments (which also included the fines) for few pore volumes. The results are presented in Figure 3-23 for breakthrough of bromide and desorption of U(VI) from the sediments. The simulated results compare well for conservative species such as bromide at early times but complete breakthrough is somewhat delayed in the experiments. This results from complex interactions between the bromide ions and fine pore spaces within the sediment along tortuous transport pathways. Although such tortuous pathways and mass transfer terms can be modeled with additional parameters it was deemed unnecessary as the current simple representation lead to reasonable predictions. It should be noted that the bromide tracer experiments were conducted simultaneously during (and after) the U(VI) desorption experiments and may have been affected by the U(VI) species transport. The bromide breakthrough simulations indicate that the transport modeling in one dimension is adequate and the model inputs are correct.

The U(VI) desorption was simulated using the same model parameters as done for the bromide and starting with the backward reaction rate constant (6.3e-4 1/hr) derived from the fine grained experiments. In order to get a match with experimental data the backward reaction rate constant was varied over time as shown in Figure 3-23b. The relative changes in rate constant (6.3e-4 to 1.9e-4 1/hr) indicate a factor of three variation over time. This range is much smaller than the five order magnitude range used by Liu et al. (2008). Furthermore, since these backward reaction rate constants are applied to the simulation time frame of many years, even these small variation in reaction rate constants are unlikely to impact the long-term results. For the purpose of transport simulation of uranium conducted for the RI/FS a value of 5e-4 1/hr is selected for backward (desorption) reaction rate constant. This value is chosen as an average between the 6.3e-4 1/hr (at early time) and 4.6e-4 1/hr (about 3 pore volumes) and rounded to one significant digit.

The backward reaction rate constants do not appear to vary much between the fine grained sediments (<2 mm size) and field-textured sediments since the latter includes the former. This is especially true after few pore volumes have passed through the finer grained sediments. It also indicates that the sorption sites on the fine grained sediments control the release of U(VI).



(a)



(b)

Figure 3-23. Simulated versus Observed Bromide and U(VI) Concentrations based on Flow Through Experiments on Field-textured Sediment Column

Sorption Modeling Parameters:

The U(VI) sorption/desorption parameters are developed so that both equilibrium and kinetic sorption processes can be simulated in a transport model developed using STOMP. Because U(VI) sorption/desorption is largely controlled by the carbonate complexation in the unconfined aquifer within 300 Area, the alkalinity variations in the aquifer are the primary control on the U(VI) distribution between the sorbed and aqueous phase. The alkalinity in the aquifer varies as a function of groundwater and river water mixing (Table 3-3) and K_d is calculated from Equation 2 for the fine grained sediment. This value is corrected for bulk volume by multiplying by 0.2, representing the fraction of the volume (or mass) occupied by fine grained (<2 mm grain size) material to the bulk volume (or mass). The forward reaction rate constant for kinetic sorption is calculated by taking the K_d and multiplying with the backward (desorption) rate constant of 5e-4 1/hr and the ratio of bulk density to porosity (based on field-textured column experiment) as presented in Equation 5. The bulk density is 1.88 kg/L and the porosity is 0.32 leading to the ratio of 5.875. Table 3-4 presents the variation in K_d and forward reaction rate constant as a function of river water fraction in the aquifer (a river water fraction of zero indicates all of the water is groundwater). The K_d for U(VI) in the aquifer varies from 3.17 L/kg (all groundwater; no river influence) to 9.57 L/kg (all river water; no groundwater) as shown in Figure 3-24. The forward reaction rate constant varies from 9.31e-3 1/hr to 2.81e-2 1/hr, respectively.

The K_d for pore water (above the water table) is calculated separately to be about 2.18 L/kg, based on the pore water alkalinity of 3.2 meq/L.

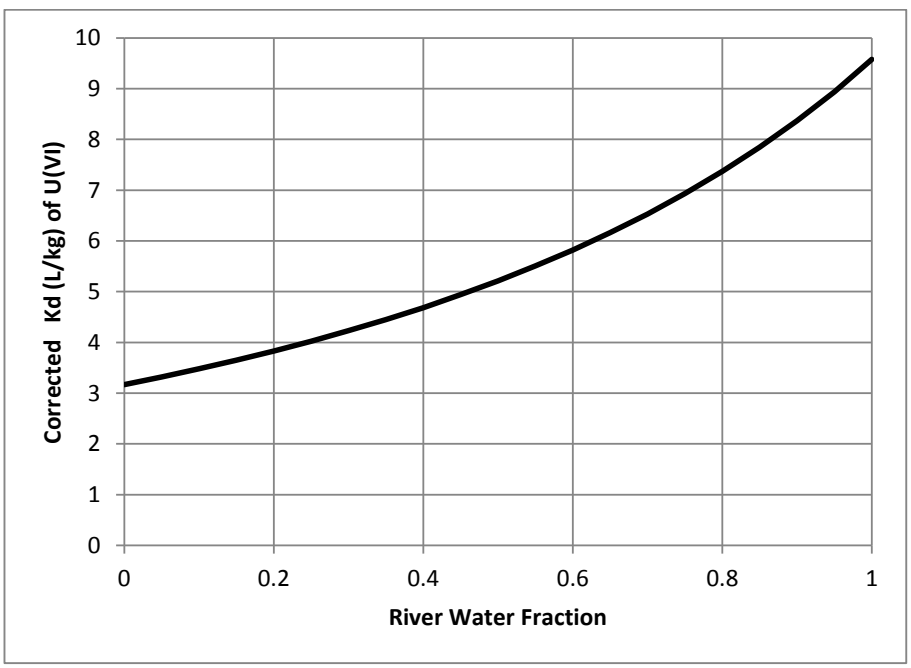


Figure 3-24. Final K_d (L/kg) of U(VI) in 300 Area Unconfined Aquifer Sediment as Function of River Water Fraction (K_d is calculated on the bulk volume)

Table 3-2. Results of 96 Hour Long Desorption Experiments by Bond et al. (2008)

Num#	Soil Sample*	Artificial Groundwater Solution Number	Sediment Conc. (g/L)	Alkalinity (meq/L)	Labile U(VI) (mol/L)	U(VI) Dissolved (mol/L)	U(VI) Adsorbed (mol/L)	U(VI) Adsorbed (mol/m2)	Measured K_d (mL/g)	Log K_d (ml/g)
1	NPP 1-16	8	200.00	1.91	3.61E-06	3.47E-07	3.26E-06	5.99E-10	46.90	1.67
2	NPP 1-16	10	200.00	1.03	3.61E-06	1.30E-07	3.48E-06	6.39E-10	133.68	2.13
3	NPP 1-16	11	200.00	0.66	3.61E-06	5.04E-08	3.55E-06	6.53E-10	352.97	2.55
4	NPP 1-16	9	24.73	3.77	4.46E-07	2.90E-07	1.55E-07	2.31E-10	21.62	1.33
5	NPP 1-16	9	49.90	3.91	8.99E-07	4.84E-07	4.15E-07	3.06E-10	17.18	1.23
6	NPP 1-16	9	99.99	3.29	1.80E-06	7.46E-07	1.06E-06	3.88E-10	14.16	1.15
7	NPP 1-16	9	200.41	3.50	3.61E-06	9.09E-07	2.70E-06	4.96E-10	14.84	1.17
8	NPP 1-16	9	399.78	3.04	7.21E-06	1.18E-06	6.03E-06	5.54E-10	12.81	1.11
9	NPP 1-16	9	94.49	4.04	6.28E-06	2.61E-06	3.66E-06	1.43E-09	14.83	1.17
10	NPP 1-16	9	176.51	4.42	7.75E-06	1.92E-06	5.84E-06	1.22E-09	17.23	1.24
11	NPP 1-16	4	24.11	3.77	4.35E-07	2.73E-07	1.62E-07	2.47E-10	24.67	1.39
12	NPP 1-16	4	50.05	3.91	9.02E-07	4.34E-07	4.68E-07	3.44E-10	21.51	1.33
13	NPP 1-16	4	99.99	3.59	1.80E-06	6.85E-07	1.12E-06	4.11E-10	16.31	1.21
14	NPP 1-16	4	399.95	3.59	7.21E-06	9.31E-07	6.28E-06	5.77E-10	16.87	1.23
15	NPP 1-16	4	94.35	4.18	5.90E-06	3.02E-06	2.88E-06	1.12E-09	10.12	1.01
16	NPP 1-16	4	179.92	4.55	7.44E-06	2.04E-06	5.40E-06	1.10E-09	14.73	1.17
17	NPP 1-16	2	200.00	8.28	3.61E-06	1.61E-06	1.99E-06	3.66E-10	6.18	0.79
18	NPP 1-16	3	200.00	1.84	3.61E-06	3.71E-07	3.23E-06	5.94E-10	43.54	1.64
19	NPP 1-16	4	100.00	3.55	1.80E-06	6.85E-07	1.12E-06	4.11E-10	16.31	1.21
20	NPP 1-16	5	200.00	1.00	3.61E-06	1.07E-07	3.50E-06	6.43E-10	162.98	2.21

Table 3-2. Results of 96 Hour Long Desorption Experiments by Bond et al. (2008)

Num#	Soil Sample*	Artificial Groundwater Solution Number	Sediment Conc. (g/L)	Alkalinity (meq/L)	Labile U(VI) (mol/L)	U(VI) Dissolved (mol/L)	U(VI) Adsorbed (mol/L)	U(VI) Adsorbed (mol/m2)	Measured K_d (mL/g)	Log K_d (ml/g)
21	NPP 1-20	4	24.98	3.87	2.35E-07	1.52E-07	8.31E-08	1.94E-10	21.86	1.34
22	NPP 1-20	4	50.23	3.82	4.73E-07	2.82E-07	1.92E-07	2.22E-10	13.54	1.13
23	NPP 1-20	4	199.82	3.64	1.88E-06	6.28E-07	1.25E-06	3.66E-10	10.00	1.00
24	NPP 1-20	4	400.76	3.55	3.78E-06	8.38E-07	2.94E-06	4.27E-10	8.75	0.94
25	NPP 1-20	4	98.81	3.54	6.22E-06	3.66E-06	2.55E-06	1.51E-09	7.05	0.85
26	NPP 1-20	4	199.71	3.60	7.17E-06	2.74E-06	4.42E-06	1.29E-09	8.07	0.91
27	NPP1-20	3	201.02	2.89	1.89E-06	2.92E-07	1.60E-06	4.65E-10	27.30	1.44
28	NPP1-20	5	199.91	1.43	1.88E-06	8.61E-08	1.80E-06	5.24E-10	104.42	2.02
29	NPP1-20	6	201.66	0.87	1.90E-06	2.65E-08	1.87E-06	5.42E-10	350.98	2.55
30	NPP1-20	12	200.34	5.51	1.89E-06	8.56E-07	1.03E-06	3.00E-10	6.01	0.78
31	NPP1-20	13	201.43	7.35	1.90E-06	8.46E-07	1.05E-06	3.04E-10	6.17	0.79
32	SPP 2-18	8	199.16	2.07	5.05E-07	2.17E-07	2.87E-07	9.43E-11	6.63	0.82
33	SPP 2-18	10	200.32	1.19	5.08E-07	9.71E-08	4.11E-07	1.34E-10	21.11	1.32
34	SPP 2-18	11	199.75	0.60	5.06E-07	2.99E-08	4.76E-07	1.56E-10	79.67	1.90
35	SPP 2-18	9	389.48	3.86	9.87E-07	5.13E-07	4.73E-07	7.95E-11	2.37	0.37
36	SPP 2-18	9	95.41	4.52	4.81E-06	3.89E-06	9.28E-07	6.36E-10	2.50	0.40
37	SPP 2-18	9	181.16	4.18	5.03E-06	3.44E-06	1.59E-06	5.75E-10	2.56	0.41
38	SPP 2-18	9	196.94	4.04	4.99E-07	3.15E-07	1.84E-07	6.11E-11	2.97	0.47
39	SPP 2-18	4	185.10	4.24	5.39E-06	3.42E-06	1.96E-06	6.93E-10	3.10	0.49
40	SPP 2-18	4	397.75	3.99	1.01E-06	4.21E-07	5.87E-07	9.64E-11	3.50	0.54

Table 3-2. Results of 96 Hour Long Desorption Experiments by Bond et al. (2008)

Num#	Soil Sample*	Artificial Groundwater Solution Number	Sediment Conc. (g/L)	Alkalinity (meq/L)	Labile U(VI) (mol/L)	U(VI) Dissolved (mol/L)	U(VI) Adsorbed (mol/L)	U(VI) Adsorbed (mol/m2)	Measured K_d (mL/g)	Log K_d (ml/g)
41	SPP 2-18	4	95.07	4.47	5.16E-06	4.21E-06	9.49E-07	6.53E-10	2.37	0.38
42	SPP 2-18	3	200.05	1.96	5.07E-07	1.64E-07	3.43E-07	1.12E-10	10.48	1.02
43	SPP 2-18	5	198.94	1.03	5.04E-07	7.96E-08	4.24E-07	1.39E-10	26.80	1.43
44	SPP 2-18	6	198.87	0.60	5.04E-07	3.31E-08	4.71E-07	1.55E-10	71.43	1.85
45	SPP 2-18	4	96.50	3.85	2.45E-07	1.46E-07	9.87E-08	6.69E-11	7.02	0.85
46	SPP 2-18	4	800.70	3.48	2.03E-06	6.89E-07	1.34E-06	1.09E-10	2.43	0.39
47	SPP 2-18	4	1599.78	3.35	4.05E-06	9.53E-07	3.10E-06	1.27E-10	2.03	0.31
48	SPP 2-18	4	95.60	3.76	2.74E-06	1.69E-06	1.05E-06	7.18E-10	6.49	0.81
49	SPP 2-18	4	95.60	3.60	3.99E-06	2.60E-06	1.38E-06	9.47E-10	5.56	0.75
50	SPP 2-18	4	180.80	3.76	2.96E-06	1.59E-06	1.37E-06	4.96E-10	4.79	0.68
51	SPP 2-18	4	183.00	3.72	4.21E-06	2.28E-06	1.93E-06	6.90E-10	4.64	0.67
52	SPP1-18	3	199.93	2.86	2.23E-06	5.87E-07	1.65E-06	3.74E-10	14.03	1.15
53	SPP1-18	5	200.60	1.47	2.24E-06	2.93E-07	1.95E-06	4.41E-10	33.15	1.52
54	SPP1-18	6	201.09	0.83	2.25E-06	1.22E-07	2.13E-06	4.80E-10	86.81	1.94
55	SPP1-18	12	200.54	5.36	2.24E-06	1.37E-06	8.72E-07	1.98E-10	3.18	0.50
56	SPP1-18	13	200.30	7.35	2.24E-06	1.46E-06	7.83E-07	1.78E-10	2.68	0.43
57	SPP 1-18	4	103.06	3.60	1.15E-06	6.32E-07	5.19E-07	2.29E-10	7.97	0.90
58	SPP 2-16	4	50.20	3.60	3.42E-07	3.04E-07	3.84E-08	4.94E-11	2.52	0.40
59	SPP 2-16	4	199.74	3.74	1.36E-06	9.55E-07	4.06E-07	1.31E-10	2.13	0.33
60	SPP 2-16	4	399.87	3.77	2.73E-06	1.57E-06	1.15E-06	1.86E-10	1.83	0.26

Table 3-2. Results of 96 Hour Long Desorption Experiments by Bond et al. (2008)

Num#	Soil Sample*	Artificial Groundwater Solution Number	Sediment Conc. (g/L)	Alkalinity (meq/L)	Labile U(VI) (mol/L)	U(VI) Dissolved (mol/L)	U(VI) Adsorbed (mol/L)	U(VI) Adsorbed (mol/m2)	Measured K_d (mL/g)	Log K_d (ml/g)
61	SPP 2-16	4	99.23	3.57	5.96E-06	4.50E-06	1.46E-06	9.53E-10	3.28	0.52
62	SPP 2-16	4	198.78	3.58	6.64E-06	4.12E-06	2.52E-06	8.19E-10	3.07	0.49
63	SPP2-16	3	200.46	2.48	1.37E-06	5.30E-07	8.36E-07	2.70E-10	7.87	0.90
64	SPP2-16	5	199.86	1.58	1.36E-06	2.92E-07	1.07E-06	3.46E-10	18.38	1.26
65	SPP2-16	6	200.04	0.83	1.36E-06	1.62E-07	1.20E-06	3.88E-10	37.09	1.57
66	SPP2-16	12	198.40	5.68	1.35E-06	9.32E-07	4.20E-07	1.37E-10	2.27	0.36
67	SPP 1-22	4	100.69	3.62	1.23E-06	6.79E-07	5.54E-07	2.13E-10	8.10	0.91
68	SPP 1-16	4	100.62	3.65	1.71E-06	1.00E-06	7.08E-07	3.32E-10	7.04	0.85

Note: * SPP stands for South Process Pond sample and NPP stands for North Process Pond sample. The number following NPP (or SPP) is the sample number and the last number is the depth of the sample in feet.

Table 3-3. Alkalinity of the End Member Waters (meq/L)

Water Type	Average Measured Value	Total Alkalinity (meq/L)
Groundwater: From 42 Wells in Hanford 300 Area (Integrated Field Research Challenge Project) (Ma et al., 2010)	Bicarbonate content (HCO_3^-) of 2.574×10^{-3} mol/L	2.574 meq/L
River water: During 2001-2007 at Richland, Washington (U.S. Geological Survey) (Ma et al., 2010)	Bicarbonate content (HCO_3^-) of 1.128×10^{-3} mol/L	1.128 meq/L
Pore Water: Composition based on Ultracentrifugation of LFI borehole samples (PNNL-16435, Table D.1)	Alkalinity of 160.95 mg/L as $CaCO_3$	3.2 meq/L

Table 3-4. Calculation of U(VI) Sorption Parameters for Implementation in the Transport Model

River Fraction	Alkalinity (meq/L)	Log K_d (L/kg) For <2 mm grain size sediment	K_d (L/kg) For <2mm grain size sediment	K_d (L/kg) Corrected to Bulk Volume	Forward Rate Constant (1/hr)*
0	2.57	1.20	15.85	3.17	9.31E-03
0.05	2.50	1.22	16.60	3.32	9.75E-03
0.1	2.43	1.24	17.40	3.48	1.02E-02
0.15	2.36	1.26	18.25	3.65	1.07E-02
0.2	2.28	1.28	19.15	3.83	1.13E-02
0.25	2.21	1.30	20.12	4.02	1.18E-02
0.3	2.14	1.33	21.15	4.23	1.24E-02
0.35	2.07	1.35	22.25	4.45	1.31E-02
0.4	2.00	1.37	23.43	4.69	1.38E-02
0.45	1.92	1.39	24.70	4.94	1.45E-02
0.5	1.85	1.42	26.06	5.21	1.53E-02
0.55	1.78	1.44	27.52	5.50	1.62E-02
0.6	1.71	1.46	29.10	5.82	1.71E-02
0.65	1.63	1.49	30.81	6.16	1.81E-02
0.7	1.56	1.51	32.66	6.53	1.92E-02
0.75	1.49	1.54	34.67	6.93	2.04E-02
0.8	1.42	1.57	36.85	7.37	2.16E-02
0.85	1.34	1.59	39.23	7.85	2.31E-02
0.9	1.27	1.62	41.84	8.37	2.46E-02
0.95	1.20	1.65	44.71	8.94	2.63E-02
1	1.13	1.68	47.87	9.57	2.81E-02

** Calculated from reverse (desorption) reaction rate constant of 5e-4 1/hr, bulk density of 1.88 kg/L, and porosity of 0.32, based on desorption experiments conducted on field-textured sediments by Liu et al. (2008).

4 Software Applications

The groundwater flow and uranium transport calculations were performed using the STOMP (Subsurface Transport Over Multiple Phases) (Version 3.2; Build 2) code, Hanford Information System Inventory (HISI) identification number 2471. The STOMP operational modes STOMP-w and STOMP-wr were utilize for the calculations. The software was approved and controlled in accordance with PRC-PRO-IRM-309 *Controlled Software Management*.

Both modes of the STOMP code (STOMP-w: *stomp-w-bd-chprc0001.x* ; STOMP-wr: *stomp-w-r-bd-chprc02l.x*) were compiled with the banded-matrix solver and executed on the INTERA Austin Linux® Cluster that is owned and managed by INTERA, Inc. in Austin, TX. The computer property tag identifier for the frontend node is #378 at INTERA's Austin office. The frontend hardware (controller node) is a Dell® Optiplex® 760 with a 3.16-GHz Intel® E8500 processor and 4 GB of RAM loaded.

As given by the command name –a, the operating system details are

```
Linux version 2.6.29.4-167.fc11.i686.PAE (mockbuild@x86-
5.fedora.phx.redhat.com) (gcc version 4.4.0 20090506 (Red Hat
4.4.0-4) (GCC) ) #1 SMP Wed May 27 17:28:22 EDT 2009.
```

In addition, the STOMP code (STOMP-w: stomp-w-cg-chprc02i.x) was also compiled with the banded-matrix solver and executed on the INTERA Richland Linux®[3] Cluster that is owned and managed by INTERA, Inc. in Austin, TX. The computer property tag identifier for the frontend node is #469 at INTERA's Richland office. It is a Dell PowerEdge R510 with two 6-core Intel Xeon X5660 processors @ 2.80GHz and 48 GB of RAM.

As given by the command name uname –a, the operating system details are

```
Linux green 2.6.32-32-server #62-Ubuntu SMP Wed Apr 20 22:07:43
UTC 2011 x86_64 GNU/Linux (gcc version Ubuntu 4.4.3-4ubuntu5
4.4.3)
```

The results of CHPRC acceptance testing (CHPRC-00515, Rev. 0) demonstrate that the STOMP software is acceptable for its intended use by the CHPRC. Installations of the software are operating correctly, as demonstrated by the INTERA Linux Cluster system producing the same results as those presented for selected problems from the STOMP Application Guide (PNNL-11216) in accordance with CHPRC-00211 REV. 0. The use of this software was consistent with its purpose, used within its limitations, and was a valid application of STOMP consistent with the functional requirements.

Linux-based scripts were utilized for pre- and post-processing of the model inputs and outputs. Scripts used were both provided with the STOMP software and developed for this specific calculation. Scripts developed for this calculation were checked for correctness as part of this Environmental Calculation File.

GoldSim® PRO 10.11 software was used for the reactive transport calculations of the measured laboratory data to develop the desorption rate presented in Section 3.5.2 . GoldSim is approved software that is managed and used in compliance with the requirements of PRC-PRO-IRM-309, *Software Control Management*. The GoldSim calculations were performed on DELL PC, SUNIL-PC (INTERA Property Tag 00362).

Microsoft Excel® 2007 spreadsheets were used to perform various routine calculations and for selected plotting. This use of Excel® is in the spreadsheet category and all calculations were subjected to checking as part of this Environmental Calculation File.

5 Calculation

The June-North model was used to develop three distinct models:

[3] Linux is the registered trademark of Linus Torvalds in the U.S. and other countries.

- River-tracer model
- Alkalinity model
- Uranium model

The river-tracer model was used to calibrate the flow and transport parameters. The alkalinity model was used to simulate alkalinity variation within the aquifer based on the mixing of the inflowing river water, recharge water, and the background groundwater. The alkalinity distribution during the 2-year simulation period was used in one of the equilibrium sorption uranium models where the sorption/desorption parameters were allowed to vary spatially and over time. Based on the different sorption models, five uranium transport models were developed and used to evaluate the no-action scenario. Two of these were further used to evaluate selected remedial alternative (RA) scenarios.

The December-North model was developed only as far as the river-tracer model for calibration. The results of the model indicated that the mixing of river water with groundwater was limited in extent, consequently the alkalinity and uranium models were not further developed for the December-North transect.

5.1 June-North Transect

5.1.1 Model Calibration

The river-tracer model for the June-North transect was calibrated for both flow and transport parameters. Insensitivity of simulated heads to flow-only parameters required fitting both heads and the migration of river water into and out of the aquifer simultaneously. The calibration simulation involved running the model for the 2008-2009 two-year period and evaluating the fit between the simulated and observed heads as well as the fit between simulated and observed electrical conductivity measurements at wells 399-2-2, 399-1-7, 399-1-17a, and 399-1-12. At the location of each monitoring well along the transect, the model nodes that fell within the top and bottom screen elevation for each well were flagged for output of saturation, hydraulic head, and concentration. For each time step the well nodes that registered a water saturation of 1.0 were used in the calculation of the average concentration at each well. The arithmetic mean was used for the average where concentrations for all nodes were weighted equally. Determination of goodness of fit was done by visual inspection since the measured well ECs were noisy making a purely quantitative comparison not feasible. Adjustments to parameters governing flow and transport were made and the simulation run again. This process was repeated until a suitable match was obtained between measured and simulated water levels and ECs.

Parameters adjusted during the calibration process included hydraulic conductivity and dispersivity of the Hanford formation and the river sediment unit. Also the van Genuchten alpha parameter representing the air-entry pressure was modified in the vadose zone to account for higher than expected upward vertical migration of flow into the vadose zone. A separate model layer to represent the vadose zone in the Hanford formation was established above the PRZ in order to apply a longitudinal dispersivity more appropriate for that portion of the model.

Calibration of the uranium model involved adjusting initial labile uranium concentrations in soil based on comparison between simulated and measured (1992-2010) groundwater uranium concentrations at representative well locations along the June-North transect. The groundwater uranium concentration data was also used to determine a representative start date for the 200 year simulation based on a visual comparison of the simulated and measured time series.

5.1.2 Aquifer Alkalinity

Two different representations of uranium sorption-desorption were implemented: equilibrium sorption and kinetic sorption. Both sorption models were dependent on the aquifer alkalinity. Five uranium transport models were developed based on different applications of the sorption models:

- Equilibrium sorption, groundwater alkalinity
- Equilibrium sorption, river water alkalinity
- Equilibrium sorption, spatially variable alkalinity
- Kinetic sorption, groundwater alkalinity
- Kinetic sorption, river water alkalinity

A sixth model with kinetic sorption based on spatially variable alkalinity was not developed due to limitation in STOMP for applying spatially variable kinetic sorption parameters.

The groundwater and river water alkalinity models were based on the respective constant, single-value alkalinity end members. The spatially variable alkalinity model reflected alkalinity variations due to mixing of groundwater with river water and vadose zone pore water. The alkalinity, while spatially variable in space, was also allowed to vary with time during the two-year simulation period. To represent the time-varying aspect of sorption, the two-year period was divided into 29 intervals that were chosen so as to capture the variability in the flow field (Figure 5-1). The equilibrium sorption parameters for the variable alkalinity model represent point-in-time values for the 29 times indicated (Figure 5-1). Each of the 29 times represent the start of a time period over which each sorption parameter was held constant.

The groundwater model was run for the 2008-2009 period with the inland boundary condition set to background groundwater alkalinity (2.57 meq/L), the river boundary condition set to a representative river alkalinity (1.13 meq/L), and the recharge alkalinity set to a value representing alkalinity of recharging vadose zone pore water (3.20 meq/L). The basis for these values is provided in Table 3-3. Alkalinity was modeled as a conservative tracer.

Alkalinity was used to calculate the kinetic forward sorption rate constant and the equilibrium sorption coefficient, K_d. The equilibrium sorption coefficient was calculated using Equation 2 for the < 2 mm size fraction, then corrected for the gravel fraction by multiplying by 0.2. The forward and backward rate constants for the kinetic model were calculated as above (Sec 3.5.2).

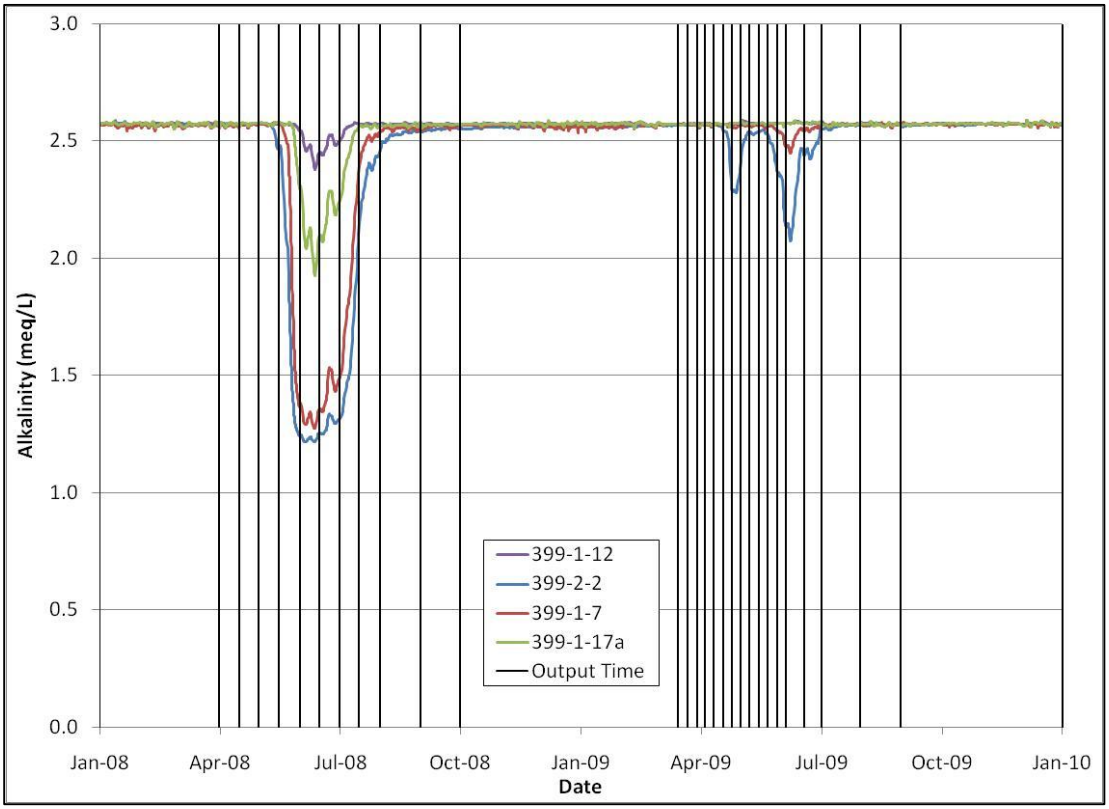


Figure 5-1. Selection of the alkalinity transition times based on the simulated alkalinity over time at four selected well locations

5.1.3 Uranium Model – No Action Scenario

Five uranium transport models were used to model the no-action scenario for the June-North transect based on the five different sorption model applications. Within STOMP, initial uranium concentrations are assigned in the model using volumetric concentrations. The volumetric concentrations were calculated from soil concentrations for each grid block based on the bulk density. Simulations were setup to run 100 cycles of the two-year simulation period for a total of 200 years simulation time. Comparison of simulated to measured groundwater uranium concentrations at the monitoring wells provided information with which to determine the representative start time of the model and to adjust initial soil uranium concentrations.

5.2 December-North Transect

5.2.1 Model Calibration

Calibration of the December-North model was attempted using the same procedure as for the June-North model. The wells used for calibration (water level and EC data) include: 399-2-1, 399-3-18, 399-2-5, 399-1-17A and 399-1-21A (Figure 3-3c). The calibration of the river-tracer model for the December-North transect was considered unsuccessful due to the inability of the model to match measured tracer (normalized EC) concentrations, especially for wells further from the river along the transect (see discussion in Section 6.1.2). As a result, the alkalinity and uranium models were not developed for the December-North transect.

5.3 Remedial Alternative Simulations

The calibrated June-North model was used to evaluate selected remedial alternatives (RA). The purpose of the RA simulations was to provide support to the feasibility study pertaining to remedial actions of the 300 Area waste sites. The selected RA simulated with the 2-D transport model were:

- RA 1 – PRZ Complete Mass Removal
- RA 2 – PRZ/SZ Complete Mass Removal
- RA 3 – Deep VZ/PRZ Source Excavation Prototype #1
- RA 4 – Phosphate Infiltration Prototype #1
- RA 5 – ET Barrier Prototype
- RA 6 – Phosphate Infiltration Prototype #2
- RA 7 – Phosphate Infiltration Prototype #3
- RA 8 – Combined Phosphate Infiltration Deep VZ/PRZ Source Excavation Prototype
- RA 9 – Deep VZ/PRZ Source Excavation Prototype #2
- RA 10- Phosphate Infiltration Prototype #4

A description of what each RA represents and how it was implemented is presented below. The location within the model over which the RA was implemented is presented in Figures 5-2 and 5-3.:

RA 1 – PRZ Complete Mass Removal

Removal of all mass from the PRZ to represent the treatment by phosphate injection in the PRZ to remove uranium from the zone that is periodically inundated with groundwater resulting from high-river stage (Figure 5-2a). The PRZ extends from 105 to 107 m above mean sea level.

RA 2 - PRZ/SZ Complete Mass Removal

In addition to removal of uranium mass from the PRZ as in RA 1, this treatment option removes all uranium mass from the saturated zone (Figure 5-2b).

RA 3 - Deep VZ/PRZ Source Excavation Prototype #1

Deep excavation would consist of removing all uranium mass within three regions of the vadose zone and PRZ (Figure 5-2c). These regions would encompass most of the high-uranium soil concentration locations.

RA 4 - Phosphate Infiltration Prototype #1

Reducing uranium soil mass by 50% in selected regions of the vadose zone would reduce the dissolved uranium concentrations in recharge water migrating downward through the vadose zone and into the underlying saturated zone (Figure 5-2d). This would in turn reduce uranium groundwater concentrations. Removal of uranium mass would be accomplished by treatment with polyphosphate.

RA 5 - ET Barrier Prototype

Reducing infiltrating water into the subsurface would reduce the water migrating through the soil-contaminated vadose zone, effectively reducing the migration and introduction of uranium into the PRZ and saturated zone. Reduction of infiltration would be accomplished by installation of low-permeability caps at the ground surface at two locations overlying the contaminated zones (Figure 5-2e). The recharge was reduced from 55.4 mm/yr in the no-action simulation to 0.5 mm/yr in RA 5.

RA 6 - Phosphate Infiltration Prototype #2

Same as RA 4 except for a slightly larger lateral polyphosphate treatment footprint. The uranium soil mass was reduced by 50% in the selected regions of the vadose zone (Figure 5-3a).

RA 7 - Phosphate Infiltration Prototype #3

Same as RA 6 except that the uranium soil mass was reduced by 80% in the selected regions of the vadose zone (Figure 5-3a).

RA 8 - Combined Phosphate Infiltration and Deep VZ/PRZ Source Excavation Prototype

Same as RA 6 except for the additional removal of 100% of the uranium soil mass by excavation from the areas of the vadose zone with the highest soil concentrations, similar to RA 3. The modified selected regions of the vadose zone are presented in Figure 5-3b, with the yellow regions showing the location of the excavated soils within the red-shaded infiltration regions.

RA 9 – Deep VZ/PRZ Source Excavation Prototype #2

Same as RA 6 except that the polyphosphate treatment footprint was replaced by total excavation of the contaminated soil, i.e. reduction by 100% of the U soil mass in the selected region of the vadose zone (Figure 5-3c).

RA 10 – Phosphate infiltration prototype #4

Same as RA 6 except that the uranium soil mass was reduced by 30% in the selected regions of the vadose zone (Figure 5-3a).

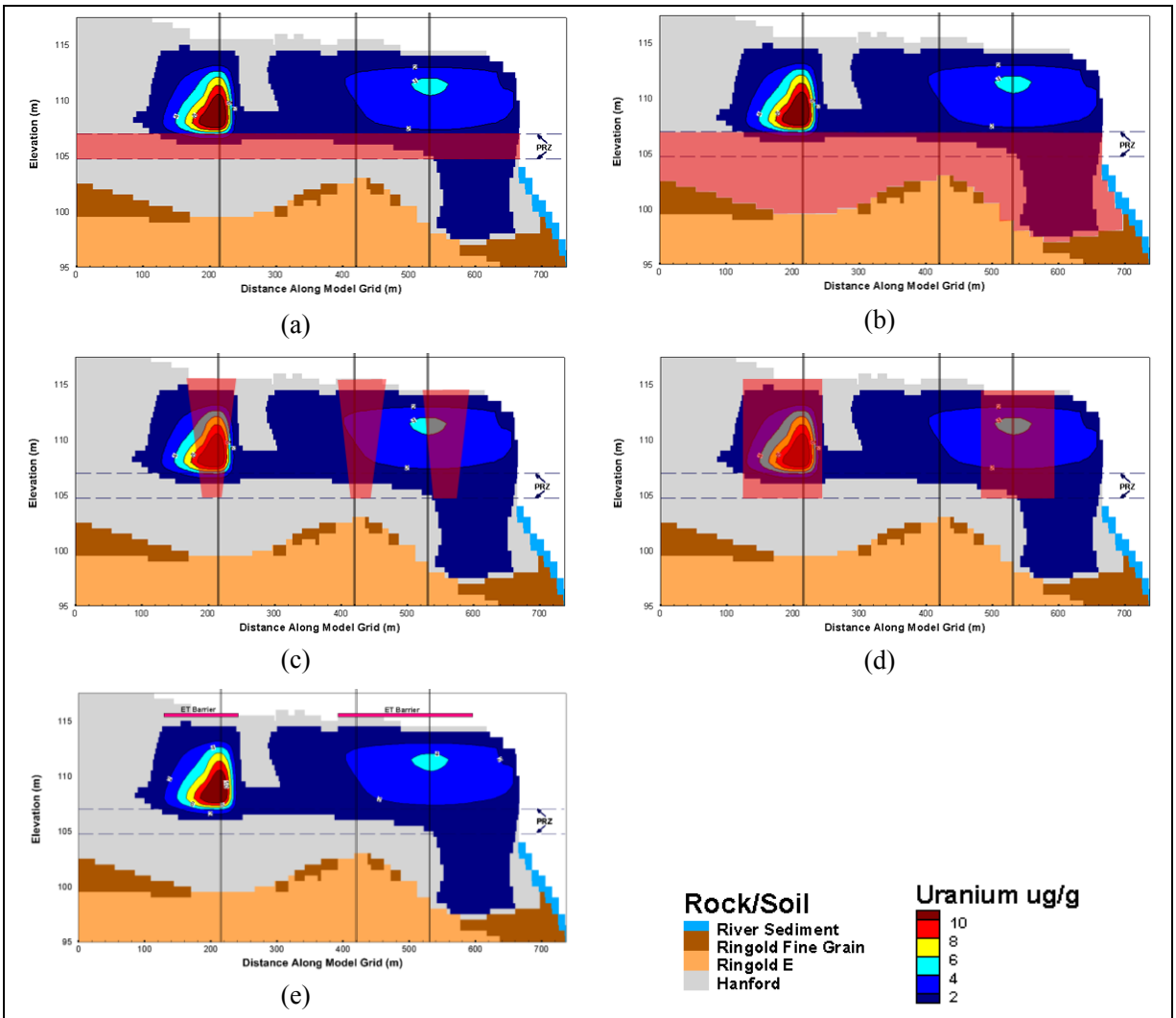
The simulations were conducted assuming that each remedial alternative was applied starting January 1, 2012, 20 years after the model start time of January 1, 1992 (Sec. 6). Models used to evaluate the remedial alternatives were limited to the equilibrium sorption, variable alkalinity model and the kinetic sorption, groundwater alkalinity model since they were deemed the most representative of the sorption models (cf. section 6.3.1 p. 71)".

Implementation of the remedial alternatives required the modification of the soil concentrations to represent the mass removal via the RA technology. For RA 1 and 2, the soil uranium concentrations were copied from the 20-year no-action model restart file and pasted into an Excel spreadsheet in i,j,k indices order to match the grid coordinates in STOMP. Using i,j,k indices in the spreadsheet, the cells to be acted on were selected for the appropriate remedial alternative. For RA 1, soil uranium concentrations for cells within the PRZ (for z = 105 to 107 m amsl, $21 \leq k \leq 28$ for all i) were set to zero. For RA 2, soil uranium concentrations for all cells below the top of PRZ (for all $k \leq 28$ for all i) were set to zero. The RA-modified concentrations were copied into a spreadsheet setup with the required Initial Conditions Card format in STOMP. The contents of the Initial Conditions Card spreadsheet were copied into the Initial Conditions Card in the STOMP input file using the 'Overwrite' specification and the RA simulation was run using the 20-year restart file from the no-action simulation.

The initial concentrations for RA simulations 3, 4, and 6 through 10 were done in a similar manner. In these cases, the desired remedial alternative scheme was marked by hand on a computer generated figure

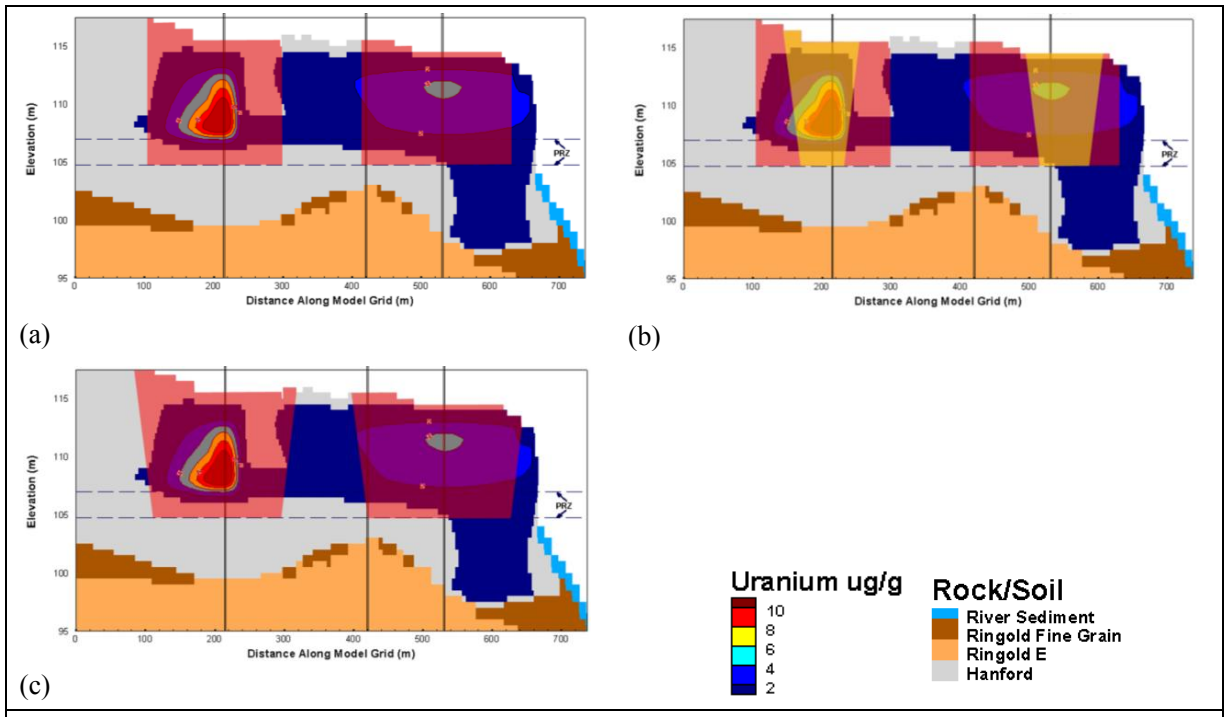
of the cross section grid and soil concentrations. A scanned version of that figure was imported into ArcGIS and Geo-referenced. New shapefiles of the areas to be remediated were created by tracing over the Geo-referenced, hand-marked areas. The new shape files were superposed onto a shapefile of the existing grid and the to-be-remediated model cells were selected and labeled with -999. This information was exported and then imported into an Excel spreadsheet where concentrations for flagged cells were selected and modified according to the respective action to be taken (e.g., for excavated cells, a concentration of 0 was assigned). The new initial soil uranium concentrations were then imported into the STOMP input file as was done for RA 1 and 2.

For RA 5, the recharge rates for recharge boundary cells in the Boundary Conditions Card in the STOMP input file were modified to reflect the reduction in recharge. The simulation was restarted using the 20-year restart file from the no-action simulation and the updated input file.



Note: The well locations (vertical lines) are shown for geographic reference only and do not indicate the actual depths and screened intervals.

Figure 5-2. Uranium Soil Concentrations at the Start of 2012 along with Outline of Areas Modified for a) RA 1, b) RA 2, c) RA3, d) RA 4, and e) RA 5.



Note: The well locations (vertical lines) are shown for geographic reference only and do not indicate the actual depths and screened intervals

Figure 5-3. Uranium Soil Concentrations at the Start of 2012 along with Outline of Modified Areas (red/yellow shaded areas) for a) RA 6, 7 & 10, b) RA 8, and c) RA 9

6 Results/Conclusions

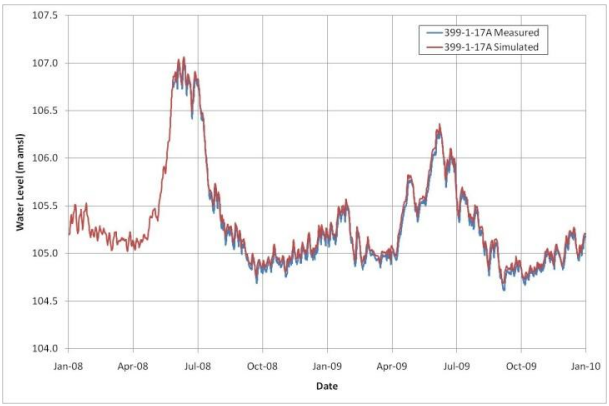
6.1 Model Calibration

6.1.1 June-North Model

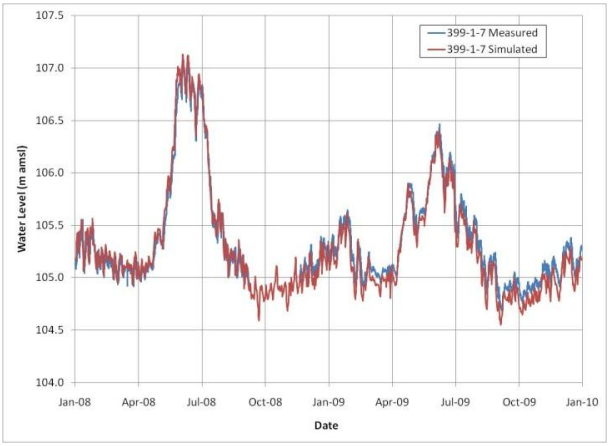
Within a reasonable range of hydraulic conductivity for the Hanford formation, the match between simulated and measured water levels at wells 399-1-17A, 399-1-7, and 399-2-2 was acceptable such that model calibration was insensitive to hydraulic conductivity (Figure 6-1). To obtain a robust calibration, transport was included in the calibration process. Thus the three main parameters adjusted during model calibration included hydraulic conductivity of the Hanford formation and the river alluvium, and the longitudinal dispersivity of the Hanford formation.

The characteristics of the measured EC breakthrough curves at the monitoring wells that were used in comparing the simulated breakthrough included the overall shape of the breakthrough curve, the maximum normalized EC concentration, and the time of breakthrough. For wells closer to the river (399-1-7 and 399-2-2), the model better matched the measured breakthrough (Figure 6-2b and c). For wells further from the river (399-1-17A), the match is not as good (Figure 6-2a). The poorer fit for wells further inland along the transect is thought largely due to the three-dimensional groundwater flow system underlying the 300 Area being represented by a two-dimensional cross section model. In this case, the inflowing river water has to follow the transect inland from the southeast to the northwest. In the aquifer, some of the river water presumably takes a more direct route from the river to well 399-1-17A during high river stage when the river is flowing into the aquifer. In the model result presented (Figure 6-2a), the simulated tracer breakthrough occurs earlier than the observed breakthrough suggesting that if hydraulic conductivity were decreased then the tracer would migrate slower and simulated breakthrough would occur later in time and match the observed breakthrough better. However there is a limited time over which the river stage is high and hydraulic gradients are inland. If the hydraulic conductivity is reduced, then the river tracer front does not migrate far enough inland (along the transect) before the gradient reverses and the intruded river water migrates back towards the river (Figure 6-3). As a result, the breakthrough is either not observed at 399-1-17A or it is observed but at smaller concentrations representing less breakthrough of the river-tracer front. Increasing the hydraulic conductivity causes the simulated breakthrough to occur earlier and at higher concentrations than observed.

The third parameter adjusted during model calibration was the longitudinal dispersivity. The longitudinal dispersivity, α_L, affects the shape of the breakthrough curve. Higher α_L spreads out the front (relatively) and the slopes of the leading and trailing edges of the breakthrough curve are flattened out. The peak concentration will be lower as well. Lower α_L reduces the dispersion leading to a steepening of the leading and trailing edges of the breakthrough curve, and increases the peak concentration.



(a)



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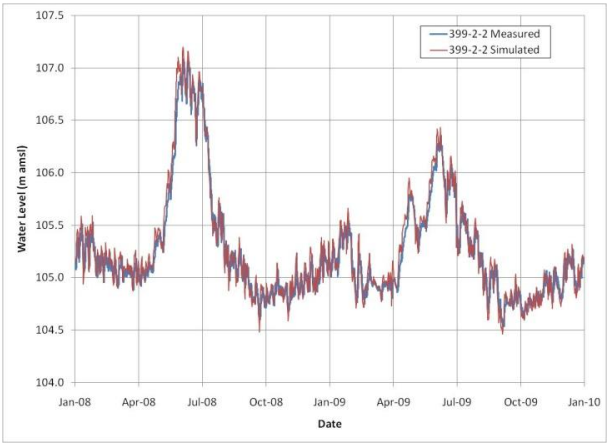
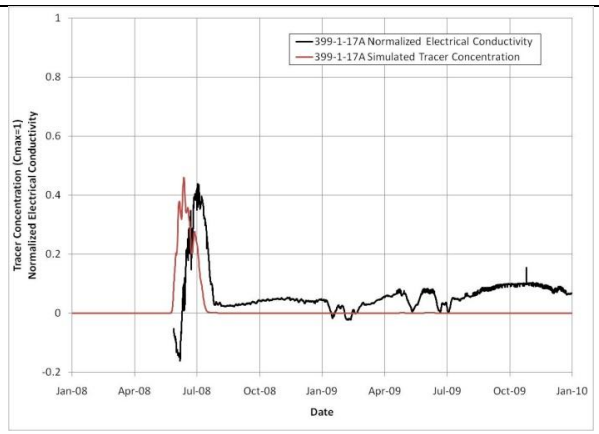
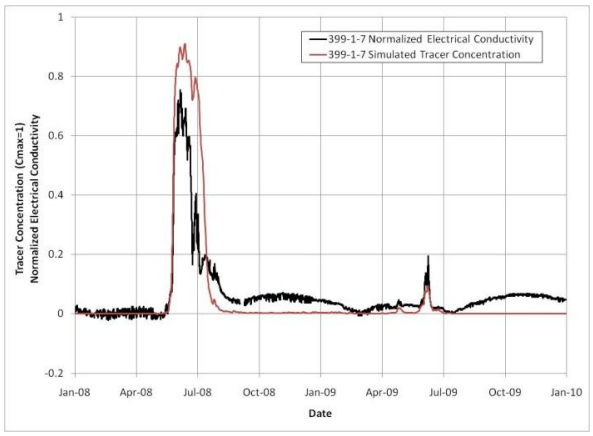


(c)

Figure 6-1. Simulated and Measured Water Levels for 2008 and 2009 at Wells a) 399-1-17A, b) 399-1-7, and c) 399-2-2



(a)



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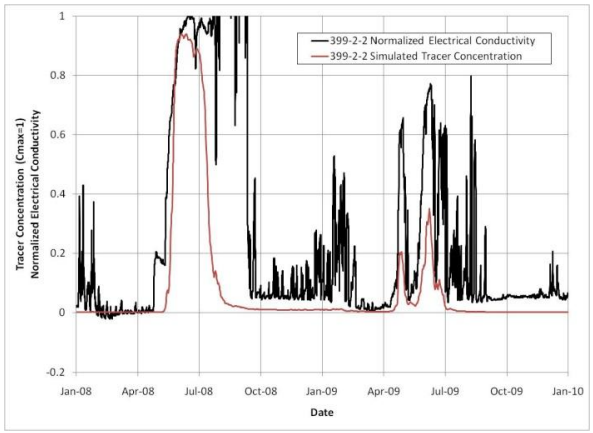


(c)

Figure 6-2. Simulated tracer concentration and normalized measured electrical conductivity during 2008 and 2009 at wells a) 399-1-17A, b) 399-1-7, and c) 399-2-2

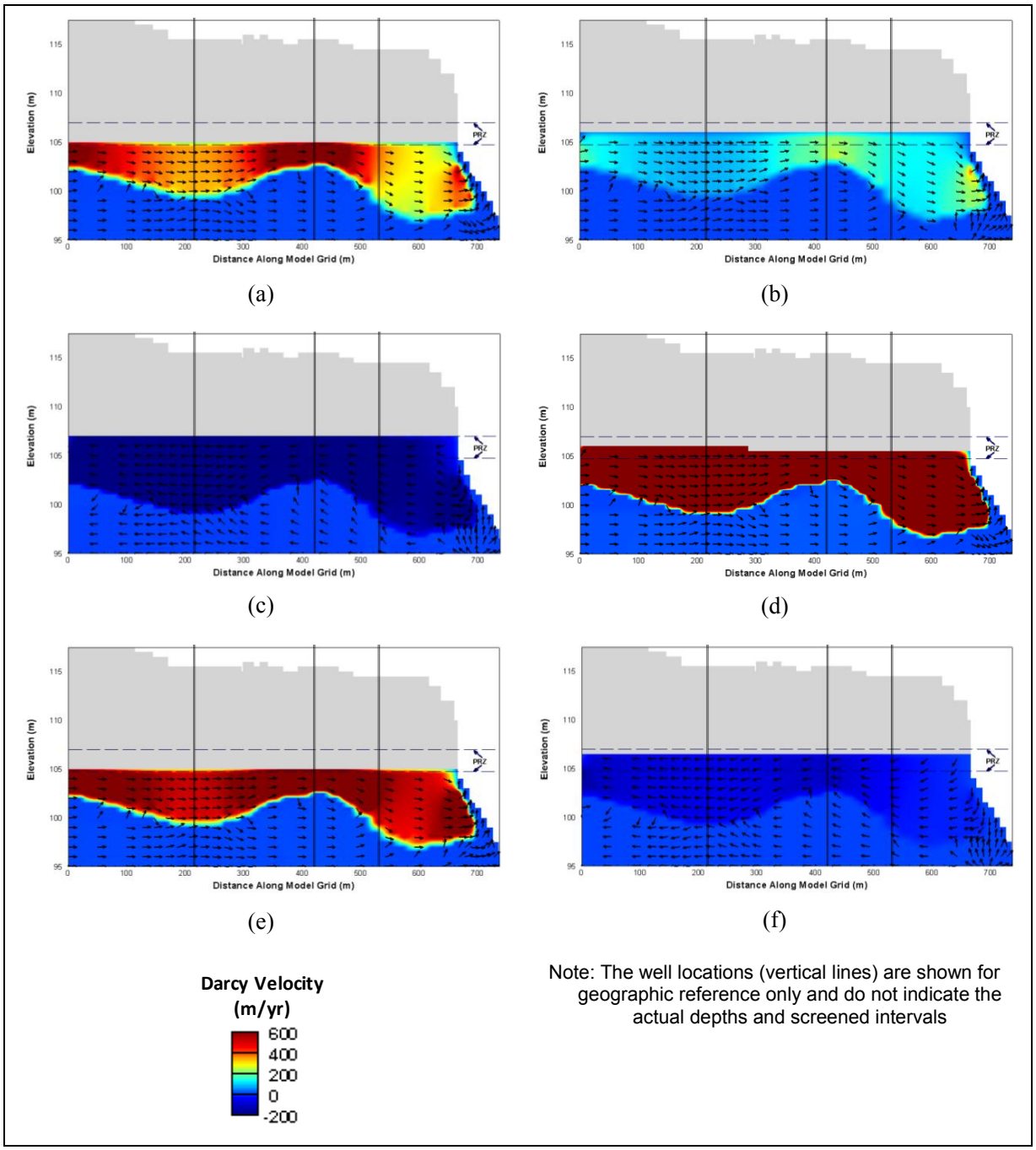


Figure 6-3. Simulated Darcy Groundwater Velocities along Model Grid at a) Jan 2008, b) May 2008, c) June 2008, d) July 2008, e) March 2009, and f) June 2009

Table 6-1 lists the calibrated parameter values given the above considerations. Hydraulic conductivity of the Hanford formation of 9,000 m/day, hydraulic conductivity of the river alluvium of 10 m/day, and longitudinal dispersivity of the Hanford formation of 8.75 m provided a simulated breakthrough at 399-1-17A that was as close in time as possible to the observed breakthrough while exhibiting the overall shape and peak concentration of the observed breakthrough. The Hanford formation hydraulic conductivity of 9,000 m/day is within the range of estimates provided by others. The river alluvium hydraulic conductivity of 10 m/day is close to and slightly higher than the upper value reported of 7 m/day (PNL-10285). The longitudinal dispersivity of the Hanford formation, 8.75 m, is higher than that reported by others (PNNL-17708; Yabusaki et al., 2008) but represents the value suggested by the Xu and Eckstein model (Xu and Eckstein, 1995; EPA, 2011) based on the plume travel distance.

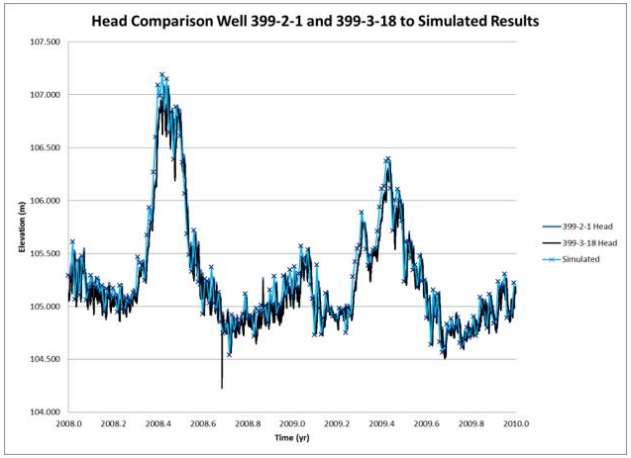
Table 6-1. Final Model Parameters

Parameter	Hanford SZ/PRZ	Hanford VZ	Ringold E	Ringold Fine Grained	River Alluvium
Horizontal K (m/d)	9,000	9,000	42	1	10
K Anisotropy (K_z/K_x)	0.01	0.01	0.01	0.01	1.0
Diffusive Porosity (cm^3/cm^3)	0.167	0.167	0.177	0.177	0.177
Longitudinal Dispersivity, α_L (m)	8.75	0.875	1	1	1
Dispersivity Anisotropy, α_T/α_L	0.01	0.1	0.01	0.01	0.01
van Genuchten α (1/cm)	0.1	0.1	0.008	0.008	0.008
van Genuchten n (-)	1.725	1.725	1.66	1.66	1.66
Residual saturation (cm^3/cm^3)	0.132	0.132	0.147	0.147	0.147
Particle Density, ρ_P (g/cm^3)	2.68	2.68	2.65	2.65	2.76
Bulk Density, ρ_B (g/cm^3)	2.23	2.23	2.18	2.18	2.27

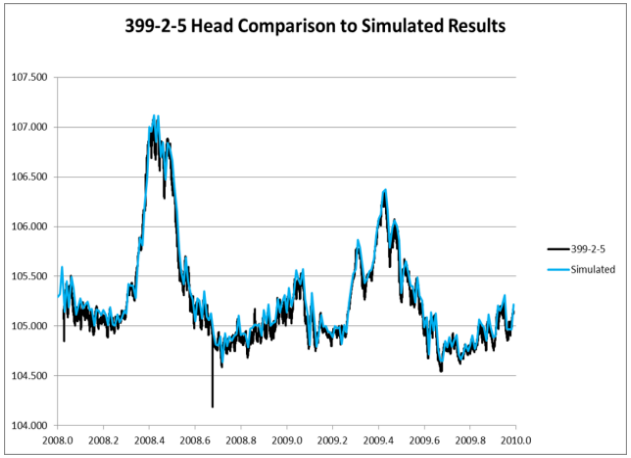
Additional parameters that were calibrated include the vertical-to-transverse hydraulic conductivity ratio, the vadose zone longitudinal dispersivity, and the van Genuchten α parameter for the Hanford formation. These three parameters were modified so as to reduce the unreasonably high migration of river-tracer and uranium in the vadose zone down to an acceptable level. The transverse-to-longitudinal dispersivity ratio for the Hanford vadose zone changed from 0.01 to 0.1 since the transverse dispersivity was kept the same as the remainder of the Hanford formation while the longitudinal dispersivity was reduced by a factor of 10.

6.1.2 December-North Model

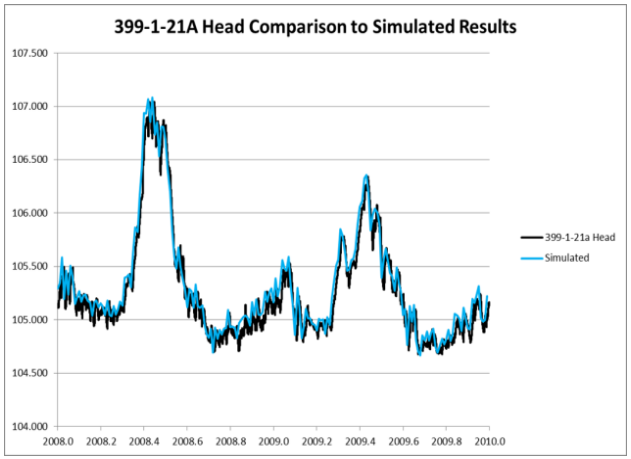
Simulated water levels compared favorably to measured water levels at each of the well locations used for the December-North model (Figure 6-4). As for the June-North model, comparison of river tracer breakthrough to normalized EC was better for wells closer to the river, 399-2-5, 399-2-1, and 399-3-18 (Figure 6-5a,b) and got worse for wells further from the river, 399-1-21A and 399-1-17A (Figure 6-5c,d).



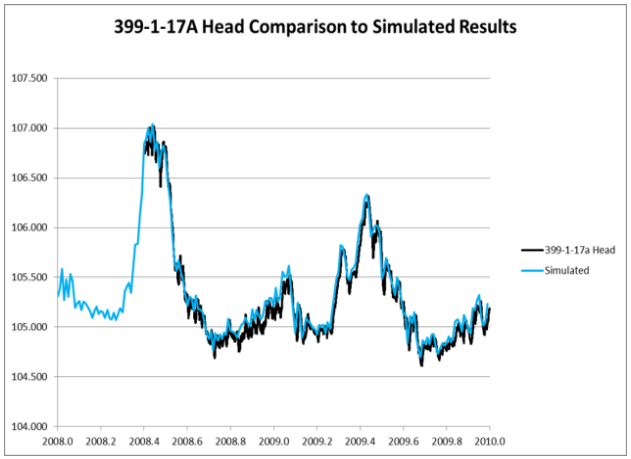
(a)



(b)

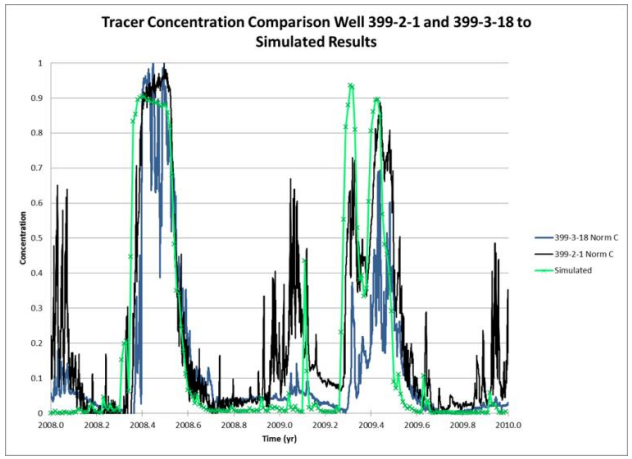


(c)

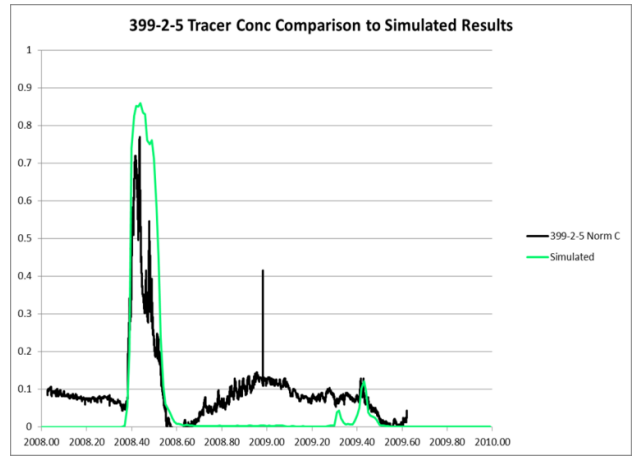


(d)

Figure 6-4. Simulated and Measured Water Levels for 2008 and 2009 at Wells: a) 399-2-1 and 399-3-18, b) 399-2-5, c) 399-1-21A, and d) 399-1-17A



(a)



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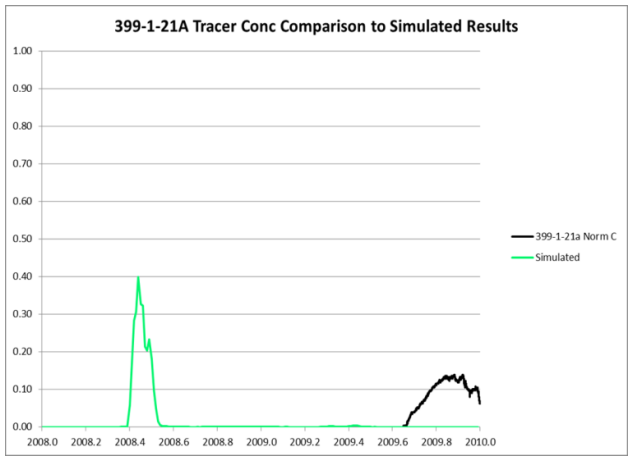

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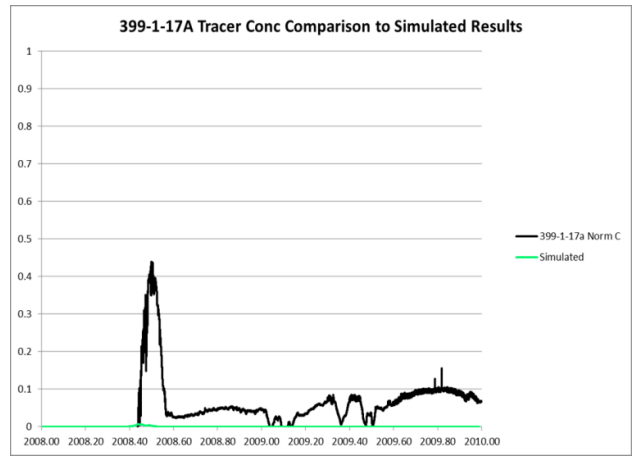


(d)

Figure 6-5. Simulated Tracer Concentration and Normalized Measured Electrical Conductivity for 2008 and 2009 at Wells: a) 399-2-1 and 399-3-18, b) 399-2-5, c) 399-1-21A, and d) 399-1-17A

There are several possible reasons for the poor fit. First, as was suggested previously, some of the river water may, in reality, migrate towards wells at locations further inland along other paths (such as along the the June-North model transect) for part of the year rather than along the current transect. This is suspected as the main reason for little to no simulated river tracer showing up at well 399-1-17A (Figure 6.5d), approximetly 600 m from the river along the transect as it takes too long for tracer to migrate along the transect before the hydraulic gradient reverses back towards the river and the tracer never makes it that far.

Another possibilty for the simulated tracer not matching the measured tracer breakthrough at inland wells is that the geology of the December-North transect is heterogeneous in the plane perpendicular to the transect. In the December-North model Hanford formation thickness adjacent to the river is much less when compared to the June-North model. Instead, there is a thick portion of the Ringold fine grained unit (Figure 3-5) which, due to it's much lower conductivity, may partially prevent river water from flowing into the aquifer. In addition, the Hanford formation thickness increases inland from the river (Figure 3-5). This would cause groundwater velocities to decrease, effectively slowing down the migration of river water along an already increased flow path to the well (relative to the direct distance between the inland wells and the river).

As a result of the deteriorating tracer concentration model fits with increased distance, it was decided that the December-North model was not a viable option for predicting uranium.

6.2 Alkalinity Model

The alkalinity in the Hanford formation varies with the influx of river water, which is a function of river stage (Figure 6-6), and recharging pore water from the vadose zone. The variable alkalinity was mapped into the equilibrium partitioning coefficient, K_d, at 29 times during the 2-year simulation period (Figure 5-1). The 29 different K_d distributions were used to update K_d in the STOMP input file for the equilibrium sorption, variable K_d uranium simulations.

With the simulated river-tracer breakthrough occurring earlier than the observed breakthrough at well 399-1-17A (Figure 6-2a), the timing of simulated high water level (Figure 6-1a) and river tracer are offset from the measured data. From inspection of the measured water levels and normalized EC at 399-1-17A (Figure 6-1a and 6-2a), river EC reaches its peak near the end of the high water level period and several weeks after the water levels reach their maximum in June 2008. As a result, the aquifer water in contact with sorbed uranium at the top of the PRZ is exposed for longer duration to higher alkalinity groundwater that has a higher desorption rate than to the river water. However, because the simulated river tracer breakthrough is earlier in time, reaching its peak at about the same time as do the high water levels relatively less uranium at the top of the PRZ is expected to be desorbed and transported with the groundwater due to the lower desorption rates associated with the river water component.

The slightly earlier arrival time of the simulated river water can result in lower desorption rates in the simulation for the equilibrium sorption, variable K_d model, over the time duration until the observed arrival time of river water. Because the time lag between the simulated and observed river-tracer breakthrough is small the overall effect on uranium desorption is likely to be insignificant. Furthermore, because the simulated river-tracer fraction declines earlier than the observed river-tracer fraction, the desorption rates would be higher in the simulation over the time duration until the observed river-tracer fraction declines. The two effects have the potential to cancel each other during the high water level period.

6.3 Uranium Model

6.3.1 Calibration

Calibration of the uranium model included adjusting the maximum initial uranium concentrations (labile fraction) to better match the early-time model response. These steps were accomplished by comparing uranium concentrations during the first 20 years of the simulation to measured uranium concentrations collected from 1992 through 2010. Initial concentrations were adjusted by setting all Ringold soil concentrations to zero and all saturated zone concentrations in the Hanford formation to background based on the understanding that the labile fraction would have been removed over many decades of pore volume flushing. The calibrated uranium model limited the maximum labile soil concentrations to 15 µg/g (on a bulk volume basis).

The simulated uranium groundwater concentrations during the calibration period are presented in Figures 6-7 and 6-8. Figure 6-7 compares the simulation concentrations for all five transport models to the measured data for wells 399-1-12, 399-1-17A, 399-1-7, 399-2-2, and 399-2-1. The results for well 399-1-17A (Figure 6-7b) are further broken out by each simulation in Figure 6-8.

These plots show how the transport model mimics the observed increases in the uranium groundwater concentrations during the typically high-water month of June. These simulation results show that the equilibrium model with the spatially and temporally varying distribution coefficient ("variable K_d") and the kinetic model with the groundwater end-member alkalinity value ("kinetic GW") best mimic the observed uranium groundwater concentrations (Figures 6-8c and d), especially during the last five years of the simulation time frame (2007 to 2011). In addition, the model results show that during the typical high-water month of June, the uranium groundwater concentrations increase at the inland wells (Figures 6-7a and b), and decrease at the wells near the river (Figures 6-7c, d, and e). This behavior in the inland wells is a result of the rising water levels coming in contact with uranium mass within the upper portions of the PRZ, and capillary fringe, near the southern end of the 300 Area Process Trench, thereby increasing desorption from the soil to the aqueous phase and increasing concentrations in the groundwater. As the water levels decrease, the higher groundwater concentrations decrease due to mixing and dilution with the relatively large groundwater velocity within the 300 area. The decrease in uranium groundwater concentrations for the wells near the river is due to a combination of dilution and lowering alkalinity, and thus decreased desorption, from the influx of river water.

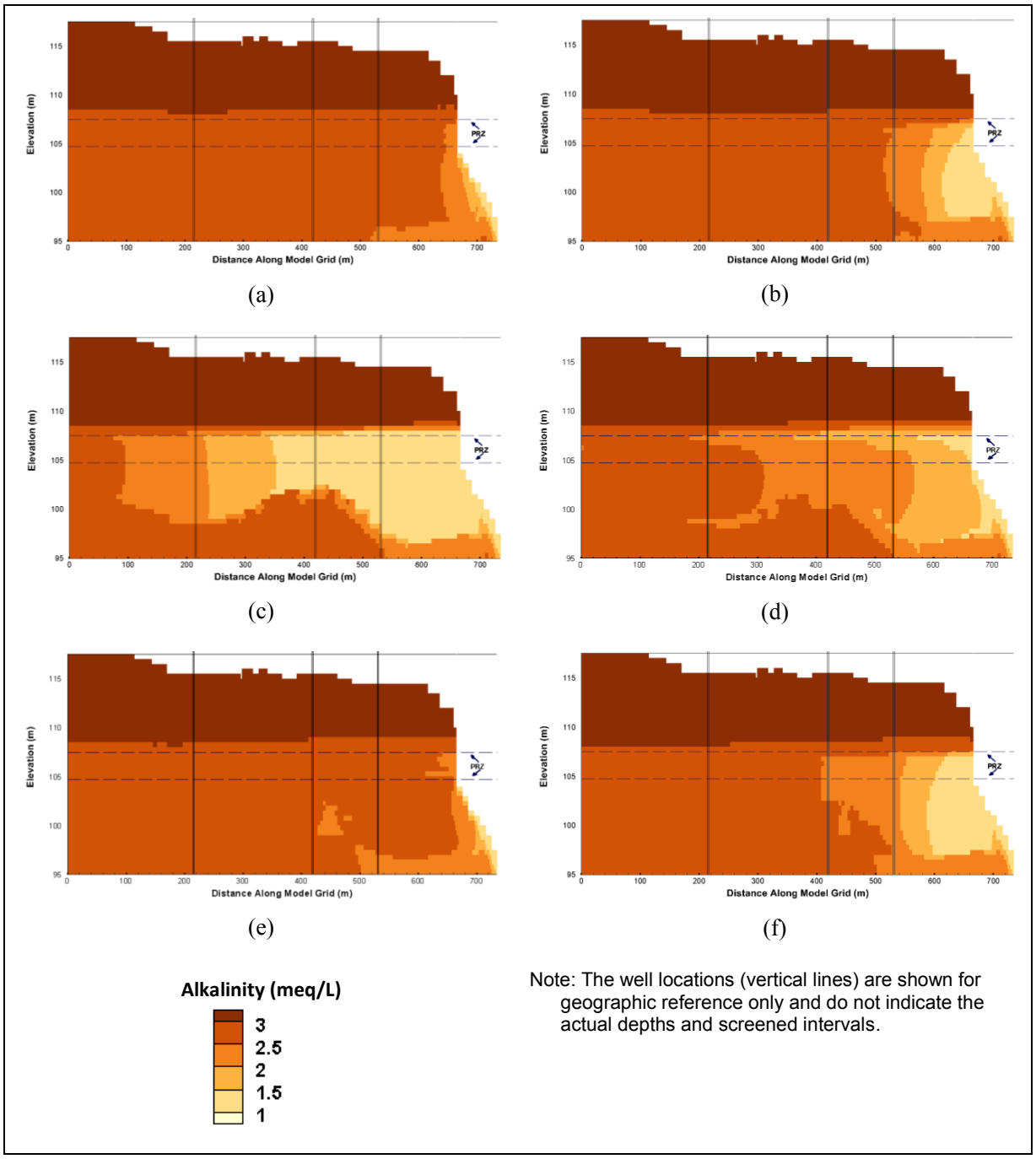


Figure 6-6. Simulated Groundwater Alkalinity at a) Jan 2008, b) May 2008, c) June 2008, d) July 2008, e) March 2009, and f) June 2009

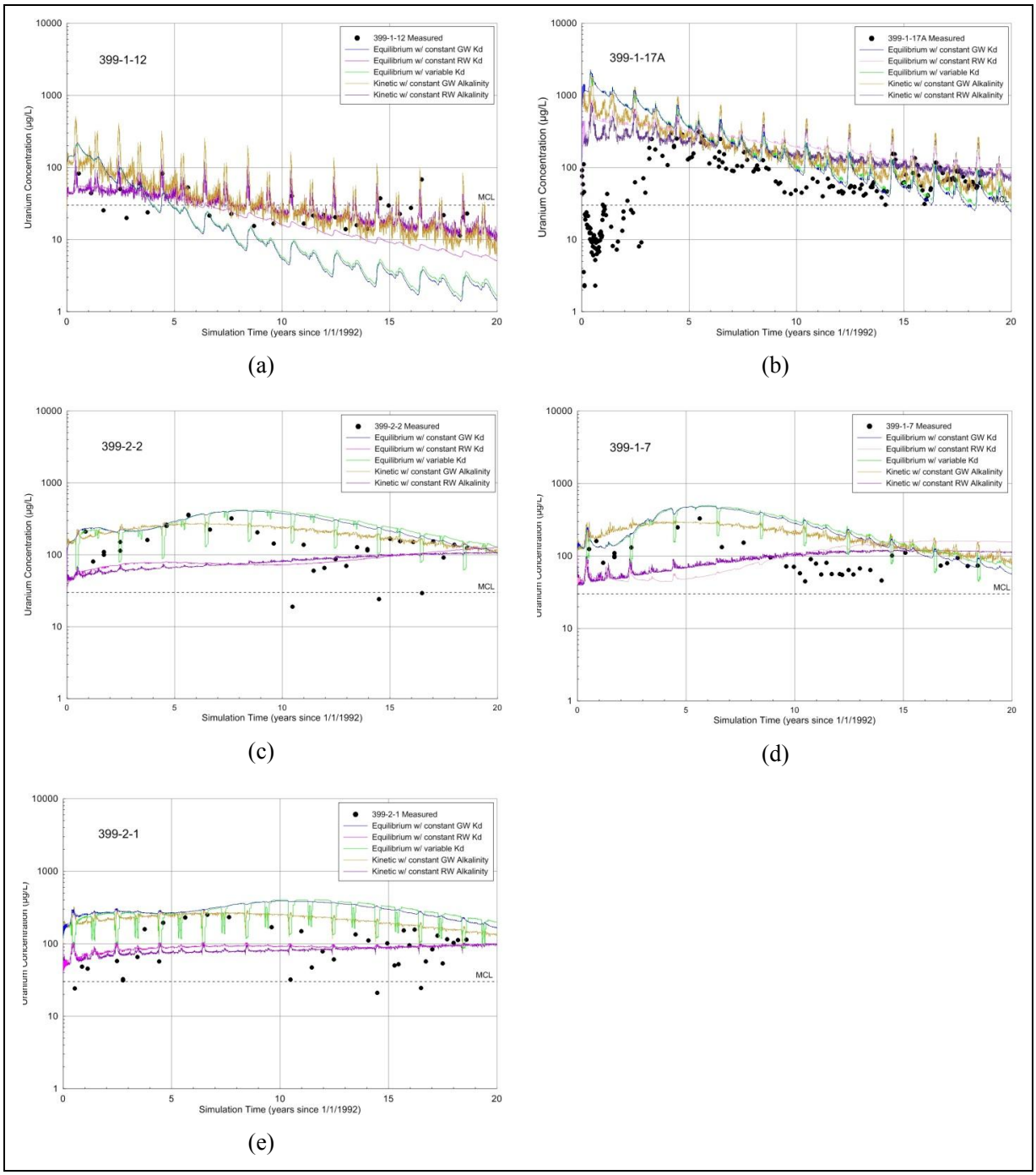


Figure 6-7. Measured and Simulated Groundwater Uranium Concentrations during the Calibration Period at Wells a) 399-1-12, b) 399-1-17A, c) 399-1-7, d) 399-2-2, and e) 399-2-1

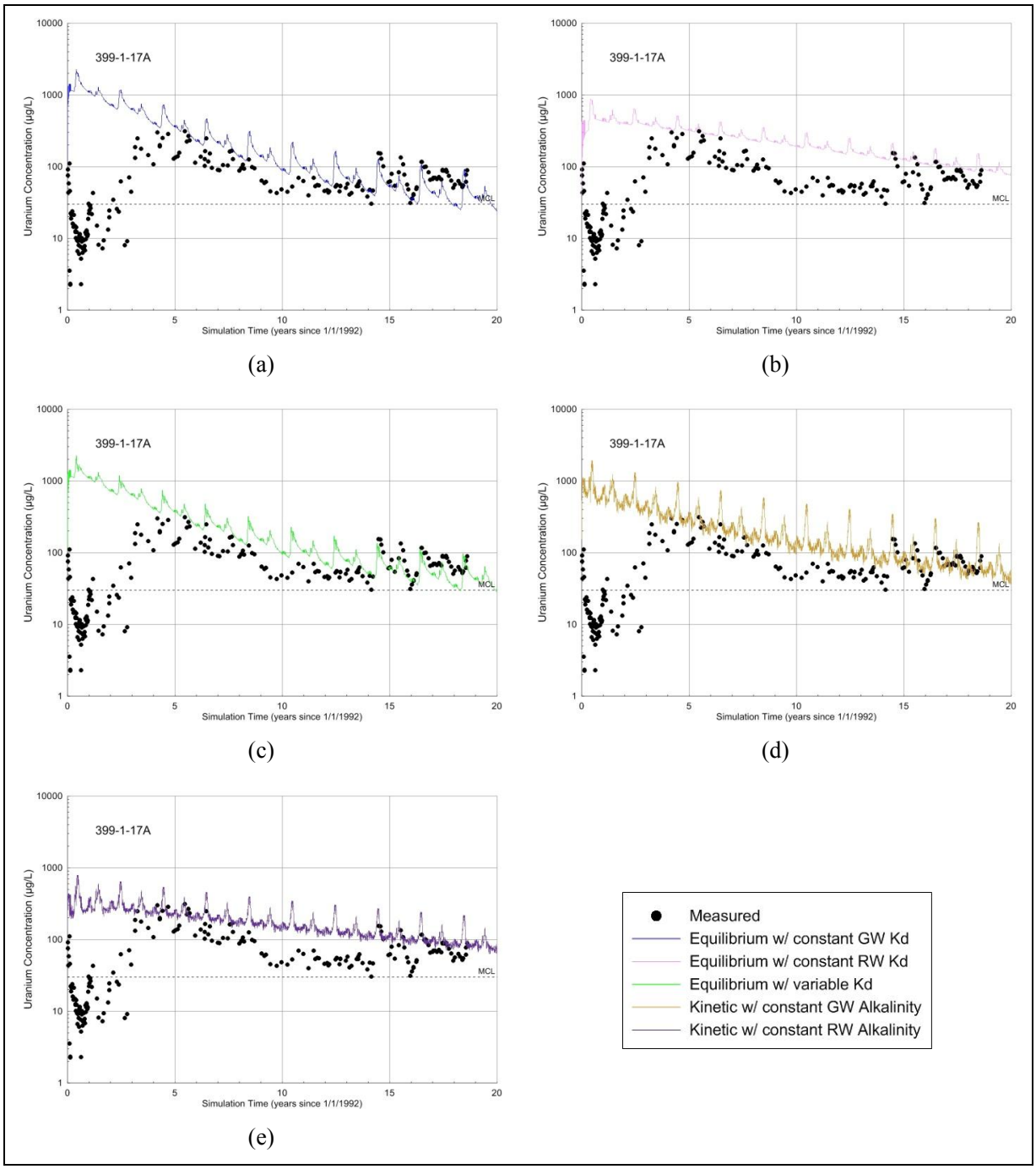


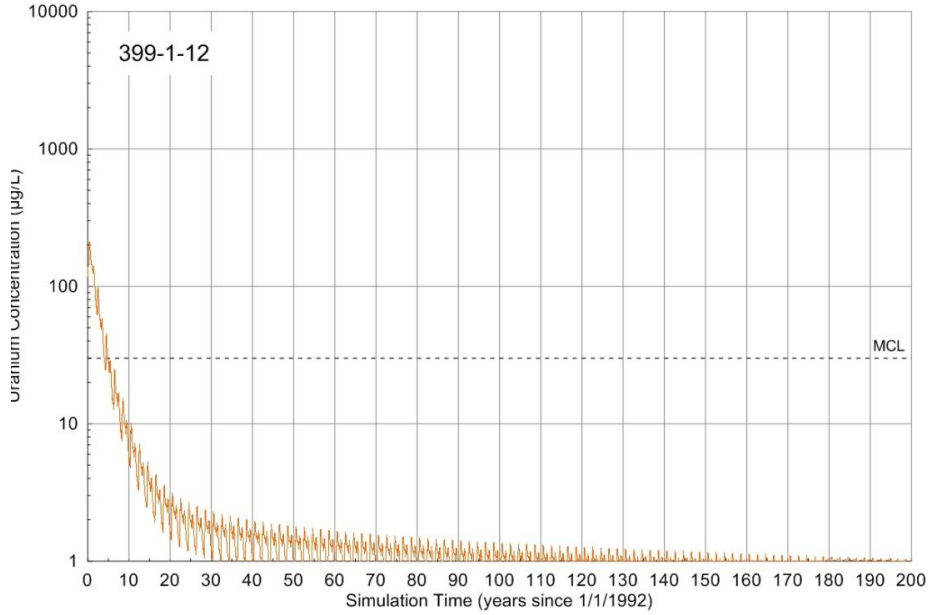
Figure 6-8. Measured and Simulated Groundwater Uranium Concentrations during the Calibration Period at Well 399-1-17A

6.3.2 No-Action Scenario

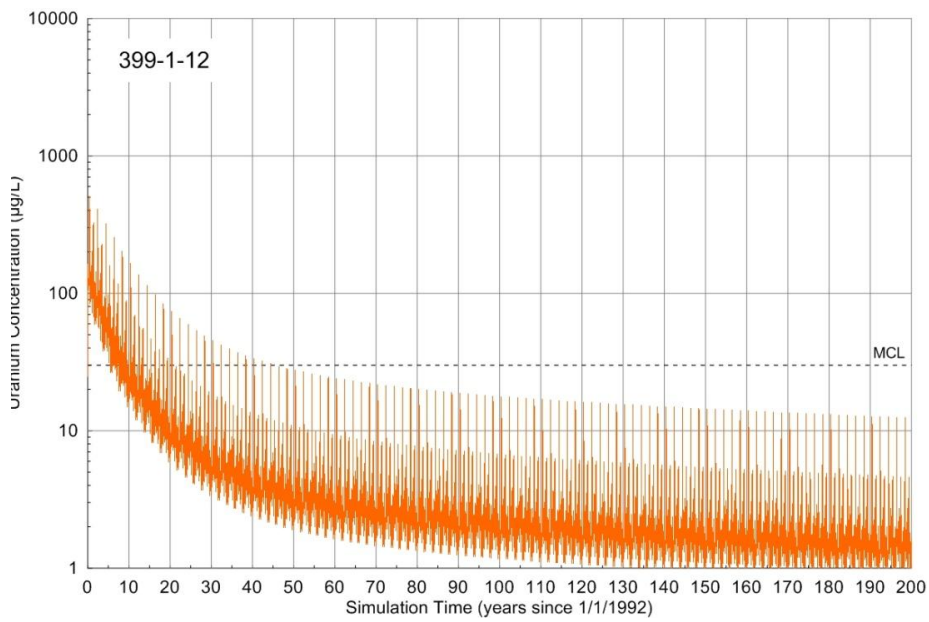
The variable- K_d and the kinetic-GW model simulations were extended for another 180 years, out to year 2191, to provide an estimate on when the uranium groundwater concentrations would drop below the groundwater MCL regulatory standard of 30 µg/L for a no-action modeling scenario. Uranium groundwater concentrations for the no-action scenario are presented for the five sorption models for the four monitoring wells (Figures 6-9 through 6-12). The cyclic nature of the concentrations is evident where the peak concentrations represent high water levels in the aquifer resulting from high river stage and resulting interaction of groundwater with the higher-concentration soils at the top of the PRZ. The initial portion of the time series at 399-1-17A (Figure 6-10) where concentrations are seen to drop off most steeply represents dissolution of uranium sorbed to the soil within the PRZ and the saturated zone. At ~40 years for the equilibrium sorption model and ~70 years for the kinetic sorption model the rate of decline in groundwater concentrations decreases to a relatively uniform rate. This later-time portion of the time series represents loading from the vadose zone which declines slowly over time as the uranium sources in the vadose zone are depleted. Wells 399-1-7 and 399-2-2 are downgradient from the highly contaminated zone near well 399-1-17A. Concentrations at these wells (Figure 6-11 and 6-12) initially increase due to the higher uranium concentrations generated in the vicinity of 399-1-17A, with subsequent decreasing concentrations reflecting the depletion of the upgradient sources as well as depletion of the closer less-contaminated soils (Figure 3-15). Well 399-1-12 is upgradient of the highly contaminated zone in the vicinity of 399-1-17A. As such, the concentrations at 399-1-12 represent migration of dissolved uranium inland along the transect during periods of high river stage and resulting inland hydraulic gradient.

Additional results from the no action simulations include:

- Simulated uranium concentrations for the kinetic sorption model show a much larger fluctuation than for the equilibrium sorption model;
- Concentrations decrease more rapidly for the equilibrium sorption model than for the kinetic sorption model. This result from the kinetic sorption model having a higher sorption rate than desorption rate, and that sorption/desorption in the kinetic model is rate-limited whereas sorption is instantaneous for the equilibrium model.
- Well 399-1-12 is up-gradient of all of the uranium sources in the model. Uranium concentrations drop below MCL within 5 years and 50 years for the equilibrium and kinetic sorption models, respectively;
- Well 399-1-17A is within the higher uranium concentration zone in the model. Concentrations drop below MCL at 170-180 years for the equilibrium sorption model. Concentrations are still above MCL at 200 years for the kinetic sorption model;
- At well 399-1-7, uranium concentrations drop below MCL at 45 and 120 years for the equilibrium and kinetic sorption models, respectively;
- At well 399-2-2, uranium concentrations drop below MCL at 53 and 70 years for the equilibrium and kinetic sorption models, respectively.

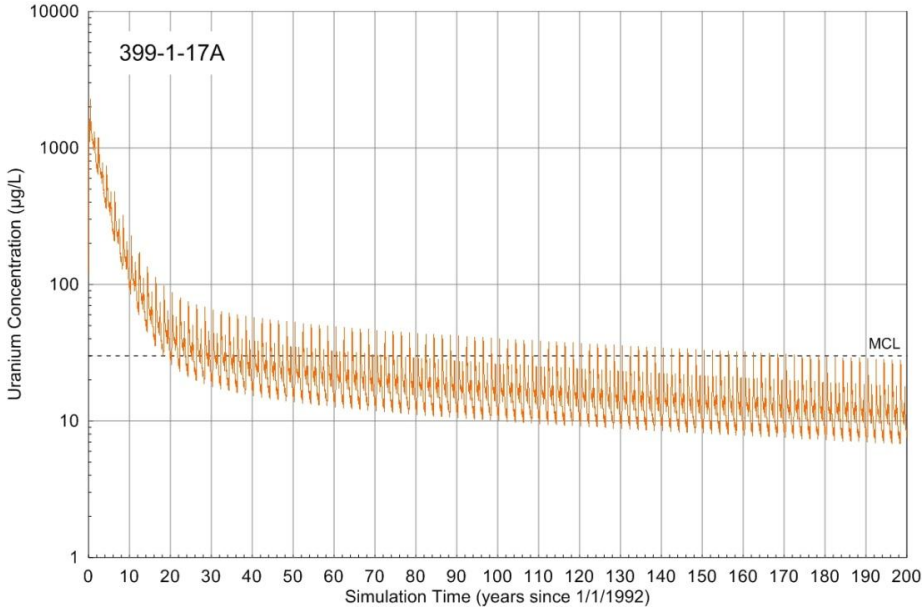


(a)

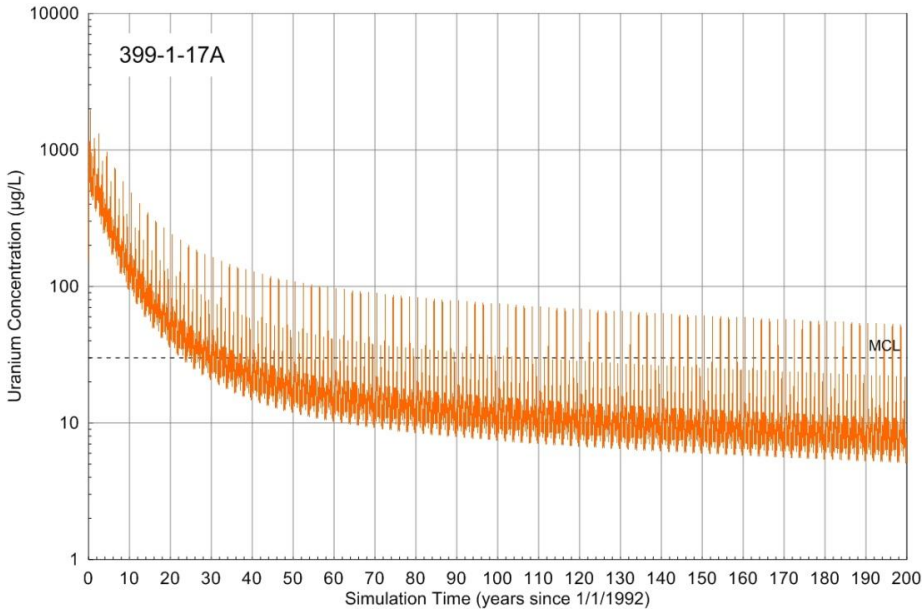


(b)

Figure 6-9. Simulated groundwater uranium concentrations at well 399-1-12 for the No-Action scenario from the (a) equilibrium sorption model (variable K_d) and (b) kinetic sorption model (GW alkalinity)

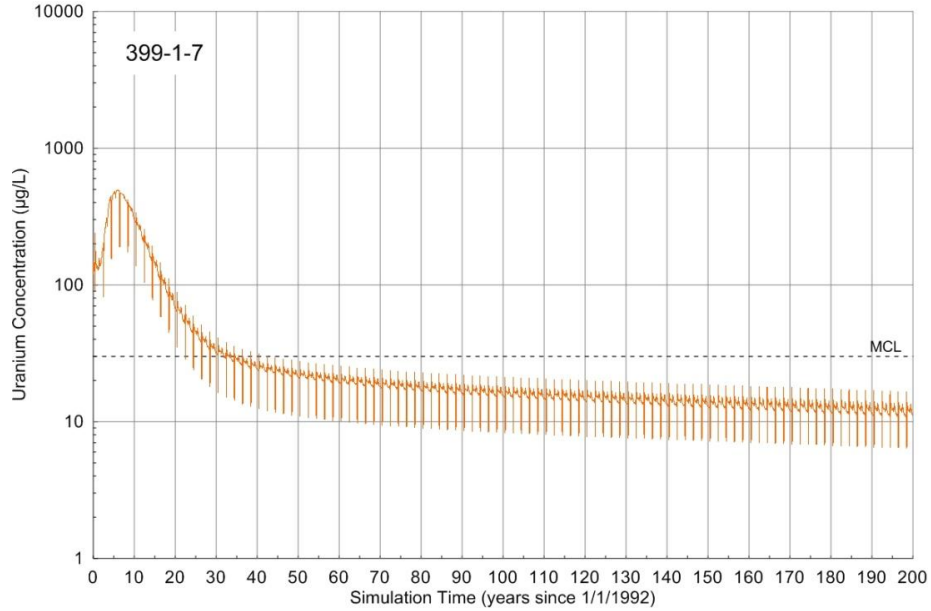


(a)

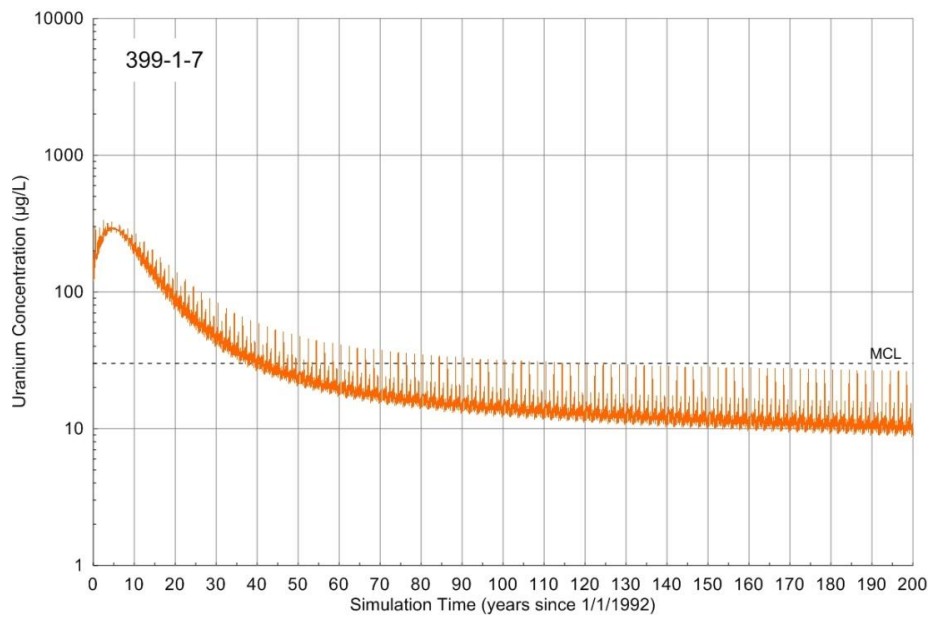


(b)

Figure 6-10. Simulated groundwater uranium concentrations at well 399-1-17A for the No-Action scenario from the (a) equilibrium sorption model (variable K_d) and (b) kinetic sorption model (GW alkalinity)

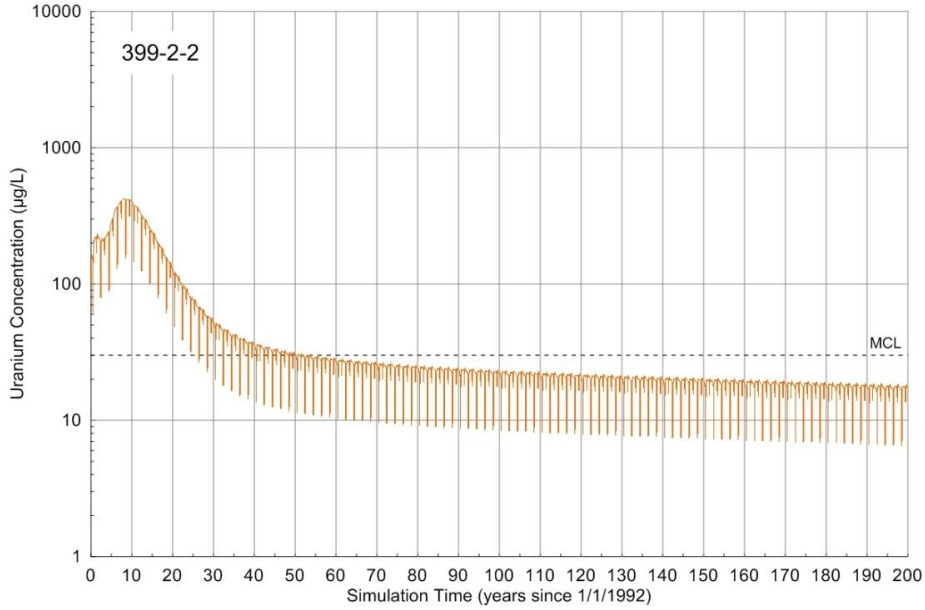


(a)

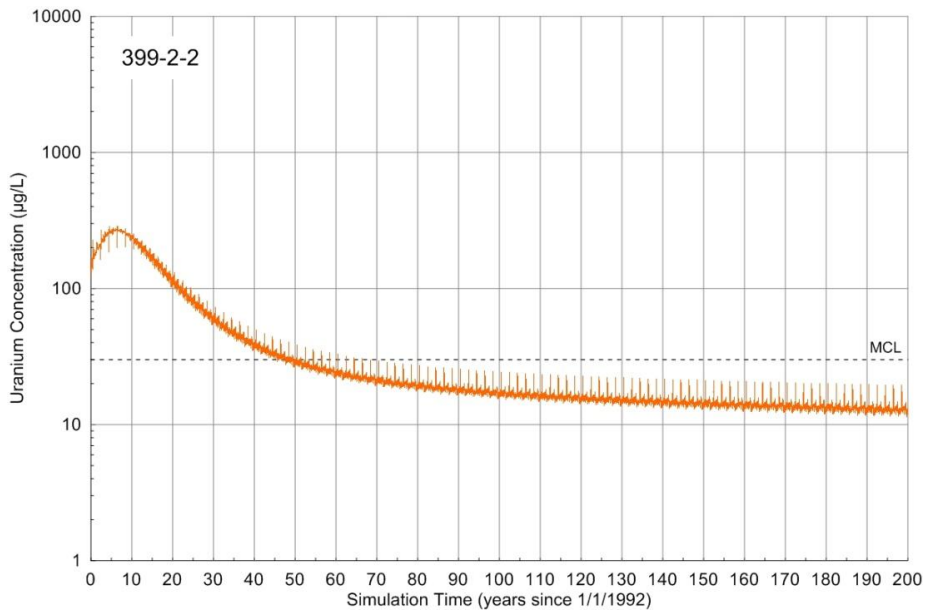


(b)

Figure 6-11. Simulated Groundwater Uranium Concentrations at Well 399-1-7 for the No-Action Scenario from the (a) Equilibrium Sorption Model (variable K_d) and the (b) Kinetic Sorption Model (GW alkalinity)



(a)



(b)

Figure 6-12. Simulated groundwater uranium concentrations at well 399-2-2 for the No-Action scenario from the (a) equilibrium sorption model (variable K_d) and (b) kinetic sorption model (GW alkalinity)

The effect of high water levels due to high river stage is increased interaction of groundwater with more highly-contaminated soils in the upper portion of the PRZ. This interaction provides a mechanism for transport of dissolved uranium from uranium source zones into the saturated zone creating a groundwater uranium plume (Figure 6-13). The effect is larger (greater concentrations) for 2008 (Figure 6-13c) due to the higher water levels observed in summer 2008 (Figure 3-6). The water levels observed in summer 2009 (Figure 3-6) also generate higher groundwater uranium concentrations (Figure 6-13f) but the effect is not as noticeable as in summer 2008 and the plume size and magnitude of concentrations is less.

Low water levels observed during the non-summer months are times when the hydraulic gradient is generally towards the river. During these times less uranium is introduced into the saturated zone and uranium concentrations in the aquifer decrease as it migrates towards the river (Figures 6-13a, b, d, and e).

Depletion of the sorbed uranium occurs most rapidly in regions of the model that exhibit the largest contact time with groundwater (Figure 6-14). The highest initial soil uranium sources located in the PRZ are depleted at a much higher rate than those in the vadose zone. As a result, the remaining uranium in the vadose zone acts as a long term source to groundwater contamination (Figure 6-14c and d).

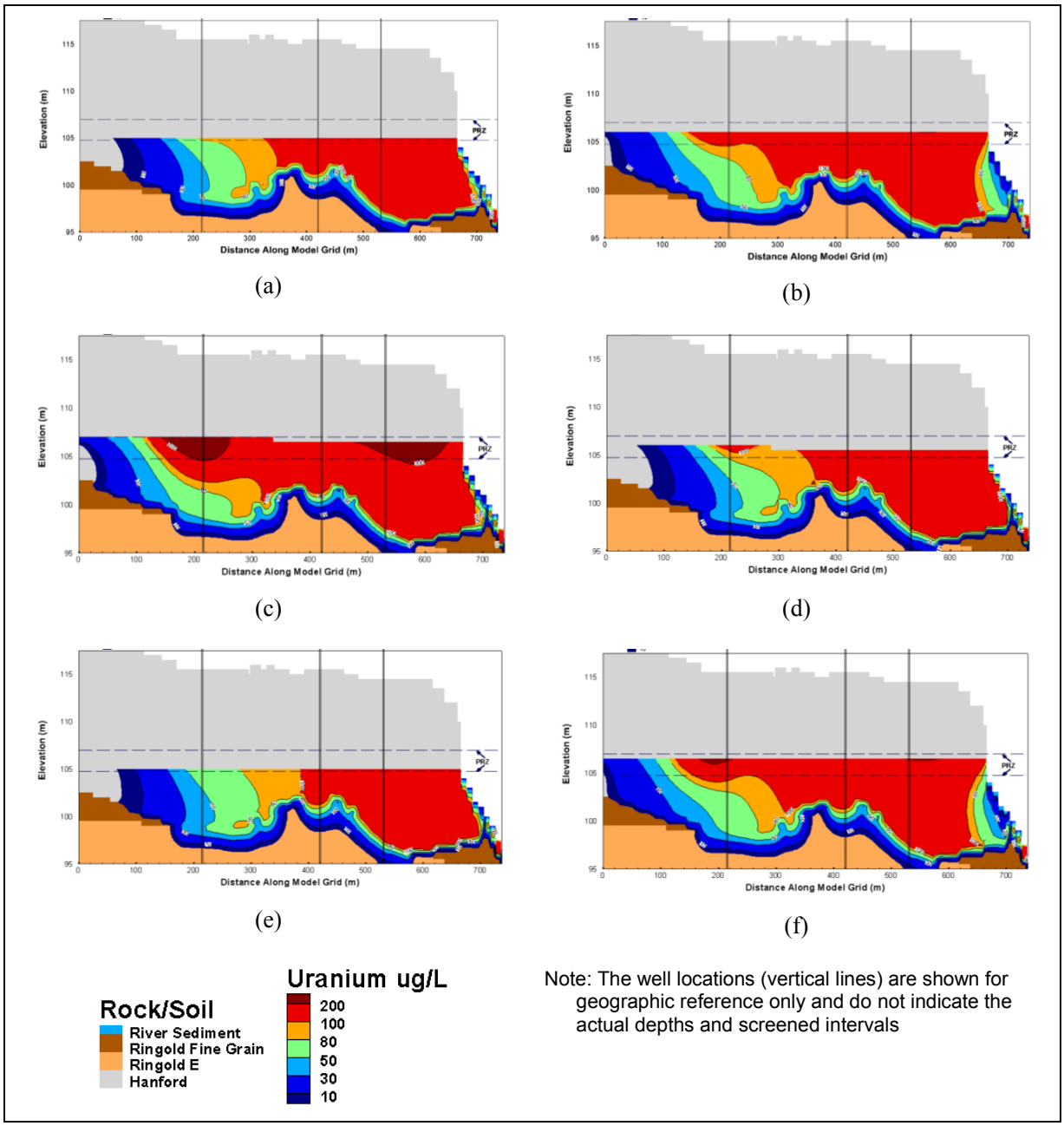


Figure 6-13. Simulated groundwater uranium concentrations for kinetic sorption model (GW alkalinity)- a) Jan 2008, b) May 2008, c) June 2008, d) July 2008, e) March 2009, and f) June 2009

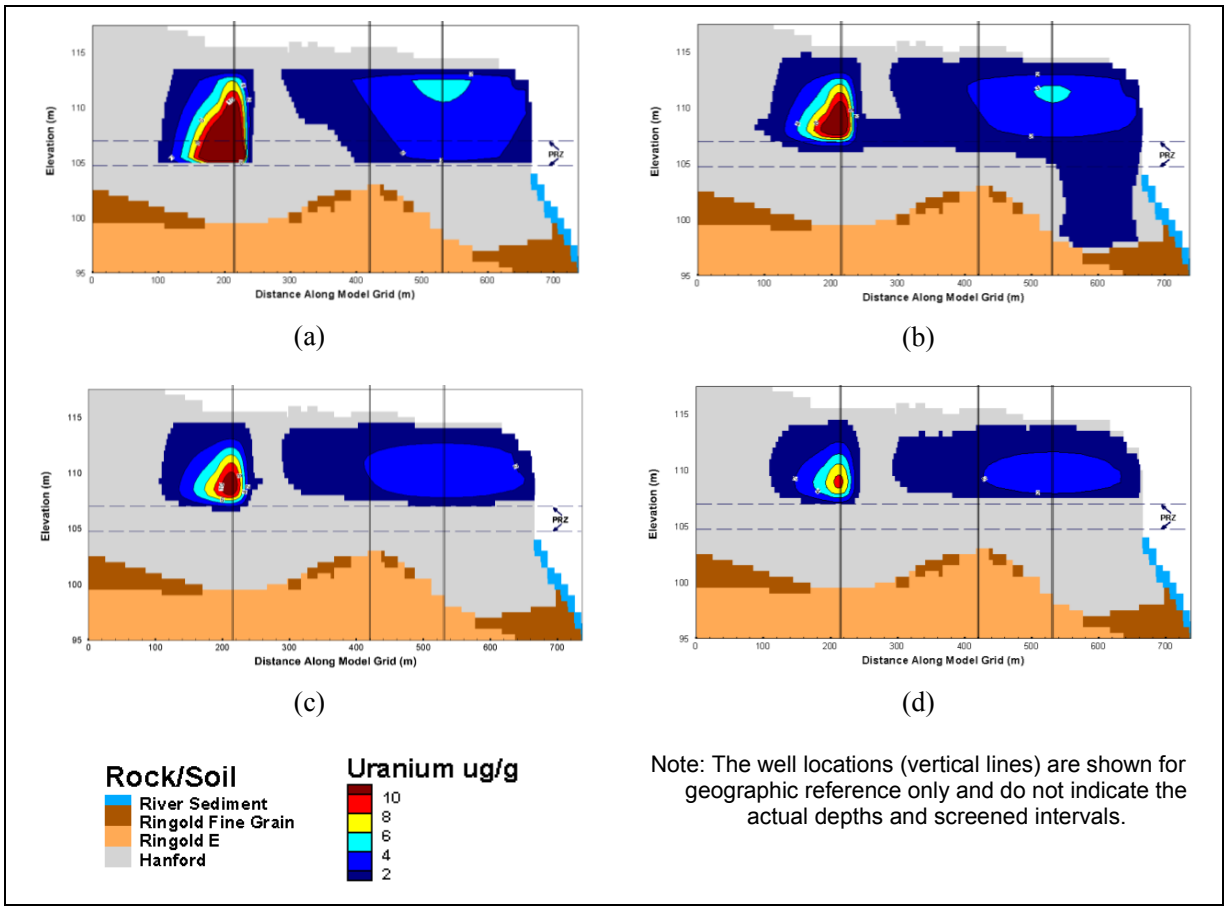


Figure 6-14. Simulated Soil Uranium Concentrations for Kinetic Sorption Model (GW alkalinity)- a) 1992 (t=0 yr), b) 2012 (t=20 yr), c) 2062 (t=70 yr), and d) 2192 (t=200 yr)

6.4 Remedial Alternatives

Following evaluation of the no-action model results, it was determined that the equilibrium sorption, variable K_d model and the kinetic sorption, groundwater alkalinity model best represented the transport behavior of uranium in the system and these two models were used to evaluate the Remedial Alternative scenarios. The modified initial soil uranium concentrations for the ten RA scenarios are presented in Figures 6-15 and 6-16. The simulation groundwater uranium concentrations for both sorption model applications at well 399-1-12 are presented in Figures 6-17 and 6-18 for each RA scenario. The results shown in Figures 6-17b and 6-18b for the kinetic sorption model using the groundwater alkalinity is further broken out in Figures 6-19 and 6-20, respectively. Similar results for the wells 399-1-17A, 399-1-7, and 399-2-2 are presented in Figures 6-21 through 6-32.

The overall results of the RA simulations are summarized as:

- Treatment of the PRZ (RA 1) and the PRZ and SZ (RA 2) has limited effect on groundwater uranium concentrations. Initially there is a marked decrease in concentrations, especially for RA 2, however the concentrations rebound back to pre-treatment concentrations within approximately 30 years following implementation at all wells. This indicates that the primary source of uranium to the saturated zone is from the vadose zone above the PRZ.
- The implementation of the ET barrier (RA 5) does not reduce the uranium soil concentrations however the contaminant flux to the saturated zone is reduced. This reduction results in the maximum uranium groundwater concentration at well 399-1-17A (Figure 6-23e) to drop below MCL at approximately 150 years following implementation of the ET barrier.
- The remaining alternatives incorporate decreasing amounts of uranium soil contamination and thus a reduction in the vadose zone loading to the saturated zone due to the phosphate sequestration treatment and/or the deep excavation from the VZ and PRZ. As the amount of mass is reduced, the time for the groundwater uranium concentrations to drop below the MCL is also reduced. The maximum uranium groundwater concentrations simulated at well 399-1-17A shows a decrease from approximately 150 years post implementation (RA 4; Figure 6-23d) down to 6 years post implementation (RA 9; Figure 6-24d).

The cyclic nature of the simulated groundwater concentrations over a two year period shows two high-concentration periods, corresponding to the yearly high-water level periods, at concentrations significantly greater than the simulated concentrations during the remainder of the two-year period. To aid in the feasibility study analysis of the remedial alternatives, the time for when the simulation concentration drops below the MCL was determine based on four different concentration metrics: 1) maximum concentration, 2) the calculated mean concentration, and 3) the calculated 90th percentile for the concentration; and 4) the calculated 95th percent upper confidence limit (UCL). The selected metrics result in time frames that can be significantly different and thus impact the feasibility study results of the remedial alternatives.

Assuming a two-year window, which corresponds to the repeating two-year hydraulic boundary condition cycle implemented within the flow model, the maximum, mean, 90th percentile and 95th UCL concentrations were calculated using all the simulated values within the two-year window. This resulted in a maximum, mean, 90th percentile and 95th UCL data value for each two-year cycle, with the data value assigned to the mid-point time of the two-year cycle.

Figure 6-33 presents the simulated concentration along with the determined maximum, mean, 90th percentile and 95th UCL concentrations for the No-Action scenario at wells 399-1-17A, 399-1-7, and 399-

2-2. This plot shows that the time to MCL is significantly less for the mean,90th percentile and 95th UCL concentration values than for the maximum concentration value. Table 6-2 lists the overall simulation time to MCL, the corresponding number of years from the start of remediation (simulation year 21), and the equivalent calendar year.

Figure 6-34 presents the 90th percentile concentration curves for the No-Action scenario and RA 6 through RA 9 for wells 399-1-17A, 399-1-7, and 399-2-2. The time to MCL for each of the remedial alternatives is also listed in Table 6-2.

Figure 6-35 presents the max, mean, 90th percentile and 95th UCL concentration curves for Well 399-1-17A for RA 6, RA 8, RA 9 and RA 10.

Figure 6-36 presents the max, mean, 90th percentile and 95th UCL concentration curves for Well 399-1-7 for RA 6, RA 8, RA 9 and RA 10.

Figure 6-37 presents the max, mean, 90th percentile and 95th UCL concentration curves for Well 399-1-2 for RA 6, RA 8, RA 9 and RA 10.

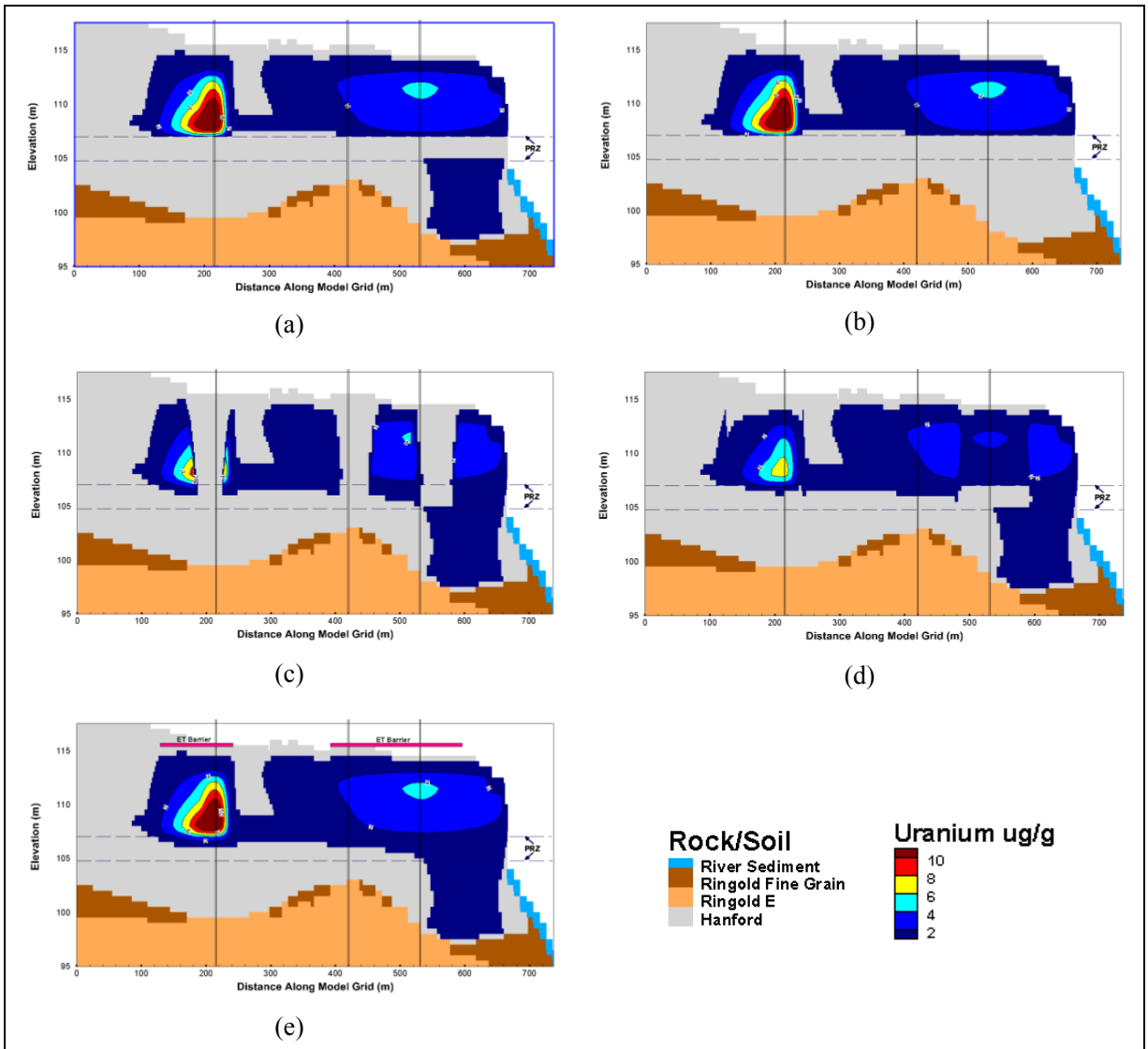
Table 6-2. Time for the Maximum, 95th UCL, 90th percentile, and Mean of the Simulated Groundwater Uranium Concentration to drop below MCL for No-Action Scenario and RA 6 through RA 10

Curve	Simulation	Simulation Time for Concentration to Reach MCL			Number of Years[1] for Concentration to Reach MCL			Calendar Year for Concentration to Reach MCL		
		399-1-17A	399-1-7	399-2-2	399-1-17A	399-1-7	399-2-2	399-1-17A	399-1-7	399-2-2
Maximum	No Action	>200	120	68	>180	100	48	>2191	2111	2059
	RA 6	156	46	42	136	26	22	2147	2037	2033
	RA 7	38	34	34	18	14	14	2029	2025	2025
	RA 8	28	36	34	8	16	14	2019	2027	2025
	RA 9	26	30	32	6	10	12	2017	2021	2023
	RA 10	>200	60	48	>180	40	28	>2191	2051	2039
95th UCL	No Action	49	47	51	29	27	31	2040	2038	2042
	RA 6	28	32	36	8	12	16	2019	2023	2027
	RA 7	--	--	--	--	--	--	--	--	--
	RA 8	21	28	32	1	8	12	2012	2019	2023
	RA 9	21	26	30	1	6	10	2012	2017	2021
	RA 10	36	36	40	16	16	20	2027	2027	2031
90th Percentile	No Action	58	50	52	38	30	32	2049	2041	2043
	RA 6	31	36	38	11	16	18	2022	2027	2029
	RA 7	24	30	32	4	10	12	2015	2021	2023
	RA 8	22	30	32	2	10	12	2013	2021	2023
	RA 9	22	28	30	2	8	10	2013	2019	2021
	RA 10	40	40	42	20	20	22	2031	2031	2033
Mean	No Action	38	42	50	18	22	30	2029	2033	2041

Table 6-2. Time for the Maximum, 95th UCL, 90th percentile, and Mean of the Simulated Groundwater Uranium Concentration to drop below MCL for No-Action Scenario and RA 6 through RA 10

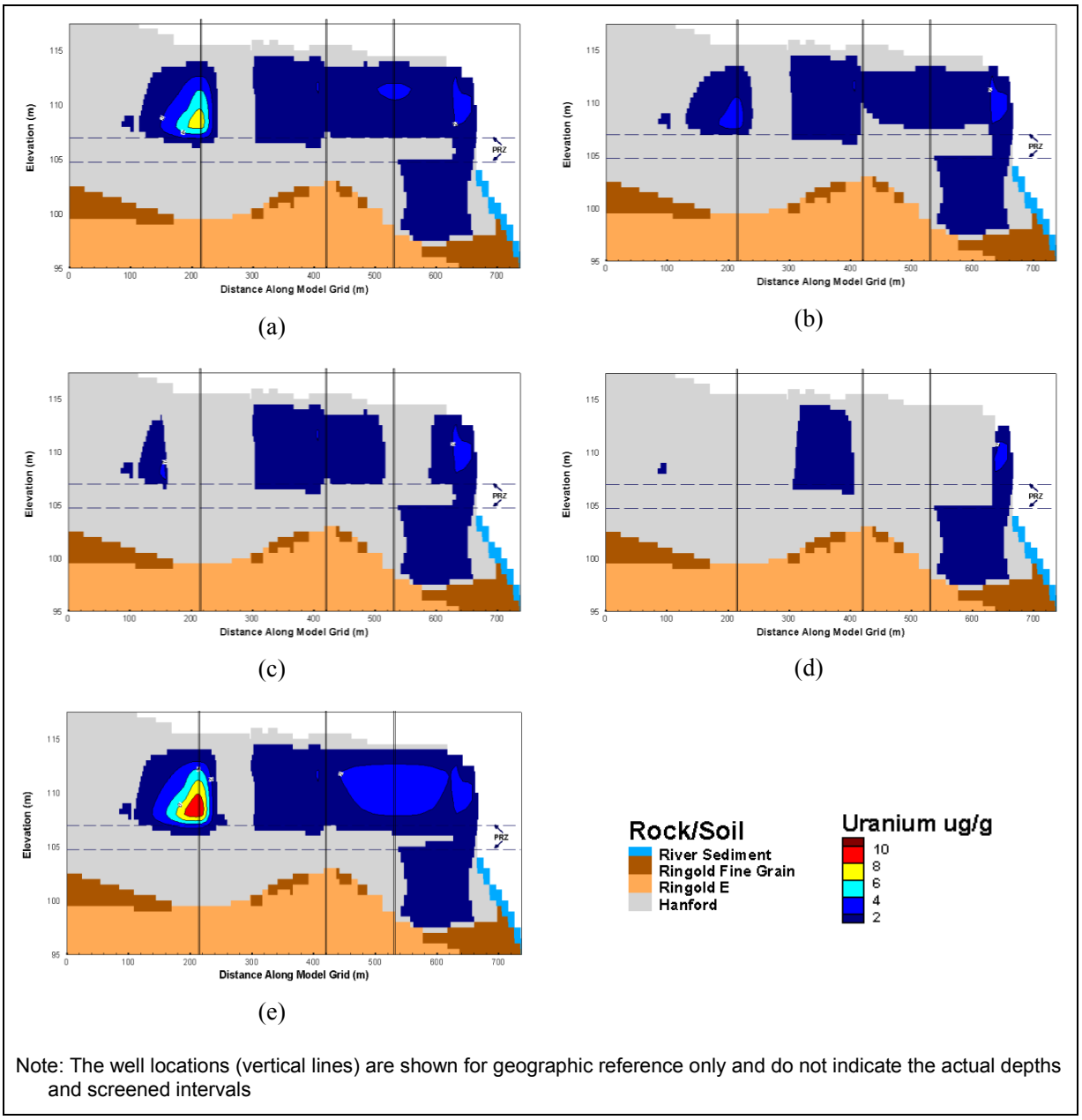
Curve	Simulation	Simulation Time for Concentration to Reach MCL			Number of Years(1) for Concentration to Reach MCL			Calendar Year for Concentration to Reach MCL		
		399-1-17A	399-1-7	399-2-2	399-1-17A	399-1-7	399-2-2	399-1-17A	399-1-7	399-2-2
	RA 6	24	32	36	4	12	16	2015	2023	2027
	RA 7	22	28	32	2	8	12	2013	2019	2023
	RA 8	21	28	32	1	8	12	2012	2019	2023
	RA 9	21	26	30	1	6	10	2012	2017	2021
	RA 10	30	36	40	10	16	20	2021	2027	2031

Note: (1) Years after start of remediation on January 1, 2012



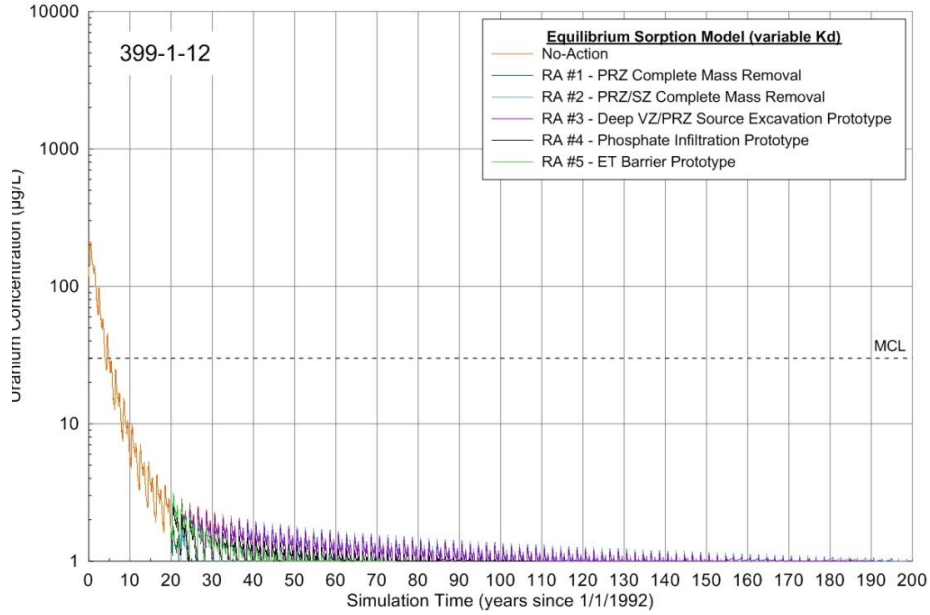
Note: The well locations (vertical lines) are shown for geographic reference only and do not indicate the actual depths and screened intervals

Figure 6-15. Uranium soil concentrations at the start of 2012 for a) RA 1, b) RA 2, c) RA3, d) RA 4, and e) RA 5, based on the kinetic sorption, groundwater alkalinity model

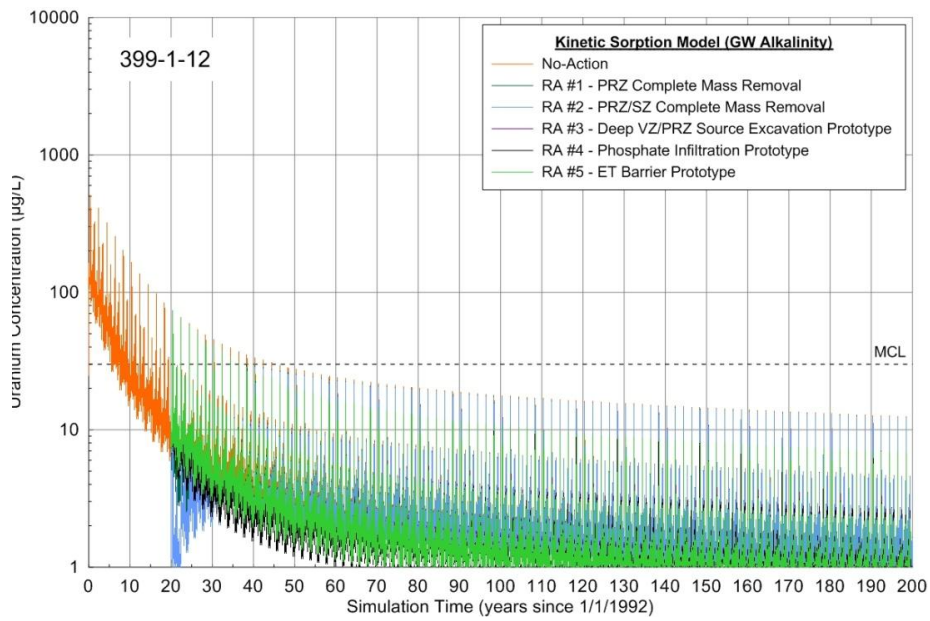


Note: The well locations (vertical lines) are shown for geographic reference only and do not indicate the actual depths and screened intervals

Figure 6-16. Uranium soil concentrations at the start of 2012 for a) RA 6, b) RA 7, c) RA 8, d) RA 9, and e) RA 10 based on the kinetic sorption, groundwater alkalinity model

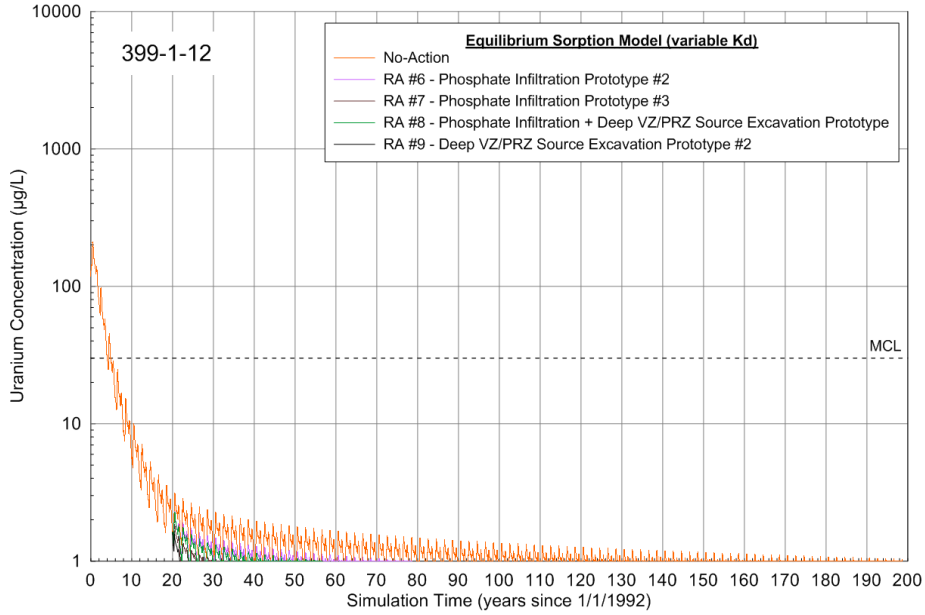


(a)

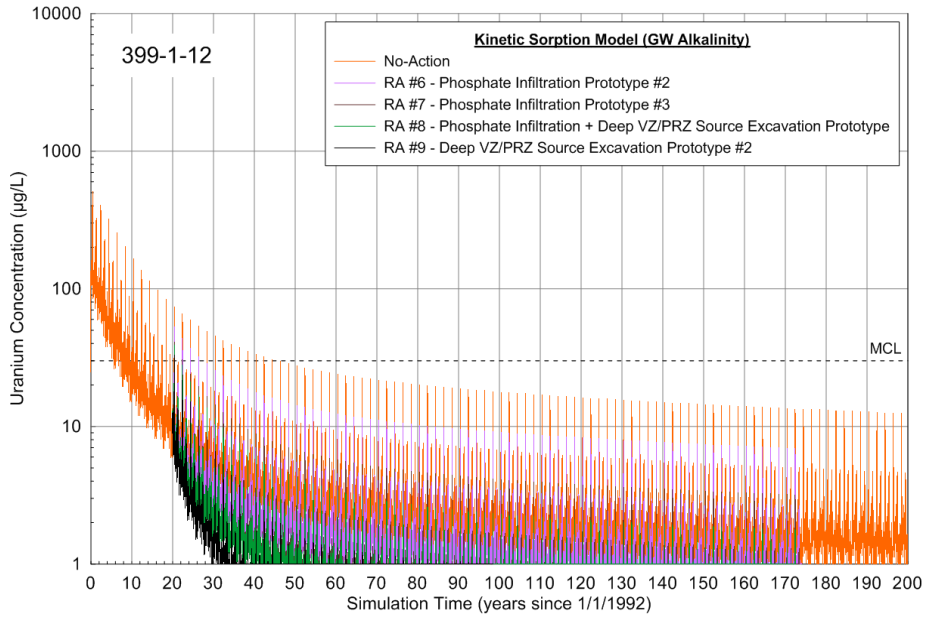


(b)

Figure 6-17. No-Action and Remedial Alternatives 1 through 5 Simulated Groundwater Uranium Concentrations at Well 399-1-12 for the (a) Equilibrium Sorption Model (variable K_d) and (b) Kinetic Sorption Model (GW alkalinity)



(a)



(b)

Figure 6-18. No-Action and Remedial Alternatives 6 through 9 Simulated Groundwater Uranium Concentrations at Well 399-1-12 for the (a) Equilibrium Sorption Model (variable K_d) and (b) Kinetic Sorption Model (GW alkalinity)

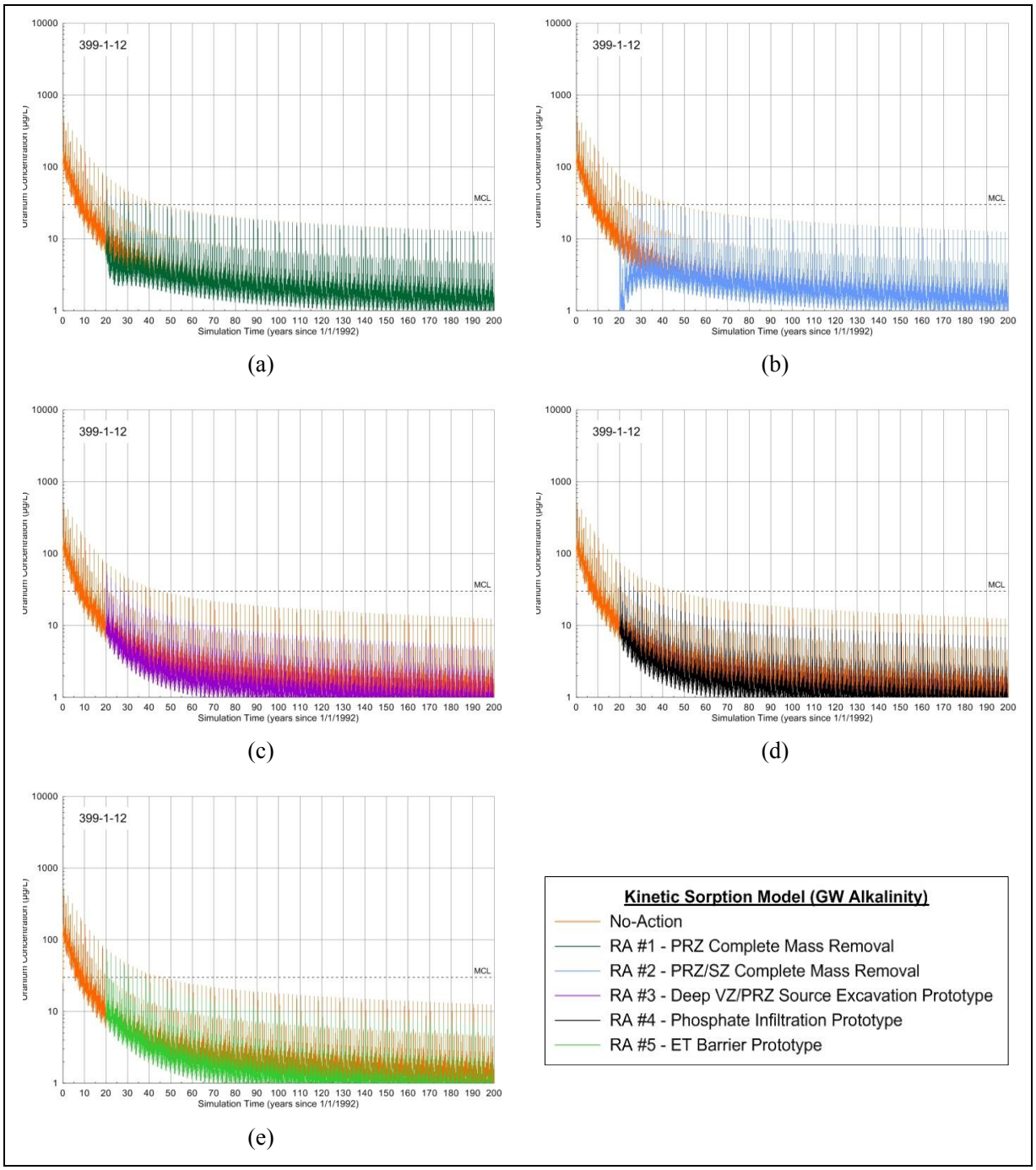


Figure 6-19. No-Action and Remedial Alternatives Simulated Groundwater Uranium Concentrations for the Kinetic Sorption Model (GW alkalinity) at Well 399-1-12 for (a) RA 1, (b) RA 2, (c) RA 3, (d) RA 4, and (e) RA 5

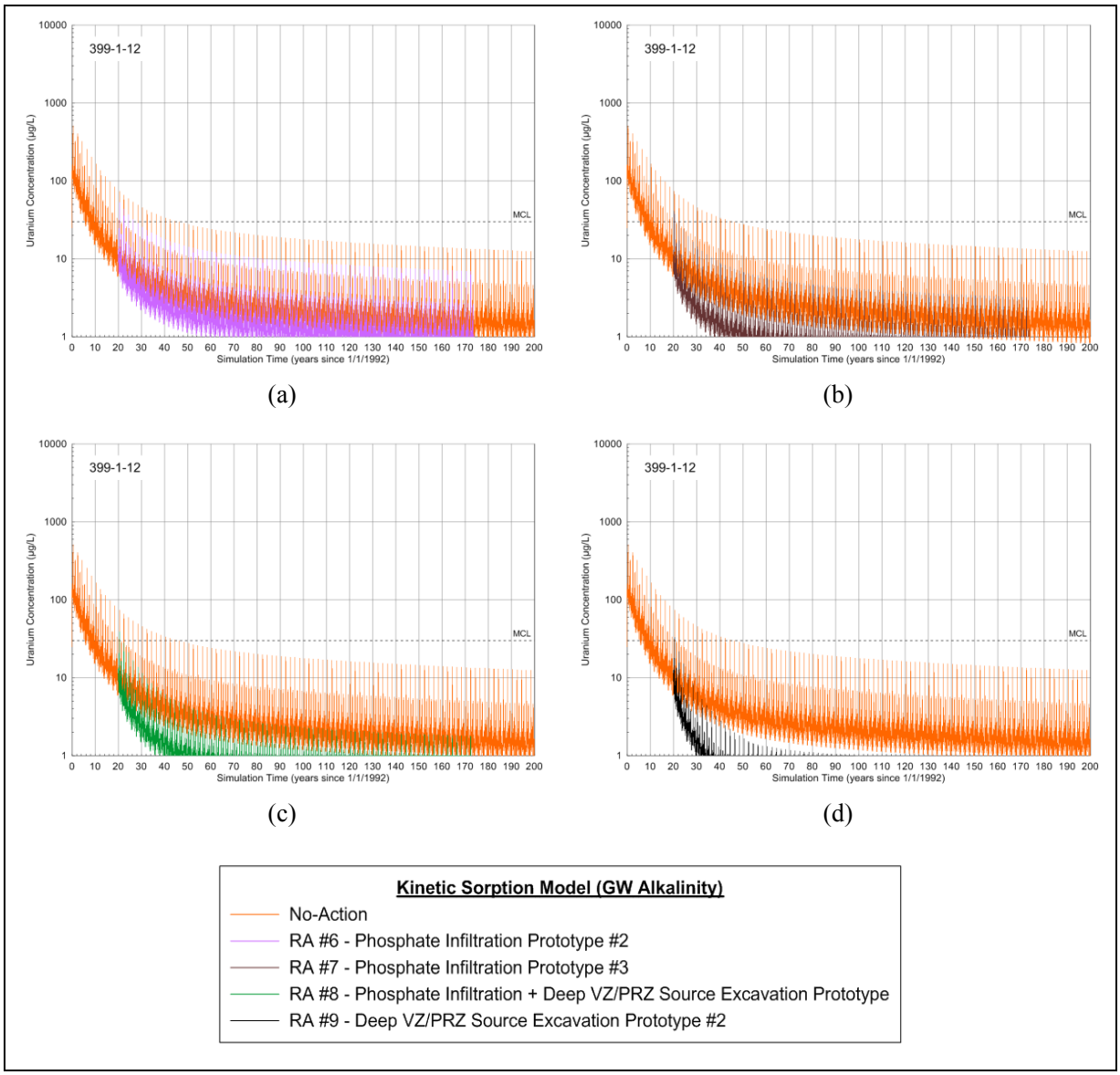
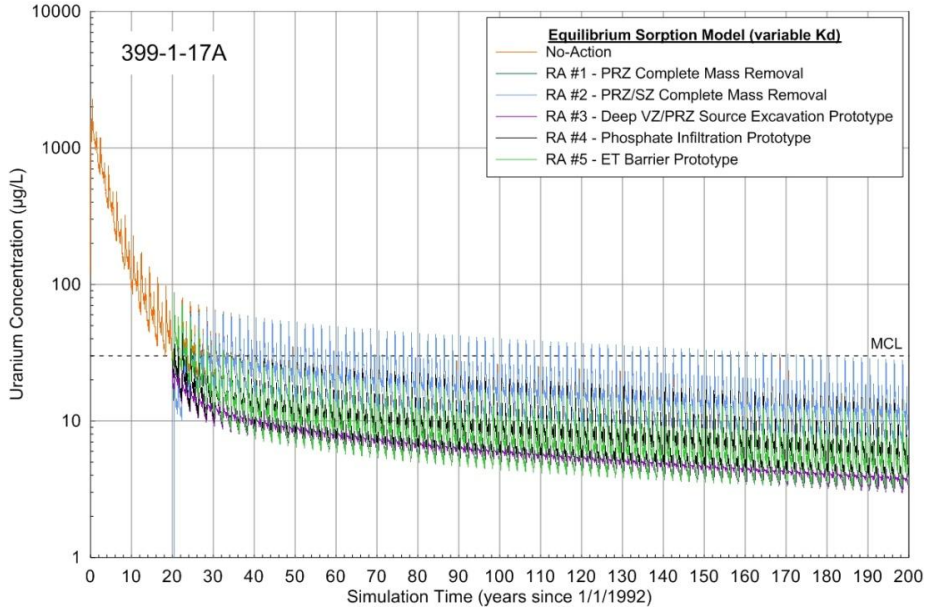
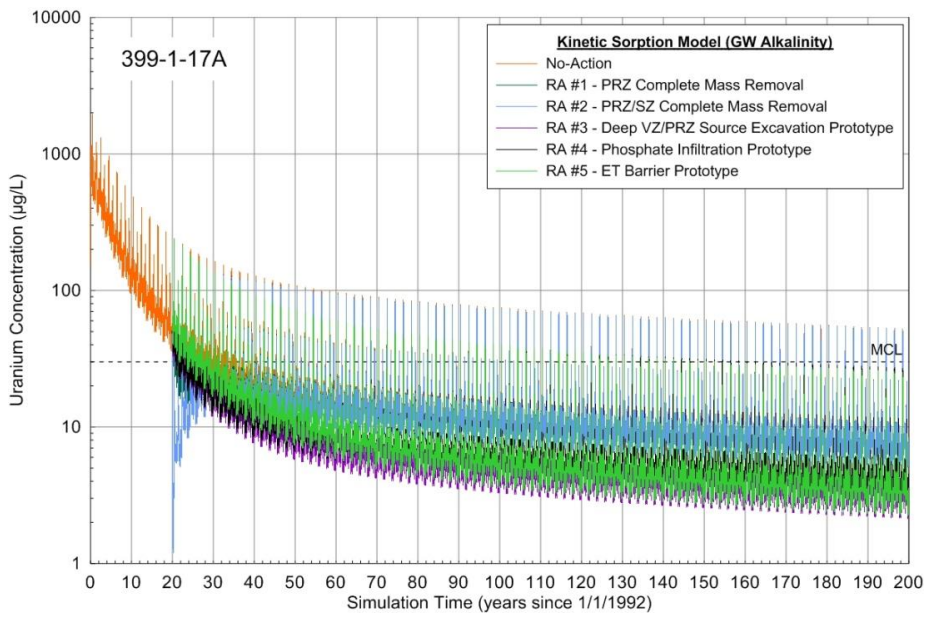


Figure 6-20. No-Action and Remedial Alternatives Simulated Groundwater Uranium Concentrations for the Kinetic Sorption Model (GW alkalinity) at Well 399-1-12 for (a) RA 6, (b) RA 7, (c) RA 8, and (d) RA 9



(a)



(b)

Figure 6-21. No-Action and Remedial Alternatives 1 through 5 Simulated Groundwater Uranium Concentrations at Well 399-1-17A for the (a) Equilibrium Sorption Model (variable K_d) and (b) Kinetic Sorption Model (GW alkalinity)

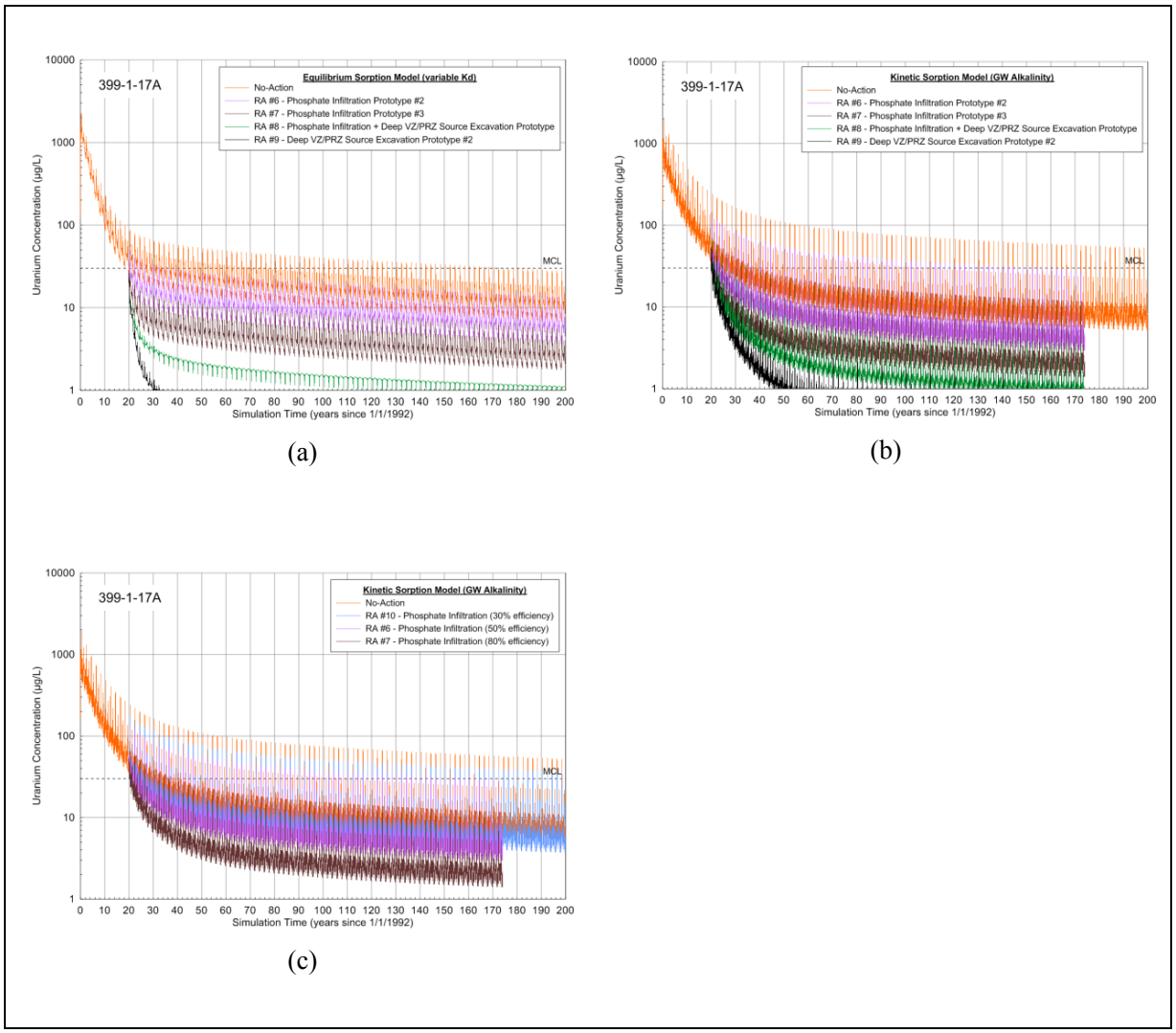


Figure 6-22. No-Action and Remedial Alternatives 6 through 9 simulated groundwater uranium concentrations at well 399-1-17A for the (a) equilibrium sorption model (variable K_d) and (b) and (c) kinetic sorption model (GW alkalinity)

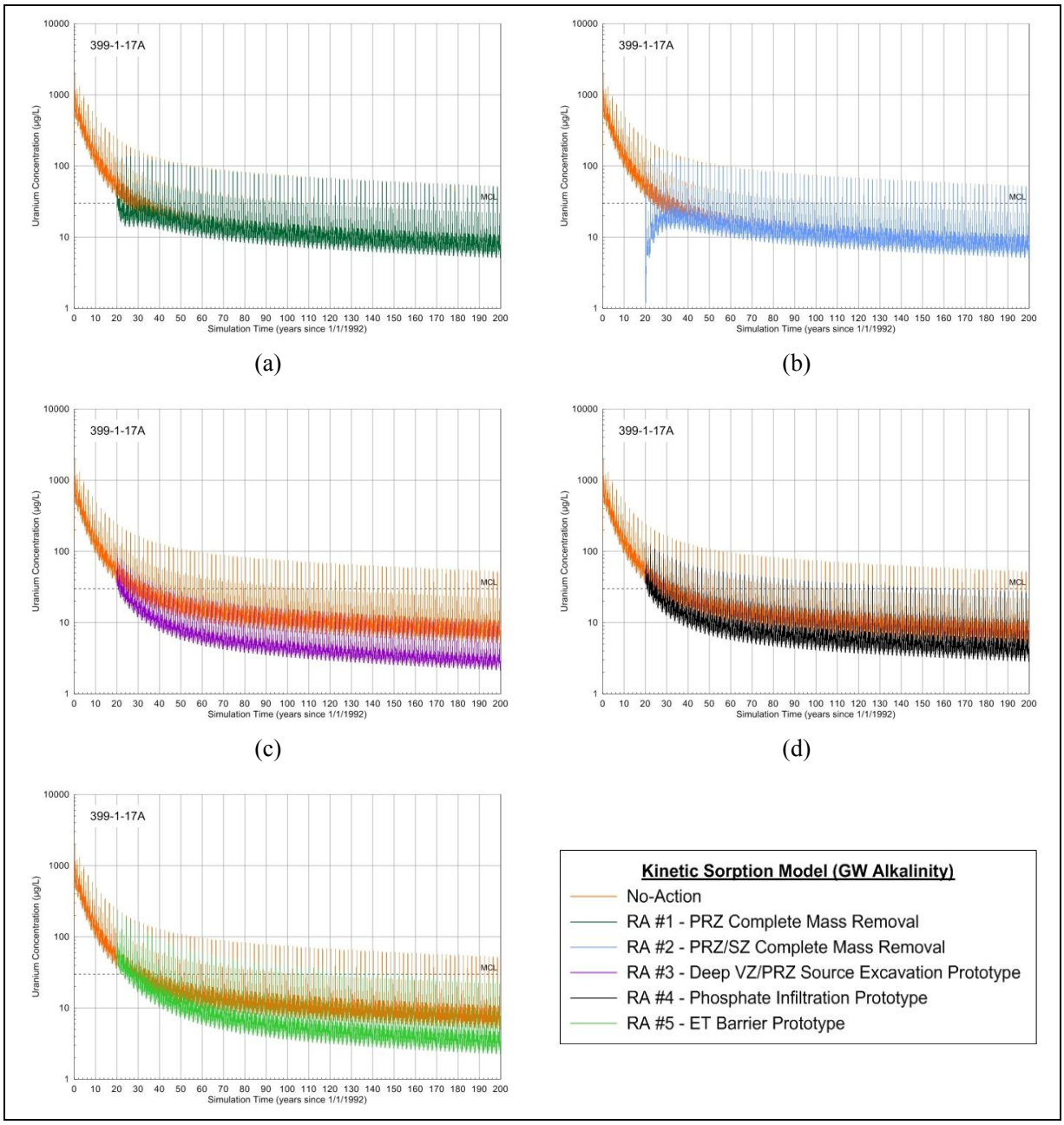


Figure 6-23. No-Action and Remedial Alternatives Simulated Groundwater Uranium Concentrations for the Kinetic Sorption Model (GW alkalinity) at Well 399-1-17A for (a) RA 1, (b) RA 2, (c) RA 3, (d) RA 4, and (e) RA 5

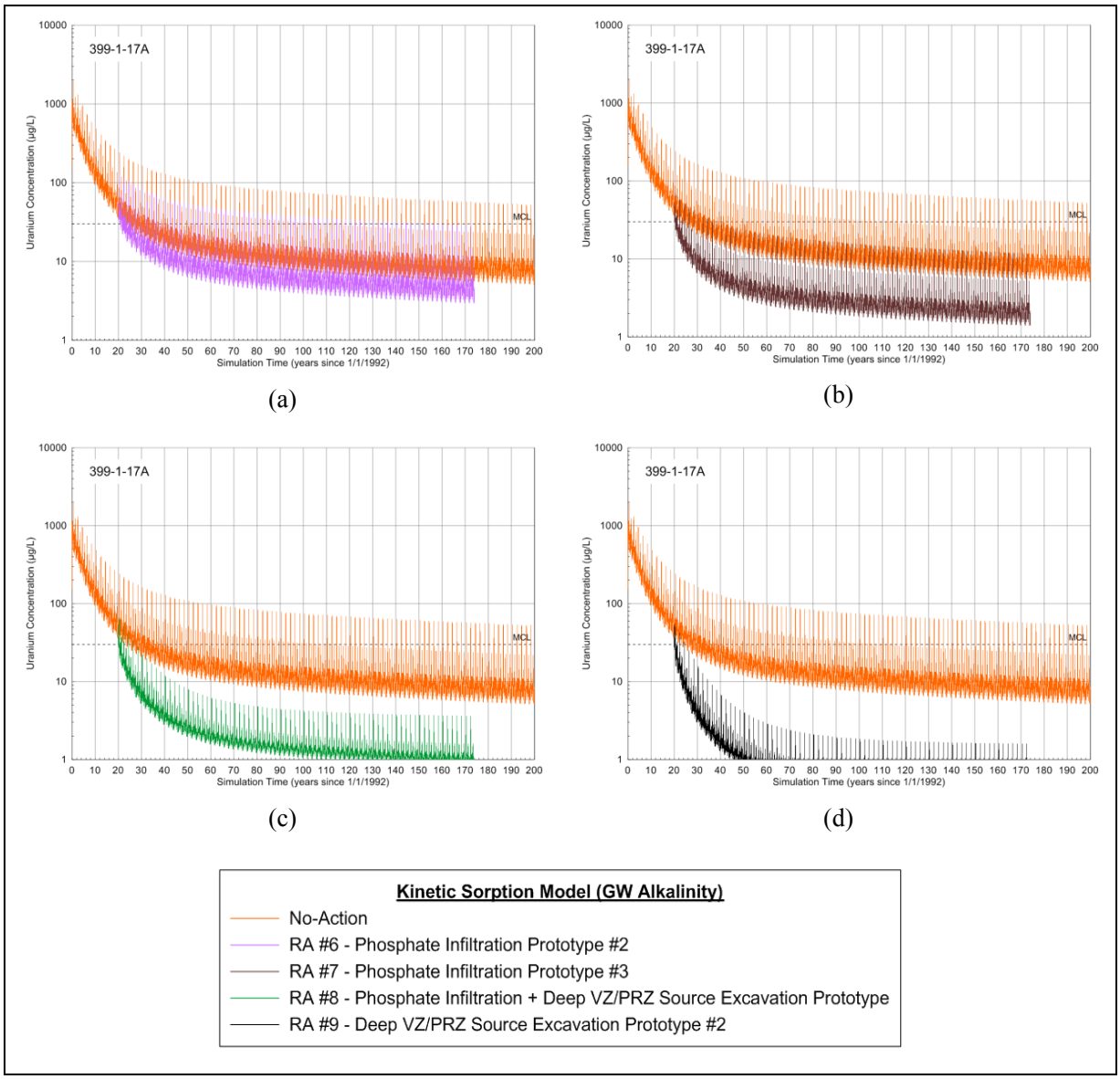
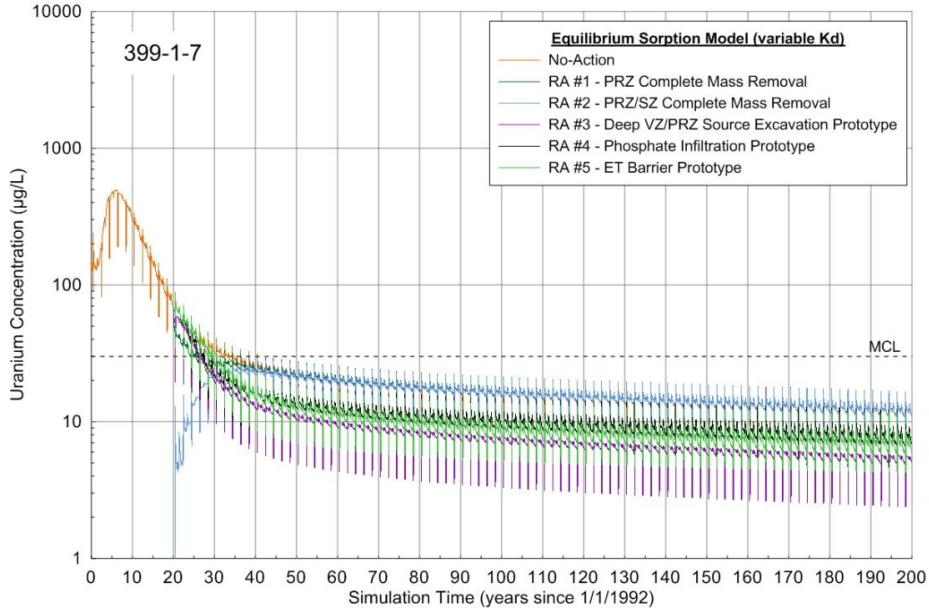
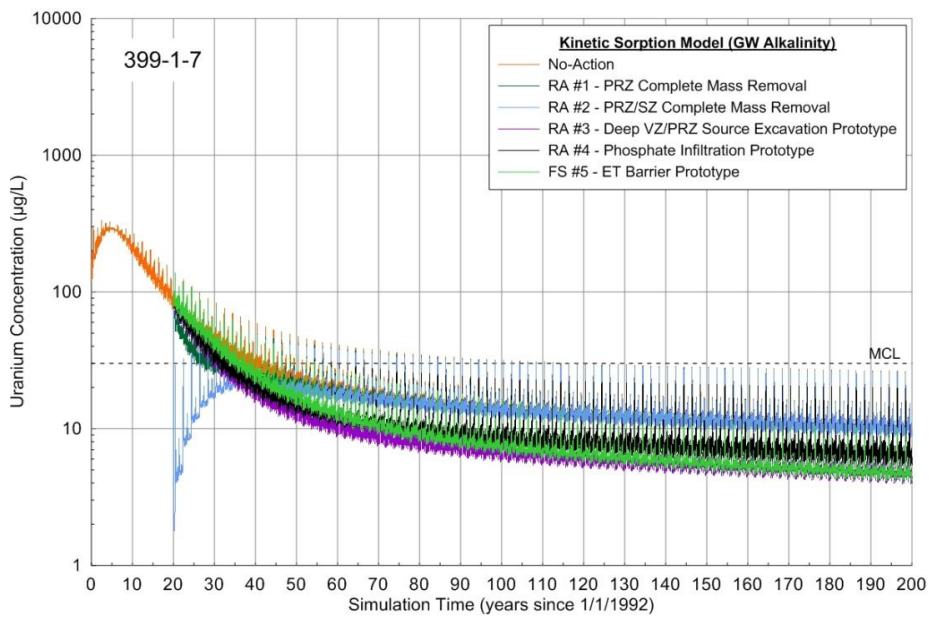


Figure 6-24. No-Action and Remedial Alternatives simulated groundwater uranium concentrations for the kinetic sorption model (GW alkalinity) at well 399-1-17A for (a) RA 6, (b) RA 7, (c) RA 8 (d) RA 9

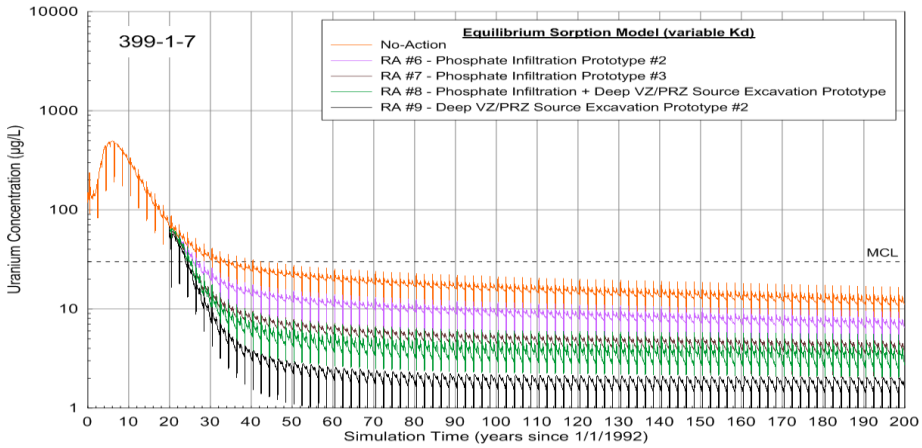


(a)

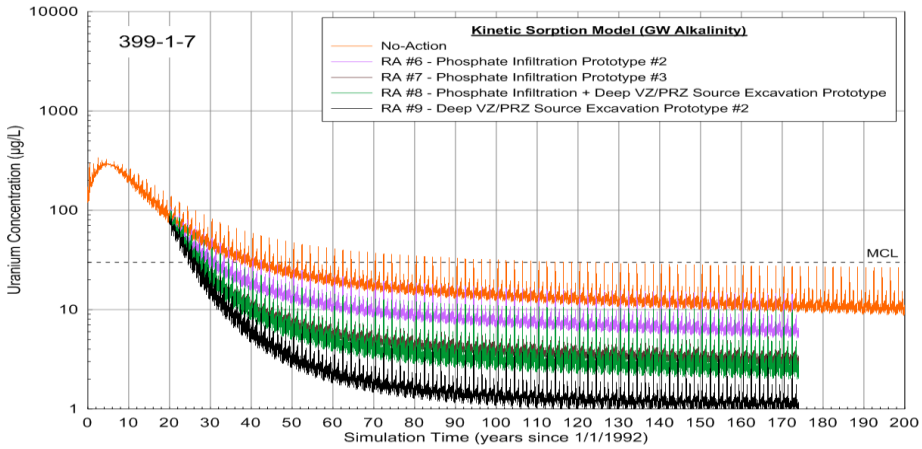


(b)

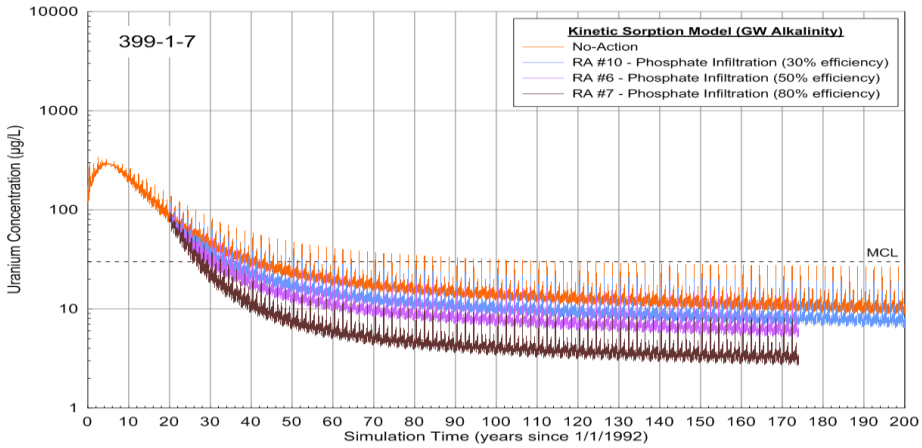
Figure 6-25. No-Action and Remedial Alternatives 1 through 5 Simulated Groundwater Uranium Concentrations at Well 399-1-7 for the (a) Equilibrium Sorption Model (variable K_d) and (b) Kinetic Sorption Model (GW alkalinity)



(a)



(b)



(c)

Figure 6-26. No-Action and Remedial Alternatives 6 through 10 Simulated Groundwater Uranium Concentrations at Well 399-1-7 for the (a) Equilibrium Sorption Model (variable K_d), (b) and (c) Kinetic Sorption Model (GW alkalinity)

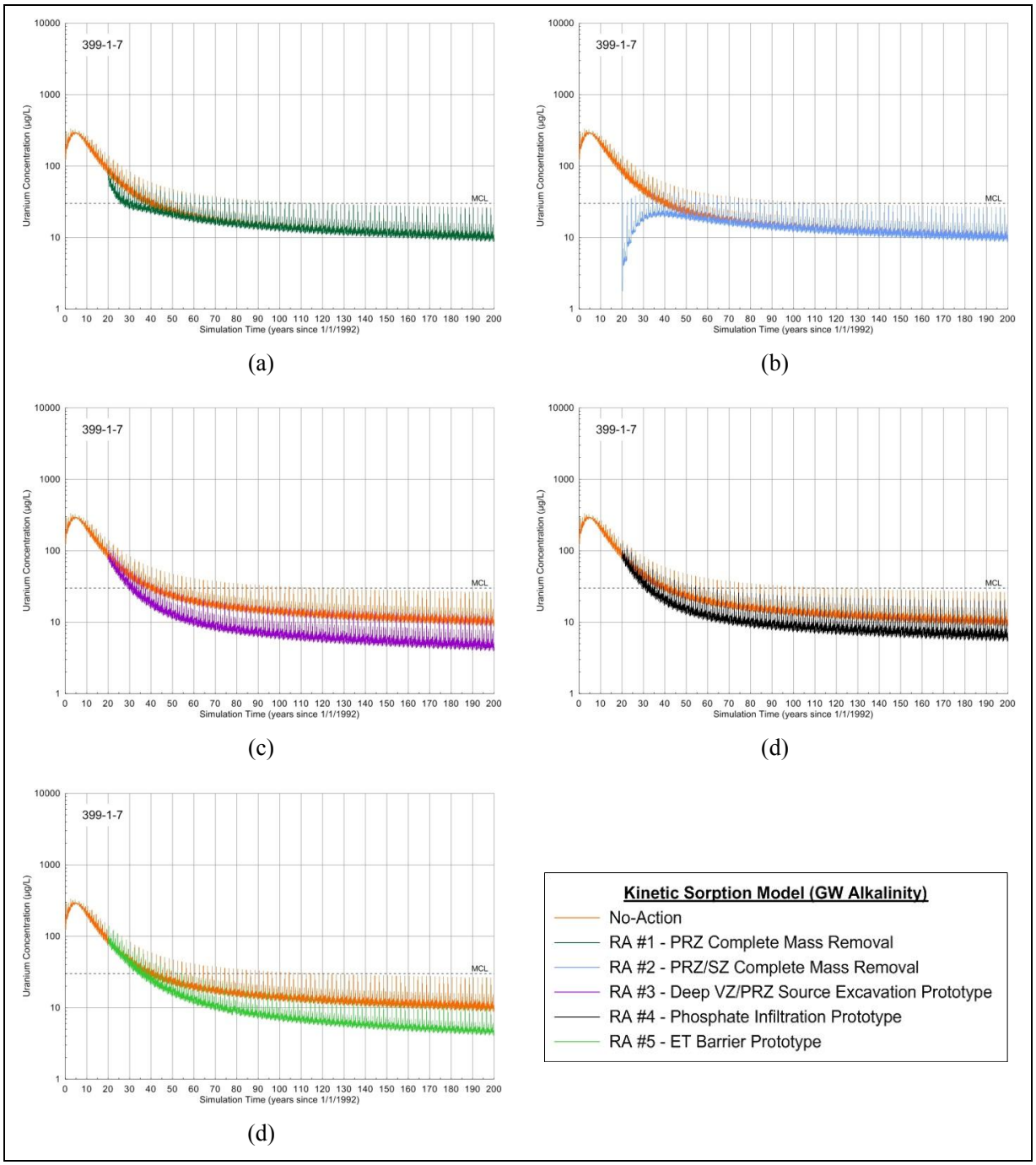


Figure 6-27. No-Action and Remedial Alternatives simulated groundwater uranium concentrations for the kinetic sorption model (GW alkalinity) at well 399-1-7 for (a) RA 1, (b) RA 2, (c) RA 3, (d) RA 4, and (e) RA 5

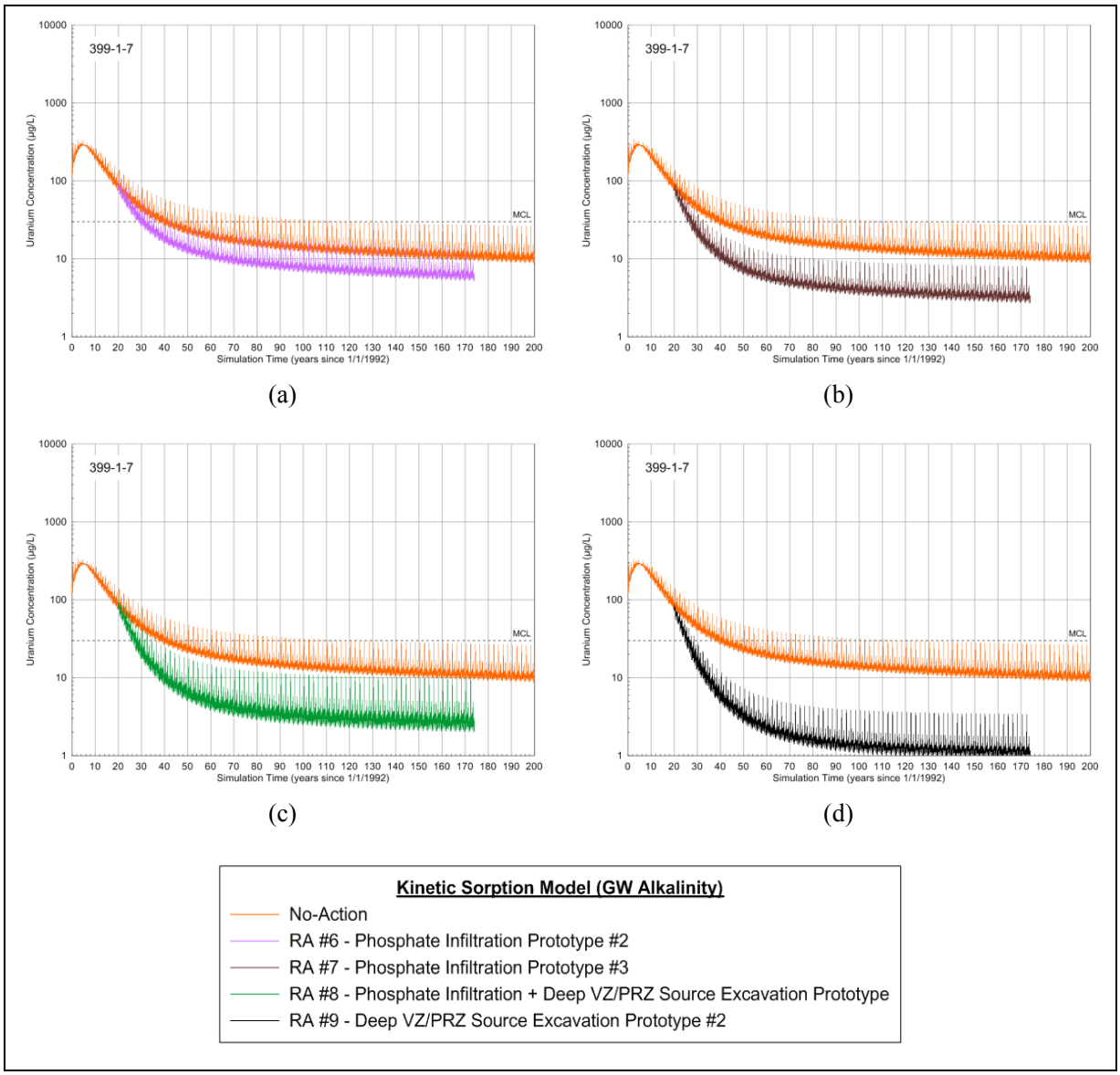
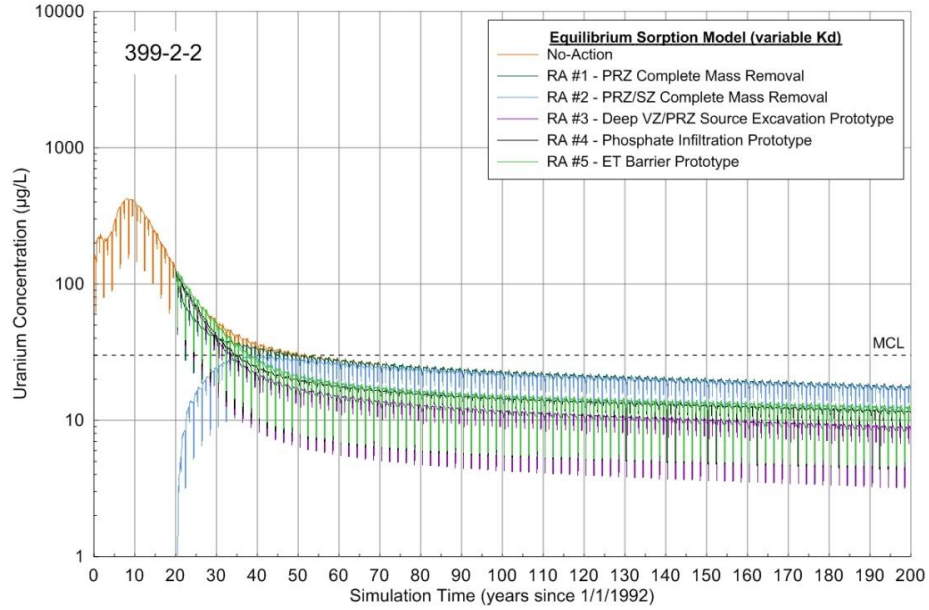
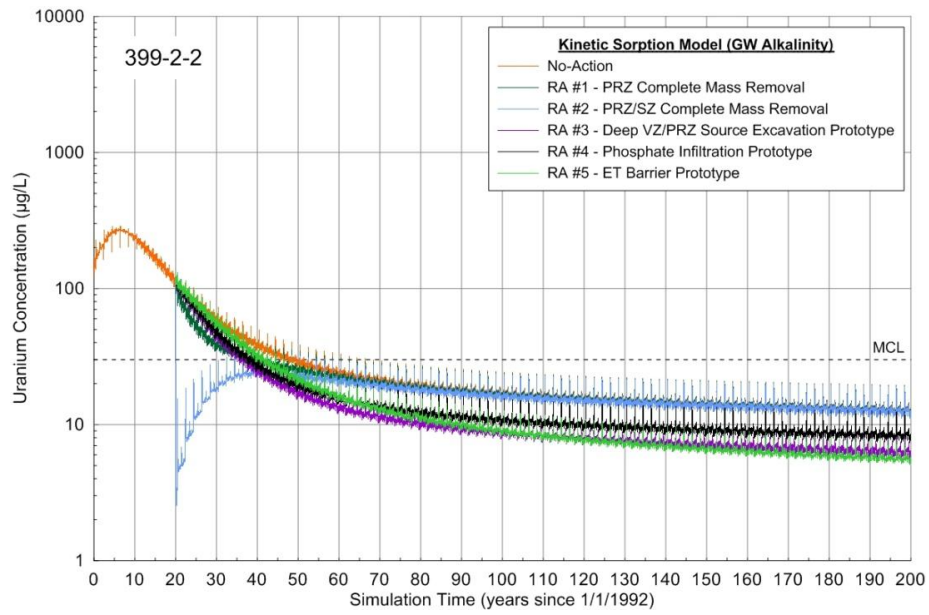


Figure 6-28.No-Action and Remedial Alternatives Simulated Groundwater Uranium Concentrations for the Kinetic Sorption Model (GW alkalinity) at Well 399-1-7 for (a) RA 6, (b) RA 7, (c) RA 8, and (d) RA 9

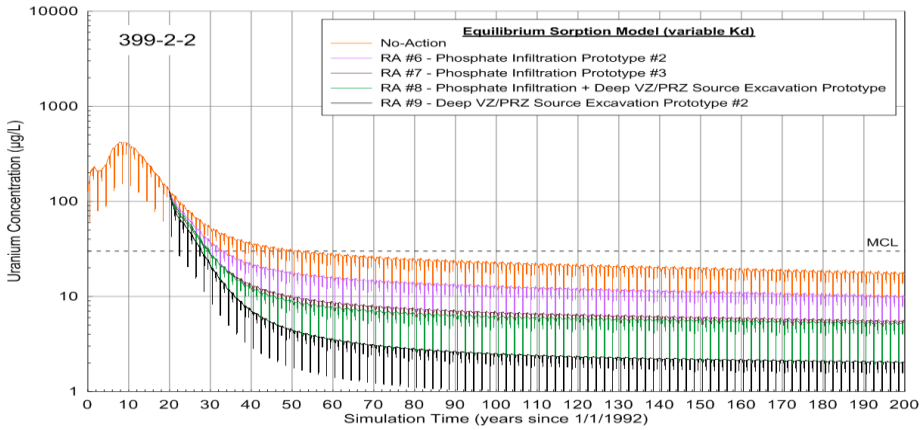


(a)

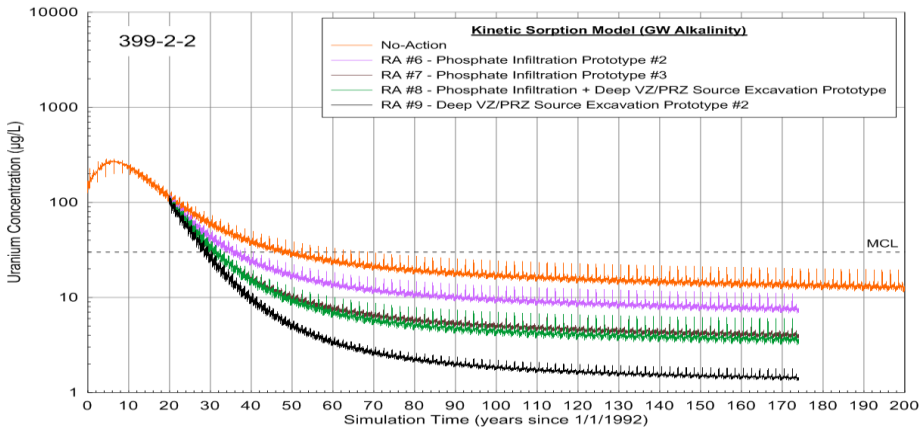


(b)

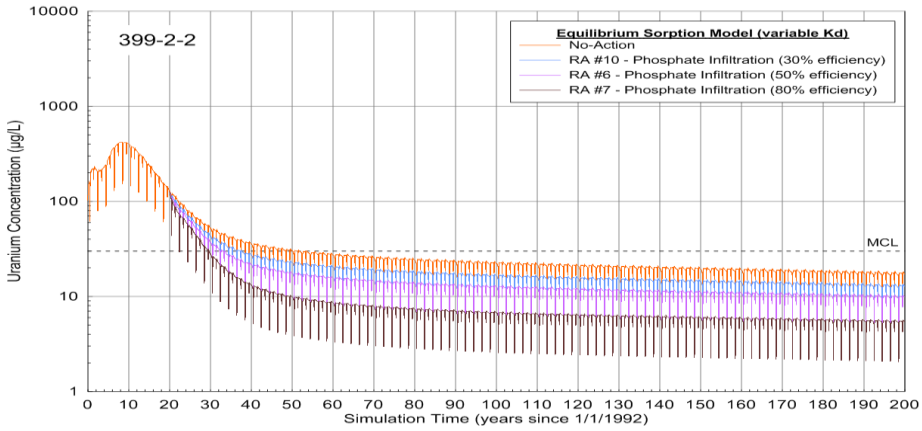
Figure 6-29.*N*o-Action and Remedial Alternatives 1 through 5 Simulated Groundwater Uranium Concentrations at Well 399-2-2 for the (a) Equilibrium Sorption Model (variable K_d) and (b) Kinetic Sorption Model (GW alkalinity)



(a)



(b)



(c)

Figure 6-30.No-Action and Remedial Alternatives 6 through 10 Simulated Groundwater Uranium Concentrations at Well 399-2-2 for the (a) Equilibrium Sorption Model (variable K_d), (b) and (c) Kinetic Sorption Model (GW alkalinity)

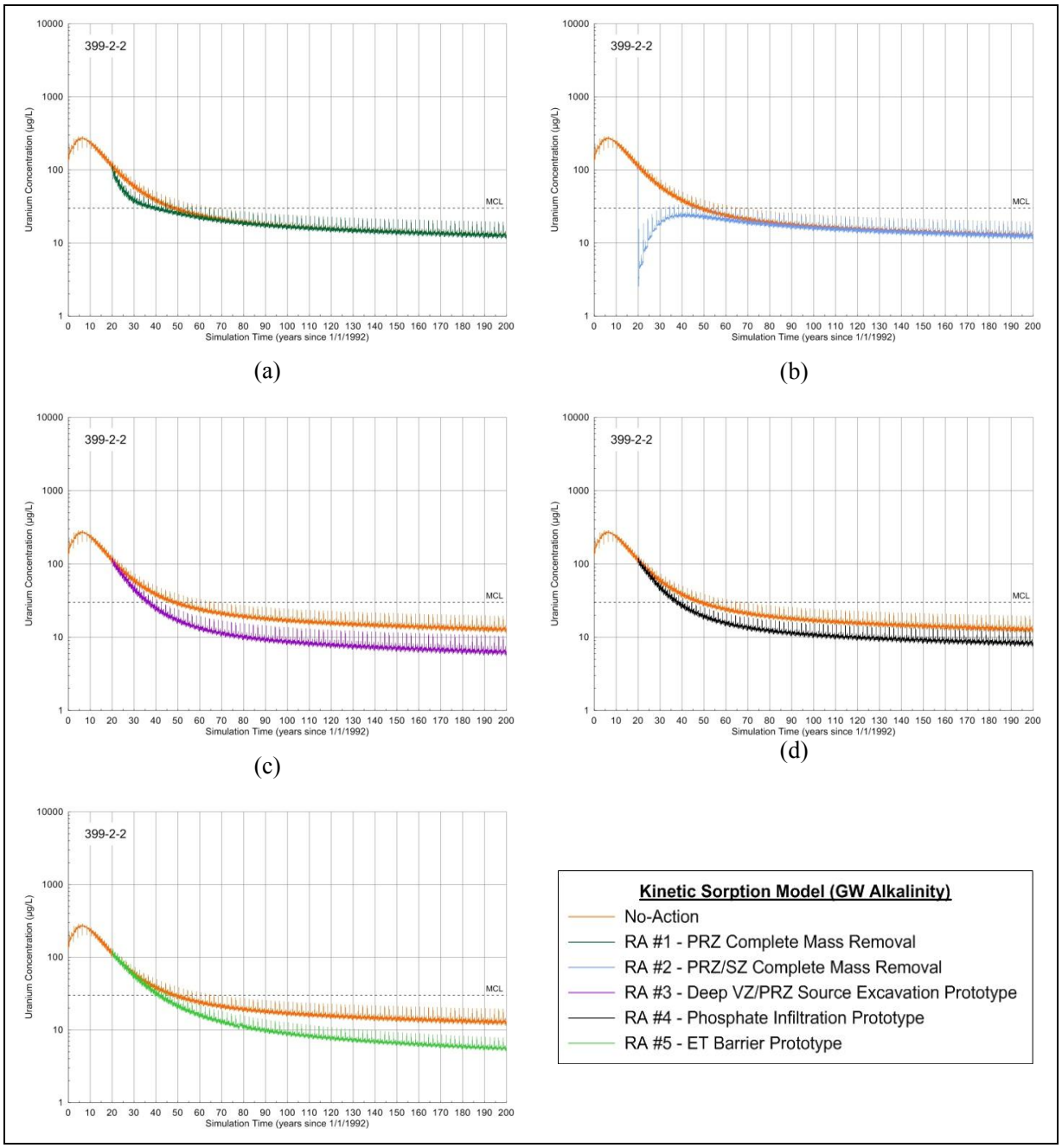


Figure 6-31.No-Action and Remedial Alternatives Simulated Groundwater Uranium Concentrations for the Kinetic Sorption Model (GW alkalinity) at Well 399-2-2 for (a) RA 1, (b) RA 2, (c) RA 3, (d) RA 4, and (e) RA 5

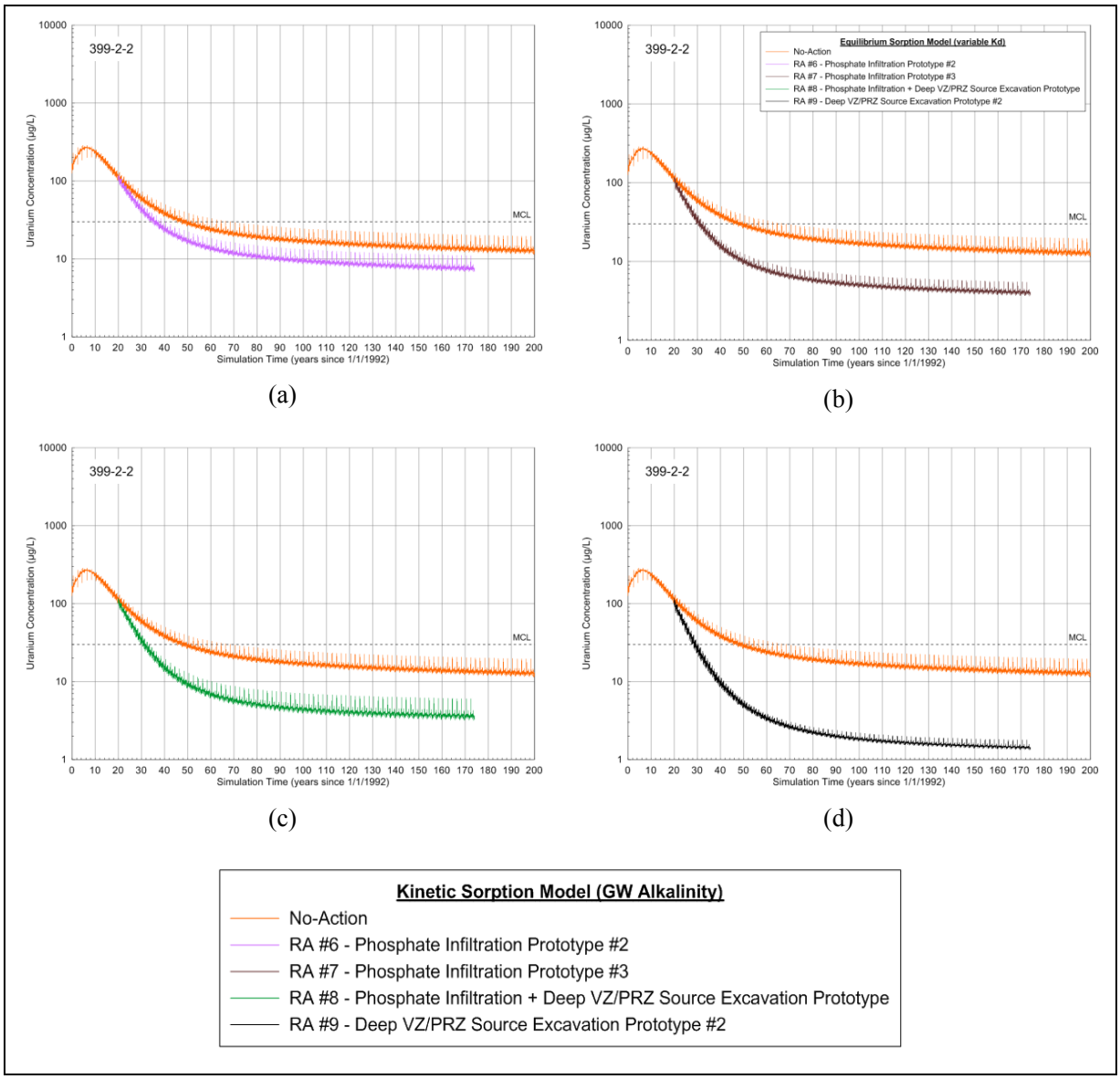


Figure 6-32. No-Action and Remedial Alternatives simulated groundwater uranium concentrations for the kinetic sorption model (GW alkalinity) at well 399-2-2 for (a) RA 6, (b) RA 7, (c) RA 8, and (d) RA 9f

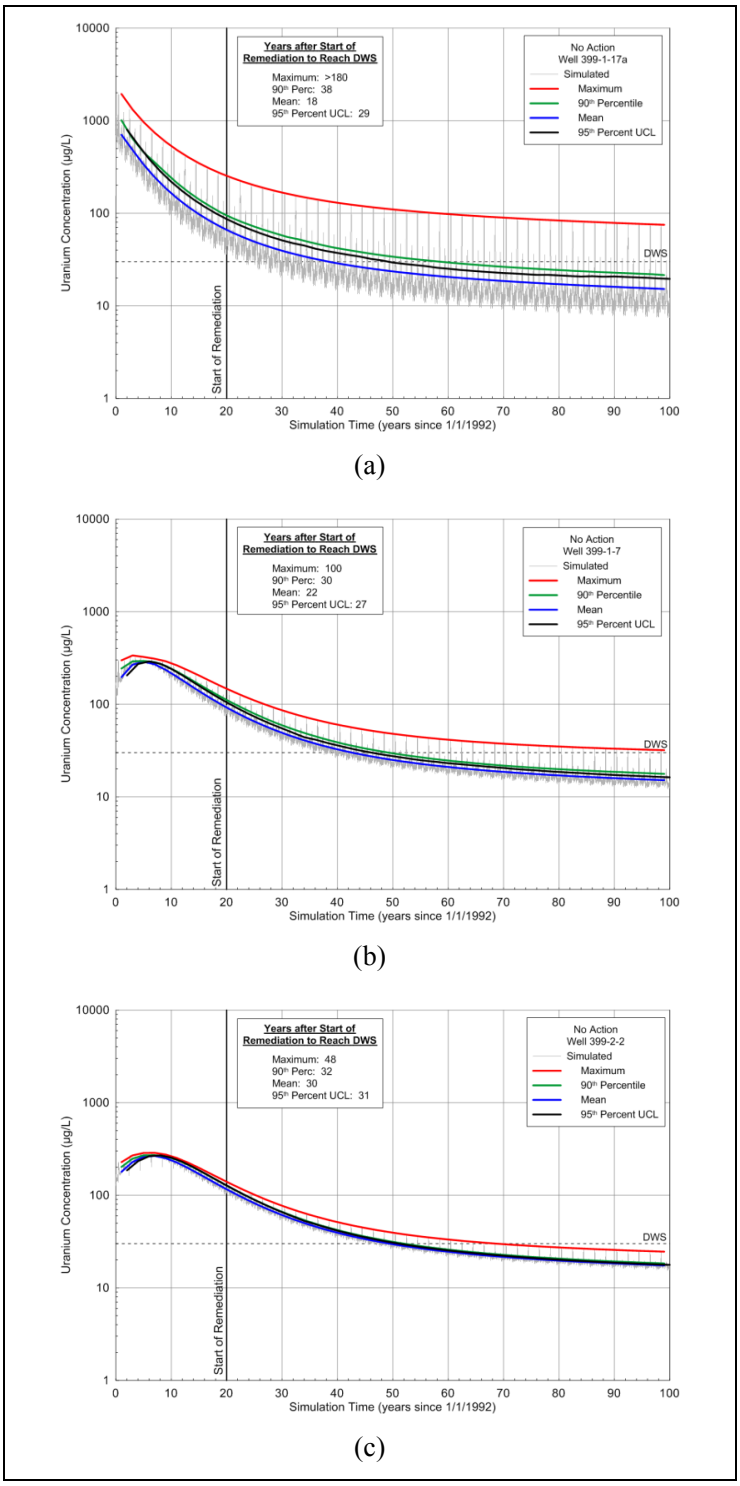


Figure 6-33. Maximum, 90th percentile, 95th UCL and Mean Simulated Uranium Groundwater Concentrations for the Kinetic Sorption Model (GW alkalinity) No-Action Scenario at Wells (a) 399-1-17A, (b) 399-1-7, and (c) 399-2-2

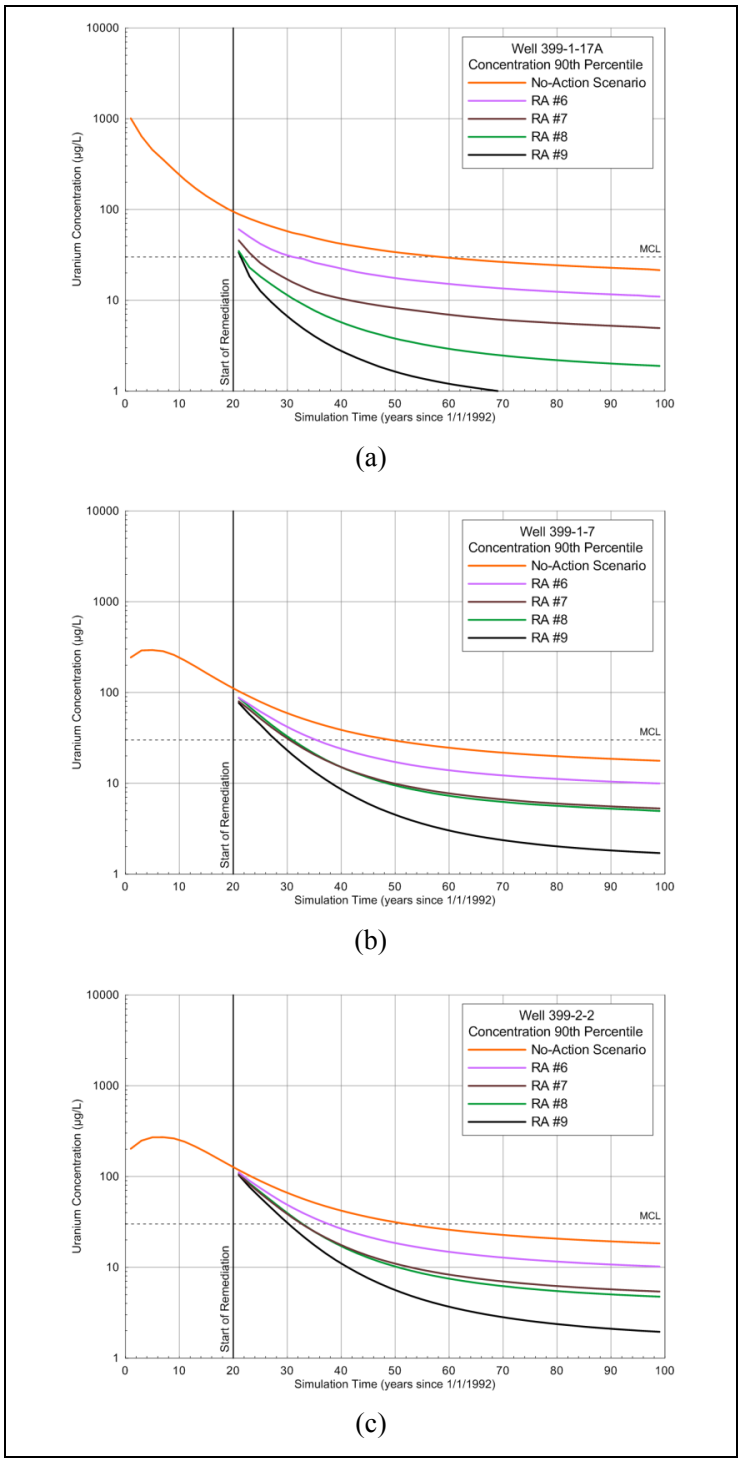


Figure 6-34. Comparison of 90th Percentile Simulated Uranium Groundwater Concentrations for the Kinetic Sorption Model (GW alkalinity) No-Action Scenario and RA 6 through RA 9 at Wells (a) 399-1-17A, (b) 399-1-7, and (c) 399-2-2

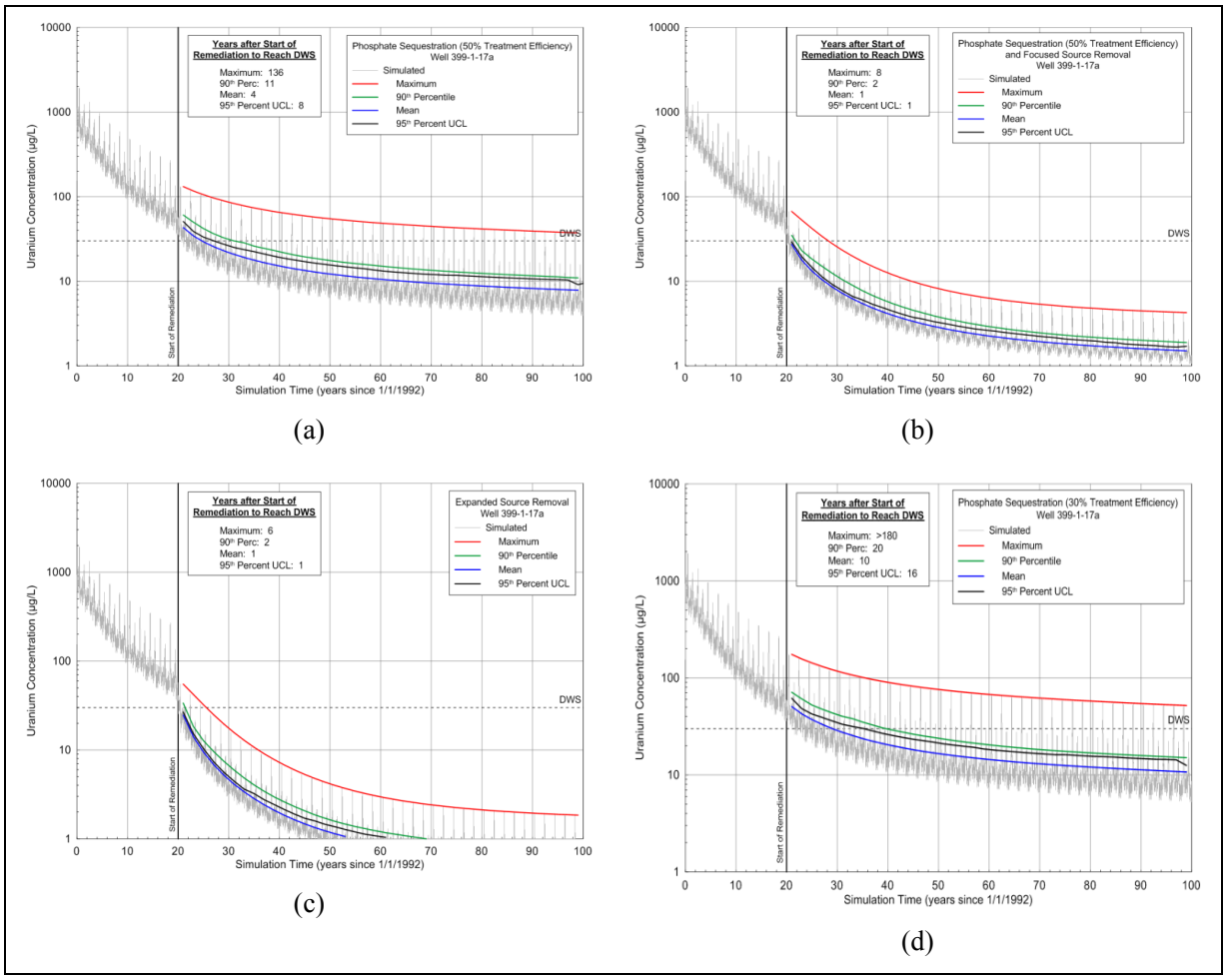


Figure 6-35. Maximum, 90th Percentile, 95th UCL and Mean Simulated Uranium Groundwater Concentrations at Well 399-1-17a for the Kinetic Sorption Model (GW alkalinity) (a) RA 6, (b) RA 8 (c) RA 9, and (d) RA 10

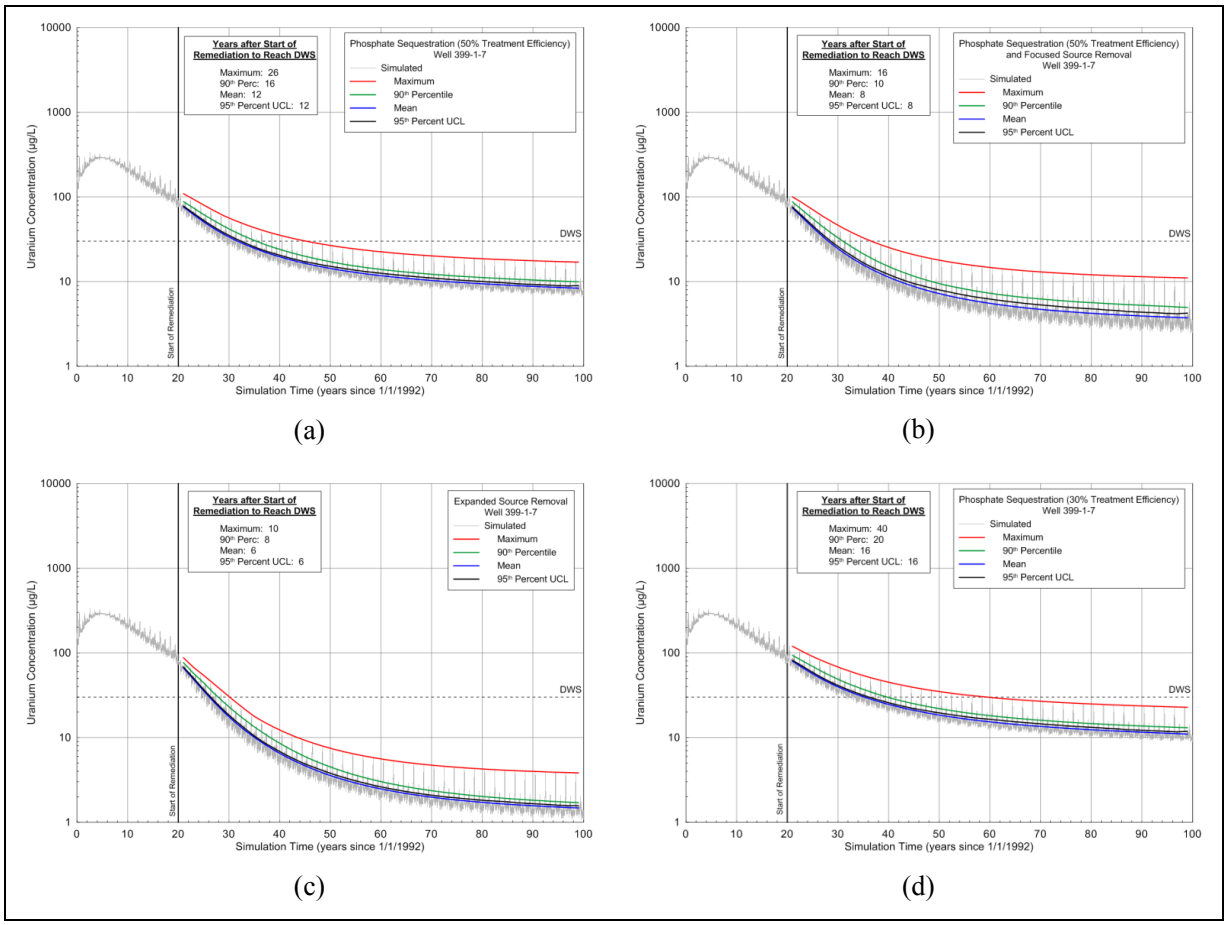


Figure 6-36. Maximum, 90th Percentile, 95th UCL and Mean Simulated Uranium Groundwater Concentrations at Well 399-1-7 for the Kinetic Sorption Model (GW alkalinity) (a) RA 6, (b) RA 8 (c) RA 9, and (d) RA 10

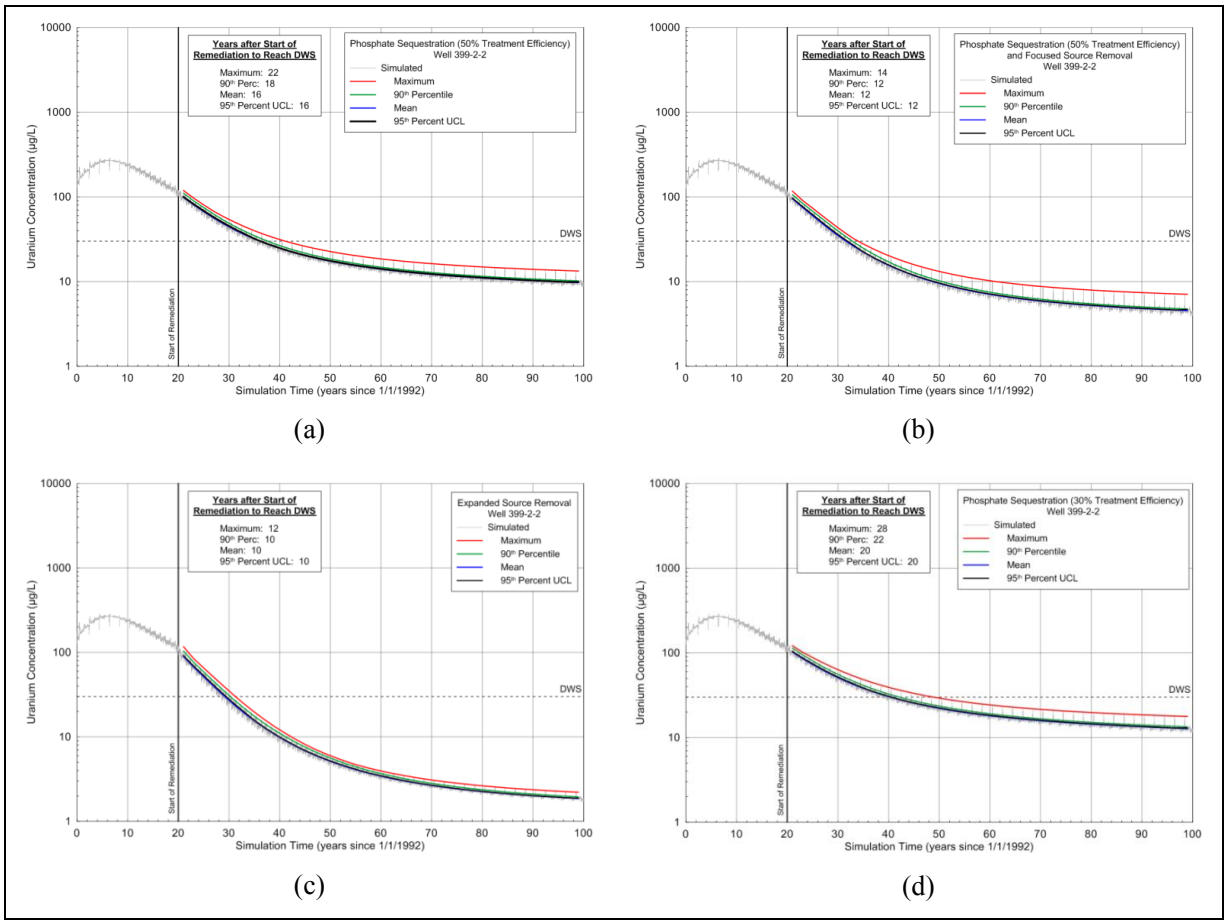


Figure 6-37. Maximum, 90th Percentile, 95th UCL and Mean Simulated Uranium Groundwater Concentrations at Well 399-2-2 for the Kinetic Sorption Model (GW alkalinity) (a) RA 6, (b) RA 8 (c) RA 9, and (d) RA 10

6.5 Uranium PRG Determination

Part of the risk analysis conducted for the 300 Area RI/FS is the determination of preliminary remediation goals (PRGs). PRGs are used to define the maximum soil concentration of a contaminant that can remain within the vadose zone after a remedial action has been undertaken. PRG values are determined that are to be protective of groundwater and surface water, that is the maximum concentration is calculated such that the contaminant will not result in the degradation of the groundwater or surface water to levels above the applicable regulatory water quality standard.

The 2-D cross-section model (June-North cross section) was utilized for developing groundwater and surface water PRG for uranium as it includes all of the relevant features and processes that are important for the mobility of uranium in the 300 Area. However, because of extensive contamination throughout the domain of that model (in both vadose zone and the saturated zone) it is very difficult to isolate the impact on groundwater from primarily vertical transport of uranium through the vadose zone underneath a waste site from that caused by lateral movement of dissolved uranium mass from surrounding locations in the saturated zone and PRZ. To better understand the impact of soil contamination of uranium from a waste site on groundwater concentrations a stylized analysis was conducted, where the mass distribution of uranium from a waste site was conceptualized and guided by the simulated results from 2-D cross-section modeling described in earlier sections. Figure 6-38 shows a rectangular solid region where the uranium mass was placed in the model along with an observation well used for the PRG calculations. The background image is the simulated distribution of uranium mass representing 20 years of simulation, which started in year 1992 and thus represents the current distribution of uranium along the cross-section. The vertical extent of the rectangular region was guided by the vertical extent of uranium mass in the background image. The base of the rectangular region was placed above the top of the PRZ thereby distributing the uranium mass through the full contaminated thickness of the vadose zone. The width of the region was selected to be 30-m, which is deemed as a conservative zone of contamination along the flow direction under a given waste site in the 300 Area. It should be noted that the PRG calculations performed using this width can be linearly scaled if a different width of the contamination for a waste site is desired. An observation well that is screened for 4.5 m (15 feet) is placed at the edge of the rectangular zone of contamination that extends down from the middle of the PRZ into the saturated zone. No other mass of uranium is placed in the cross-section except for that in the rectangular region. The average concentration along the 4.5 m screened interval of the observation well was calculated as a function of time to determine the peak concentration.

The calculations are performed by setting the initial uranium concentration to 1 mg/kg in the rectangular region and by conducting following four simulations using two sorption models and two recharge scenarios:

- Equilibrium Sorption with Variable K_d – recharge changes from current 55.4 mm/yr to 6 mm/yr after six years, and to 3 mm/yr after thirty years, due to changes in land cover from bare soil to mixed grass and mature shrub steppe vegetation cover.
- Equilibrium Sorption with Variable K_d and Extended recharge – recharge remains at current value of 55.4 mm/yr for extended duration of 26 years (resulting from assumed delayed remedial action and continued bare soil) and then changes to 6 mm/yr and then to 3 mm/yr after thirty years.
- Kinetic Sorption with Constant Groundwater Alkalinity – recharge changes from current 55.4 mm/yr to 6 mm/yr after six years, and to 3 mm/yr after thirty years, due to changes in land cover from bare soil to mixed grass and mature shrub steppe vegetation cover.

- Kinetic Sorption with Constant Groundwater Alkalinity and Extended recharge – recharge remains at current value of 55.4 mm/yr for extended duration of 26 years (resulting from assumed delayed remedial action and continued bare soil) and then changes to 6 mm/yr and then to 3 mm/yr after thirty years.

While the recharge for the above listed scenarios was modified from original simulations, the lateral boundary conditions were unchanged. The recharge modifications are not expected to have a significant impact on the cyclic nature of water levels given the controlling nature of the local river stage and regional flow system.

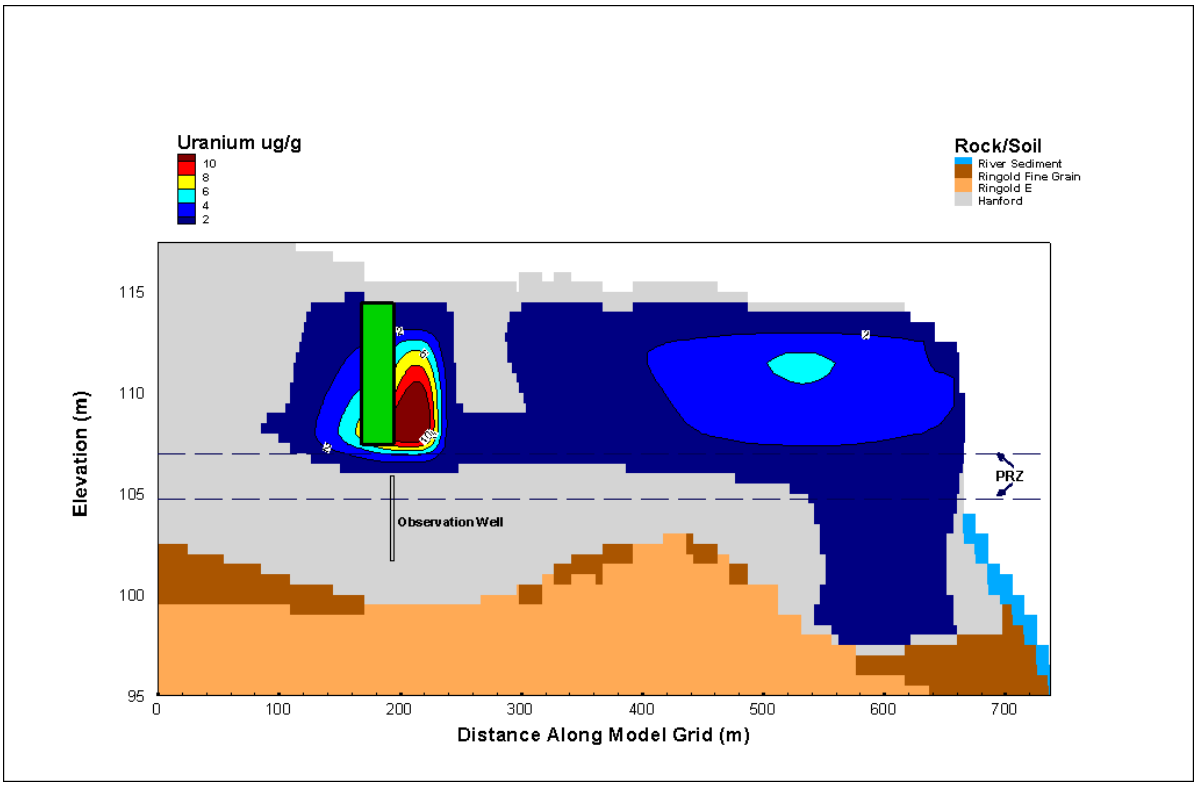


Figure 6-38. Zone of Uranium Contamination Chosen for PRG Calculations

The simulated results are presented in Figures 6-39 to 6-42 for all four cases. These were calculated by averaging the concentrations observed at the nodes associated with the monitoring wells and choosing only those nodes that showed full saturation. Comparing the results from the four simulations indicate that the highest peak concentration (2.13 µg/L) is predicted by the Kinetic Sorption with Constant Groundwater Alkalinity and Extended recharge case (Figure 6-42). Since higher concentration leads to lower PRG value this case was selected to provide a conservative PRG value. Using 30 µg/L groundwater standard (MCL) and 778 µg/L surface water standard for uranium, the Groundwater PRG is calculated to be 117 mg/kg and the Surface water PRG is calculated to be 3044 mg/kg. Note that these PRG values have been converted from the model based labile uranium mass to total uranium mass scaled to the <2-mm size fraction (calculated by dividing by a factor of 0.12), thus allowing for a consistent comparison between the model results and the EPCs used for risk assessment.

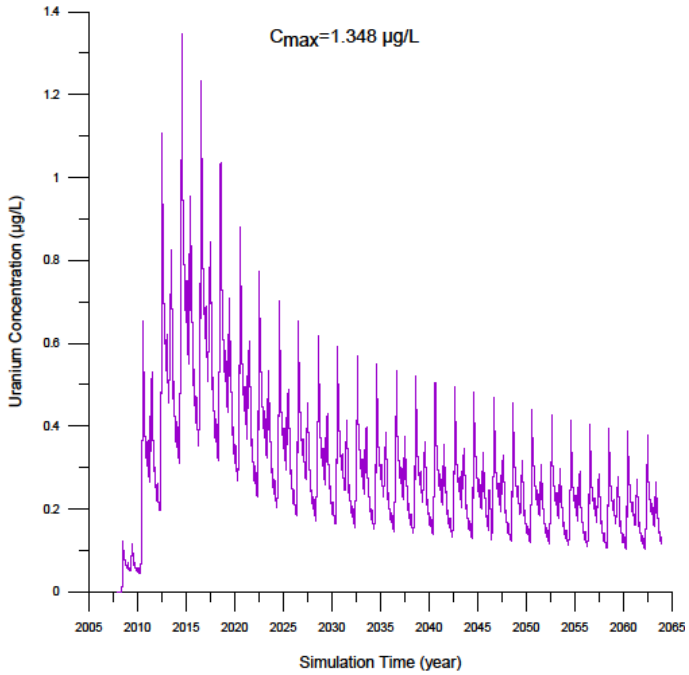


Figure 6-39. Simulated Average Uranium Concentration in the Observation Well for the Equilibrium Sorption with Variable K_d case where Recharge Reduces Due to Changes in Land Cover

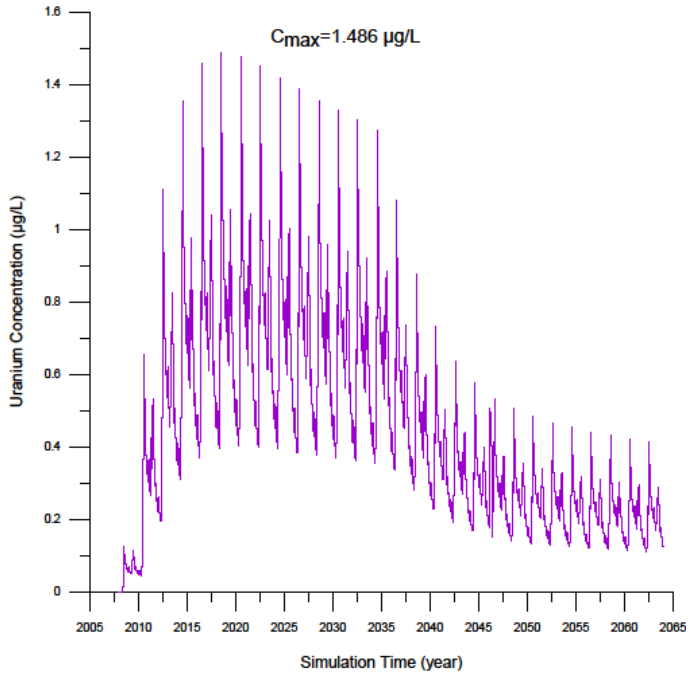


Figure 6-40. Simulated Average Uranium Concentration in the Observation Well for the Equilibrium Sorption with Variable K_d Case with Extended High Recharge

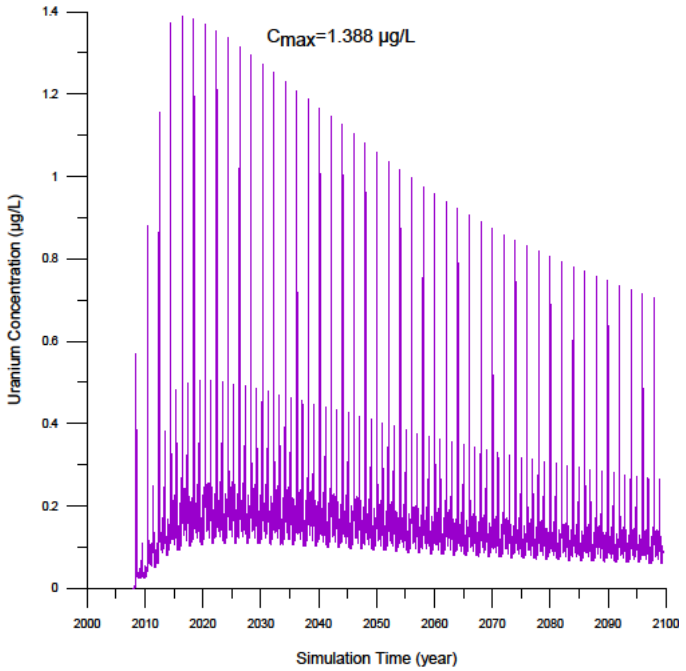


Figure 6-41. Simulated Average Uranium Concentration in the Observation Well for the Kinetic Sorption with Constant Groundwater Alkalinity Case where Recharge Reduces Due to Changes in Land Cover

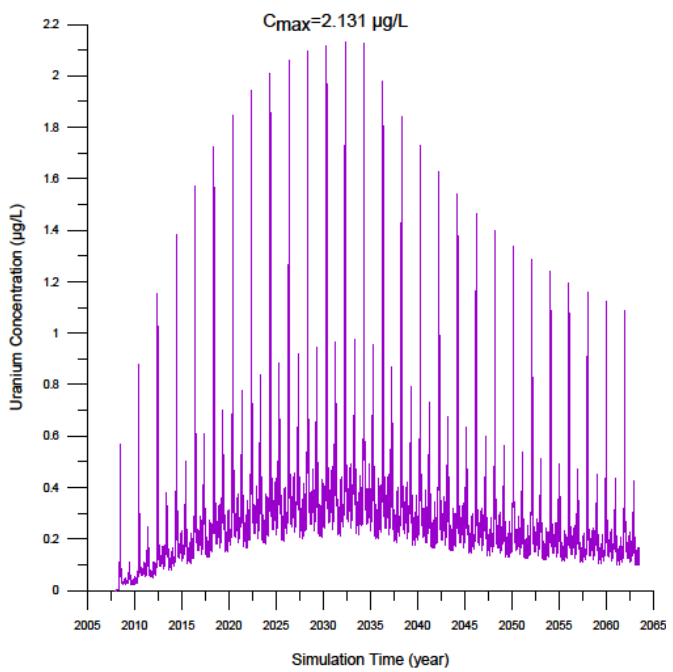


Figure 6-42. Simulated Average Uranium Concentration in the Observation Well for the Kinetic Sorption with Constant Groundwater Alkalinity Case with Extended High Recharge

It should be noted that these PRG calculations are applicable to the waste sites where the groundwater is not contaminated from lateral movement of dissolved uranium mass from surrounding areas and there is no influence from lateral movement of mass in the vadose zone from surrounding areas. The PRG calculations are based on 30-m width of the waste site along the groundwater flow direction. The PRG value should be linearly scaled if the width of the waste site being evaluated is different.

Sensitivity cases were also run with increased initial concentration in the vadose zone. The results (Figure 6-43 and 6-44) indicated that the peak concentration can be linearly scaled based on the initial concentrations providing confidence in the approach for calculating the PRG. For example, Figure 6-43 shows the results for the Equilibrium Sorption with Variable K_d case with Extended high recharge where the initial uranium concentrations were increased from 1 mg/kg to 10 mg/kg. The peak concentration is calculated to be 14.86 µg/L, which is exactly an order magnitude higher than that shown in Figure 6-40, indicating linear increase in peak concentration.

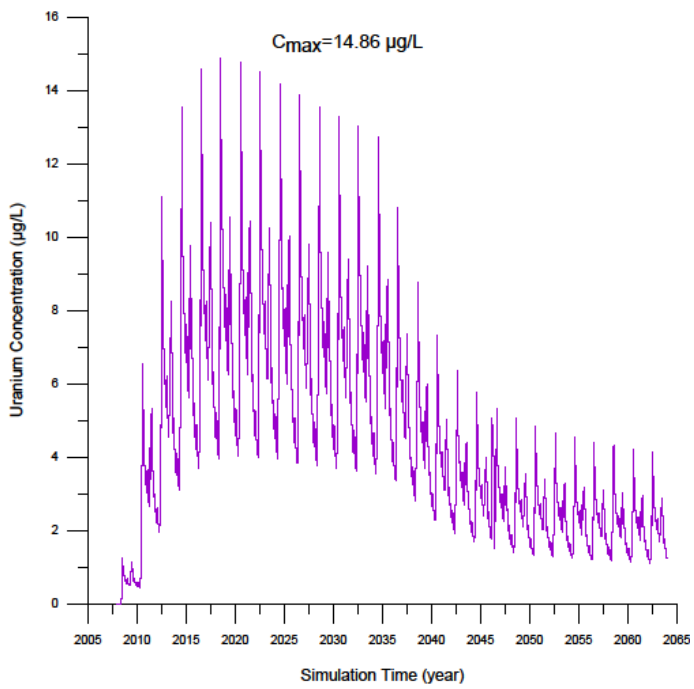


Figure 6-43. Simulated Average Uranium Concentration in the Observation Well for the Equilibrium Sorption with Variable K_d Case with Extended High Recharge where the initial soil concentration is set at 10 mg/kg

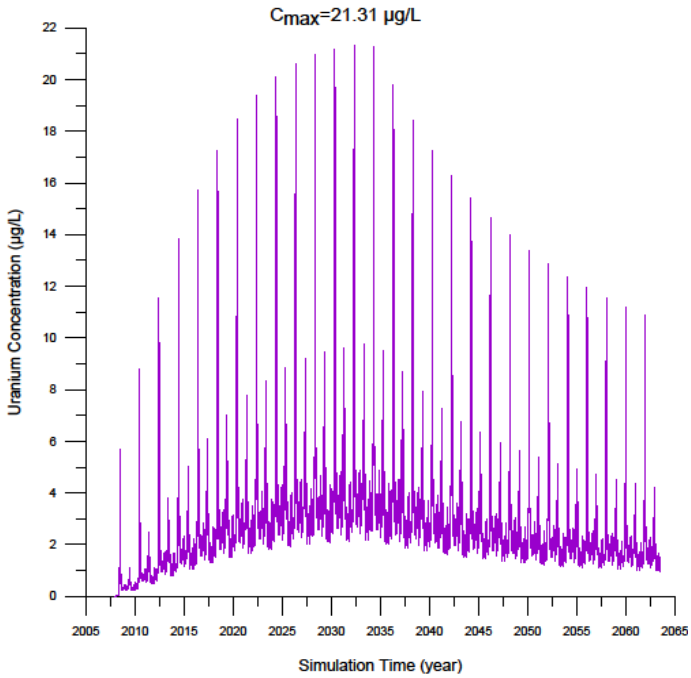


Figure 6-44. Simulated Average Uranium Concentration in the Observation Well for the Kinetic Sorption with Constant Groundwater Alkalinity Case with Extended High Recharge where the initial soil concentration is set at 10 mg/kg

6.6 Sources of Uncertainty

It should be recognized that any modeling undertaken is simplification of reality and thus the modeling results need to be placed in the context of uncertainty in estimating the contaminant concentrations both spatially and temporally. A qualitative discussion of sources of uncertainty in developing flow and transport model is presented, which can be divided into four general areas: (1) conceptual model uncertainty; (2) uncertainty in representing initial contaminant concentration distribution; (3) uncertainty in hydraulic and transport parameters; and (4) uncertainty in long-term predictions.

Uncertainty in conceptual model derives from limited available data. For example, the lithologic variability in three-dimensions is simplified in the model based on interpolation techniques using available data from limited locations. As a result the lithologic contact between various units in the model are estimated and rely on the judgment of the modeler. Lithologic variations could exert primary control in modeling transport as the hydrologic properties are often lithology dependent. Determination of FEPs that need to be incorporated in a model are also generally based on conceptual understanding of the problem and having incomplete information can lead to errors in determining key FEPs, which can lead to inaccurate results. Conceptual uncertainties also exist in determining the boundary conditions for both the past and future conditions. The seasonal river stage fluctuations lead to changes in the flow direction within the aquifer. Due to natural variability the river stage fluctuations are hard to predict and add to considerable uncertainty in applying the boundary conditions that exert significant control on the mobility of uranium. Considerable variability in the flow direction also exists spatially within the same time frame as well between the seasons. Without having complete information the predominant flow paths have to be conceptualized. To evaluate the influence of mixing of river water and groundwater near the south end of Process Trench (that had high uranium dissolved concentration), 2-D cross-sectional modeling along predominant flow paths was performed separately for June and December. These two months encompass

the range in flow path variation and thus evaluating the effect of mixing among these flow paths can lead to understanding of uranium transport over time. However, because of changing flow paths the dissolved uranium is likely to be spread in the southerly direction during December and move closer to the river due to lower river stage.

Developing initial distribution of uranium concentration in soil from limited spatial data set also leads to uncertainty in applying the initial conditions in the model. It gets even more challenging when limited data is available and where datasets from different years have to be combined to understand the distribution of uranium in the soil. Another issue with estimating the initial distribution is how far a sample result can be extrapolated away from its location. The use of radial basis functions as a mechanism for interpolation can reduce but cannot eliminate uncertainty due to sparse sampling as they do not represent the physics of the processes that caused contaminants to migrate in the subsurface. To reflect the influence of fluid flow direction on contaminant distribution shape, a bias in 3-D plume generation algorithms was introduced by making the variogram longer in the average direction of horizontal flow than in other directions and shortest perpendicular to this direction. Also, a cutoff depth of the soil concentration was judged based on the hydraulic conductivity of the units. A particular problem with using radial basis functions to define contaminant distributions is that the interpolant is symmetric with respect to the measurement point in all directions and thus requires conceptual understanding on the geometry of the plume. One of the reasons for using control points was to reduce the influence of this limitation.

The assumption of spatially invariant hydraulic properties of the HSUs is also a source of uncertainty. The fluvial environments that lead to deposition of most of the sediments for the aquifer are associated with heterogeneous structures, especially for the Hanford formation and Ringold Formation. Local variations in hydraulic properties can cause local regions of relatively large flow rates and hence faster transport of contaminants. Heterogeneity in the form of sand lenses, bar structures, and over bank deposits are common at meter to tens of meter scale and may never be detected as they could occur between the borehole locations. These heterogeneities can cause large variations in hydraulic conductivities, which may not be in the model. Furthermore, some of these features can create larger scale preferential pathways and lead to faster contaminant movement locally than predicted by the current model.

As advection is the primary transport mechanism in the current modeling study, the transport parameters of interest are primarily effective porosity, bulk density, longitudinal and transverse dispersivity, and sorption related parameters such as kinetic rate constant and K_d. These parameters are used to determine the retardation factor that is applied for uranium. Only best estimate values (most representative and appropriate for current modeling task) are considered in the modeling study because of lack of available information on spatial variability of these parameters. The anisotropic ratio for longitudinal and transverse hydraulic conductivity and dispersivity is also estimated as a single value due to lack of available information. This can also lead to uncertainty in predicting transport of uranium.

The sorption/desorption of uranium can be described by kinetic rate constant when equilibrium conditions are not established due to dynamic flow through the aquifer and changing geochemistry as a result of mixing of river water with groundwater. Alternatively, if the equilibrium conditions are assumed, such as away from the source areas, the K_d values can be applied. In both cases, the values can vary over a range as they depend primarily on the available sorption sites on the sorbent (function of surface area), dissolved concentration of contaminant, and chemical parameters such as pH, alkalinity, and ionic strength. Each of these parameters can vary over time and space and affect the sorption of the contaminant and, thereby, the uncertainty in its estimate. The <2 mm grain size fraction affects the number of available sorption sites. In the calculations the <2 mm grain size fraction is held constant but in reality it would vary and thereby affect the sorption of uranium. Similarly, the labile fraction of uranium

is considered to be constant for the purpose of modeling but would vary spatially based on the binding energy of the sorption site and the uranium aqueous complexes present.

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Appendix A

Uranium in Sediment from FS-2 Test Pit, 618-1 Burial Ground Excavation

ECF-300FF5-11-0151, REV. 1

Uranium in Sediment from FS-2 Test Pit, 618-1 Burial Ground Excavation

R. E. Peterson, Pacific Northwest National Laboratory
June 30, 2010

Introduction

Washington Closure Hanford provided Pacific Northwest National Laboratory with the analytical results for sediment samples collected in profile from a test pit within the larger excavation associated with the former 618-1 Burial Ground. Fourteen samples were collected on April 20, 2010 using an excavator. Total uranium, isotopic uranium, and pH were measured for each sample. The excavation did not reach groundwater, although the deepest sample was probably collected close to the water table on that day.

Detailed information on sample collection is available in the 300-FF-2 Field Remediation Project—Sampling Log (EL-1395-16, pp. 10 - 11), including sample numbers, collection time, coordinates, and estimated elevations for each sample. Uranium analyses of samples were performed on May 7 and 10, 2010, by Eberline Analytical/ Richmond, under Sample Delivery Group K2028, and reported on May 12. Sample pH was determined by Lionville Laboratory on April 23, 2010 and reported on April 28.

Total uranium in solids was measured by method UTOT_KPA; isotopic uranium was measured by method UISO_PLATE_AEA and included U-233/234, U-235, and U-238; and pH was measured using method SW846 9045D. Field estimates for the elevation of the sample were adjusted using hourly water level data from nearby wells. The adjustment included moving the profile upward such that the deepest sample, which was not saturated, was positioned just above the water table elevation for the time of sampling.

Results

Laboratory results are summarized in the table below, along with elevation estimates. The uranium and pH profiles are shown graphically in the figure. Water table elevations were determined from hourly records for nearby wells 399-1-21A and 399-1-2, courtesy of Kyle Parker (PNNL) and the Integrated Field-Scale Research Challenge project.

Discussion

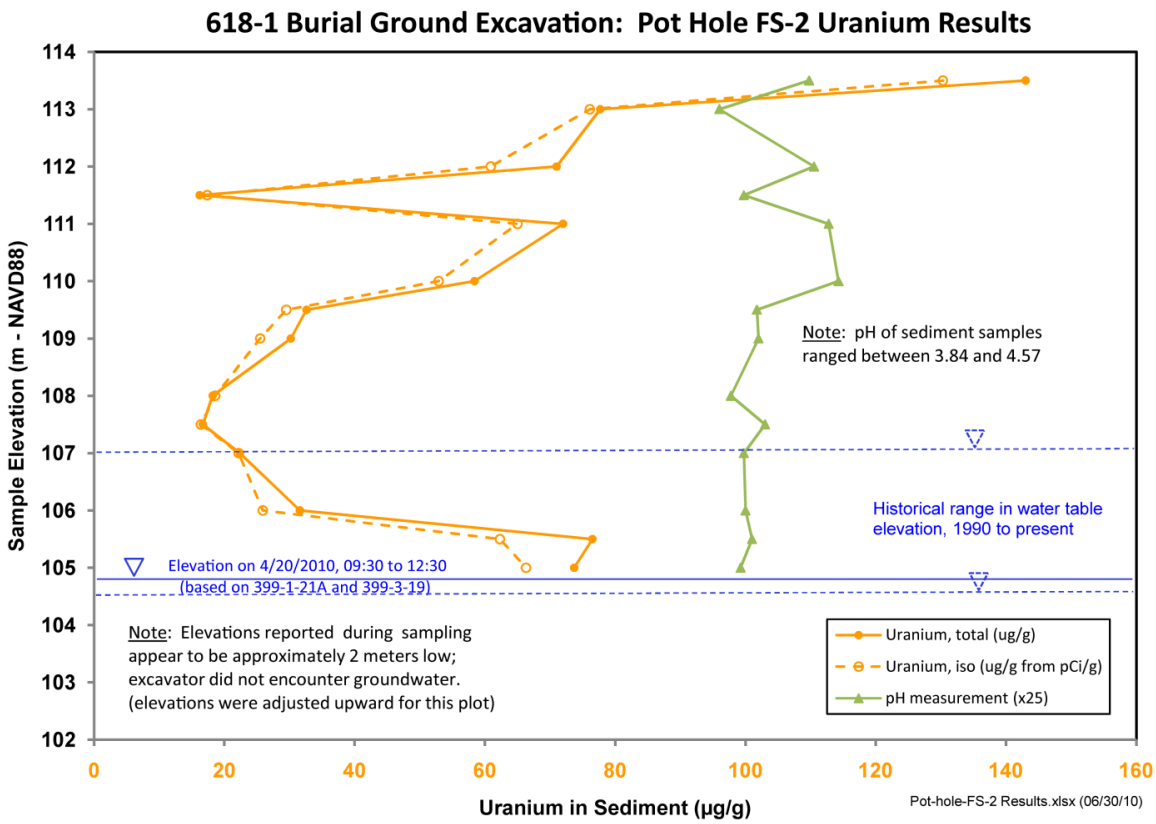
For perspective, the uranium concentrations measured in samples from the test pit are similar to those typically measured in cleanup verification samples collected at the three major liquid waste disposal sites. The pH of the sediment is much lower, however, indicating that neutralization of the waste acid effluent disposed at this location was not complete.

The concentrations shown in this profile are higher than those in profiles obtained during characterization drilling at other locations in the 300 Area. During the limited field investigation for uranium (PNNL-16435) and a subsequent volatile organic compound investigation (PNNL-17793), drilling at locations relatively near to the 618-1 site produced lower values for uranium in vadose zone sediment. Those locations are now monitoring wells 399-3-19, 399-2-5, and 399-3-22. Uranium concentrations for comparable depth horizons at those locations are an order of magnitude or more lower than at the acid pit site. However, one feature common to the pit site and three characterization borehole sites is a relative increase in concentrations in samples collected near the water table.

The acid neutralization pit profile may be a unique occurrence at the 300 Area, with regard to contaminant uranium remaining in the vadose zone. The implications for impacts to groundwater are not fully developed at this point, but the data will be interpreted in more detail as the 300 Area remedial investigation continues, leading to conclusions in the remedial investigation/feasibility study report. Also, planned drilling location #3 (C7659), as described in the 300 Area RI/FS Work Plan (DOE/RL-2009-30), will be located close to the south end of the former 618-1 burial ground, and samples collected from the vadose zone during drilling will provide additional detailed information on contamination in the vicinity of the FS-2 test pit.

Sample No.	Sample Depth (ft-bgs)	Field Record: Estimated Elevation (m-NAVD88)	"Adjusted" Elevation (m-NAVD88)	pH	Total Uranium (ug/g)	U-233/234 (pCi/g)	U-235 (pCi/g)	U-238 (pCi/g)	Total Uranium Calculated from Isotopes (ug/g)
J19XD1	2	111.5	113.5	4.39	143.0	46.2	3.4	43.3	130.3
J19XD2	4	111.0	113.0	3.84	77.7	23.5	1.9	25.3	76.1
J19XD3	6	110.0	112.0	4.42	71.0	21.3	1.2	20.3	60.9
J19XD4	8	109.5	111.5	3.99	16.2	5.2	0.4	5.8	17.4
J19XD5	10	109.0	111.0	4.51	72.0	21.8	1.2	21.7	65.0
J19XD6	12	108.0	110.0	4.57	58.4	18.1	1.2	17.6	52.9
J19XD7	14	107.5	109.5	4.07	32.6	10.7	0.6	9.8	29.5
J19XD8	16	107.0	109.0	4.08	30.2	9.1	0.6	8.5	25.5
J19XD9	18	106.0	108.0	3.91	18.2	6.1	0.6	6.2	18.6
J19FX0	20	105.5	107.5	4.12	16.7	5.3	0.3	5.5	16.4
J19FX1	22	105.0	107.0	3.99	22.4	6.9	0.4	7.4	22.2
J19FX2	24	104.0	106.0	4.00	31.6	9.8	0.3	8.7	25.9
J19FX3	26	103.5	105.5	4.04	76.5	22.1	1.7	20.7	62.3
J19FX4	27	103.0	105.0	3.97	73.7	22.2	1.9	22.0	66.3

Abbreviations: "ft-bgs" = feet below ground surface; "m-NAVD88" = meters, North America Vertical Datum of 1988



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Environmental Calculation Cover Page

Part 1: Completed by the Responsible Manager

Project: 300-FF-5 **Date: September 2,-2011**

Calculation Title & Description: VOC Modeling in Support of 300 Area FF-5 RI/FS Document.

Preparer: John Ewing	**Basis of Qualification: Education & experience**
Checker: Toya Jones	**Basis of Qualification: Education & experience**
Senior Reviewer: John Pickens	**Basis of Qualification: Education & experience**

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1. Purpose

Beginning in 1987, elevated concentrations of tetrachloroethene (PCE) and its biodegradation products, trichloroethene (TCE) and *cis* 1,2-dichloroethene (cDCE) have been observed in well 399-1-16B. The source for these concentrations is unclear. It has been posited that spills occurring in the 300 Area Process Trenches near well 399-1-23 may be a potential source of the concentrations in well 399-1-16B.

The purpose of the analysis presented here is two-fold. The first goal is to assess whether it is plausible that PCE-DNAPL which was spilled in the 300 Area Process Trenches would infiltrate through the Hanford Formation and penetrate into the Ringold Formation. The second objective is to assess the plausibility of PCE-DNAPL trapped in the Ringold Formation beneath the 300 Area Process Trenches could be the source of PCE, TCE, and cDCE concentrations observed in well 399-1-16B. The potential source location was assumed to be well 399-1-23.

2. Methodology

Feasibility of DNAPL Penetration into Ringold Formation

The primary parameter governing whether a pool of DNAPL is capable of entering an adjacent portion of uncontaminated soil is the entry pressure of that soil. For a DNAPL pool overlying a stratum of finer-grained sediments, the pool thickness (T) necessary to overcome the entry pressure of the underlying sediments can was presented by Pankow and Cherry (1996, p. 102):

$$\Delta\rho\ g\ T = P_d \quad \rightarrow \quad T = \frac{P_d}{\Delta\rho\ g} \tag{1}$$

where P_d is the entry (displacement) pressure of the underlying sediment, Δρ is the difference in densities between the DNAPL and water, and g is gravitational acceleration.

Pankow and Cherry (1996, p. 102) also present a correlation between entry pressure and hydraulic conductivity:

$$P_d = 9.6\left(\frac{\sigma}{\sigma_{aw}}\right)\left(\frac{K}{\Phi}\right)^{-0.403} \tag{2}$$

where K is the hydraulic conductivity (cm/s), Φ is the porosity, σ is the interfacial tension of the fluid pair of interest, and σ_{aw} is the interfacial tension of water against air.

Combining these two equations, Pankow and Cherry (1996, p. 102) presented a simple equation for calculating the DNAPL pool thickness that can be sustained by an underlying, lower-permeability soil:

$$T = 9.6\left(\frac{\rho_w}{\Delta\rho}\right)\left(\frac{\sigma}{\sigma_{aw}}\right)\left(\frac{K}{\Phi}\right)^{-0.403} \quad (3)$$

where T is the DNAPL pool thickness (cm) and K is the hydraulic conductivity (cm/s). An infiltrating non-wetting phase will tend to invade an uncontaminated soil through the largest pore throats of that soil. Accordingly, it will be the portions of the Ringold Formation beneath the PCE spill location that have the highest hydraulic conductivity (and largest pore throats) which will be invaded most easily by the PCE-DNAPL. Aquifer tests tend to represent a volume of soil at a considerably larger scale (meters) than is applicable to DNAPL invasion into uncontaminated sediments (centimeters). The reported hydraulic conductivity likely represents an average value of both higher and lower values present in the volume of soil included in the aquifer test. It should also be noted that the scales at which anisotropy is evident in hydraulic conductivity values (meters) are considerably larger than the scale applicable to entry pressure (centimeters). For these reasons, it is important to focus on the highest reported values of hydraulic conductivity of the Ringold Formation.

Plume Simulations

The PCE-DNAPL entrapped in the Ringold will act as a source zone for dissolved PCE in groundwater. This will result in a downstream plume of PCE and, in the presence of reductive dechlorination, its daughter products TCE, cDCE, and VC.

To simulate the transport of dissolved PCE and its daughter products, the analytical simulator REMChlor (Falta et al., 2007a) was employed. REMChlor takes information about the source zone, groundwater velocity, and transport processes and simulates the downstream concentrations of the solutes of interest. Because many aspects of the PCE source zone and transport processes are uncertain, sensitivity simulations were conducted to evaluate results under a variety of conditions.

3. Assumptions and Inputs

Feasibility of DNAPL Penetration into Ringold Formation

The pertinent parameters for calculating the PCE pool thickness required to penetrate the Ringold Formation are summarized in Table 1.

Table 1. Parameters for Pool Thickness Calculation

Parameter	Value	Units	Reference	Comment
Porosity, ϕ	0.25	--	Williams et al., 2008, p. 3.25	model input
	0.267	--	Last et al., 2009, p. 14	sitewide average
Hydraulic Conductivity, K	40	m/d	Williams et al., 2008, p. 3.26	model input, K_{xy}
	4	m/d	Williams et al., 2008, p. 3.26	model input, K_z
	4.13e-4	cm/s	Last et al., 2009, p. 18	sitewide average
Water Density, ρ_w	998.2	kg/m^3	Potter and Wiggert, 1991, p. 655	20 ^oC
PCE Density, ρ_n	1.63	g/cm^3	Pankow and Cherry, 1996, p. 508	25 ^oC, note: 1 g/cm^3 = 1e3 kg/m^3
Water Surface Tension, σ_{aw}	0.0736	N/m	Potter and Wiggert, 1991, p. 655	20 ^oC, note: 1 N/m = 1e3 dyn/cm
PCE-Water Interfacial Tension, σ_{nw}	47.5	erg/cm^2	Horvath, 1982, p. 153	20 ^oC, note: 1 erg/cm^2 = 1 dyn/cm

Using Equation 3 and the parameters from Table 1, a range in DNAPL pool thicknesses from 19 cm to 133 cm is estimated. The value of 19 cm was calculated using the highest hydraulic conductivity and lowest porosity in Table 1 and the value of 133 cm was calculated using the lowest hydraulic conductivity and highest porosity in Table 1. For the reasons discussed above, the lower end of the range for estimated pool height can be expected to be most realistic.

As PCE-DNAPL infiltrates through the Hanford Formation, some of the PCE will be trapped by capillary forces and remain behind as a residual saturation. Assuming a three-phase residual PCE saturation of 5% for the 10 m of vadose zone (Peterson et al., 2008, p. 2.5) and 20% for the 6.5 m of saturated zone (Peterson et al., 2008, p.2.5) above the Ringold Formation beneath the 300 Area Process Trenches and an assumed PCE infiltration column diameter of 10 cm, 3.5 L of PCE can be expected to remain as residual saturation. For a 120 gallon (454 L) spill of PCE (Peterson et al., 2008, p. 3.1), that would leave 451 L of PCE available to pool at the Hanford-Ringold Formation contact. A 451 L pool with a pool height of 19 cm would result in a pool diameter of 345 cm. This would involve a diameter to height ratio of 18 for the pool. It appears very plausible that such a pool could form in the Hanford formation and therefore it is plausible that PCE infiltrating beneath the 300 Area Process Trenches would penetrate the Ringold Formation.

Plume Simulations

Explanation of the REMChlor input parameters can be found in the REMChlor User's Manual (Falta et al., 2007b). Additional description of the methods or rationale used to determine the values for the input parameters is included in the accompanying spreadsheet "PCE calculations_rev1.xlsx."

Because no measurements of the initial source concentration exist, two scenarios were considered for input into REMChlor. First, it was assumed that the source concentration was equal to the equilibrium solubility of PCE in water. This represents the maximum concentration possible and corresponds to PCE covering the entire source width and depth and a source residence time sufficient that the groundwater

would reach equilibrium with the PCE. Lower concentrations are also possible and can be considered depending on the results from the simulations.

The source mass of PCE is simply assumed to correspond to the entire volume of PCE spilled. The PCE mass is primarily important in dictating the persistence of the source zone over time and is of arbitrary importance to this study so long as the source geometry, source function and source concentration do not result in depletion of the source during the time period of interest.

The source function exponent (gamma) in REMChlor describes the dissolved concentration emitting from the source zone as a function of the depletion of source mass. While this is a very important parameter in dictating the long-term fate of a DNAPL source, it does not play such an important role in the qualitative evaluation of whether a particular source could plausibly produce concentrations in a downstream observation well. A typical gamma value of 1.0 (Falta et al., 2007b) was used. An exponent of 1.0 results in a source concentration that declines exponentially with time. If necessary, other possible source function exponents of 0.0, 1.0 or 2.0 can be investigated. The exponent of 0.0 means that the source concentration will always remain at C_0 until the mass is depleted, at which point the concentration will go to zero. An exponent of 0.5 leads to a source concentration that declines linearly with time. This is indicative of a source zone in which the DNAPL mass is distributed primarily in the higher permeability regions as would be expected for a non-wetting DNAPL. An exponent of 2.0 is indicative of a source zone in which the DNAPL mass is distributed primarily in the lower permeability regions.

The source width and depth are primarily important in dictating the persistence of the DNAPL source zone. For example, a larger width and depth would result in a shorter duration for the DNAPL source mass to deplete. The source is assumed to have a width of 10 meters and a depth of 3 meters.

The Darcy velocity was determined by estimating the distance between the 105.9 m and 105.8 m contours in the vicinity of well 399-1-23 from the June 2009 Ringold water levels found in Environmental Calculation ECF-300FF5-11-0151. The 40 m/d value for hydraulic conductivity reported by Williams et al. (2008, p. 3.26) was then used along with Darcy's law to calculate the Darcy velocity. The porosity value of 0.25 reported in Williams et al. (2008, p. 3.25) is used by REMChlor to calculate the pore velocity.

Source zone remediation parameters were set to zero to reflect that no remediation has been done on the source. Retardation factors primarily impact the timing of the downstream concentrations and have little impact on their magnitude. A retardation factor of 1, corresponding to no retardation, was used.

Two values for the velocity field coefficient of variation (Sigmav) were chosen to correspond to scale dependent longitudinal dispersivities of x/100 and x/10, where x is the longitudinal distance from the source to the solute front. A longitudinal distance of 170 m was estimated along the groundwater flow direction from the source zone to the plane transecting well 399-1-16B. This length was then used to estimate constant x-direction dispersivity coefficients corresponding to the two values chosen for the Sigmav parameter. The y-direction dispersivity coefficient was initially assumed to be $1/10^{th}$ the x-direction value. No dispersion was considered in the z-direction in keeping with a two-dimensional x-y solute plume.

The value for the minimum normalized streamtube velocity (vMin) of 0 suggested in the REMChlor User's Manual was used. Similarly, the suggested method of calculating the maximum normalized streamtube velocity vMax = 1 + 4*Sigmav was used. Because the analytical solution can be solved relatively quickly by modern computers, a large number of stream tubes was selected to focus on a smooth solution over run speed.

The mass of TCE created by first order decay of one unit of mass of PCE was calculated as the molecular weight of TCE divided by the molecular weight of PCE. This yield is typical for reductive dechlorination (Falta et al., 2007b). Similarly, the mass of cDCE created by first order decay of one unit of mass of TCE was calculated as the molecular weight of cDCE divided by the molecular weight of TCE. Because no VC was observed in any of the groundwater samples, a yield coefficient of 0 was assumed for the transformation from cDCE to VC.

While REMChlor allows up to 9 different reaction rates for each chemical species, a single reaction rate for each component based on the mean reaction rates reported in Aziz et al. (2002, p. 3) was assumed. The reaction rate for cDCE was assumed to be zero since no VC was observed in groundwater samples.

Spatial discretization values were chosen so that output would be produced at the location of wells 399-1-16B and 399-1-8. Output were taken from the model grid cell with an x-value of 168.1 m and a y-value of 135 m for well 399-1-16B and with an x-value of 188.1 m and a y-value of 27 m for well 399-1-8. Time discretization was chosen such that yearly simulation output was produced.

The input parameters used in the base case REMChlor simulations are summarized in Table 2.

Table 2. Summary of REMChlor Model Inputs

Parameter	Value(s)	Units	Comments
Concentration	0.15	g/L	Equilibrium solubility for PCE
Mass	740	kg	Entirety of PCE spilled, calculated as mass = volume * density
Gamma	1	--	Exponentially decaying source function[(a)]
Source Width	10	m	Assumed
Source Depth	3	m	Assumed
Darcy Velocity	10	m/yr	Calculated from q = -K dh/dl = 40m/d*365.25d/yr*0.1m/140m[(b)]
Porosity	0.25	--	Williams et al., 2008, p. 3.25
Percent Removed	0	%	Not used as remediation was not pertinent to this study
Start Time	0	yr	
End Time	0	yr	
Source Decay	0	1/yr	
Retardation Factor	1	--	Assume no retardation
Sigmav	0.14	--	Corresponds to dispersivity of alphax = x/100[(c)]
vMin	0	--	Typical value from p. 41 of User's Manual
vMax	1.6	--	vMax = 1 + 4*Sigmav as recommended on p. 41 of User's Manual
# Stream Tubes	100	no.	Large number to achieve smooth solution
alphay	0.17	m	alphax/10 or alphax[(d)]
alphaz	0	m	Assume two-dimensional x-y plume so no dispersion in z
Yield 2 from 1	0.79	--	Calculated as MW_{TCE}/MW_{PCE}
Yield 3 from 2	0.74	--	Calculated as MW_{cDCE}/MW_{TCE}
Yield 4 from 3	0	--	Assumed to be zero since no VC observed

Time Period 1	30	yr	Time since PCE spill
Time Period 2	50	yr	One period so irrelevant but larger than Time Period 1
X1	400	m	Encompassing the x-dimension of the region of interest
X2	700	m	One zone so irrelevant but larger than X1
PCE decay rate	1.4	1/yr	Mean values from Table 2. of Aziz et al. (2002), p. 3
TCE decay rate	1.5	1/yr	
cDCE decay rate	0	1/yr	No observed VC so assume no cDCE decay or VC
VC decay rate	0	1/yr	
X (Int, Min, Max)	101, 0.1, 200.1	m	Discretization to have output at well 399-1-16B location
Y (Int, Min, Max)	33, -144, 144	m	Discretization to have output at well 399-1-16B location
Z (Int, Min, Max)	1, 0, 0	m	Assume two-dimensional x-y plume
t (Int, Min, Max)	30, 0, 30	yr	Yearly output for 30 years

(a) See p. 39 of the User's Manual

(b) K = 40 m/d (Williams et al., 2008, p. 3.26), dl = 140 m from Ringold contours in Environmental Calculation ECF-300FF5-11-0151), and dh = -0.1 m (contour interval in Environmental Calculation ECF-300FF5-11-0151)

(c) From lookup table on page 41 in the User's Manual

(d) Assumed α_x equal to distance from source (399-1-23) to observation pt (399-1-16B) along flow direction of 167.56 m divided by 100

4. Software Applications

The plume simulations were performed using the approved utility calculation software REMChlor (Remediation Evaluation Model for Chlorinated Solvents) Version 1.0 code, Hanford Information System Inventory (HISI) identification number 2948. The REMChlor code provides an analytical solution for simulating the transient effects of ground water source and plume remediation on the transport of chlorinated solvents with biotransformation between solvents (PCE → TCE → DCE → VC). The contaminant source model is based on a power-function relationship between source mass and source discharge, and serves as a time dependent, mass-flux boundary condition to the analytical plume model, where flow is assumed to be one dimensional. The plume model simulates first-order sequential decay and production of several species, and the decay rates and parent/daughter yield coefficients are variable functions of time and distance.

The REMChlor code has been graded as Level D software in accordance with PRC-PRO-IRM-309, *Controlled Software Management*. REMChlor is not designated as a Safety System Software. This application of REMChlor within the 300 Area is limited to exploratory work to validate or invalidate a hypothesis regarding potential source location for chlorinated solvents. The use of this software was consistent with its purpose, used within its limitations, and was a valid application of REMChlor consistent with the functional requirements identified in CHPRC-01455 Rev 0, *REMChlor Software Management Plan*.

The REMChlor code was executed for this calculation on a Dell® Optiplex® 780 with a 2.83-GHz Intel® Core Quad CPU Q9550 processor and 8 GB of RAM loaded with the 64-Bit Windows 7 Professional Service Pack 1 operating system.

Microsoft Excel 2007® spreadsheets were used to calculate the feasible DNAPL pool height and DNAPL pool diameter and relevant inputs for REMChlor. This use of Excel® is in the spreadsheet category and all calculations are subject to checking as part of this Environmental Calculation File.

5. Calculations

Feasibility of DNAPL Penetration into Ringold Formation

Calculations for the DNAPL penetration analysis are attached in the spreadsheet "PCE calculations_rev1.xlsx". Calculations of a sustainable pool height are in the "Pool Height" worksheet. Calculations of an estimated pool diameter are in the "Pool Diameter" worksheet. Descriptions of the methodology and equations used are included in the worksheets.

Plume Simulations

Calculation of the interwell distances from the presumed source well 399-1-23 to the observation wells 399-1-16B and 399-1-8 are detailed in the "Interwell Info" worksheet within the "PCE calculations_rev1.xlsx" spreadsheet. Derivation of the REMChlor model input parameters listed in Table 2 is included in the "REMChlor Inputs" worksheet within the "PCE calculations_rev1.xlsx" spreadsheet.

6. Results/Conclusions

Feasibility of DNAPL Penetration into Ringold Formation

Pool height and pool diameter calculations indicate that it is plausible that PCE infiltrating beneath the 300 Area Process Trenches would penetrate the Ringold Formation.

Plume Simulations

The locations of wells within the 300 Area are shown in Figure 1. The water level elevation contours, indicating the flow direction during June and December of 2009, are depicted in Figure 2. The results for the simulation using the base case parameters are shown in Figures 3 through 7. Figures 3 through 5 depict the PCE, TCE, and cDCE plumes, respectively, after a period of 28 years. This duration corresponds roughly to the time between the latest groundwater observations and the spill date of November 1982 (Peterson et al., 2008, p. 3.1). Figures 6 and 7 depict the simulated and observed concentrations at well 399-1-16B and well 399-1-8, respectively. The observed data for wells 399-1-16B and 399-1-8 were downloaded from the HE15 database on August 31, 2010. Note that simulated concentrations are zero at well 399-1-16B. These figures indicate that the base case parameters – particularly a longitudinal dispersion coefficient corresponding to x/100 (where x is the distance to the transport front) and a transverse dispersion coefficient $1/10^{th}$ the longitudinal dispersion – produce a plume that is too narrow to result in VOC concentrations reaching well 399-1-16B. Note that simulated

concentrations can be seen in well 399-1-8 (Figure 7) but are somewhat higher than the observed concentrations.

To test the sensitivity of the dispersion coefficients, additional sensitivity simulations were conducted. These sensitivity simulations are summarized in Table 3 along with the base case simulation. For simulation case R1, the Sigmav parameter was increased from 0.14 to 0.45, corresponding in an increase in the longitudinal dispersion coefficient from x/100 to x/10, where x is the distance to the transport front. The alphay parameter was also increased accordingly but still corresponds to a ratio of 1/10 between the transverse and longitudinal dispersion coefficients. The simulation results for case R1 are given in Figures 8 through 12. The increased dispersion results in the plume reaching well 399-1-16B but at extremely low concentrations (Figure 11). The simulated concentrations at well 399-1-8 are higher than those observed (Figure 12).

Simulation case R2 involves increasing the transverse dispersivity to be one-half of the longitudinal dispersivity. The simulation results are shown in Figures 13 through 17. This increased transverse dispersivity results in concentrations of the same order of magnitude as those observed at well 399-1-16B (Figure 16). The simulated concentrations are considerably higher than those observed at well 399-1-8, however (Figure 17).

Table 3. Description of Sensitivity Runs

Case	Comments	Plausibility
R0	Base case parameters from Table 2. Corresponds to alphax = x/100 and alphay = alphax/10.	Plume is too narrow to reach the lateral extents of well 399-1-16B. Concentrations zero at well 399-1-16B and somewhat high at well 399-1-8.
R1	Sigmav = 0.45, vMax = 2.8, alphay = 1.7. Corresponds to alphax = x/10 and alphay = alphax/10.	Plume crosses through well 399-1-16B. Concentrations far lower than those observed at well 399-1-16B and high at well 399-1-8.
R2	alphay = 8.5. Corresponds to alphay = alphax/2. Sigmav = 0.45, vmax = 2.8	Plume crosses through well 399-1-16B. Concentrations plausible at well 399-1-16B but much too high at well 399-1-8.

Given the number of uncertainties regarding the DNAPL source zone location and geometry and the transport parameters of the Ringold Formation, a wide array of possible concentration outcomes can be simulated. It is certainly possible to simulate concentrations consistent with those observed at well 399-1-16B using what can be considered reasonable parameters and assumptions. There is no combination of parameters, however, that can simultaneously simulate the observed concentrations at both well 399-1-16B and well 399-1-8 using the described derivation of the groundwater flow direction of 40° south of east. Because well 399-1-8 is closer to the centerline of the groundwater flow direction than well 399-1-16B, it will always have higher simulated concentrations than well 399-1-16B for any REMChlor parameter combinations. The only way for the simulated concentrations in well 399-1-8 to be lower than those in well 399-1-16B, as is the case with the observed concentrations, would be for well 399-1-16B to be closer to the centerline of the groundwater flow direction. This would require a groundwater flow direction almost due east, which is inconsistent with the water level measurements in

the Ringold Formation. These findings indicate that it does not appear plausible that the source for the concentrations observed in well 399-1-16B is the 300 Area Process Trenches.

The model presented here is of a simplistic, scoping nature. The model assumes homogeneity with a one dimensional flow field. Furthermore, many of the model parameters are assumed and poorly constrained. None of the limitations of the model, however, change the basic conclusion that it does not appear plausible that concentrations at well 399-1-16B and well 399-1-8 can result from a source at the 300 Area Process Trenches given the current understanding of the groundwater flow direction.

7. References

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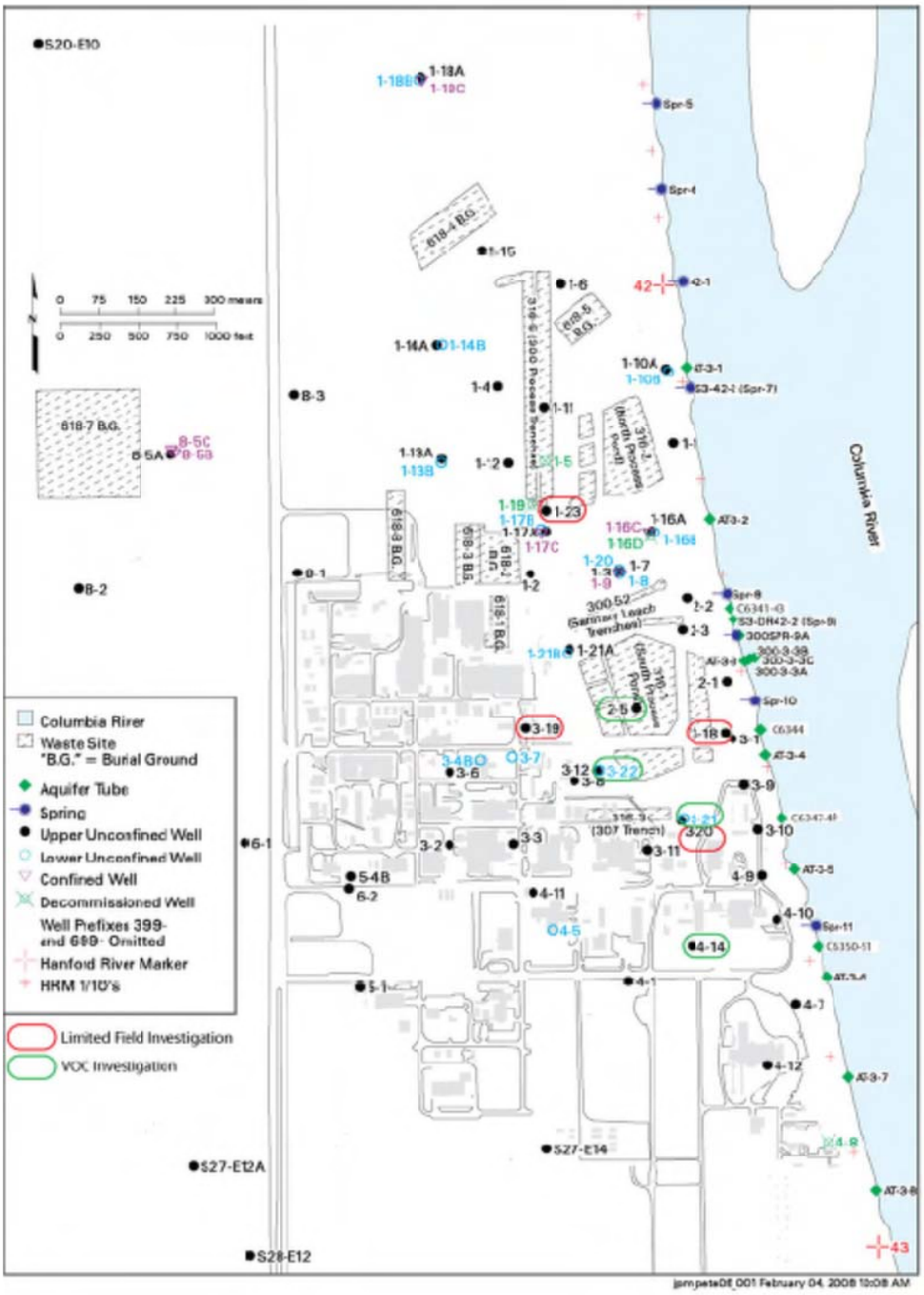

Figure 1. Well location map. [Copied directly from Figure 1.2 of Peterson et al., 2008, p.1.3].

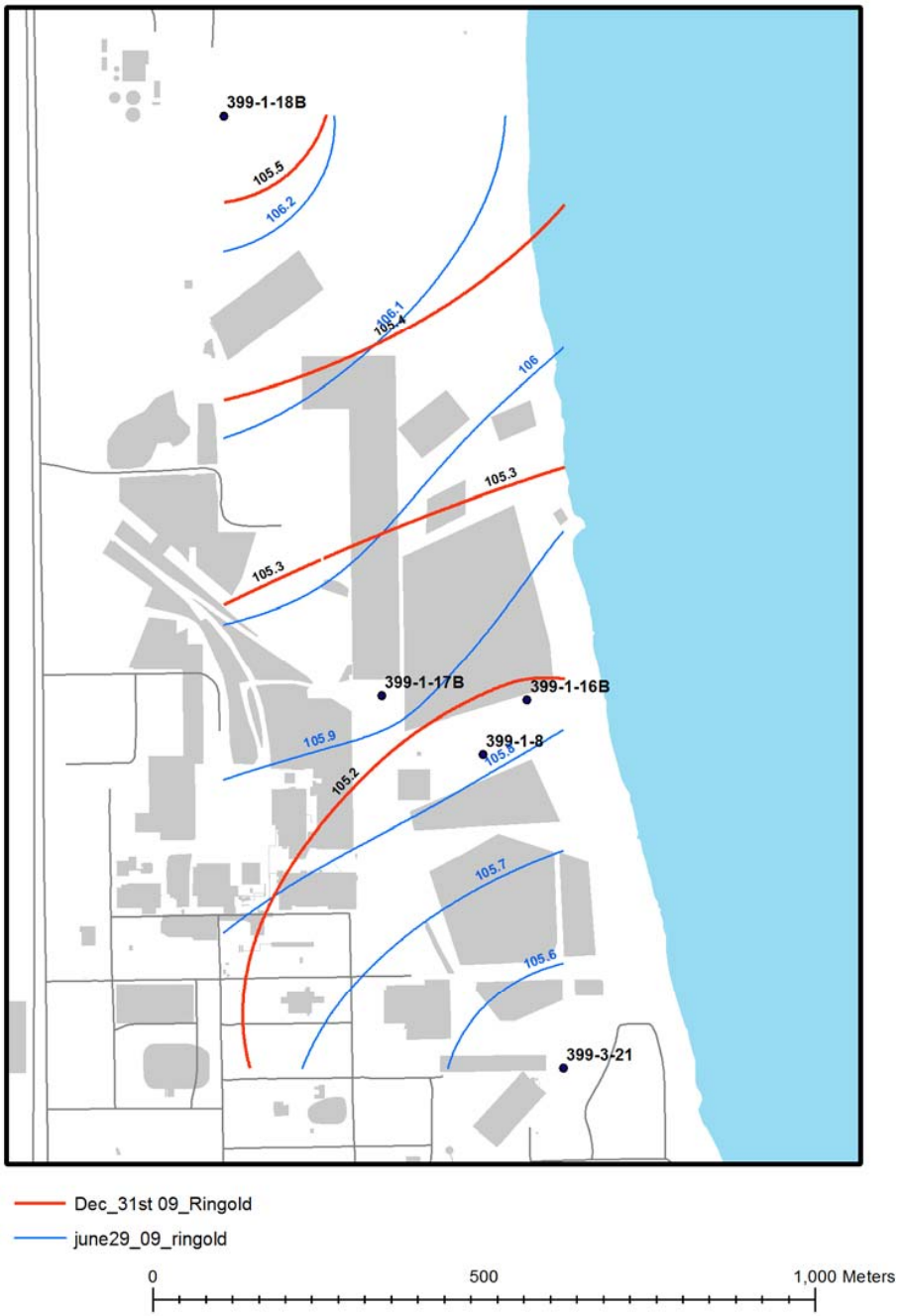

Figure 2. Ringold Formation water-level elevations during June and December 2009.

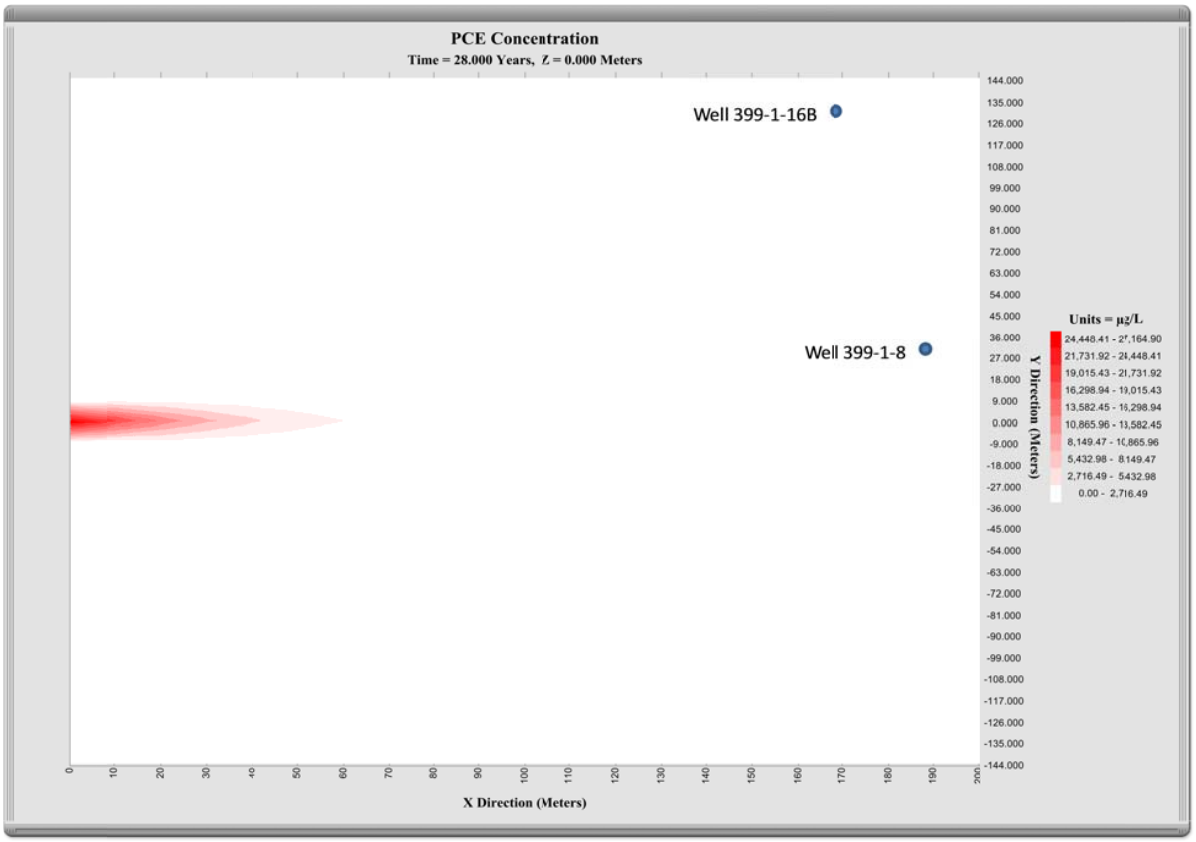

Figure 3. Case R0: simulated PCE concentrations after 28 years.

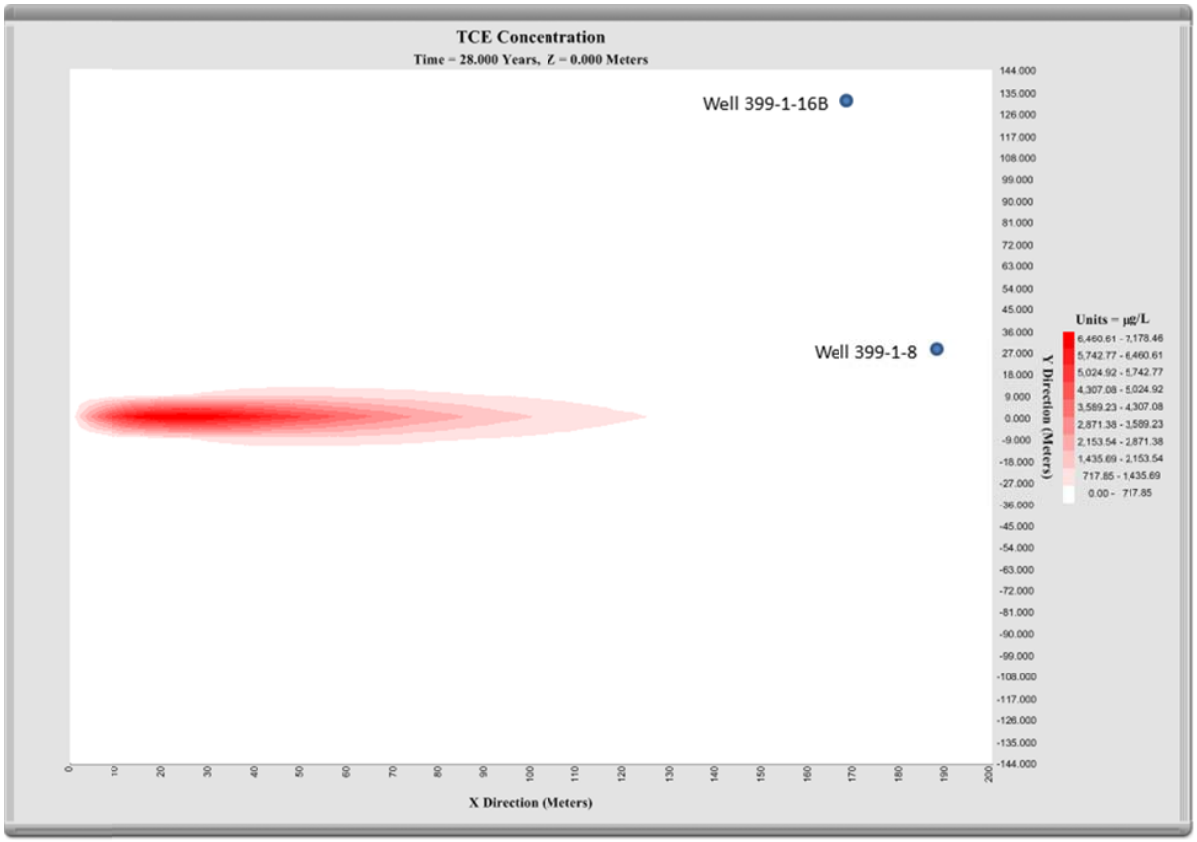

Figure 4. Case R0: simulated TCE concentrations after 28 years.

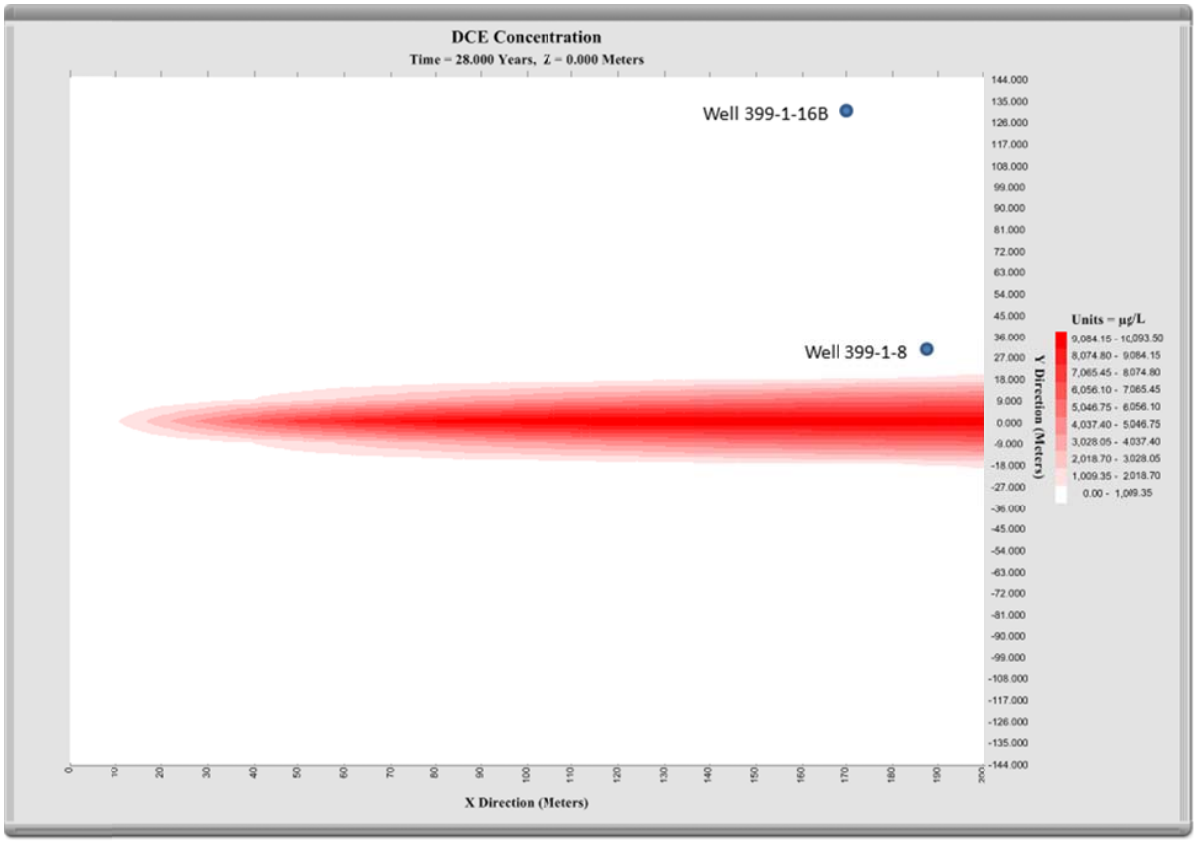

Figure 5. Case R0: simulated cDCE concentrations after 28 years.

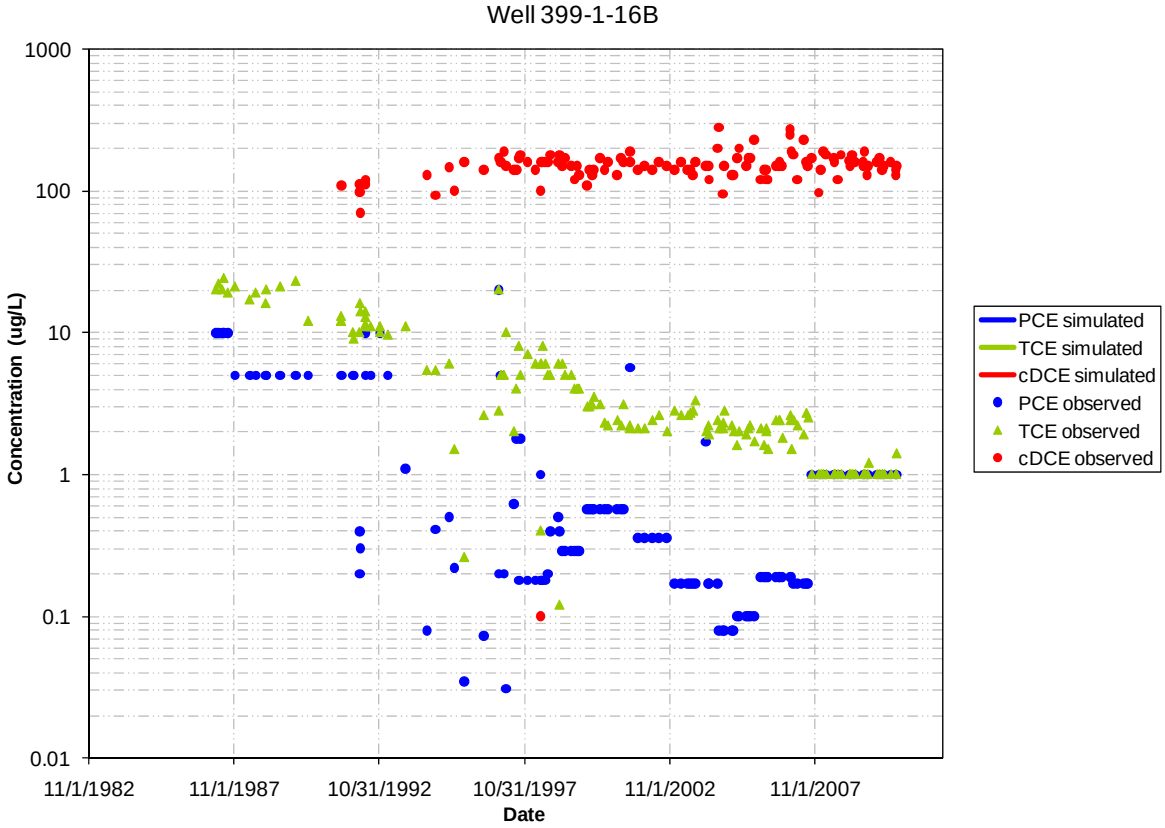

Figure 6. Case R0: simulated and observed concentrations in Well 399-1-16B.

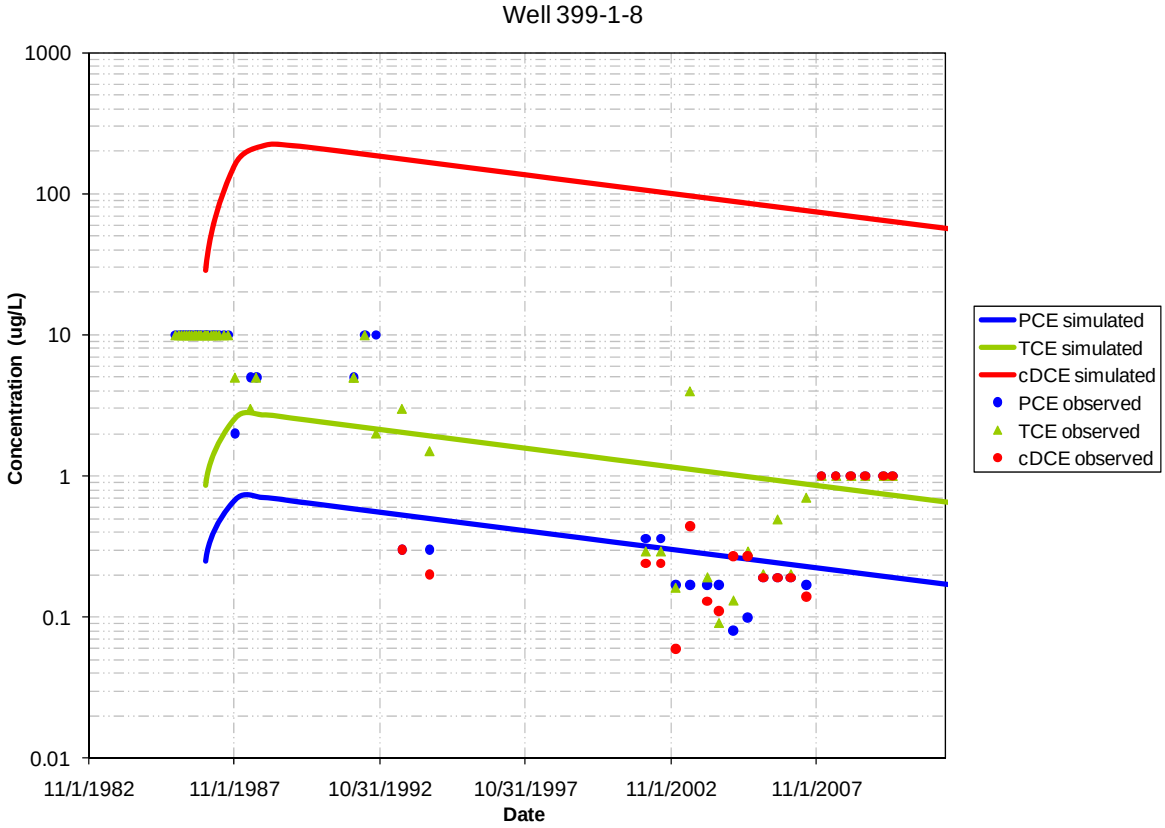

Figure 7. Case R0: simulated and observed concentrations in Well 399-1-8.

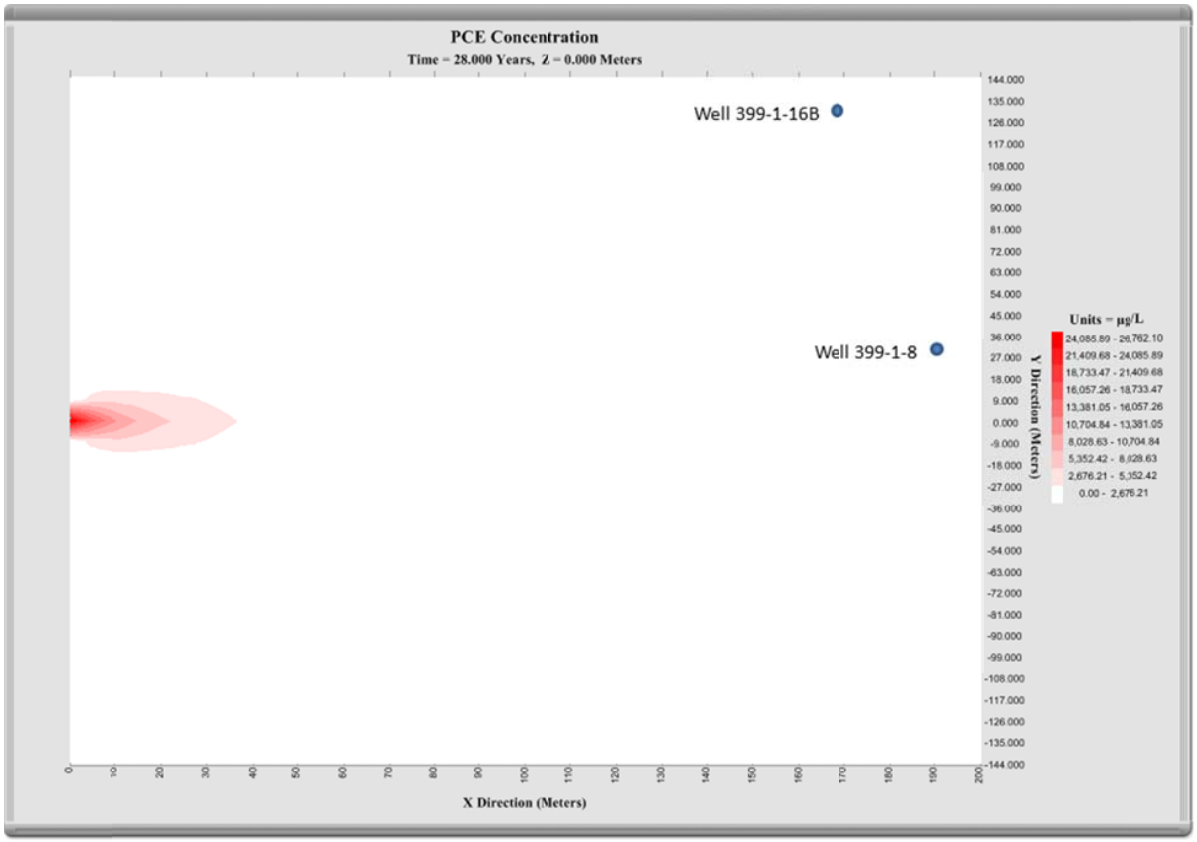

Figure 8. Case R1: simulated PCE concentrations after 28 years.

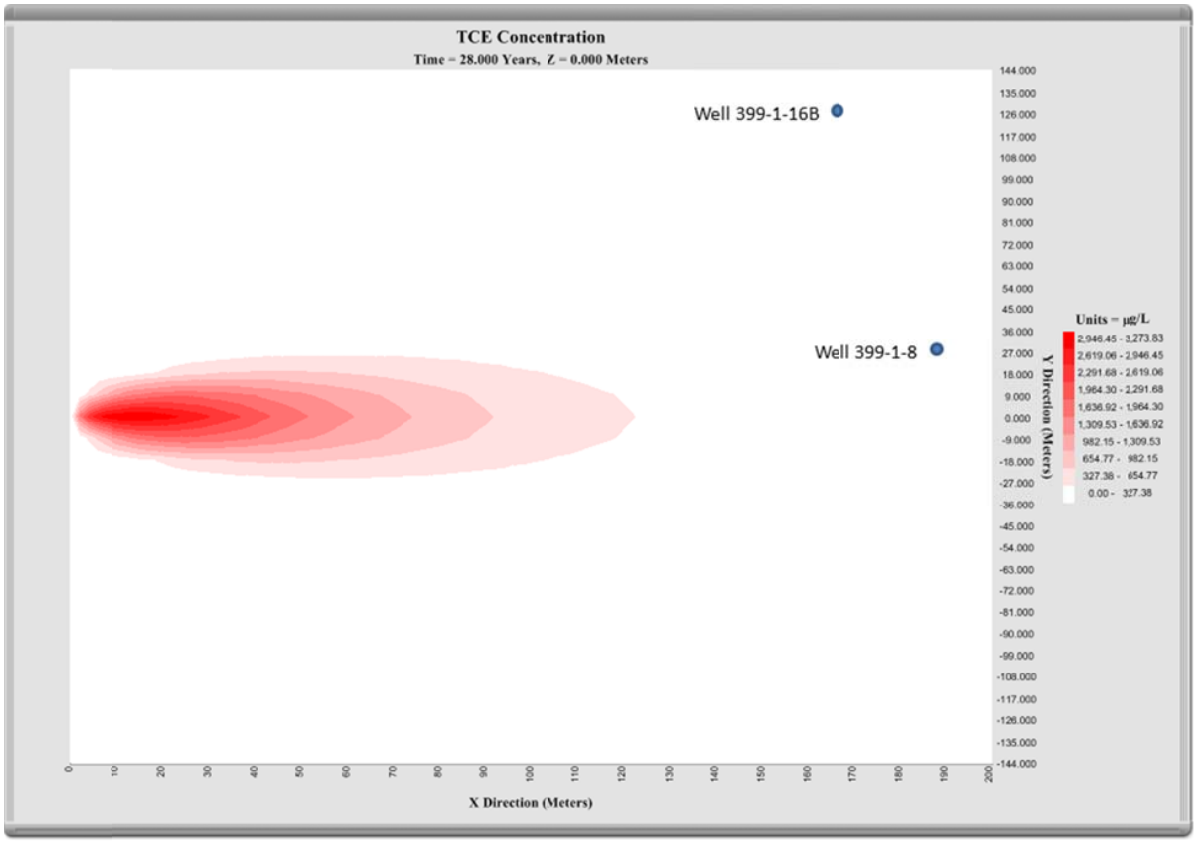

Figure 9. Case R1: simulated TCE concentrations after 28 years.

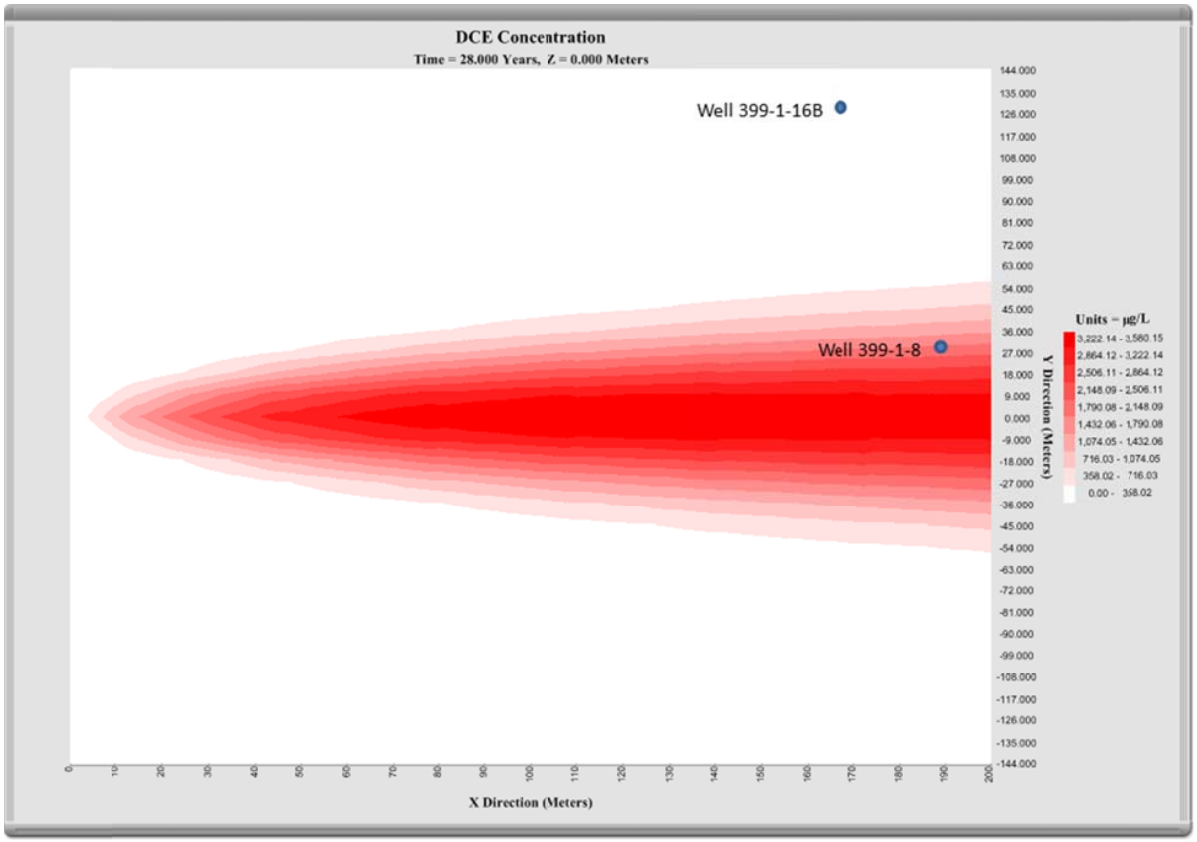

Figure 10. Case R1: simulated TCE concentrations after 28 years.

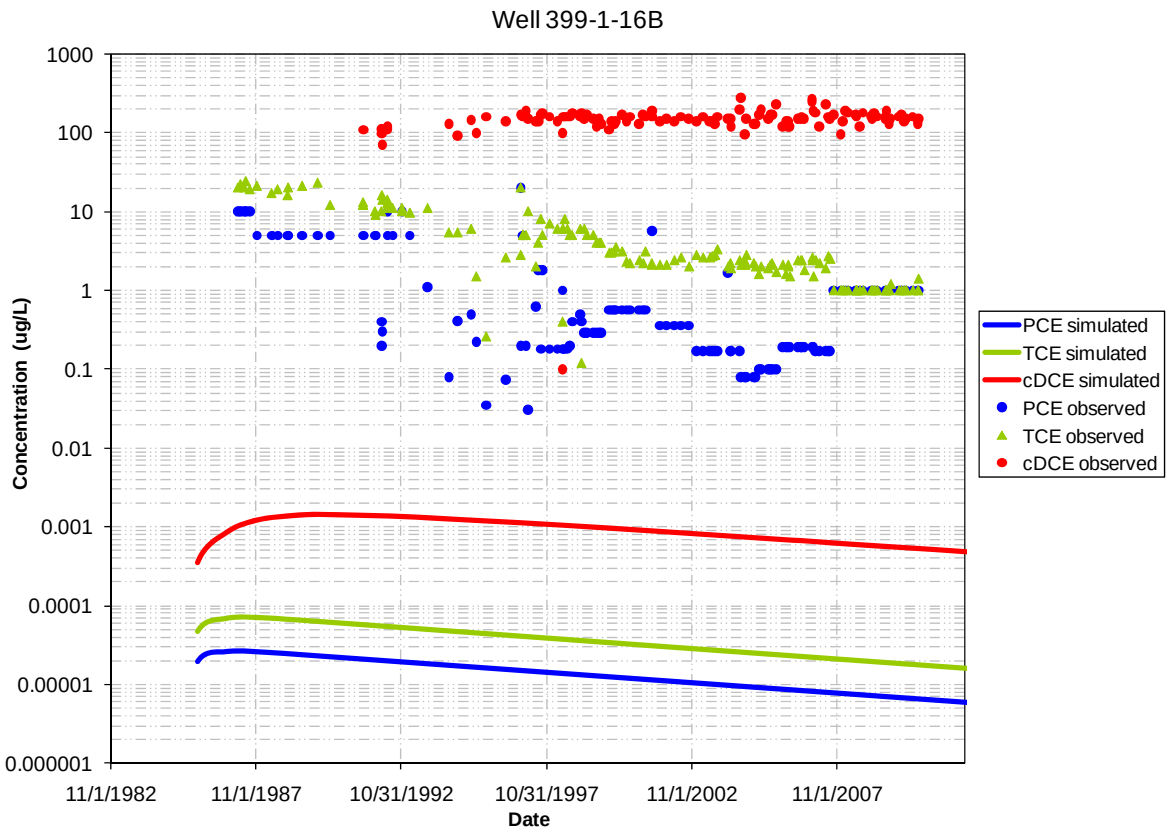

Figure 11. Case R1: simulated and observed concentrations in Well 399-1-16B.

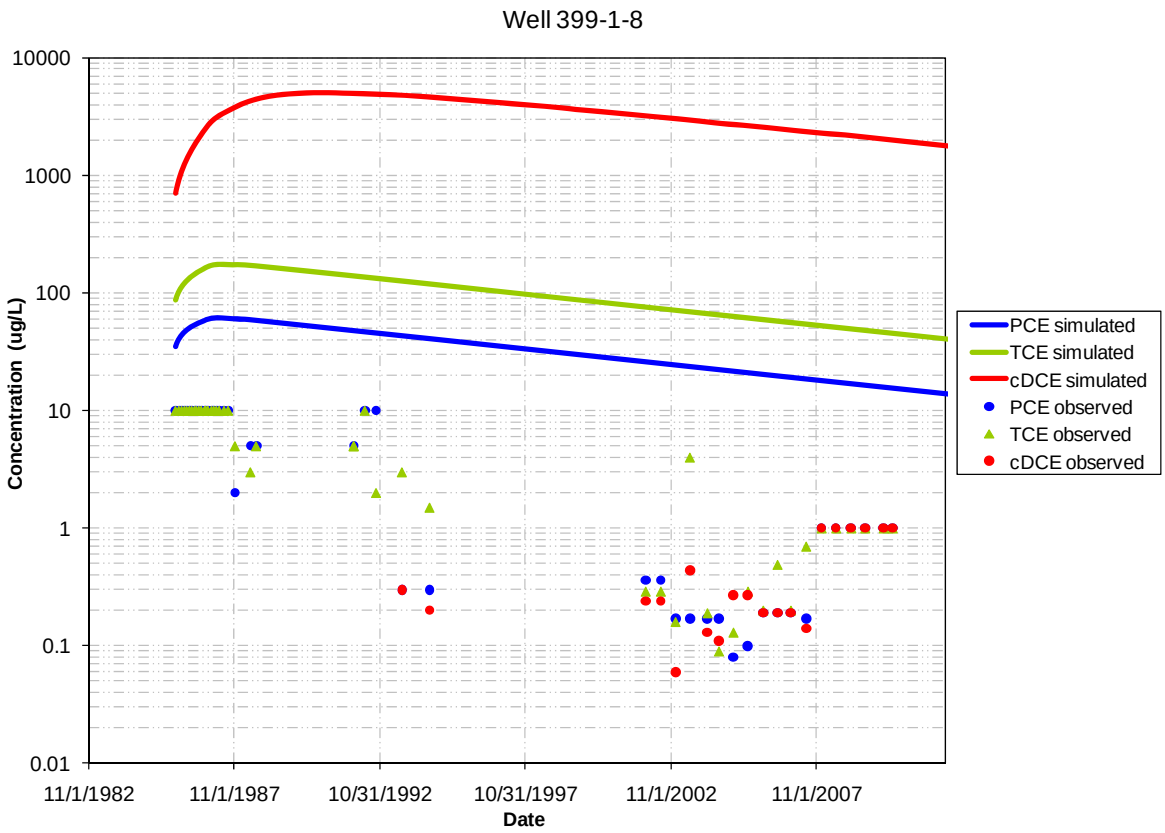

Figure 12. Case R1: simulated and observed concentrations in Well 399-1-8.

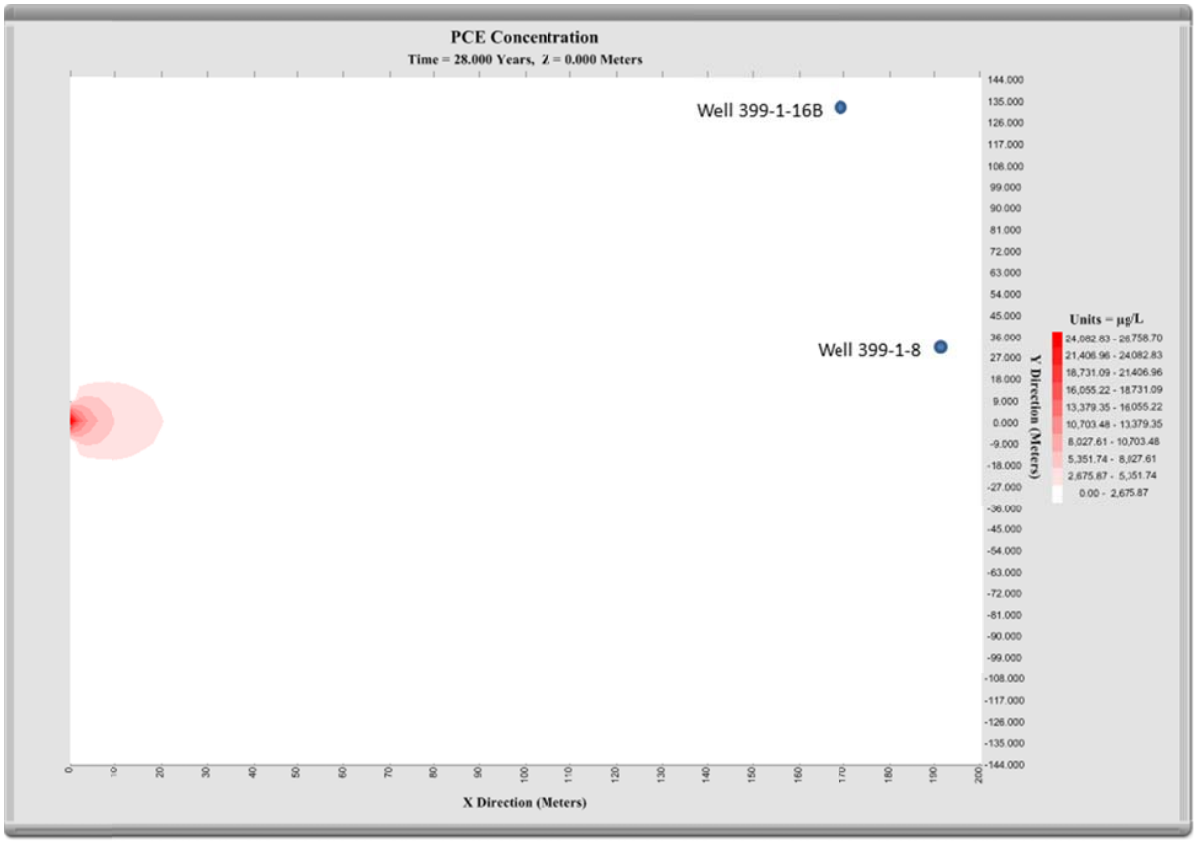

Figure 13. Case R2: simulated PCE concentrations after 28 years.

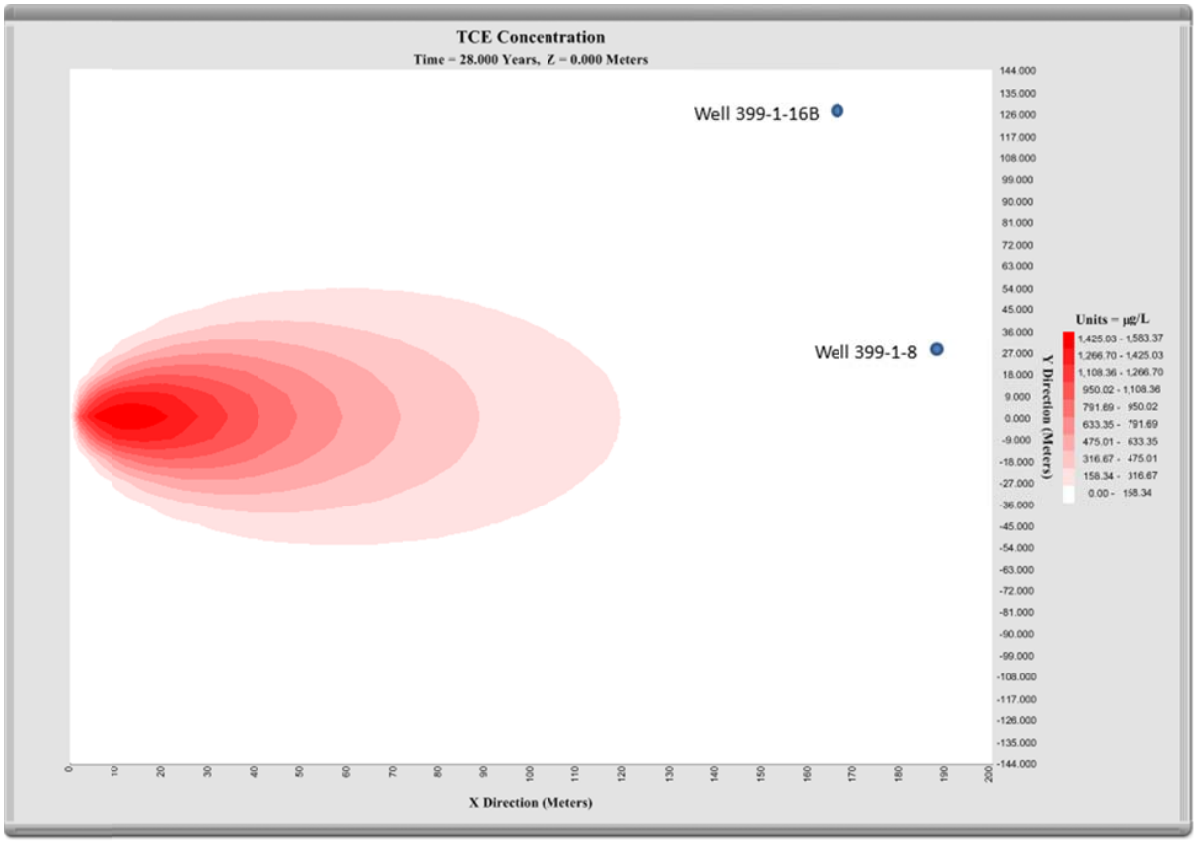

Figure 14. Case R2: simulated TCE concentrations after 28 years.

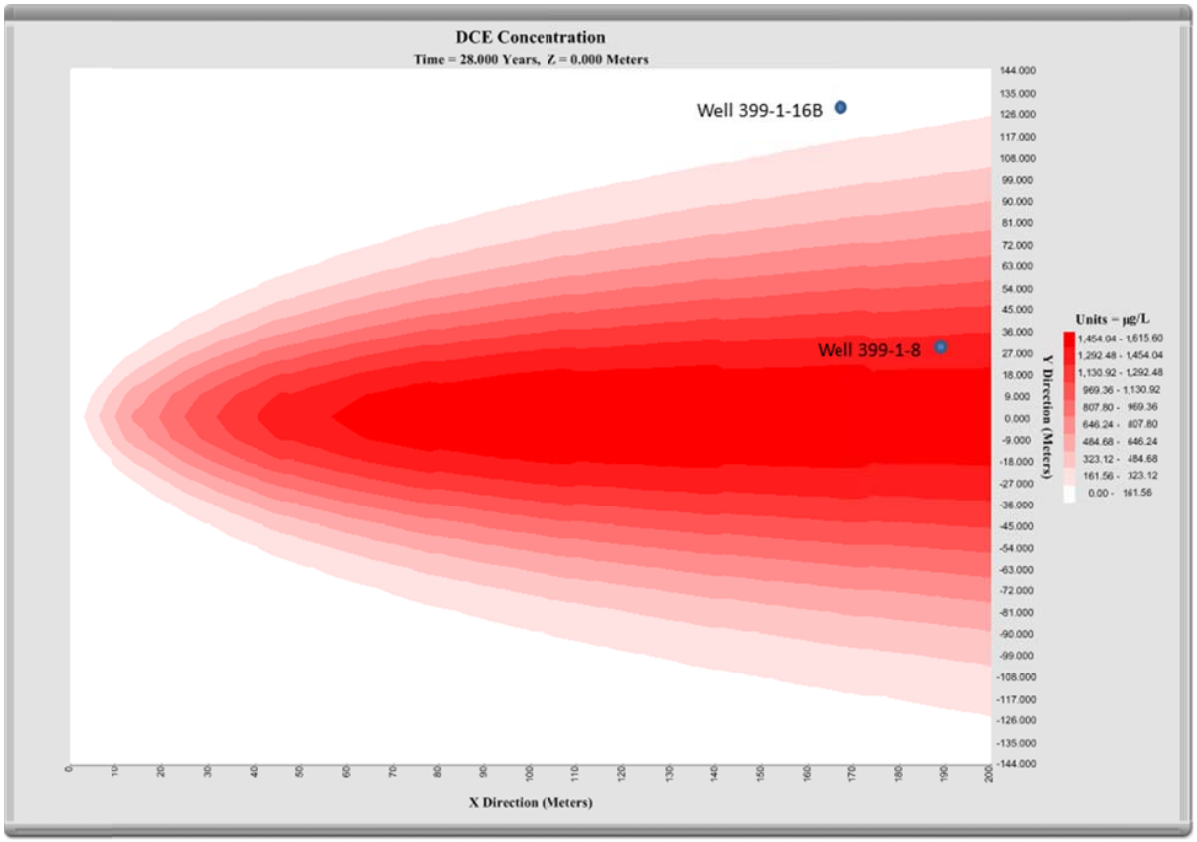

Figure 15. Case R2: simulated cDCE concentrations after 28 years.

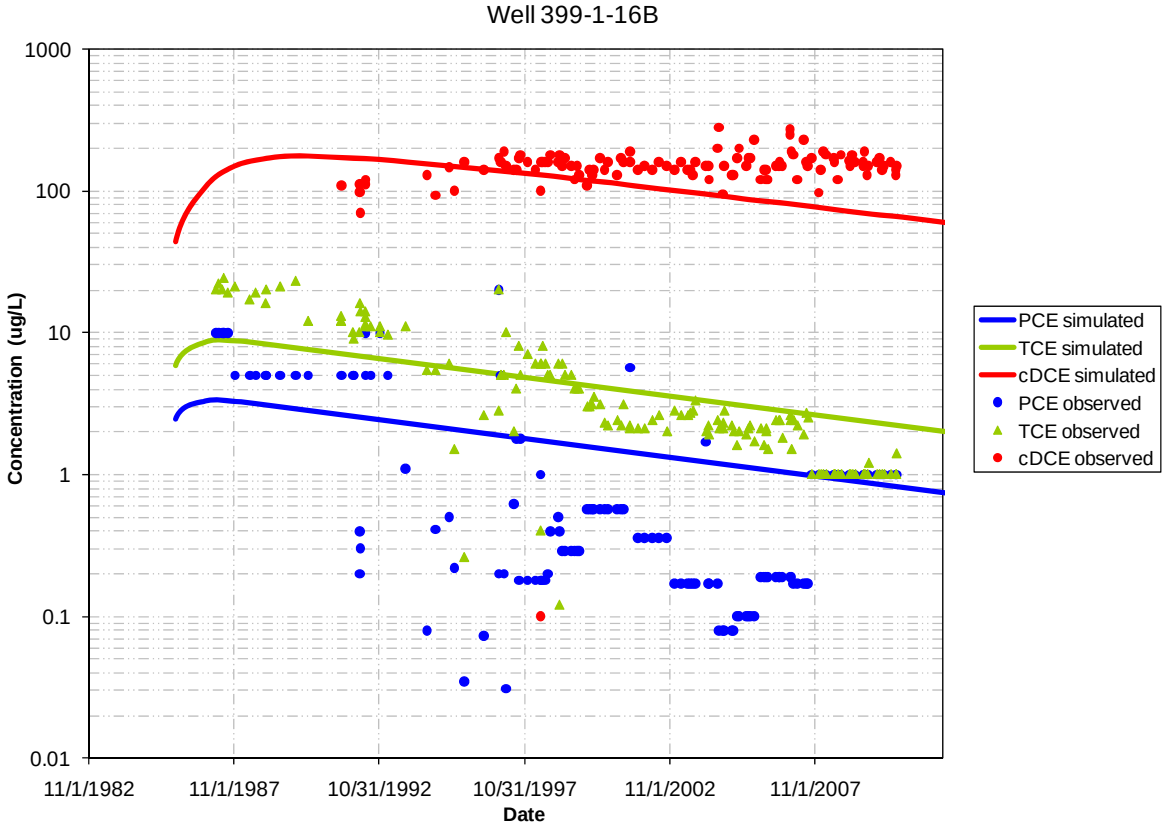

Figure 16. Case R2: simulated and observed concentrations in Well 399-1-16B.

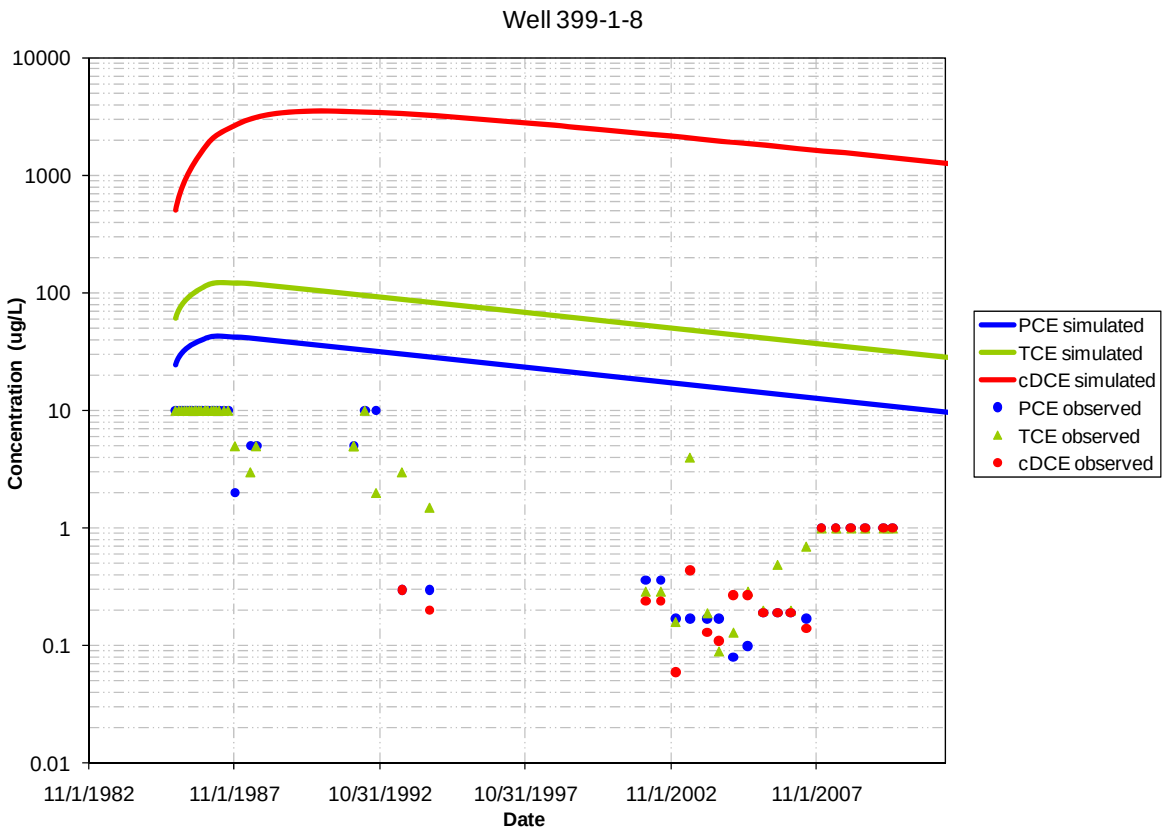

Figure 17. Case R2: simulated and observed concentrations in Well 399-1-8.

ECF-300FF5-11-0153, REV. 0

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Environmental Calculation Cover Page

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Project: Development of Soil Levels Protective of Groundwater and Surface Water — **Date: 19 November 2011**

Calculation Title: Soil Modeling in Support of 300 Area FF-5 RI/FS Document.

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1 Screening Values for 100-0 Source Distribution
2 PRG Values for effective 100-0 Source Distribution
3 Summary of Screening Values for 100-0 Source Distribution
4 Summary of PRG Values for effective 100-0 Source Distribution

Terms

BF	backfill
CHPRC	CH2M-Hill Plateau Remediation Company
cm/s	centimeters per second
cm^3/g	cubic centimeters per gram
COPC	contaminant of potential concern
CPK	peak groundwater concentration
FEPs	features, Events, and Processes
HISI	Hanford Information System Inventory
m	meter(s)
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mm/yr	millimeters per year
PNNL	Pacific Northwest National Laboratory
POCal	point of calculation
PRG	preliminary remediation goal
RAG	remedial action goal
RESRAD	RESidual RADiation (modeling software)
STOMP	Subsurface Transport Over Multiple Phases (modeling software)
SZ	saturated zone
VZ	vadose zone
WQS	water quality standard

1. Objective

The objective of this environmental calculation brief is to document the development of screening values and preliminary remediation goals (PRGs) for protection of surface water and groundwater in the 300 area using the STOMP (Subsurface Transport Over Multiple Phases) fate and transport code (PNNL-12030).

PRGs represent the contaminant concentrations in the soil or contaminant mass per unit mass of soil that can remain in the vadose zone without causing an exceedance of groundwater or surface water regulatory standards. The calculated PRG values should only be used in conformance with the assumptions and conditions described herein.

Conceptual and numerical models of flow and solute transport under variably saturated conditions were developed for conditions that are representative of the lithology and hydrology observed at the various waste sites within the 300 area. Conditions specific to the 300 area include time-varying recharge rates, vadose zone lithology and thickness, hydraulic properties and saturated aquifer fluxes. Numerical assumptions include liquid-phase water flow and solute transport under variably saturated conditions according to the Richards equation and the advection-dispersion equation with radioactive decay and linear sorption and no volatilization or hydrodynamic dispersion.

Contaminant migration from the waste sites in the 300 area and through the vadose zone to the underlying aquifer is controlled by hydraulic driving forces, interactions between water and sediments, and interactions between the contaminants and the sediments. The hydraulic driving forces include gravity; matric potential gradients; recharge (net of precipitation, evaporation, transpiration, infiltration, run-off, and run-on); and man-made discharges, such as those from septic tank leach fields, ponds, lagoons, pipe and tank leaks, and irrigation. The types, thicknesses, and properties of the sediments can all affect the rate and direction of solute and water movement to the aquifer. A contaminant's concentration in the groundwater and its concentration in the downgradient Columbia River are dependent on the solute flux from the vadose zone; the aquifer thickness, hydraulic properties, and saturated flux; travel distance; groundwater and river water mixing; and the selected monitoring location. Each contaminant's propensity to sorb to vadose zone or aquifer materials is an important controlling factor on the groundwater concentration determination.

The numerical STOMP-w mode was used to solve the Richards equation and the advection-dispersion equation that govern water flow and solute transport, respectively, under variably saturated conditions in porous media. The STOMP numerical simulations provided predictions of groundwater concentration and time to reach the breakthrough of the maximum concentrations for a list of contaminants based on a range of recharge rates, sediment types, vadose-zone thicknesses, and properties appropriate to the 300 area. In keeping with time and resource constraints, simulation periods were limited to 10,000 years, thus only a subset of the 300 area contaminants that were likely to have breakthrough of the maximum groundwater concentrations within approximately 10,000 years were simulated. The maximum Peak concentrations and for the non-simulated contaminants (with higher soil-water partitioning coefficients) were then estimated through a scaling process utilizing the retardation coefficient. The maximum groundwater concentrations were then used to compute PRGs for each contaminant.

The PRG values resulting from the simulations and scaling calculations are only intended to apply to sites that share the same set of conditions and assumptions underpinning these calculations. Questions about whether the PRG values are appropriate for a given site should be forwarded to the authors of this calculation brief or the CH2M Hill Plateau Remediation Company (CHPRC) lead for modeling and risk assessment.

2. Methodology

Calculation of PRG values for the 300 area included the use of one-dimensional numerical fate and transport simulations. The STOMP code was selected to perform the simulations on the basis of its ability to adequately simulate the vadose zone features, events, and processes (FEPs) relevant to calculating PRGs in the 300 area and to satisfy the other code criteria and attributes identified in DOE/RL-2011-50, Rev. 0, which describes the basis for using STOMP in this type of evaluation.

This section of the calculation brief summarizes the methodology employed to produce PRGs for the 300 area using STOMP. Sections 3 and 5 provide greater detail for the calculations and results are described in Section 6.

2.1 Preliminary Remediation Goals

Preliminary remediation goals (PRGs) represent the maximum quantity, whether contaminant concentration in the soil or radionuclide activity in the soil, of a contaminant that can remain in the vadose zone without causing an exceedance of applicable regulatory standards. PRGs can be defined for protection of groundwater or protection of surface water based on the applicable standard selected. The value of a PRG for a particular constituent depends on a number of key factors. These key factors are: waste site characteristics, specifically, source mass distribution and distance to the water table, land cover condition and the associated net recharge rate; interactions between the vadose zone geology and water movement; and interactions between the vadose zone geology and contaminant chemistry.

Model simulations were carried out for the non-radionuclide and radionuclide contaminants identified in the calculation brief titled “100 and 300 Area Nonradiological Preliminary Remediation Goals (PRGs) for Groundwater Protection” (ECF-Hanford-10-0442, Rev. 0). Groundwater PRG values were calculated for each of these contaminants and surface water PRGs were calculated for all non-radionuclide contaminants of potential concern (COPCs). Results are discussed in Section 6 below and the tables of PRG values are presented in Attachments 1 to 4.

2.2 Identifying Representative Stratigraphic Columns

Using 300 area borehole lithological data, a suite of stratigraphic columns were identified that would be representative of the subsurface beneath for 300 area waste sites. The gravel-dominated Hanford Formation is the only lithologic unit present within the 300 area vadose zone. Thus the representative stratigraphic columns were selected based on the range of vadose-zone thicknesses observed in the 300 area. A total five stratigraphic columns were selected for use in the STOMP simulations (see Section 3.1 below).

2.3 STOMP Flow and Transport Simulations

The peak groundwater concentrations in the aquifer beneath a typical waste site within each of the representative stratigraphic columns were calculated using STOMP assuming flow and solute transport under variably saturated conditions. The groundwater concentrations were calculated for one contaminant source distributions (Section 3.2.3) with three different recharge scenarios and three different soil types controlling infiltration (Section 3.2.1) for each representative stratigraphic column (Section 3.1).

2.4 Identification of Peak Contaminant Groundwater Concentrations

The contaminant groundwater concentrations were calculated along a portion of the domain’s downgradient boundary with the saturated zone corresponding to the top five meters of the aquifer. The average concentration for the topmost five meter was assumed to be representative of the groundwater

concentration that would be measured from sampling of a 20-ft-long monitoring well screen that straddled the water table. Using the upper 5 meters of the aquifer is consistent with the requirements for aquifer mixing zone thickness in WAC 173-340-747 [5][f][i]. The groundwater concentration was conservatively estimated by calculating it in the aquifer beneath the downgradient edge of the waste site footprint. These groundwater concentrations were tabulated to find the maximum or peak concentration of contaminant in ground water. For constituents not simulated in STOMP, peak groundwater concentration was calculated instead by a scaling factor based on the retardation factor, as described below.

2.5 Estimating Peak Groundwater Concentrations by Retardation Factor Scaling

Depending on vadose zone thickness and hydraulic properties, the 10,000-year simulation time for the flow and transport simulations can suffice to identify peak groundwater concentrations for a limited number of contaminants. For the 300 area, only contaminants with distribution coefficients (K_D), which is the parameter governing linear sorption, that has values between 0 and 8 cm^3/g would typically yield a peak concentration within the simulation period. However, for the contaminants in the 300 area, the K_D values span such a large range that simulation periods of 10^4 to 10^9 years would be necessary to predict the actual groundwater peaks. To reduce the overall number of numerical simulation perturbations, due to the large number of contaminant K_D values, recharge scenarios, soil types, and representative columns, a straightforward scaling method was implemented which utilized the calculated retardation factor (for example, see discussion in Selker et al., 1999, pages 243 to 248).

The dimensionless retardation factor, R, is defined (Selker et al., 1999) as

$$R = 1 + \frac{\rho_B K_D}{\theta} \qquad \text{Eqn. 1}$$

where ρ_B = bulk density (ML^{-3}), K_D = distribution coefficient (L^3M^{-1}), and θ = volumetric water content (L^3L^{-3}). For the STOMP one-dimensional flow and solute transport simulations, ρ_B is constant with space and time, K_D is constant in time and space, and θ varies in both space and time within the vadose zone.

For the same set of model conditions, the retardation factor for a non-zero K_D value, X, can also be defined using the relationship between the non-retarded solute and the retarded solute (Selker et al., 1999). Assuming the domain, flow conditions, transport processes, and initial concentrations are all the same, the retardation factor for $K_D = X$ can be calculated directly as the ratio of peak groundwater concentration for $K_D = 0$ to the peak groundwater concentration for $K_D = X$:

$$R\ K_D = X\ = \frac{CPK\ K_D=0}{CPK\ K_D=X} \qquad \text{Eqn. 2}$$

Where CPK is the simulated peak groundwater concentration for the specified K_D value. Rearranging Eqn. 2 and substituting in Eqn. 1 for $R(K_D = X)$ shows that the inverse of the peak concentration is linear with regard to K_D:

$$CPK\ K_D = X\ ^{-1} = \frac{R\ K_D=X}{CPK\ K_D=0} = \frac{1}{CPK\ K_D=0} + X\frac{\rho_B}{\theta * CPK\ K_D=0} \qquad \text{Eqn. 3}$$

Where X represents different K_D values, and θ and ρ_B represent average or effective values specific to each simulated stratigraphic column. An effective bulk density for a given column is constant and the peak concentration for $K_D = 0$, which means R=1, is also a constant for a given column under a given recharge scenario. Thus a plot of $CPK\ (K_D = X)^{-1}$ versus K_D should yield a straight line assuming effective θ does not vary with time. However, for any given recharge scenario, effective θ can vary over time. The time to reach $CPK(K_D = X)$ also increases as X increases, so plotting $CPK(K_D = X)^{-1}$ versus K_D will not necessarily yield a straight line unless effective θ does not change much over time, making it a function of the vadose-zone thickness in the stratigraphic column and the time-varying recharge rates. If the effective

θ is essentially constant, then the slope of the line for *CPK* (K_D = X)$^{-1}$ versus K_D equals the rightmost fraction in Equation 3. As discussed below in Sections 3.2.1 and 5.3, in general, the effective θ does not change significantly in relatively thick soil columns for the range of recharge rates used in the STOMP simulations.

2.6 Calculating PRG Values and Screening Values

As a measure of allowable quantity of contaminant in the soil, PRGs are expressed as contaminant mass per unit mass of soil for non-radionuclides or as contaminant activity per unit mass of soil for radionuclides. The PRGs are calculated by scaling the initial soil concentration by the ratio of the selected regulatory compliance criteria to the simulated peak concentration value. As described in the vadose zone model package report (SGW-50776, *Model Package Report: Vadose Zone Model for the River Corridor*), the PRG, or screening value, for each contaminant is computed as:

$$PRG = aC_I \frac{WQS}{CPK} \qquad \text{Eqn. 4}$$

where *PRG* = Preliminary Remediation Goal (contaminant mass or activity / kg of soil]), *a* is a constant selected to balance units, C_I is the initial soil concentration (specified contaminant mass or activity / mass of soil) leading to the peak concentration CPK, *WQS* = water quality standard (contaminant mass or activity / liter of water), and *CPK* = peak groundwater concentration (typically contaminant mass or activity / liter of water). The surface water quality standards are input as WQS to compute PRGs protective of surface water, whereas the groundwater quality standards are input as WQS to compute PRGs protective of groundwater.

This document discusses both the development of screening values and PRG. The screening value calculation assumed worst case scenarios, the entire vadose zone below the clean backfill was contaminated, the contaminant mass was placed touching the water table (100-0 source distribution) and highest recharge (irrigation recharge) was applied. In the PRG calculations described in this document, considered more practical conditions. In practical the water table is not always stationary, there is seasonal variations of the water table which creates a periodically rewetted zone in the vadose zone. This rewetted zone and effect of capillary fringe occurs mostly within the bottom 0.5 m of the vadose zone. In the PRG calculation the contaminant mass was placed 0.5 m above the water table to account for this condition and was termed as effective 100-0 source distribution. The base case recharge was applied for the PRG calculation which is more practical to the site conditions.

3. Model Inputs

Two sequential STOMP simulations were used in calculating the peak groundwater concentrations. The first stage, called the pre-2010 model, simulated flow through the representative columns for a 2,010-year period. Review of first-stage matric potential and volumetric water content values revealed that they had reached equilibrium prior to the end of the simulation period. The second stage, called the post-2010 model, was used in simulating the flow and solute transport over 10,000 years. Results from the pre-2010 simulation were utilized as the starting aqueous pressure conditions for the post-2010 model. The post-2010 solute transport simulations results were used to identify the magnitude of the peak groundwater concentrations.

STOMP estimates of contaminant concentration depend on the selected model inputs and assumptions. Inputs to the models and their underlying assumptions are divided into the following categories:

- Model domains

- Boundary conditions and initial conditions
- Hydraulic and transport parameters
- Contaminant source term

Each of these categories is discussed in the following sections.

3.1 Model Domains

Conceptually, the models represent a column of sediments that include a variably-saturated vadose zone underlain by a saturated aquifer (Figure 1). Within the column, recharge-driven flow moves downward through the vadose zone where it encounters contamination that is eventually transported to the underlying aquifer. Once in the aquifer, a specified pressure gradient drives horizontal flow to the model boundary. At the start of each post-2010 simulation, the vadose zone comprises a cover of clean fill with constant thickness as well as contaminated and uncontaminated sediments of varying thickness. The saturated aquifer constitutes the base of the column with a minimum thickness of 5 m. This thickness was selected to represent the average concentration a field sampling event would obtain from sampling a typical 5-m-long monitoring well screen.

The model is represented numerically as a vertical one-dimensional column of evenly-spaced grid blocks, each containing a node at the centroid. In STOMP, boundary conditions are specified at the faces of the grid blocks and can be specified along the boundaries of a one-dimensional grid. To ensure reasonable Courant numbers in the aquifer grid blocks during transport simulations, each grid block was assigned a single arbitrary but constant width to ensure. Each grid block was specified at 0.25 m in height, 20 m in length and 1 m in width. A length of 20 m was chosen to reduce the Courant number below 1.0 to reduce numerical errors. Following the simulation, the contaminant aqueous concentration output was scaled back to 1 m length by taking the aqueous concentrations and dividing by 20. The accuracy of this methodology was verified through simulation with varying grid dimensions (not presented here).

Grid block Courant numbers for the vadose zone grid blocks, in which flow is vertical under variably-saturated conditions, were all less than 1.0 for all recharge scenarios. Courant numbers for the aquifer grid blocks, in which flow is horizontal under fully saturated conditions, were all less than 1.0.

The thickness of the vadose zone varies according to the geology of each waste site in the 300 area. The range in vadose zone thicknesses across the 300 area was calculated by taking the difference between the ground surface and a single selected water-table surface. The ground surface data was obtained from Hanford site-wide LIDAR (Light Detection and Ranging) data. This data was then converted into raster format in ARC-GIS. The March 2009 water-table elevation map that was presented in the 2009 Groundwater Annual Report (DOE/RL-2010-11) was selected because the surface covered a large areal extent and encompassed all of the 300 area waste sites. The water table contour was converted to a raster file in ARC-GIS environment and then subtracted from the ground surface map to calculate the vadose zone thickness across the 300 area. Then the vadose zone thickness at each waste site location was determined. The determined vadose zone thickness for the 300 area waste sites ranges between 6.8 m and 16.7 m, as noted in Table 1.

A site-specific stratigraphic column and STOMP model were not developed for each of the 300 area waste sites but rather a suite of representative models were developed based on selected vadose zone thicknesses. That is, the range in vadose zone thicknesses was incorporated by selecting five vadose zone thicknesses of 6.5, 9.5, 12.5, 14.5 and 16.5 m (Figure 1). In addition to the 5-m thick saturated zone and the selected vadose-zone thickness, each model column was assumed to contain clean backfill to represent conditions resulting from interim remediation activities. The backfill was assumed to replace the uppermost 4.5 m of each column (Figure 1).

Table 1. Vadose Zone Thickness of 300 Area Waste Sites

Waste Site	Thickness of Vadose Zone (m)
300-10	12.4
300-18	13.4
300-259	16.4
300-275	9.5
300-44	13.3
300-45	12.9
300-49	6.8
300-50	10.0
300-8	14.9
300 ASH PITS	15.1
300 VTS	16.3
316-1	14.4
316-2	11.1
316-5	13.8
331 LSLDF	11.0
600-243	14.6
600-259	16.7
600-47	12.7
618-1	16.4
618-12	12.0
618-13	15.3
618-3	15.6
618-4	12.9
618-5	16.1
618-7	16.2
618-8	15.2
618-9	13.7
628-4	12.3
618-2	9.7

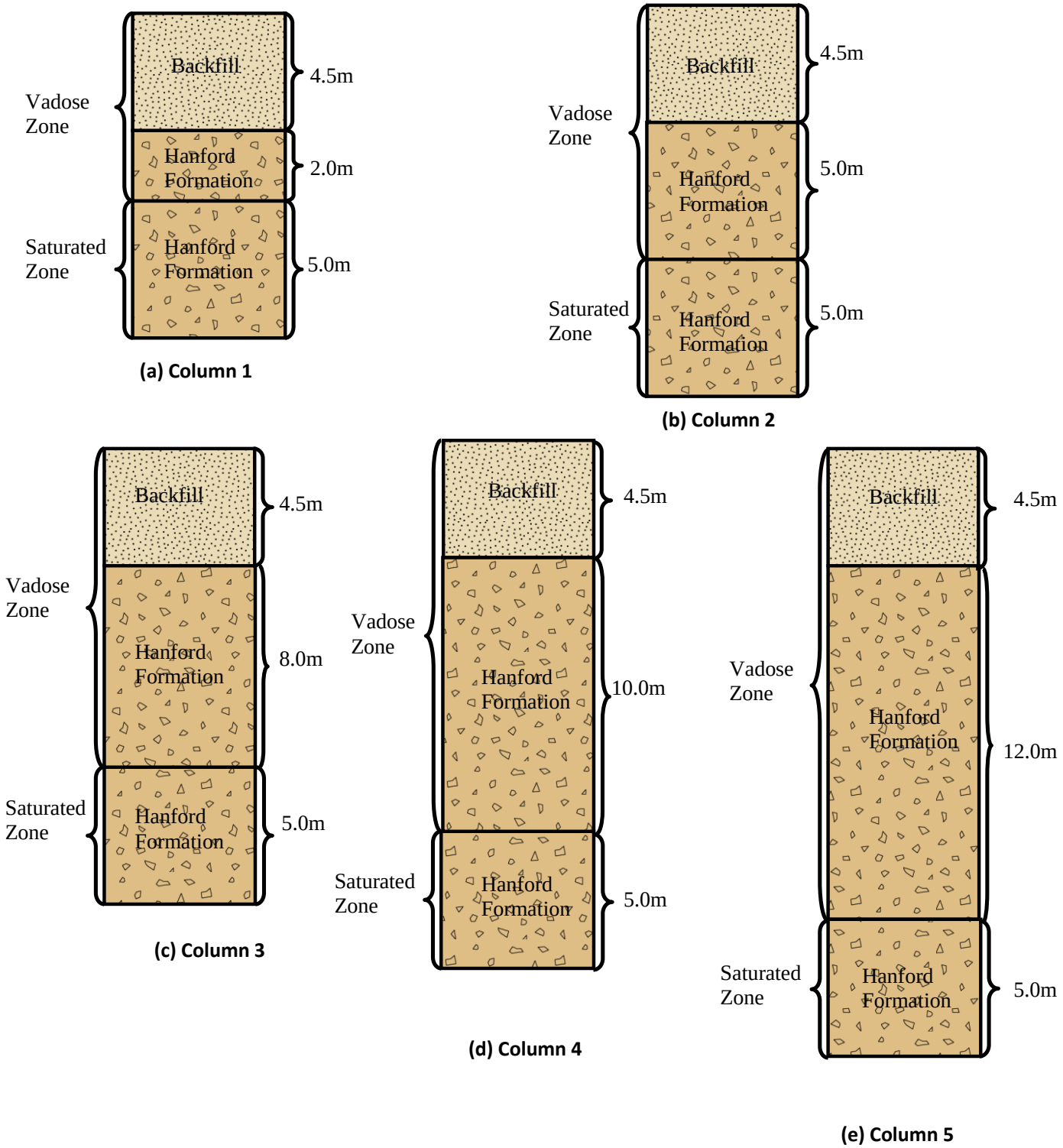

Figure 1. Representative Stratigraphic Columns for 300 Area

3.2 Boundary Conditions

Solving the governing equations for variably-saturated flow and transport requires stipulation of boundary conditions and initial conditions. A complete set of boundary and initial conditions must be stipulated for each governing equation.

For water flow, a specified-flux boundary condition was applied at the surface to simulate recharge, no-flow boundary conditions were assigned to the edges of the vadose zone and the bottom of the saturated aquifer, and prescribed pressure boundaries were assigned to the edges of the saturated aquifer (Figure 2a). The prescribed pressures were selected to create the water table at the desired elevation and with the desired hydraulic gradient.

For solute transport, specified zero flux boundaries were applied at the top of the model domain, along both edges of the vadose zone, along the up-gradient edges of the aquifer grid blocks, and the bottom of the aquifer (Figure 2b). The downgradient edges of the aquifer grid blocks were assigned STOMP's outflow solute boundary condition (see page 6.21 of PNNL-12030 and page 4.4 of PNNL-15782), which transports solute out of the domain according to the advective flux term in the governing equation and does not allow solute to enter back into the domain (Figure 2b).

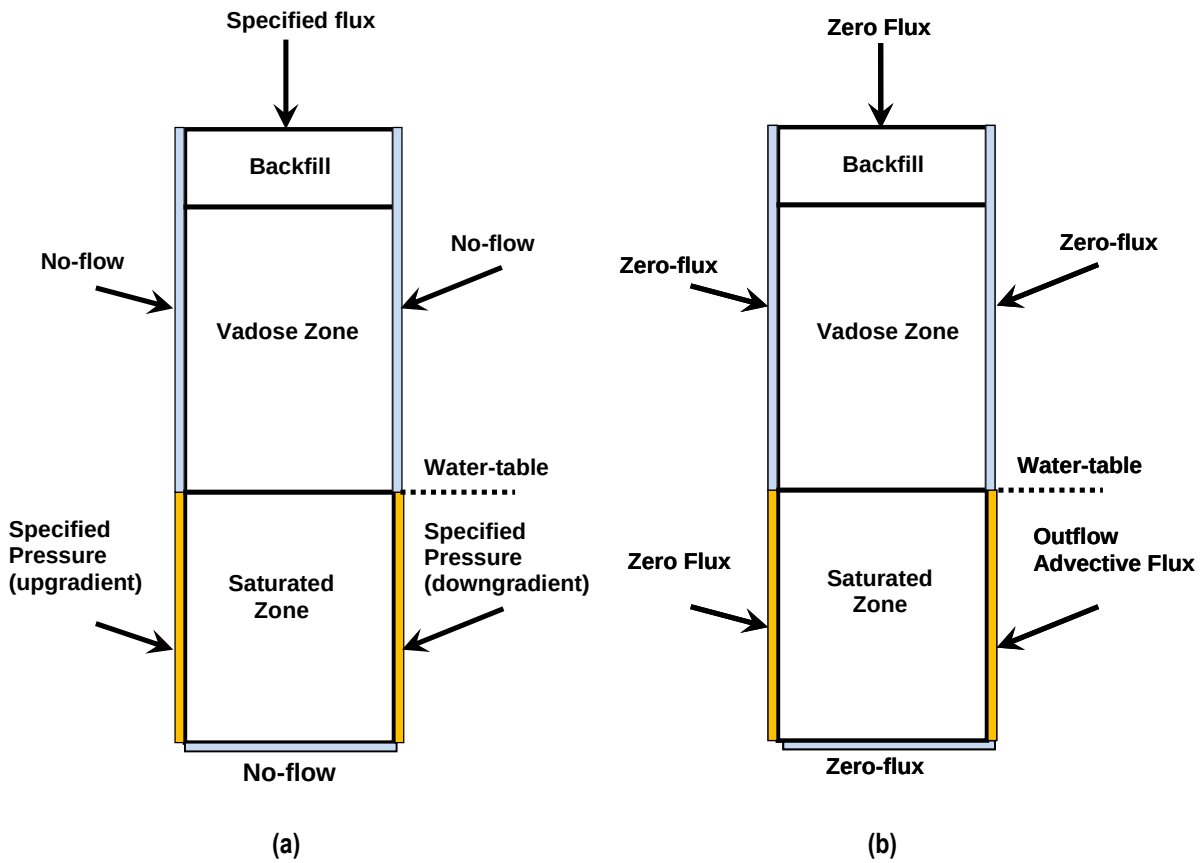

Figure 2. Illustration of Flow Boundary Conditions (a) and Solute Transport Boundary Conditions (b)

3.2.1 Recharge

The net infiltration into the vadose zone, which is used in the model to represent the recharge into the aquifer, is driven by the competition between precipitation, potential evaporation, transpiration, run-off and run-on. In an arid climate, downward fluxes resulting from this competition are episodic and usually infrequent. A number of studies have been carried out at the Hanford site to ascertain representative long-term averages of the episodic fluxes, i.e., recharge rates, such as those compiled by Pacific Northwest National Laboratory (PNNL) for the 300 Area (PNNL-14702). The 300 Area-specific recharge rates in PNNL-14702 varied with surface soil type and so provide an estimate of the range of possible recharge rates for various land uses. The three surface soil types were the Ephrata Sandy Loam, Burbank Sandy Loam and Rupert Sand.

For the pre-2010 simulations, land use and recharge rates were assumed to change from shrub-steppe (pre-operations) to bare soil (operations) for each soil type. Base recharge rates for each type of land cover for each soil type were applied to the top boundary from the year 0 to 1944 for the pre-operations period and from 1944 to 2010 for the operations period (Table 2).

Table 2. Recharge Rates of Pre-2010 Simulations

Soil Type	Recharge Scenario	Recharge Rate for Different Period (mm/yr)	
		0-1944	1944-2010
Ephrata Sandy Loam	Base	1.5	17.0
	Irrigation		
Burbank Sandy Loam	Base	3.0	52.0
	Irrigation		
Rupert Sand	Base	4.0	44.0
	Irrigation		

For the post-2010 simulations, three different land use/cover scenarios were evaluated (Table 3). The first, termed base case, evaluated the maturation of shrub steppe from bare soil to mixed grass and shrub cover to mature shrub steppe cover. The second scenario, termed Irrigation, evaluated an increase in recharge due to irrigation farming practices following the period of bare soil cover. The recharge rates were assumed to change over time in step function-fashion for the two scenarios.

To account for the change in the land use/cover over time in the post-2010 simulations, three recharge time periods were specified to represent the changes in recharge rates (Table 3 and Figure 3). The first recharge period (Period 1), spans from 2010 to 2015 and represents the period of bare soil cover. Recharge Period 2 represents different land use/covers for each of the three recharge scenarios. For the base case scenario, the second recharge period lasts 30 years and represents grasses and shrubs covering bare soil. This is followed by establishment of a mature shrub steppe for Period 3 which lasts for the remainder of the simulation period. The recharge rates decreased with time for the base case recharge scenario (Table 3 and Figure 3).

Recharge rates for the irrigation scenario were estimated using the same approach employed to assess interim remediation at 100 Area waste sites (DOE/RL-96-17 Rev. 6). These previous site assessments used remedial action goals (RAGs) calculated from RESRAD (RESidual SATuration) simulations that assumed total recharge was a combination of irrigation and non-irrigation (base case) recharge rates. As the base case rates used in the RESRAD simulations were different than those adopted from PNNL-14702, the RESRAD equation for total recharge was solved to determine the rate attributable to irrigation

alone. According to the RESRAD manual, total recharge is a function of precipitation, evapotranspiration, run-off, and applied irrigation and is defined as

$$I = \ 1 - C_e \quad 1 - C_r \ P_r + I_{rr} \qquad \text{Eqn. 9}$$

in which I = annual recharge rate (LT^{-1}), C_e = evapotranspiration coefficient (dimensionless), C_r = runoff coefficient (dimensionless), P_r = annual precipitation rate (LT^{-1}), and I_{rr} = annual irrigation rate (LT^{-1}). Using Equation 9 and the DOE/RL-96-17 Rev. 6 RESRAD values for these parameters, C_e = 0.91, C_r = 0.2, P_r = 0.16 m/yr, and I_{rr} = 0.76 m/yr, yielded a total recharge rate of 80 mm/yr. Solving Equation 9 with I_{rr} = 0 yielded the non-irrigation total recharge rate of 11.6 mm/yr and therefore the recharge attributable to irrigation alone was 68.4 mm/yr, which was then added to the base case recharge rates (Table 2) to determine a recharge rate for the irrigation scenario for each soil type. For example, the irrigation scenario for the Ephrata soils set the recharge rate to 17 mm/yr from 2010 to 2015, 71.4 mm/yr from 2015 to 2045, and 69.9 mm/yr from 2045 to 5010 (Table 3 and Figure 3).

Table 3. Recharge Rates for Post-2010 Simulations

Soil Type	Recharge Scenario	Recharge Rate (mm/yr)[a]		
		Period 1	Period 2	Period 3
Ephrata Sandy Loam	Base case	17.0	3.0	1.5
	Irrigation	17.0	71.4	69.9
Burbank Sandy Loam	Base case	52.0	6.0	3.0
	Irrigation	52.0	74.4	71.4
Rupert Sand	Base case	44.0	8.0	4.0
	Irrigation	44.0	76.4	72.4

[a] Period 1 is from 2010 to 2015; period 2 lasts from 2015 to 2045; period 3 lasts from 2045 to 5010 for all recharge scenarios.

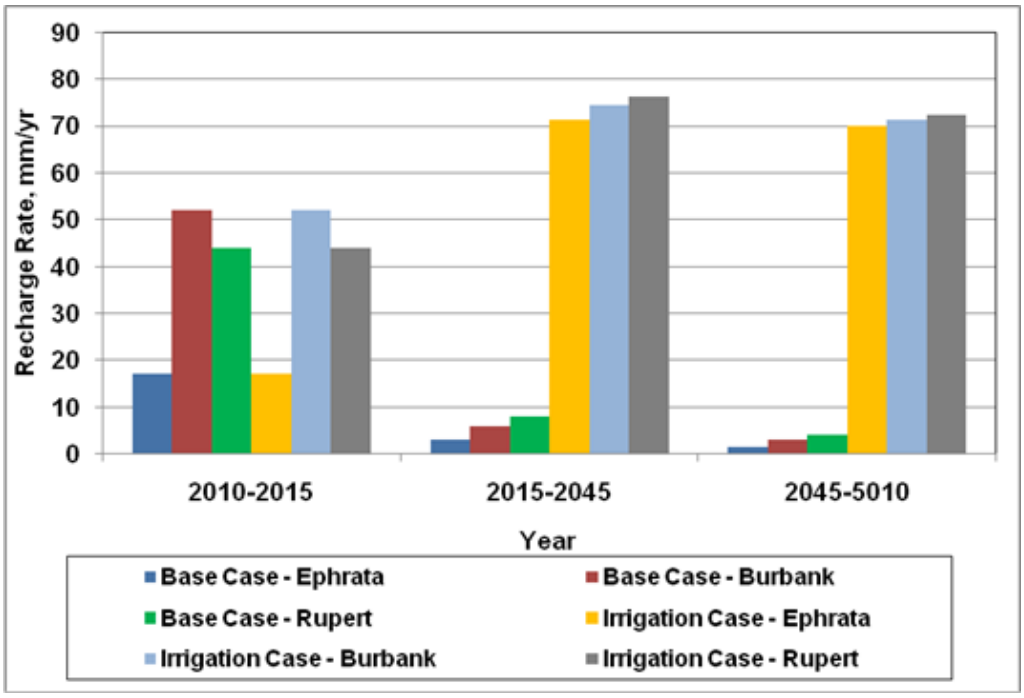

Figure 3. Recharge Rates used in Post-2010 STOMP Simulations

3.2.2 Aquifer Gradient

The specified pressure values assigned to the edges of the saturated aquifer grid blocks were selected to create a hydraulic gradient across the model domain. The gradient was calculated by the following steps:

(1) First water table contours within the Hanford Formation were developed for the months of January, March, June, and December in 2009. These months were selected because there was a sufficient completeness of data available to develop a comprehensive surface. The contoured surfaces were developed using ARC-GIS.

(2) After the contours were drawn for each month the flow lines were hand drawn.

(3) Then the gradient was calculated for each segment in the flow line in between the contour lines.

(4) For each waste site, a gradient was calculated for each of the four different months.

(5) The average of the four gradients at each waste site was calculated.

(5) The median value was determined for all the four-month averaged gradients to develop an overall average gradient of 0.00033 m/m.

3.2.3 Initial Conditions

For the initial pressure distribution in the pre-2010 flow simulations, a value of 86,656.7 Pascal, approximately equivalent to –1.5 m matric potential, was assigned to the nodes in the vadose zone. Whereas the aquifer grid blocks were assigned values that matched the boundary condition pressures

necessary to yield the required gradient. The pressure distribution at the end of the pre-2010 simulations were used as the initial pressure distribution for the post-2010 flow and transport simulations.

The source distribution, assigned a uniform concentration of 1 mg/kg soil to the entire vadose zone beneath the clean backfill all the way to the water table in screening value calculation. In the PRG calculation a uniform concentration of 1 mg/kg was applied in the entire vadose zone below the clean backfill up to 0.5 m (two grid blocks) above the water table. Initial concentration in the 0.5 m zone above the water table was not applied due to physical presence of capillary fringe and water table movement in the periodically rewetted zone that would result from river stage fluctuations. Placing the initial mass at the water table can also result in boundary effects and extreme concentration gradients. The unit initial concentration is arbitrary but was chosen only for convenience in calculating PRG values and has no effect on the PRG values since the initial concentration C_I is accounted for in Equation 4.

3.3 Hydraulic and Transport Parameters

The hydraulic properties of the Hanford Formation were assumed to follow the van Genuchten (1980) moisture retention constitutive relation and the Mualem –van Genuchten relative permeability constitutive relation (Mualem, 1976). Thus the following parameter values were required for each lithologic unit:

- saturated hydraulic conductivity, (LT^{-1});
- total porosity (L^3L^{-3});
- saturated volumetric water content(L^3L^{-3});
- residual saturation (dimensionless), equal to the residual volumetric water content divided by the saturated volumetric water content;
- van Genuchten α (L^{-1}), proportional to the inverse of the air entry matric potential;
- the dimensionless van Genuchten n fitting parameter.

The van Genuchten m parameter was assumed to be fixed and equal to $(n - 1)/n$ and the Mualem β exponent was assumed to be fixed at 0.5 (Mualem, 1976; RPP-20621). These Mualem-van Genuchten hydraulic parameters were obtained for the Hanford formation from PNNL-15125. A summary of the hydraulic parameters are listed in Table 4.

Hydraulic parameters were also required for the backfill portion of the model domain. The parameter values used for the 300 area simulations (Table 4) were identical to those used in the 200 Area PRG calculation simulations (Table 8 in ECF-200MW1-10-0080; Table 11 in ECF-200PW1/3/6-10-0326). The simulated peak groundwater concentrations were insensitive to the backfill hydraulic parameters because contaminated vadose zone sediments are located beneath the backfill in all source distribution models for all simulations.

Table 4. Hydraulic Parameters used for 300 Area

Model Zone	Total porosity	Diffusive porosity	van Genuchten alpha (1/cm)	van Genuchten n	Residual saturation	Horizontal Saturated K (cm/s)	Vertical Saturated K (cm/s)
Backfill	0.276	0.262	0.0190	1.4	0.1620	5.98E-04	5.98E-04
Vadose	0.280	0.250	0.0824	2.0932	0.1516	1.7361	0.1736
Saturated	0.280	0.250	0.0824	2.0932	0.1516	1.7361	0.1736

BF: backfill; VZ: vadose zone; SZ: saturated zone

For transport simulations, STOMP requires the particle density (ρ_p) values of the backfill and Hanford units. The particle density of each unit can be calculated using the bulk density (ρ_B) and porosity. Bulk density is necessary for retardation scaling factor calculations. Estimates of bulk density for Hanford unit were obtained from PNNL-14702, which gave 1.93 g/cm^3 for the Hanford. The bulk density estimate of 1.94 g/cm^3 for backfill was obtained from PNNL-18564. Dispersion was conservatively assumed to be negligible, so dispersivity values were all set to zero. Barring numerical dispersion introduced by the solution method, setting dispersivity values to zero yields higher peak concentrations than setting non-zero values and therefore yields conservative PRG values. One artifact of this approach is that the grid Peclet number (a dimensionless number that measures the degree of advection domination compared to hydrodynamic dispersion) becomes infinite. This can cause smearing of the sharp concentration front (numerical dispersion) and could also lead to artificial oscillations at the concentration front. However, no appreciable numerical errors were noticed in the simulations and did not result in smearing the peak concentrations.

Distribution coefficient, K_D, and half life values were taken from ECF-Hanford-10-0442 and are listed in Attachments 1 to 4 for each contaminant of potential concern. One exception to this is the K_D value for Hexavalent Chromium (Cr (VI)). The K_D value of Cr(VI), 0.8 mL/g, was estimated in ECF-Hanford-11-0165. As described in Section 2.3, simulations were run to produce peak groundwater concentrations for a subset of the entire range of distribution coefficients required for all contaminants. Typically, the subset comprised of 27 distribution coefficients (Table 5) between 0 and 8 mL/g because these values almost always yielded peak groundwater concentrations within the 10,000-year simulation period for the range of vadose zone thicknesses and lithologies simulated. Peak concentrations were estimated for the remaining distribution coefficients using the scaling methods described in Section 2.4 to 2.5.

Table 5. K_D Values used in STOMP Simulations

K_D (mL/g)		
0.00000	0.10	0.50
0.00001	0.13	0.60
0.0001	0.14	0.70
0.001	0.20	0.80
0.01	0.23	0.90
0.02	0.24	1.0
0.04	0.27	2.0
0.06	0.30	4.0
0.08	0.40	8.0

3.4 Point of Calculation, Protectiveness Metric, and Timeframe Considerations

In accordance with risk assessment guidelines, the evaluation of soil contamination impacts to groundwater and surface water also requires the definition and rationale for (1) the Point of Calculation (POCal) i.e., the place/point in the groundwater domain where modeled groundwater concentrations are to be assessed for potential impacts and protectiveness, (2) the protectiveness metric, i.e., the groundwater and surface water metric(s) to be used in the assessment of protectiveness at the POCal, and (3) the time frame considered applicable for the calculation of impacts to groundwater and surface water (DOE/RL-2007-34, Rev. 0).

The POCal for the protection of groundwater and surface water is related to the "Exposure Point" in the context of conventional human health risk assessments (EPA/540/1-89/002, *Risk Assessment Guidance for Superfund Volume 1, Human Health Evaluation Manual [Part A]*) and to "Point of Compliance" in federal and state regulations and guidelines (DOE/RL-2007-34, Rev. 0).

The POCal location was selected to be the point within the saturated aquifer where the maximum groundwater concentrations occurred. For this evaluation, the POCal was at the down-gradient lateral model boundary (outflow edge) of the one-dimensional column at the grid blocks that were located in the uppermost 5 m of the saturated aquifer. As discussed previously, the selection of the uppermost 5 m of the saturated aquifer was selected to represent a monitoring well screened interval typically encountered during groundwater sampling activities.

The protectiveness metric is the set of applicable water quality standards for groundwater and surface water (e.g., ARARs, MCLs, or AWQLs) for each contaminant. The applicable water quality standards for protectiveness of groundwater and surface water used in the 300 area simulations discussed in this document are included in the Attachments.

The time frame was not limited to a particular period of time; rather, whatever the time frame was conservatively set as the time needed for the groundwater concentration to reach peak for each COPC. Times to reach a peak concentration varied from tens to billions of years, depending on recharge scenario, column thickness, and K_D value.

3.5 Screening Levels and PRGs

The screening values were calculated assuming the most conservative set of input values. It was assumed that the entire vadose zone thickness beneath the backfill was contaminated and the maximum recharge scenario (Irrigation case) was applied to the top of the one-dimensional column. These assumptions resulted in the largest simulated groundwater concentrations and thus yielded conservative (smallest) screening level soil concentration values.

The PRG values were calculated using the effective 100-0 source distribution and base case recharge. This is a conservative assumption for many of the 300 area waste sites because this distributes the contaminant mass over a larger thickness of the vadose zone than assumed for the 300 area.

3.6 Uncertainties, Assumptions, and Conservatism

Potential sources of uncertainty in risk assessments are primarily in the categories of (1) model uncertainties, (2) scenario uncertainties, and (3) parameter uncertainties. Model uncertainty pertaining to the mathematical representation of the natural processes is expected to be relatively small (DOE/RL-2007-34, Rev. 0). DOE/RL-2007-34, Rev. 0 provides a summary evaluation of the comparisons of field data and field test results to corresponding model results obtained using the STOMP code, and the evaluation indicates that the equations used in STOMP adequately simulate the natural processes. The

technical basis regarding scenario and parameter selection and the evaluation of uncertainty and variability is also documented in DOE/RL-2007-34 Rev. 0. Documentation is provided in Sections 4.0 and 5.0 of DOE/RL-2007-34 Rev. 0 on (1) dominant model factors, (2) model parameter values and plausible ranges of parameter values, (3) model assumptions and effects on model results, and (4) model limitations.

Application of the PRG values calculated herein requires an understanding of which assumptions and modeling choices were conservative and which were not. Conservative assumptions and modeling choices include:

- PRGs were determined for each recharge scenario by selecting the minimum PRG value calculated from all of the representative columns.
- Recharge was represented in the numerical model by uniform flux rates specified over particular time periods so that vadose zone flow is always downward. In contrast, recharge in an arid vadose zone occurs only as often as the combination of precipitation and antecedent moisture conditions allow, i.e., sporadically or infrequently, so that there can be long periods when shallow vadose-zone pore water movement is controlled more by evaporation and transpiration near the surface than gravity, resulting in upward movement or reduced downward seepage velocity.
- The one-dimensional simulations force all contamination vertically through the vadose zone to the aquifer, whereas infiltrating water and solutes may, as a result of lithological heterogeneity, tend to migrate laterally as the wetting front redistributes following an infiltration event.
- Dilution upon mixing of groundwater with surface water is assumed to be negligible.
- Hydrodynamic Dispersion is assumed to be negligible, which leads to larger peak concentrations than if dispersion had been included.
- Volatile organic compounds are assumed to have negligible volatilization so that the resulting peak concentrations are larger than if volatilization had been included in the simulations.
- Contaminant source mass within the domain is conservatively calculated by assuming that all the sediments, gravels and finer-grained materials are in contact with water and solutes. Gravel clasts constitute 43 to 75% of the Hanford formation sediment mass and thus can form many large pores (macropores). However, the relatively dry vadose zone conditions restrict water and solute transport to the finer-grained materials and exclude it from the macropores, thus a significant fraction of the gravels (and sediment mass) are not in contact with water and solutes. Calculating the initial mass of contaminant using the mass of gravel and finer-grained sediments results in a much larger contaminant mass than would be determined using the mass of finer-grained sediments alone and therefore yields a more conservative PRG value.
- The initial conditions for matric potential at the start of the flow and transport simulations represent a wetter vadose zone than is expected for such gravel-dominated sediments in an arid climate, thus allowing significantly higher water and solute flux values.

Assumptions that may or may not be conservative include:

- The median hydraulic gradient value may be too large by several-fold for waste sites near the Columbia River where the gradient is typically shallower, thus resulting in an over estimation of the dilution in the saturated aquifer and a higher PRG determination.
- The assumption of a five-meter-thick aquifer may not be conservative for those 300 area locations with aquifer thicknesses less than five meters.

Conservative assumptions specific to the screening level calculations include:

- Contaminant source distribution is assumed to span the entire thickness of the vadose zone beneath the clean fill.
- Only the irrigation recharge scenario is used resulting in greater mass movement into the saturated aquifer, higher groundwater concentrations, and lower screening level values.

4. Software Applications

The vadose zone fate and transport calculations were performed using the STOMP (Version 3.2 code, Hanford Information System Inventory (HISI) identification number 2471. STOMP was executed on the INTERA Richland Linux®[1] Cluster that is owned and managed by INTERA, Inc. in Austin, TX. The computer property tag identifier for the frontend node is #469 at INTERA's Richland office. It is a Dell PowerEdge R510 with two 6-core Intel Xeon X5660 processors @ 2.80GHz and 48 GB of RAM.

As given by the command name uname –a, the operating system details are

> Linux green 2.6.32-32-server #62-Ubuntu SMP Wed Apr 20 22:07:43 UTC 2011 x86_64 GNU/Linux (gcc version Ubuntu 4.4.3-4ubuntu5 4.4.3)

Excel®[2] spreadsheets were used to calculate contaminant inventory values and approximate contaminant solute concentrations, back calculate PRG values, and evaluate the results produced by STOMP. These calculations were performed on a desktop with ID INTERA 00295. The hardware is a Dell Precision E7200 with a 2.53-GHz Intel(R) Core(TM)2 Duo CPU processor and 3.25 GB of RAM loaded with the Windows XP Professional 64-bit operating system.

DOE/RL-2011-50, Rev. 0 contains a summary of the main model attributes and code selection criteria that serve as the basis for the demonstration of the adequacy of the STOMP code for use in vadose zone modeling at Hanford. The results of the evaluation in DOE/RL-2011-50, Rev. 0 show that the STOMP code is capable of meeting or exceeding the identified attributes and criteria. The comparison of the code selection criteria to the STOMP code capabilities indicates the STOMP code is capable of simulating all of the necessary FEPs, and that STOMP meets all of the other required code selection criteria. Section 6.4.1 of DOE/RL-2011-50, Rev. 0, Rev. 0 addresses code selection criteria, including quality assurance documentation of verification studies for specific model attributes (e.g., unsaturated flow, solute transport, infiltration, and drainage), and includes a discussion of other code related criteria (i.e., inter-code comparisons, hardware requirements, solution methodology, dimensionality, and output capability).

The results of CHPRC acceptance testing (CHPRC-00515, Rev. 0) demonstrate that the STOMP software is acceptable for its intended use by the CHPRC. Installations of the software are operating correctly, as demonstrated by the INTERA Linux Cluster system producing the same results as those presented for selected problems from the STOMP Application Guide (PNNL-11216) in accordance with CHPRC-00211 REV. 0.

[1] Linux is the registered trademark of Linus Torvalds in the U.S. and other countries.
[2] Excel and Windows are registered trademarks of Microsoft Corporation in the United States and other countries.

5. Calculation

The calculation of the groundwater concentrations over time and the subsequent determination of screening and PRG values protective of groundwater and surface water are described in this section. The calculations were carried as follows:

- STOMP simulations using the domains, boundary conditions, initial conditions, and parameter values described in Section 3.
- The resulting peak groundwater concentrations for a subset of distribution coefficient values were simulated according to Section 2.4;
- the peak concentrations for other K_D values was estimated by scaling according to the retardation factor according to Section 2.5; and
- the complete set of groundwater peak concentrations were then used to calculate PRGs using both surface water and groundwater regulatory standards, as described in Section 2.6.

5.1 Time Steps, Grid dimension and Solution Method

STOMP simulations were all run with a maximum time step of 0.01 years and grid dimension of 20 m (in horizontal direction) and 0.25 m (in vertical direction) to keep the grid Courant numbers below 1.0 to reduce numerical errors. The flow simulations were run with the default solution technique, called the Newton-Raphson method and transport simulations were run with Patankar solute transport method. The STOMP-w executable with banded matric solver was used for all simulations. The aqueous concentration output was scaled back to 1 m horizontal grid length by taking the aqueous concentrations and dividing by 20. The accuracy of this methodology was verified through simulation with varying grid dimensions (not presented here).

5.2 Calculating Groundwater Concentration from STOMP Surface Flux Files

Peak groundwater concentrations were calculated for each model time step along a portion of the domain's downgradient boundary corresponding to the top 5 m of the saturated aquifer model grid cells. Fluxes through the down-gradient lateral boundary were written to a surface flux file, one of STOMP's standard output options. For each time step, STOMP writes the water mass and solute mass flux rates passing through the surface as well as the cumulative water and solute mass that have passed through the surface. Groundwater concentrations were estimated by dividing the solute mass flux per unit time by the water volume flux per unit time to yield a groundwater concentration at each time step.

5.3 Scaling Peak Concentration

Peak concentrations were calculated by running multiple simulations using STOMP for set of K_D values. Typically, the subset comprised of 27 K_D values ranging from 0 to 8 mL/g because these values always yielded peak groundwater concentrations within the 10,000-year simulation period for the range of vadose zone thicknesses and lithologies simulated. For the Peak concentrations beyond the simulated K_D values were estimated using the scaling methods described in Section 2.4 to 2.5 and presented in Equation 3.

$$\frac{1}{CPK\ \ K_D=X} = \frac{R\ \ K_D=X}{CPK\ \ K_D=0} = \frac{1}{CPK\ \ K_D=0} + X\frac{\rho_B}{\theta * CPK\ \ K_D=0} \qquad \text{Eqn. 3}$$

When effective θ is constant, then retardation factor is only a function of K_D, and therefore a plot of 1/CPK versus K_D will yield a linear relationship, such as that shown in Figure 5 (for representative

Column 1 for base recharge scenario with Rupert sand soil type). The linear regression equation shown in Figure 5, which is derived from fitting the data, can be used to estimate peak concentration for K_D values that fall between the data points and where K_D values are outside the calculated range (>8 mL/g). If peak concentration is expected to occur early in the simulation when θ has not reached equilibrium with the long-term recharge rate, such as when K_D values are very small, then the peak concentration of that contaminant is estimated based on interpolation among the peak concentrations for two closest K_D values (which encompass the K_D value of the contaminant) for which STOMP calculations have been performed.

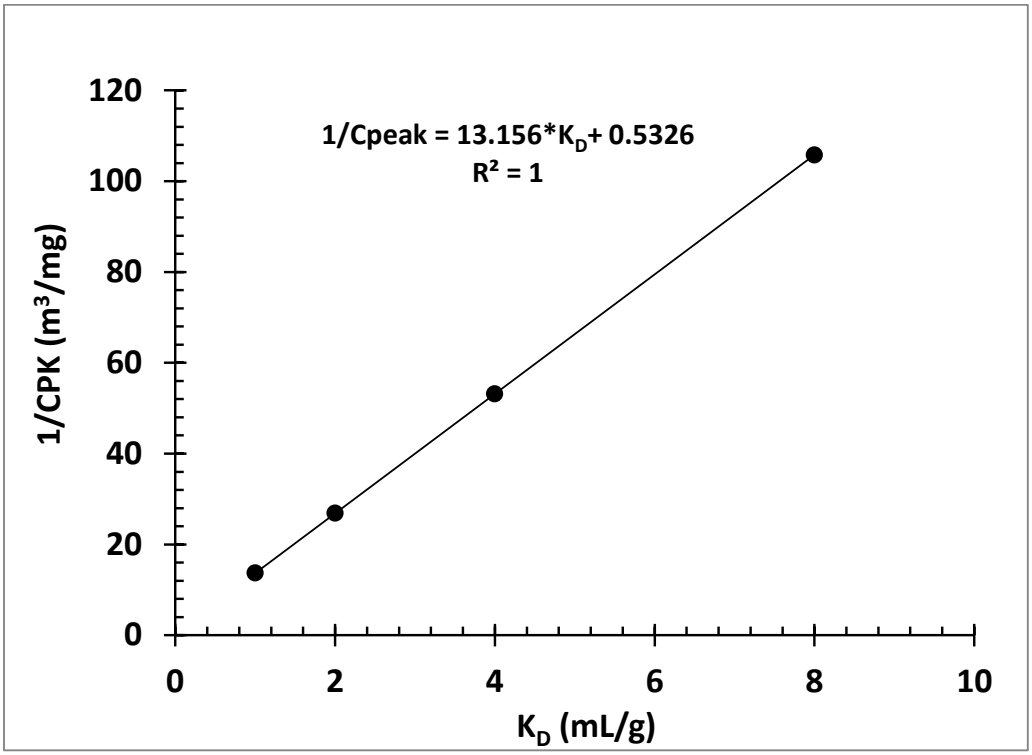

Figure 4. Simulated Peak Groundwater Concentration and KD for Column 1 and Base Case Recharge for Rupert Sand

To check the validity of regression based method for calculating peak concentration STOMP simulations were performed for selected K_D values and results were compared. Excellent matches were obtained indicating the validity of the approach. For example, the peak concentration for K_D = 16.0 mL/g from STOMP simulation was found to be 0.00474 mg/m^3 for Column 5 for irrigation recharge scenario with Rupert sand as the soil type. Using the regression equation shown in Figure 4 the calculated peak concentration, CPK = 1/ (13.156*16 +0.5326) = 0.00474 mg/m^3, which is same as the simulated value.

5.4 PRG Values

PRGs were calculated from the peak groundwater concentrations using equation 8 and the applicable surface water and groundwater regulatory standards. If simulated peak concentrations are very small, application of Equation 4 can lead to physically unrealistic soil concentrations, e.g., 10 kg of aluminum per kg of soil. Although not strictly necessary, the maximum PRG value was capped at an estimate of the total contaminant mass that could occupy the void volume within a kilogram of soil.

The bulk density (ρ_B) of the soil in the 300 area is 1930 kg/m^3. For 1 kg of soil, the total volume (V_T) of the soil is:

$$\frac{1\ kg}{1930\ kg/m^3} = 5.18\times10^{-4}\ m^3$$

The contaminant is assumed to fully occupy all the pores. Thus, the maximum mass of contaminant in the soil is

$$n \times V_T \times \rho_p \qquad \text{Eqn. 11}$$

where n is the total porosity and ρ_p is the particle density of the COPC. In the 300 area, the total porosity of Hanford is 0.28, and the particle density of the COPC is assumed to equal the particle density of the soil, 2680 kg/m^3. The maximum mass of contaminant in 1 kg soil is given by

$$0.28 \times 5.18\times10^{-4}\ m^3 \times 2680\ kg/m^3 = 0.388\ kg = 3.88\times10^5\ mg$$

Thus the maximum PRG for non-radionuclides is 388,000 mg per kg of soil. Any non-radionuclide PRG with a larger value was replaced by 388,000 mg per kg of soil.

The PRG values represent soil concentrations in the vadose zone that should not degrade the groundwater or surface water to below the applicable water quality regulatory standard for each particular contaminant for a range of vadose zone thicknesses, lithologic composition, soil types, and recharge scenarios. As described in Section 3.4, PRG values calculated for the 100-0 source distribution model with irrigation represent the “worst case” estimate of potential impacts and were adopted to serve as a screening tool for preliminary site screening. PRGs for the effective 100-0 source distribution and base case recharge were selected for use in the RI/FS document process.

The variation of solute aqueous concentration in top 5m of the aquifer for different K_D is plotted in Figure 6. As the magnitude of K_D increases, the peak concentration always decreases, all other conditions held constant.

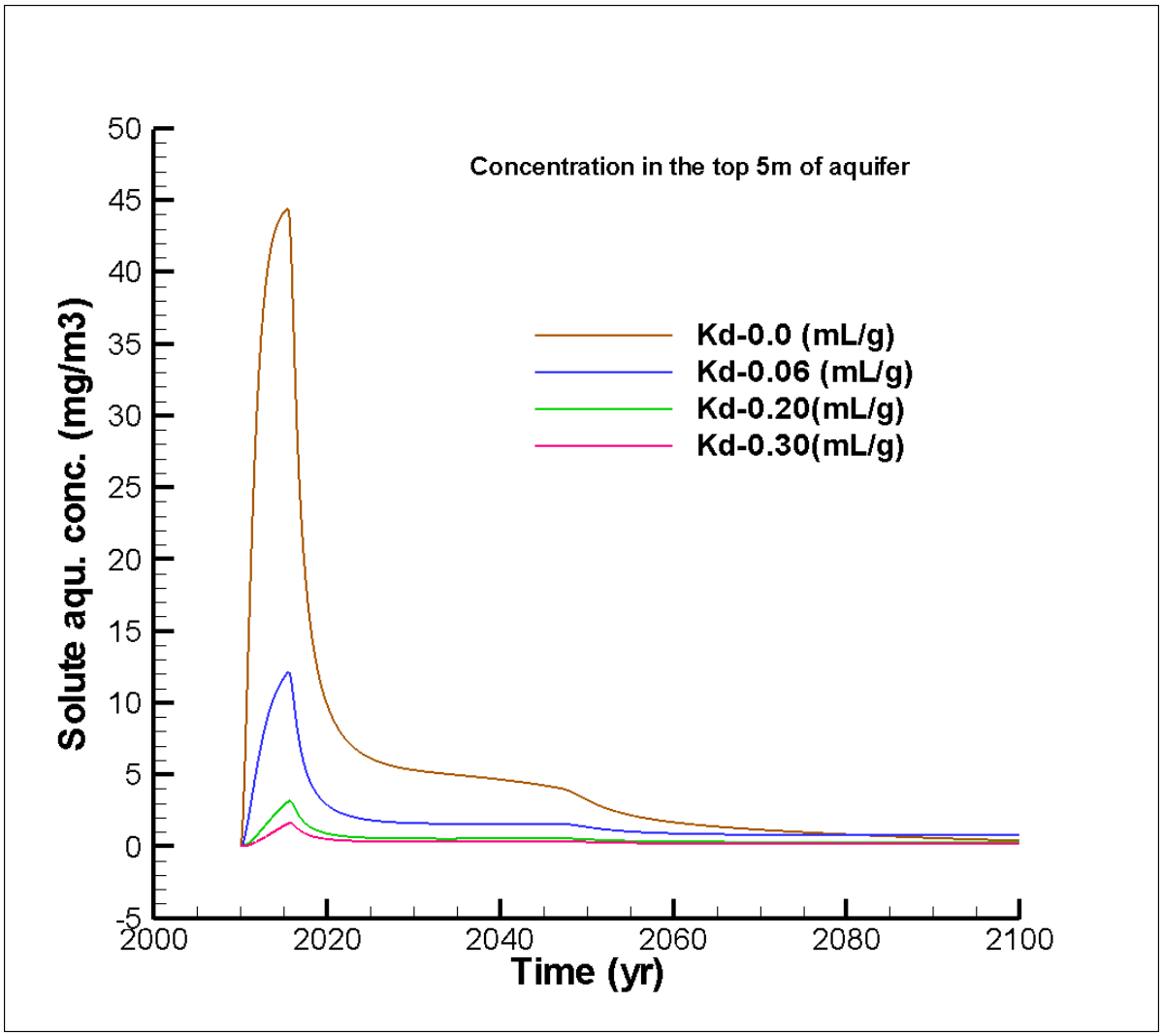

Figure 5. Variation of Peak Concentration with Time for Different K_D

5.5 Calculating Dilution Factors

As the contaminant mass enters the aquifer from the vadose zone the aqueous concentration reduces due to dilution. Since the screening level and PRG calculations are a function of the peak concentration it is important to understand the dilution factor within the saturated zone. As defined in the Washington Administrative Code (WAC 173-340-747), the dilution factor is the ratio of the combined aquifer and vadose zone water fluxes to the vadose zone water flux:

$$Df = \frac{Q_{VZ}+Q_A}{Q_{VZ}} \qquad \text{Eqn. 12}$$

for which Df = the dimensionless dilution factor, Q_{VZ} equals the volumetric flux from the vadose zone into the aquifer (L^3T^{-1})and Q_A represents the volumetric flux through the topmost five meters of the aquifer (L^3T^{-1}) representing the screened interval in the borehole. The dilution factors for different

recharge scenarios are shown in Figure 7. For each scenario the results are presented for the three soil types indicating minor effects on the dilution factors. Because of the high hydraulic conductivity in the aquifer and low recharge rates the dilution factors vary from 1e+04 to 1e+06, indicating significant dilution of the concentration in the saturated zone.

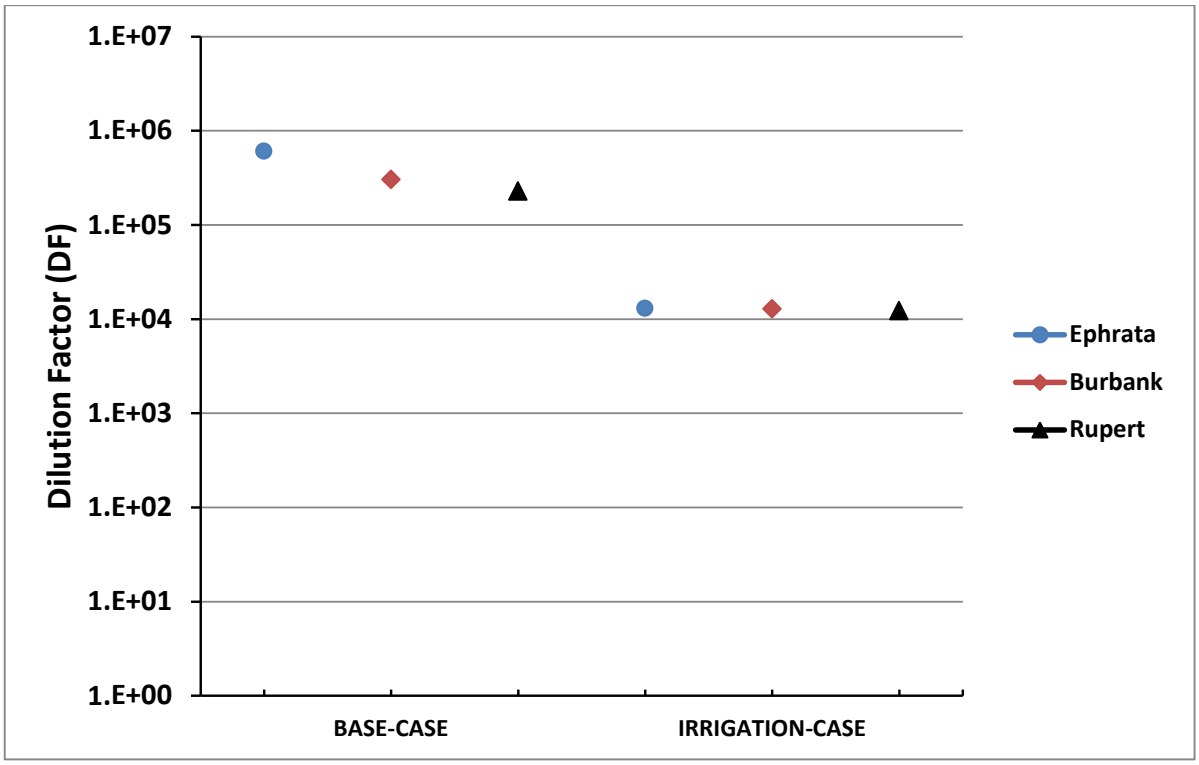

Figure 6. Dilution Factors for Different Recharge Scenarios

6. Results/Conclusions

6.1 PRG values Protective of Surface Water and Groundwater in the 300 Area

STOMP simulations and scaling calculations were used to estimate PRG values for 300 area over a representative range of vadose zone thicknesses, lithologic composition, soil types, and recharge scenarios.

Attachments 1 contains the surface water and groundwater screening values for each soil type and representative column for the 300 area using the 100-0 source distribution assumption and irrigation case recharge.

Attachments 2 contains the surface water and groundwater PRGs for each soil type and representative column for the 300 area using the effective 100-0 source distribution assumption and base case recharge.

Attachment 3 presents the minimum surface water and groundwater screening values for the 100-0 source distribution and irrigation case recharge together with the distribution coefficient, regulatory standard for each COPC.

Attachment 4 presents the minimum surface water and groundwater PRGs for the effective 100-0 source distribution and base case recharge together with the distribution coefficient, regulatory standard for each COPC.

The PRG values resulting from the simulations and back-calculations are only intended to be applied to sites that share the same set of conditions and assumptions underpinning these calculations.

Some waste sites may require a more rigorous investigation of site specific conditions than those underlying the PRG values found in Attachments 1 to 4. Other simulations and back calculations may be necessary if the assumptions and conditions for a particular site do not match those used in these calculations.

6.2 PRG Sensitivity to Source Distribution

This sensitivity analysis focused on discerning the effects of different source distributions on PRGs. Using the base case recharge scenario, five new source distributions: 60-40, 70-30, 80-20, 90-10, and 50-50, were simulated and compared to the PRG values for the effective 100-0 source distribution already computed. A 60-40 source distribution indicates that the top 60% of the vadose zone thickness beneath the clean cover was contaminated with a uniform concentration of 1 mg/kg soil whereas the remaining 40% contained no contamination.

Figure 8 shows the PRG values of hexavalent chromium in surface water from the six source distributions for column 5 base case scenario with Burbank sandy loam soil. A waste site-specific PRG is the minimum value for all representative columns simulated for a particular waste site. As expected, step-wise decreases in the source volume from 100% to 50% of the vadose zone thickness beneath the clean cover yield decreasing peak groundwater concentrations and increasing PRG values. Although the source distribution decreased linearly from 100-0 to 50-50, the PRG values do not appear to follow a linearly increasing trend.

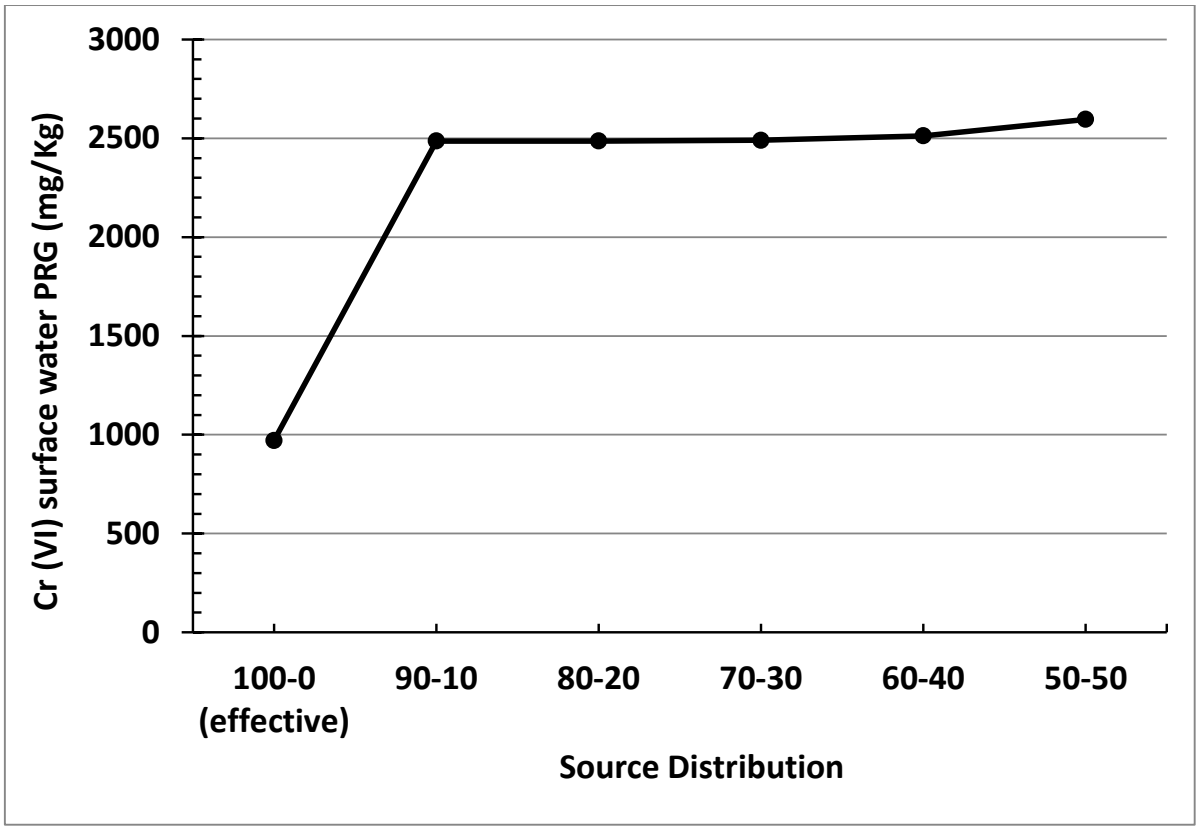

Figure 7. PRGs for Cr(VI) Protective of Surface Water for Different Source Distributions in Soil

6.3 Comparison between Patankar method and TVD method

The Patankar solution method can introduce numerical dispersion in to the solution, which can result in lower peak concentrations. The amount of numerical dispersion in the modeling results was minimized by adjusting the spatial and temporal discretization. A sensitivity simulation was conducted using the TVD solution method, which is supposed to introduce less numerical dispersion than the Patankar method. Figure 9 shows the comparison between these two methods. This case was run for Column 5 with effective 100-0 source distribution, base case recharge, and for the Burbank sandy loam soil. The results indicate that the overall peak concentration, which is of importance to the PRG determination, is not significantly different between these two methods.

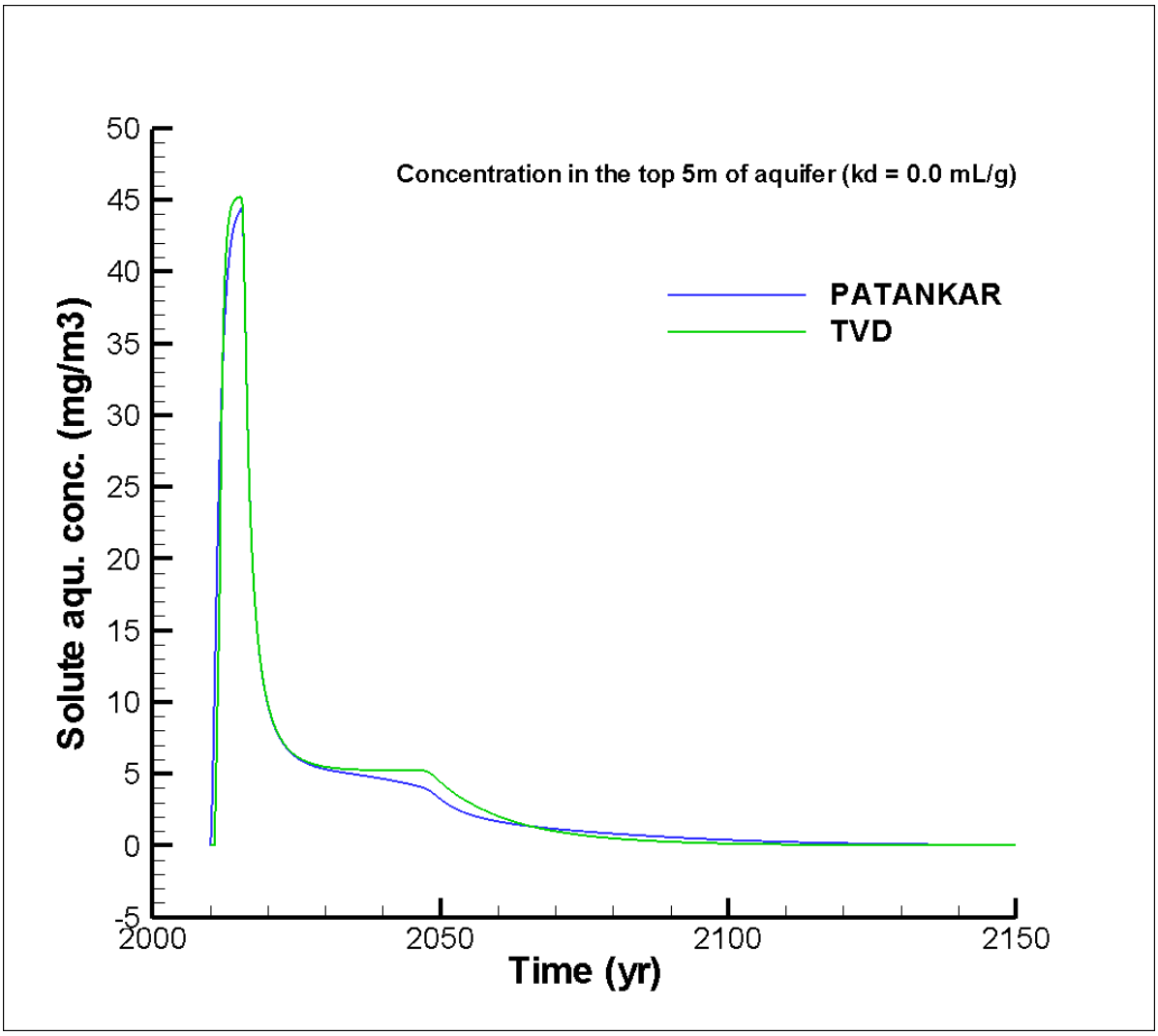

Figure 8. Comparison Between Patankar Method and TVD Method

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ECF-300FF5-11-0153, REV. 0

ECF-300FF5-11-0153, REV. 0

Attachment 1

Screening Values for 100-0 Source Distribution

ECF-300FF5-11-0153, REV. 0

Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

					GW_Screening (mg/kg)														
					Column 1			Column 2			Column 3			Column 4			Column 5		
CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Ground Water Standard (ug/L)	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	4.62E+02	4.50E+02	4.39E+02	4.19E+02	4.02E+02	3.92E+02	4.15E+02	4.03E+02	3.92E+02	4.16E+02	4.00E+02	3.91E+02	4.16E+02	4.05E+02	3.92E+02
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	3.35E-01	3.89E-01	3.52E-01	2.91E-01	2.82E-01	2.74E-01	2.87E-01	2.79E-01	2.71E-01	2.86E-01	2.78E-01	2.70E-01	2.86E-01	2.78E-01	2.70E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	1.14E+00	1.36E+00	1.22E+00	9.83E-01	9.52E-01	9.25E-01	9.67E-01	9.40E-01	9.14E-01	9.65E-01	9.39E-01	9.13E-01	9.65E-01	9.39E-01	9.12E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	1.94E+03	2.62E+03	2.40E+03	1.60E+03	1.56E+03	1.51E+03	1.57E+03	1.53E+03	1.49E+03	1.57E+03	1.53E+03	1.49E+03	1.57E+03	1.53E+03	1.49E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	9.51E+00	1.23E+01	1.07E+01	8.08E+00	7.84E+00	7.62E+00	7.94E+00	7.73E+00	7.51E+00	7.92E+00	7.72E+00	7.50E+00	7.92E+00	7.72E+00	7.50E+00
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	3.26E+01	3.13E+01	3.05E+01	3.25E+01	3.11E+01	3.03E+01	3.25E+01	3.09E+01	3.03E+01	3.24E+01	3.11E+01	3.03E+01	3.25E+01	3.11E+01	3.03E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	3.21E+03	3.10E+03	3.02E+03	3.09E+03	2.96E+03	2.89E+03	3.08E+03	2.95E+03	2.87E+03	3.08E+03	2.96E+03	2.87E+03	3.08E+03	2.97E+03	2.89E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	5.00E-01	6.61E-01	7.52E-01	3.91E-01	3.86E-01	3.72E-01	3.81E-01	3.73E-01	3.62E-01	3.80E-01	3.72E-01	3.61E-01	3.79E-01	3.72E-01	3.61E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene;1,2- (mixed isomers)	0.0396	7.2E+01	7.62E+01	1.01E+02	1.12E+02	6.01E+01	5.91E+01	5.70E+01	5.85E+01	5.72E+01	5.56E+01	5.83E+01	5.71E+01	5.54E+01	5.83E+01	5.71E+01	5.54E+01
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.39E+00	1.86E+00	1.83E+00	1.13E+00	1.10E+00	1.07E+00	1.10E+00	1.08E+00	1.04E+00	1.10E+00	1.07E+00	1.04E+00	1.10E+00	1.07E+00	1.04E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	6.77E+01	6.52E+01	6.35E+01	6.63E+01	6.35E+01	6.19E+01	6.62E+01	6.32E+01	6.17E+01	6.61E+01	6.35E+01	6.17E+01	6.61E+01	6.36E+01	6.19E+01
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	1.67E+04	1.60E+04	1.56E+04	1.66E+04	1.59E+04	1.55E+04	1.66E+04	1.58E+04	1.55E+04	1.66E+04	1.59E+04	1.55E+04	1.66E+04	1.59E+04	1.55E+04
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	4.0E+00	2.14E+01	2.06E+01	2.01E+01	2.06E+01	1.97E+01	1.92E+01	2.05E+01	1.97E+01	1.91E+01	2.05E+01	1.97E+01	1.91E+01	2.05E+01	1.98E+01	1.92E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	5.75E+01	5.61E+01	5.47E+01	5.24E+01	5.02E+01	4.90E+01	5.20E+01	5.04E+01	4.90E+01	5.21E+01	5.01E+01	4.90E+01	5.20E+01	5.06E+01	4.91E+01
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	5.10E+02	4.95E+02	4.82E+02	4.76E+02	4.56E+02	4.45E+02	4.73E+02	4.57E+02	4.44E+02	4.74E+02	4.56E+02	4.44E+02	4.72E+02	4.59E+02	4.45E+02
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	2.42E+01	2.29E+01	2.70E+01	1.13E+01	1.56E+01	1.79E+01	1.01E+01	1.16E+01	1.05E+01	9.94E+00	1.04E+01	9.84E+00	9.88E+00	1.01E+01	9.69E+00
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	4.90E-01	5.30E-01	4.71E-01	4.30E-01	4.20E-01	4.09E-01	4.29E-01	4.16E-01	4.04E-01	4.28E-01	4.16E-01	4.04E-01	4.28E-01	4.16E-01	4.04E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	2.25E+01	2.80E+01	2.48E+01	1.93E+01	1.87E+01	1.82E+01	1.90E+01	1.85E+01	1.79E+01	1.90E+01	1.84E+01	1.79E+01	1.89E+01	1.84E+01	1.79E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	3.64E+03	3.80E+03	4.48E+03	1.93E+03	2.69E+03	2.48E+03	1.78E+03	1.88E+03	1.77E+03	1.76E+03	1.78E+03	1.71E+03	1.75E+03	1.76E+03	1.70E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	2.46E+04	2.36E+04	2.30E+04	2.46E+04	2.36E+04	2.29E+04	2.46E+04	2.34E+04	2.30E+04	2.45E+04	2.36E+04	2.30E+04	2.46E+04	2.36E+04	2.29E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	2.18E+02	2.11E+02	2.05E+02	2.11E+02	2.02E+02	1.97E+02	2.10E+02	2.01E+02	1.96E+02	2.10E+02	2.02E+02	1.96E+02	2.10E+02	2.02E+02	1.97E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	3.27E+01	3.89E+01	4.59E+01	2.11E+01	2.42E+01	2.18E+01	2.01E+01	2.00E+01	1.93E+01	1.99E+01	1.98E+01	1.92E+01	1.99E+01	1.98E+01	1.91E+01
91-57-6	2-Methylnaphthalene	methylnaphthalene;2-	2.98	3.2E+01	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.17E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	2.42E+03	2.33E+03	2.27E+03	2.34E+03	2.24E+03	2.19E+03	2.33E+03	2.24E+03	2.18E+03	2.33E+03	2.24E+03	2.17E+03	2.33E+03	2.25E+03	2.19E+03
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	1.93E+02	2.61E+02	2.40E+02	1.60E+02	1.56E+02	1.51E+02	1.56E+02	1.53E+02	1.48E+02	1.56E+02	1.52E+02	1.48E+02	1.56E+02	1.52E+02	1.48E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.89E+00	1.82E+00	1.77E+00	1.86E+00	1.78E+00	1.74E+00	1.86E+00	1.77E+00	1.73E+00	1.85E+00	1.78E+00	1.73E+00	1.86E+00	1.78E+00	1.73E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	4.98E+00	6.72E+00	6.25E+00	4.10E+00	4.00E+00	3.88E+00	4.02E+00	3.92E+00	3.81E+00	4.01E+00	3.91E+00	3.80E+00	4.00E+00	3.91E+00	3.80E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	2.12E+02	2.03E+02	1.98E+02	2.14E+02	2.05E+02	1.99E+02	2.14E+02	2.03E+02	2.00E+02	2.13E+02	2.05E+02	2.00E+02	2.14E+02	2.05E+02	1.99E+02
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	2.83E+02	2.71E+02	2.64E+02	2.84E+02	2.73E+02	2.65E+02	2.85E+02	2.71E+02	2.66E+02	2.84E+02	2.73E+02	2.66E+02	2.85E+02	2.72E+02	2.65E+02
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	2.32E+03	2.12E+03	2.07E+03	2.34E+03	2.14E+03	2.08E+03	2.34E+03	2.12E+03	2.08E+03	2.33E+03	2.14E+03	2.08E+03	2.33E+03	2.14E+03	2.08E+03
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	1.05E+01	1.01E+01	9.81E+00	1.02E+01	9.81E+00	9.55E+00	1.02E+01	9.76E+00	9.53E+00	1.02E+01	9.80E+00	9.53E+00	1.02E+01	9.83E+00	9.55E+00
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	1.08E+04	1.05E+04	1.02E+04	1.05E+04	1.01E+04	9.85E+03	1.05E+04	1.01E+04	9.81E+03	1.05E+04	1.01E+04	9.81E+03	1.05E+04	1.01E+04	9.85E+03
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	3.17E-01	3.85E-01	3.43E-01	2.73E-01	2.65E-01	2.57E-01	2.69E-01	2.61E-01	2.54E-01	2.68E-01	2.61E-01	2.54E-01	2.68E-01	2.61E-01	2.54E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	5.12E+02	5.96E+02	7.03E+02	3.19E+02	3.83E+02	3.40E+02	3.02E+02	3.03E+02	2.92E+02	3.00E+02	2.98E+02	2.89E+02	2.99E+02	2.98E+02	2.88E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	2.42E+02	2.33E+02	2.27E+02	2.34E+02	2.24E+02	2.19E+02	2.33E+02	2.24E+02	2.18E+02	2.33E+02	2.24E+02	2.17E+02	2.33E+02	2.25E+02	2.19E+02
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	5.23E+00	7.05E+00	6.57E+00	4.31E+00	4.20E+00	4.07E+00	4.22E+00	4.12E+00	4.00E+00	4.21E+00	4.11E+00	3.99E+00	4.20E+00	4.11E+00	3.99E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	5.52E+02	5.52E+02	5.37E+02	5.45E+02	5.09E+02	5.22E+02	5.70E+02	5.22E+02	5.05E+02	5.42E+02	5.21E+02	5.06E+02	5.40E+02	5.24E+02	5.09E+02
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	7.52E+04	7.21E+04	7.02E+04	7.54E+04	7.23E+04	7.04E+04	7.54E+04	7.18E+04	7.04E+04	7.53E+04	7.23E+04	7.04E+04	7.54E+04	7.23E+04	7.03E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	5.43E+03	5.22E+03	6.15E+03	2.57E+03	3.57E+03	3.96E+03	2.32E+03	2.62E+03	2.39E+03	2.29E+03	2.37E+03	2.26E+03	2.28E+03	2.32E+03	2.23E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	1.59E+00	1.53E+00	1.49E+00	1.60E+00	1.54E+00	1.50E+00	1.60E+00	1.53E+00	1.50E+00	1.60E+00	1.54E+00	1.50E+00	1.60E+00	1.54E+00	1.49E+00
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	3.18E-01	3.05E-01	2.97E-01	3.17E-01	3.04E-01	2.96E-01	3.17E-01	3.02E-01	2.96E-01	3.16E-01	3.04E-01	2.96E-01	3.17E-01	3.04E-01	2.95E-01
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	1.62E+02	1.55E+02	1.51E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.55E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	2.98E+02	2.78E+02	2.78E+02	2.90E+02	2.78E+02	2.71E+02	2.90E+02	2.76E+02	2.71E+02	2.90E+02	2.78E+02	2.71E+02	2.90E+02	2.78E+02	2.71E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	6.80E+02	6.52E+02	6.34E+02	6.84E+02	6.56E+02	6.38E+02	6.85E+02	6.51E+02	6.39E+02	6.83E+02	6.56E+02	6.39E+02	6.85E+02	6.56E+02	6.38E+02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	5.75E+00	5.51E+00	5.37E+00	5.77E+00	5.53E+00	5.39E+00	5.78E+00	5.50E+00	5.40E+00	5.76E+00	5.54E+00	5.40E+00	5.78E+00	5.53E+00	5.38E+00
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	5.75E+00	5.51E+00	5.37E+00	5.77E+00	5.53E+00	5.39E+00	5.78E+00	5.50E+00	5.40E+00	5.76E+00	5.54E+00	5.40E+00	5.78E+00	5.53E+00	5.38E+00
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	2.49E+01	2.39E+01	2.33E+01	2.51E+01	2.40E+01	2.34E+01	2.51E+01	2.39E+01	2.34E+01	2.50E+01	2.40E+01	2.34E+01	2.51E+01	2.40E+01	2.34E+01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	2.44E+01	2.34E+01	2.28E+01	2.46E+01	2.35E+01	2.29E+01	2.46E+01	2.34E+01	2.30E+01	2.45E+01	2.36E+01	2.30E+01	2.46E+01	2.35E+01	2.29E+01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	4.21E+01	4.03E+01	3.92E+01	4.23E+01	4.05E+01	3.95E+01	4.23E+01	4.02E+01	3.95E+01	4.22E+01	4.06E+01	3.95E+01	4.23E+01	4.05E+01	3.94E+01
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	4.57E+02	4.38E+02	4.26E+02	4.60E+02	4.41E+02	4.29E+02	4.60E+02	4.37E+02	4.30E+02	4.59E+02	4.41E+02	4.30E+02	4.60E+02	4.41E+02	4.29E+02
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	2.26E+00	2.16E+00	2.11E+00	2.25E+00	2.16E+00	2.10E+00	2.26E+00	2.15E+00	2.11E+00	2.25E+00	2.16E+00	2.11E+00	2.26E+00	2.16E+00	2.10E+00
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	1.05E+00	1.39E+00	1.21E+00	8.88E-01	8.62E-01	8.37E-01	8.71E-01	8.49E-01	8.24E-01	8.70E-01	8.48E-01	8.23E-01	8.69E-01	8.47E-01	8.23E-01
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	5.49E+02	5.25E+02	5.12E+02	5.52E+02	5.29E+02	5.15E+02	5.52E+02	5.25E+02	5.16E+02	5.51E+02	5.29E+02	5.16E+02	5.52E+02	5.29E+02	5.14E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	8.38E+02	8.03E+02	7.81E+02	8.43E+02	8.08E+02	7.86E+02	8.43E+02	8.02E+02	7.88E+02	8.41E+02	8.08E+02	7.88E+02	8.44E+02	8.08E+02	7.86E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	1.22E+03	1.17E+03	1.14E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.17E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	1.87E+03	1.79E+03	1.75E+03	1.88E+03	1.81E+03	1.76E+03	1.89E+03	1.79E+03	1.76E+03	1.88E+03	1.81E+03	1.76E+03	1.89E+03	1.81E+03	1.76E+03
7440-41-7	Beryllium	beryllium	790	4.0E+00	4.02E+04	3.85E+04	3.75E+04	4.04E+04	3.87E+04	3.77E+04	4.04E+04	3.84E+04	3.78E+04	4.03E+04	3.87E+04	3.78E+04	4.04E+04	3.87E+04	3.77E+04
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	1.35E+00	1.29E+00	1.26E+00	1.34E+00	1.29E+00	1.26E+00	1.34E+00	1.28E+00	1.26E+00	1.34E+00	1.29E+00	1.26E+00	1.34E+00	1.29E+00	1.25E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	6.59E-01	8.72E-01	9.70E-01	5.18E-01	5.10E-01	4.92E-01	5.05E-01	4.94E-01	4.79E-01	5.03E-01	4.93E-01	4.78E-01	5.03E-01	4.93E-01	4.78E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxy)methane	0.00277	4.8E+01	3.63E+01	3.66E+01	4.31E+01	1.84E+01	2.56E+01	2.53E+01	1.68E+01	1.81E+01	1.69E+01	1.66E+01	1.69E+01	1.62E+01	1.65E+01	1.67E+01	1.61E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	5.94E-02	7.04E-02	6.33E-02	5.14E-02	4.98E-02	4.84E-02	5.06E-02	4.92E-02	4.78E-02	5.05E-02	4.91E-02	4.78E-02	5.05E-02	4.91E-02	4.77E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	8.39E+03	8.04E+03	7.83E+03	8.44E+03	8.09E+03	7.88E+03	8.45E+03	8.03E+03	7.89E+03	8.42E+03	8.09E+03	7.89E+03	8.45E+03	8.09E+03	7.87E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	3.2E+03	1.24E+05	1.19E+05	1.16E+05	1.24E+05	1.19E+05	1.15E+05	1.24E+05	1.18E+05	1.16E+05	1.23E+05	1.19E+05	1.16E+05	1.24E+05	1.19E+05	1.15E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	8.73E-01	1.18E+00	1.06E+00	7.26E-01	7.06E-01	6.85E-01	7.11E-01	6.93E-01	6.73E-01	7.09E-01	6.92E-01	6.72E-01	7.09E-01	6.92E-01	6.72E-01
75-25-2	Bromoform	bromoform	0.13	5.5E+00	1.21E+01	1.18E+01	1.15E+01	1.09E+01	1.04E+01	1.02E+01	1.08E+01	1.05E+01	1.02E+01	1.08E+01	1.05E+01	1.02E+01	1.08E+01	1.05E+01	1.02E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	8.71E+00	9.73E+00	1.15E+01	5.10E+00	6.75E+00	5.77E+00	4.78E+00	4.86E+00	4.65E+00	4.74E+00	4.74E+00	4.58E+00	4.73E+00	4.72E+00	4.57E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	8.10E+03	7.76E+03	7.56E+03	8.14E+03	7.80E+03	7.60E+03	8.14E+03	7.74E+03	7.61E+03	8.12E+03	7.80E+03	7.61E+03	8.15E+03	7.80E+03	7.59E+03
7440-43-9	Cadmium	cadmium	30	5.0E+00	1.91E+03	1.83E+03	1.78E+03	1.92E+03	1.84E+03	1.79E+03	1.92E+03	1.83E+03	1.79E+03	1.92E+03	1.84E+03	1.79E+03	1.92E+03	1.84E+03	1.79E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	1.91E+02	1.83E+02	1.78E+02	1.91E+02	1.83E+02	1.78E+02	1.91E+02	1.82E+02	1.78E+02	1.91E+02	1.83E+02	1.78E+02	1.91E+02	1.83E+02	1.78E+02
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	9.05E+02	1.21E+03	1.21E+03	7.32E+02	7.15E+02	6.93E+02	7.15E+02	6.99E+02	6.78E+02	7.13E+02	6.97E+02	6.77E+02	7.13E+02	6.97E+02	6.77E+02
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	8.28E-01	8.07E-01	7.87E-01	7.56E-01	7.25E-01	7.07E-01	7.50E-01	7.27E-01	7.07E-01	7.52E-01	7.23E-01	7.06E-01	7.51E-01	7.30E-01	7.08E-01
57-74-9	Chlordane	chlordane	51	2.5E-01	1.62E+02	1.55E+02	1.51E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.55E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02
16887-00-6	Chloride	chloride	0	2.5E+05	1.89E+05	1.79E+05	2.11E+05	8.81E+04	1.22E+05	1.40E+05	7.89E+04	9.02E+04	8.19E+04	7.76E+04	8.09E+04	7.68E+04	7.71E+04	7.87E+04	7.56E+04
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	3.32E+02	3.23E+02	3.14E+02	3.12E+02	2.99E+02	2.91E+02	3.10E+02	2.99E+02	2.91E+02	3.10E+02	2.98E+02	2.90E+02	3.09E+02	3.00E+02	2.91E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

67-66-3	Chloroform	chloroform	0.053	1.4E+00	1.71E+00	2.31E+00	2.12E+00	1.42E+00	1.38E+00	1.34E+00	1.39E+00	1.35E+00	1.31E+00	1.38E+00	1.35E+00	1.31E+00	1.38E+00	1.35E+00	1.31E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	2.54E+05	2.44E+05	2.37E+05	2.56E+05	2.45E+05	2.39E+05	2.56E+05	2.43E+05	2.39E+05	2.55E+05	2.45E+05	2.39E+05	2.56E+05	2.45E+05	2.38E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	3.05E+03	2.92E+03	2.84E+03	3.07E+03	2.94E+03	2.86E+03	3.07E+03	2.92E+03	2.86E+03	3.06E+03	2.94E+03	2.86E+03	3.07E+03	2.94E+03	2.86E+03
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	7.13E+01	9.37E+01	1.11E+02	5.52E+01	5.46E+01	5.26E+01	5.37E+01	5.26E+01	5.10E+01	5.35E+01	5.25E+01	5.09E+01	5.35E+01	5.25E+01	5.09E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	4.05E-01	5.17E-01	6.11E-01	2.96E-01	3.02E-01	2.86E-01	2.86E-01	2.81E-01	2.73E-01	2.85E-01	2.80E-01	2.72E-01	2.84E-01	2.80E-01	2.72E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	3.05E+03	2.92E+03	2.85E+03	3.07E+03	2.94E+03	2.86E+03	3.07E+03	2.92E+03	2.87E+03	3.06E+03	2.94E+03	2.87E+03	3.07E+03	2.94E+03	2.86E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	6.4E+02	1.79E+05	1.72E+05	1.67E+05	1.80E+05	1.73E+05	1.68E+05	1.80E+05	1.71E+05	1.68E+05	1.80E+05	1.73E+05	1.68E+05	1.80E+05	1.73E+05	1.68E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	2.53E+04	2.42E+04	2.36E+04	2.54E+04	2.43E+04	2.37E+04	2.54E+04	2.41E+04	2.37E+04	2.53E+04	2.43E+04	2.37E+04	2.54E+04	2.43E+04	2.37E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	2.73E+03	2.61E+03	2.54E+03	2.74E+03	2.63E+03	2.56E+03	2.75E+03	2.61E+03	2.56E+03	2.74E+03	2.63E+03	2.56E+03	2.75E+03	2.63E+03	2.56E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E-01	2.31E+03	2.21E+03	2.15E+03	2.32E+03	2.22E+03	2.16E+03	2.32E+03	2.20E+03	2.16E+03	2.31E+03	2.22E+03	2.16E+03	2.32E+03	2.22E+03	2.16E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	6.94E-01	9.12E-01	7.93E-01	5.88E-01	5.70E-01	5.54E-01	5.77E-01	5.62E-01	5.46E-01	5.76E-01	5.61E-01	5.45E-01	5.76E-01	5.61E-01	5.45E-01
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	1.78E+00	1.71E+00	1.66E+00	1.79E+00	1.72E+00	1.67E+00	1.79E+00	1.70E+00	1.67E+00	1.79E+00	1.72E+00	1.67E+00	1.79E+00	1.72E+00	1.67E+00
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	2.01E+04	2.30E+04	2.09E+04	1.75E+04	1.70E+04	1.65E+04	1.73E+04	1.68E+04	1.63E+04	1.72E+04	1.67E+04	1.63E+04	1.72E+04	1.67E+04	1.63E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.28E+04	3.15E+04	3.06E+04	3.26E+04	3.12E+04	3.04E+04	3.26E+04	3.11E+04	3.04E+04	3.25E+04	3.12E+04	3.04E+04	3.26E+04	3.13E+04	3.04E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	2.54E+03	2.44E+03	2.37E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.41E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	2.54E+03	2.44E+03	2.37E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.41E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	2.76E+02	2.64E+02	2.57E+02	2.77E+02	2.65E+02	2.58E+02	2.77E+02	2.63E+02	2.59E+02	2.76E+02	2.65E+02	2.59E+02	2.77E+02	2.65E+02	2.58E+02
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	1.22E+01	1.19E+01	1.16E+01	1.14E+01	1.10E+01	1.06E+01	1.13E+01	1.09E+01	1.06E+01	1.13E+01	1.09E+01	1.06E+01	1.13E+01	1.10E+01	1.06E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.88E+05	3.83E+05	3.73E+05	3.88E+05	3.85E+05	3.75E+05	3.88E+05	3.82E+05	3.76E+05	3.88E+05	3.85E+05	3.76E+05	3.88E+05	3.85E+05	3.75E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	6.31E+04	6.04E+04	5.88E+04	6.33E+04	6.07E+04	5.91E+04	6.33E+04	6.02E+04	5.91E+04	6.32E+04	6.07E+04	5.91E+04	6.33E+04	6.06E+04	5.90E+04
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	1.41E+00	1.35E+00	1.32E+00	1.40E+00	1.34E+00	1.30E+00	1.40E+00	1.33E+00	1.30E+00	1.39E+00	1.34E+00	1.30E+00	1.40E+00	1.34E+00	1.30E+00
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	2.37E+00	2.27E+00	2.21E+00	2.37E+00	2.28E+00	2.22E+00	2.38E+00	2.26E+00	2.22E+00	2.37E+00	2.28E+00	2.22E+00	2.38E+00	2.28E+00	2.22E+00
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	5.09E+00	4.87E+00	4.74E+00	5.12E+00	4.90E+00	4.77E+00	5.12E+00	4.87E+00	4.78E+00	5.11E+00	4.90E+00	4.78E+00	5.12E+00	4.90E+00	4.77E+00
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	5.56E+01	5.33E+01	5.19E+01	5.59E+01	5.36E+01	5.22E+01	5.60E+01	5.32E+01	5.23E+01	5.58E+01	5.36E+01	5.23E+01	5.60E+01	5.36E+01	5.22E+01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	3.83E+02	3.67E+02	3.57E+02	3.85E+02	3.69E+02	3.59E+02	3.86E+02	3.67E+02	3.60E+02	3.85E+02	3.69E+02	3.60E+02	3.86E+02	3.69E+02	3.59E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	1.22E+05	1.17E+05	1.14E+05	1.23E+05	1.18E+05	1.15E+05	1.23E+05	1.17E+05	1.15E+05	1.23E+05	1.18E+05	1.15E+05	1.23E+05	1.18E+05	1.14E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	7.24E+01	6.94E+01	6.76E+01	7.21E+01	6.73E+01	6.71E+01	7.21E+01	6.86E+01	6.73E+01	7.19E+01	6.91E+01	6.73E+01	7.21E+01	6.91E+01	6.72E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	5.13E+02	4.94E+02	4.81E+02	5.05E+02	4.85E+02	4.72E+02	5.05E+02	4.82E+02	4.71E+02	5.04E+02	4.84E+02	4.71E+02	5.05E+02	4.85E+02	4.72E+02
193-39-5	Indeno[1,2,3-cd]pyrene	Indeno[1,2,3-cd]pyrene	3470	1.2E-01	5.29E+03	5.06E+03	4.93E+03	5.32E+03	5.10E+03	4.96E+03	5.32E+03	5.06E+03	4.97E+03	5.31E+03	5.10E+03	4.97E+03	5.32E+03	5.10E+03	4.96E+03
7439-89-6	Iron	Iron	25	3.0E+02	9.55E+04	9.15E+04	8.91E+04	9.60E+04	9.20E+04	8.96E+04	9.60E+04	9.13E+04	8.97E+04	9.58E+04	9.20E+04	8.97E+04	9.61E+04	9.20E+04	8.95E+04
78-59-1	Isophorone	isophorone	0.04668	4.6E+01	7.04E+01	6.95E+01	6.95E+01	4.26E+01	4.03E+01	4.16E+01	4.16E+01	4.06E+01	3.95E+01	4.15E+01	4.06E+01	3.94E+01	4.15E+01	4.06E+01	3.94E+01
7439-92-1	Lead	lead	30	1.5E+01	5.73E+03	5.49E+03	5.34E+03	5.76E+03	5.52E+03	5.37E+03	5.76E+03	5.48E+03	5.38E+03	5.75E+03	5.52E+03	5.38E+03	5.76E+03	5.52E+03	5.37E+03
7439-93-2	Lithium	Lithium	50	3.2E+01	2.04E+04	1.95E+04	1.90E+04	2.05E+04	1.96E+04	1.91E+04	2.05E+04	1.95E+04	1.91E+04	2.04E+04	1.96E+04	1.91E+04	2.05E+04	1.96E+04	1.91E+04
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.18E+04	3.05E+04	2.97E+04	3.20E+04	3.06E+04	2.98E+04	3.20E+04	3.04E+04	2.99E+04	3.19E+04	3.07E+04	2.99E+04	3.20E+04	3.06E+04	2.98E+04
7439-97-6	Mercury	mercury	30	2.0E+00	7.32E+02	7.12E+02	7.68E+02	7.36E+02	7.16E+02	7.68E+02	7.30E+02	7.17E+02	7.17E+02	7.66E+02	7.30E+02	7.17E+02	7.68E+02	7.36E+02	7.16E+02
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	4.07E+04	3.90E+04	3.80E+04	4.09E+04	3.92E+04	3.82E+04	4.10E+04	3.89E+04	3.82E+04	4.09E+04	3.92E+04	3.82E+04	4.10E+04	3.92E+04	3.82E+04
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	3.92E+00	4.43E+00	5.23E+00	2.34E+00	3.00E+00	2.59E+00	2.20E+00	2.22E+00	2.13E+00	2.18E+00	2.18E+00	2.10E+00	2.17E+00	2.17E+00	2.10E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	2.04E+04	1.95E+04	1.90E+04	2.05E+04	1.96E+04	1.91E+04	2.05E+04	1.95E+04	1.91E+04	2.04E+04	1.96E+04	1.91E+04	2.05E+04	1.96E+04	1.91E+04
108-38-3	m-Xylene, m-	Xylene, m-	0.2	1.6E+03	4.77E+03	4.65E+03	4.58E+03	4.41E+03	4.28E+03	4.55E+03	4.39E+03	4.27E+03	4.55E+03	4.38E+03	4.27E+03	4.54E+03	4.41E+03	4.28E+03
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	2.50E+03	2.41E+03	2.34E+03	2.48E+03	2.38E+03	2.32E+03	2.48E+03	2.37E+03	2.32E+03	2.48E+03	2.38E+03	2.32E+03	2.48E+03	2.38E+03	2.32E+03
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	8.27E+04	7.92E+04	7.71E+04	8.31E+04	7.97E+04	7.76E+04	8.32E+04	7.91E+04	7.77E+04	8.30E+04	7.97E+04	7.77E+04	8.32E+04	7.97E+04	7.75E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	3.40E+04	3.21E+04	3.79E+04	1.59E+04	2.19E+04	2.52E+04	1.42E+04	1.62E+04	1.47E+04	1.40E+04	1.46E+04	1.38E+04	1.39E+04	1.42E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	2.49E+03	2.36E+03	2.78E+03	1.16E+03	1.61E+03	1.85E+03	1.04E+03	1.19E+03	1.08E+03	1.02E+03	1.07E+03	1.01E+03	1.02E+03	1.04E+03	9.98E+02
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	3.26E+01	3.19E+01	3.11E+01	2.92E+01	2.84E+01	2.76E+01	2.91E+01	2.81E+01	2.74E+01	2.90E+01	2.81E+01	2.74E+01	2.90E+01	2.81E+01	2.73E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	7.54E+02	7.14E+02	8.42E+02	3.53E+02	4.87E+02	5.60E+02	3.15E+02	3.61E+02	3.28E+02	3.10E+02	3.24E+02	3.07E+02	3.09E+02	3.15E+02	3.03E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	1.12E-02	1.41E-02	1.67E-02	7.99E-03	8.27E-03	7.80E-03	7.69E-03	7.59E-03	7.35E-03	7.66E-03	7.55E-03	7.32E-03	7.65E-03	7.55E-03	7.31E-03
86-30-6	n-Nitrosodiphenylamine	n-Nitrosodiphenylamine;N-	1.29	1.8E+01	3.02E+02	2.90E+02	2.83E+02	3.00E+02	2.87E+02	2.80E+02	3.00E+02	2.86E+02	2.80E+02	2.99E+02	2.87E+02	2.80E+02	3.00E+02	2.88E+02	2.80E+02
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	5.73E+03	5.55E+03	5.41E+03	5.40E+03	5.17E+03	5.04E+03	5.37E+03	5.17E+03	5.03E+03	5.37E+03	5.16E+03	5.02E+03	5.35E+03	5.20E+03	5.04E+03
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	5.87E+00	5.65E+00	5.51E+00	5.74E+00	5.50E+00	5.36E+00	5.73E+00	5.48E+00	5.34E+00	5.72E+00	5.50E+00	5.34E+00	5.73E+00	5.51E+00	5.36E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	2.26E+03	2.91E+03	3.44E+03	1.68E+03	1.69E+03	1.62E+03	1.62E+03	1.59E+03	1.55E+03	1.62E+03	1.59E+03	1.54E+03	1.61E+03	1.59E+03	1.54E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	7.20E+00	6.91E+00	6.72E+00	7.21E+00	6.91E+00	6.73E+00	7.21E+00	6.86E+00	6.73E+00	7.19E+00	6.91E+00	6.73E+00	7.21E+00	6.91E+00	6.72E+00
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05	3.88E+05	3.87E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	3.20E+03	3.07E+03	2.99E+03	3.21E+03	3.08E+03	3.00E+03	3.21E+03	3.06E+03	3.00E+03	3.21E+03	3.08E+03	3.00E+03	3.21E+03	3.08E+03	2.99E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	8.0E+01	9.16E+04	8.77E+04	8.54E+04	9.21E+04	8.83E+04	8.59E+04	9.21E+04	8.76E+04	8.60E+04	9.19E+04	8.83E+04	8.60E+04	9.22E+04	8.82E+04	8.58E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	1.21E+03	1.16E+03	1.13E+03	1.19E+03	1.14E+03	1.11E+03	1.19E+03	1.14E+03	1.11E+03	1.19E+03	1.14E+03	1.11E+03	1.19E+03	1.15E+03	1.11E+03
14808-79-8	Sulfate	sulfate	0	2.5E+05	1.89E+05	1.79E+05	2.11E+05	8.81E+04	1.22E+05	1.40E+05	7.89E+04	9.02E+04	8.19E+04	7.76E+04	8.09E+04	7.68E+04	7.71E+04	7.87E+04	7.56E+04
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	3.21E-01	3.11E-01	3.03E-01	3.04E-01	2.92E-01	2.84E-01	3.03E-01	2.91E-01	2.82E-01	3.03E-01	2.91E-01	2.83E-01	3.02E-01	2.93E-01	2.84E-01
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	4.52E+02	4.32E+02	4.21E+02	4.54E+02	4.35E+02	4.24E+02	4.54E+02	4.32E+02	4.24E+02	4.53E+02	4.35E+02	4.24E+02	4.54E+02	4.35E+02	4.23E+02
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	1.48E+03	1.44E+03	1.41E+03	1.34E+03	1.28E+03	1.25E+03	1.33E+03	1.29E+03	1.25E+03	1.33E+03	1.28E+03	1.25E+03	1.33E+03	1.29E+03	1.25E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHJOIL	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	9.69E+01	9.28E+01	9.04E+01	9.74E+01	9.34E+01	9.09E+01	9.75E+01	9.27E+01	9.11E+01	9.73E+01	9.34E+01	9.11E+01	9.75E+01	9.34E+01	9.09E+01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	1.04E+02	1.37E+02	1.56E+02	8.14E+01	8.02E+01	7.74E+01	7.92E+01	7.76E+01	7.53E+01	7.90E+01	7.74E+01	7.51E+01	7.89E+01	7.74E+01	7.51E+01
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	4.05E-01	5.17E-01	6.11E-01	2.96E-01	3.02E-01	2.86E-01	2.86E-01	2.81E-01	2.73E-01	2.85E-01	2.80E-01	2.72E-01	2.84E-01	2.80E-01	2.72E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	8.44E-01	9.17E-01	8.50E-01	7.47E-01	7.23E-01	7.03E-01	7.38E-01	7.16E-01	6.96E-01	7.37E-01	7.15E-01	6.95E-01	7.36E-01	7.15E-01	6.95E-01
7440-62-2	Vanadium	vanadium	1000	8.0E-01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	5.17E-02	6.34E-02	7.48E-02	3.51E-02	3.80E-02	3.51E-02	3.36E-02	3.33E-02	3.22E-02	3.34E-02	3.30E-02	3.20E-02	3.34E-02	3.30E-02	3.20E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	5.52E+03	5.36E+03	5.22E+03	5.19E+03	4.98E+03	4.85E+03	5.16E+03	4.98E+03	4.84E+03	5.17E+03	4.97E+03	4.83E+03	5.15E+03	5.00E+03	4.85E+03
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16,000	1.21E+04	1.17E+04	1.38E+04	5.81E+03	8.05E+03	8.71E+03	5.24E+03	5.85E+03	5.37E+03	5.16E+03	5.34E+03	5.09E+03	5.14E+03	5.22E+03	5.03E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	2.34E+02	2.24E+02	2.18E+02	2.33E+02	2.23E+02	2.17E+02	2.33E+02	2.22E+02	2.17E+02	2.32E+02	2.23E+02	2.17E+02	2.33E+02	2.23E+02	2.17E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	6.03E+02	5.85E+02	6.90E+02	2.90E+02	4.02E+02	4.36E+02	2.62E+02	2.93E+02	2.69E+02	2.58E+02	2.67E+02	2.54E+02	2.57E+02	2.61E+02	2.51E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	1.25E+03	1.41E+03	1.66E+03	7.42E+02	9.61E+02	8.28E+02	6.97E+02	7.06E+02	6.77E+02	6.91E+02	6.91E+02	6.67E+02	6.89E+02	6.88E+02	6.66E+02
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	2.65E+03	3.53E+03	3.66E+03	2.13E+03	2.08E+03	2.02E+03	2.08E+03	2.03E+03	1.97E+03	2.07E+03	2.03E+03	1.97E+03	2.07E+03	2.02E+03	1.97E+03

Summary of Concentrations Protective of Surface Water Calculated with STOMP based on five sets of different Vadose Zone depths

					SW_Screening (mg/kg)														
					Column 1			Column 2			Column 3			Column 4			Column 5		
CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	100 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Surface Water Standard (ug/L)	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	2.60E-01	3.03E-01	2.74E-01	2.26E-01	2.19E-01	2.13E-01	2.23E-01	2.16E-01	2.10E-01	2.22E-01	2.16E-01	2.10E-01	2.22E-01	2.16E-01	2.10E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	8.73E-01	1.04E+00	9.35E-01	7.55E-01	7.32E-01	7.11E-01	7.43E-01	7.23E-01	7.02E-01	7.42E-01	7.22E-01	7.01E-01	7.42E-01	7.22E-01	7.01E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	8.92E+04	1.20E+05	1.10E+05	7.37E+04	7.17E+04	6.96E+04	7.22E+04	7.04E+04	6.84E+04	7.20E+04	7.03E+04	6.83E+04	7.20E+04	7.03E+04	6.83E+04
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	7.74E-02	9.98E-02	8.73E-02	6.58E-02	6.38E-02	6.20E-02	6.46E-02	6.29E-02	6.11E-02	6.45E-02	6.29E-02	6.11E-02	6.45E-02	6.28E-02	6.10E-02
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	4.24E+01	4.07E+01	3.96E+01	4.22E+01	4.05E+01	3.94E+01	4.22E+01	4.02E+01	3.94E+01	4.21E+01	4.05E+01	3.94E+01	4.22E+01	4.05E+01	3.94E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	2.25E+03	2.17E+03	2.11E+03	2.16E+03	2.07E+03	2.02E+03	2.16E+03	2.07E+03	2.01E+03	2.15E+03	2.07E+03	2.01E+03	2.16E+03	2.08E+03	2.02E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	3.95E-01	5.22E-01	5.94E-01	3.09E-01	3.05E-01	2.94E-01	3.01E-01	2.95E-01	2.86E-01	3.00E-01	2.94E-01	2.85E-01	3.00E-01	2.94E-01	2.85E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	2.22E+03	2.95E+03	3.26E+03	1.75E+03	1.72E+03	1.66E+03	1.71E+03	1.67E+03	1.62E+03	1.70E+03	1.67E+03	1.62E+03	1.70E+03	1.67E+03	1.62E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	5.71E-01	7.66E-01	7.54E-01	4.64E-01	4.52E-01	4.38E-01	4.53E-01	4.42E-01	4.30E-01	4.52E-01	4.42E-01	4.29E-01	4.51E-01	4.42E-01	4.29E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3-	0.434	3.2E+02	1.93E+03	1.87E+03	1.82E+03	1.87E+03	1.80E+03	1.75E+03	1.87E+03	1.79E+03	1.74E+03	1.87E+03	1.79E+03	1.74E+03	1.87E+03	1.80E+03	1.75E+03
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	1.80E+02	1.74E+02	1.69E+02	1.77E+02	1.69E+02	1.65E+02	1.76E+02	1.68E+02	1.64E+02	1.76E+02	1.69E+02	1.64E+02	1.76E+02	1.70E+02	1.65E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	1.02E+04	9.74E+03	9.49E+03	1.01E+04	9.68E+03	9.42E+03	1.01E+04	9.62E+03	9.42E+03	1.01E+04	9.68E+03	9.42E+03	1.01E+04	9.68E+03	9.42E+03
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	1.4E+00	7.52E+00	7.26E+00	7.07E+00	7.24E+00	6.95E+00	6.77E+00	7.22E+00	6.93E+00	6.73E+00	7.22E+00	6.94E+00	6.73E+00	7.22E+00	6.97E+00	6.77E+00
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E-01	1.85E+02	1.80E+02	1.75E+02	1.68E+02	1.61E+02	1.57E+02	1.67E+02	1.62E+02	1.57E+02	1.67E+02	1.61E+02	1.57E+02	1.67E+02	1.62E+02	1.57E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	1.21E+03	1.18E+03	1.15E+03	1.13E+03	1.08E+03	1.06E+03	1.12E+03	1.08E+03	1.06E+03	1.13E+03	1.08E+03	1.05E+03	1.12E+03	1.09E+03	1.06E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	5.21E+01	4.93E+01	5.82E+01	2.43E+01	3.36E+01	3.87E+01	2.18E+01	2.49E+01	2.26E+01	2.14E+01	2.24E+01	2.12E+01	2.13E+01	2.17E+01	2.09E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	1.91E-01	2.06E-01	1.83E-01	1.68E-01	1.64E-01	1.59E-01	1.67E-01	1.62E-01	1.58E-01	1.67E-01	1.62E-01	1.57E-01	1.67E-01	1.62E-01	1.57E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	1.66E+02	2.06E+02	1.83E+02	1.42E+02	1.38E+02	1.34E+02	1.40E+02	1.36E+02	1.32E+02	1.40E+02	1.36E+02	1.32E+02	1.40E+02	1.36E+02	1.32E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK); 2-butanone)	0.00451	4.9E+05	3.73E+05	3.88E+05	3.88E+05	1.98E+05	2.76E+05	2.54E+05	1.83E+05	1.93E+05	1.81E+05	1.81E+05	1.83E+05	1.76E+05	1.80E+05	1.81E+05	1.75E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.84E+04	3.68E+04	3.59E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.66E+04	3.59E+04	3.83E+04	3.68E+04	3.59E+04	3.84E+04	3.68E+04	3.58E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	4.42E+02	4.27E+02	4.16E+02	4.26E+02	4.09E+02	3.98E+02	4.25E+02	4.08E+02	3.96E+02	4.25E+02	4.08E+02	3.96E+02	4.25E+02	4.10E+02	3.98E+02
591-78-6	2-Hexanone	HEXANONE;2- (MBK, methyl butyl ketone)	0.01498	3.4E+03	2.80E+03	3.34E+03	3.94E+03	1.81E+03	2.07E+03	1.87E+03	1.72E+03	1.72E+03	1.66E+03	1.71E+03	1.70E+03	1.64E+03	1.71E+03	1.69E+03	1.64E+03
91-57-6	2-Methylnaphthalene	methylnaphthalene;2-	2.98	1.4E+02	5.33E+03	5.11E+03	4.98E+03	5.33E+03	5.11E+03	4.98E+03	5.33E+03	5.08E+03	4.98E+03	5.32E+03	5.11E+03	4.98E+03	5.33E+03	5.11E+03	4.97E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	7.32E+04	7.06E+04	6.88E+04	7.09E+04	6.80E+04	6.62E+04	7.07E+04	6.77E+04	6.59E+04	7.07E+04	6.79E+04	6.58E+04	7.07E+04	6.81E+04	6.62E+04
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	3.14E+03	4.23E+03	3.89E+03	2.59E+03	2.52E+03	2.45E+03	2.54E+03	2.47E+03	2.40E+03	2.53E+03	2.47E+03	2.40E+03	2.53E+03	2.47E+03	2.40E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	2.04E-01	1.97E-01	1.91E-01	2.01E-01	1.92E-01	1.87E-01	2.00E-01	1.91E-01	1.87E-01	2.00E-01	1.92E-01	1.87E-01	2.00E-01	1.93E-01	1.87E-01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol;3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	1.23E+02	1.66E+02	1.54E+02	1.01E+02	9.87E+01	9.57E+01	9.92E+01	9.68E+01	9.40E+01	9.89E+01	9.66E+01	9.38E+01	9.89E+01	9.66E+01	9.38E+01
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	1.81E-01	1.73E-01	1.68E-01	1.82E-01	1.74E-01	1.69E-01	1.82E-01	1.73E-01	1.70E-01	1.81E-01	1.74E-01	1.70E-01	1.82E-01	1.74E-01	1.69E-01
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	2.42E-01	2.32E-01	2.25E-01	2.43E-01	2.33E-01	2.27E-01	2.43E-01	2.31E-01	2.27E-01	2.43E-01	2.33E-01	2.27E-01	2.43E-01	2.33E-01	2.27E-01
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	1.90E+00	1.82E+00	1.77E+00	1.91E+00	1.83E+00	1.78E+00	1.91E+00	1.81E+00	1.78E+00	1.90E+00	1.83E+00	1.78E+00	1.91E+00	1.83E+00	1.78E+00
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E-01	1.02E+02	9.97E+01	9.96E+01	1.04E+02	9.96E+01	9.70E+01	1.04E+02	9.92E+01	9.68E+01	1.04E+02	9.96E+01	9.68E+01	1.04E+02	9.98E+01	9.70E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	2.07E+05	1.99E+05	1.94E+05	2.01E+05	1.93E+05	1.88E+05	2.01E+05	1.92E+05	1.87E+05	2.00E+05	1.93E+05	1.87E+05	2.01E+05	1.93E+05	1.88E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	6.73E+00	8.16E+00	7.28E+00	5.80E+00	5.62E+00	5.46E+00	5.70E+00	5.55E+00	5.39E+00	5.69E+00	5.54E+00	5.38E+00	5.69E+00	5.54E+00	5.38E+00
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	4.88E+04	5.68E+04	6.70E+04	3.04E+04	3.65E+04	3.24E+04	2.88E+04	2.89E+04	2.78E+04	2.86E+04	2.85E+04	2.75E+04	2.85E+04	2.84E+04	2.75E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	8.85E+03	8.54E+03	8.32E+03	8.57E+03	8.22E+03	8.01E+03	8.55E+03	8.19E+03	7.97E+03	8.54E+03	8.21E+03	7.96E+03	8.55E+03	8.24E+03	8.01E+03
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	9.69E+01	1.31E+02	1.22E+02	7.98E+01	7.77E+01	7.54E+01	7.81E+01	7.62E+01	7.40E+01	7.79E+01	7.61E+01	7.39E+01	7.79E+01	7.61E+01	7.39E+01
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	1.80E+04	1.74E+04	1.69E+04	1.72E+04	1.65E+04	1.60E+04	1.71E+04	1.64E+04	1.59E+04	1.71E+04	1.64E+04	1.60E+04	1.70E+04	1.65E+04	1.60E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	4.82E+04	4.70E+04	5.05E+04	5.05E+04	4.84E+04	4.71E+04	5.05E+04	4.83E+04	4.72E+04	5.04E+04	4.84E+04	4.70E+04	5.05E+04	4.84E+04	4.71E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	3.88E+05	3.88E+05	3.88E+05	2.64E+05	3.66E+05	3.88E+05	2.38E+05	2.69E+05	2.45E+05	2.35E+05	2.43E+05	2.32E+05	2.33E+05	2.37E+05	2.29E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	3.04E-02	2.91E-02	2.83E-02	3.05E-02	2.93E-02	2.85E-02	3.05E-02	2.90E-02	2.85E-02	3.05E-02	2.93E-02	2.85E-02	3.05E-02	2.92E-02	2.85E-02
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	5.95E-02	5.71E-02	5.56E-02	5.93E-02	5.68E-02	5.53E-02	5.93E-02	5.65E-02	5.53E-02	5.92E-02	5.68E-02	5.53E-02	5.93E-02	5.69E-02	5.53E-02
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	3.70E-01	3.54E-01	3.45E-01	3.72E-01	3.56E-01	3.47E-01	3.72E-01	3.54E-01	3.47E-01	3.71E-01	3.57E-01	3.47E-01	3.72E-01	3.56E-01	3.47E-01
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	2.71E+02	2.59E+02	2.53E+02	2.71E+02	2.60E+02	2.53E+02	2.71E+02	2.58E+02	2.53E+02	2.70E+02	2.60E+02	2.53E+02	2.71E+02	2.60E+02	2.53E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	8.71E-02	8.34E-02	8.12E-02	8.76E-02	8.39E-02	8.17E-02	8.76E-02	8.33E-02	8.18E-02	8.74E-02	8.40E-02	8.18E-02	8.76E-02	8.39E-02	8.16E-02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	6.4E-05	8.41E-03	8.06E-03	7.85E-03	8.45E-03	8.10E-03	7.88E-03	8.45E-03	8.04E-03	7.89E-03	8.43E-03	8.10E-03	7.89E-03	8.45E-03	8.09E-03	7.88E-03
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	6.4E-05	8.41E-03	8.06E-03	7.85E-03	8.45E-03	8.10E-03	7.88E-03	8.45E-03	8.04E-03	7.89E-03	8.43E-03	8.10E-03	7.89E-03	8.45E-03	8.09E-03	7.88E-03
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	6.4E-05	3.65E-02	3.49E-02	3.40E-02	3.67E-02	3.52E-02	3.42E-02	3.67E-02	3.49E-02	3.43E-02	3.66E-02	3.52E-02	3.43E-02	3.67E-02	3.51E-02	3.42E-02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	3.57E-02	3.42E-02	3.33E-02	3.59E-02	3.44E-02	3.35E-02	3.60E-02	3.42E-02	3.36E-02	3.59E-02	3.45E-02	3.36E-02	3.60E-02	3.44E-02	3.35E-02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	6.15E-02	5.89E-02	5.74E-02	6.19E-02	5.93E-02	5.77E-02	6.19E-02	5.89E-02	5.78E-02	6.18E-02	5.93E-02	5.78E-02	6.19E-02	5.93E-02	5.77E-02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	6.69E-01	6.40E-01	6.24E-01	6.73E-01	6.45E-01	6.28E-01	6.73E-01	6.40E-01	6.29E-01	6.71E-01	6.45E-01	6.29E-01	6.73E-01	6.44E-01	6.27E-01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	6.96E-01	6.67E-01	6.50E-01	6.96E-01	6.67E-01	6.49E-01	6.96E-01	6.62E-01	6.50E-01	6.94E-01	6.67E-01	6.50E-01	6.96E-01	6.67E-01	6.49E-01
7440-39-3	Barium	Barium	25	1.0E+03	3.18E+05	3.05E+05	2.97E+05	3.20E+05	3.07E+05	2.99E+05	3.20E+05	3.04E+05	2.99E+05	3.19E+05	3.07E+05	2.99E+05	3.20E+05	3.07E+05	2.98E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	1.58E+00	2.10E+00	1.82E+00	1.34E+00	1.30E+00	1.26E+00	1.31E+00	1.28E+00	1.24E+00	1.31E+00	1.28E+00	1.24E+00	1.31E+00	1.28E+00	1.24E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	1.28E+01	1.23E+01	1.20E+01	1.29E+01	1.24E+01	1.20E+01	1.29E+01	1.23E+01	1.20E+01	1.29E+01	1.24E+01	1.20E+01	1.29E+01	1.23E+01	1.20E+01
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	1.96E+02	1.87E+02	1.83E+02	1.97E+02	1.89E+02	1.84E+02	1.97E+02	1.87E+02	1.84E+02	1.97E+02	1.89E+02	1.84E+02	1.97E+02	1.89E+02	1.84E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	2.86E+01	2.74E+01	2.67E+01	2.87E+01	2.76E+01	2.68E+01	2.88E+01	2.74E+01	2.69E+01	2.87E+01	2.76E+01	2.69E+01	2.88E+01	2.75E+01	2.68E+01
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	4.38E+01	4.19E+01	4.08E+01	4.40E+01	4.22E+01	4.11E+01	4.41E+01	4.19E+01	4.11E+01	4.40E+01	4.22E+01	4.11E+01	4.41E+01	4.22E+01	4.11E+01
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	2.52E-01	2.42E-01	2.36E-01	2.52E-01	2.41E-01	2.35E-01	2.52E-01	2.40E-01	2.35E-01	2.51E-01	2.41E-01	2.35E-01	2.52E-01	2.41E-01	2.35E-01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	3.95E+01	5.23E+01	5.82E+01	3.11E+01	3.06E+01	2.95E+01	3.03E+01	2.96E+01	2.88E+01	3.02E+01	2.96E+01	2.87E+01	3.01E+01	2.96E+01	2.87E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxy!)methane	0.00277	2.3E+03	1.77E+03	1.79E+03	2.11E+03	8.97E+02	1.25E+03	1.23E+03	8.19E+02	8.84E+02	8.24E+02	8.09E+02	8.26E+02	7.91E+02	8.05E+02	8.13E+02	7.85E+02
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethy!)ether	0.076	3.0E-02	4.48E-02	5.31E-02	4.77E-02	3.88E-02	3.76E-02	3.65E-02	3.82E-02	3.71E-02	3.61E-02	3.81E-02	3.71E-02	3.60E-02	3.81E-02	3.71E-02	3.60E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	1.68E+03	1.61E+03	1.57E+03	1.69E+03	1.62E+03	1.58E+03	1.69E+03	1.61E+03	1.58E+03	1.68E+03	1.62E+03	1.58E+03	1.69E+03	1.62E+03	1.57E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	3.34E-01	4.52E-01	4.06E-01	2.78E-01	2.70E-01	2.62E-01	2.72E-01	2.65E-01	2.58E-01	2.71E-01	2.65E-01	2.57E-01	2.71E-01	2.65E-01	2.57E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	9.38E+00	9.16E+00	8.93E+00	8.45E+00	8.11E+00	7.91E+00	8.41E+00	8.14E+00	7.92E+00	8.40E+00	8.13E+00	7.91E+00	8.40E+00	8.13E+00	7.91E+00
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	3.65E+01	4.08E+01	4.82E+01	2.14E+01	2.83E+01	2.42E+01	2.01E+01	2.04E+01	1.95E+01	1.99E+01	1.99E+01	1.92E+01	1.98E+01	1.98E+01	1.92E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	1.45E+03	1.39E+03	1.35E+03	1.46E+03	1.40E+03	1.36E+03	1.46E+03	1.39E+03	1.36E+03	1.45E+03	1.40E+03	1.36E+03	1.46E+03	1.40E+03	1.36E+03
7440-43-9	Cadmium	cadmium	30	2.5E-01	9.55E+01	9.14E+01	8.90E+01	9.60E+01	9.20E+01	8.95E+01	9.60E+01	9.13E+01	8.97E+01	9.58E+01	9.20E+01	8.97E+01	9.60E+01	9.20E+01	8.95E+01
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.50E+04	2.01E+04	2.01E+04	1.22E+04	1.19E+04	1.15E+04	1.19E+04	1.16E+04	1.13E+04	1.19E+04	1.16E+04	1.13E+04	1.18E+04	1.16E+04	1.12E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	5.66E-01	5.52E-01	5.38E-01	5.17E-01	4.96E-01	4.83E-01	5.13E-01	4.97E-01	4.83E-01	5.14E-01	4.94E-01	4.83E-01	5.13E-01	4.99E-01	4.84E-01
57-74-9	Chlordane	chlordane	51	5.7E-04	3.70E-01	3.54E-01	3.45E-01	3.72E-01	3.56E-01	3.47E-01	3.72E-01	3.54E-01	3.47E-01	3.71E-01	3.57E-01	3.47E-01	3.72E-01	3.56E-01	3.47E-01
16887-00-6	Chloride	chloride	0	2.3E+05	1.74E+05	1.64E+05	1.94E+05	8.11E+04	1.12E+05	1.29E+05	7.26E+04	8.30E+04	7.54E+04	7.14E+04	7.44E+04	7.07E+04	7.10E+04	7.24E+04	6.96E+04
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	4.32E+02	4.19E+02	4.09E+02	4.05E+02	3.88E+02	3.79E+02	4.03E+02	3.88E+02	3.78E+02	4.03E+02	3.88E+02	3.77E+02	4.02E+02	3.90E+02	3.79E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-66-3	Chloroform	chloroform	0.053	5.7E+00	6.91E+00	9.33E+00	8.55E+00	5.72E+00	5.56E+00	5.40E+00	5.60E+00	5.46E+00	5.30E+00	5.58E+00	5.45E+00	5.29E+00	5.58E+00	5.45E+00	5.29E+00

74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	6.5E+01	1.65E+05	1.58E+05	1.54E+05	1.66E+05	1.59E+05	1.55E+05	1.66E+05	1.58E+05	1.55E+05	1.66E+05	1.59E+05	1.55E+05	1.66E+05	1.59E+05	1.55E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	7.12E+00	6.82E+00	6.64E+00	7.16E+00	6.86E+00	6.68E+00	7.17E+00	6.81E+00	6.69E+00	7.15E+00	6.87E+00	6.69E+00	7.17E+00	6.86E+00	6.68E+00
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	2.38E+03	3.13E+03	3.69E+03	1.84E+03	1.82E+03	1.75E+03	1.79E+03	1.76E+03	1.70E+03	1.79E+03	1.75E+03	1.70E+03	1.78E+03	1.75E+03	1.70E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	3.15E-01	4.02E-01	4.75E-01	2.30E-01	2.34E-01	2.23E-01	2.22E-01	2.19E-01	2.12E-01	2.21E-01	2.18E-01	2.11E-01	2.21E-01	2.18E-01	2.11E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	1.65E+03	1.58E+03	1.54E+03	1.66E+03	1.59E+03	1.55E+03	1.66E+03	1.58E+03	1.55E+03	1.66E+03	1.59E+03	1.55E+03	1.66E+03	1.59E+03	1.55E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	9.0E+00	2.52E+03	2.42E+03	2.35E+03	2.53E+03	2.43E+03	2.36E+03	2.54E+03	2.41E+03	2.37E+03	2.53E+03	2.43E+03	2.37E+03	2.54E+03	2.43E+03	2.36E+03
57-12-5	Cyanide	cyanide	9.9	5.2E+00	6.57E+02	6.30E+02	6.13E+02	6.60E+02	6.32E+02	6.16E+02	6.60E+02	6.28E+02	6.16E+02	6.59E+02	6.33E+02	6.16E+02	6.60E+02	6.32E+02	6.15E+02
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	6.37E+01	6.10E+01	5.94E+01	6.41E+01	6.14E+01	5.98E+01	6.41E+01	6.10E+01	5.99E+01	6.40E+01	6.14E+01	5.99E+01	6.41E+01	6.14E+01	5.97E+01
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	2.46E+02	2.36E+02	2.29E+02	2.47E+02	2.37E+02	2.30E+02	2.47E+02	2.35E+02	2.31E+02	2.46E+02	2.37E+02	2.31E+02	2.47E+02	2.37E+02	2.30E+02
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	5.33E-01	7.00E-01	6.09E-01	4.51E-01	4.38E-01	4.26E-01	4.43E-01	4.32E-01	4.19E-01	4.42E-01	4.31E-01	4.19E-01	4.42E-01	4.31E-01	4.19E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	1.69E-02	1.62E-02	1.58E-02	1.70E-02	1.63E-02	1.59E-02	1.70E-02	1.62E-02	1.59E-02	1.70E-02	1.63E-02	1.59E-02	1.70E-02	1.63E-02	1.59E-02
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	2.66E+04	3.05E+04	2.77E+04	2.33E+04	2.25E+04	2.19E+04	2.29E+04	2.23E+04	2.16E+04	2.29E+04	2.22E+04	2.16E+04	2.29E+04	2.22E+04	2.16E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	2.62E+05	3.41E+05	3.88E+05	1.98E+05	1.98E+05	1.90E+05	1.92E+05	1.88E+05	1.83E+05	1.91E+05	1.88E+05	1.82E+05	1.91E+05	1.88E+05	1.82E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	4.10E+04	3.93E+04	3.83E+04	4.07E+04	3.91E+04	3.80E+04	4.07E+04	3.88E+04	3.80E+04	4.07E+04	3.91E+04	3.80E+04	4.07E+04	3.91E+04	3.80E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.41E+00	1.38E+00	1.47E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.41E+00	1.38E+00	1.47E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	2.46E+01	2.36E+01	2.30E+01	2.45E+01	2.35E+01	2.29E+01	2.45E+01	2.34E+01	2.29E+01	2.45E+01	2.35E+01	2.29E+01	2.45E+01	2.35E+01	2.29E+01
72-20-8	Endrin	endrin	10.8	2.3E-03	3.17E-01	3.04E-01	2.96E-01	3.18E-01	3.05E-01	2.97E-01	3.18E-01	3.03E-01	2.97E-01	3.18E-01	3.05E-01	2.97E-01	3.19E-01	3.05E-01	2.97E-01
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	4.00E+01	3.83E+01	3.73E+01	4.01E+01	3.85E+01	3.74E+01	4.02E+01	3.82E+01	3.75E+01	4.01E+01	3.85E+01	3.75E+01	4.02E+01	3.85E+01	3.74E+01
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	4.82E+01	4.69E+01	4.57E+01	4.50E+01	4.33E+01	4.20E+01	4.47E+01	4.31E+01	4.20E+01	4.47E+01	4.30E+01	4.19E+01	4.46E+01	4.33E+01	4.20E+01
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	5.63E+04	5.40E+04	5.25E+04	5.66E+04	5.43E+04	5.28E+04	5.67E+04	5.39E+04	5.29E+04	5.65E+04	5.43E+04	5.29E+04	5.67E+04	5.43E+04	5.28E+04
86-73-7	Fluorene	fluorene	7.71	1.1E+03	1.08E+05	1.04E+05	1.01E+05	1.09E+05	1.04E+05	1.01E+05	1.09E+05	1.04E+05	1.02E+05	1.09E+05	1.04E+05	1.02E+05	1.09E+05	1.04E+05	1.01E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	3.36E-01	3.23E-01	3.14E-01	3.34E-01	3.20E-01	3.11E-01	3.34E-01	3.18E-01	3.11E-01	3.33E-01	3.20E-01	3.11E-01	3.34E-01	3.20E-01	3.11E-01
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	9.61E-03	9.21E-03	8.97E-03	9.65E-03	9.25E-03	9.00E-03	9.65E-03	9.18E-03	9.02E-03	9.63E-03	9.25E-03	9.02E-03	9.66E-03	9.25E-03	9.00E-03
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	4.13E-02	3.95E-02	3.85E-02	4.15E-02	3.98E-02	3.87E-02	4.15E-02	3.95E-02	3.88E-02	4.14E-02	3.98E-02	3.88E-02	4.15E-02	3.98E-02	3.87E-02
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	2.85E-01	2.73E-01	2.66E-01	2.86E-01	2.75E-01	2.67E-01	2.87E-01	2.73E-01	2.68E-01	2.86E-01	2.75E-01	2.68E-01	2.87E-01	2.74E-01	2.67E-01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	3.01E+02	2.88E+02	2.80E+02	3.02E+02	2.90E+02	2.82E+02	3.02E+02	2.88E+02	2.82E+02	3.02E+02	2.90E+02	2.82E+02	3.02E+02	2.90E+02	2.82E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	1.02E+05	9.74E+04	9.49E+04	1.02E+05	9.80E+04	9.55E+04	1.02E+05	9.73E+04	9.56E+04	1.02E+05	9.81E+04	9.56E+04	1.02E+05	9.80E+04	9.54E+04
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	3.24E+01	3.11E+01	3.03E+01	3.23E+01	3.09E+01	3.01E+01	3.23E+01	3.07E+01	3.01E+01	3.22E+01	3.09E+01	3.01E+01	3.23E+01	3.10E+01	3.01E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	1.07E+02	1.03E+02	1.00E+02	1.05E+02	1.01E+02	9.83E+01	1.05E+02	1.00E+02	9.81E+01	1.05E+02	1.01E+02	9.81E+01	1.05E+02	1.01E+02	9.83E+01
193-39-5	Indeno[1,2,3-cd]pyrene	Indeno[1,2,3-cd]pyrene	3470	2.8E-03	1.24E+02	1.18E+02	1.15E+02	1.24E+02	1.19E+02	1.16E+02	1.24E+02	1.18E+02	1.16E+02	1.24E+02	1.19E+02	1.16E+02	1.24E+02	1.19E+02	1.16E+02
7439-89-6	Iron	iron	25	3.0E+02	9.55E+04	9.15E+04	8.91E+04	9.60E+04	9.20E+04	8.96E+04	9.60E+04	9.13E+04	8.97E+04	9.58E+04	9.20E+04	8.97E+04	9.61E+04	9.20E+04	8.95E+04
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	9.58E+00	1.28E+01	1.27E+01	7.77E+00	7.58E+00	7.35E+00	7.59E+00	7.41E+00	7.20E+00	7.57E+00	7.40E+00	7.18E+00	7.56E+00	7.40E+00	7.18E+00
7439-92-1	Lead	lead	30	2.1E+00	7.71E+02	7.51E+02	7.51E+02	8.09E+02	7.75E+02	7.55E+02	8.13E+02	7.70E+02	7.56E+02	8.08E+02	7.76E+02	7.56E+02	8.10E+02	7.75E+02	7.54E+02
7439-93-2	Lithium	Lithium	50	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.18E+04	3.05E+04	2.97E+04	3.20E+04	3.06E+04	2.98E+04	3.20E+04	3.04E+04	2.99E+04	3.19E+04	3.07E+04	2.99E+04	3.20E+04	3.06E+04	2.98E+04
7439-97-6	Mercury	mercury	30	1.2E-02	4.58E+00	4.39E+00	4.27E+00	4.61E+00	4.41E+00	4.30E+00	4.61E+00	4.38E+00	4.30E+00	4.60E+00	4.42E+00	4.30E+00	4.61E+00	4.41E+00	4.29E+00
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	2.92E+01	2.85E+01	3.07E+01	2.86E+01	2.94E+01	2.86E+01	2.92E+01	2.87E+01	3.06E+01	2.94E+01	2.87E+01	3.07E+01	2.94E+01	2.86E+01	2.86E+01
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	3.60E+00	4.08E+00	4.81E+00	2.15E+00	2.76E+00	2.38E+00	2.02E+00	2.05E+00	1.96E+00	2.00E+00	2.00E+00	1.94E+00	2.00E+00	2.00E+00	1.93E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.30E+05	3.16E+05	3.08E+05	3.32E+05	3.18E+05	3.10E+05	3.32E+05	3.16E+05	3.10E+05	3.31E+05	3.18E+05	3.10E+05	3.32E+05	3.18E+05	3.09E+05
108-38-3	m-Xylene, m-	Xylene, m-	0.2	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	7.73E+04	7.42E+04	7.23E+04	7.66E+04	7.35E+04	7.15E+04	7.66E+04	7.30E+04	7.15E+04	7.64E+04	7.34E+04	7.15E+04	7.66E+04	7.35E+04	7.15E+04
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	4.30E+04	4.12E+04	4.01E+04	4.32E+04	4.14E+04	4.03E+04	4.33E+04	4.11E+04	4.04E+04	4.32E+04	4.14E+04	4.04E+04	4.33E+04	4.14E+04	4.03E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	3.40E+04	3.21E+04	3.79E+04	1.59E+04	2.19E+04	2.52E+04	1.42E+04	1.62E+04	1.47E+04	1.40E+04	1.46E+04	1.38E+04	1.39E+04	1.42E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	3.46E+01	3.39E+01	3.31E+01	3.10E+01	3.02E+01	2.93E+01	3.09E+01	2.99E+01	2.91E+01	3.09E+01	2.99E+01	2.91E+01	3.08E+01	2.99E+01	2.91E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	4.48E-03	5.65E-03	6.67E-03	3.19E-03	3.31E-03	3.12E-03	3.08E-03	3.04E-03	2.94E-03	3.06E-03	3.02E-03	2.93E-03	3.06E-03	3.02E-03	2.93E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	5.59E+01	5.36E+01	5.22E+01	5.54E+01	5.31E+01	5.17E+01	5.54E+01	5.28E+01	5.17E+01	5.53E+01	5.31E+01	5.17E+01	5.54E+01	5.32E+01	5.17E+01
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	2.17E+00	2.09E+00	2.04E+00	2.13E+00	2.04E+00	1.98E+00	2.12E+00	2.03E+00	1.98E+00	2.12E+00	2.04E+00	1.98E+00	2.12E+00	2.04E+00	1.98E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	9.43E+03	1.21E+04	1.43E+04	6.99E+03	7.06E+03	6.73E+03	6.76E+03	6.64E+03	6.44E+03	6.73E+03	6.62E+03	6.42E+03	6.73E+03	6.62E+03	6.42E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	3.20E+02	3.07E+02	2.99E+02	3.21E+02	3.08E+02	3.00E+02	3.21E+02	3.06E+02	3.00E+02	3.21E+02	3.08E+02	3.00E+02	3.21E+02	3.08E+02	2.99E+02
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	2.6E+00	2.99E+03	2.86E+03	2.78E+03	3.00E+03	2.88E+03	2.80E+03	3.00E+03	2.86E+03	2.81E+03	3.00E+03	2.88E+03	2.81E+03	3.01E+03	2.88E+03	2.80E+03
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	1.53E+00	1.48E+00	1.45E+00	1.45E+00	1.39E+00	1.36E+00	1.45E+00	1.39E+00	1.35E+00	1.45E+00	1.39E+00	1.35E+00	1.44E+00	1.40E+00	1.36E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	2.17E+02	2.08E+02	2.02E+02	2.18E+02	2.09E+02	2.03E+02	2.18E+02	2.07E+02	2.04E+02	2.18E+02	2.09E+02	2.04E+02	2.18E+02	2.09E+02	2.03E+02
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	3.00E+03	2.93E+03	2.85E+03	2.72E+03	2.61E+03	2.55E+03	2.70E+03	2.62E+03	2.55E+03	2.70E+03	2.60E+03	2.54E+03	2.70E+03	2.63E+03	2.55E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	2.44E-01	2.33E-01	2.27E-01	2.45E-01	2.35E-01	2.29E-01	2.45E-01	2.33E-01	2.29E-01	2.45E-01	2.35E-01	2.29E-01	2.45E-01	2.35E-01	2.28E-01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.46E+02	1.92E+02	2.19E+02	1.14E+02	1.12E+02	1.08E+02	1.11E+02	1.09E+02	1.05E+02	1.11E+02	1.08E+02	1.05E+02	1.10E+02	1.08E+02	1.05E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	3.15E-01	4.02E-01	4.75E-01	2.30E-01	2.34E-01	2.23E-01	2.22E-01	2.19E-01	2.12E-01	2.21E-01	2.18E-01	2.11E-01	2.21E-01	2.18E-01	2.11E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	4.29E+00	4.66E+00	4.32E+00	3.80E+00	3.68E+00	3.58E+00	3.75E+00	3.64E+00	3.54E+00	3.75E+00	3.64E+00	3.53E+00	3.74E+00	3.64E+00	3.53E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	2.13E-02	2.61E-02	3.08E-02	1.44E-02	1.56E-02	1.45E-02	1.38E-02	1.37E-02	1.32E-02	1.37E-02	1.36E-02	1.32E-02	1.37E-02	1.36E-02	1.32E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.48E+04	3.33E+04	3.24E+04	3.50E+04	3.35E+04	3.26E+04	3.50E+04	3.33E+04	3.27E+04	3.49E+04	3.35E+04	3.27E+04	3.50E+04	3.35E+04	3.26E+04
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1.64E+06	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	5.97E+02	5.72E+02	5.57E+02	5.95E+02	5.70E+02	5.55E+02	5.94E+02	5.66E+02	5.55E+02	5.93E+02	5.70E+02	5.55E+02	5.95E+02	5.70E+02	5.55E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	6.18E+04	6.00E+04	7.08E+04	2.98E+04	4.13E+04	4.47E+04	2.69E+04	3.00E+04	2.75E+04	2.65E+04	2.74E+04	2.61E+04	2.63E+04	2.68E+04	2.58E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	7.50E+04	8.46E+04	9.98E+04	4.45E+04	5.77E+04	4.97E+04	4.18E+04	4.24E+04	4.06E+04	4.15E+04	4.15E+04	4.00E+04	4.14E+04	4.13E+04	3.99E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	3.95E+04	5.26E+04	5.46E+04	3.17E+04	3.10E+04	3.01E+04	3.10E+04	3.03E+04	2.94E+04	3.09E+04	3.02E+04	2.93E+04	3.09E+04	3.01E+04	2.93E+04

Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	GW_Screening (pCi/g)														
				Column 1			Column 2			Column 3			Column 4			Column 5		
				Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
Carbon-14	0	2000	5.7300E+03	1.51E+03	1.43E+03	1.68E+03	7.05E+02	9.73E+02	1.12E+03	6.32E+02	7.23E+02	6.56E+02	6.21E+02	6.48E+02	6.15E+02	6.18E+02	6.30E+02	6.18E+02
Cesium-137	50	200	3.0000E+01	2.63E+05	2.37E+05	2.35E+05	2.65E+05	2.37E+05	2.35E+05	2.66E+05	2.38E+05	2.36E+05	2.66E+05	2.38E+05	2.36E+05	2.67E+05	2.38E+05	2.67E+05
Cobalt-60	50	100	5.7210E+00	5.42E+05	3.74E+05	3.99E+05	5.65E+05	3.78E+05	4.06E+05	5.76E+05	3.81E+05	4.10E+05	5.84E+05	3.83E+05	4.12E+05	5.92E+05	3.85E+05	5.92E+05
Iodine-129	1	1	1.5700E+07	1.32E+01	1.27E+01	1.24E+01	1.31E+01	1.25E+01	1.22E+01	1.31E+01	1.25E+01	1.22E+01	1.31E+01	1.25E+01	1.22E+01	1.31E+01	1.25E+01	1.31E+01
Neptunium-237	15	15	2.1400E+06	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.86E+03
Nickel-63	30	50	9.6000E+01	2.38E+04	2.25E+04	2.20E+04	2.39E+04	2.25E+04	2.20E+04	2.39E+04	2.25E+04	2.20E+04	2.40E+04	2.25E+04	2.20E+04	2.40E+04	2.25E+04	2.40E+04
Strontium-90	25	8	2.9120E+01	4.25E+03	3.84E+03	3.81E+03	4.29E+03	3.85E+03	3.82E+03	4.31E+03	3.86E+03	3.83E+03	4.32E+03	3.86E+03	3.84E+03	4.33E+03	3.87E+03	4.33E+03
Technetium-99	0	900	2.1300E+05	6.79E+02	6.43E+02	7.58E+02	3.17E+02	4.38E+02	5.04E+02	2.84E+02	3.25E+02	2.95E+02	2.79E+02	2.91E+02	2.77E+02	2.78E+02	2.83E+02	2.78E+02
Tritium	0	20000	1.2350E+01	2.14E+04	1.56E+04	1.87E+04	1.07E+04	1.17E+04	1.41E+04	1.01E+04	1.03E+04	9.53E+03	1.01E+04	9.49E+03	9.17E+03	1.02E+04	9.42E+03	1.02E+04
Am-241	200	15	4.3200E+02	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Carbon-14	200	2000	5.7300E+03	5.09E+06	4.87E+06	4.74E+06	5.11E+06	4.90E+06	4.77E+06	5.12E+06	4.87E+06	4.78E+06	5.11E+06	4.90E+06	4.78E+06	5.12E+06	4.90E+06	4.77E+06
Cm-243	200	15	2.8500E+01	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Eu-152	200	200	1.3300E+01	5.09E+05	4.87E+05	4.74E+05	5.11E+05	4.90E+05	4.77E+05	5.12E+05	4.87E+05	4.78E+05	5.11E+05	4.90E+05	4.78E+05	5.12E+05	4.90E+05	4.77E+05
Eu-154	200	60	8.8000E+00	1.53E+05	1.46E+05	1.42E+05	1.53E+05	1.47E+05	1.43E+05	1.54E+05	1.46E+05	1.43E+05	1.53E+05	1.47E+05	1.43E+05	1.54E+05	1.47E+05	1.43E+05
Eu-155	200	600	4.9600E+00	1.53E+06	1.46E+06	1.42E+06	1.53E+06	1.47E+06	1.43E+06	1.54E+06	1.46E+06	1.43E+06	1.53E+06	1.47E+06	1.43E+06	1.54E+06	1.47E+06	1.43E+06
Nb-94	200	No Value	2.0300E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu-238	200	15	8.7700E+01	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Pu-239	200	15	2.4100E+04	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Pu-240	200	15	6.5400E+03	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Pu-241	200	300	1.40E+01	7.63E+05	7.31E+05	7.11E+05	7.67E+05	7.35E+05	7.16E+05	7.68E+05	7.30E+05	7.17E+05	7.66E+05	7.36E+05	7.17E+05	7.68E+05	7.35E+05	7.15E+05
Ra-226	200	5	1.6000E+03	1.27E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04
Ra-228	200	5	5.7500E+00	1.27E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04
Th-228	200	15	1.9100E+00	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Th-230	200	15	7.7000E+04	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Th-232	200	15	1.4100E+10	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04

Attachment 2

PRG Values for effective 100-0 Source Distribution

ECF-300FF5-11-0153, REV. 0

Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

					GW_Preliminary Remediation Goal (mg/kg)														
					Base Case (Depth 1)			Base Case (Depth 2)			Base Case (Depth 3)			Base Case (Depth 4)			Base Case (Depth 5)		
CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Ground Water Standard (ug/L)	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	8.47E+03	8.35E+02	1.11E+03	7.64E+03	8.05E+02	1.07E+03	7.07E+03	7.94E+02	1.05E+03	6.74E+03	7.86E+02	1.04E+03	6.43E+03	7.78E+02	1.02E+03
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	3.75E+00	5.33E-01	6.46E-01	3.44E+00	4.67E-01	5.96E-01	3.23E+00	4.63E-01	5.88E-01	3.10E+00	4.60E-01	5.83E-01	2.98E+00	4.58E-01	5.78E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	1.21E+01	1.80E+00	2.17E+00	1.11E+01	1.55E+00	1.97E+00	1.04E+01	1.54E+00	1.94E+00	1.00E+01	1.53E+00	1.93E+00	9.65E+00	1.52E+00	1.91E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	1.63E+04	3.04E+03	3.58E+03	1.51E+04	2.38E+03	2.97E+03	1.42E+04	2.36E+03	2.94E+03	1.37E+04	2.35E+03	2.92E+03	1.33E+04	2.34E+03	2.90E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	9.19E+01	1.50E+01	1.78E+01	8.47E+01	1.24E+01	1.57E+01	7.97E+01	1.23E+01	1.55E+01	7.67E+01	1.23E+01	1.54E+01	7.40E+01	1.22E+01	1.53E+01
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	1.80E+03	5.68E+02	6.75E+02	1.54E+03	5.20E+02	5.76E+02	1.53E+03	5.05E+02	5.74E+02	1.53E+03	4.96E+02	5.74E+02	1.53E+03	4.87E+02	5.74E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	1.66E+05	1.21E+04	1.77E+04	1.40E+05	1.17E+04	1.70E+04	1.36E+05	1.14E+04	1.64E+04	1.33E+05	1.12E+04	1.60E+04	1.31E+05	1.10E+04	1.56E+04
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	3.55E+00	7.72E-01	9.11E-01	3.28E+00	5.64E-01	6.95E-01	3.11E+00	5.61E-01	6.90E-01	3.01E+00	5.59E-01	6.87E-01	2.92E+00	5.58E-01	6.83E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	7.2E+01	5.60E+02	1.18E+02	1.40E+02	5.18E+02	8.77E+01	1.08E+02	4.92E+02	8.72E+01	1.08E+02	4.76E+02	8.70E+01	1.07E+02	4.61E+02	8.67E+01	1.06E+02
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.09E+01	2.16E+00	2.55E+00	1.01E+01	1.65E+00	2.05E+00	9.56E+00	1.64E+00	2.03E+00	9.23E+00	1.63E+00	2.02E+00	8.94E+00	1.63E+00	2.01E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	3.73E+03	4.80E+02	7.27E+02	3.14E+03	4.60E+02	6.89E+02	3.13E+03	4.43E+02	6.59E+02	3.12E+03	4.32E+02	6.41E+02	3.13E+03	4.22E+02	6.22E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	3.88E+05	2.78E+05	3.45E+05	3.88E+05	2.56E+05	2.95E+05	3.88E+05	2.48E+05	2.94E+05	3.88E+05	2.43E+05	2.94E+05	3.88E+05	2.38E+05	2.94E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	4.0E+00	1.11E+03	8.14E+01	1.19E+02	9.37E+02	7.87E+01	1.14E+02	9.10E+02	7.64E+01	1.10E+02	8.95E+02	7.49E+01	1.07E+02	8.80E+02	7.35E+01	1.05E+02
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	1.08E+03	1.05E+02	1.40E+02	9.72E+02	1.01E+02	1.35E+02	8.99E+02	9.98E+01	1.32E+02	8.56E+02	9.88E+01	1.31E+02	8.16E+02	9.78E+01	1.29E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	1.44E+04	1.16E+03	1.60E+03	1.28E+04	1.13E+03	1.55E+03	1.18E+04	1.10E+03	1.51E+03	1.11E+04	1.09E+03	1.48E+03	1.06E+04	1.07E+03	1.46E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	8.40E+01	2.75E+01	3.24E+01	6.47E+01	1.58E+01	1.86E+01	6.22E+01	1.45E+01	1.72E+01	6.07E+01	1.44E+01	1.71E+01	5.93E+01	1.44E+01	1.71E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	6.31E+00	7.92E-01	9.91E-01	5.76E+00	7.25E-01	9.37E-01	5.38E+00	7.18E-01	9.23E-01	5.15E+00	7.13E-01	9.14E-01	4.94E+00	7.08E-01	9.05E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	2.26E+02	3.56E+01	4.25E+01	2.08E+02	2.99E+01	3.78E+01	1.96E+02	2.97E+01	3.74E+01	1.88E+02	2.95E+01	3.71E+01	1.81E+02	2.94E+01	3.68E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	1.43E+04	4.52E+03	5.33E+03	1.16E+04	2.69E+03	3.17E+03	1.11E+04	2.51E+03	2.99E+03	1.08E+04	2.50E+03	2.99E+03	1.06E+04	2.50E+03	2.98E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	1.16E+04	8.58E+02	1.26E+03	9.73E+03	8.29E+02	1.20E+03	9.52E+03	8.05E+02	1.16E+03	9.42E+03	7.89E+02	1.13E+03	9.31E+03	7.73E+02	1.10E+03
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	1.61E+02	4.59E+01	5.42E+01	1.44E+02	2.95E+01	3.51E+01	1.37E+02	2.86E+01	3.45E+01	1.34E+02	2.86E+01	3.44E+01	1.30E+02	2.85E+01	3.43E+01
91-57-6	2-Methylnaphthalene	methylnaphthalene;2-	2.98	3.2E+01	6.78E+04	3.39E+04	2.54E+04	5.81E+04	2.90E+04	2.18E+04	5.79E+04	2.90E+04	2.17E+04	5.79E+04	2.90E+04	2.17E+04	5.81E+04	2.90E+04	2.17E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	1.33E+05	1.07E+04	1.58E+04	1.11E+05	1.03E+04	1.51E+04	1.10E+05	1.00E+04	1.45E+04	1.10E+05	9.81E+03	1.42E+04	1.10E+05	9.60E+03	1.38E+04
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	1.62E+03	3.02E+02	3.57E+02	1.50E+03	2.37E+02	2.95E+02	1.42E+03	2.35E+02	2.92E+02	1.37E+03	2.34E+02	2.91E+02	1.32E+03	2.33E+02	2.89E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.04E+02	1.69E+01	2.58E+01	8.80E+01	1.61E+01	2.44E+01	8.76E+01	1.55E+01	2.32E+01	8.76E+01	1.51E+01	2.25E+01	8.77E+01	1.47E+01	2.19E+01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	4.12E+01	7.78E+00	9.19E+00	3.81E+01	6.05E+00	7.55E+00	3.60E+01	6.02E+00	7.48E+00	3.47E+01	6.00E+00	7.43E+00	3.36E+01	5.97E+00	7.39E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	1.17E+04	5.86E+03	4.40E+03	1.01E+04	5.04E+03	3.78E+03	1.01E+04	5.03E+03	3.77E+03	1.01E+04	5.03E+03	3.77E+03	1.01E+04	5.03E+03	3.77E+03
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	1.56E+04	7.80E+03	5.85E+03	1.34E+04	6.71E+03	5.03E+03	1.34E+04	6.70E+03	5.02E+03	1.34E+04	6.70E+03	5.02E+03	1.34E+04	6.70E+03	5.02E+03
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	1.22E+05	6.12E+04	4.59E+04	1.05E+05	5.27E+04	3.95E+04	1.05E+05	5.26E+04	3.94E+04	1.05E+05	5.26E+04	3.94E+04	1.05E+05	5.26E+04	3.94E+04
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	5.76E+02	7.25E+01	1.10E+02	4.85E+02	6.95E+01	1.04E+02	4.83E+02	6.69E+01	9.95E+01	4.82E+02	6.53E+01	9.67E+01	4.83E+02	6.38E+01	9.40E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	3.88E+05	5.71E+04	8.51E+04	3.88E+05	5.49E+04	8.11E+04	3.88E+05	5.31E+04	7.79E+04	3.88E+05	5.19E+04	7.58E+04	3.88E+05	5.08E+04	7.38E+04
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	3.28E+00	5.01E-01	6.02E-01	3.02E+00	4.27E-01	5.41E-01	2.84E+00	4.23E-01	5.35E-01	2.73E+00	4.21E-01	5.30E-01	2.63E+00	4.19E-01	5.26E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	2.41E+03	7.06E+02	8.32E+02	2.13E+03	4.48E+02	5.30E+02	2.04E+03	4.31E+02	5.19E+02	1.99E+03	4.31E+02	5.18E+02	1.94E+03	4.30E+02	5.16E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	1.33E+04	1.07E+03	1.58E+03	1.11E+04	1.03E+03	1.51E+03	1.10E+04	1.00E+03	1.45E+03	1.10E+04	9.81E+02	1.42E+03	1.10E+04	9.60E+02	1.38E+03
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	4.32E+01	8.17E+00	9.65E+00	4.00E+01	6.36E+00	7.93E+00	3.78E+01	6.32E+00	7.85E+00	3.65E+01	6.30E+00	7.81E+00	3.53E+01	6.27E+00	7.76E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	2.62E+04	1.78E+03	2.56E+03	2.29E+04	1.73E+03	2.47E+03	2.10E+04	1.68E+03	2.38E+03	1.98E+04	1.65E+03	2.33E+03	1.88E+04	1.63E+03	2.28E+03
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	1.92E+04	6.28E+03	7.40E+03	1.50E+04	3.63E+03	4.27E+03	1.44E+04	3.34E+03	3.96E+03	1.40E+04	3.32E+03	3.95E+03	1.37E+04	3.32E+03	3.94E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	8.80E+01	4.40E+01	3.30E+01	7.57E+01	3.78E+01	2.84E+01	7.55E+01	3.78E+01	2.83E+01	7.55E+01	3.78E+01	2.83E+01	7.58E+01	3.78E+01	2.83E+01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	1.75E+01	6.08E+00	6.58E+00	1.50E+01	5.49E+00	5.62E+00	1.49E+01	5.36E+00	5.60E+00	1.49E+01	5.28E+00	5.60E+00	1.50E+01	5.20E+00	5.60E+00
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	8.95E+03	4.48E+03	3.36E+03	7.70E+03	3.85E+03	2.89E+03	7.68E+03	3.84E+03	2.88E+03	7.68E+03	3.84E+03	2.88E+03	7.71E+03	3.84E+03	2.88E+03
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	1.60E+04	8.00E+03	6.00E+03	1.37E+04	6.86E+03	5.14E+03	1.37E+04	6.84E+03	5.13E+03	1.37E+04	6.84E+03	5.13E+03	1.37E+04	6.84E+03	5.13E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	3.76E+04	1.88E+04	1.41E+04	3.23E+04	1.61E+04	1.21E+04	3.22E+04	1.61E+04	1.21E+04	3.22E+04	1.61E+04	1.21E+04	3.23E+04	1.61E+04	1.21E+04
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	3.17E+02	1.59E+02	1.19E+02	2.73E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.73E+02	1.36E+02	1.02E+02
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	3.17E+02	1.59E+02	1.19E+02	2.73E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.73E+02	1.36E+02	1.02E+02
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	1.38E+03	6.88E+02	5.16E+02	1.18E+03	5.92E+02	4.44E+02	1.18E+03	5.91E+02	4.43E+02	1.18E+03	5.91E+02	4.43E+02	1.18E+03	5.91E+02	4.43E+02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	1.35E+03	6.74E+02	5.06E+02	1.16E+03	5.80E+02	4.35E+02	1.16E+03	5.79E+02	4.34E+02	1.16E+03	5.79E+02	4.34E+02	1.16E+03	5.79E+02	4.34E+02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	2.32E+03	1.16E+03	8.71E+02	2.00E+03	9.98E+02	7.49E+02	1.99E+03	9.97E+02	7.47E+02	1.99E+03	9.97E+02	7.47E+02	2.00E+03	9.97E+02	7.47E+02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	2.52E+04	1.26E+04	9.46E+03	2.17E+04	1.09E+04	8.14E+03	2.17E+04	1.08E+04	8.12E+03	2.17E+04	1.08E+04	8.12E+03	2.17E+04	1.08E+04	8.12E+03
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	1.24E+02	6.22E+01	4.67E+01	1.07E+02	5.33E+01	4.00E+01	1.06E+02	5.32E+01	3.99E+01	1.06E+02	5.31E+01	3.99E+01	1.07E+02	5.32E+01	3.99E+01
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	9.94E+00	1.66E+00	1.97E+00	9.17E+00	1.36E+00	1.71E+00	8.64E+00	1.35E+00	1.70E+00	8.32E+00	1.35E+00	1.68E+00	8.02E+00	1.34E+00	1.67E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	3.03E+04	1.51E+04	1.14E+04	2.60E+04	1.30E+04	9.77E+03	2.60E+04	1.30E+04	9.75E+03	2.60E+04	1.30E+04	9.75E+03	2.61E+04	1.30E+04	9.74E+03
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	4.63E+04	2.31E+04	1.73E+04	3.98E+04	1.99E+04	1.49E+04	3.97E+04	1.99E+04	1.49E+04	3.97E+04	1.99E+04	1.49E+04	3.98E+04	1.99E+04	1.49E+04
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	6.75E+04	3.38E+04	2.53E+04	5.81E+04	2.90E+04	2.18E+04	5.80E+04	2.90E+04	2.17E+04	5.80E+04	2.90E+04	2.17E+04	5.82E+04	2.90E+04	2.17E+04
191-24-2	Benzo(ghi)perylene	BENZO[g,h,i]PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	1.03E+05	5.17E+04	3.88E+04	8.90E+04	4.45E+04	3.34E+04	8.88E+04	4.44E+04	3.33E+04	8.88E+04	4.44E+04	3.33E+04	8.91E+04	4.44E+04	3.33E+04
7440-41-7	Beryllium	beryllium	790	4.0E+00	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	7.44E+01	3.72E+01	2.79E+01	6.35E+01	3.18E+01	2.38E+01	6.34E+01	3.17E+01	2.38E+01	6.34E+01	3.17E+01	2.38E+01	6.35E+01	3.17E+01	2.38E+01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	4.80E+00	1.02E+00	1.21E+00	4.44E+00	7.54E-01	9.31E-01	4.21E+00	7.50E-01	9.24E-01	4.07E+00	7.48E-01	9.19E-01	3.95E+00	7.46E-01	9.15E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	4.8E+01	1.36E+02	4.37E+01	5.15E+01	1.08E+02	2.57E+01	3.02E+01	1.04E+02	2.38E+01	2.83E+01	1.02E+02	2.37E+01	2.82E+01	9.92E+01	2.37E+01	2.82E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	6.40E-01	9.42E-02	1.14E-01	5.88E-01	8.13E-02	1.04E-01	5.52E-01	8.07E-02	1.02E-01	5.30E-01	8.02E-02	1.01E-01	5.10E-01	7.98E-02	1.01E-01
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	3.88E+05	2.32E+05	1.74E+05	3.88E+05	1.99E+05	1.49E+05	3.88E+05	1.99E+05	1.49E+05	3.88E+05	1.99E+05	1.49E+05	3.88E+05	1.99E+05	1.49E+05
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	3.2E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	7.53E+00	1.37E+00	1.62E+00	6.96E+00	1.08E+00	1.35E+00	6.57E+00	1.08E+00	1.34E+00	6.34E+00	1.07E+00	1.33E+00	6.13E+00	1.07E+00	1.32E+00
75-25-2	Bromoform	bromoform	0.13	5.5E+00	2.06E+02	2.12E+01	2.78E+01	1.86E+02	2.03E+01	2.69E+01	1.73E+02	2.01E+01	2.64E+01	1.65E+02	1.99E+01	2.61E+01	1.57E+02	1.97E+01	2.57E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	3.82E+01	1.16E+01	1.37E+01	3.29E+01	7.18E+00	8.45E+00	3.15E+01	6.84E+00	8.20E+00	3.07E+01	6.82E+00	8.18E+00	2.99E+01	6.82E+00	8.16E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	3.88E+05	2.24E+05	1.68E+05	3.84E+05	1.92E+05	1.44E+05	3.83E+05	1.92E+05	1.44E+05	3.83E+05	1.92E+05	1.44E+05	3.85E+05	1.92E+05	1.44E+05
7440-43-9	Cadmium	cadmium	30	5.0E+00	1.05E+05	5.27E+04	3.95E+04	9.06E+04	4.53E+04	3.40E+04	9.04E+04	4.52E+04	3.39E+04	9.04E+04	4.52E+04	3.39E+04	9.07E+04	4.52E+04	3.39E+04
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	1.05E+04	5.27E+03	3.95E+03	9.02E+03	4.51E+03	3.38E+03	9.00E+03	4.50E+03	3.37E+03	9.00E+03	4.50E+03	3.37E+03	9.02E+03	4.50E+03	3.37E+03
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	7.04E+03	1.41E+03	1.66E+03	6.52E+03	1.07E+03	1.33E+03	6.17E+03	1.06E+03	1.32E+03	5.96E+03	1.06E+03	1.31E+03	5.77E+03	1.06E+03	1.30E+03
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	1.58E+01	1.52E+00	2.03E+00	1.42E+01	1.47E+00	1.97E+00	1.32E+01	1.45E+00	1.92E+00	1.25E+01	1.43E+00	1.90E+00	1.20E+01	1.42E+00	1.87E+00
57-74-9	Chlordane	chlordane	51	2.5E-01	8.95E+03	4.48E+03	3.36E+03	7.70E+03	3.85E+03	2.89E+03	7.68E+03	3.84E+03	2.88E+03	7.68E+03	3.84E+03	2.88E+03	7.71E+03	3.84E+03	2.88E+03
16887-00-6	Chloride	chloride	0	2.5E+05	3.88E+05	2.15E+05	2.53E+05	3.88E+05	1.24E+05	1.45E+05	3.88E+05	1.14E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05

108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	9.98E+03	7.82E+02	1.09E+03	8.87E+03	7.62E+02	1.05E+03	8.13E+03	7.46E+02	1.03E+03	7.69E+03	7.35E+02	1.01E+03	7.30E+03	7.25E+02	9.89E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-66-3	Chloroform	chloroform	0.053	1.4E+00	1.44E+01	2.68E+00	3.16E+00	1.33E+01	2.10E+00	2.62E+00	1.26E+01	2.08E+00	2.59E+00	1.21E+01	2.08E+00	2.58E+00	1.17E+01	2.07E+00	2.56E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	1.68E+05	8.41E+04	6.31E+04	1.45E+05	7.24E+04	5.43E+04	1.44E+05	7.22E+04	5.41E+04	1.44E+05	7.22E+04	5.41E+04	1.45E+05	7.22E+04	5.41E+04
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	4.86E+02	1.09E+02	1.29E+02	4.48E+02	7.86E+01	9.65E+01	4.26E+02	7.80E+01	9.58E+01	4.13E+02	7.78E+01	9.53E+01	4.00E+02	7.76E+01	9.49E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	2.40E+00	6.00E-01	7.08E-01	2.20E+00	4.11E-01	4.99E-01	2.10E+00	4.07E-01	4.95E-01	2.03E+00	4.06E-01	4.93E-01	1.98E+00	4.05E-01	4.91E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	1.69E+05	8.43E+04	6.32E+04	1.45E+05	7.25E+04	5.44E+04	1.45E+05	7.23E+04	5.42E+04	1.45E+05	7.24E+04	5.42E+04	1.45E+05	7.23E+04	5.42E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	1.51E+05	7.53E+04	5.65E+04	1.29E+05	6.47E+04	4.86E+04	1.29E+05	6.46E+04	4.85E+04	1.29E+05	6.47E+04	4.85E+04	1.30E+05	6.46E+04	4.85E+04
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E+01	1.27E+05	6.37E+04	4.77E+04	1.09E+05	5.47E+04	4.10E+04	1.09E+05	5.46E+04	4.09E+04	1.09E+05	5.46E+04	4.09E+04	1.09E+05	5.46E+04	4.09E+04
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	6.61E+00	1.10E+00	1.30E+00	6.10E+00	9.02E-01	1.14E+00	5.74E+00	8.96E-01	1.12E+00	5.53E+00	8.92E-01	1.12E+00	5.33E+00	8.88E-01	1.11E+00
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	9.84E+01	4.92E+01	3.69E+01	8.46E+01	4.23E+01	3.17E+01	8.44E+01	4.22E+01	3.16E+01	8.44E+01	4.22E+01	3.16E+01	8.47E+01	4.22E+01	3.16E+01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	2.31E+05	3.20E+04	3.90E+04	2.12E+05	2.83E+04	3.62E+04	1.98E+05	2.80E+04	3.57E+04	1.90E+05	2.79E+04	3.54E+04	1.83E+05	2.77E+04	3.51E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	1.40E+05	7.01E+04	5.26E+04	1.20E+05	5.99E+04	4.49E+04	1.19E+05	5.97E+04	4.48E+04	1.19E+05	5.97E+04	4.48E+04	1.20E+05	5.97E+04	4.48E+04
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	1.40E+05	7.01E+04	5.26E+04	1.20E+05	5.99E+04	4.49E+04	1.19E+05	5.97E+04	4.48E+04	1.19E+05	5.97E+04	4.48E+04	1.20E+05	5.97E+04	4.48E+04
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	1.52E+04	7.61E+03	5.70E+03	1.31E+04	6.53E+03	4.90E+03	1.30E+04	6.52E+03	4.89E+03	1.30E+04	6.52E+03	4.89E+03	1.31E+04	6.52E+03	4.89E+03
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	3.31E+02	2.70E+01	3.73E+01	2.95E+02	2.63E+01	3.62E+01	2.71E+02	2.58E+01	3.52E+01	2.57E+02	2.55E+01	3.46E+01	2.44E+02	2.51E+01	3.40E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	7.76E+01	2.09E+01	2.91E+01	6.61E+01	1.96E+01	2.48E+01	6.58E+01	1.89E+01	2.47E+01	6.58E+01	1.84E+01	2.47E+01	6.60E+01	1.80E+01	2.47E+01
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	1.31E+02	6.53E+01	4.90E+01	1.12E+02	5.61E+01	4.21E+01	1.12E+02	5.60E+01	4.20E+01	1.12E+02	5.60E+01	4.20E+01	1.12E+02	5.60E+01	4.20E+01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	2.81E+02	1.40E+02	1.05E+02	2.41E+02	1.21E+02	9.06E+01	2.41E+02	1.21E+02	9.04E+01	2.41E+02	1.21E+02	9.04E+01	2.42E+02	1.21E+02	9.04E+01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	3.07E+03	1.54E+03	1.15E+03	2.64E+03	1.32E+03	9.91E+02	2.64E+03	1.32E+03	9.88E+02	2.64E+03	1.32E+03	9.88E+02	2.64E+03	1.32E+03	9.88E+02
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	2.12E+04	1.06E+04	7.93E+03	1.82E+04	9.09E+03	6.82E+03	1.81E+04	9.08E+03	6.81E+03	1.81E+04	9.08E+03	6.81E+03	1.82E+04	9.08E+03	6.80E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	3.99E+03	1.41E+03	1.50E+03	3.41E+03	1.27E+03	1.28E+03	3.40E+03	1.24E+03	1.27E+03	3.40E+03	1.23E+03	1.27E+03	3.40E+03	1.21E+03	1.27E+03
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	2.83E+04	5.37E+03	8.25E+03	2.39E+04	5.12E+03	7.79E+03	2.38E+04	4.92E+03	7.42E+03	2.38E+04	4.79E+03	7.19E+03	2.39E+04	4.66E+03	6.97E+03
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	1.2E-01	2.92E+05	1.46E+05	1.09E+05	2.51E+05	1.26E+05	9.41E+04	2.50E+05	1.25E+05	9.39E+04	2.50E+05	1.25E+05	9.39E+04	2.51E+05	1.25E+05	9.39E+04
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	4.6E+01	4.12E+02	8.17E+01	9.64E+01	3.81E+02	6.22E+01	7.73E+01	3.61E+02	6.19E+01	7.66E+01	3.49E+02	6.17E+01	7.62E+01	3.37E+02	6.15E+01	7.58E+01
7439-92-1	Lead	lead	30	1.5E+01	3.16E+05	1.58E+05	1.19E+05	2.72E+05	1.36E+05	1.02E+05	2.71E+05	1.36E+05	1.02E+05	2.71E+05	1.36E+05	1.02E+05	2.72E+05	1.36E+05	1.02E+05
7439-93-2	Lithium	Lithium	50	3.2E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.61E+05
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7439-97-6	Mercury	mercury	30	2.0E+00	4.22E+04	2.11E+04	1.58E+04	3.62E+04	1.81E+04	1.36E+04	3.62E+04	1.81E+04	1.36E+04	3.62E+04	1.81E+04	1.36E+04	3.63E+04	1.81E+04	1.36E+04
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	1.76E+01	5.29E+00	6.24E+00	1.54E+01	3.31E+00	3.90E+00	1.48E+01	3.17E+00	3.81E+00	1.44E+01	3.16E+00	3.80E+00	1.40E+01	3.16E+00	3.79E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.63E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05
108-38-3	m-Xylene	Xylene, m-	0.2	1.6E+03	1.33E+05	1.09E+04	1.50E+04	1.19E+05	1.06E+04	1.45E+04	1.09E+05	1.04E+04	1.42E+04	1.03E+05	1.02E+04	1.39E+04	9.80E+04	1.01E+04	1.37E+04
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	1.38E+05	3.64E+04	5.18E+04	1.17E+05	3.44E+04	4.41E+04	1.17E+05	3.30E+04	4.39E+04	1.17E+05	3.21E+04	4.39E+04	1.17E+05	3.13E+04	4.39E+04
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.18E+05	3.87E+04	4.56E+04	9.09E+04	2.23E+04	2.62E+04	8.74E+04	2.04E+04	2.42E+04	8.53E+04	2.03E+04	2.41E+04	8.33E+04	2.03E+04	2.41E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	8.66E+03	2.84E+03	3.35E+03	6.67E+03	1.63E+03	1.92E+03	6.41E+03	1.50E+03	1.77E+03	6.25E+03	1.49E+03	1.77E+03	6.11E+03	1.49E+03	1.76E+03
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	4.98E+02	5.50E+01	7.11E+01	4.52E+02	5.20E+01	6.83E+01	4.20E+02	5.14E+01	6.70E+01	4.01E+02	5.10E+01	6.63E+01	3.84E+02	5.06E+01	6.55E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	2.62E+03	8.60E+02	1.01E+03	2.02E+03	4.95E+02	5.81E+02	1.94E+03	4.54E+02	5.37E+02	1.89E+03	4.51E+02	5.35E+02	1.85E+03	4.51E+02	5.35E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	6.41E-02	1.65E-02	1.95E-02	5.86E-02	1.11E-02	1.35E-02	5.59E-02	1.10E-02	1.34E-02	5.43E-02	1.10E-02	1.33E-02	5.28E-02	1.10E-02	1.33E-02
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	1.8E+01	1.67E+04	4.44E+03	6.25E+03	1.42E+04	4.17E+03	5.32E+03	1.41E+04	4.01E+03	5.31E+03	1.41E+04	3.91E+03	5.30E+03	1.42E+04	3.81E+03	5.30E+03
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	1.94E+05	1.45E+04	2.04E+04	1.72E+05	1.41E+04	1.97E+04	1.57E+05	1.38E+04	1.92E+04	1.49E+05	1.36E+04	1.88E+04	1.41E+05	1.34E+04	1.84E+04
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	3.24E+02	3.95E+01	5.97E+01	2.72E+02	3.79E+01	5.66E+01	2.71E+02	3.65E+01	5.42E+01	2.71E+02	3.56E+01	5.27E+01	2.71E+02	3.48E+01	5.12E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	1.37E+04	3.37E+03	3.98E+03	1.26E+04	2.33E+03	2.84E+03	1.20E+04	2.31E+03	2.81E+03	1.16E+04	2.30E+03	2.80E+03	1.13E+04	2.30E+03	2.79E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	3.97E+02	1.99E+02	1.49E+02	3.41E+02	1.70E+02	1.28E+02	3.40E+02	1.70E+02	1.27E+02	3.40E+02	1.70E+02	1.27E+02	3.41E+02	1.70E+02	1.27E+02
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	1.77E+05	8.84E+04	6.63E+04	1.52E+05	7.59E+04	5.69E+04	1.51E+05	7.57E+04	5.67E+04	1.51E+05	7.57E+04	5.67E+04	1.52E+05	7.57E+04	5.67E+04
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	8.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	6.67E+04	1.54E+04	2.36E+04	5.65E+04	1.46E+04	2.12E+04	5.63E+04	1.40E+04	2.10E+04	5.63E+04	1.36E+04	2.04E+04	5.63E+04	1.33E+04	1.98E+04
14808-79-8	Sulfate	sulfate	0	2.5E+05	3.88E+05	2.15E+05	2.53E+05	3.88E+05	1.24E+05	1.45E+05	3.88E+05	1.14E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	1.27E+01	8.99E-01	1.28E+00	1.12E+01	8.73E-01	1.23E+00	1.02E+01	8.52E-01	1.19E+00	9.63E+00	8.38E-01	1.17E+00	9.11E+00	8.25E-01	1.15E+00
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	2.49E+04	1.25E+04	9.35E+03	2.14E+04	1.07E+04	8.04E+03	2.14E+04	1.07E+04	8.02E+03	2.14E+04	1.07E+04	8.02E+03	2.15E+04	1.07E+04	8.02E+03
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	2.71E+04	2.67E+03	3.54E+03	2.44E+04	2.58E+03	3.43E+03	2.26E+04	2.54E+03	3.36E+03	2.16E+04	2.51E+03	3.32E+03	2.06E+04	2.49E+03	3.27E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	5.35E+03	2.67E+03	2.01E+03	4.60E+03	2.30E+03	1.73E+03	4.59E+03	2.30E+03	1.72E+03	4.59E+03	2.30E+03	1.72E+03	4.61E+03	2.30E+03	1.72E+03
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	7.38E+02	1.61E+02	1.89E+02	6.82E+02	1.17E+02	1.45E+02	6.48E+02	1.17E+02	1.44E+02	6.27E+02	1.16E+02	1.43E+02	6.08E+02	1.16E+02	1.42E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	2.40E+00	6.00E-01	7.08E-01	2.20E+00	4.11E-01	4.99E-01	2.10E+00	4.07E-01	4.95E-01	2.03E+00	4.06E-01	4.93E-01	1.98E+00	4.05E-01	4.91E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	1.07E+01	1.36E+00	1.70E+00	9.77E+00	1.24E+00	1.60E+00	9.13E+00	1.23E+00	1.58E+00	8.75E+00	1.22E+00	1.56E+00	8.39E+00	1.21E+00	1.55E+00
7440-62-2	Vanadium	vanadium	1000	8.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	2.77E-01	7.49E-02	8.84E-02	2.51E-01	4.94E-02	5.94E-02	2.40E-01	4.85E-02	5.88E-02	2.33E-01	4.85E-02	5.86E-02	2.27E-01	4.84E-02	5.84E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	1.77E+05	1.35E+04	1.90E+04	1.57E+05	1.32E+04	1.83E+04	1.44E+05	1.29E+04	1.78E+04	1.36E+05	1.27E+04	1.75E+04	1.29E+05	1.25E+04	1.72E+04
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16000	4.32E+04	1.41E+04	1.66E+04	3.39E+04	8.18E+03	9.61E+03	3.26E+04	7.54E+03	8.94E+03	3.18E+04	7.50E+03	8.92E+03	3.11E+04	7.50E+03	8.90E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	1.29E+04	5.27E+03	4.83E+03	1.10E+04	4.65E+03	4.13E+03	1.10E+04	4.58E+03	4.11E+03	1.10E+04	4.54E+03	4.11E+03	1.10E+04	4.51E+03	4.11E+03
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	2.16E+03	7.04E+02	8.30E+02	1.70E+03	4.09E+02	4.81E+02	1.63E+03	3.77E+02	4.47E+02	1.59E+03	3.75E+02	4.46E+02	1.55E+03	3.75E+02	4.45E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	5.58E+03	1.68E+03	1.98E+03	4.86E+03	1.05E+03	1.23E+03	4.66E+03	1.00E+03	1.20E+03	4.54E+03	1.00E+03	1.20E+03	4.42E+03	1.00E+03	1.20E+03
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	2.03E+04	4.13E+03	4.88E+03	1.88E+04	3.11E+03	3.86E+03	1.78E+04	3.09E+03	3.83E+03	1.72E+04	3.08E+03	3.80E+03	1.67E+04	3.07E+03	3.78E+03

Summary of Concentrations Protective of Surface Water Calculated with STOMP based on five sets of different Vadose Zone depths

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Surface Water Standard (ug/L)	SW_Preliminary Remediation Goal (mg/kg)														
					Base Case (Depth 1)			Base Case (Depth 2)			Base Case (Depth 3)			Base Case (Depth 4)			Base Case (Depth 5)		
					Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	2.91E+00	4.14E-01	5.02E-01	2.67E+00	3.63E-01	4.63E-01	2.51E+00	3.60E-01	4.57E-01	2.41E+00	3.58E-01	4.53E-01	2.31E+00	3.56E-01	4.49E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	9.30E+00	1.38E+00	1.67E+00	8.55E+00	1.19E+00	1.51E+00	8.02E+00	1.18E+00	1.49E+00	7.71E+00	1.17E+00	1.48E+00	7.42E+00	1.17E+00	1.47E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	3.88E+05	1.40E+05	1.65E+05	3.88E+05	1.09E+05	1.36E+05	3.88E+05	1.09E+05	1.35E+05	3.88E+05	1.08E+05	1.34E+05	3.88E+05	1.08E+05	1.33E+05
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	7.48E-01	1.22E-01	1.45E-01	6.90E-01	1.01E-01	1.28E-01	6.49E-01	1.00E-01	1.26E-01	6.25E-01	9.99E-02	1.25E-01	6.02E-01	9.95E-02	1.24E-01
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	2.34E+03	7.39E+02	8.77E+02	2.00E+03	6.75E+02	7.48E+02	1.99E+03	6.56E+02	7.46E+02	1.99E+03	6.44E+02	7.46E+02	1.99E+03	6.33E+02	7.46E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	1.16E+05	8.48E+03	1.24E+04	9.81E+04	8.21E+03	1.19E+04	9.51E+04	7.97E+03	1.14E+04	9.34E+04	7.81E+03	1.12E+04	9.17E+04	7.67E+03	1.09E+04
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	2.81E+00	6.10E-01	7.20E-01	2.59E+00	4.46E-01	5.50E-01	2.46E+00	4.43E-01	5.45E-01	2.38E+00	4.42E-01	5.43E-01	2.31E+00	4.41E-01	5.40E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	1.63E+04	3.46E+03	4.08E+03	1.51E+04	2.56E+03	3.16E+03	1.44E+04	2.55E+03	3.14E+03	1.39E+04	2.54E+03	3.12E+03	1.35E+04	2.53E+03	3.11E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	4.49E+00	8.89E-01	1.05E+00	4.15E+00	6.78E-01	8.42E-01	3.93E+00	6.74E-01	8.35E-01	3.80E+00	6.72E-01	8.30E-01	3.68E+00	6.69E-01	8.25E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	3.2E+02	1.07E+05	8.57E+03	1.27E+04	8.88E+04	8.27E+03	1.21E+04	8.84E+04	8.01E+03	1.16E+04	8.83E+04	7.84E+03	1.13E+04	8.83E+04	7.68E+03	1.11E+04
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	9.94E+03	1.28E+03	1.94E+03	8.36E+03	1.23E+03	1.84E+03	8.33E+03	1.18E+03	1.76E+03	8.32E+03	1.15E+03	1.71E+03	8.33E+03	1.12E+03	1.66E+03
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	3.88E+05	1.69E+05	2.10E+05	3.88E+05	1.56E+05	1.79E+05	3.88E+05	1.51E+05	1.79E+05	3.88E+05	1.48E+05	1.79E+05	3.88E+05	1.45E+05	1.79E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	1.4E+00	3.91E+02	2.87E+01	4.18E+01	3.30E+02	2.77E+01	4.01E+01	3.20E+02	2.69E+01	3.87E+01	3.15E+02	2.64E+01	3.77E+01	3.10E+02	2.59E+01	3.69E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E+01	3.46E+03	3.37E+02	4.48E+02	3.12E+03	3.25E+02	4.34E+02	2.88E+03	3.20E+02	4.25E+02	2.75E+03	3.17E+02	4.19E+02	2.62E+03	3.14E+02	4.13E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	3.42E+04	2.74E+03	3.80E+03	3.04E+04	2.67E+03	3.68E+03	2.79E+04	2.62E+03	3.59E+03	2.64E+04	2.58E+03	3.52E+03	2.51E+04	2.55E+03	3.46E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	1.81E+02	5.94E+01	7.00E+01	1.39E+02	3.42E+01	4.01E+01	1.34E+02	3.14E+01	3.71E+01	1.31E+02	3.11E+01	3.70E+01	1.28E+02	3.11E+01	3.69E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	2.46E+00	3.09E-01	3.86E-01	2.24E+00	2.83E-01	3.65E-01	2.10E+00	2.80E-01	3.60E-01	2.01E+00	2.78E-01	3.56E-01	1.93E+00	2.76E-01	3.53E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	1.66E+03	2.62E+02	3.13E+02	1.53E+03	2.20E+02	2.79E+02	1.44E+03	2.19E+02	2.75E+02	1.39E+03	2.17E+02	2.73E+02	1.33E+03	2.16E+02	2.71E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.9E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	2.76E+05	3.25E+05	3.88E+05	2.58E+05	3.07E+05	3.88E+05	2.57E+05	3.06E+05	3.88E+05	2.57E+05	3.06E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	2.34E+04	1.74E+03	2.54E+03	1.97E+04	1.68E+03	2.44E+03	1.93E+04	1.63E+03	2.35E+03	1.91E+04	1.60E+03	2.29E+03	1.89E+04	1.57E+03	2.24E+03
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	3.4E+03	1.38E+04	3.94E+03	4.64E+03	1.23E+04	2.53E+03	3.01E+03	1.18E+04	2.45E+03	2.96E+03	1.15E+04	2.45E+03	2.95E+03	1.12E+04	2.45E+03	2.94E+03
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	1.4E+02	2.94E+05	1.47E+05	1.10E+05	2.52E+05	1.26E+05	9.45E+04	2.51E+05	1.26E+05	9.42E+04	2.51E+05	1.26E+05	9.42E+04	2.52E+05	1.26E+05	9.42E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	3.88E+05	3.24E+05	3.88E+05	3.88E+05	3.13E+05	3.88E+05	3.88E+05	3.03E+05	3.88E+05	3.88E+05	2.97E+05	3.88E+05	3.88E+05	2.91E+05	3.88E+05
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	2.63E+04	4.90E+03	5.79E+03	2.43E+04	3.83E+03	4.78E+03	2.29E+04	3.81E+03	4.74E+03	2.21E+04	3.80E+03	4.71E+03	2.14E+04	3.78E+03	4.68E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	1.13E+01	1.82E+00	2.78E+00	9.51E+00	1.74E+00	2.63E+00	9.47E+00	1.67E+00	2.51E+00	9.46E+00	1.63E+00	2.43E+00	9.47E+00	1.59E+00	2.36E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	1.02E+03	1.92E+02	2.27E+02	9.40E+02	1.49E+02	1.86E+02	8.89E+02	1.49E+02	1.85E+02	8.58E+02	1.48E+02	1.84E+02	8.29E+02	1.47E+02	1.82E+02
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	9.97E+00	4.99E+00	3.74E+00	8.57E+00	4.29E+00	3.22E+00	8.56E+00	4.28E+00	3.21E+00	8.55E+00	4.28E+00	3.21E+00	8.58E+00	4.28E+00	3.21E+00
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	1.33E+01	6.67E+00	5.00E+00	1.15E+01	5.74E+00	4.30E+00	1.15E+01	5.73E+00	4.29E+00	1.14E+01	5.73E+00	4.29E+00	1.15E+01	5.73E+00	4.29E+00
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	1.05E+02	5.23E+01	3.92E+01	9.00E+01	4.50E+01	3.38E+01	8.98E+01	4.49E+01	3.37E+01	8.98E+01	4.49E+01	3.37E+01	9.01E+01	4.49E+01	3.37E+01
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+01	5.85E+03	7.36E+02	1.11E+03	4.92E+03	7.05E+02	1.06E+03	4.90E+03	6.80E+02	1.01E+03	4.90E+03	6.64E+02	9.82E+02	4.90E+03	6.48E+02	9.54E+02
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	6.97E+01	1.06E+01	1.28E+01	6.41E+01	9.05E+00	1.15E+01	6.02E+01	8.98E+00	1.13E+01	5.79E+01	8.94E+00	1.13E+01	5.57E+01	8.89E+00	1.12E+01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	2.30E+05	6.73E+04	7.93E+04	2.03E+05	4.27E+04	5.05E+04	1.94E+05	4.11E+04	4.95E+04	1.89E+05	4.11E+04	4.94E+04	1.84E+05	4.10E+04	4.92E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	3.88E+05	3.92E+04	5.79E+04	3.88E+05	3.78E+04	5.54E+04	3.88E+05	3.67E+04	5.33E+04	3.88E+05	3.59E+04	5.19E+04	3.88E+05	3.52E+04	5.06E+04
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	8.01E+02	1.51E+02	1.79E+02	7.40E+02	1.18E+02	1.47E+02	7.00E+02	1.17E+02	1.45E+02	6.76E+02	1.17E+02	1.45E+02	6.53E+02	1.16E+02	1.44E+02
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	3.88E+05	5.62E+04	8.08E+04	3.88E+05	5.45E+04	7.77E+04	3.88E+05	5.31E+04	7.52E+04	3.88E+05	5.22E+04	7.35E+04	3.88E+05	5.13E+04	7.20E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.73E+05	3.88E+05	3.88E+05	3.43E+05	3.88E+05	3.88E+05	3.41E+05	3.88E+05	3.88E+05	3.41E+05	3.88E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	1.68E+00	8.38E-01	6.28E-01	1.44E+00	7.21E-01	5.40E-01	1.44E+00	7.19E-01	5.39E-01	1.44E+00	7.19E-01	5.39E-01	1.44E+00	7.19E-01	5.39E-01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	3.28E+00	1.14E+00	1.23E+00	2.80E+00	1.03E+00	1.05E+00	2.79E+00	1.00E+00	1.05E+00	2.79E+00	9.89E-01	1.05E+00	2.80E+00	9.74E-01	1.05E+00
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	2.04E+01	1.02E+01	7.65E+00	1.76E+01	8.78E+00	6.58E+00	1.75E+01	8.76E+00	6.57E+00	1.75E+01	8.76E+00	6.57E+00	1.76E+01	8.76E+00	6.57E+00
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	1.49E+04	7.47E+03	5.60E+03	1.28E+04	6.40E+03	4.80E+03	1.28E+04	6.39E+03	4.79E+03	1.28E+04	6.38E+03	4.79E+03	1.28E+04	6.39E+03	4.79E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	4.81E+00	2.40E+00	1.80E+00	4.13E+00	2.07E+00	1.55E+00	4.13E+00	2.06E+00	1.55E+00	4.12E+00	2.06E+00	1.55E+00	4.14E+00	2.06E+00	1.55E+00
11104-28-2	Aroclor-1221	aroclor 1221 (PCB)	10.3	6.4E-05	4.64E-01	2.32E-01	1.74E-01	3.99E-01	1.99E-01	1.50E-01	3.98E-01	1.99E-01	1.49E-01	3.98E-01	1.99E-01	1.49E-01	3.99E-01	1.99E-01	1.49E-01
11141-16-5	Aroclor-1232	aroclor 1232 (PCB)	10.3	6.4E-05	4.64E-01	2.32E-01	1.74E-01	3.99E-01	1.99E-01	1.50E-01	3.98E-01	1.99E-01	1.49E-01	3.98E-01	1.99E-01	1.49E-01	3.99E-01	1.99E-01	1.49E-01
53469-21-9	Aroclor-1242	aroclor 1242 (PCB)	44.8	6.4E-05	2.01E+00	1.01E+00	7.55E-01	1.73E+00	8.66E-01	6.49E-01	1.73E+00	8.64E-01	6.48E-01	1.73E+00	8.64E-01	6.48E-01	1.73E+00	8.64E-01	6.48E-01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	1.97E+00	9.87E-01	7.40E-01	1.70E+00	8.48E-01	6.36E-01	1.69E+00	8.47E-01	6.35E-01	1.69E+00	8.47E-01	6.35E-01	1.70E+00	8.47E-01	6.35E-01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	3.40E+00	1.70E+00	1.27E+00	2.92E+00	1.46E+00	1.10E+00	2.91E+00	1.46E+00	1.09E+00	2.91E+00	1.46E+00	1.09E+00	2.92E+00	1.46E+00	1.09E+00
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	3.69E+01	1.85E+01	1.38E+01	3.18E+01	1.59E+01	1.19E+01	3.17E+01	1.58E+01	1.19E+01	3.17E+01	1.59E+01	1.19E+01	3.18E+01	1.58E+01	1.19E+01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	3.84E+01	1.92E+01	1.44E+01	3.29E+01	1.64E+01	1.23E+01	3.28E+01	1.64E+01	1.23E+01	3.28E+01	1.64E+01	1.23E+01	3.29E+01	1.64E+01	1.23E+01
7440-39-3	Barium	Barium	25	1.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	1.50E+01	2.51E+00	2.97E+00	1.38E+01	2.05E+00	2.59E+00	1.30E+01	2.04E+00	2.56E+00	1.25E+01	2.03E+00	2.54E+00	1.21E+01	2.02E+00	2.52E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	7.07E+02	3.54E+02	2.65E+02	6.08E+02	3.04E+02	2.28E+02	6.07E+02	3.04E+02	2.28E+02	6.07E+02	3.04E+02	2.28E+02	6.09E+02	3.04E+02	2.28E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	1.08E+04	5.40E+03	4.05E+03	9.29E+03	4.65E+03	3.49E+03	9.27E+03	4.64E+03	3.48E+03	9.27E+03	4.64E+03	3.48E+03	9.30E+03	4.64E+03	3.48E+03
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	1.58E+03	7.89E+02	5.92E+02	1.36E+03	6.79E+02	5.09E+02	1.35E+03	6.77E+02	5.08E+02	1.35E+03	6.78E+02	5.08E+02	1.36E+03	6.77E+02	5.08E+02
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	2.42E+03	1.21E+03	9.06E+02	2.08E+03	1.04E+03	7.80E+02	2.07E+03	1.04E+03	7.78E+02	2.07E+03	1.04E+03	7.78E+02	2.08E+03	1.04E+03	7.78E+02
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	1.39E+01	6.96E+00	5.22E+00	1.19E+01	5.95E+00	4.46E+00	1.19E+01	5.94E+00	4.45E+00	1.19E+01	5.93E+00	4.45E+00	1.19E+01	5.94E+00	4.45E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	2.88E+02	6.13E+01	7.24E+01	2.66E+02	4.52E+01	5.59E+01	2.53E+02	4.50E+01	5.54E+01	2.44E+02	4.48E+01	5.51E+01	2.37E+02	4.47E+01	5.49E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	2.3E+03	6.63E+03	2.13E+03	2.51E+03	5.29E+03	1.25E+03	1.47E+03	5.08E+03	1.16E+03	1.38E+03	4.96E+03	1.16E+03	1.38E+03	4.84E+03	1.16E+03	1.38E+03
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	3.0E-02	4.83E-01	7.10E-02	8.57E-02	4.43E-01	6.13E-02	7.81E-02	4.16E-01	6.08E-02	7.71E-02	4.00E-01	6.05E-02	7.65E-02	3.85E-01	6.02E-02	7.58E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	9.27E+04	4.63E+04	3.47E+04	7.97E+04	3.98E+04	2.99E+04	7.95E+04	3.98E+04	2.98E+04	7.95E+04	3.98E+04	2.98E+04	7.98E+04	3.98E+04	2.98E+04
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	2.88E+00	5.24E-01	6.18E-01	2.66E+00	4.14E-01	5.18E-01	2.52E+00	4.12E-01	5.13E-01	2.43E+00	4.10E-01	5.10E-01	2.34E+00	4.09E-01	5.07E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	1.60E+02	1.64E+01	2.16E+01	1.45E+02	1.58E+01	2.09E+01	1.34E+02	1.56E+01	2.05E+01	1.28E+02	1.54E+01	2.02E+01	1.22E+02	1.53E+01	2.00E+01
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	1.60E+02	4.86E+01	5.73E+01	1.38E+02	3.01E+01	3.55E+01	1.32E+02	2.87E+01	3.44E+01	1.29E+02	2.86E+01	3.43E+01	1.26E+02	2.86E+01	3.42E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	8.00E+04	4.00E+04	3.00E+04	6.88E+04	3.44E+04	2.58E+04	6.86E+04	3.43E+04	2.57E+04	6.86E+04	3.43E+04	2.57E+04	6.88E+04	3.43E+04	2.57E+04
7440-43-9	Cadmium	cadmium	30	2.5E-01	5.27E+03	2.63E+03	1.98E+03	4.53E+03	2.27E+03	1.70E+03	4.52E+03	2.26E+03	1.70E+03	4.52E+03	2.26E+03	1.70E+03	4.53E+03	2.26E+03	1.70E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.17E+05	2.34E+04	2.76E+04	1.08E+05	1.78E+04	2.20E+04	1.03E+05	1.77E+04	2.19E+04	9.91E+04	1.76E+04	2.17E+04	9.59E+04	1.75E+04	2.16E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	1.08E+01	1.04E+00	1.39E+00	9.73E+00	1.00E+00	1.34E+00	9.00E+00	9.89E-01	1.32E+00	8.56E+00	9.79E-01	1.30E+00	8.17E+00	9.70E-01	1.28E+00
57-74-9	Chlordane	chlordane	51	5.7E-04	2.04E+01	1.02E+01	7.65E+00	1.76E+01	8.78E+00	6.58E+00	1.75E+01	8.76E+00	6.57E+00	1.75E+01	8.76E+00	6.57E+00	1.76E+01	8.76E+00	6.57E+00
16887-00-6	Chloride	chloride	0	2.3E+05	3.88E+05	1.98E+05	2.33E+05	3.88E+05	1.14E+05	1.34E+05	3.88E+05	1.05E+05	1.23E+05	3.88E+05	1.04E+05	1.23E+05	3.88E+05	1.04E+05	1.23E+05

108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	1.30E+04	1.02E+03	1.42E+03	1.15E+04	9.90E+02	1.37E+03	1.06E+04	9.69E+02	1.33E+03	1.00E+04	9.56E+02	1.31E+03	9.49E+03	9.43E+02	1.29E+03
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-66-3	Chloroform	chloroform	0.053	5.7E+00	5.81E+01	1.08E+01	1.28E+01	5.37E+01	8.47E+00	1.06E+01	5.08E+01	8.42E+00	1.05E+01	4.90E+01	8.38E+00	1.04E+01	4.73E+01	8.35E+00	1.03E+01
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	6.5E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	3.93E+02	1.97E+02	1.47E+02	3.38E+02	1.69E+02	1.27E+02	3.37E+02	1.69E+02	1.26E+02	3.37E+02	1.69E+02	1.26E+02	3.38E+02	1.69E+02	1.26E+02
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	1.62E+04	3.64E+03	4.29E+03	1.50E+04	2.62E+03	3.22E+03	1.42E+04	2.60E+03	3.20E+03	1.38E+04	2.60E+03	3.18E+03	1.34E+04	2.59E+03	3.17E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	1.87E+00	4.67E-01	5.51E-01	1.71E+00	3.19E-01	3.88E-01	1.63E+00	3.16E-01	3.85E-01	1.58E+00	3.15E-01	3.83E-01	1.54E+00	3.15E-01	3.82E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	9.10E+04	4.55E+04	3.41E+04	7.83E+04	3.91E+04	2.94E+04	7.81E+04	3.91E+04	2.93E+04	7.81E+04	3.91E+04	2.93E+04	7.84E+04	3.91E+04	2.93E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	9.0E+00	1.39E+05	6.96E+04	5.22E+04	1.20E+05	5.98E+04	4.49E+04	1.19E+05	5.97E+04	4.48E+04	1.19E+05	5.97E+04	4.48E+04	1.20E+05	5.97E+04	4.48E+04
57-12-5	Cyanide	cyanide	9.9	5.2E+00	3.63E+04	1.81E+04	1.36E+04	3.12E+04	1.56E+04	1.17E+04	3.11E+04	1.55E+04	1.17E+04	3.11E+04	1.55E+04	1.17E+04	3.12E+04	1.55E+04	1.17E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	3.52E+03	1.76E+03	1.32E+03	3.03E+03	1.51E+03	1.13E+03	3.02E+03	1.51E+03	1.13E+03	3.02E+03	1.51E+03	1.13E+03	3.03E+03	1.51E+03	1.13E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	1.36E+04	6.79E+03	5.09E+03	1.17E+04	5.83E+03	4.37E+03	1.16E+04	5.82E+03	4.36E+03	1.16E+04	5.82E+03	4.36E+03	1.17E+04	5.82E+03	4.36E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	5.08E+00	8.44E-01	1.00E+00	4.68E+00	6.93E-01	8.73E-01	4.41E+00	6.88E-01	8.63E-01	4.25E+00	6.85E-01	8.57E-01	4.10E+00	6.82E-01	8.51E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	9.36E-01	4.68E-01	3.51E-01	8.04E-01	4.02E-01	3.02E-01	8.02E-01	4.01E-01	3.01E-01	8.02E-01	4.01E-01	3.01E-01	8.05E-01	4.01E-01	3.01E-01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	3.07E+05	4.25E+04	5.18E+04	2.81E+05	3.76E+04	4.81E+04	2.63E+05	3.72E+04	4.74E+04	2.53E+05	3.70E+04	4.70E+04	2.43E+05	3.68E+04	4.66E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	2.77E+05	3.38E+05	3.88E+05	2.74E+05	3.35E+05	3.88E+05	2.74E+05	3.34E+05	3.88E+05	2.73E+05	3.32E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	8.17E+01	4.09E+01	3.07E+01	6.98E+01	3.49E+01	2.62E+01	6.96E+01	3.49E+01	2.61E+01	6.96E+01	3.48E+01	2.61E+01	6.98E+01	3.48E+01	2.61E+01
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	8.17E+01	4.09E+01	3.07E+01	6.98E+01	3.49E+01	2.62E+01	6.96E+01	3.49E+01	2.61E+01	6.96E+01	3.48E+01	2.61E+01	6.98E+01	3.48E+01	2.61E+01
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	1.36E+03	6.79E+02	5.09E+02	1.16E+03	5.80E+02	4.35E+02	1.16E+03	5.79E+02	4.34E+02	1.16E+03	5.78E+02	4.34E+02	1.16E+03	5.79E+02	4.34E+02
72-20-8	Endrin	endrin	10.8	2.3E-03	1.75E+01	8.75E+00	6.56E+00	1.50E+01	7.51E+00	5.64E+00	1.50E+01	7.50E+00	5.62E+00	1.50E+01	7.50E+00	5.62E+00	1.50E+01	7.50E+00	5.62E+00
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	2.21E+03	1.10E+03	8.27E+02	1.89E+03	9.48E+02	7.11E+02	1.89E+03	9.46E+02	7.09E+02	1.89E+03	9.46E+02	7.09E+02	1.90E+03	9.46E+02	7.09E+02
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	1.31E+03	1.07E+02	1.47E+02	1.16E+03	1.04E+02	1.43E+02	1.07E+03	1.02E+02	1.39E+02	1.01E+03	1.01E+02	1.37E+02	9.62E+02	9.93E+01	1.34E+02
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
86-73-7	Fluorene	fluorene	7.71	1.1E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	1.85E+01	5.00E+00	6.95E+00	1.58E+01	4.68E+00	5.92E+00	1.57E+01	4.51E+00	5.90E+00	1.57E+01	4.40E+00	5.90E+00	1.58E+01	4.29E+00	5.90E+00
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	5.30E-01	2.65E-01	1.99E-01	4.56E-01	2.28E-01	1.71E-01	4.55E-01	2.27E-01	1.70E-01	4.55E-01	2.27E-01	1.70E-01	4.56E-01	2.27E-01	1.70E-01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	2.28E+00	1.14E+00	8.54E-01	1.96E+00	9.80E-01	7.35E-01	1.95E+00	9.78E-01	7.33E-01	1.95E+00	9.78E-01	7.33E-01	1.96E+00	9.78E-01	7.33E-01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	1.57E+01	7.86E+00	5.90E+00	1.35E+01	6.76E+00	5.07E+00	1.35E+01	6.75E+00	5.06E+00	1.35E+01	6.75E+00	5.06E+00	1.35E+01	6.75E+00	5.06E+00
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	1.66E+04	8.38E+03	6.22E+03	1.43E+04	7.13E+03	5.35E+03	1.42E+04	7.12E+03	5.34E+03	1.42E+04	7.12E+03	5.34E+03	1.43E+04	7.12E+03	5.34E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	1.79E+03	6.33E+02	6.71E+02	1.53E+03	5.70E+02	5.73E+02	1.52E+03	5.57E+02	5.71E+02	1.52E+03	5.50E+02	5.71E+02	1.52E+03	5.42E+02	5.71E+02
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	5.90E+03	1.12E+03	1.72E+03	4.99E+03	1.07E+03	1.62E+03	4.97E+03	1.02E+03	1.55E+03	4.96E+03	9.97E+02	1.50E+03	4.97E+03	9.71E+02	1.45E+03
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	2.8E-03	6.82E+03	3.41E+03	2.56E+03	5.86E+03	2.93E+03	2.20E+03	5.85E+03	2.93E+03	2.19E+03	5.85E+03	2.93E+03	2.19E+03	5.87E+03	2.93E+03	2.19E+03
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	7.51E+01	1.49E+01	1.76E+01	6.95E+01	1.14E+01	1.41E+01	6.58E+01	1.13E+01	1.40E+01	6.36E+01	1.12E+01	1.39E+01	6.15E+01	1.12E+01	1.38E+01
7439-92-1	Lead	lead	30	2.1E+00	4.44E+04	2.22E+04	1.67E+04	3.82E+04	1.91E+04	1.43E+04	3.81E+04	1.91E+04	1.43E+04	3.81E+04	1.91E+04	1.43E+04	3.82E+04	1.91E+04	1.43E+04
7439-93-2	Lithium	Lithium	50	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7439-97-6	Mercury	mercury	30	1.2E-02	2.53E+02	1.26E+02	9.49E+01	2.17E+02	1.09E+02	8.16E+01	2.17E+02	1.09E+02	8.14E+01	2.17E+02	1.09E+02	8.14E+01	2.18E+02	1.09E+02	8.14E+01
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	1.68E+03	8.42E+02	6.32E+02	1.45E+03	7.25E+02	5.43E+02	1.45E+03	7.23E+02	5.42E+02	1.45E+03	7.23E+02	5.42E+02	1.45E+03	7.23E+02	5.42E+02
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	1.62E+01	4.86E+00	5.74E+00	1.42E+01	3.05E+00	3.58E+00	1.36E+01	2.92E+00	3.50E+00	1.32E+01	2.91E+00	3.49E+00	1.29E+01	2.91E+00	3.48E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-38-3	m-Xylene	Xylene, m-	0.2	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.18E+05	3.87E+04	4.56E+04	9.09E+04	2.23E+04	2.62E+04	8.74E+04	2.04E+04	2.42E+04	8.53E+04	2.03E+04	2.41E+04	8.33E+04	2.03E+04	2.41E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	5.29E+02	5.84E+01	7.55E+01	4.80E+02	5.53E+01	7.25E+01	4.47E+02	5.46E+01	7.12E+01	4.26E+02	5.41E+01	7.04E+01	4.08E+02	5.37E+01	6.96E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	2.56E-02	6.60E-03	7.79E-03	2.34E-02	4.45E-03	5.39E-03	2.24E-02	4.40E-03	5.35E-03	2.17E-02	4.39E-03	5.33E-03	2.11E-02	4.38E-03	5.31E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	3.08E+03	8.21E+02	1.16E+03	2.62E+03	7.71E+02	9.84E+02	2.61E+03	7.41E+02	9.80E+02	2.61E+03	7.22E+02	9.80E+02	2.62E+03	7.04E+02	9.80E+02
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	1.20E+02	1.46E+01	2.21E+01	1.01E+02	1.40E+01	2.10E+01	1.00E+02	1.35E+01	2.01E+01	1.00E+02	1.32E+01	1.95E+01	1.00E+02	1.29E+01	1.90E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	5.73E+04	1.41E+04	1.66E+04	5.25E+04	9.71E+03	1.18E+04	5.00E+04	9.61E+03	1.17E+04	4.85E+04	9.59E+03	1.17E+04	4.72E+04	9.57E+03	1.16E+04
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	1.77E+04	8.84E+03	6.63E+03	1.52E+04	7.59E+03	5.69E+03	1.51E+04	7.57E+03	5.67E+03	1.51E+04	7.57E+03	5.67E+03	1.52E+04	7.57E+03	5.67E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	2.6E+00	1.65E+05	8.24E+04	6.18E+04	1.42E+05	7.09E+04	5.32E+04	1.41E+05	7.07E+04	5.30E+04	1.41E+05	7.08E+04	5.30E+04	1.42E+05	7.07E+04	5.30E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	6.05E+01	4.29E+00	6.11E+00	5.34E+01	4.17E+00	5.89E+00	4.88E+01	4.07E+00	5.71E+00	4.60E+01	4.01E+00	5.59E+00	4.35E+01	3.94E+00	5.48E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	1.20E+04	5.98E+03	4.49E+03	1.03E+04	5.14E+03	3.86E+03	1.03E+04	5.13E+03	3.85E+03	1.03E+04	5.14E+03	3.85E+03	1.03E+04	5.13E+03	3.85E+03
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	5.51E+04	5.43E+03	7.20E+03	4.97E+04	5.24E+03	6.97E+03	4.60E+04	5.16E+03	6.83E+03	4.38E+04	5.11E+03	6.74E+03	4.18E+04	5.06E+03	6.65E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	1.34E+01	6.72E+00	5.04E+00	1.16E+01	5.78E+00	4.34E+00	1.15E+01	5.77E+00	4.33E+00	1.15E+01	5.77E+00	4.33E+00	1.16E+01	5.77E+00	4.33E+00
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.03E+03	2.25E+02	2.65E+02	9.55E+02	1.64E+02	2.02E+02	9.07E+02	1.63E+02	2.01E+02	8.78E+02	1.63E+02	2.00E+02	8.51E+02	1.62E+02	1.99E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	1.87E+00	4.67E-01	5.51E-01	1.71E+00	3.19E-01	3.88E-01	1.63E+00	3.16E-01	3.85E-01	1.58E+00	3.15E-01	3.83E-01	1.54E+00	3.15E-01	3.82E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	5.44E+01	6.92E+00	8.63E+00	4.97E+01	6.31E+00	8.14E+00	4.64E+01	6.25E+00	8.02E+00	4.45E+01	6.20E+00	7.94E+00	4.27E+01	6.16E+00	7.87E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	1.14E-01	3.08E-02	3.64E-02	1.03E-01	2.03E-02	2.44E-02	9.88E-02	2.00E-02	2.42E-02	9.61E-02	1.99E-02	2.41E-02	9.35E-02	1.99E-02	2.40E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1640000	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	3.29E+04	1.35E+04	1.23E+04	2.81E+04	1.19E+04	1.05E+04	2.80E+04	1.17E+04	1.05E+04	2.80E+04	1.16E+04	1.05E+04	2.81E+04	1.15E+04	1.05E+04
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	2.21E+05	7.22E+04	8.51E+04	1.74E+05	4.20E+04	4.93E+04	1.67E+05	3.87E+04	4.58E+04	1.63E+05	3.85E+04	4.57E+04	1.59E+05	3.84E+04	4.56E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	3.35E+05	1.01E+05	1.19E+05	2.91E+05	6.29E+04	7.41E+04	2.79E+05	6.02E+04	7.22E+04	2.72E+05	6.01E+04	7.20E+04	2.65E+05	6.00E+04	7.19E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	3.03E+05	6.16E+04	7.27E+04	2.80E+05	4.64E+04	5.75E+04	2.65E+05	4.62E+04	5.71E+04	2.57E+05	4.60E+04	5.67E+04	2.48E+05	4.59E+04	5.65E+04

RADs
Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	Preliminary Remediation Goal (pCi/g)														
				Base Case (Depth 1)			Base Case (Depth 2)			Base Case (Depth 3)			Base Case (Depth 4)			Base (Depth 5)		
				Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
Carbon-14	0	2000	5.7300E+03	5.25E+03	1.72E+03	2.03E+03	4.04E+03	9.90E+02	1.16E+03	3.89E+03	9.09E+02	1.07E+03	3.79E+03	9.02E+02	1.07E+03	3.71E+03	9.02E+02	1.07E+03
Cesium-137	50	200	3.0000E+01	2.68E+11	1.51E+10	1.61E+10	1.76E+11	1.22E+10	1.41E+10	1.51E+11	1.11E+10	1.33E+10	1.38E+11	1.04E+10	1.29E+10	1.27E+11	9.77E+09	1.25E+10
Cobalt-60	50	100	5.7210E+00	3.60E+11	1.48E+10	2.35E+10	2.70E+11	1.32E+10	2.05E+10	2.42E+11	1.23E+10	1.91E+10	2.26E+11	1.18E+10	1.82E+10	2.13E+11	1.13E+10	1.74E+10
Iodine-129	1	1	1.5700E+07	7.30E+02	1.96E+02	2.74E+02	6.19E+02	1.86E+02	2.32E+02	6.18E+02	1.78E+02	2.32E+02	6.18E+02	1.73E+02	2.32E+02	6.18E+02	1.69E+02	2.32E+02
Neptunium-237	15	15	2.1400E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel-63	30	50	9.6000E+01	7.36E+09	5.09E+08	4.43E+08	4.99E+09	4.19E+08	3.84E+08	4.44E+09	3.80E+08	3.62E+08	4.16E+09	3.57E+08	3.49E+08	3.92E+09	3.36E+08	3.36E+08
Strontium-90	25	8	2.9120E+01	1.07E+09	4.69E+07	7.25E+07	6.71E+08	3.99E+07	5.99E+07	5.76E+08	3.65E+07	5.44E+07	5.26E+08	3.45E+07	5.12E+07	4.82E+08	3.27E+07	4.83E+07
Technetium-99	0	900	2.1300E+05	2.36E+03	7.74E+02	9.12E+02	1.82E+03	4.45E+02	5.23E+02	1.75E+03	4.09E+02	4.83E+02	1.71E+03	4.06E+02	4.82E+02	1.67E+03	4.05E+02	4.81E+02
Tritium	0	20000	1.2350E+01	7.01E+04	1.91E+04	2.29E+04	5.56E+04	1.20E+04	1.45E+04	5.44E+04	1.17E+04	1.42E+04	5.36E+04	1.17E+04	1.42E+04	5.30E+04	1.17E+04	1.42E+04
Am-241	200	15	4.32E+02	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Carbon-14	200	2000	5.73E+03	2.8072E+08	1.4036E+08	1.0527E+08	2.4146E+08	1.2073E+08	9.0548E+07	2.4093E+08	1.2050E+08	9.0348E+07	2.4091E+08	1.2054E+08	9.0347E+07	2.4170E+08	1.2050E+08	9.0339E+07
Cm-243	200	15	2.85E+01	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Eu-152	200	200	1.33E+01	2.8072E+07	1.4036E+07	1.0527E+07	2.4146E+07	1.2073E+07	9.0548E+06	2.4093E+07	1.2050E+07	9.0348E+06	2.4091E+07	1.2054E+07	9.0347E+06	2.4170E+07	1.2050E+07	9.0339E+06
Eu-154	200	60	8.80E+00	8.4216E+06	4.2109E+06	3.1581E+06	7.2437E+06	3.6218E+06	2.7164E+06	7.2278E+06	3.6151E+06	2.7104E+06	7.2273E+06	3.6163E+06	2.7104E+06	7.2510E+06	3.6151E+06	2.7102E+06
Eu-155	200	600	4.96E+00	8.4216E+07	4.2109E+07	3.1581E+07	7.2437E+07	3.6218E+07	2.7164E+07	7.2278E+07	3.6151E+07	2.7104E+07	7.2273E+07	3.6163E+07	2.7104E+07	7.2510E+07	3.6151E+07	2.7102E+07
Nb-94	200	No Value	2.03E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu-238	200	15	8.77E+01	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Pu-239	200	15	2.41E+04	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Pu-240	200	15	6.54E+03	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Pu-241	200	300	1.40E+01	4.2108E+07	2.1055E+07	1.5790E+07	3.6218E+07	1.8109E+07	1.3582E+07	3.6139E+07	1.8076E+07	1.3552E+07	3.6136E+07	1.8081E+07	1.3552E+07	3.6255E+07	1.8076E+07	1.3551E+07
Ra-226	200	5	1.60E+03	7.0180E+05	3.5091E+05	2.6317E+05	6.0364E+05	3.0182E+05	2.2637E+05	6.0231E+05	3.0126E+05	2.2587E+05	6.0227E+05	3.0136E+05	2.2587E+05	6.0425E+05	3.0126E+05	2.2585E+05
Ra-228	200	5	5.75E+00	7.0180E+05	3.5091E+05	2.6317E+05	6.0364E+05	3.0182E+05	2.2637E+05	6.0231E+05	3.0126E+05	2.2587E+05	6.0227E+05	3.0136E+05	2.2587E+05	6.0425E+05	3.0126E+05	2.2585E+05
Th-228	200	15	1.91E+00	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Th-230	200	15	7.70E+04	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Th-232	200	15	1.41E+10	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05

Attachment 3

Summary of Screening Values for 100-0 Source Distribution

ECF-300FF5-11-0153, REV. 0

Groundwater Screening

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater	Ground Water Standard (ug/L)	GW_Screening (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	3.91E+02
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	2.70E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	9.12E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	1.49E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	7.50E+00
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	3.03E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	2.87E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	3.61E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	7.2E+01	5.54E+01
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.04E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	6.17E+01
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	1.55E+04
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	4.0E+00	1.91E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	4.90E+01
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	4.44E+02
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	9.69E+00
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	4.04E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	1.79E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	1.70E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	2.29E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	1.96E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	1.91E+01
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	3.2E+01	1.15E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	2.17E+03
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	1.48E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.73E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	3.80E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	1.99E+02
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	2.65E+02
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	2.08E+03
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	9.53E+00
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	9.81E+03
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	2.54E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	2.88E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	2.17E+02
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	3.99E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	5.05E+02
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	7.03E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	2.23E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	1.49E+00
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	2.95E-01
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	1.52E+02
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	2.71E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	6.38E+02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	5.38E+00
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	5.38E+00
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	2.34E+01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	2.29E+01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	3.94E+01
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	4.29E+02
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	2.10E+00
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	8.23E-01
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	5.14E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	7.86E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	1.15E+03
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	1.76E+03
7440-41-7	Beryllium	beryllium	790	4.0E+00	3.77E+04
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	1.25E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	4.78E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	4.8E+01	1.61E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	4.77E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	7.87E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	3.2E+03	1.15E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	6.72E-01
75-25-2	Bromoform	bromoform	0.13	5.5E+00	1.02E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	4.57E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	7.59E+03
7440-43-9	Cadmium	cadmium	30	5.0E+00	1.79E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	1.78E+02
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	6.77E+02
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	7.06E-01
57-74-9	Chlordane	chlordane	51	2.5E-01	1.52E+02
16887-00-6	Chloride	chloride	0	2.5E+05	7.56E+04

108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	2.90E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA
67-66-3	Chloroform	chloroform	0.053	1.4E+00	1.31E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	2.38E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	2.86E+03
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	5.09E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	2.72E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	2.86E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	6.4E+02	1.68E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	2.37E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	2.56E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E+01	2.16E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	5.45E-01
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	1.67E+00
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	1.63E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.04E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	2.36E+03
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	2.36E+03
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	2.58E+02
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	1.06E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.75E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	5.90E+04
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	1.30E+00
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	2.21E+00
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	4.77E+00
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	5.22E+01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	3.59E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	1.14E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	6.72E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	4.71E+02
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	1.2E-01	4.96E+03
7439-89-6	Iron	Iron	25	3.0E+02	8.95E+04
78-59-1	Isophorone	isophorone	0.0468	4.6E+01	3.94E+01
7439-92-1	Lead	lead	30	1.5E+01	5.37E+03
7439-93-2	Lithium	Lithium	50	3.2E+01	1.91E+04
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	2.98E+04
7439-97-6	Mercury	mercury	30	2.0E+00	7.16E+02
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	3.82E+04
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	2.10E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	1.91E+04
108-38-3	m-Xylene	Xylene, m-	0.2	1.6E+03	4.27E+03
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	2.32E+03
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	7.75E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	9.98E+02
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	2.73E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	3.03E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	7.31E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	1.8E+01	2.80E+02
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	5.02E+03
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	5.34E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	1.54E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	6.72E+00
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	2.99E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	8.0E+01	8.58E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	1.11E+03
14808-79-8	Sulfate	sulfate	0	2.5E+05	7.56E+04
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	2.82E-01
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	4.23E+02
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	1.25E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	9.09E+01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	7.51E+01
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	2.72E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	6.95E-01
7440-62-2	Vanadium	vanadium	1000	8.0E+01	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	3.20E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	4.83E+03
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16,000	5.03E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	2.17E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	2.51E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	6.66E+02
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	1.97E+03

Surfacewater Screening

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater	Surface Water Standard (ug/L)	SW_Screening (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	2.10E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	7.01E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	6.83E+04
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	6.10E-02
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	3.94E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	2.01E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	2.85E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	1.62E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	4.29E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	3.2E+02	1.74E+03
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	1.64E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	9.42E+03
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	1.4E+00	6.73E+00
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E+01	1.57E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	1.05E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	2.09E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	1.57E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	1.32E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.9E+05	1.75E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.58E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	3.96E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	3.4E+03	1.64E+03
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	1.4E+02	4.97E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	6.58E+04
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	2.40E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	1.87E-01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	9.38E+01
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	1.69E-01
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	2.27E-01
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	1.78E+00
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+01	9.68E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	1.87E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	5.38E+00
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	2.75E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	7.96E+03
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	7.39E+01
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	1.59E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	4.71E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	2.29E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	2.85E-02
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	5.53E-02
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	3.47E-01
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	2.53E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	8.16E-02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	6.4E-05	7.88E-03
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	6.4E-05	7.88E-03
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	6.4E-05	3.42E-02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	3.35E-02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	5.77E-02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	6.27E-01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	6.49E-01
7440-39-3	Barium	Barium	25	1.0E+03	2.98E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	1.24E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	1.20E+01
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	1.84E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	2.68E+01
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	4.11E+01
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	2.35E-01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	2.87E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	2.3E+03	7.85E+02
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	3.0E-02	3.60E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	1.57E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	No Value	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	2.57E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	7.91E+00
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	1.92E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	1.36E+03
7440-43-9	Cadmium	cadmium	30	2.5E-01	8.95E+01
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.12E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	4.83E-01
57-74-9	Chlordane	chlordane	51	5.7E-04	3.47E-01
16887-00-6	Chloride	chloride	0	2.3E+05	6.96E+04
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	3.77E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA

67-66-3	Chloroform	chloroform	0.053	5.7E+00	5.29E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA
7440-47-3	Chromium	chromium (total)	200	6.5E+01	1.55E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	6.68E+00
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	1.70E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	2.11E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	1.55E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	9.0E+00	2.36E+03
57-12-5	Cyanide	cyanide	9.9	5.2E+00	6.15E+02
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	5.97E+01
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	2.30E+02
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	4.19E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	1.59E-02
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	2.16E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	1.82E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	3.80E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	1.38E+00
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	1.38E+00
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	2.29E+01
72-20-8	Endrin	endrin	10.8	2.3E-03	2.97E-01
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	3.74E+01
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	4.19E+01
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	5.28E+04
86-73-7	Fluorene	fluorene	7.71	1.1E+03	1.01E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	3.11E-01
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	9.00E-03
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	3.87E-02
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	2.67E-01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	2.82E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	9.54E+04
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	3.01E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	9.81E+01
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	2.8E-03	1.16E+02
7439-89-6	Iron	Iron	25	3.0E+02	8.95E+04
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	7.18E+00
7439-92-1	Lead	lead	30	2.1E+00	7.54E+02
7439-93-2	Lithium	Lithium	50	No Value	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	2.98E+04
7439-97-6	Mercury	mercury	30	1.2E-02	4.29E+00
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	2.86E+01
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	1.93E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.09E+05
108-38-3	m-Xylene	Xylene, m-	0.2	No Value	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	7.15E+04
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	4.03E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	2.91E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	2.93E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	5.17E+01
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	1.98E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	6.42E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	2.99E+02
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	2.6E+00	2.80E+03
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	1.35E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	2.03E+02
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	2.54E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	2.28E-01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.05E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	2.11E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	3.53E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	1.32E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.26E+04
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1.64E+06	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	5.55E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	2.58E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	3.99E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	2.93E+04

RADS
GW_Screening

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	GW_Screening (pCi/g)
Carbon-14	0	2000	5.7300E+03	6.15E+02
Cesium-137	50	200	3.0000E+01	2.35E+05
Cobalt-60	50	100	5.7210E+00	3.74E+05
Iodine-129	1	1	1.5700E+07	1.22E+01
Neptunium-237	15	15	2.1400E+06	2.68E+03
Nickel-63	30	50	9.6000E+01	2.20E+04
Strontium-90	25	8	2.9120E+01	3.81E+03
Technetium-99	0	900	2.1300E+05	2.77E+02
Tritium	0	20000	1.2350E+01	9.17E+03
Am-241	200	15	4.32E+02	3.56E+04
Carbon-14	200	2000	5.73E+03	4.74E+06
Cm-243	200	15	2.85E+01	3.56E+04
Eu-152	200	200	1.33E+01	4.74E+05
Eu-154	200	60	8.80E+00	1.42E+05
Eu-155	200	600	4.96E+00	1.42E+06
Nb-94	200	No Value	2.03E+04	NA
Pu-238	200	15	8.77E+01	3.56E+04
Pu-239	200	15	2.41E+04	3.56E+04
Pu-240	200	15	6.54E+03	3.56E+04
Pu-241	200	300	1.40E+01	7.11E+05
Ra-226	200	5	1.60E+03	1.19E+04
Ra-228	200	5	5.75E+00	1.19E+04
Th-228	200	15	1.91E+00	3.56E+04
Th-230	200	15	7.70E+04	3.56E+04
Th-232	200	15	1.41E+10	3.56E+04

ECF-300FF5-11-0153, REV. 0

Attachment 4

Summary of PRG Values for effective 100-0 Source Distribution

ECF-300FF5-11-0153, REV. 0

Groundwater PRG

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Ground Water Standard (ug/L)	GW_PRG (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	7.78E+02
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	4.58E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	1.52E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	2.34E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	1.22E+01
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	4.87E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	1.10E+04
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	5.58E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	7.2E+01	8.67E+01
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.63E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	4.22E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	2.38E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	4.0E+00	7.35E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	9.78E+01
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	1.07E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	1.44E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	7.08E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	2.94E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	2.50E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	7.73E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	2.85E+01
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	3.2E+01	2.17E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	9.60E+03
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	2.33E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.47E+01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	5.97E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	3.77E+03
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	5.02E+03
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	3.94E+04
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	6.38E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	5.08E+04
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	4.19E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	4.30E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	9.60E+02
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	6.27E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	1.63E+03
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	3.32E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	2.83E+01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	5.20E+00
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	2.88E+03
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	5.13E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	1.21E+04
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	1.02E+02
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	1.02E+02
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	4.43E+02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	4.34E+02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	7.47E+02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	8.12E+03
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	3.99E+01
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	1.34E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	9.74E+03
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	1.49E+04
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	2.17E+04
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	3.33E+04
7440-41-7	Beryllium	beryllium	790	4.0E+00	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	2.38E+01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	7.46E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	4.8E+01	2.37E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	7.98E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	1.49E+05
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	3.2E+03	3.88E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	1.07E+00
75-25-2	Bromoform	bromoform	0.13	5.5E+00	1.97E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	6.82E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	1.44E+05
7440-43-9	Cadmium	cadmium	30	5.0E+00	3.39E+04
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	3.37E+03
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	1.06E+03
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	1.42E+00
57-74-9	Chlordane	chlordane	51	2.5E-01	2.88E+03
16887-00-6	Chloride	chloride	0	2.5E+05	1.13E+05
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	7.25E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA
67-66-3	Chloroform	chloroform	0.053	1.4E+00	2.07E+00

74-87-3	Chloromethane	chloromethane	0.006	No Value	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	3.88E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	5.41E+04
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	7.76E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	4.05E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	5.42E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	6.4E+02	3.88E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	3.88E+05
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	4.85E+04
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E+01	4.09E+04
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	8.88E-01
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	3.16E+01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	2.77E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	4.48E+04
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	4.48E+04
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	4.89E+03
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	2.51E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.88E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	1.80E+01
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	4.20E+01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	9.04E+01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	9.88E+02
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	6.80E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	1.21E+03
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	4.66E+03
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	1.2E-01	9.39E+04
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	4.6E+01	6.15E+01
7439-92-1	Lead	lead	30	1.5E+01	1.02E+05
7439-93-2	Lithium	Lithium	50	3.2E+01	3.61E+05
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05
7439-97-6	Mercury	mercury	30	2.0E+00	1.36E+04
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	3.88E+05
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	3.16E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	3.62E+05
108-38-3	m-Xylene	Xylene, m-	0.2	1.6E+03	1.01E+04
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	3.13E+04
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	2.03E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	1.49E+03
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	5.06E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	4.51E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	4.51E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	4.51E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	1.10E-02
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	1.8E+01	3.81E+03
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	1.34E+04
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	3.48E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	2.30E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	1.27E+02
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	5.67E+04
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	8.0E+01	3.88E+05
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	1.33E+04
14808-79-8	Sulfate	sulfate	0	2.5E+05	1.13E+05
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	8.25E-01
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	8.02E+03
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	2.49E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	1.72E+03
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	1.16E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	4.05E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	1.21E+00
7440-62-2	Vanadium	vanadium	1000	8.0E+01	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	4.84E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	1.25E+04
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16000	7.50E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	4.11E+03
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	3.75E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	1.00E+03
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	3.07E+03

Surfacewater PRG

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Surface Water Standard (ug/L)	SW_PRG (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	3.56E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	1.17E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	1.08E+05
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	9.95E-02
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	6.33E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	7.67E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	4.41E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	2.53E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	6.69E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	3.2E+02	7.68E+03
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	1.12E+03
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	1.45E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	1.4E+00	2.59E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E+01	3.14E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	2.55E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	3.11E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	2.76E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	2.16E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.9E+05	2.57E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	1.57E+03
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	3.4E+03	2.45E+03
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	1.4E+02	9.42E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	2.91E+05
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	3.78E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	1.59E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	1.47E+02
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	3.21E+00
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	4.29E+00
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	3.37E+01
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+01	6.48E+02
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	3.88E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	8.89E+00
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	4.10E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	3.52E+04
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	1.16E+02
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	5.13E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	3.41E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	5.39E-01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	9.74E-01
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	6.57E+00
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	4.79E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	1.55E+00
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	6.4E-05	1.49E-01
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	6.4E-05	1.49E-01
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	6.4E-05	6.48E-01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	6.35E-01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	1.09E+00
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	1.19E+01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	1.23E+01
7440-39-3	Barium	Barium	25	1.0E+03	3.88E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	2.02E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	2.28E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	3.48E+03
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	5.08E+02
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	7.78E+02
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	4.45E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	4.47E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	2.3E+03	1.16E+03
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	3.0E-02	6.02E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	2.98E+04
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	No Value	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	4.09E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	1.53E+01
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	2.86E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	2.57E+04
7440-43-9	Cadmium	cadmium	30	2.5E-01	1.70E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.75E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	9.70E-01
57-74-9	Chlordane	chlordane	51	5.7E-04	6.57E+00
16887-00-6	Chloride	chloride	0	2.3E+05	1.04E+05
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	9.43E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA
67-66-3	Chloroform	chloroform	0.053	5.7E+00	8.35E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA

7440-47-3	Chromium	chromium (total)	200	6.5E+01	3.88E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	1.26E+02
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	2.59E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	3.15E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	2.93E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	9.0E+00	4.48E+04
57-12-5	Cyanide	cyanide	9.9	5.2E+00	1.17E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	1.13E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	4.36E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	6.82E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	3.01E-01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	3.68E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	2.73E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	2.61E+01
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	2.61E+01
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	4.34E+02
72-20-8	Endrin	endrin	10.8	2.3E-03	5.62E+00
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	7.09E+02
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	9.93E+01
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	3.88E+05
86-73-7	Fluorene	fluorene	7.71	1.1E+03	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	4.29E+00
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	1.70E-01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	7.33E-01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	5.06E+00
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	5.34E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	5.42E+02
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	9.71E+02
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	2.8E-03	2.19E+03
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	1.12E+01
7439-92-1	Lead	lead	30	2.1E+00	1.43E+04
7439-93-2	Lithium	Lithium	50	No Value	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05
7439-97-6	Mercury	mercury	30	1.2E-02	8.14E+01
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	5.42E+02
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	2.91E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.88E+05
108-38-3	m-Xylene	Xylene, m-	0.2	No Value	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	3.88E+05
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	2.03E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	5.37E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	4.51E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	4.51E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	4.38E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	7.04E+02
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	1.29E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	9.57E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	5.67E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	2.6E+00	5.30E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	3.94E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	3.85E+03
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	5.06E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	4.33E+00
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.62E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	3.15E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	6.16E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	1.99E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1.64E+06	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	1.05E+04
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	3.84E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	6.00E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	4.59E+04

RADs
Groundwater PRG
Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	GW_PRG (pCi/g)
Carbon-14	0	2000	5.7300E+03	9.02E+02
Cesium-137	50	200	3.0000E+01	9.77E+09
Cobalt-60	50	100	5.7210E+00	1.13E+10
Iodine-129	1	1	1.5700E+07	1.69E+02
Neptunium-237	15	15	2.1400E+06	NA
Nickel-63	30	50	9.6000E+01	3.36E+08
Strontium-90	25	8	2.9120E+01	3.27E+07
Technetium-99	0	900	2.1300E+05	4.05E+02
Tritium	0	20000	1.2350E+01	1.17E+04
Am-241	200	15	4.32E+02	6.78E+05
Carbon-14	200	2000	5.73E+03	9.03E+07
Cm-243	200	15	2.85E+01	6.78E+05
Eu-152	200	200	1.33E+01	9.03E+06
Eu-154	200	60	8.80E+00	2.71E+06
Eu-155	200	600	4.96E+00	2.71E+07
Nb-94	200	No Value	2.03E+04	NA
Pu-238	200	15	8.77E+01	6.78E+05
Pu-239	200	15	2.41E+04	6.78E+05
Pu-240	200	15	6.54E+03	6.78E+05
Pu-241	200	300	1.40E+01	1.36E+07
Ra-226	200	5	1.60E+03	2.26E+05
Ra-228	200	5	5.75E+00	2.26E+05
Th-228	200	15	1.91E+00	6.78E+05
Th-230	200	15	7.70E+04	6.78E+05
Th-232	200	15	1.41E+10	6.78E+05

Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

					GW_Screening (mg/kg)														
					Column 1			Column 2			Column 3			Column 4			Column 5		
CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Ground Water Standard (ug/L)	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	4.62E+02	4.50E+02	4.39E+02	4.19E+02	4.02E+02	3.92E+02	4.15E+02	4.03E+02	3.92E+02	4.16E+02	4.00E+02	3.91E+02	4.16E+02	4.05E+02	3.92E+02
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	3.35E-01	3.89E-01	3.52E-01	2.91E-01	2.82E-01	2.74E-01	2.87E-01	2.79E-01	2.71E-01	2.86E-01	2.78E-01	2.70E-01	2.86E-01	2.78E-01	2.70E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	1.14E+00	1.36E+00	1.22E+00	9.83E-01	9.52E-01	9.25E-01	9.67E-01	9.40E-01	9.14E-01	9.65E-01	9.39E-01	9.13E-01	9.65E-01	9.39E-01	9.12E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	1.94E+03	2.62E+03	2.40E+03	1.60E+03	1.56E+03	1.51E+03	1.57E+03	1.53E+03	1.49E+03	1.57E+03	1.53E+03	1.49E+03	1.57E+03	1.53E+03	1.49E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	9.51E+00	1.23E+01	1.07E+01	8.08E+00	7.84E+00	7.62E+00	7.94E+00	7.73E+00	7.51E+00	7.92E+00	7.72E+00	7.50E+00	7.92E+00	7.72E+00	7.50E+00
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	3.26E+01	3.13E+01	3.05E+01	3.25E+01	3.11E+01	3.03E+01	3.25E+01	3.09E+01	3.03E+01	3.24E+01	3.11E+01	3.03E+01	3.25E+01	3.11E+01	3.03E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	3.21E+03	3.10E+03	3.02E+03	3.09E+03	2.96E+03	2.89E+03	3.08E+03	2.95E+03	2.87E+03	3.08E+03	2.96E+03	2.87E+03	3.08E+03	2.97E+03	2.89E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	5.00E-01	6.61E-01	7.52E-01	3.91E-01	3.86E-01	3.72E-01	3.81E-01	3.73E-01	3.62E-01	3.80E-01	3.72E-01	3.61E-01	3.79E-01	3.72E-01	3.61E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene;1,2- (mixed isomers)	0.0396	7.2E+01	7.62E+01	1.01E+02	1.12E+02	6.01E+01	5.91E+01	5.70E+01	5.85E+01	5.72E+01	5.56E+01	5.83E+01	5.71E+01	5.54E+01	5.83E+01	5.71E+01	5.54E+01
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.39E+00	1.86E+00	1.83E+00	1.13E+00	1.10E+00	1.07E+00	1.10E+00	1.08E+00	1.04E+00	1.10E+00	1.07E+00	1.04E+00	1.10E+00	1.07E+00	1.04E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	6.77E+01	6.52E+01	6.35E+01	6.63E+01	6.35E+01	6.19E+01	6.62E+01	6.32E+01	6.17E+01	6.61E+01	6.35E+01	6.17E+01	6.61E+01	6.36E+01	6.19E+01
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	1.67E+04	1.60E+04	1.56E+04	1.66E+04	1.59E+04	1.55E+04	1.66E+04	1.58E+04	1.55E+04	1.66E+04	1.59E+04	1.55E+04	1.66E+04	1.59E+04	1.55E+04
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	4.0E+00	2.14E+01	2.06E+01	2.01E+01	2.06E+01	1.97E+01	1.92E+01	2.05E+01	1.97E+01	1.91E+01	2.05E+01	1.97E+01	1.91E+01	2.05E+01	1.98E+01	1.92E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	5.75E+01	5.61E+01	5.47E+01	5.24E+01	5.02E+01	4.90E+01	5.20E+01	5.04E+01	4.90E+01	5.21E+01	5.01E+01	4.90E+01	5.20E+01	5.06E+01	4.91E+01
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	5.10E+02	4.95E+02	4.82E+02	4.76E+02	4.56E+02	4.45E+02	4.73E+02	4.57E+02	4.44E+02	4.74E+02	4.56E+02	4.44E+02	4.72E+02	4.59E+02	4.45E+02
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	2.42E+01	2.29E+01	2.70E+01	1.13E+01	1.56E+01	1.79E+01	1.01E+01	1.16E+01	1.05E+01	9.94E+00	1.04E+01	9.84E+00	9.88E+00	1.01E+01	9.69E+00
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	4.90E-01	5.30E-01	4.71E-01	4.30E-01	4.20E-01	4.09E-01	4.29E-01	4.16E-01	4.04E-01	4.28E-01	4.16E-01	4.04E-01	4.28E-01	4.16E-01	4.04E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	2.25E+01	2.80E+01	2.48E+01	1.93E+01	1.87E+01	1.82E+01	1.90E+01	1.85E+01	1.79E+01	1.90E+01	1.84E+01	1.79E+01	1.89E+01	1.84E+01	1.79E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	3.64E+03	3.80E+03	4.48E+03	1.93E+03	2.69E+03	2.48E+03	1.78E+03	1.88E+03	1.77E+03	1.76E+03	1.78E+03	1.71E+03	1.75E+03	1.76E+03	1.70E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	2.46E+04	2.36E+04	2.30E+04	2.46E+04	2.36E+04	2.29E+04	2.46E+04	2.34E+04	2.30E+04	2.45E+04	2.36E+04	2.30E+04	2.46E+04	2.36E+04	2.29E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	2.18E+02	2.11E+02	2.05E+02	2.11E+02	2.02E+02	1.97E+02	2.10E+02	2.01E+02	1.96E+02	2.10E+02	2.02E+02	1.96E+02	2.10E+02	2.02E+02	1.97E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	3.27E+01	3.89E+01	4.59E+01	2.11E+01	2.42E+01	2.18E+01	2.01E+01	2.00E+01	1.93E+01	1.99E+01	1.98E+01	1.92E+01	1.99E+01	1.98E+01	1.91E+01
91-57-6	2-Methylnaphthalene	methylnaphthalene;2-	2.98	3.2E+01	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.17E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	2.42E+03	2.33E+03	2.27E+03	2.34E+03	2.24E+03	2.19E+03	2.33E+03	2.24E+03	2.18E+03	2.33E+03	2.24E+03	2.17E+03	2.33E+03	2.25E+03	2.19E+03
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	1.93E+02	2.61E+02	2.40E+02	1.60E+02	1.56E+02	1.51E+02	1.56E+02	1.53E+02	1.48E+02	1.56E+02	1.52E+02	1.48E+02	1.56E+02	1.52E+02	1.48E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.89E+00	1.82E+00	1.77E+00	1.86E+00	1.78E+00	1.74E+00	1.86E+00	1.77E+00	1.73E+00	1.85E+00	1.78E+00	1.73E+00	1.86E+00	1.78E+00	1.73E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	4.98E+00	6.72E+00	6.25E+00	4.10E+00	4.00E+00	3.88E+00	4.02E+00	3.92E+00	3.81E+00	4.01E+00	3.91E+00	3.80E+00	4.00E+00	3.91E+00	3.80E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	2.12E+02	2.03E+02	1.98E+02	2.14E+02	2.05E+02	1.99E+02	2.14E+02	2.03E+02	2.00E+02	2.13E+02	2.05E+02	2.00E+02	2.14E+02	2.05E+02	1.99E+02
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	2.83E+02	2.71E+02	2.64E+02	2.84E+02	2.73E+02	2.65E+02	2.85E+02	2.71E+02	2.66E+02	2.84E+02	2.73E+02	2.66E+02	2.85E+02	2.72E+02	2.65E+02
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	2.32E+03	2.12E+03	2.07E+03	2.23E+03	2.14E+03	2.08E+03	2.22E+03	2.08E+03	2.14E+03	2.23E+03	2.14E+03	2.08E+03	2.23E+03	2.14E+03	2.08E+03
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	1.05E+01	1.01E+01	9.81E+00	1.02E+01	9.81E+00	9.55E+00	1.02E+01	9.76E+00	9.53E+00	1.02E+01	9.80E+00	9.53E+00	1.02E+01	9.83E+00	9.55E+00
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	1.08E+04	1.05E+04	1.02E+04	1.05E+04	1.01E+04	9.85E+03	1.05E+04	1.01E+04	9.81E+03	1.05E+04	1.01E+04	9.81E+03	1.05E+04	1.01E+04	9.85E+03
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	3.17E-01	3.85E-01	3.43E-01	2.73E-01	2.65E-01	2.57E-01	2.69E-01	2.61E-01	2.54E-01	2.68E-01	2.61E-01	2.54E-01	2.68E-01	2.61E-01	2.54E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	5.12E+02	5.96E+02	7.03E+02	3.19E+02	3.83E+02	3.40E+02	3.02E+02	3.03E+02	2.92E+02	3.00E+02	2.98E+02	2.89E+02	2.99E+02	2.98E+02	2.88E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	2.42E+02	2.33E+02	2.27E+02	2.34E+02	2.24E+02	2.19E+02	2.33E+02	2.24E+02	2.18E+02	2.33E+02	2.24E+02	2.17E+02	2.33E+02	2.25E+02	2.19E+02
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	5.23E+00	7.05E+00	6.57E+00	4.31E+00	4.20E+00	4.07E+00	4.22E+00	4.12E+00	4.00E+00	4.21E+00	4.11E+00	3.99E+00	4.20E+00	4.11E+00	3.99E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	5.52E+02	5.52E+02	5.37E+02	5.45E+02	5.09E+02	5.22E+02	5.20E+02	5.22E+02	5.05E+02	5.42E+02	5.21E+02	5.06E+02	5.40E+02	5.24E+02	5.09E+02
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	7.52E+04	7.21E+04	7.02E+04	7.54E+04	7.23E+04	7.04E+04	7.54E+04	7.18E+04	7.04E+04	7.53E+04	7.23E+04	7.04E+04	7.54E+04	7.23E+04	7.03E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	5.43E+03	5.22E+03	6.15E+03	2.57E+03	3.57E+03	3.96E+03	2.32E+03	2.62E+03	2.39E+03	2.29E+03	2.37E+03	2.26E+03	2.28E+03	2.32E+03	2.23E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	1.59E+00	1.53E+00	1.49E+00	1.60E+00	1.54E+00	1.50E+00	1.60E+00	1.53E+00	1.50E+00	1.60E+00	1.54E+00	1.50E+00	1.60E+00	1.54E+00	1.49E+00
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	3.18E-01	3.05E-01	2.97E-01	3.17E-01	3.04E-01	2.96E-01	3.17E-01	3.02E-01	2.96E-01	3.16E-01	3.04E-01	2.96E-01	3.17E-01	3.04E-01	2.95E-01
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	1.62E+02	1.55E+02	1.51E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.55E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	2.98E+02	2.78E+02	2.78E+02	2.90E+02	2.78E+02	2.71E+02	2.90E+02	2.76E+02	2.71E+02	2.90E+02	2.78E+02	2.71E+02	2.90E+02	2.78E+02	2.71E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	6.80E+02	6.52E+02	6.34E+02	6.84E+02	6.56E+02	6.38E+02	6.85E+02	6.51E+02	6.39E+02	6.83E+02	6.56E+02	6.39E+02	6.85E+02	6.56E+02	6.38E+02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	5.75E+00	5.51E+00	5.37E+00	5.77E+00	5.53E+00	5.39E+00	5.78E+00	5.50E+00	5.40E+00	5.76E+00	5.54E+00	5.40E+00	5.78E+00	5.53E+00	5.38E+00
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	5.75E+00	5.51E+00	5.37E+00	5.77E+00	5.53E+00	5.39E+00	5.78E+00	5.50E+00	5.40E+00	5.76E+00	5.54E+00	5.40E+00	5.78E+00	5.53E+00	5.38E+00
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	2.49E+01	2.39E+01	2.33E+01	2.51E+01	2.40E+01	2.34E+01	2.51E+01	2.39E+01	2.34E+01	2.50E+01	2.40E+01	2.34E+01	2.51E+01	2.40E+01	2.34E+01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	2.44E+01	2.34E+01	2.28E+01	2.46E+01	2.35E+01	2.29E+01	2.46E+01	2.34E+01	2.30E+01	2.45E+01	2.36E+01	2.30E+01	2.46E+01	2.35E+01	2.29E+01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	4.21E+01	4.03E+01	3.92E+01	4.23E+01	4.05E+01	3.95E+01	4.23E+01	4.02E+01	3.95E+01	4.22E+01	4.06E+01	3.95E+01	4.23E+01	4.05E+01	3.94E+01
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	4.57E+02	4.38E+02	4.26E+02	4.60E+02	4.41E+02	4.29E+02	4.60E+02	4.37E+02	4.30E+02	4.59E+02	4.41E+02	4.30E+02	4.60E+02	4.41E+02	4.29E+02
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	2.26E+00	2.16E+00	2.11E+00	2.25E+00	2.16E+00	2.10E+00	2.26E+00	2.15E+00	2.11E+00	2.25E+00	2.16E+00	2.11E+00	2.26E+00	2.16E+00	2.10E+00
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	1.05E+00	1.39E+00	1.21E+00	8.88E-01	8.62E-01	8.37E-01	8.71E-01	8.49E-01	8.24E-01	8.70E-01	8.48E-01	8.23E-01	8.69E-01	8.47E-01	8.23E-01
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	5.49E+02	5.25E+02	5.12E+02	5.52E+02	5.29E+02	5.15E+02	5.52E+02	5.25E+02	5.16E+02	5.51E+02	5.29E+02	5.16E+02	5.52E+02	5.29E+02	5.14E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	8.38E+02	8.03E+02	7.81E+02	8.43E+02	8.08E+02	7.86E+02	8.43E+02	8.02E+02	7.88E+02	8.41E+02	8.08E+02	7.88E+02	8.44E+02	8.08E+02	7.86E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	1.22E+03	1.17E+03	1.14E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.17E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03	1.23E+03	1.18E+03	1.15E+03
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	1.87E+03	1.79E+03	1.75E+03	1.88E+03	1.81E+03	1.76E+03	1.89E+03	1.79E+03	1.76E+03	1.88E+03	1.81E+03	1.76E+03	1.89E+03	1.81E+03	1.76E+03
7440-41-7	Beryllium	beryllium	790	4.0E+00	4.02E+04	3.85E+04	3.75E+04	4.04E+04	3.87E+04	3.77E+04	4.04E+04	3.84E+04	3.78E+04	4.03E+04	3.87E+04	3.78E+04	4.04E+04	3.87E+04	3.77E+04
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	1.35E+00	1.29E+00	1.26E+00	1.34E+00	1.29E+00	1.26E+00	1.34E+00	1.28E+00	1.26E+00	1.34E+00	1.29E+00	1.26E+00	1.34E+00	1.29E+00	1.25E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	6.59E-01	8.72E-01	9.70E-01	5.18E-01	5.10E-01	4.92E-01	5.05E-01	4.94E-01	4.79E-01	5.03E-01	4.93E-01	4.78E-01	5.03E-01	4.93E-01	4.78E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxy)methane	0.00277	4.8E+01	3.63E+01	3.66E+01	4.31E+01	1.84E+01	2.56E+01	2.53E+01	1.68E+01	1.81E+01	1.69E+01	1.66E+01	1.69E+01	1.62E+01	1.65E+01	1.67E+01	1.61E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	5.94E-02	7.04E-02	6.33E-02	5.14E-02	4.98E-02	4.84E-02	5.06E-02	4.92E-02	4.78E-02	5.05E-02	4.91E-02	4.78E-02	5.05E-02	4.91E-02	4.77E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	8.39E+03	8.04E+03	7.83E+03	8.44E+03	8.09E+03	7.88E+03	8.45E+03	8.03E+03	7.89E+03	8.42E+03	8.09E+03	7.89E+03	8.45E+03	8.09E+03	7.87E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	3.2E+03	1.24E+05	1.19E+05	1.16E+05	1.24E+05	1.19E+05	1.15E+05	1.24E+05	1.18E+05	1.16E+05	1.23E+05	1.19E+05	1.16E+05	1.24E+05	1.19E+05	1.15E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	8.73E-01	1.18E+00	1.06E+00	7.26E-01	7.06E-01	6.85E-01	7.11E-01	6.93E-01	6.73E-01	7.09E-01	6.92E-01	6.72E-01	7.09E-01	6.92E-01	6.72E-01
75-25-2	Bromoform	bromoform	0.13	5.5E+00	1.21E+01	1.18E+01	1.15E+01	1.09E+01	1.04E+01	1.02E+01	1.08E+01	1.05E+01	1.02E+01	1.08E+01	1.05E+01	1.02E+01	1.08E+01	1.05E+01	1.02E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	8.71E+00	9.73E+00	1.15E+01	5.10E+00	6.75E+00	5.77E+00	4.78E+00	4.86E+00	4.65E+00	4.74E+00	4.74E+00	4.58E+00	4.73E+00	4.72E+00	4.57E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	8.10E+03	7.76E+03	7.56E+03	8.14E+03	7.80E+03	7.60E+03	8.14E+03	7.74E+03	7.61E+03	8.12E+03	7.80E+03	7.61E+03	8.15E+03	7.80E+03	7.59E+03
7440-43-9	Cadmium	cadmium	30	5.0E+00	1.91E+03	1.83E+03	1.78E+03	1.92E+03	1.84E+03	1.79E+03	1.92E+03	1.83E+03	1.79E+03	1.92E+03	1.84E+03	1.79E+03	1.92E+03	1.84E+03	1.79E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	1.91E+02	1.83E+02	1.78E+02	1.91E+02	1.83E+02	1.78E+02	1.91E+02	1.82E+02	1.78E+02	1.91E+02	1.83E+02	1.78E+02	1.91E+02	1.83E+02	1.78E+02
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	9.05E+02	1.21E+03	1.21E+03	7.32E+02	7.15E+02	6.93E+02	7.15E+02	6.99E+02	6.78E+02	7.13E+02	6.97E+02	6.77E+02	7.13E+02	6.97E+02	6.77E+02
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	8.28E-01	8.07E-01	7.87E-01	7.56E-01	7.25E-01	7.07E-01	7.50E-01	7.27E-01	7.07E-01	7.52E-01	7.23E-01	7.06E-01	7.51E-01	7.30E-01	7.08E-01
57-74-9	Chlordane	chlordane	51	2.5E-01	1.62E+02	1.55E+02	1.51E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.55E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02	1.63E+02	1.56E+02	1.52E+02
16887-00-6	Chloride	chloride	0	2.5E+05	1.89E+05	1.79E+05	2.11E+05	8.81E+04	1.22E+05	1.40E+05	7.89E+04	9.02E+04	8.19E+04	7.76E+04	8.09E+04	7.68E+04	7.71E+04	7.87E+04	7.56E+04
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	3.32E+02	3.23E+02	3.14E+02	3.12E+02	2.99E+02	2.91E+02	3.10E+02	2.99E+02	2.91E+02	3.10E+02	2.98E+02	2.90E+02	3.09E+02	3.00E+02	2.91E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

67-66-3	Chloroform	chloroform	0.053	1.4E+00	1.71E+00	2.31E+00	2.12E+00	1.42E+00	1.38E+00	1.34E+00	1.39E+00	1.35E+00	1.31E+00	1.38E+00	1.35E+00	1.31E+00	1.38E+00	1.35E+00	1.31E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	2.54E+05	2.44E+05	2.37E+05	2.56E+05	2.45E+05	2.39E+05	2.56E+05	2.43E+05	2.39E+05	2.55E+05	2.45E+05	2.39E+05	2.56E+05	2.45E+05	2.38E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	3.05E+03	2.92E+03	2.84E+03	3.07E+03	2.94E+03	2.86E+03	3.07E+03	2.92E+03	2.86E+03	3.06E+03	2.94E+03	2.86E+03	3.07E+03	2.94E+03	2.86E+03
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	7.13E+01	9.37E+01	1.11E+02	5.52E+01	5.46E+01	5.26E+01	5.37E+01	5.26E+01	5.10E+01	5.35E+01	5.25E+01	5.09E+01	5.35E+01	5.25E+01	5.09E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	4.05E-01	5.17E-01	6.11E-01	2.96E-01	3.02E-01	2.86E-01	2.86E-01	2.81E-01	2.73E-01	2.85E-01	2.80E-01	2.72E-01	2.84E-01	2.80E-01	2.72E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	3.05E+03	2.92E+03	2.85E+03	3.07E+03	2.94E+03	2.86E+03	3.07E+03	2.92E+03	2.87E+03	3.06E+03	2.94E+03	2.87E+03	3.07E+03	2.94E+03	2.86E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	6.4E+02	1.79E+05	1.72E+05	1.67E+05	1.80E+05	1.73E+05	1.68E+05	1.80E+05	1.71E+05	1.68E+05	1.80E+05	1.73E+05	1.68E+05	1.80E+05	1.73E+05	1.68E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	2.53E+04	2.42E+04	2.36E+04	2.54E+04	2.43E+04	2.37E+04	2.54E+04	2.41E+04	2.37E+04	2.53E+04	2.43E+04	2.37E+04	2.54E+04	2.43E+04	2.37E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	2.73E+03	2.61E+03	2.54E+03	2.74E+03	2.63E+03	2.56E+03	2.75E+03	2.61E+03	2.56E+03	2.74E+03	2.63E+03	2.56E+03	2.75E+03	2.63E+03	2.56E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E-01	2.31E+03	2.21E+03	2.15E+03	2.32E+03	2.22E+03	2.16E+03	2.32E+03	2.20E+03	2.16E+03	2.31E+03	2.22E+03	2.16E+03	2.32E+03	2.22E+03	2.16E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	6.94E-01	9.12E-01	7.93E-01	5.88E-01	5.70E-01	5.54E-01	5.77E-01	5.62E-01	5.46E-01	5.76E-01	5.61E-01	5.45E-01	5.76E-01	5.61E-01	5.45E-01
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	1.78E+00	1.71E+00	1.66E+00	1.79E+00	1.72E+00	1.67E+00	1.79E+00	1.70E+00	1.67E+00	1.79E+00	1.72E+00	1.67E+00	1.79E+00	1.72E+00	1.67E+00
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	2.01E+04	2.30E+04	2.09E+04	1.75E+04	1.70E+04	1.65E+04	1.73E+04	1.68E+04	1.63E+04	1.72E+04	1.67E+04	1.63E+04	1.72E+04	1.67E+04	1.63E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.28E+04	3.15E+04	3.06E+04	3.26E+04	3.12E+04	3.04E+04	3.26E+04	3.11E+04	3.04E+04	3.25E+04	3.12E+04	3.04E+04	3.26E+04	3.13E+04	3.04E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	2.54E+03	2.44E+03	2.37E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.41E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	2.54E+03	2.44E+03	2.37E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.41E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03	2.53E+03	2.43E+03	2.36E+03
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	2.76E+02	2.64E+02	2.57E+02	2.77E+02	2.65E+02	2.58E+02	2.77E+02	2.63E+02	2.59E+02	2.76E+02	2.65E+02	2.59E+02	2.77E+02	2.65E+02	2.58E+02
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	1.22E+01	1.19E+01	1.16E+01	1.14E+01	1.10E+01	1.06E+01	1.13E+01	1.09E+01	1.06E+01	1.13E+01	1.09E+01	1.06E+01	1.13E+01	1.10E+01	1.06E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.88E+05	3.83E+05	3.73E+05	3.88E+05	3.85E+05	3.75E+05	3.88E+05	3.82E+05	3.76E+05	3.88E+05	3.85E+05	3.76E+05	3.88E+05	3.85E+05	3.75E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	6.31E+04	6.04E+04	5.88E+04	6.33E+04	6.07E+04	5.91E+04	6.33E+04	6.02E+04	5.91E+04	6.32E+04	6.07E+04	5.91E+04	6.33E+04	6.06E+04	5.90E+04
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	1.41E+00	1.35E+00	1.32E+00	1.40E+00	1.34E+00	1.30E+00	1.40E+00	1.33E+00	1.30E+00	1.39E+00	1.34E+00	1.30E+00	1.40E+00	1.34E+00	1.30E+00
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	2.37E+00	2.27E+00	2.21E+00	2.37E+00	2.28E+00	2.22E+00	2.38E+00	2.26E+00	2.22E+00	2.37E+00	2.28E+00	2.22E+00	2.38E+00	2.28E+00	2.22E+00
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	5.09E+00	4.87E+00	4.74E+00	5.12E+00	4.90E+00	4.77E+00	5.12E+00	4.87E+00	4.78E+00	5.11E+00	4.90E+00	4.78E+00	5.12E+00	4.90E+00	4.77E+00
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	5.56E+01	5.33E+01	5.19E+01	5.59E+01	5.36E+01	5.22E+01	5.60E+01	5.32E+01	5.23E+01	5.58E+01	5.36E+01	5.23E+01	5.60E+01	5.36E+01	5.22E+01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	3.83E+02	3.67E+02	3.57E+02	3.85E+02	3.69E+02	3.59E+02	3.86E+02	3.67E+02	3.60E+02	3.85E+02	3.69E+02	3.60E+02	3.86E+02	3.69E+02	3.59E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	1.22E+05	1.17E+05	1.14E+05	1.23E+05	1.18E+05	1.15E+05	1.23E+05	1.17E+05	1.15E+05	1.23E+05	1.18E+05	1.15E+05	1.23E+05	1.18E+05	1.14E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	7.24E+01	6.94E+01	6.76E+01	7.21E+01	6.73E+01	6.71E+01	7.21E+01	6.86E+01	6.73E+01	7.19E+01	6.91E+01	6.73E+01	7.21E+01	6.91E+01	6.72E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	5.13E+02	4.94E+02	4.81E+02	5.05E+02	4.85E+02	4.72E+02	5.05E+02	4.82E+02	4.71E+02	5.04E+02	4.84E+02	4.71E+02	5.05E+02	4.85E+02	4.72E+02
193-39-5	Indeno[1,2,3-cd]pyrene	Indeno[1,2,3-cd]pyrene	3470	1.2E-01	5.29E+03	5.06E+03	4.93E+03	5.32E+03	5.10E+03	4.96E+03	5.32E+03	5.06E+03	4.97E+03	5.31E+03	5.10E+03	4.97E+03	5.32E+03	5.10E+03	4.96E+03
7439-89-6	Iron	Iron	25	3.0E+02	9.55E+04	9.15E+04	8.91E+04	9.60E+04	9.20E+04	8.96E+04	9.60E+04	9.13E+04	8.97E+04	9.58E+04	9.20E+04	8.97E+04	9.61E+04	9.20E+04	8.95E+04
78-59-1	Isophorone	isophorone	0.04668	4.6E+01	4.59E+01	7.04E+01	6.95E+01	4.26E+01	4.16E+01	4.03E+01	4.16E+01	4.06E+01	3.95E+01	4.15E+01	4.06E+01	3.94E+01	4.15E+01	4.06E+01	3.94E+01
7439-92-1	Lead	lead	30	1.5E+01	5.73E+03	5.49E+03	5.34E+03	5.76E+03	5.52E+03	5.37E+03	5.76E+03	5.48E+03	5.38E+03	5.75E+03	5.52E+03	5.38E+03	5.76E+03	5.52E+03	5.37E+03
7439-93-2	Lithium	Lithium	50	3.2E+01	2.04E+04	1.95E+04	1.90E+04	2.05E+04	1.96E+04	1.91E+04	2.05E+04	1.95E+04	1.91E+04	2.04E+04	1.96E+04	1.91E+04	2.05E+04	1.96E+04	1.91E+04
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.18E+04	3.05E+04	2.97E+04	3.20E+04	3.06E+04	2.98E+04	3.20E+04	3.04E+04	2.99E+04	3.19E+04	3.07E+04	2.99E+04	3.20E+04	3.06E+04	2.98E+04
7439-97-6	Mercury	mercury	30	2.0E+00	7.64E+02	7.32E+02	7.12E+02	7.68E+02	7.36E+02	7.16E+02	7.30E+02	7.17E+02	7.17E+02	7.66E+02	7.36E+02	7.17E+02	7.68E+02	7.36E+02	7.16E+02
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	4.07E+04	3.90E+04	3.80E+04	4.09E+04	3.92E+04	3.82E+04	4.10E+04	3.89E+04	3.82E+04	4.09E+04	3.92E+04	3.82E+04	4.10E+04	3.92E+04	3.82E+04
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	3.92E+00	4.43E+00	5.23E+00	2.34E+00	3.00E+00	2.59E+00	2.20E+00	2.22E+00	2.13E+00	2.18E+00	2.18E+00	2.10E+00	2.17E+00	2.17E+00	2.10E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	2.04E+04	1.95E+04	1.90E+04	2.05E+04	1.96E+04	1.91E+04	2.05E+04	1.95E+04	1.91E+04	2.04E+04	1.96E+04	1.91E+04	2.05E+04	1.96E+04	1.91E+04
108-38-3	m-Xylene, m-	Xylene, m-	0.2	1.6E+03	4.77E+03	4.65E+03	4.58E+03	4.41E+03	4.28E+03	4.55E+03	4.39E+03	4.27E+03	4.55E+03	4.38E+03	4.27E+03	4.54E+03	4.41E+03	4.28E+03
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	2.50E+03	2.41E+03	2.34E+03	2.48E+03	2.38E+03	2.32E+03	2.48E+03	2.37E+03	2.32E+03	2.48E+03	2.38E+03	2.32E+03	2.48E+03	2.38E+03	2.32E+03
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	8.27E+04	7.92E+04	7.71E+04	8.31E+04	7.97E+04	7.76E+04	8.32E+04	7.91E+04	7.77E+04	8.30E+04	7.97E+04	7.77E+04	8.32E+04	7.97E+04	7.75E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	3.40E+04	3.21E+04	3.79E+04	1.59E+04	2.19E+04	2.52E+04	1.42E+04	1.62E+04	1.47E+04	1.40E+04	1.46E+04	1.38E+04	1.39E+04	1.42E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	2.49E+03	2.36E+03	2.78E+03	1.16E+03	1.61E+03	1.85E+03	1.04E+03	1.19E+03	1.08E+03	1.02E+03	1.07E+03	1.01E+03	1.02E+03	1.04E+03	9.98E+02
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	3.26E+01	3.19E+01	3.11E+01	2.92E+01	2.84E+01	2.76E+01	2.91E+01	2.81E+01	2.74E+01	2.90E+01	2.81E+01	2.74E+01	2.90E+01	2.81E+01	2.73E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	7.54E+02	7.14E+02	8.42E+02	3.53E+02	4.87E+02	5.60E+02	3.15E+02	3.61E+02	3.28E+02	3.10E+02	3.24E+02	3.07E+02	3.09E+02	3.15E+02	3.03E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	1.12E-02	1.41E-02	1.67E-02	7.99E-03	8.27E-03	7.80E-03	7.69E-03	7.59E-03	7.35E-03	7.66E-03	7.55E-03	7.32E-03	7.65E-03	7.55E-03	7.31E-03
86-30-6	n-Nitrosodiphenylamine	n-Nitrosodiphenylamine;N-	1.29	1.8E+01	3.02E+02	2.90E+02	2.83E+02	3.00E+02	2.87E+02	2.80E+02	3.00E+02	2.86E+02	2.80E+02	2.99E+02	2.87E+02	2.80E+02	3.00E+02	2.88E+02	2.80E+02
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	5.73E+03	5.55E+03	5.41E+03	5.40E+03	5.17E+03	5.04E+03	5.37E+03	5.17E+03	5.03E+03	5.37E+03	5.16E+03	5.02E+03	5.35E+03	5.20E+03	5.04E+03
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	5.87E+00	5.65E+00	5.51E+00	5.74E+00	5.50E+00	5.36E+00	5.74E+00	5.48E+00	5.34E+00	5.72E+00	5.50E+00	5.34E+00	5.73E+00	5.51E+00	5.36E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	2.26E+03	2.91E+03	3.44E+03	1.68E+03	1.69E+03	1.62E+03	1.62E+03	1.59E+03	1.55E+03	1.62E+03	1.59E+03	1.54E+03	1.61E+03	1.59E+03	1.54E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	7.20E+00	6.91E+00	6.72E+00	7.21E+00	6.91E+00	6.73E+00	7.21E+00	6.86E+00	6.73E+00	7.19E+00	6.91E+00	6.73E+00	7.21E+00	6.91E+00	6.72E+00
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05	3.88E+05	3.87E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	3.20E+03	3.07E+03	2.99E+03	3.21E+03	3.08E+03	3.00E+03	3.21E+03	3.06E+03	3.00E+03	3.21E+03	3.08E+03	3.00E+03	3.21E+03	3.08E+03	2.99E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	8.0E+01	9.16E+04	8.77E+04	8.54E+04	9.21E+04	8.83E+04	8.59E+04	9.21E+04	8.76E+04	8.60E+04	9.19E+04	8.83E+04	8.60E+04	9.22E+04	8.82E+04	8.58E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	1.21E+03	1.16E+03	1.13E+03	1.19E+03	1.14E+03	1.11E+03	1.19E+03	1.14E+03	1.11E+03	1.19E+03	1.14E+03	1.11E+03	1.19E+03	1.15E+03	1.11E+03
14808-79-8	Sulfate	sulfate	0	2.5E+05	1.89E+05	1.79E+05	2.11E+05	8.81E+04	1.22E+05	1.40E+05	7.89E+04	9.02E+04	8.19E+04	7.76E+04	8.09E+04	7.68E+04	7.71E+04	7.87E+04	7.56E+04
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	3.21E-01	3.11E-01	3.03E-01	3.04E-01	2.92E-01	2.84E-01	3.03E-01	2.91E-01	2.82E-01	3.03E-01	2.91E-01	2.83E-01	3.02E-01	2.93E-01	2.84E-01
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	4.52E+02	4.32E+02	4.21E+02	4.54E+02	4.35E+02	4.24E+02	4.54E+02	4.32E+02	4.24E+02	4.53E+02	4.35E+02	4.24E+02	4.54E+02	4.35E+02	4.23E+02
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	1.48E+03	1.44E+03	1.41E+03	1.34E+03	1.28E+03	1.25E+03	1.33E+03	1.29E+03	1.25E+03	1.33E+03	1.28E+03	1.25E+03	1.33E+03	1.29E+03	1.25E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHJOIL	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	9.69E+01	9.28E+01	9.04E+01	9.74E+01	9.34E+01	9.09E+01	9.75E+01	9.27E+01	9.11E+01	9.73E+01	9.34E+01	9.11E+01	9.75E+01	9.34E+01	9.09E+01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	1.04E+02	1.37E+02	1.56E+02	8.14E+01	8.02E+01	7.74E+01	7.92E+01	7.76E+01	7.53E+01	7.90E+01	7.74E+01	7.51E+01	7.89E+01	7.74E+01	7.51E+01
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	4.05E-01	5.17E-01	6.11E-01	2.96E-01	3.02E-01	2.86E-01	2.86E-01	2.81E-01	2.73E-01	2.85E-01	2.80E-01	2.72E-01	2.84E-01	2.80E-01	2.72E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	8.44E-01	9.17E-01	8.50E-01	7.47E-01	7.23E-01	7.03E-01	7.38E-01	7.16E-01	6.96E-01	7.37E-01	7.15E-01	6.95E-01	7.36E-01	7.15E-01	6.95E-01
7440-62-2	Vanadium	vanadium	1000	8.0E-01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	5.17E-02	6.34E-02	7.48E-02	3.51E-02	3.80E-02	3.51E-02	3.36E-02	3.33E-02	3.22E-02	3.34E-02	3.30E-02	3.20E-02	3.34E-02	3.30E-02	3.20E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	5.52E+03	5.36E+03	5.22E+03	5.19E+03	4.98E+03	4.85E+03	5.16E+03	4.98E+03	4.84E+03	5.17E+03	4.97E+03	4.83E+03	5.15E+03	5.00E+03	4.85E+03
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16,000	1.21E+04	1.17E+04	1.38E+04	5.81E+03	8.05E+03	8.71E+03	5.24E+03	5.85E+03	5.37E+03	5.16E+03	5.34E+03	5.09E+03	5.14E+03	5.22E+03	5.03E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	2.34E+02	2.24E+02	2.18E+02	2.33E+02	2.23E+02	2.17E+02	2.33E+02	2.22E+02	2.17E+02	2.32E+02	2.23E+02	2.17E+02	2.33E+02	2.23E+02	2.17E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	6.03E+02	5.85E+02	6.90E+02	2.90E+02	4.02E+02	4.36E+02	2.62E+02	2.93E+02	2.69E+02	2.58E+02	2.67E+02	2.54E+02	2.57E+02	2.61E+02	2.51E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	1.25E+03	1.41E+03	1.66E+03	7.42E+02	9.61E+02	8.28E+02	6.97E+02	7.06E+02	6.77E+02	6.91E+02	6.91E+02	6.67E+02	6.89E+02	6.88E+02	6.66E+02
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	2.65E+03	3.53E+03	3.66E+03	2.13E+03	2.08E+03	2.02E+03	2.08E+03	2.03E+03	1.97E+03	2.07E+03	2.03E+03	1.97E+03	2.07E+03	2.02E+03	1.97E+03

Summary of Concentrations Protective of Surface Water Calculated with STOMP based on five sets of different Vadose Zone depths

					SW_Screening (mg/kg)														
					Column 1			Column 2			Column 3			Column 4			Column 5		
CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	100 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Surface Water Standard (ug/L)	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	2.60E-01	3.03E-01	2.74E-01	2.26E-01	2.19E-01	2.13E-01	2.23E-01	2.16E-01	2.10E-01	2.22E-01	2.16E-01	2.10E-01	2.22E-01	2.16E-01	2.10E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	8.73E-01	1.04E+00	9.35E-01	7.55E-01	7.32E-01	7.11E-01	7.43E-01	7.23E-01	7.02E-01	7.42E-01	7.22E-01	7.01E-01	7.42E-01	7.22E-01	7.01E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	8.92E+04	1.20E+05	1.10E+05	7.37E+04	7.17E+04	6.96E+04	7.22E+04	7.04E+04	6.84E+04	7.20E+04	7.03E+04	6.83E+04	7.20E+04	7.03E+04	6.83E+04
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	7.74E-02	9.98E-02	8.73E-02	6.58E-02	6.38E-02	6.20E-02	6.46E-02	6.29E-02	6.11E-02	6.45E-02	6.29E-02	6.11E-02	6.45E-02	6.28E-02	6.10E-02
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	4.24E+01	4.07E+01	3.96E+01	4.22E+01	4.05E+01	3.94E+01	4.22E+01	4.02E+01	3.94E+01	4.21E+01	4.05E+01	3.94E+01	4.22E+01	4.05E+01	3.94E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	2.25E+03	2.17E+03	2.11E+03	2.16E+03	2.07E+03	2.02E+03	2.16E+03	2.07E+03	2.01E+03	2.15E+03	2.07E+03	2.01E+03	2.16E+03	2.08E+03	2.02E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	3.95E-01	5.22E-01	5.94E-01	3.09E-01	3.05E-01	2.94E-01	3.01E-01	2.95E-01	2.86E-01	3.00E-01	2.94E-01	2.85E-01	3.00E-01	2.94E-01	2.85E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	2.22E+03	2.95E+03	3.26E+03	1.75E+03	1.72E+03	1.66E+03	1.71E+03	1.67E+03	1.62E+03	1.70E+03	1.67E+03	1.62E+03	1.70E+03	1.67E+03	1.62E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	5.71E-01	7.66E-01	7.54E-01	4.64E-01	4.52E-01	4.38E-01	4.53E-01	4.42E-01	4.30E-01	4.52E-01	4.42E-01	4.29E-01	4.51E-01	4.42E-01	4.29E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	3.2E+02	1.93E+03	1.87E+03	1.82E+03	1.87E+03	1.80E+03	1.75E+03	1.87E+03	1.79E+03	1.74E+03	1.87E+03	1.79E+03	1.74E+03	1.87E+03	1.80E+03	1.75E+03
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	1.80E+02	1.74E+02	1.69E+02	1.77E+02	1.69E+02	1.65E+02	1.76E+02	1.68E+02	1.64E+02	1.76E+02	1.69E+02	1.64E+02	1.76E+02	1.70E+02	1.65E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	1.02E+04	9.74E+03	9.49E+03	1.01E+04	9.68E+03	9.42E+03	1.01E+04	9.62E+03	9.42E+03	1.01E+04	9.68E+03	9.42E+03	1.01E+04	9.68E+03	9.42E+03
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	1.4E+00	7.52E+00	7.26E+00	7.07E+00	7.24E+00	6.95E+00	6.77E+00	7.22E+00	6.93E+00	6.73E+00	7.22E+00	6.94E+00	6.73E+00	7.22E+00	6.97E+00	6.77E+00
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E-01	1.85E+02	1.80E+02	1.75E+02	1.68E+02	1.61E+02	1.57E+02	1.67E+02	1.62E+02	1.57E+02	1.67E+02	1.61E+02	1.57E+02	1.67E+02	1.62E+02	1.57E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	1.21E+03	1.18E+03	1.15E+03	1.13E+03	1.08E+03	1.06E+03	1.12E+03	1.08E+03	1.06E+03	1.13E+03	1.08E+03	1.05E+03	1.12E+03	1.09E+03	1.06E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	5.21E+01	4.93E+01	5.82E+01	2.43E+01	3.36E+01	3.87E+01	2.18E+01	2.49E+01	2.26E+01	2.14E+01	2.24E+01	2.12E+01	2.13E+01	2.17E+01	2.09E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	1.91E-01	2.06E-01	1.83E-01	1.68E-01	1.64E-01	1.59E-01	1.67E-01	1.62E-01	1.58E-01	1.67E-01	1.62E-01	1.57E-01	1.67E-01	1.62E-01	1.57E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	1.66E+02	2.06E+02	1.83E+02	1.42E+02	1.38E+02	1.34E+02	1.40E+02	1.36E+02	1.32E+02	1.40E+02	1.36E+02	1.32E+02	1.40E+02	1.36E+02	1.32E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK); 2-butanone)	0.00451	4.9E+05	3.73E+05	3.88E+05	3.88E+05	1.98E+05	2.76E+05	2.54E+05	1.83E+05	1.93E+05	1.81E+05	1.81E+05	1.83E+05	1.76E+05	1.80E+05	1.81E+05	1.75E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.84E+04	3.68E+04	3.59E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.66E+04	3.59E+04	3.83E+04	3.68E+04	3.59E+04	3.84E+04	3.68E+04	3.58E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	4.42E+02	4.27E+02	4.16E+02	4.26E+02	4.09E+02	3.98E+02	4.25E+02	4.08E+02	3.96E+02	4.25E+02	4.08E+02	3.96E+02	4.25E+02	4.10E+02	3.98E+02
591-78-6	2-Hexanone	HEXANONE;2- (MBK, methyl butyl ketone)	0.01498	3.4E+03	2.80E+03	3.34E+03	3.94E+03	1.81E+03	2.07E+03	1.87E+03	1.72E+03	1.72E+03	1.66E+03	1.71E+03	1.70E+03	1.64E+03	1.71E+03	1.69E+03	1.64E+03
91-57-6	2-Methylnaphthalene	methylnaphthalene;2-	2.98	1.4E+02	5.33E+03	5.11E+03	4.98E+03	5.33E+03	5.11E+03	4.98E+03	5.33E+03	5.08E+03	4.98E+03	5.32E+03	5.11E+03	4.98E+03	5.33E+03	5.11E+03	4.97E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	7.32E+04	7.06E+04	6.88E+04	7.09E+04	6.80E+04	6.62E+04	7.07E+04	6.77E+04	6.59E+04	7.07E+04	6.79E+04	6.58E+04	7.07E+04	6.81E+04	6.62E+04
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	3.14E+03	4.23E+03	3.89E+03	2.59E+03	2.52E+03	2.45E+03	2.54E+03	2.47E+03	2.40E+03	2.53E+03	2.47E+03	2.40E+03	2.53E+03	2.47E+03	2.40E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	2.04E-01	1.97E-01	1.91E-01	2.01E-01	1.92E-01	1.87E-01	2.00E-01	1.91E-01	1.87E-01	2.00E-01	1.92E-01	1.87E-01	2.00E-01	1.93E-01	1.87E-01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol;3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	1.23E+02	1.66E+02	1.54E+02	1.01E+02	9.87E+01	9.57E+01	9.92E+01	9.68E+01	9.40E+01	9.89E+01	9.66E+01	9.38E+01	9.89E+01	9.66E+01	9.38E+01
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	1.81E-01	1.73E-01	1.68E-01	1.82E-01	1.74E-01	1.69E-01	1.82E-01	1.73E-01	1.70E-01	1.81E-01	1.74E-01	1.70E-01	1.82E-01	1.74E-01	1.69E-01
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	2.42E-01	2.32E-01	2.25E-01	2.43E-01	2.33E-01	2.27E-01	2.43E-01	2.31E-01	2.27E-01	2.43E-01	2.33E-01	2.27E-01	2.43E-01	2.33E-01	2.27E-01
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	1.90E+00	1.82E+00	1.77E+00	1.91E+00	1.83E+00	1.78E+00	1.91E+00	1.81E+00	1.78E+00	1.90E+00	1.83E+00	1.78E+00	1.91E+00	1.83E+00	1.78E+00
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E-01	1.02E+02	9.97E+01	9.96E+01	1.04E+02	9.96E+01	9.70E+01	1.04E+02	9.92E+01	9.68E+01	1.04E+02	9.96E+01	9.68E+01	1.04E+02	9.98E+01	9.70E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	2.07E+05	1.99E+05	1.94E+05	2.01E+05	1.93E+05	1.88E+05	2.01E+05	1.92E+05	1.87E+05	2.00E+05	1.93E+05	1.87E+05	2.01E+05	1.93E+05	1.88E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	6.73E+00	8.16E+00	7.28E+00	5.80E+00	5.62E+00	5.46E+00	5.70E+00	5.55E+00	5.39E+00	5.69E+00	5.54E+00	5.38E+00	5.69E+00	5.54E+00	5.38E+00
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	4.88E+04	5.68E+04	6.70E+04	3.04E+04	3.65E+04	3.24E+04	2.88E+04	2.89E+04	2.78E+04	2.86E+04	2.85E+04	2.75E+04	2.85E+04	2.84E+04	2.75E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	8.85E+03	8.54E+03	8.32E+03	8.57E+03	8.22E+03	8.01E+03	8.55E+03	8.19E+03	7.97E+03	8.54E+03	8.21E+03	7.96E+03	8.55E+03	8.24E+03	8.01E+03
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	9.69E+01	1.31E+02	1.22E+02	7.98E+01	7.77E+01	7.54E+01	7.81E+01	7.62E+01	7.40E+01	7.79E+01	7.61E+01	7.39E+01	7.79E+01	7.61E+01	7.39E+01
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	1.80E+04	1.74E+04	1.69E+04	1.72E+04	1.65E+04	1.60E+04	1.71E+04	1.64E+04	1.59E+04	1.71E+04	1.64E+04	1.60E+04	1.70E+04	1.65E+04	1.60E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	4.82E+04	4.70E+04	5.05E+04	5.05E+04	4.84E+04	4.71E+04	5.05E+04	4.83E+04	4.72E+04	5.04E+04	4.84E+04	4.70E+04	5.05E+04	4.84E+04	4.71E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	3.88E+05	3.88E+05	3.88E+05	2.64E+05	3.66E+05	3.88E+05	2.38E+05	2.69E+05	2.45E+05	2.35E+05	2.43E+05	2.32E+05	2.33E+05	2.37E+05	2.29E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	3.04E-02	2.91E-02	2.83E-02	3.05E-02	2.93E-02	2.85E-02	3.05E-02	2.90E-02	2.85E-02	3.05E-02	2.93E-02	2.85E-02	3.05E-02	2.92E-02	2.85E-02
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	5.95E-02	5.71E-02	5.56E-02	5.93E-02	5.68E-02	5.53E-02	5.93E-02	5.65E-02	5.53E-02	5.92E-02	5.68E-02	5.53E-02	5.93E-02	5.69E-02	5.53E-02
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	3.70E-01	3.54E-01	3.45E-01	3.72E-01	3.56E-01	3.47E-01	3.72E-01	3.54E-01	3.47E-01	3.71E-01	3.57E-01	3.47E-01	3.72E-01	3.56E-01	3.47E-01
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	2.71E+02	2.59E+02	2.53E+02	2.71E+02	2.60E+02	2.53E+02	2.71E+02	2.58E+02	2.53E+02	2.70E+02	2.60E+02	2.53E+02	2.71E+02	2.60E+02	2.53E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	8.71E-02	8.34E-02	8.12E-02	8.76E-02	8.39E-02	8.17E-02	8.76E-02	8.33E-02	8.18E-02	8.74E-02	8.40E-02	8.18E-02	8.76E-02	8.39E-02	8.16E-02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	6.4E-05	8.41E-03	8.06E-03	7.85E-03	8.45E-03	8.10E-03	7.88E-03	8.45E-03	8.04E-03	7.89E-03	8.43E-03	8.10E-03	7.89E-03	8.45E-03	8.09E-03	7.88E-03
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	6.4E-05	8.41E-03	8.06E-03	7.85E-03	8.45E-03	8.10E-03	7.88E-03	8.45E-03	8.04E-03	7.89E-03	8.43E-03	8.10E-03	7.89E-03	8.45E-03	8.09E-03	7.88E-03
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	6.4E-05	3.65E-02	3.49E-02	3.40E-02	3.67E-02	3.52E-02	3.42E-02	3.67E-02	3.49E-02	3.43E-02	3.66E-02	3.52E-02	3.43E-02	3.67E-02	3.51E-02	3.42E-02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	3.57E-02	3.42E-02	3.33E-02	3.59E-02	3.44E-02	3.35E-02	3.60E-02	3.42E-02	3.36E-02	3.59E-02	3.45E-02	3.36E-02	3.60E-02	3.44E-02	3.35E-02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	6.15E-02	5.89E-02	5.74E-02	6.19E-02	5.93E-02	5.77E-02	6.19E-02	5.89E-02	5.78E-02	6.18E-02	5.93E-02	5.78E-02	6.19E-02	5.93E-02	5.77E-02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	6.69E-01	6.40E-01	6.24E-01	6.73E-01	6.45E-01	6.28E-01	6.73E-01	6.40E-01	6.29E-01	6.71E-01	6.45E-01	6.29E-01	6.73E-01	6.44E-01	6.27E-01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	6.96E-01	6.67E-01	6.50E-01	6.96E-01	6.67E-01	6.49E-01	6.96E-01	6.62E-01	6.50E-01	6.94E-01	6.67E-01	6.50E-01	6.96E-01	6.67E-01	6.49E-01
7440-39-3	Barium	Barium	25	1.0E+03	3.18E+05	3.05E+05	2.97E+05	3.20E+05	3.07E+05	2.99E+05	3.20E+05	3.04E+05	2.99E+05	3.19E+05	3.07E+05	2.99E+05	3.20E+05	3.07E+05	2.98E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	1.58E+00	2.10E+00	1.82E+00	1.34E+00	1.30E+00	1.26E+00	1.31E+00	1.28E+00	1.24E+00	1.31E+00	1.28E+00	1.24E+00	1.31E+00	1.28E+00	1.24E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	1.28E+01	1.23E+01	1.20E+01	1.29E+01	1.24E+01	1.20E+01	1.29E+01	1.23E+01	1.20E+01	1.29E+01	1.24E+01	1.20E+01	1.29E+01	1.23E+01	1.20E+01
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	1.96E+02	1.87E+02	1.83E+02	1.97E+02	1.89E+02	1.84E+02	1.97E+02	1.87E+02	1.84E+02	1.97E+02	1.89E+02	1.84E+02	1.97E+02	1.89E+02	1.84E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	2.86E+01	2.74E+01	2.67E+01	2.87E+01	2.76E+01	2.68E+01	2.88E+01	2.74E+01	2.69E+01	2.87E+01	2.76E+01	2.69E+01	2.88E+01	2.75E+01	2.68E+01
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	4.38E+01	4.19E+01	4.08E+01	4.40E+01	4.22E+01	4.11E+01	4.41E+01	4.19E+01	4.11E+01	4.40E+01	4.22E+01	4.11E+01	4.41E+01	4.22E+01	4.11E+01
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	2.52E-01	2.42E-01	2.36E-01	2.52E-01	2.41E-01	2.35E-01	2.52E-01	2.40E-01	2.35E-01	2.51E-01	2.41E-01	2.35E-01	2.52E-01	2.41E-01	2.35E-01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	3.95E+01	5.23E+01	5.82E+01	3.11E+01	3.06E+01	2.95E+01	3.03E+01	2.96E+01	2.88E+01	3.02E+01	2.96E+01	2.87E+01	3.01E+01	2.96E+01	2.87E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxy!)methane	0.00277	2.3E+03	1.77E+03	1.79E+03	2.11E+03	8.97E+02	1.25E+03	1.23E+03	8.19E+02	8.84E+02	8.24E+02	8.09E+02	8.26E+02	7.91E+02	8.05E+02	8.13E+02	7.85E+02
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethy!)ether	0.076	3.0E-02	4.48E-02	5.31E-02	4.77E-02	3.88E-02	3.76E-02	3.65E-02	3.82E-02	3.71E-02	3.61E-02	3.81E-02	3.71E-02	3.60E-02	3.81E-02	3.71E-02	3.60E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	1.68E+03	1.61E+03	1.57E+03	1.69E+03	1.62E+03	1.58E+03	1.69E+03	1.61E+03	1.58E+03	1.68E+03	1.62E+03	1.58E+03	1.69E+03	1.62E+03	1.57E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	3.34E-01	4.52E-01	4.06E-01	2.78E-01	2.70E-01	2.62E-01	2.72E-01	2.65E-01	2.58E-01	2.71E-01	2.65E-01	2.57E-01	2.71E-01	2.65E-01	2.57E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	9.38E+00	9.16E+00	8.93E+00	8.45E+00	8.11E+00	7.91E+00	8.41E+00	8.14E+00	7.92E+00	8.40E+00	8.13E+00	7.91E+00	8.40E+00	8.13E+00	7.91E+00
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	3.65E+01	4.08E+01	4.82E+01	2.14E+01	2.83E+01	2.42E+01	2.01E+01	2.04E+01	1.95E+01	1.99E+01	1.99E+01	1.92E+01	1.98E+01	1.98E+01	1.92E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	1.45E+03	1.39E+03	1.35E+03	1.46E+03	1.40E+03	1.36E+03	1.46E+03	1.39E+03	1.36E+03	1.45E+03	1.40E+03	1.36E+03	1.46E+03	1.40E+03	1.36E+03
7440-43-9	Cadmium	cadmium	30	2.5E-01	9.55E+01	9.14E+01	8.90E+01	9.60E+01	9.20E+01	8.95E+01	9.60E+01	9.13E+01	8.97E+01	9.58E+01	9.20E+01	8.97E+01	9.60E+01	9.20E+01	8.95E+01
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.50E+04	2.01E+04	2.01E+04	1.22E+04	1.19E+04	1.15E+04	1.19E+04	1.16E+04	1.13E+04	1.19E+04	1.16E+04	1.13E+04	1.18E+04	1.16E+04	1.12E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	5.66E-01	5.52E-01	5.38E-01	5.17E-01	4.96E-01	4.83E-01	5.13E-01	4.97E-01	4.83E-01	5.14E-01	4.94E-01	4.83E-01	5.13E-01	4.99E-01	4.84E-01
57-74-9	Chlordane	chlordane	51	5.7E-04	3.70E-01	3.54E-01	3.45E-01	3.72E-01	3.56E-01	3.47E-01	3.72E-01	3.54E-01	3.47E-01	3.71E-01	3.57E-01	3.47E-01	3.72E-01	3.56E-01	3.47E-01
16887-00-6	Chloride	chloride	0	2.3E+05	1.74E+05	1.64E+05	1.94E+05	8.11E+04	1.12E+05	1.29E+05	7.26E+04	8.30E+04	7.54E+04	7.14E+04	7.44E+04	7.07E+04	7.10E+04	7.24E+04	6.96E+04
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	4.32E+02	4.19E+02	4.09E+02	4.05E+02	3.88E+02	3.79E+02	4.03E+02	3.88E+02	3.78E+02	4.03E+02	3.88E+02	3.77E+02	4.02E+02	3.90E+02	3.79E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-66-3	Chloroform	chloroform	0.053	5.7E+00	6.91E+00	9.33E+00	8.55E+00	5.72E+00	5.56E+00	5.40E+00	5.60E+00	5.46E+00	5.30E+00	5.58E+00	5.45E+00	5.29E+00	5.58E+00	5.45E+00	5.29E+00

74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	6.5E+01	1.65E+05	1.58E+05	1.54E+05	1.66E+05	1.59E+05	1.55E+05	1.66E+05	1.58E+05	1.55E+05	1.66E+05	1.59E+05	1.55E+05	1.66E+05	1.59E+05	1.55E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	7.12E+00	6.82E+00	6.64E+00	7.16E+00	6.86E+00	6.68E+00	7.17E+00	6.81E+00	6.69E+00	7.15E+00	6.87E+00	6.69E+00	7.17E+00	6.86E+00	6.68E+00
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	2.38E+03	3.13E+03	3.69E+03	1.84E+03	1.82E+03	1.75E+03	1.79E+03	1.76E+03	1.70E+03	1.79E+03	1.75E+03	1.70E+03	1.78E+03	1.75E+03	1.70E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	3.15E-01	4.02E-01	4.75E-01	2.30E-01	2.34E-01	2.23E-01	2.22E-01	2.19E-01	2.12E-01	2.21E-01	2.18E-01	2.11E-01	2.21E-01	2.18E-01	2.11E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	1.65E+03	1.58E+03	1.54E+03	1.66E+03	1.59E+03	1.55E+03	1.66E+03	1.58E+03	1.55E+03	1.66E+03	1.59E+03	1.55E+03	1.66E+03	1.59E+03	1.55E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	9.0E+00	2.52E+03	2.42E+03	2.35E+03	2.53E+03	2.43E+03	2.36E+03	2.54E+03	2.41E+03	2.37E+03	2.53E+03	2.43E+03	2.37E+03	2.54E+03	2.43E+03	2.36E+03
57-12-5	Cyanide	cyanide	9.9	5.2E+00	6.57E+02	6.30E+02	6.13E+02	6.60E+02	6.32E+02	6.16E+02	6.60E+02	6.28E+02	6.16E+02	6.59E+02	6.33E+02	6.16E+02	6.60E+02	6.32E+02	6.15E+02
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	6.37E+01	6.10E+01	5.94E+01	6.41E+01	6.14E+01	5.98E+01	6.41E+01	6.10E+01	5.99E+01	6.40E+01	6.14E+01	5.99E+01	6.41E+01	6.14E+01	5.97E+01
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	2.46E+02	2.36E+02	2.29E+02	2.47E+02	2.37E+02	2.30E+02	2.47E+02	2.35E+02	2.31E+02	2.46E+02	2.37E+02	2.31E+02	2.47E+02	2.37E+02	2.30E+02
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	5.33E-01	7.00E-01	6.09E-01	4.51E-01	4.38E-01	4.26E-01	4.43E-01	4.32E-01	4.19E-01	4.42E-01	4.31E-01	4.19E-01	4.42E-01	4.31E-01	4.19E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	1.69E-02	1.62E-02	1.58E-02	1.70E-02	1.63E-02	1.59E-02	1.70E-02	1.62E-02	1.59E-02	1.70E-02	1.63E-02	1.59E-02	1.70E-02	1.63E-02	1.59E-02
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	2.66E+04	3.05E+04	2.77E+04	2.33E+04	2.25E+04	2.19E+04	2.29E+04	2.23E+04	2.16E+04	2.29E+04	2.22E+04	2.16E+04	2.29E+04	2.22E+04	2.16E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	2.62E+05	3.41E+05	3.88E+05	1.98E+05	1.98E+05	1.90E+05	1.92E+05	1.88E+05	1.83E+05	1.91E+05	1.88E+05	1.82E+05	1.91E+05	1.88E+05	1.82E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	4.10E+04	3.93E+04	3.83E+04	4.07E+04	3.91E+04	3.80E+04	4.07E+04	3.88E+04	3.80E+04	4.07E+04	3.91E+04	3.80E+04	4.07E+04	3.91E+04	3.80E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.41E+00	1.38E+00	1.47E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00	1.48E+00	1.41E+00	1.38E+00	1.47E+00	1.42E+00	1.38E+00	1.48E+00	1.42E+00	1.38E+00
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	2.46E+01	2.36E+01	2.30E+01	2.45E+01	2.35E+01	2.29E+01	2.45E+01	2.34E+01	2.29E+01	2.45E+01	2.35E+01	2.29E+01	2.45E+01	2.35E+01	2.29E+01
72-20-8	Endrin	endrin	10.8	2.3E-03	3.17E-01	3.04E-01	2.96E-01	3.18E-01	3.05E-01	2.97E-01	3.18E-01	3.03E-01	2.97E-01	3.18E-01	3.05E-01	2.97E-01	3.19E-01	3.05E-01	2.97E-01
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	4.00E+01	3.83E+01	3.73E+01	4.01E+01	3.85E+01	3.74E+01	4.02E+01	3.82E+01	3.75E+01	4.01E+01	3.85E+01	3.75E+01	4.02E+01	3.85E+01	3.74E+01
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	4.82E+01	4.69E+01	4.57E+01	4.50E+01	4.33E+01	4.20E+01	4.47E+01	4.31E+01	4.20E+01	4.47E+01	4.30E+01	4.19E+01	4.46E+01	4.33E+01	4.20E+01
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	5.63E+04	5.40E+04	5.25E+04	5.66E+04	5.43E+04	5.28E+04	5.67E+04	5.39E+04	5.29E+04	5.65E+04	5.43E+04	5.29E+04	5.67E+04	5.43E+04	5.28E+04
86-73-7	Fluorene	fluorene	7.71	1.1E+03	1.08E+05	1.04E+05	1.01E+05	1.09E+05	1.04E+05	1.01E+05	1.09E+05	1.04E+05	1.02E+05	1.09E+05	1.04E+05	1.02E+05	1.09E+05	1.04E+05	1.01E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	3.36E-01	3.23E-01	3.14E-01	3.34E-01	3.20E-01	3.11E-01	3.34E-01	3.18E-01	3.11E-01	3.33E-01	3.20E-01	3.11E-01	3.34E-01	3.20E-01	3.11E-01
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	9.61E-03	9.21E-03	8.97E-03	9.65E-03	9.25E-03	9.00E-03	9.65E-03	9.18E-03	9.02E-03	9.63E-03	9.25E-03	9.02E-03	9.66E-03	9.25E-03	9.00E-03
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	4.13E-02	3.95E-02	3.85E-02	4.15E-02	3.98E-02	3.87E-02	4.15E-02	3.95E-02	3.88E-02	4.14E-02	3.98E-02	3.88E-02	4.15E-02	3.98E-02	3.87E-02
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	2.85E-01	2.73E-01	2.66E-01	2.86E-01	2.75E-01	2.67E-01	2.87E-01	2.73E-01	2.68E-01	2.86E-01	2.75E-01	2.68E-01	2.87E-01	2.74E-01	2.67E-01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	3.01E+02	2.88E+02	2.80E+02	3.02E+02	2.90E+02	2.82E+02	3.02E+02	2.88E+02	2.82E+02	3.02E+02	2.90E+02	2.82E+02	3.02E+02	2.90E+02	2.82E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	1.02E+05	9.74E+04	9.49E+04	1.02E+05	9.80E+04	9.55E+04	1.02E+05	9.73E+04	9.56E+04	1.02E+05	9.81E+04	9.56E+04	1.02E+05	9.80E+04	9.54E+04
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	3.24E+01	3.11E+01	3.03E+01	3.23E+01	3.09E+01	3.01E+01	3.23E+01	3.07E+01	3.01E+01	3.22E+01	3.09E+01	3.01E+01	3.23E+01	3.10E+01	3.01E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	1.07E+02	1.03E+02	1.00E+02	1.05E+02	1.01E+02	9.83E+01	1.05E+02	1.00E+02	9.81E+01	1.05E+02	1.01E+02	9.81E+01	1.05E+02	1.01E+02	9.83E+01
193-39-5	Indeno[1,2,3-cd]pyrene	Indeno[1,2,3-cd]pyrene	3470	2.8E-03	1.24E+02	1.18E+02	1.15E+02	1.24E+02	1.19E+02	1.16E+02	1.24E+02	1.18E+02	1.16E+02	1.24E+02	1.19E+02	1.16E+02	1.24E+02	1.19E+02	1.16E+02
7439-89-6	Iron	iron	25	3.0E+02	9.55E+04	9.15E+04	8.91E+04	9.60E+04	9.20E+04	8.96E+04	9.60E+04	9.13E+04	8.97E+04	9.58E+04	9.20E+04	8.97E+04	9.61E+04	9.20E+04	8.95E+04
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	9.58E+00	1.28E+01	1.27E+01	7.77E+00	7.58E+00	7.35E+00	7.59E+00	7.41E+00	7.20E+00	7.57E+00	7.40E+00	7.18E+00	7.56E+00	7.40E+00	7.18E+00
7439-92-1	Lead	lead	30	2.1E+00	7.71E+02	7.51E+02	7.51E+02	8.09E+02	7.75E+02	7.55E+02	8.13E+02	7.70E+02	7.56E+02	8.08E+02	7.76E+02	7.56E+02	8.10E+02	7.75E+02	7.54E+02
7439-93-2	Lithium	Lithium	50	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.18E+04	3.05E+04	2.97E+04	3.20E+04	3.06E+04	2.98E+04	3.20E+04	3.04E+04	2.99E+04	3.19E+04	3.07E+04	2.99E+04	3.20E+04	3.06E+04	2.98E+04
7439-97-6	Mercury	mercury	30	1.2E-02	4.58E+00	4.39E+00	4.27E+00	4.61E+00	4.41E+00	4.30E+00	4.61E+00	4.38E+00	4.30E+00	4.60E+00	4.42E+00	4.30E+00	4.61E+00	4.41E+00	4.29E+00
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	2.92E+01	2.85E+01	3.07E+01	2.86E+01	2.94E+01	2.86E+01	2.92E+01	2.87E+01	3.06E+01	2.94E+01	2.87E+01	3.07E+01	2.94E+01	2.86E+01	2.86E+01
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	3.60E+00	4.08E+00	4.81E+00	2.15E+00	2.76E+00	2.38E+00	2.02E+00	2.05E+00	1.96E+00	2.00E+00	2.00E+00	1.94E+00	2.00E+00	2.00E+00	1.93E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.30E+05	3.16E+05	3.08E+05	3.32E+05	3.18E+05	3.10E+05	3.32E+05	3.16E+05	3.10E+05	3.31E+05	3.18E+05	3.10E+05	3.32E+05	3.18E+05	3.09E+05
108-38-3	m-Xylene, m-	Xylene, m-	0.2	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	7.73E+04	7.42E+04	7.23E+04	7.66E+04	7.35E+04	7.15E+04	7.66E+04	7.30E+04	7.15E+04	7.64E+04	7.34E+04	7.15E+04	7.66E+04	7.35E+04	7.15E+04
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	4.30E+04	4.12E+04	4.01E+04	4.32E+04	4.14E+04	4.03E+04	4.33E+04	4.11E+04	4.04E+04	4.32E+04	4.14E+04	4.04E+04	4.33E+04	4.14E+04	4.03E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	3.40E+04	3.21E+04	3.79E+04	1.59E+04	2.19E+04	2.52E+04	1.42E+04	1.62E+04	1.47E+04	1.40E+04	1.46E+04	1.38E+04	1.39E+04	1.42E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	3.46E+01	3.39E+01	3.31E+01	3.10E+01	3.02E+01	2.93E+01	3.09E+01	2.99E+01	2.91E+01	3.09E+01	2.99E+01	2.91E+01	3.08E+01	2.99E+01	2.91E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	7.54E+03	7.14E+03	8.42E+03	3.53E+03	4.87E+03	5.60E+03	3.15E+03	3.61E+03	3.28E+03	3.10E+03	3.24E+03	3.07E+03	3.09E+03	3.15E+03	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	4.48E-03	5.65E-03	6.67E-03	3.19E-03	3.31E-03	3.12E-03	3.08E-03	3.04E-03	2.94E-03	3.06E-03	3.02E-03	2.93E-03	3.06E-03	3.02E-03	2.93E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	5.59E+01	5.36E+01	5.22E+01	5.54E+01	5.31E+01	5.17E+01	5.54E+01	5.28E+01	5.17E+01	5.53E+01	5.31E+01	5.17E+01	5.54E+01	5.32E+01	5.17E+01
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	2.17E+00	2.09E+00	2.04E+00	2.13E+00	2.04E+00	1.98E+00	2.12E+00	2.03E+00	1.98E+00	2.12E+00	2.04E+00	1.98E+00	2.12E+00	2.04E+00	1.98E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	9.43E+03	1.21E+04	1.43E+04	6.99E+03	7.06E+03	6.73E+03	6.76E+03	6.64E+03	6.44E+03	6.73E+03	6.62E+03	6.42E+03	6.73E+03	6.62E+03	6.42E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	3.20E+02	3.07E+02	2.99E+02	3.21E+02	3.08E+02	3.00E+02	3.21E+02	3.06E+02	3.00E+02	3.21E+02	3.08E+02	3.00E+02	3.21E+02	3.08E+02	2.99E+02
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	2.6E+00	2.99E+03	2.86E+03	2.78E+03	3.00E+03	2.88E+03	2.80E+03	3.00E+03	2.86E+03	2.81E+03	3.00E+03	2.88E+03	2.81E+03	3.01E+03	2.88E+03	2.80E+03
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	1.53E+00	1.48E+00	1.45E+00	1.45E+00	1.39E+00	1.36E+00	1.45E+00	1.39E+00	1.35E+00	1.45E+00	1.39E+00	1.35E+00	1.44E+00	1.40E+00	1.36E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	2.17E+02	2.08E+02	2.02E+02	2.18E+02	2.09E+02	2.03E+02	2.18E+02	2.07E+02	2.04E+02	2.18E+02	2.09E+02	2.04E+02	2.18E+02	2.09E+02	2.03E+02
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	3.00E+03	2.93E+03	2.85E+03	2.72E+03	2.61E+03	2.55E+03	2.70E+03	2.62E+03	2.55E+03	2.70E+03	2.60E+03	2.54E+03	2.70E+03	2.63E+03	2.55E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	2.44E-01	2.33E-01	2.27E-01	2.45E-01	2.35E-01	2.29E-01	2.45E-01	2.33E-01	2.29E-01	2.45E-01	2.35E-01	2.29E-01	2.45E-01	2.35E-01	2.28E-01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.46E+02	1.92E+02	2.19E+02	1.14E+02	1.12E+02	1.08E+02	1.11E+02	1.09E+02	1.05E+02	1.11E+02	1.08E+02	1.05E+02	1.10E+02	1.08E+02	1.05E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	3.15E-01	4.02E-01	4.75E-01	2.30E-01	2.34E-01	2.23E-01	2.22E-01	2.19E-01	2.12E-01	2.21E-01	2.18E-01	2.11E-01	2.21E-01	2.18E-01	2.11E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	4.29E+00	4.66E+00	4.32E+00	3.80E+00	3.68E+00	3.58E+00	3.75E+00	3.64E+00	3.54E+00	3.75E+00	3.64E+00	3.53E+00	3.74E+00	3.64E+00	3.53E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	2.13E-02	2.61E-02	3.08E-02	1.44E-02	1.56E-02	1.45E-02	1.38E-02	1.37E-02	1.32E-02	1.37E-02	1.36E-02	1.32E-02	1.37E-02	1.36E-02	1.32E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.48E+04	3.33E+04	3.24E+04	3.50E+04	3.35E+04	3.26E+04	3.50E+04	3.33E+04	3.27E+04	3.49E+04	3.35E+04	3.27E+04	3.50E+04	3.35E+04	3.26E+04
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1.64E+06	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	5.97E+02	5.72E+02	5.57E+02	5.95E+02	5.70E+02	5.55E+02	5.94E+02	5.66E+02	5.55E+02	5.93E+02	5.70E+02	5.55E+02	5.95E+02	5.70E+02	5.55E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	6.18E+04	6.00E+04	7.08E+04	2.98E+04	4.13E+04	4.47E+04	2.69E+04	3.00E+04	2.75E+04	2.65E+04	2.74E+04	2.61E+04	2.63E+04	2.68E+04	2.58E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	7.50E+04	8.46E+04	9.98E+04	4.45E+04	5.77E+04	4.97E+04	4.18E+04	4.24E+04	4.06E+04	4.15E+04	4.15E+04	4.00E+04	4.14E+04	4.13E+04	3.99E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	3.95E+04	5.26E+04	5.46E+04	3.17E+04	3.10E+04	3.01E+04	3.10E+04	3.03E+04	2.94E+04	3.09E+04	3.02E+04	2.93E+04	3.09E+04	3.01E+04	2.93E+04

Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	GW_Screening (pCi/g)														
				Column 1			Column 2			Column 3			Column 4			Column 5		
				Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
Carbon-14	0	2000	5.7300E+03	1.51E+03	1.43E+03	1.68E+03	7.05E+02	9.73E+02	1.12E+03	6.32E+02	7.23E+02	6.56E+02	6.21E+02	6.48E+02	6.15E+02	6.18E+02	6.30E+02	6.18E+02
Cesium-137	50	200	3.0000E+01	2.63E+05	2.37E+05	2.35E+05	2.65E+05	2.37E+05	2.35E+05	2.66E+05	2.38E+05	2.36E+05	2.66E+05	2.38E+05	2.36E+05	2.67E+05	2.38E+05	2.67E+05
Cobalt-60	50	100	5.7210E+00	5.42E+05	3.74E+05	3.99E+05	5.65E+05	3.78E+05	4.06E+05	5.76E+05	3.81E+05	4.10E+05	5.84E+05	3.83E+05	4.12E+05	5.92E+05	3.85E+05	5.92E+05
Iodine-129	1	1	1.5700E+07	1.32E+01	1.27E+01	1.24E+01	1.31E+01	1.25E+01	1.22E+01	1.31E+01	1.25E+01	1.22E+01	1.31E+01	1.25E+01	1.22E+01	1.31E+01	1.25E+01	1.31E+01
Neptunium-237	15	15	2.1400E+06	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.68E+03	2.86E+03	2.75E+03	2.86E+03
Nickel-63	30	50	9.6000E+01	2.38E+04	2.25E+04	2.20E+04	2.39E+04	2.25E+04	2.20E+04	2.39E+04	2.25E+04	2.20E+04	2.40E+04	2.25E+04	2.20E+04	2.40E+04	2.25E+04	2.40E+04
Strontium-90	25	8	2.9120E+01	4.25E+03	3.84E+03	3.81E+03	4.29E+03	3.85E+03	3.82E+03	4.31E+03	3.86E+03	3.83E+03	4.32E+03	3.86E+03	3.84E+03	4.33E+03	3.87E+03	4.33E+03
Technetium-99	0	900	2.1300E+05	6.79E+02	6.43E+02	7.58E+02	3.17E+02	4.38E+02	5.04E+02	2.84E+02	3.25E+02	2.95E+02	2.79E+02	2.91E+02	2.77E+02	2.78E+02	2.83E+02	2.78E+02
Tritium	0	20000	1.2350E+01	2.14E+04	1.56E+04	1.87E+04	1.07E+04	1.17E+04	1.41E+04	1.01E+04	1.03E+04	9.53E+03	1.01E+04	9.49E+03	9.17E+03	1.02E+04	9.42E+03	1.02E+04
Am-241	200	15	4.3200E+02	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Carbon-14	200	2000	5.7300E+03	5.09E+06	4.87E+06	4.74E+06	5.11E+06	4.90E+06	4.77E+06	5.12E+06	4.87E+06	4.78E+06	5.11E+06	4.90E+06	4.78E+06	5.12E+06	4.90E+06	4.77E+06
Cm-243	200	15	2.8500E+01	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Eu-152	200	200	1.3300E+01	5.09E+05	4.87E+05	4.74E+05	5.11E+05	4.90E+05	4.77E+05	5.12E+05	4.87E+05	4.78E+05	5.11E+05	4.90E+05	4.78E+05	5.12E+05	4.90E+05	4.77E+05
Eu-154	200	60	8.8000E+00	1.53E+05	1.46E+05	1.42E+05	1.53E+05	1.47E+05	1.43E+05	1.54E+05	1.46E+05	1.43E+05	1.53E+05	1.47E+05	1.43E+05	1.54E+05	1.47E+05	1.43E+05
Eu-155	200	600	4.9600E+00	1.53E+06	1.46E+06	1.42E+06	1.53E+06	1.47E+06	1.43E+06	1.54E+06	1.46E+06	1.43E+06	1.53E+06	1.47E+06	1.43E+06	1.54E+06	1.47E+06	1.43E+06
Nb-94	200	No Value	2.0300E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu-238	200	15	8.7700E+01	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Pu-239	200	15	2.4100E+04	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Pu-240	200	15	6.5400E+03	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Pu-241	200	300	1.40E+01	7.63E+05	7.31E+05	7.11E+05	7.67E+05	7.35E+05	7.16E+05	7.68E+05	7.30E+05	7.17E+05	7.66E+05	7.36E+05	7.17E+05	7.68E+05	7.35E+05	7.15E+05
Ra-226	200	5	1.6000E+03	1.27E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04
Ra-228	200	5	5.7500E+00	1.27E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.22E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04	1.28E+04	1.23E+04	1.19E+04
Th-228	200	15	1.9100E+00	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Th-230	200	15	7.7000E+04	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04
Th-232	200	15	1.4100E+10	3.81E+04	3.65E+04	3.56E+04	3.84E+04	3.68E+04	3.58E+04	3.84E+04	3.65E+04	3.58E+04	3.83E+04	3.68E+04	3.58E+04	3.84E+04	3.68E+04	3.58E+04

Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Ground Water Standard (ug/L)	GW_Preliminary Remediation Goal (mg/kg)														
					Base Case (Depth 1)			Base Case (Depth 2)			Base Case (Depth 3)			Base Case (Depth 4)			Base Case (Depth 5)		
					Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	8.47E+03	8.35E+02	1.11E+03	7.64E+03	8.05E+02	1.07E+03	7.07E+03	7.94E+02	1.05E+03	6.74E+03	7.86E+02	1.04E+03	6.43E+03	7.78E+02	1.02E+03
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	3.75E+00	5.33E-01	6.46E-01	3.44E+00	4.67E-01	5.96E-01	3.23E+00	4.63E-01	5.88E-01	3.10E+00	4.60E-01	5.83E-01	2.98E+00	4.58E-01	5.78E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	1.21E+01	1.80E+00	2.17E+00	1.11E+01	1.55E+00	1.97E+00	1.04E+01	1.54E+00	1.94E+00	1.00E+01	1.53E+00	1.93E+00	9.65E+00	1.52E+00	1.91E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	1.63E+04	3.04E+03	3.58E+03	1.51E+04	2.38E+03	2.97E+03	1.42E+04	2.36E+03	2.94E+03	1.37E+04	2.35E+03	2.92E+03	1.33E+04	2.34E+03	2.90E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	9.19E+01	1.50E+01	1.78E+01	8.47E+01	1.24E+01	1.57E+01	7.97E+01	1.23E+01	1.55E+01	7.67E+01	1.23E+01	1.54E+01	7.40E+01	1.22E+01	1.53E+01
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	1.80E+03	5.68E+02	6.75E+02	1.54E+03	5.20E+02	5.76E+02	1.53E+03	5.05E+02	5.74E+02	1.53E+03	4.96E+02	5.74E+02	1.53E+03	4.87E+02	5.74E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	1.66E+05	1.21E+04	1.77E+04	1.40E+05	1.17E+04	1.70E+04	1.36E+05	1.14E+04	1.64E+04	1.33E+05	1.12E+04	1.60E+04	1.31E+05	1.10E+04	1.56E+04
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	3.55E+00	7.72E-01	9.11E-01	3.28E+00	5.64E-01	6.95E-01	3.11E+00	5.61E-01	6.90E-01	3.01E+00	5.59E-01	6.87E-01	2.92E+00	5.58E-01	6.83E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	7.2E+01	5.60E+02	1.18E+02	1.40E+02	5.18E+02	8.77E+01	1.08E+02	4.92E+02	8.72E+01	1.08E+02	4.76E+02	8.70E+01	1.07E+02	4.61E+02	8.67E+01	1.06E+02
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.09E+01	2.16E+00	2.55E+00	1.01E+01	1.65E+00	2.05E+00	9.56E+00	1.64E+00	2.03E+00	9.23E+00	1.63E+00	2.02E+00	8.94E+00	1.63E+00	2.01E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	3.73E+03	4.80E+02	7.27E+02	3.14E+03	4.60E+02	6.89E+02	3.13E+03	4.43E+02	6.59E+02	3.12E+03	4.32E+02	6.41E+02	3.13E+03	4.22E+02	6.22E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	3.88E+05	2.78E+05	3.45E+05	3.88E+05	2.56E+05	2.95E+05	3.88E+05	2.48E+05	2.94E+05	3.88E+05	2.43E+05	2.94E+05	3.88E+05	2.38E+05	2.94E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	4.0E+00	1.11E+03	8.14E+01	1.19E+02	9.37E+02	7.87E+01	1.14E+02	9.10E+02	7.64E+01	1.10E+02	8.95E+02	7.49E+01	1.07E+02	8.80E+02	7.35E+01	1.05E+02
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	1.08E+03	1.05E+02	1.40E+02	9.72E+02	1.01E+02	1.35E+02	8.99E+02	9.98E+01	1.32E+02	8.56E+02	9.88E+01	1.31E+02	8.16E+02	9.78E+01	1.29E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	1.44E+04	1.16E+03	1.60E+03	1.28E+04	1.13E+03	1.55E+03	1.18E+04	1.10E+03	1.51E+03	1.11E+04	1.09E+03	1.48E+03	1.06E+04	1.07E+03	1.46E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	8.40E+01	2.75E+01	3.24E+01	6.47E+01	1.58E+01	1.86E+01	6.22E+01	1.45E+01	1.72E+01	6.07E+01	1.44E+01	1.71E+01	5.93E+01	1.44E+01	1.71E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	6.31E+00	7.92E-01	9.91E-01	5.76E+00	7.25E-01	9.37E-01	5.38E+00	7.18E-01	9.23E-01	5.15E+00	7.13E-01	9.14E-01	4.94E+00	7.08E-01	9.05E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	2.26E+02	3.56E+01	4.25E+01	2.08E+02	2.99E+01	3.78E+01	1.96E+02	2.97E+01	3.74E+01	1.88E+02	2.95E+01	3.71E+01	1.81E+02	2.94E+01	3.68E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	1.43E+04	4.52E+03	5.33E+03	1.16E+04	2.69E+03	3.17E+03	1.11E+04	2.51E+03	2.99E+03	1.08E+04	2.50E+03	2.99E+03	1.06E+04	2.50E+03	2.98E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	1.16E+04	8.58E+02	1.26E+03	9.73E+03	8.29E+02	1.20E+03	9.52E+03	8.05E+02	1.16E+03	9.42E+03	7.89E+02	1.13E+03	9.31E+03	7.73E+02	1.10E+03
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	1.61E+02	4.59E+01	5.42E+01	1.44E+02	2.95E+01	3.51E+01	1.37E+02	2.86E+01	3.45E+01	1.34E+02	2.86E+01	3.44E+01	1.30E+02	2.85E+01	3.43E+01
91-57-6	2-Methylnaphthalene	methylnaphthalene;2-	2.98	3.2E+01	6.78E+04	3.39E+04	2.54E+04	5.81E+04	2.90E+04	2.18E+04	5.79E+04	2.90E+04	2.17E+04	5.79E+04	2.90E+04	2.17E+04	5.81E+04	2.90E+04	2.17E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	1.33E+05	1.07E+04	1.58E+04	1.11E+05	1.03E+04	1.51E+04	1.10E+05	1.00E+04	1.45E+04	1.10E+05	9.81E+03	1.42E+04	1.10E+05	9.60E+03	1.38E+04
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	1.62E+03	3.02E+02	3.57E+02	1.50E+03	2.37E+02	2.95E+02	1.42E+03	2.35E+02	2.92E+02	1.37E+03	2.34E+02	2.91E+02	1.32E+03	2.33E+02	2.89E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.04E+02	1.69E+01	2.58E+01	8.80E+01	1.61E+01	2.44E+01	8.76E+01	1.55E+01	2.32E+01	8.76E+01	1.51E+01	2.25E+01	8.77E+01	1.47E+01	2.19E+01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	4.12E+01	7.78E+00	9.19E+00	3.81E+01	6.05E+00	7.55E+00	3.60E+01	6.02E+00	7.48E+00	3.47E+01	6.00E+00	7.43E+00	3.36E+01	5.97E+00	7.39E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	1.17E+04	5.86E+03	4.40E+03	1.01E+04	5.04E+03	3.78E+03	1.01E+04	5.03E+03	3.77E+03	1.01E+04	5.03E+03	3.77E+03	1.01E+04	5.03E+03	3.77E+03
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	1.56E+04	7.80E+03	5.85E+03	1.34E+04	6.71E+03	5.03E+03	1.34E+04	6.70E+03	5.02E+03	1.34E+04	6.70E+03	5.02E+03	1.34E+04	6.70E+03	5.02E+03
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	1.22E+05	6.12E+04	4.59E+04	1.05E+05	5.27E+04	3.95E+04	1.05E+05	5.26E+04	3.94E+04	1.05E+05	5.26E+04	3.94E+04	1.05E+05	5.26E+04	3.94E+04
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	5.76E+02	7.25E+01	1.10E+02	4.85E+02	6.95E+01	1.04E+02	4.83E+02	6.69E+01	9.95E+01	4.82E+02	6.53E+01	9.67E+01	4.83E+02	6.38E+01	9.40E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	3.88E+05	5.71E+04	8.51E+04	3.88E+05	5.49E+04	8.11E+04	3.88E+05	5.31E+04	7.79E+04	3.88E+05	5.19E+04	7.58E+04	3.88E+05	5.08E+04	7.38E+04
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	3.28E+00	5.01E-01	6.02E-01	3.02E+00	4.27E-01	5.41E-01	2.84E+00	4.23E-01	5.35E-01	2.73E+00	4.21E-01	5.30E-01	2.63E+00	4.19E-01	5.26E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	2.41E+03	7.06E+02	8.32E+02	2.13E+03	4.48E+02	5.30E+02	2.04E+03	4.31E+02	5.19E+02	1.99E+03	4.31E+02	5.18E+02	1.94E+03	4.30E+02	5.16E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	1.33E+04	1.07E+03	1.58E+03	1.11E+04	1.03E+03	1.51E+03	1.10E+04	1.00E+03	1.45E+03	1.10E+04	9.81E+02	1.42E+03	1.10E+04	9.60E+02	1.38E+03
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	4.32E+01	8.17E+00	9.65E+00	4.00E+01	6.36E+00	7.93E+00	3.78E+01	6.32E+00	7.85E+00	3.65E+01	6.30E+00	7.81E+00	3.53E+01	6.27E+00	7.76E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	2.62E+04	1.78E+03	2.56E+03	2.29E+04	1.73E+03	2.47E+03	2.10E+04	1.68E+03	2.38E+03	1.98E+04	1.65E+03	2.33E+03	1.88E+04	1.63E+03	2.28E+03
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	1.92E+04	6.28E+03	7.40E+03	1.50E+04	3.63E+03	4.27E+03	1.44E+04	3.34E+03	3.96E+03	1.40E+04	3.32E+03	3.95E+03	1.37E+04	3.32E+03	3.94E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	8.80E+01	4.40E+01	3.30E+01	7.57E+01	3.78E+01	2.84E+01	7.55E+01	3.78E+01	2.83E+01	7.55E+01	3.78E+01	2.83E+01	7.58E+01	3.78E+01	2.83E+01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	1.75E+01	6.08E+00	6.58E+00	1.50E+01	5.49E+00	5.62E+00	1.49E+01	5.36E+00	5.60E+00	1.49E+01	5.28E+00	5.60E+00	1.50E+01	5.20E+00	5.60E+00
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	8.95E+03	4.48E+03	3.36E+03	7.70E+03	3.85E+03	2.89E+03	7.68E+03	3.84E+03	2.88E+03	7.68E+03	3.84E+03	2.88E+03	7.71E+03	3.84E+03	2.88E+03
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	1.60E+04	8.00E+03	6.00E+03	1.37E+04	6.86E+03	5.14E+03	1.37E+04	6.84E+03	5.13E+03	1.37E+04	6.84E+03	5.13E+03	1.37E+04	6.84E+03	5.13E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	3.76E+04	1.88E+04	1.41E+04	3.23E+04	1.61E+04	1.21E+04	3.22E+04	1.61E+04	1.21E+04	3.22E+04	1.61E+04	1.21E+04	3.23E+04	1.61E+04	1.21E+04
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	3.17E+02	1.59E+02	1.19E+02	2.73E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.73E+02	1.36E+02	1.02E+02
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	3.17E+02	1.59E+02	1.19E+02	2.73E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.72E+02	1.36E+02	1.02E+02	2.73E+02	1.36E+02	1.02E+02
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	1.38E+03	6.88E+02	5.16E+02	1.18E+03	5.92E+02	4.44E+02	1.18E+03	5.91E+02	4.43E+02	1.18E+03	5.91E+02	4.43E+02	1.18E+03	5.91E+02	4.43E+02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	1.35E+03	6.74E+02	5.06E+02	1.16E+03	5.80E+02	4.35E+02	1.16E+03	5.79E+02	4.34E+02	1.16E+03	5.79E+02	4.34E+02	1.16E+03	5.79E+02	4.34E+02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	2.32E+03	1.16E+03	8.71E+02	2.00E+03	9.98E+02	7.49E+02	1.99E+03	9.97E+02	7.47E+02	1.99E+03	9.97E+02	7.47E+02	2.00E+03	9.97E+02	7.47E+02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	2.52E+04	1.26E+04	9.46E+03	2.17E+04	1.09E+04	8.14E+03	2.17E+04	1.08E+04	8.12E+03	2.17E+04	1.08E+04	8.12E+03	2.17E+04	1.08E+04	8.12E+03
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	1.24E+02	6.22E+01	4.67E+01	1.07E+02	5.33E+01	4.00E+01	1.06E+02	5.32E+01	3.99E+01	1.06E+02	5.31E+01	3.99E+01	1.07E+02	5.32E+01	3.99E+01
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	9.94E+00	1.66E+00	1.97E+00	9.17E+00	1.36E+00	1.71E+00	8.64E+00	1.35E+00	1.70E+00	8.32E+00	1.35E+00	1.68E+00	8.02E+00	1.34E+00	1.67E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	3.03E+04	1.51E+04	1.14E+04	2.60E+04	1.30E+04	9.77E+03	2.60E+04	1.30E+04	9.75E+03	2.60E+04	1.30E+04	9.75E+03	2.61E+04	1.30E+04	9.74E+03
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	4.63E+04	2.31E+04	1.73E+04	3.98E+04	1.99E+04	1.49E+04	3.97E+04	1.99E+04	1.49E+04	3.97E+04	1.99E+04	1.49E+04	3.98E+04	1.99E+04	1.49E+04
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	6.75E+04	3.38E+04	2.53E+04	5.81E+04	2.90E+04	2.18E+04	5.80E+04	2.90E+04	2.17E+04	5.80E+04	2.90E+04	2.17E+04	5.82E+04	2.90E+04	2.17E+04
191-24-2	Benzo(ghi)perylene	BENZO[g,h,i]PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	1.03E+05	5.17E+04	3.88E+04	8.90E+04	4.45E+04	3.34E+04	8.88E+04	4.44E+04	3.33E+04	8.88E+04	4.44E+04	3.33E+04	8.91E+04	4.44E+04	3.33E+04
7440-41-7	Beryllium	beryllium	790	4.0E+00	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	7.44E+01	3.72E+01	2.79E+01	6.35E+01	3.18E+01	2.38E+01	6.34E+01	3.17E+01	2.38E+01	6.34E+01	3.17E+01	2.38E+01	6.35E+01	3.17E+01	2.38E+01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	4.80E+00	1.02E+00	1.21E+00	4.44E+00	7.54E-01	9.31E-01	4.21E+00	7.50E-01	9.24E-01	4.07E+00	7.48E-01	9.19E-01	3.95E+00	7.46E-01	9.15E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	4.8E+01	1.36E+02	4.37E+01	5.15E+01	1.08E+02	2.57E+01	3.02E+01	1.04E+02	2.38E+01	2.83E+01	1.02E+02	2.37E+01	2.82E+01	9.92E+01	2.37E+01	2.82E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	6.40E-01	9.42E-02	1.14E-01	5.88E-01	8.13E-02	1.04E-01	5.52E-01	8.07E-02	1.02E-01	5.30E-01	8.02E-02	1.01E-01	5.10E-01	7.98E-02	1.01E-01
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	3.88E+05	2.32E+05	1.74E+05	3.88E+05	1.99E+05	1.49E+05	3.88E+05	1.99E+05	1.49E+05	3.88E+05	1.99E+05	1.49E+05	3.88E+05	1.99E+05	1.49E+05
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	3.2E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	7.53E+00	1.37E+00	1.62E+00	6.96E+00	1.08E+00	1.35E+00	6.57E+00	1.08E+00	1.34E+00	6.34E+00	1.07E+00	1.33E+00	6.13E+00	1.07E+00	1.32E+00
75-25-2	Bromoform	bromoform	0.13	5.5E+00	2.06E+02	2.12E+01	2.78E+01	1.86E+02	2.03E+01	2.69E+01	1.73E+02	2.01E+01	2.64E+01	1.65E+02	1.99E+01	2.61E+01	1.57E+02	1.97E+01	2.57E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	3.82E+01	1.16E+01	1.37E+01	3.29E+01	7.18E+00	8.45E+00	3.15E+01	6.84E+00	8.20E+00	3.07E+01	6.82E+00	8.18E+00	2.99E+01	6.82E+00	8.16E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	3.88E+05	2.24E+05	1.68E+05	3.84E+05	1.92E+05	1.44E+05	3.83E+05	1.92E+05	1.44E+05	3.83E+05	1.92E+05	1.44E+05	3.85E+05	1.92E+05	1.44E+05
7440-43-9	Cadmium	cadmium	30	5.0E+00	1.05E+05	5.27E+04	3.95E+04	9.06E+04	4.53E+04	3.40E+04	9.04E+04	4.52E+04	3.39E+04	9.04E+04	4.52E+04	3.39E+04	9.07E+04	4.52E+04	3.39E+04
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	1.05E+04	5.27E+03	3.95E+03	9.02E+03	4.51E+03	3.38E+03	9.00E+03	4.50E+03	3.37E+03	9.00E+03	4.50E+03	3.37E+03	9.02E+03	4.50E+03	3.37E+03
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	7.04E+03	1.41E+03	1.66E+03	6.52E+03	1.07E+03	1.33E+03	6.17E+03	1.06E+03	1.32E+03	5.96E+03	1.06E+03	1.31E+03	5.77E+03	1.06E+03	1.30E+03
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	1.58E+01	1.52E+00	2.03E+00	1.42E+01	1.47E+00	1.97E+00	1.32E+01	1.45E+00	1.92E+00	1.25E+01	1.43E+00	1.90E+00	1.20E+01	1.42E+00	1.87E+00
57-74-9	Chlordane	chlordane	51	2.5E-01	8.95E+03	4.48E+03	3.36E+03	7.70E+03	3.85E+03	2.89E+03	7.68E+03	3.84E+03	2.88E+03	7.68E+03	3.84E+03	2.88E+03	7.71E+03	3.84E+03	2.88E+03
16887-00-6	Chloride	chloride	0	2.5E+05	3.88E+05	2.15E+05	2.53E+05	3.88E+05	1.24E+05	1.45E+05	3.88E+05	1.14E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05

108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	9.98E+03	7.82E+02	1.09E+03	8.87E+03	7.62E+02	1.05E+03	8.13E+03	7.46E+02	1.03E+03	7.69E+03	7.35E+02	1.01E+03	7.30E+03	7.25E+02	9.89E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-66-3	Chloroform	chloroform	0.053	1.4E+00	1.44E+01	2.68E+00	3.16E+00	1.33E+01	2.10E+00	2.62E+00	1.26E+01	2.08E+00	2.59E+00	1.21E+01	2.08E+00	2.58E+00	1.17E+01	2.07E+00	2.56E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	1.68E+05	8.41E+04	6.31E+04	1.45E+05	7.24E+04	5.43E+04	1.44E+05	7.22E+04	5.41E+04	1.44E+05	7.22E+04	5.41E+04	1.45E+05	7.22E+04	5.41E+04
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	4.86E+02	1.09E+02	1.29E+02	4.48E+02	7.86E+01	9.65E+01	4.26E+02	7.80E+01	9.58E+01	4.13E+02	7.78E+01	9.53E+01	4.00E+02	7.76E+01	9.49E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	2.40E+00	6.00E-01	7.08E-01	2.20E+00	4.11E-01	4.99E-01	2.10E+00	4.07E-01	4.95E-01	2.03E+00	4.06E-01	4.93E-01	1.98E+00	4.05E-01	4.91E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	1.69E+05	8.43E+04	6.32E+04	1.45E+05	7.25E+04	5.44E+04	1.45E+05	7.23E+04	5.42E+04	1.45E+05	7.24E+04	5.42E+04	1.45E+05	7.23E+04	5.42E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	1.51E+05	7.53E+04	5.65E+04	1.29E+05	6.47E+04	4.86E+04	1.29E+05	6.46E+04	4.85E+04	1.29E+05	6.47E+04	4.85E+04	1.30E+05	6.46E+04	4.85E+04
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E+01	1.27E+05	6.37E+04	4.77E+04	1.09E+05	5.47E+04	4.10E+04	1.09E+05	5.46E+04	4.09E+04	1.09E+05	5.46E+04	4.09E+04	1.09E+05	5.46E+04	4.09E+04
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	6.61E+00	1.10E+00	1.30E+00	6.10E+00	9.02E-01	1.14E+00	5.74E+00	8.96E-01	1.12E+00	5.53E+00	8.92E-01	1.12E+00	5.33E+00	8.88E-01	1.11E+00
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	9.84E+01	4.92E+01	3.69E+01	8.46E+01	4.23E+01	3.17E+01	8.44E+01	4.22E+01	3.16E+01	8.44E+01	4.22E+01	3.16E+01	8.47E+01	4.22E+01	3.16E+01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	2.31E+05	3.20E+04	3.90E+04	2.12E+05	2.83E+04	3.62E+04	1.98E+05	2.80E+04	3.57E+04	1.90E+05	2.79E+04	3.54E+04	1.83E+05	2.77E+04	3.51E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	1.40E+05	7.01E+04	5.26E+04	1.20E+05	5.99E+04	4.49E+04	1.19E+05	5.97E+04	4.48E+04	1.19E+05	5.97E+04	4.48E+04	1.20E+05	5.97E+04	4.48E+04
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	1.40E+05	7.01E+04	5.26E+04	1.20E+05	5.99E+04	4.49E+04	1.19E+05	5.97E+04	4.48E+04	1.19E+05	5.97E+04	4.48E+04	1.20E+05	5.97E+04	4.48E+04
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	1.52E+04	7.61E+03	5.70E+03	1.31E+04	6.53E+03	4.90E+03	1.30E+04	6.52E+03	4.89E+03	1.30E+04	6.52E+03	4.89E+03	1.31E+04	6.52E+03	4.89E+03
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	3.31E+02	2.70E+01	3.73E+01	2.95E+02	2.63E+01	3.62E+01	2.71E+02	2.58E+01	3.52E+01	2.57E+02	2.55E+01	3.46E+01	2.44E+02	2.51E+01	3.40E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	7.76E+01	2.09E+01	2.91E+01	6.61E+01	1.96E+01	2.48E+01	6.58E+01	1.89E+01	2.47E+01	6.58E+01	1.84E+01	2.47E+01	6.60E+01	1.80E+01	2.47E+01
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	1.31E+02	6.53E+01	4.90E+01	1.12E+02	5.61E+01	4.21E+01	1.12E+02	5.60E+01	4.20E+01	1.12E+02	5.60E+01	4.20E+01	1.12E+02	5.60E+01	4.20E+01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	2.81E+02	1.40E+02	1.05E+02	2.41E+02	1.21E+02	9.06E+01	2.41E+02	1.21E+02	9.04E+01	2.41E+02	1.21E+02	9.04E+01	2.42E+02	1.21E+02	9.04E+01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	3.07E+03	1.54E+03	1.15E+03	2.64E+03	1.32E+03	9.91E+02	2.64E+03	1.32E+03	9.88E+02	2.64E+03	1.32E+03	9.88E+02	2.64E+03	1.32E+03	9.88E+02
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	2.12E+04	1.06E+04	7.93E+03	1.82E+04	9.09E+03	6.82E+03	1.81E+04	9.08E+03	6.81E+03	1.81E+04	9.08E+03	6.81E+03	1.82E+04	9.08E+03	6.80E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	3.99E+03	1.41E+03	1.50E+03	3.41E+03	1.27E+03	1.28E+03	3.40E+03	1.24E+03	1.27E+03	3.40E+03	1.23E+03	1.27E+03	3.40E+03	1.21E+03	1.27E+03
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	2.83E+04	5.37E+03	8.25E+03	2.39E+04	5.12E+03	7.79E+03	2.38E+04	4.92E+03	7.42E+03	2.38E+04	4.79E+03	7.19E+03	2.39E+04	4.66E+03	6.97E+03
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	1.2E-01	2.92E+05	1.46E+05	1.09E+05	2.51E+05	1.26E+05	9.41E+04	2.50E+05	1.25E+05	9.39E+04	2.50E+05	1.25E+05	9.39E+04	2.51E+05	1.25E+05	9.39E+04
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	4.6E+01	4.12E+02	8.17E+01	9.64E+01	3.81E+02	6.22E+01	7.73E+01	3.61E+02	6.19E+01	7.66E+01	3.49E+02	6.17E+01	7.62E+01	3.37E+02	6.15E+01	7.58E+01
7439-92-1	Lead	lead	30	1.5E+01	3.16E+05	1.58E+05	1.19E+05	2.72E+05	1.36E+05	1.02E+05	2.71E+05	1.36E+05	1.02E+05	2.71E+05	1.36E+05	1.02E+05	2.72E+05	1.36E+05	1.02E+05
7439-93-2	Lithium	Lithium	50	3.2E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.61E+05
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7439-97-6	Mercury	mercury	30	2.0E+00	4.22E+04	2.11E+04	1.58E+04	3.62E+04	1.81E+04	1.36E+04	3.62E+04	1.81E+04	1.36E+04	3.62E+04	1.81E+04	1.36E+04	3.63E+04	1.81E+04	1.36E+04
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	1.76E+01	5.29E+00	6.24E+00	1.54E+01	3.31E+00	3.90E+00	1.48E+01	3.17E+00	3.81E+00	1.44E+01	3.16E+00	3.80E+00	1.40E+01	3.16E+00	3.79E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.63E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05	3.88E+05	3.88E+05	3.62E+05
108-38-3	m-Xylene	Xylene, m-	0.2	1.6E+03	1.33E+05	1.09E+04	1.50E+04	1.19E+05	1.06E+04	1.45E+04	1.09E+05	1.04E+04	1.42E+04	1.03E+05	1.02E+04	1.39E+04	9.80E+04	1.01E+04	1.37E+04
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	1.38E+05	3.64E+04	5.18E+04	1.17E+05	3.44E+04	4.41E+04	1.17E+05	3.30E+04	4.39E+04	1.17E+05	3.21E+04	4.39E+04	1.17E+05	3.13E+04	4.39E+04
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.18E+05	3.87E+04	4.56E+04	9.09E+04	2.23E+04	2.62E+04	8.74E+04	2.04E+04	2.42E+04	8.53E+04	2.03E+04	2.41E+04	8.33E+04	2.03E+04	2.41E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	8.66E+03	2.84E+03	3.35E+03	6.67E+03	1.63E+03	1.92E+03	6.41E+03	1.50E+03	1.77E+03	6.25E+03	1.49E+03	1.77E+03	6.11E+03	1.49E+03	1.76E+03
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	4.98E+02	5.50E+01	7.11E+01	4.52E+02	5.20E+01	6.83E+01	4.20E+02	5.14E+01	6.70E+01	4.01E+02	5.10E+01	6.63E+01	3.84E+02	5.06E+01	6.55E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	2.62E+03	8.60E+02	1.01E+03	2.02E+03	4.95E+02	5.81E+02	1.94E+03	4.54E+02	5.37E+02	1.89E+03	4.51E+02	5.35E+02	1.85E+03	4.51E+02	5.35E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	6.41E-02	1.65E-02	1.95E-02	5.86E-02	1.11E-02	1.35E-02	5.59E-02	1.10E-02	1.34E-02	5.43E-02	1.10E-02	1.33E-02	5.28E-02	1.10E-02	1.33E-02
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	1.8E+01	1.67E+04	4.44E+03	6.25E+03	1.42E+04	4.17E+03	5.32E+03	1.41E+04	4.01E+03	5.31E+03	1.41E+04	3.91E+03	5.30E+03	1.42E+04	3.81E+03	5.30E+03
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	1.94E+05	1.45E+04	2.04E+04	1.72E+05	1.41E+04	1.97E+04	1.57E+05	1.38E+04	1.92E+04	1.49E+05	1.36E+04	1.88E+04	1.41E+05	1.34E+04	1.84E+04
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	3.24E+02	3.95E+01	5.97E+01	2.72E+02	3.79E+01	5.66E+01	2.71E+02	3.65E+01	5.42E+01	2.71E+02	3.56E+01	5.27E+01	2.71E+02	3.48E+01	5.12E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	1.37E+04	3.37E+03	3.98E+03	1.26E+04	2.33E+03	2.84E+03	1.20E+04	2.31E+03	2.81E+03	1.16E+04	2.30E+03	2.80E+03	1.13E+04	2.30E+03	2.79E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	3.97E+02	1.99E+02	1.49E+02	3.41E+02	1.70E+02	1.28E+02	3.40E+02	1.70E+02	1.27E+02	3.40E+02	1.70E+02	1.27E+02	3.41E+02	1.70E+02	1.27E+02
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	1.77E+05	8.84E+04	6.63E+04	1.52E+05	7.59E+04	5.69E+04	1.51E+05	7.57E+04	5.67E+04	1.51E+05	7.57E+04	5.67E+04	1.52E+05	7.57E+04	5.67E+04
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	8.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	6.67E+04	1.54E+04	2.36E+04	5.65E+04	1.46E+04	2.12E+04	5.63E+04	1.40E+04	2.10E+04	5.63E+04	1.36E+04	2.04E+04	5.63E+04	1.33E+04	1.98E+04
14808-79-8	Sulfate	sulfate	0	2.5E+05	3.88E+05	2.15E+05	2.53E+05	3.88E+05	1.24E+05	1.45E+05	3.88E+05	1.14E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05	3.88E+05	1.13E+05	1.34E+05
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	1.27E+01	8.99E-01	1.28E+00	1.12E+01	8.73E-01	1.23E+00	1.02E+01	8.52E-01	1.19E+00	9.63E+00	8.38E-01	1.17E+00	9.11E+00	8.25E-01	1.15E+00
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	2.49E+04	1.25E+04	9.35E+03	2.14E+04	1.07E+04	8.04E+03	2.14E+04	1.07E+04	8.02E+03	2.14E+04	1.07E+04	8.02E+03	2.15E+04	1.07E+04	8.02E+03
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	2.71E+04	2.67E+03	3.54E+03	2.44E+04	2.58E+03	3.43E+03	2.26E+04	2.54E+03	3.36E+03	2.16E+04	2.51E+03	3.32E+03	2.06E+04	2.49E+03	3.27E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	5.35E+03	2.67E+03	2.01E+03	4.60E+03	2.30E+03	1.73E+03	4.59E+03	2.30E+03	1.72E+03	4.59E+03	2.30E+03	1.72E+03	4.61E+03	2.30E+03	1.72E+03
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	7.38E+02	1.61E+02	1.89E+02	6.82E+02	1.17E+02	1.45E+02	6.48E+02	1.17E+02	1.44E+02	6.27E+02	1.16E+02	1.43E+02	6.08E+02	1.16E+02	1.42E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	2.40E+00	6.00E-01	7.08E-01	2.20E+00	4.11E-01	4.99E-01	2.10E+00	4.07E-01	4.95E-01	2.03E+00	4.06E-01	4.93E-01	1.98E+00	4.05E-01	4.91E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	1.07E+01	1.36E+00	1.70E+00	9.77E+00	1.24E+00	1.60E+00	9.13E+00	1.23E+00	1.58E+00	8.75E+00	1.22E+00	1.56E+00	8.39E+00	1.21E+00	1.55E+00
7440-62-2	Vanadium	vanadium	1000	8.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	2.77E-01	7.49E-02	8.84E-02	2.51E-01	4.94E-02	5.94E-02	2.40E-01	4.85E-02	5.88E-02	2.33E-01	4.85E-02	5.86E-02	2.27E-01	4.84E-02	5.84E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	1.77E+05	1.35E+04	1.90E+04	1.57E+05	1.32E+04	1.83E+04	1.44E+05	1.29E+04	1.78E+04	1.36E+05	1.27E+04	1.75E+04	1.29E+05	1.25E+04	1.72E+04
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16000	4.32E+04	1.41E+04	1.66E+04	3.39E+04	8.18E+03	9.61E+03	3.26E+04	7.54E+03	8.94E+03	3.18E+04	7.50E+03	8.92E+03	3.11E+04	7.50E+03	8.90E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	1.29E+04	5.27E+03	4.83E+03	1.10E+04	4.65E+03	4.13E+03	1.10E+04	4.58E+03	4.11E+03	1.10E+04	4.54E+03	4.11E+03	1.10E+04	4.51E+03	4.11E+03
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	2.16E+03	7.04E+02	8.30E+02	1.70E+03	4.09E+02	4.81E+02	1.63E+03	3.77E+02	4.47E+02	1.59E+03	3.75E+02	4.46E+02	1.55E+03	3.75E+02	4.45E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	5.58E+03	1.68E+03	1.98E+03	4.86E+03	1.05E+03	1.23E+03	4.66E+03	1.00E+03	1.20E+03	4.54E+03	1.00E+03	1.20E+03	4.42E+03	1.00E+03	1.20E+03
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	2.03E+04	4.13E+03	4.88E+03	1.88E+04	3.11E+03	3.86E+03	1.78E+04	3.09E+03	3.83E+03	1.72E+04	3.08E+03	3.80E+03	1.67E+04	3.07E+03	3.78E+03

Summary of Concentrations Protective of Surface Water Calculated with STOMP based on five sets of different Vadose Zone depths

					SW_Preliminary Remediation Goal (mg/kg)														
					Base Case (Depth 1)			Base Case (Depth 2)			Base Case (Depth 3)			Base Case (Depth 4)			Base Case (Depth 5)		
CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Surface Water Standard (ug/L)	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	2.91E+00	4.14E-01	5.02E-01	2.67E+00	3.63E-01	4.63E-01	2.51E+00	3.60E-01	4.57E-01	2.41E+00	3.58E-01	4.53E-01	2.31E+00	3.56E-01	4.49E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	9.30E+00	1.38E+00	1.67E+00	8.55E+00	1.19E+00	1.51E+00	8.02E+00	1.18E+00	1.49E+00	7.71E+00	1.17E+00	1.48E+00	7.42E+00	1.17E+00	1.47E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	3.88E+05	1.40E+05	1.65E+05	3.88E+05	1.09E+05	1.36E+05	3.88E+05	1.09E+05	1.35E+05	3.88E+05	1.08E+05	1.34E+05	3.88E+05	1.08E+05	1.33E+05
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	7.48E-01	1.22E-01	1.45E-01	6.90E-01	1.01E-01	1.28E-01	6.49E-01	1.00E-01	1.26E-01	6.25E-01	9.99E-02	1.25E-01	6.02E-01	9.95E-02	1.24E-01
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	2.34E+03	7.39E+02	8.77E+02	2.00E+03	6.75E+02	7.48E+02	1.99E+03	6.56E+02	7.46E+02	1.99E+03	6.44E+02	7.46E+02	1.99E+03	6.33E+02	7.46E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	1.16E+05	8.48E+03	1.24E+04	9.81E+04	8.21E+03	1.19E+04	9.51E+04	7.97E+03	1.14E+04	9.34E+04	7.81E+03	1.12E+04	9.17E+04	7.67E+03	1.09E+04
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	2.81E+00	6.10E-01	7.20E-01	2.59E+00	4.46E-01	5.50E-01	2.46E+00	4.43E-01	5.45E-01	2.38E+00	4.42E-01	5.43E-01	2.31E+00	4.41E-01	5.40E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	1.63E+04	3.46E+03	4.08E+03	1.51E+04	2.56E+03	3.16E+03	1.44E+04	2.55E+03	3.14E+03	1.39E+04	2.54E+03	3.12E+03	1.35E+04	2.53E+03	3.11E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	4.49E+00	8.89E-01	1.05E+00	4.15E+00	6.78E-01	8.42E-01	3.93E+00	6.74E-01	8.35E-01	3.80E+00	6.72E-01	8.30E-01	3.68E+00	6.69E-01	8.25E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	3.2E+02	1.07E+05	8.57E+03	1.27E+04	8.88E+04	8.27E+03	1.21E+04	8.84E+04	8.01E+03	1.16E+04	8.83E+04	7.84E+03	1.13E+04	8.83E+04	7.68E+03	1.11E+04
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	9.94E+03	1.28E+03	1.94E+03	8.36E+03	1.23E+03	1.84E+03	8.33E+03	1.18E+03	1.76E+03	8.32E+03	1.15E+03	1.71E+03	8.33E+03	1.12E+03	1.66E+03
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	3.88E+05	1.69E+05	2.10E+05	3.88E+05	1.56E+05	1.79E+05	3.88E+05	1.51E+05	1.79E+05	3.88E+05	1.48E+05	1.79E+05	3.88E+05	1.45E+05	1.79E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol;2,4,6-	0.381	1.4E+00	3.91E+02	2.87E+01	4.18E+01	3.30E+02	2.77E+01	4.01E+01	3.20E+02	2.69E+01	3.87E+01	3.15E+02	2.64E+01	3.77E+01	3.10E+02	2.59E+01	3.69E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E+01	3.46E+03	3.37E+02	4.48E+02	3.12E+03	3.25E+02	4.34E+02	2.88E+03	3.20E+02	4.25E+02	2.75E+03	3.17E+02	4.19E+02	2.62E+03	3.14E+02	4.13E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	3.42E+04	2.74E+03	3.80E+03	3.04E+04	2.67E+03	3.68E+03	2.79E+04	2.62E+03	3.59E+03	2.64E+04	2.58E+03	3.52E+03	2.51E+04	2.55E+03	3.46E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	1.81E+02	5.94E+01	7.00E+01	1.39E+02	3.42E+01	4.01E+01	1.34E+02	3.14E+01	3.71E+01	1.31E+02	3.11E+01	3.70E+01	1.28E+02	3.11E+01	3.69E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	2.46E+00	3.09E-01	3.86E-01	2.24E+00	2.83E-01	3.65E-01	2.10E+00	2.80E-01	3.60E-01	2.01E+00	2.78E-01	3.56E-01	1.93E+00	2.76E-01	3.53E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	1.66E+03	2.62E+02	3.13E+02	1.53E+03	2.20E+02	2.79E+02	1.44E+03	2.19E+02	2.75E+02	1.39E+03	2.17E+02	2.73E+02	1.33E+03	2.16E+02	2.71E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.9E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	2.76E+05	3.25E+05	3.88E+05	2.58E+05	3.07E+05	3.88E+05	2.57E+05	3.06E+05	3.88E+05	2.57E+05	3.06E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	2.34E+04	1.74E+03	2.54E+03	1.97E+04	1.68E+03	2.44E+03	1.93E+04	1.63E+03	2.35E+03	1.91E+04	1.60E+03	2.29E+03	1.89E+04	1.57E+03	2.24E+03
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	3.4E+03	1.38E+04	3.94E+03	4.64E+03	1.23E+04	2.53E+03	3.01E+03	1.18E+04	2.45E+03	2.96E+03	1.15E+04	2.45E+03	2.95E+03	1.12E+04	2.45E+03	2.94E+03
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	1.4E+02	2.94E+05	1.47E+05	1.10E+05	2.52E+05	1.26E+05	9.45E+04	2.51E+05	1.26E+05	9.42E+04	2.51E+05	1.26E+05	9.42E+04	2.52E+05	1.26E+05	9.42E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	3.88E+05	3.24E+05	3.88E+05	3.88E+05	3.13E+05	3.88E+05	3.88E+05	3.03E+05	3.88E+05	3.88E+05	2.97E+05	3.88E+05	3.88E+05	2.91E+05	3.88E+05
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	2.63E+04	4.90E+03	5.79E+03	2.43E+04	3.83E+03	4.78E+03	2.29E+04	3.81E+03	4.74E+03	2.21E+04	3.80E+03	4.71E+03	2.14E+04	3.78E+03	4.68E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	1.13E+01	1.82E+00	2.78E+00	9.51E+00	1.74E+00	2.63E+00	9.47E+00	1.67E+00	2.51E+00	9.46E+00	1.63E+00	2.43E+00	9.47E+00	1.59E+00	2.36E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	1.02E+03	1.92E+02	2.27E+02	9.40E+02	1.49E+02	1.86E+02	8.89E+02	1.49E+02	1.85E+02	8.58E+02	1.48E+02	1.84E+02	8.29E+02	1.47E+02	1.82E+02
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	9.97E+00	4.99E+00	3.74E+00	8.57E+00	4.29E+00	3.22E+00	8.56E+00	4.28E+00	3.21E+00	8.55E+00	4.28E+00	3.21E+00	8.58E+00	4.28E+00	3.21E+00
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	1.33E+01	6.67E+00	5.00E+00	1.15E+01	5.74E+00	4.30E+00	1.15E+01	5.73E+00	4.29E+00	1.14E+01	5.73E+00	4.29E+00	1.15E+01	5.73E+00	4.29E+00
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	1.05E+02	5.23E+01	3.92E+01	9.00E+01	4.50E+01	3.38E+01	8.98E+01	4.49E+01	3.37E+01	8.98E+01	4.49E+01	3.37E+01	9.01E+01	4.49E+01	3.37E+01
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+01	5.85E+03	7.36E+02	1.11E+03	4.92E+03	7.05E+02	1.06E+03	4.90E+03	6.80E+02	1.01E+03	4.90E+03	6.64E+02	9.82E+02	4.90E+03	6.48E+02	9.54E+02
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	6.97E+01	1.06E+01	1.28E+01	6.41E+01	9.05E+00	1.15E+01	6.02E+01	8.98E+00	1.13E+01	5.79E+01	8.94E+00	1.13E+01	5.57E+01	8.89E+00	1.12E+01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	2.30E+05	6.73E+04	7.93E+04	2.03E+05	4.27E+04	5.05E+04	1.94E+05	4.11E+04	4.95E+04	1.89E+05	4.11E+04	4.94E+04	1.84E+05	4.10E+04	4.92E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	3.88E+05	3.92E+04	5.79E+04	3.88E+05	3.78E+04	5.54E+04	3.88E+05	3.67E+04	5.33E+04	3.88E+05	3.59E+04	5.19E+04	3.88E+05	3.52E+04	5.06E+04
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	8.01E+02	1.51E+02	1.79E+02	7.40E+02	1.18E+02	1.47E+02	7.00E+02	1.17E+02	1.45E+02	6.76E+02	1.17E+02	1.45E+02	6.53E+02	1.16E+02	1.44E+02
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	3.88E+05	5.62E+04	8.08E+04	3.88E+05	5.45E+04	7.77E+04	3.88E+05	5.31E+04	7.52E+04	3.88E+05	5.22E+04	7.35E+04	3.88E+05	5.13E+04	7.20E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.73E+05	3.88E+05	3.88E+05	3.43E+05	3.88E+05	3.88E+05	3.41E+05	3.88E+05	3.88E+05	3.41E+05	3.88E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	1.68E+00	8.38E-01	6.28E-01	1.44E+00	7.21E-01	5.40E-01	1.44E+00	7.19E-01	5.39E-01	1.44E+00	7.19E-01	5.39E-01	1.44E+00	7.19E-01	5.39E-01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	3.28E+00	1.14E+00	1.23E+00	2.80E+00	1.03E+00	1.05E+00	2.79E+00	1.00E+00	1.05E+00	2.79E+00	9.89E-01	1.05E+00	2.80E+00	9.74E-01	1.05E+00
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	2.04E+01	1.02E+01	7.65E+00	1.76E+01	8.78E+00	6.58E+00	1.75E+01	8.76E+00	6.57E+00	1.75E+01	8.76E+00	6.57E+00	1.76E+01	8.76E+00	6.57E+00
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	1.49E+04	7.47E+03	5.60E+03	1.28E+04	6.40E+03	4.80E+03	1.28E+04	6.39E+03	4.79E+03	1.28E+04	6.38E+03	4.79E+03	1.28E+04	6.39E+03	4.79E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	4.81E+00	2.40E+00	1.80E+00	4.13E+00	2.07E+00	1.55E+00	4.13E+00	2.06E+00	1.55E+00	4.12E+00	2.06E+00	1.55E+00	4.14E+00	2.06E+00	1.55E+00
11104-28-2	Aroclor-1221	aroclor 1221 (PCB)	10.3	6.4E-05	4.64E-01	2.32E-01	1.74E-01	3.99E-01	1.99E-01	1.50E-01	3.98E-01	1.99E-01	1.49E-01	3.98E-01	1.99E-01	1.49E-01	3.99E-01	1.99E-01	1.49E-01
11141-16-5	Aroclor-1232	aroclor 1232 (PCB)	10.3	6.4E-05	4.64E-01	2.32E-01	1.74E-01	3.99E-01	1.99E-01	1.50E-01	3.98E-01	1.99E-01	1.49E-01	3.98E-01	1.99E-01	1.49E-01	3.99E-01	1.99E-01	1.49E-01
53469-21-9	Aroclor-1242	aroclor 1242 (PCB)	44.8	6.4E-05	2.01E+00	1.01E+00	7.55E-01	1.73E+00	8.66E-01	6.49E-01	1.73E+00	8.64E-01	6.48E-01	1.73E+00	8.64E-01	6.48E-01	1.73E+00	8.64E-01	6.48E-01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	1.97E+00	9.87E-01	7.40E-01	1.70E+00	8.48E-01	6.36E-01	1.69E+00	8.47E-01	6.35E-01	1.69E+00	8.47E-01	6.35E-01	1.70E+00	8.47E-01	6.35E-01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	3.40E+00	1.70E+00	1.27E+00	2.92E+00	1.46E+00	1.10E+00	2.91E+00	1.46E+00	1.09E+00	2.91E+00	1.46E+00	1.09E+00	2.92E+00	1.46E+00	1.09E+00
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	3.69E+01	1.85E+01	1.38E+01	3.18E+01	1.59E+01	1.19E+01	3.17E+01	1.58E+01	1.19E+01	3.17E+01	1.59E+01	1.19E+01	3.18E+01	1.58E+01	1.19E+01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	3.84E+01	1.92E+01	1.44E+01	3.29E+01	1.64E+01	1.23E+01	3.28E+01	1.64E+01	1.23E+01	3.28E+01	1.64E+01	1.23E+01	3.29E+01	1.64E+01	1.23E+01
7440-39-3	Barium	Barium	25	1.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	1.50E+01	2.51E+00	2.97E+00	1.38E+01	2.05E+00	2.59E+00	1.30E+01	2.04E+00	2.56E+00	1.25E+01	2.03E+00	2.54E+00	1.21E+01	2.02E+00	2.52E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	7.07E+02	3.54E+02	2.65E+02	6.08E+02	3.04E+02	2.28E+02	6.07E+02	3.04E+02	2.28E+02	6.07E+02	3.04E+02	2.28E+02	6.09E+02	3.04E+02	2.28E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	1.08E+04	5.40E+03	4.05E+03	9.29E+03	4.65E+03	3.49E+03	9.27E+03	4.64E+03	3.48E+03	9.27E+03	4.64E+03	3.48E+03	9.30E+03	4.64E+03	3.48E+03
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	1.58E+03	7.89E+02	5.92E+02	1.36E+03	6.79E+02	5.09E+02	1.35E+03	6.77E+02	5.08E+02	1.35E+03	6.78E+02	5.08E+02	1.36E+03	6.77E+02	5.08E+02
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	2.42E+03	1.21E+03	9.06E+02	2.08E+03	1.04E+03	7.80E+02	2.07E+03	1.04E+03	7.78E+02	2.07E+03	1.04E+03	7.78E+02	2.08E+03	1.04E+03	7.78E+02
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	1.39E+01	6.96E+00	5.22E+00	1.19E+01	5.95E+00	4.46E+00	1.19E+01	5.94E+00	4.45E+00	1.19E+01	5.93E+00	4.45E+00	1.19E+01	5.94E+00	4.45E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	2.88E+02	6.13E+01	7.24E+01	2.66E+02	4.52E+01	5.59E+01	2.53E+02	4.50E+01	5.54E+01	2.44E+02	4.48E+01	5.51E+01	2.37E+02	4.47E+01	5.49E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	2.3E+03	6.63E+03	2.13E+03	2.51E+03	5.29E+03	1.25E+03	1.47E+03	5.08E+03	1.16E+03	1.38E+03	4.96E+03	1.16E+03	1.38E+03	4.84E+03	1.16E+03	1.38E+03
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	3.0E-02	4.83E-01	7.10E-02	8.57E-02	4.43E-01	6.13E-02	7.81E-02	4.16E-01	6.08E-02	7.71E-02	4.00E-01	6.05E-02	7.65E-02	3.85E-01	6.02E-02	7.58E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	9.27E+04	4.63E+04	3.47E+04	7.97E+04	3.98E+04	2.99E+04	7.95E+04	3.98E+04	2.98E+04	7.95E+04	3.98E+04	2.98E+04	7.98E+04	3.98E+04	2.98E+04
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-42-8	Boron	Boron	3	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	2.88E+00	5.24E-01	6.18E-01	2.66E+00	4.14E-01	5.18E-01	2.52E+00	4.12E-01	5.13E-01	2.43E+00	4.10E-01	5.10E-01	2.34E+00	4.09E-01	5.07E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	1.60E+02	1.64E+01	2.16E+01	1.45E+02	1.58E+01	2.09E+01	1.34E+02	1.56E+01	2.05E+01	1.28E+02	1.54E+01	2.02E+01	1.22E+02	1.53E+01	2.00E+01
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	1.60E+02	4.86E+01	5.73E+01	1.38E+02	3.01E+01	3.55E+01	1.32E+02	2.87E+01	3.44E+01	1.29E+02	2.86E+01	3.43E+01	1.26E+02	2.86E+01	3.42E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	8.00E+04	4.00E+04	3.00E+04	6.88E+04	3.44E+04	2.58E+04	6.86E+04	3.43E+04	2.57E+04	6.86E+04	3.43E+04	2.57E+04	6.88E+04	3.43E+04	2.57E+04
7440-43-9	Cadmium	cadmium	30	2.5E-01	5.27E+03	2.63E+03	1.98E+03	4.53E+03	2.27E+03	1.70E+03	4.52E+03	2.26E+03	1.70E+03	4.52E+03	2.26E+03	1.70E+03	4.53E+03	2.26E+03	1.70E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.17E+05	2.34E+04	2.76E+04	1.08E+05	1.78E+04	2.20E+04	1.03E+05	1.77E+04	2.19E+04	9.91E+04	1.76E+04	2.17E+04	9.59E+04	1.75E+04	2.16E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	1.08E+01	1.04E+00	1.39E+00	9.73E+00	1.00E+00	1.34E+00	9.00E+00	9.89E-01	1.32E+00	8.56E+00	9.79E-01	1.30E+00	8.17E+00	9.70E-01	1.28E+00
57-74-9	Chlordane	chlordane	51	5.7E-04	2.04E+01	1.02E+01	7.65E+00	1.76E+01	8.78E+00	6.58E+00	1.75E+01	8.76E+00	6.57E+00	1.75E+01	8.76E+00	6.57E+00	1.76E+01	8.76E+00	6.57E+00
16887-00-6	Chloride	chloride	0	2.3E+05	3.88E+05	1.98E+05	2.33E+05	3.88E+05	1.14E+05	1.34E+05	3.88E+05	1.05E+05	1.23E+05	3.88E+05	1.04E+05	1.23E+05	3.88E+05	1.04E+05	1.23E+05

108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	1.30E+04	1.02E+03	1.42E+03	1.15E+04	9.90E+02	1.37E+03	1.06E+04	9.69E+02	1.33E+03	1.00E+04	9.56E+02	1.31E+03	9.49E+03	9.43E+02	1.29E+03
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
67-66-3	Chloroform	chloroform	0.053	5.7E+00	5.81E+01	1.08E+01	1.28E+01	5.37E+01	8.47E+00	1.06E+01	5.08E+01	8.42E+00	1.05E+01	4.90E+01	8.38E+00	1.04E+01	4.73E+01	8.35E+00	1.03E+01
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-47-3	Chromium	chromium (total)	200	6.5E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	3.93E+02	1.97E+02	1.47E+02	3.38E+02	1.69E+02	1.27E+02	3.37E+02	1.69E+02	1.26E+02	3.37E+02	1.69E+02	1.26E+02	3.38E+02	1.69E+02	1.26E+02
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	1.62E+04	3.64E+03	4.29E+03	1.50E+04	2.62E+03	3.22E+03	1.42E+04	2.60E+03	3.20E+03	1.38E+04	2.60E+03	3.18E+03	1.34E+04	2.59E+03	3.17E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	1.87E+00	4.67E-01	5.51E-01	1.71E+00	3.19E-01	3.88E-01	1.63E+00	3.16E-01	3.85E-01	1.58E+00	3.15E-01	3.83E-01	1.54E+00	3.15E-01	3.82E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	9.10E+04	4.55E+04	3.41E+04	7.83E+04	3.91E+04	2.94E+04	7.81E+04	3.91E+04	2.93E+04	7.81E+04	3.91E+04	2.93E+04	7.84E+04	3.91E+04	2.93E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-50-8	Copper	copper	22	9.0E+00	1.39E+05	6.96E+04	5.22E+04	1.20E+05	5.98E+04	4.49E+04	1.19E+05	5.97E+04	4.48E+04	1.19E+05	5.97E+04	4.48E+04	1.20E+05	5.97E+04	4.48E+04
57-12-5	Cyanide	cyanide	9.9	5.2E+00	3.63E+04	1.81E+04	1.36E+04	3.12E+04	1.56E+04	1.17E+04	3.11E+04	1.55E+04	1.17E+04	3.11E+04	1.55E+04	1.17E+04	3.12E+04	1.55E+04	1.17E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	3.52E+03	1.76E+03	1.32E+03	3.03E+03	1.51E+03	1.13E+03	3.02E+03	1.51E+03	1.13E+03	3.02E+03	1.51E+03	1.13E+03	3.03E+03	1.51E+03	1.13E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	1.36E+04	6.79E+03	5.09E+03	1.17E+04	5.83E+03	4.37E+03	1.16E+04	5.82E+03	4.36E+03	1.16E+04	5.82E+03	4.36E+03	1.17E+04	5.82E+03	4.36E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	5.08E+00	8.44E-01	1.00E+00	4.68E+00	6.93E-01	8.73E-01	4.41E+00	6.88E-01	8.63E-01	4.25E+00	6.85E-01	8.57E-01	4.10E+00	6.82E-01	8.51E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	9.36E-01	4.68E-01	3.51E-01	8.04E-01	4.02E-01	3.02E-01	8.02E-01	4.01E-01	3.01E-01	8.02E-01	4.01E-01	3.01E-01	8.05E-01	4.01E-01	3.01E-01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	3.07E+05	4.25E+04	5.18E+04	2.81E+05	3.76E+04	4.81E+04	2.63E+05	3.72E+04	4.74E+04	2.53E+05	3.70E+04	4.70E+04	2.43E+05	3.68E+04	4.66E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	2.77E+05	3.38E+05	3.88E+05	2.74E+05	3.35E+05	3.88E+05	2.74E+05	3.34E+05	3.88E+05	2.73E+05	3.32E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	8.17E+01	4.09E+01	3.07E+01	6.98E+01	3.49E+01	2.62E+01	6.96E+01	3.49E+01	2.61E+01	6.96E+01	3.48E+01	2.61E+01	6.98E+01	3.48E+01	2.61E+01
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	8.17E+01	4.09E+01	3.07E+01	6.98E+01	3.49E+01	2.62E+01	6.96E+01	3.49E+01	2.61E+01	6.96E+01	3.48E+01	2.61E+01	6.98E+01	3.48E+01	2.61E+01
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	1.36E+03	6.79E+02	5.09E+02	1.16E+03	5.80E+02	4.35E+02	1.16E+03	5.79E+02	4.34E+02	1.16E+03	5.78E+02	4.34E+02	1.16E+03	5.79E+02	4.34E+02
72-20-8	Endrin	endrin	10.8	2.3E-03	1.75E+01	8.75E+00	6.56E+00	1.50E+01	7.51E+00	5.64E+00	1.50E+01	7.50E+00	5.62E+00	1.50E+01	7.50E+00	5.62E+00	1.50E+01	7.50E+00	5.62E+00
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	2.21E+03	1.10E+03	8.27E+02	1.89E+03	9.48E+02	7.11E+02	1.89E+03	9.46E+02	7.09E+02	1.89E+03	9.46E+02	7.09E+02	1.90E+03	9.46E+02	7.09E+02
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	1.31E+03	1.07E+02	1.47E+02	1.16E+03	1.04E+02	1.43E+02	1.07E+03	1.02E+02	1.39E+02	1.01E+03	1.01E+02	1.37E+02	9.62E+02	9.93E+01	1.34E+02
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
86-73-7	Fluorene	fluorene	7.71	1.1E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	1.85E+01	5.00E+00	6.95E+00	1.58E+01	4.68E+00	5.92E+00	1.57E+01	4.51E+00	5.90E+00	1.57E+01	4.40E+00	5.90E+00	1.58E+01	4.29E+00	5.90E+00
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	5.30E-01	2.65E-01	1.99E-01	4.56E-01	2.28E-01	1.71E-01	4.55E-01	2.27E-01	1.70E-01	4.55E-01	2.27E-01	1.70E-01	4.56E-01	2.27E-01	1.70E-01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	2.28E+00	1.14E+00	8.54E-01	1.96E+00	9.80E-01	7.35E-01	1.95E+00	9.78E-01	7.33E-01	1.95E+00	9.78E-01	7.33E-01	1.96E+00	9.78E-01	7.33E-01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	1.57E+01	7.86E+00	5.90E+00	1.35E+01	6.76E+00	5.07E+00	1.35E+01	6.75E+00	5.06E+00	1.35E+01	6.75E+00	5.06E+00	1.35E+01	6.75E+00	5.06E+00
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	1.66E+04	8.38E+03	6.22E+03	1.43E+04	7.13E+03	5.35E+03	1.42E+04	7.12E+03	5.34E+03	1.42E+04	7.12E+03	5.34E+03	1.43E+04	7.12E+03	5.34E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	1.79E+03	6.33E+02	6.71E+02	1.53E+03	5.70E+02	5.73E+02	1.52E+03	5.57E+02	5.71E+02	1.52E+03	5.50E+02	5.71E+02	1.52E+03	5.42E+02	5.71E+02
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	5.90E+03	1.12E+03	1.72E+03	4.99E+03	1.07E+03	1.62E+03	4.97E+03	1.02E+03	1.55E+03	4.96E+03	9.97E+02	1.50E+03	4.97E+03	9.71E+02	1.45E+03
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	2.8E-03	6.82E+03	3.41E+03	2.56E+03	5.86E+03	2.93E+03	2.20E+03	5.85E+03	2.93E+03	2.19E+03	5.85E+03	2.93E+03	2.19E+03	5.87E+03	2.93E+03	2.19E+03
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	7.51E+01	1.49E+01	1.76E+01	6.95E+01	1.14E+01	1.41E+01	6.58E+01	1.13E+01	1.40E+01	6.36E+01	1.12E+01	1.39E+01	6.15E+01	1.12E+01	1.38E+01
7439-92-1	Lead	lead	30	2.1E+00	4.44E+04	2.22E+04	1.67E+04	3.82E+04	1.91E+04	1.43E+04	3.81E+04	1.91E+04	1.43E+04	3.81E+04	1.91E+04	1.43E+04	3.82E+04	1.91E+04	1.43E+04
7439-93-2	Lithium	Lithium	50	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7439-97-6	Mercury	mercury	30	1.2E-02	2.53E+02	1.26E+02	9.49E+01	2.17E+02	1.09E+02	8.16E+01	2.17E+02	1.09E+02	8.14E+01	2.17E+02	1.09E+02	8.14E+01	2.18E+02	1.09E+02	8.14E+01
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	1.68E+03	8.42E+02	6.32E+02	1.45E+03	7.25E+02	5.43E+02	1.45E+03	7.23E+02	5.42E+02	1.45E+03	7.23E+02	5.42E+02	1.45E+03	7.23E+02	5.42E+02
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	1.62E+01	4.86E+00	5.74E+00	1.42E+01	3.05E+00	3.58E+00	1.36E+01	2.92E+00	3.50E+00	1.32E+01	2.91E+00	3.49E+00	1.29E+01	2.91E+00	3.48E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-38-3	m-Xylene	Xylene, m-	0.2	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.18E+05	3.87E+04	4.56E+04	9.09E+04	2.23E+04	2.62E+04	8.74E+04	2.04E+04	2.42E+04	8.53E+04	2.03E+04	2.41E+04	8.33E+04	2.03E+04	2.41E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	5.29E+02	5.84E+01	7.55E+01	4.80E+02	5.53E+01	7.25E+01	4.47E+02	5.46E+01	7.12E+01	4.26E+02	5.41E+01	7.04E+01	4.08E+02	5.37E+01	6.96E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	2.62E+04	8.60E+03	1.01E+04	2.02E+04	4.95E+03	5.81E+03	1.94E+04	4.54E+03	5.37E+03	1.89E+04	4.51E+03	5.35E+03	1.85E+04	4.51E+03	5.35E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	2.56E-02	6.60E-03	7.79E-03	2.34E-02	4.45E-03	5.39E-03	2.24E-02	4.40E-03	5.35E-03	2.17E-02	4.39E-03	5.33E-03	2.11E-02	4.38E-03	5.31E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	3.08E+03	8.21E+02	1.16E+03	2.62E+03	7.71E+02	9.84E+02	2.61E+03	7.41E+02	9.80E+02	2.61E+03	7.22E+02	9.80E+02	2.62E+03	7.04E+02	9.80E+02
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	1.20E+02	1.46E+01	2.21E+01	1.01E+02	1.40E+01	2.10E+01	1.00E+02	1.35E+01	2.01E+01	1.00E+02	1.32E+01	1.95E+01	1.00E+02	1.29E+01	1.90E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	5.73E+04	1.41E+04	1.66E+04	5.25E+04	9.71E+03	1.18E+04	5.00E+04	9.61E+03	1.17E+04	4.85E+04	9.59E+03	1.17E+04	4.72E+04	9.57E+03	1.16E+04
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	1.77E+04	8.84E+03	6.63E+03	1.52E+04	7.59E+03	5.69E+03	1.51E+04	7.57E+03	5.67E+03	1.51E+04	7.57E+03	5.67E+03	1.52E+04	7.57E+03	5.67E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-22-4	Silver	silver	90	2.6E+00	1.65E+05	8.24E+04	6.18E+04	1.42E+05	7.09E+04	5.32E+04	1.41E+05	7.07E+04	5.30E+04	1.41E+05	7.08E+04	5.30E+04	1.42E+05	7.07E+04	5.30E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	6.05E+01	4.29E+00	6.11E+00	5.34E+01	4.17E+00	5.89E+00	4.88E+01	4.07E+00	5.71E+00	4.60E+01	4.01E+00	5.59E+00	4.35E+01	3.94E+00	5.48E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	1.20E+04	5.98E+03	4.49E+03	1.03E+04	5.14E+03	3.86E+03	1.03E+04	5.13E+03	3.85E+03	1.03E+04	5.14E+03	3.85E+03	1.03E+04	5.13E+03	3.85E+03
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	5.51E+04	5.43E+03	7.20E+03	4.97E+04	5.24E+03	6.97E+03	4.60E+04	5.16E+03	6.83E+03	4.38E+04	5.11E+03	6.74E+03	4.18E+04	5.06E+03	6.65E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	1.34E+01	6.72E+00	5.04E+00	1.16E+01	5.78E+00	4.34E+00	1.15E+01	5.77E+00	4.33E+00	1.15E+01	5.77E+00	4.33E+00	1.16E+01	5.77E+00	4.33E+00
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.03E+03	2.25E+02	2.65E+02	9.55E+02	1.64E+02	2.02E+02	9.07E+02	1.63E+02	2.01E+02	8.78E+02	1.63E+02	2.00E+02	8.51E+02	1.62E+02	1.99E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	1.87E+00	4.67E-01	5.51E-01	1.71E+00	3.19E-01	3.88E-01	1.63E+00	3.16E-01	3.85E-01	1.58E+00	3.15E-01	3.83E-01	1.54E+00	3.15E-01	3.82E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	5.44E+01	6.92E+00	8.63E+00	4.97E+01	6.31E+00	8.14E+00	4.64E+01	6.25E+00	8.02E+00	4.45E+01	6.20E+00	7.94E+00	4.27E+01	6.16E+00	7.87E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	1.14E-01	3.08E-02	3.64E-02	1.03E-01	2.03E-02	2.44E-02	9.88E-02	2.00E-02	2.42E-02	9.61E-02	1.99E-02	2.41E-02	9.35E-02	1.99E-02	2.40E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1640000	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	3.29E+04	1.35E+04	1.23E+04	2.81E+04	1.19E+04	1.05E+04	2.80E+04	1.17E+04	1.05E+04	2.80E+04	1.16E+04	1.05E+04	2.81E+04	1.15E+04	1.05E+04
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	2.21E+05	7.22E+04	8.51E+04	1.74E+05	4.20E+04	4.93E+04	1.67E+05	3.87E+04	4.58E+04	1.63E+05	3.85E+04	4.57E+04	1.59E+05	3.84E+04	4.56E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	3.35E+05	1.01E+05	1.19E+05	2.91E+05	6.29E+04	7.41E+04	2.79E+05	6.02E+04	7.22E+04	2.72E+05	6.01E+04	7.20E+04	2.65E+05	6.00E+04	7.19E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	3.03E+05	6.16E+04	7.27E+04	2.80E+05	4.64E+04	5.75E+04	2.65E+05	4.62E+04	5.71E+04	2.57E+05	4.60E+04	5.67E+04	2.48E+05	4.59E+04	5.65E+04

RADs
Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	Preliminary Remediation Goal (pCi/g)														
				Base Case (Depth 1)			Base Case (Depth 2)			Base Case (Depth 3)			Base Case (Depth 4)			Base (Depth 5)		
				Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand	Ephrata Loam	Burbank Sandy Loam	Rupert Sand
Carbon-14	0	2000	5.7300E+03	5.25E+03	1.72E+03	2.03E+03	4.04E+03	9.90E+02	1.16E+03	3.89E+03	9.09E+02	1.07E+03	3.79E+03	9.02E+02	1.07E+03	3.71E+03	9.02E+02	1.07E+03
Cesium-137	50	200	3.0000E+01	2.68E+11	1.51E+10	1.61E+10	1.76E+11	1.22E+10	1.41E+10	1.51E+11	1.11E+10	1.33E+10	1.38E+11	1.04E+10	1.29E+10	1.27E+11	9.77E+09	1.25E+10
Cobalt-60	50	100	5.7210E+00	3.60E+11	1.48E+10	2.35E+10	2.70E+11	1.32E+10	2.05E+10	2.42E+11	1.23E+10	1.91E+10	2.26E+11	1.18E+10	1.82E+10	2.13E+11	1.13E+10	1.74E+10
Iodine-129	1	1	1.5700E+07	7.30E+02	1.96E+02	2.74E+02	6.19E+02	1.86E+02	2.32E+02	6.18E+02	1.78E+02	2.32E+02	6.18E+02	1.73E+02	2.32E+02	6.18E+02	1.69E+02	2.32E+02
Neptunium-237	15	15	2.1400E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel-63	30	50	9.6000E+01	7.36E+09	5.09E+08	4.43E+08	4.99E+09	4.19E+08	3.84E+08	4.44E+09	3.80E+08	3.62E+08	4.16E+09	3.57E+08	3.49E+08	3.92E+09	3.36E+08	3.36E+08
Strontium-90	25	8	2.9120E+01	1.07E+09	4.69E+07	7.25E+07	6.71E+08	3.99E+07	5.99E+07	5.76E+08	3.65E+07	5.44E+07	5.26E+08	3.45E+07	5.12E+07	4.82E+08	3.27E+07	4.83E+07
Technetium-99	0	900	2.1300E+05	2.36E+03	7.74E+02	9.12E+02	1.82E+03	4.45E+02	5.23E+02	1.75E+03	4.09E+02	4.83E+02	1.71E+03	4.06E+02	4.82E+02	1.67E+03	4.05E+02	4.81E+02
Tritium	0	20000	1.2350E+01	7.01E+04	1.91E+04	2.29E+04	5.56E+04	1.20E+04	1.45E+04	5.44E+04	1.17E+04	1.42E+04	5.36E+04	1.17E+04	1.42E+04	5.30E+04	1.17E+04	1.42E+04
Am-241	200	15	4.32E+02	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Carbon-14	200	2000	5.73E+03	2.8072E+08	1.4036E+08	1.0527E+08	2.4146E+08	1.2073E+08	9.0548E+07	2.4093E+08	1.2050E+08	9.0348E+07	2.4091E+08	1.2054E+08	9.0347E+07	2.4170E+08	1.2050E+08	9.0339E+07
Cm-243	200	15	2.85E+01	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Eu-152	200	200	1.33E+01	2.8072E+07	1.4036E+07	1.0527E+07	2.4146E+07	1.2073E+07	9.0548E+06	2.4093E+07	1.2050E+07	9.0348E+06	2.4091E+07	1.2054E+07	9.0347E+06	2.4170E+07	1.2050E+07	9.0339E+06
Eu-154	200	60	8.80E+00	8.4216E+06	4.2109E+06	3.1581E+06	7.2437E+06	3.6218E+06	2.7164E+06	7.2278E+06	3.6151E+06	2.7104E+06	7.2273E+06	3.6163E+06	2.7104E+06	7.2510E+06	3.6151E+06	2.7102E+06
Eu-155	200	600	4.96E+00	8.4216E+07	4.2109E+07	3.1581E+07	7.2437E+07	3.6218E+07	2.7164E+07	7.2278E+07	3.6151E+07	2.7104E+07	7.2273E+07	3.6163E+07	2.7104E+07	7.2510E+07	3.6151E+07	2.7102E+07
Nb-94	200	No Value	2.03E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu-238	200	15	8.77E+01	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Pu-239	200	15	2.41E+04	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Pu-240	200	15	6.54E+03	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Pu-241	200	300	1.40E+01	4.2108E+07	2.1055E+07	1.5790E+07	3.6218E+07	1.8109E+07	1.3582E+07	3.6139E+07	1.8076E+07	1.3552E+07	3.6136E+07	1.8081E+07	1.3552E+07	3.6255E+07	1.8076E+07	1.3551E+07
Ra-226	200	5	1.60E+03	7.0180E+05	3.5091E+05	2.6317E+05	6.0364E+05	3.0182E+05	2.2637E+05	6.0231E+05	3.0126E+05	2.2587E+05	6.0227E+05	3.0136E+05	2.2587E+05	6.0425E+05	3.0126E+05	2.2585E+05
Ra-228	200	5	5.75E+00	7.0180E+05	3.5091E+05	2.6317E+05	6.0364E+05	3.0182E+05	2.2637E+05	6.0231E+05	3.0126E+05	2.2587E+05	6.0227E+05	3.0136E+05	2.2587E+05	6.0425E+05	3.0126E+05	2.2585E+05
Th-228	200	15	1.91E+00	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Th-230	200	15	7.70E+04	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05
Th-232	200	15	1.41E+10	2.1054E+06	1.0527E+06	7.8952E+05	1.8109E+06	9.0546E+05	6.7911E+05	1.8069E+06	9.0378E+05	6.7761E+05	1.8068E+06	9.0407E+05	6.7761E+05	1.8127E+06	9.0378E+05	6.7755E+05

Groundwater Screening

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater	Ground Water Standard (ug/L)	GW_Screening (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	3.91E+02
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	2.70E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	9.12E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	1.49E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	7.50E+00
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	3.03E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	2.87E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	3.61E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	7.2E+01	5.54E+01
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.04E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	6.17E+01
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	1.55E+04
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	4.0E+00	1.91E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	4.90E+01
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	4.44E+02
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	9.69E+00
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	4.04E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	1.79E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	1.70E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	2.29E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	1.96E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	1.91E+01
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	3.2E+01	1.15E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	2.17E+03
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	1.48E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.73E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	3.80E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	1.99E+02
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	2.65E+02
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	2.08E+03
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	9.53E+00
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	9.81E+03
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	2.54E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	2.88E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	2.17E+02
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	3.99E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	5.05E+02
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	7.03E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	2.23E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	1.49E+00
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	2.95E-01
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	1.52E+02
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	2.71E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	6.38E+02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	5.38E+00
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	5.38E+00
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	2.34E+01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	2.29E+01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	3.94E+01
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	4.29E+02
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	2.10E+00
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	8.23E-01
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	5.14E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	7.86E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	1.15E+03
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	1.76E+03
7440-41-7	Beryllium	beryllium	790	4.0E+00	3.77E+04
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	1.25E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	4.78E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	4.8E+01	1.61E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	4.77E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	7.87E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	3.2E+03	1.15E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	6.72E-01
75-25-2	Bromoform	bromoform	0.13	5.5E+00	1.02E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	4.57E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	7.59E+03
7440-43-9	Cadmium	cadmium	30	5.0E+00	1.79E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	1.78E+02
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	6.77E+02
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	7.06E-01
57-74-9	Chlordane	chlordane	51	2.5E-01	1.52E+02
16887-00-6	Chloride	chloride	0	2.5E+05	7.56E+04

108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	2.90E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA
67-66-3	Chloroform	chloroform	0.053	1.4E+00	1.31E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	2.38E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	2.86E+03
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	5.09E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	2.72E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	2.86E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	6.4E+02	1.68E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	2.37E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	2.56E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E+01	2.16E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	5.45E-01
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	1.67E+00
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	1.63E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.04E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	2.36E+03
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	2.36E+03
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	2.58E+02
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	1.06E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.75E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	5.90E+04
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	1.30E+00
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	2.21E+00
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	4.77E+00
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	5.22E+01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	3.59E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	1.14E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	6.72E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	4.71E+02
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	1.2E-01	4.96E+03
7439-89-6	Iron	Iron	25	3.0E+02	8.95E+04
78-59-1	Isophorone	isophorone	0.0468	4.6E+01	3.94E+01
7439-92-1	Lead	lead	30	1.5E+01	5.37E+03
7439-93-2	Lithium	Lithium	50	3.2E+01	1.91E+04
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	2.98E+04
7439-97-6	Mercury	mercury	30	2.0E+00	7.16E+02
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	3.82E+04
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	2.10E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	1.91E+04
108-38-3	m-Xylene	Xylene, m-	0.2	1.6E+03	4.27E+03
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	2.32E+03
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	7.75E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	9.98E+02
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	2.73E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	3.03E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	7.31E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	1.8E+01	2.80E+02
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	5.02E+03
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	5.34E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	1.54E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	6.72E+00
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	2.99E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	8.0E+01	8.58E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	1.11E+03
14808-79-8	Sulfate	sulfate	0	2.5E+05	7.56E+04
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	2.82E-01
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	4.23E+02
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	1.25E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	9.09E+01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	7.51E+01
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	2.72E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	6.95E-01
7440-62-2	Vanadium	vanadium	1000	8.0E+01	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	3.20E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	4.83E+03
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16,000	5.03E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	2.17E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	2.51E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	6.66E+02
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	1.97E+03

Surfacewater Screening

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater	Surface Water Standard (ug/L)	SW_Screening (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	2.10E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	7.01E-01
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	6.83E+04
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	6.10E-02
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	3.94E+01
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	2.01E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	2.85E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	1.62E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	4.29E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	3.2E+02	1.74E+03
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	1.64E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	9.42E+03
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	1.4E+00	6.73E+00
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E+01	1.57E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	1.05E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	2.09E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	1.57E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	1.32E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.9E+05	1.75E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.58E+04
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	3.96E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	3.4E+03	1.64E+03
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	1.4E+02	4.97E+03
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	6.58E+04
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	2.40E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	1.87E-01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	9.38E+01
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	1.69E-01
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	2.27E-01
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	1.78E+00
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+01	9.68E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	1.87E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	5.38E+00
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	2.75E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	7.96E+03
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	7.39E+01
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	1.59E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	4.71E+04
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	2.29E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	2.85E-02
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	5.53E-02
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	3.47E-01
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	2.53E+02
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	8.16E-02
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	6.4E-05	7.88E-03
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	6.4E-05	7.88E-03
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	6.4E-05	3.42E-02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	3.35E-02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	5.77E-02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	6.27E-01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	6.49E-01
7440-39-3	Barium	Barium	25	1.0E+03	2.98E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	1.24E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	1.20E+01
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	1.84E+02
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	2.68E+01
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	4.11E+01
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	2.35E-01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	2.87E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	2.3E+03	7.85E+02
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	3.0E-02	3.60E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	1.57E+03
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	No Value	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	2.57E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	7.91E+00
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	1.92E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	1.36E+03
7440-43-9	Cadmium	cadmium	30	2.5E-01	8.95E+01
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.12E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	4.83E-01
57-74-9	Chlordane	chlordane	51	5.7E-04	3.47E-01
16887-00-6	Chloride	chloride	0	2.3E+05	6.96E+04
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	3.77E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA

67-66-3	Chloroform	chloroform	0.053	5.7E+00	5.29E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA
7440-47-3	Chromium	chromium (total)	200	6.5E+01	1.55E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	6.68E+00
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	1.70E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	2.11E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	1.55E+03
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	9.0E+00	2.36E+03
57-12-5	Cyanide	cyanide	9.9	5.2E+00	6.15E+02
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	5.97E+01
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	2.30E+02
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	4.19E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	1.59E-02
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	2.16E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	1.82E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	3.80E+04
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	1.38E+00
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	1.38E+00
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	2.29E+01
72-20-8	Endrin	endrin	10.8	2.3E-03	2.97E-01
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	3.74E+01
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	4.19E+01
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	5.28E+04
86-73-7	Fluorene	fluorene	7.71	1.1E+03	1.01E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	3.11E-01
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	9.00E-03
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	3.87E-02
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	2.67E-01
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	2.82E+02
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	9.54E+04
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	3.01E+01
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	9.81E+01
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	2.8E-03	1.16E+02
7439-89-6	Iron	Iron	25	3.0E+02	8.95E+04
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	7.18E+00
7439-92-1	Lead	lead	30	2.1E+00	7.54E+02
7439-93-2	Lithium	Lithium	50	No Value	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	2.98E+04
7439-97-6	Mercury	mercury	30	1.2E-02	4.29E+00
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	2.86E+01
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	1.93E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.09E+05
108-38-3	m-Xylene	Xylene, m-	0.2	No Value	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	7.15E+04
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	4.03E+04
14797-55-8	Nitrate	Nitrate	0	4.5E+04	1.36E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	2.91E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	3.03E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	3.03E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	2.93E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	5.17E+01
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	1.98E+00
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	6.42E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	2.99E+02
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	2.6E+00	2.80E+03
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	1.35E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	2.03E+02
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	2.54E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	2.28E-01
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.05E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	2.11E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	3.53E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	1.32E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.26E+04
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1.64E+06	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	5.55E+02
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	2.58E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	3.99E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	2.93E+04

RADS
GW_Screening

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	GW_Screening (pCi/g)
Carbon-14	0	2000	5.7300E+03	6.15E+02
Cesium-137	50	200	3.0000E+01	2.35E+05
Cobalt-60	50	100	5.7210E+00	3.74E+05
Iodine-129	1	1	1.5700E+07	1.22E+01
Neptunium-237	15	15	2.1400E+06	2.68E+03
Nickel-63	30	50	9.6000E+01	2.20E+04
Strontium-90	25	8	2.9120E+01	3.81E+03
Technetium-99	0	900	2.1300E+05	2.77E+02
Tritium	0	20000	1.2350E+01	9.17E+03
Am-241	200	15	4.32E+02	3.56E+04
Carbon-14	200	2000	5.73E+03	4.74E+06
Cm-243	200	15	2.85E+01	3.56E+04
Eu-152	200	200	1.33E+01	4.74E+05
Eu-154	200	60	8.80E+00	1.42E+05
Eu-155	200	600	4.96E+00	1.42E+06
Nb-94	200	No Value	2.03E+04	NA
Pu-238	200	15	8.77E+01	3.56E+04
Pu-239	200	15	2.41E+04	3.56E+04
Pu-240	200	15	6.54E+03	3.56E+04
Pu-241	200	300	1.40E+01	7.11E+05
Ra-226	200	5	1.60E+03	1.19E+04
Ra-228	200	5	5.75E+00	1.19E+04
Th-228	200	15	1.91E+00	3.56E+04
Th-230	200	15	7.70E+04	3.56E+04
Th-232	200	15	1.41E+10	3.56E+04

Groundwater PRG

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Ground Water Standard (ug/L)	GW_PRG (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	2.0E+02	7.78E+02
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	2.2E-01	4.58E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	7.7E-01	1.52E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	1.6E+03	2.34E+03
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	7.0E+00	1.22E+01
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	1.5E+00	4.87E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	6.0E+02	1.10E+04
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	4.8E-01	5.58E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	7.2E+01	8.67E+01
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	1.2E+00	1.63E+00
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	No Value	NA
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	8.1E+00	4.22E+02
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	8.0E+02	2.38E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	4.0E+00	7.35E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	2.4E+01	9.78E+01
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	1.6E+02	1.07E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	3.2E+01	1.44E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	2.8E-01	7.08E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.6E+01	2.94E+01
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.8E+03	2.50E+03
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	6.4E+02	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	4.0E+01	7.73E+02
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	4.0E+01	2.85E+01
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	3.2E+01	2.17E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	4.0E+02	9.60E+03
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	1.6E+02	2.33E+02
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	1.9E-01	1.47E+01
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	4.2E+00	5.97E+00
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.6E-01	3.77E+03
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.6E-01	5.02E+03
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.6E-01	3.94E+04
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+00	6.38E+01
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	1.6E+03	5.08E+04
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	2.2E-01	4.19E-01
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.4E+02	4.30E+02
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	4.0E+01	9.60E+02
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	4.4E+00	6.27E+00
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	1.3E+02	1.63E+03
83-32-9	Acenaphthene	acenaphthene	6.12	9.6E+02	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.2E+03	3.32E+03
309-00-2	Aldrin	aldrin	48.7	2.6E-03	2.83E+01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	1.4E-02	5.20E+00
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	2.5E-01	2.88E+03
7429-90-5	Aluminum	Aluminum (soluble)	1500	5.0E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	4.8E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	6.0E+00	5.13E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	5.0E-01	1.21E+04
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	4.4E-02	1.02E+02
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	4.4E-02	1.02E+02
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	4.4E-02	4.43E+02
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	4.4E-02	4.34E+02
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	4.4E-02	7.47E+02
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	4.4E-02	8.12E+03
7440-38-2	Arsenic	arsenic, inorganic	3	5.8E-02	3.99E+01
7440-39-3	Barium	Barium	25	2.0E+03	3.88E+05
71-43-2	Benzene	Benzene	0.062	8.0E-01	1.34E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	1.2E-01	9.74E+03
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	1.2E-02	1.49E+04
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	1.2E-01	2.17E+04
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	1.2E-01	3.33E+04
7440-41-7	Beryllium	beryllium	790	4.0E+00	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	4.9E-02	2.38E+01
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	6.3E-01	7.46E-01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	4.8E+01	2.37E+01
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	4.0E-02	7.98E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	6.0E+00	1.49E+05
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	3.2E+03	3.88E+05
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	7.1E-01	1.07E+00
75-25-2	Bromoform	bromoform	0.13	5.5E+00	1.97E+01
74-83-9	Bromomethane	bromomethane	0.009	1.1E+01	6.82E+00
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	4.6E+01	1.44E+05
7440-43-9	Cadmium	cadmium	30	5.0E+00	3.39E+04
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	4.4E+00	3.37E+03
75-15-0	Carbon disulfide	carbon disulfide	0.046	8.0E+02	1.06E+03
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	3.4E-01	1.42E+00
57-74-9	Chlordane	chlordane	51	2.5E-01	2.88E+03
16887-00-6	Chloride	chloride	0	2.5E+05	1.13E+05
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.0E+02	7.25E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA
67-66-3	Chloroform	chloroform	0.053	1.4E+00	2.07E+00

74-87-3	Chloromethane	chloromethane	0.006	No Value	NA
7440-47-3	Chromium	chromium (total)	200	1.0E+02	3.88E+05
218-01-9	Chrysene	Chrysene	200	1.2E+00	5.41E+04
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	7.0E+01	7.76E+01
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	4.4E-01	4.05E-01
7440-48-4	Cobalt	Cobalt	50	4.8E+00	5.42E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	6.4E+02	3.88E+05
57-12-5	Cyanide	cyanide	9.9	2.0E+02	3.88E+05
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	1.2E-01	4.85E+04
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.6E+01	4.09E+04
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	5.2E-01	8.88E-01
60-57-1	Dieldrin	dieldrin	25.6	5.5E-03	3.16E+01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.3E+04	2.77E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	No Value	NA
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	1.6E+03	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	9.6E+01	4.48E+04
33213-65-9	Endosulfan II	Endosulfan II	2.04	9.6E+01	4.48E+04
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	No Value	NA
72-20-8	Endrin	endrin	10.8	2.0E+00	4.89E+03
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	No Value	NA
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	4.0E+00	2.51E+01
206-44-0	Fluoranthene	fluoranthene	49.1	6.4E+02	3.88E+05
86-73-7	Fluorene	fluorene	7.71	6.4E+02	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	4.8E+02	3.88E+05
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	8.0E-02	1.80E+01
76-44-8	Heptachlor	heptachlor	9.53	1.9E-02	4.20E+01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	4.8E-03	9.04E+01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	5.5E-02	9.88E+02
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	5.6E-01	6.80E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.8E+01	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	3.1E+00	1.21E+03
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	4.8E+01	4.66E+03
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	1.2E-01	9.39E+04
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	4.6E+01	6.15E+01
7439-92-1	Lead	lead	30	1.5E+01	1.02E+05
7439-93-2	Lithium	Lithium	50	3.2E+01	3.61E+05
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05
7439-97-6	Mercury	mercury	30	2.0E+00	1.36E+04
72-43-5	Methoxychlor	methoxychlor	80	4.0E+01	3.88E+05
75-09-2	Methylene chloride	methylene chloride	0.01	5.0E+00	3.16E+00
7439-98-7	Molybdenum	molybdenum	20	8.0E+01	3.62E+05
108-38-3	m-Xylene	Xylene, m-	0.2	1.6E+03	1.01E+04
91-20-3	Naphthalene	naphthalene	1.19	1.6E+02	3.13E+04
7440-02-0	Nickel	nickel soluble salts	65	1.0E+02	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	2.03E+04
14797-65-0	Nitrite	Nitrite	0	3.3E+03	1.49E+03
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.6E+01	5.06E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	4.51E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	1.0E+03	4.51E+02
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	4.51E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	1.3E-02	1.10E-02
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	1.8E+01	3.81E+03
95-47-6	o-Xylene	xylene,o-	0.24	1.6E+03	1.34E+04
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	7.3E-01	3.48E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	2.4E+03	2.30E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	1.6E-01	1.27E+02
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	4.8E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+01	5.67E+04
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	8.0E+01	3.88E+05
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	9.6E+03	3.88E+05
100-42-5	Styrene	styrene	0.91	1.0E+02	1.33E+04
14808-79-8	Sulfate	sulfate	0	2.5E+05	1.13E+05
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	8.1E-02	8.25E-01
7440-28-0	Thallium	Thallium, soluable salts	71	5.0E-01	8.02E+03
7440-31-5	Tin	tin	130	9.6E+03	3.88E+05
108-88-3	Toluene	Toluene	0.14	6.4E+02	2.49E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	5.0E+02	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	5.0E+02	NA
8001-35-2	Toxaphene	toxaphene	95.8	8.0E-02	1.72E+03
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.0E+02	1.16E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	4.4E-01	4.05E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	4.9E-01	1.21E+00
7440-62-2	Vanadium	vanadium	1000	8.0E+01	3.88E+05
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	6.1E-02	4.84E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	1.6E+03	1.25E+04
7440-66-6	Zinc	zinc	30	4.8E+03	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	16000	7.50E+03
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	9.51	4.11E+03
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	800	3.75E+02
60-29-7	Diethylether	Diethylether	0.009699	1600	1.00E+03
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	2400	3.07E+03

Surfacewater PRG

CAS No.	Analyte	Alternate Name Referenced In EPA Regional Screening Table	300 Areas KD Value used to Calculate Groundwater Protection (cm^3/g)	Surface Water Standard (ug/L)	SW_PRG (mg/kg)
71-55-6	1,1,1-Trichloroethane	Trichloroethane;1,1,1-	0.14	9.3E+05	3.88E+05
79-34-5	1,1,2,2-Tetrachloroethane	tetrachloroethane;1,1,2,2-	0.079	1.7E-01	3.56E-01
79-00-5	1,1,2-Trichloroethane	trichloroethane;1,1,2-	0.075	5.9E-01	1.17E+00
75-34-3	1,1-Dichloroethane	dichloroethane;1,1-	0.053	7.4E+04	1.08E+05
75-35-4	1,1-Dichloroethene	Dichloroethene;1,1-	0.065	5.7E-02	9.95E-02
120-82-1	1,2,4-Trichlorobenzene	trichlorobenzene;1,2,4-	1.66	2.0E+00	6.33E+02
95-50-1	1,2-Dichlorobenzene	dichlorobenzene;1,2- (ortho-Dichlorobenzene)	0.379	4.2E+02	7.67E+03
107-06-2	1,2-Dichloroethane	dichloroethane;1,2-	0.038	3.8E-01	4.41E-01
540-59-0	1,2-Dichloroethene (Total)	dichloroethylene,1,2- (mixed isomers)	0.0396	2.1E+03	2.53E+03
78-87-5	1,2-Dichloropropane	dichloropropane;1,2-	0.047	5.0E-01	6.69E-01
541-73-1	1,3-Dichlorobenzene	dichlorobenzene;1,3	0.434	3.2E+02	7.68E+03
106-46-7	1,4-Dichlorobenzene	dichlorobenzene;1,4- (para-Dichlorobenzene)	0.616	2.2E+01	1.12E+03
95-95-4	2,4,5-Trichlorophenol	Trichlorophenol;2,4,5-	1.6	4.9E+02	1.45E+05
88-06-2	2,4,6-Trichlorophenol	Trichlorophenol2,4,6-	0.381	1.4E+00	2.59E+01
120-83-2	2,4-Dichlorophenol	dichlorophenol;2,4-	0.147	7.7E+01	3.14E+02
105-67-9	2,4-Dimethylphenol	dimethylphenol;2,4-	0.209	3.8E+02	2.55E+03
51-28-5	2,4-Dinitrophenol	dinitrophenol;2,4-	0.00001	6.9E+01	3.11E+01
121-14-2	2,4-Dinitrotoluene	dinitrotoluene;2,4-	0.0955	1.1E-01	2.76E-01
606-20-2	2,6-Dinitrotoluene	dinitrotoluene;2,6-	0.0692	1.2E+02	2.16E+02
78-93-3	2-Butanone	methyl ethyl ketone (MEK; 2-butanone)	0.00451	4.9E+05	2.57E+05
91-58-7	2-Chloronaphthalene	beta-chloronaphthalene	2.98	1.0E+03	3.88E+05
95-57-8	2-Chlorophenol	Chlorophenol;2-	0.388	8.1E+01	1.57E+03
591-78-6	2-Hexanone	HEXANONE;2- [MBK, methyl butyl ketone]	0.01498	3.4E+03	2.45E+03
91-57-6	2-Methylnaphthalene	methylnapthalene;2-	2.98	1.4E+02	9.42E+04
95-48-7	2-Methylphenol (cresol, o-)	cresol;o-	0.434	1.2E+04	2.91E+05
88-74-4	2-Nitroaniline	nitroaniline, 2-	0.0527	2.6E+03	3.78E+03
88-75-5	2-Nitrophenol	nitrophenol;2-	0.297	No Value	NA
91-94-1	3,3'-Dichlorobenzidine	dichlorobenzidine;3,3'-	0.724	2.1E-02	1.59E+00
65794-96-9	3+4 Methylphenol (cresol, m+p)	methylphenol,3+4 (cresol, m+p)	No Value	No Value	NA
99-09-2	3-Nitroaniline	nitroaniline, 3-	0.0516	1.0E+02	1.47E+02
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	ddd	45.8	3.1E-04	3.21E+00
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	dde	86.4	2.2E-04	4.29E+00
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	ddt	678	2.2E-04	3.37E+01
534-52-1	4,6-Dinitro-2-methylphenol	dinitro-2-methylphenol;4,6-	0.6015	1.3E+01	6.48E+02
101-55-3	4-Bromophenylphenyl ether	bromodiphenyl ether;4-	No Value	No Value	NA
59-50-7	4-Chloro-3-methylphenol	chloro-3-methylphenol;4-	0.4918	3.1E+04	3.88E+05
106-47-8	4-Chloroaniline	chloroaniline;p-	0.0725	4.6E+00	8.89E+00
7005-72-3	4-Chlorophenylphenyl ether	chlorodiphenyl ether;4-	3.08	No Value	NA
108-10-1	4-Methyl-2-pentanone	methyl isobutyl ketone	0.0126	6.1E+04	4.10E+04
106-44-5	4-Methylphenol (cresol, p-)	cresol;p-	0.434	1.5E+03	3.52E+04
100-01-6	4-Nitroaniline	nitroaniline, 4-	0.0516	8.1E+01	1.16E+02
100-02-7	4-Nitrophenol	nitrophenol;4-	0.309	4.0E+03	5.13E+04
83-32-9	Acenaphthene	acenaphthene	6.12	6.4E+02	3.88E+05
208-96-8	Acenaphthylene	acenaphthylene (Not in CLARC database tables; use acenaphthene as surrogate)	5.03	No Value	NA
67-64-1	Acetone	Acetone	0.0006	7.4E+05	3.41E+05
309-00-2	Aldrin	aldrin	48.7	4.9E-05	5.39E-01
319-84-6	Alpha-BHC	hexachlorocyclohexane;alpha (alpha-BHC, HCH)	1.76	2.6E-03	9.74E-01
5103-71-9	Alpha-Chlordane	Alpha-Chlordane	51	5.7E-04	6.57E+00
7429-90-5	Aluminum	Aluminum (soluble)	1500	8.7E+01	3.88E+05
120-12-7	Anthracene	anthracene	23.5	8.3E+03	3.88E+05
7440-36-0	Antimony	antimony	3.76	5.6E+00	4.79E+03
12674-11-2	Aroclor-1016	aroclor 1016 (PCB)	107	6.4E-05	1.55E+00
11104-28-2	Aroclor-1221	aroclor 1221 [PCB]	10.3	6.4E-05	1.49E-01
11141-16-5	Aroclor-1232	aroclor 1232 [PCB]	10.3	6.4E-05	1.49E-01
53469-21-9	Aroclor-1242	aroclor 1242 [PCB]	44.8	6.4E-05	6.48E-01
12672-29-6	Aroclor-1248	aroclor 1248 [PCB]	43.9	6.4E-05	6.35E-01
11097-69-1	Aroclor-1254	aroclor 1254 (PCB)	75.6	6.4E-05	1.09E+00
11096-82-5	Aroclor-1260	aroclor 1260 (PCB)	822	6.4E-05	1.19E+01
7440-38-2	Arsenic	arsenic, inorganic	3	1.8E-02	1.23E+01
7440-39-3	Barium	Barium	25	1.0E+03	3.88E+05
71-43-2	Benzene	Benzene	0.062	1.2E+00	2.02E+00
56-55-3	Benzo(a)anthracene	Benzo(a)anthracene	360	2.8E-03	2.28E+02
50-32-8	Benzo(a)pyrene	Benzo(a)pyrene	5500	2.8E-03	3.48E+03
205-99-2	Benzo(b)fluoranthene	Benzo(b)fluoranthene	803	2.8E-03	5.08E+02
191-24-2	Benzo(ghi)perylene	BENZO(g,h,i)PERYLENE (using pyrene as a surrogate)	1950	No Value	NA
207-08-9	Benzo(k)fluoranthene	Benzo(k)fluoranthene	1230	2.8E-03	7.78E+02
7440-41-7	Beryllium	beryllium	790	2.7E+02	3.88E+05
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	hexachlorocyclohexane;beta-	2.14	9.1E-03	4.45E+00
108-60-1	Bis(2-chloro-1-methylethyl)ether	bis(2-chloro-1-methyl-ethyl)ether	0.0392	3.7E+01	4.47E+01
111-91-1	Bis(2-Chloroethoxy)methane	bis(2-chloroethoxyl)methane	0.00277	2.3E+03	1.16E+03
111-44-4	Bis(2-chloroethyl) ether	bis(2-chloroethyl)ether	0.076	3.0E-02	6.02E-02
117-81-7	Bis(2-ethylhexyl) phthalate	bis(2-ethylhexyl) phthalate	110	1.2E+00	2.98E+04
7440-69-9	Bismuth	Bismuth	No Value	No Value	NA
7440-42-8	Boron	Boron	3	No Value	NA
24959-67-9	Bromide	Bromide	No Value	No Value	NA
75-27-4	Bromodichloromethane	bromodichloromethane	0.055	2.7E-01	4.09E-01
75-25-2	Bromoform	bromoform	0.13	4.3E+00	1.53E+01
74-83-9	Bromomethane	bromomethane	0.009	4.7E+01	2.86E+01
85-68-7	Butylbenzylphthalate	butyl benzyl phthalate	13.8	8.2E+00	2.57E+04
7440-43-9	Cadmium	cadmium	30	2.5E-01	1.70E+03
7440-70-2	Calcium	Calcium	No Value	No Value	NA
86-74-8	Carbazole	carbazole	3.39	No Value	NA
75-15-0	Carbon disulfide	carbon disulfide	0.046	1.3E+04	1.75E+04
56-23-5	Carbon tetrachloride	carbon tetrachloride	0.152	2.3E-01	9.70E-01
57-74-9	Chlordane	chlordane	51	5.7E-04	6.57E+00
16887-00-6	Chloride	chloride	0	2.3E+05	1.04E+05
108-90-7	Chlorobenzene	chlorobenzene	0.22	1.3E+02	9.43E+02
75-00-3	Chloroethane	ethyl chloride	0.0217	No Value	NA
67-66-3	Chloroform	chloroform	0.053	5.7E+00	8.35E+00
74-87-3	Chloromethane	chloromethane	0.006	No Value	NA

7440-47-3	Chromium	chromium (total)	200	6.5E+01	3.88E+05
218-01-9	Chrysene	Chrysene	200	2.8E-03	1.26E+02
156-59-2	cis-1,2-Dichloroethylene	dichloroethylene;1,2-,cis	0.036	2.3E+03	2.59E+03
10061-01-5	cis-1,3-Dichloropropene	dichloropropene;1,2-,cis	0.027	3.4E-01	3.15E-01
7440-48-4	Cobalt	Cobalt	50	2.6E+00	2.93E+04
PCB1242/1016	Co-elution of Aroclor 1242 and Aroclor 1016	Co-elution of Aroclor 1242 and Aroclor 1017	No Value	No Value	NA
7440-50-8	Copper	copper	22	9.0E+00	4.48E+04
57-12-5	Cyanide	cyanide	9.9	5.2E+00	1.17E+04
319-86-8	Delta-BHC	hexachlorocyclohexane;delta-	2.81	No Value	NA
53-70-3	Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1790	2.8E-03	1.13E+03
132-64-9	Dibenzofuran	dibenzofuran	11.3	1.7E+00	4.36E+03
124-48-1	Dibromochloromethane	chlorodibromomethane [dibromochloromethane]	0.063	4.0E-01	6.82E-01
60-57-1	Dieldrin	dieldrin	25.6	5.2E-05	3.01E-01
84-66-2	Diethylphthalate	diethyl phthalate	0.082	1.7E+04	3.68E+04
131-11-3	Dimethyl phthalate	dimethyl phthalate	0.0316	2.7E+05	2.73E+05
84-74-2	Di-n-butylphthalate	di-butyl phthalate	1.57	2.0E+03	3.88E+05
117-84-0	Di-n-octylphthalate	di-n-octyl phthalate	83000	No Value	NA
959-98-8	Endosulfan I	Endosulfan I	2.04	5.6E-02	2.61E+01
33213-65-9	Endosulfan II	Endosulfan II	2.04	5.6E-02	2.61E+01
1031-07-8	Endosulfan sulfate	Endosulfan sulfate	2.04	9.3E-01	4.34E+02
72-20-8	Endrin	endrin	10.8	2.3E-03	5.62E+00
7421-93-4	Endrin aldehyde	Endrin aldehyde	10.8	2.9E-01	7.09E+02
53494-70-5	Endrin ketone	Endrin ketone	9.72	No Value	NA
100-41-4	Ethylbenzene	ethylbenzene	0.2	1.6E+01	9.93E+01
206-44-0	Fluoranthene	fluoranthene	49.1	9.0E+01	3.88E+05
86-73-7	Fluorene	fluorene	7.71	1.1E+03	3.88E+05
16984-48-8	Fluoride	fluoride (using fluorine)	150	No Value	NA
58-89-9	Gamma-BHC (Lindane)	lindane [gamma-BHC] (see hexachlorocyclohexane)	1.35	1.9E-02	4.29E+00
76-44-8	Heptachlor	heptachlor	9.53	7.9E-05	1.70E-01
1024-57-3	Heptachlor epoxide	Heptachlor epoxide	83.2	3.9E-05	7.33E-01
118-74-1	Hexachlorobenzene	hexachlorobenzene	80	2.8E-04	5.06E+00
87-68-3	Hexachlorobutadiene	hexachlorobutadiene	53.7	4.4E-01	5.34E+03
77-47-4	Hexachlorocyclopentadiene	hexachlorocyclopentadiene	200	4.0E+01	3.88E+05
67-72-1	Hexachloroethane	hexachloroethane	1.78	1.4E+00	5.42E+02
18540-29-9	Hexavalent Chromium	chromium(VI)	0.8	1.0E+01	9.71E+02
193-39-5	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-cd)pyrene	3470	2.8E-03	2.19E+03
7439-89-6	Iron	Iron	25	3.0E+02	3.88E+05
78-59-1	Isophorone	isophorone	0.0468	8.4E+00	1.12E+01
7439-92-1	Lead	lead	30	2.1E+00	1.43E+04
7439-93-2	Lithium	Lithium	50	No Value	NA
7439-95-4	Magnesium	Magnesium (Not in CLARC database Tables)	No Value	No Value	NA
7439-96-5	Manganese	manganese	50	5.0E+01	3.88E+05
7439-97-6	Mercury	mercury	30	1.2E-02	8.14E+01
72-43-5	Methoxychlor	methoxychlor	80	3.0E-02	5.42E+02
75-09-2	Methylene chloride	methylene chloride	0.01	4.6E+00	2.91E+00
7439-98-7	Molybdenum	molybdenum	20	1.3E+03	3.88E+05
108-38-3	m-Xylene	Xylene, m-	0.2	No Value	NA
91-20-3	Naphthalene	naphthalene	1.19	4.9E+03	3.88E+05
7440-02-0	Nickel	nickel soluble salts	65	5.2E+01	3.88E+05
14797-55-8	Nitrate	Nitrate	0	4.5E+04	2.03E+04
14797-65-0	Nitrite	Nitrite	0	No Value	NA
98-95-3	Nitrobenzene	Nitrobenzene	0.119	1.7E+01	5.37E+01
NO3-N	Nitrogen in Nitrate	Nitrogen in Nitrate	0	1.0E+04	4.51E+03
NO2-N	Nitrogen in Nitrite	Nitrogen in Nitrite	0	No Value	NA
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	Nitrogen in Nitrite and Nitrate	0	1.0E+04	4.51E+03
621-64-7	n-Nitrosodi-n-dipropylamine	nitroso-di-n-propylamine;N-	0.024	5.0E-03	4.38E-03
86-30-6	n-Nitrosodiphenylamine	nitrosodiphenylamine;N-	1.29	3.3E+00	7.04E+02
95-47-6	o-Xylene	xylene,o-	0.24	No Value	NA
87-86-5	Pentachlorophenol	pentachlorophenol	0.592	2.7E-01	1.29E+01
85-01-8	Phenanthrene	Phenanthrene	16.7	No Value	NA
108-95-2	Phenol	Phenol	0.0288	1.0E+04	9.57E+03
14265-44-2	Phosphate	Phosphate	No Value	No Value	NA
7723-14-0	Phosphorus	phosphorus	3.5	No Value	NA
PO4-P	Phosphorus in phosphate	Phosphorus in phosphate	No Value	No Value	NA
7440-09-7	Potassium	Potassium	No Value	No Value	NA
129-00-0	Pyrene	pyrene	68	8.3E+02	3.88E+05
7782-49-2	Selenium	selenium and compounds	5	5.0E+00	5.67E+03
7440-21-3	Silicon	Silicon	No Value	No Value	NA
7440-22-4	Silver	silver	90	2.6E+00	5.30E+04
7440-23-5	Sodium	Sodium	No Value	No Value	NA
7440-24-6	Strontium	strontium	25	2.6E+04	3.88E+05
100-42-5	Styrene	styrene	0.91	3.8E+04	3.88E+05
14808-79-8	Sulfate	sulfate	0	No Value	NA
127-18-4	Tetrachloroethene	tetrachloroethylene	0.27	3.9E-01	3.94E+00
7440-28-0	Thallium	Thallium, soluable salts	71	2.4E-01	3.85E+03
7440-31-5	Tin	tin	130	5.2E+02	3.88E+05
108-88-3	Toluene	Toluene	0.14	1.3E+03	5.06E+03
TPHDIESEL	Total petroleum hydrocarbons - diesel range	Total petroleum hydrocarbons - diesel range	No Value	No Value	NA
TPH/OILH	Total petroleum hydrocarbons - motor oil (high boiling)	Total petroleum hydrocarbons - motor oil (high boiling)	No Value	No Value	NA
8001-35-2	Toxaphene	toxaphene	95.8	2.0E-04	4.33E+00
156-60-5	trans-1,2-Dichloroethylene	dichloroethylene;1,2-,trans	0.038	1.4E+02	1.62E+02
10061-02-6	trans-1,3-Dichloropropene	dichloropropene;1,3-,trans	0.027	3.4E-01	3.15E-01
79-01-6	Trichloroethene	trichloroethylene (TCE)	0.094	2.5E+00	6.16E+00
7440-62-2	Vanadium	vanadium	1000	No Value	NA
75-01-4	Vinyl chloride	vinyl chloride [chloroethene; 1-]	0.019	2.5E-02	1.99E-02
1330-20-7	Xylenes (total)	Xylenes (total)	0.23	No Value	NA
7440-66-6	Zinc	zinc	30	9.1E+01	3.88E+05
107-21-1	Ethylene Glychol	Ethylene Glychol	0.001	1.64E+06	3.88E+05
126-73-8	Tributyl phosphate	Tributyl phosphate	1.89	24.3	1.05E+04
111-76-2	2-Butoxyethanol	Ethylene Glychol Mono Butyl Ether	0.001	82044	3.84E+04
60-29-7	Diethylether	Diethylether	0.009699	96000	6.00E+04
75-69-4	Trichloromonofluoromethane	Trichloromonofluoromethane	0.04389	35800	4.59E+04

RADs
Groundwater PRG
Summary of Concentrations Protective of Ground Water Calculated with STOMP based on five different sets of Vadose Zone depths

Radionuclide	Distribution Coefficient Kd Value (mL/g)	Maximum Contaminant Level (pCi/L)	Half-life (yr)	GW_PRG (pCi/g)
Carbon-14	0	2000	5.7300E+03	9.02E+02
Cesium-137	50	200	3.0000E+01	9.77E+09
Cobalt-60	50	100	5.7210E+00	1.13E+10
Iodine-129	1	1	1.5700E+07	1.69E+02
Neptunium-237	15	15	2.1400E+06	NA
Nickel-63	30	50	9.6000E+01	3.36E+08
Strontium-90	25	8	2.9120E+01	3.27E+07
Technetium-99	0	900	2.1300E+05	4.05E+02
Tritium	0	20000	1.2350E+01	1.17E+04
Am-241	200	15	4.32E+02	6.78E+05
Carbon-14	200	2000	5.73E+03	9.03E+07
Cm-243	200	15	2.85E+01	6.78E+05
Eu-152	200	200	1.33E+01	9.03E+06
Eu-154	200	60	8.80E+00	2.71E+06
Eu-155	200	600	4.96E+00	2.71E+07
Nb-94	200	No Value	2.03E+04	NA
Pu-238	200	15	8.77E+01	6.78E+05
Pu-239	200	15	2.41E+04	6.78E+05
Pu-240	200	15	6.54E+03	6.78E+05
Pu-241	200	300	1.40E+01	1.36E+07
Ra-226	200	5	1.60E+03	2.26E+05
Ra-228	200	5	5.75E+00	2.26E+05
Th-228	200	15	1.91E+00	6.78E+05
Th-230	200	15	7.70E+04	6.78E+05
Th-232	200	15	1.41E+10	6.78E+05

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Comparison of the 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

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Terms

CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
COPC	contaminant of potential concern
DOE	U.S. Department of Energy
ECF	Environmental Calculation File
EPA	Environmental Protection Agency
EPC	Exposure point concentration
FS	Feasibility study
MTCA	Model Toxics Control Act
OU	Operable unit
RI	Remedial investigation
STOMP	Subsurface Transport Over Multiple Phases

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1 Purpose

This environmental calculation documents the methodology used to determine if current site conditions for the 300 Area based on post-remediation soil sample results exceed soil screening levels for the protection of groundwater and the protection of surface water. The 300 Area is associated with two source operable units (OUs): the 300-FF-1 OU and 300-FF-2 OU. These OUs are referred to collectively herein as the 300 Area Source OU. The exposure point concentrations (EPCs) for each waste site decision unit in the 300 Area Source OU are compared to soil screening levels to identify contaminants of potential concern (COPCs) for the protection of groundwater pathway and the protection of surface water pathway. This procedure is consistent with the guidance described in EPA 540/R-96/018, *Soil Screening Guidance: Users Guide.* The identified COPCs will be used to support the remedial investigation/feasibility study (RI/FS) process being conducted for the 100 Areas and 300 Area under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA).

This environmental calculation supports DOE/RL-2010-99, *Remedial Investigation/Feasibility Study for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units*, under CERCLA. A summary based upon the comparison of EPCs to soil screening levels described in this environmental calculation will be presented in the RI/FS report.

2 Background

Soil screening levels for the protection of groundwater and the protection of surface water were estimated using the STOMP 1D 100:0 Contaminant Source Model, which is a one-dimensional model that assumes 100 percent contamination of the vadose zone beneath a backfilled waste site (zero percent clean soil). The STOMP 1D 100:0 Contaminant Source Model includes recharge from irrigation and assumes that the entire vadose zone is contaminated below clean fill, that all contamination moves downward, and that there is no dispersion, volatilization, or credit for mixing with river water. Based on agreements with the Senior Executive Council, modeling with the STOMP simulator (PNNL-15782, *STOMP Subsurface Transport Over Multiple Phases, Version 4: User's Guide*) was performed to provide another basis for estimating soil screening levels for groundwater protection and surface water protection.

Comparisons are first conducted between the analyte-specific soil screening levels and EPC values for each waste site decision unit. Comparisons are then conducted between the EPCs and Hanford Site soil background concentrations. Analytes with EPCs that exceed both the 90th percentile background concentration and a soil screening level are considered COPCs and carried forward to the RI/FS report. Due to the complex geochemistry of uranium in 300 Area OU soils, detections of uranium with EPCs that exceed the 90th percentile soil background concentration are considered to be COPCs for the protection of groundwater without comparison to a STOMP 1D 100:0 soil screening level.

For informational purposes, the Fixed Parameter Three-Phase Partitioning Model, as defined in regulations promulgated under the State of Washington Model Toxics Control Act (MTCA) (Washington Administrative Code [WAC] Chapter 173-340-747, "Deriving Soil Concentrations for Groundwater Protection"), was also used to calculate an additional set of soil screening levels protective of groundwater and surface water. The fixed parameter three-phase equation is a highly simplified model with limited data inputs. The fixed parameter three-phase equation is drawn from Washington State Department of Ecology guidance presented in WAC 173-340-747(4), "Fixed Parameter Three-Phase Partitioning Model," and is based on conservative, simplifying assumptions about the release and transport of contaminants in the subsurface. Comparisons between the MTCA-based soil screening levels and the EPC values for each waste site decision unit are conducted in this environmental calculation, but are presented for informational purposes only and are not used to determine final COPCs.

3 Methodology

This section describes the methodology used to compare EPCs for each waste site decision unit to soil screening levels for groundwater protection and surface water protection for both the MTCA Fixed Parameter Three-Phase Partitioning Model and the STOMP 1D 100:0 Contaminant Source Model.

For all detected analytes for the 300 Area waste site decision units, the following steps are performed:

1. Obtain soil screening levels for the protection of groundwater and the protection of surface water calculated using the MTCA Fixed Parameter Three-Phase Model.
2. Obtain soil screening levels for the protection of groundwater and the protection of surface water calculated using the STOMP 1D 100:0 Contaminant Source model.
3. Obtain EPC values for each waste site decision unit within the 300 Area Source OU.
4. Individually compare EPCs for each waste site decision unit within the 300 Area Source OU to soil screening levels for the protection of groundwater and the protection of surface water.

The previous steps are conducted for all detected analytes in the 300 Area Source OU. The following steps are used to provide a list of analytes that also exceed applicable 90th percentile background concentrations.

5. Obtain 90th percentile background values.
6. Compare the EPC value to the applicable lognormal 90th percentile background value.
7. If the EPC is less than or equal to the lognormal 90th percentile background value, then no further comparison is made.
8. If the EPC is greater than the lognormal 90th percentile value, then a comparison to soil screening levels is made.
9. If a lognormal 90th percentile value is not available, then a comparison to soil screening levels is made.

Analytes that have EPCs that exceed both the 90th percentile soil background concentration and a STOMP 1D soil screening level are considered COPCs and carried forward to the RI/FS report. Due to uranium's geochemical complexity in 300 Area OU soils, detections of uranium with EPCs that exceed the 90th percentile soil background concentration are considered COPCs for the protection of groundwater without comparison to a STOMP 1D 100:0 soil screening level.

4 Assumptions and Inputs

Assumptions and inputs associated with soil screening levels, EPCs, and soil background concentrations are described below.

4.1 Soil Screening Levels

Table 4-1 documents the sources of information for soil screening levels.

Table 4-1. Soil Screening Level References

Soil Screening Level	Pathway	Reference
MTCA Fixed Parameter Three-Phase Partitioning Model	Groundwater	ECF-HANFORD-10-0442
	Surface Water	ECF-HANFORD-10-0439
STOMP 1D 100:0 Contaminant Source Model	Groundwater	ECF-300FF5-11-0153
	Surface Water	ECF-300FF5-11-0153

Notes:

ECF-HANFORD-10-0442, *Calculation of Nonradiological Preliminary Remediation Goals Using the Fixed Parameter 3-Phase Equilibrium Partitioning Equation for the Protection of Groundwater for the 100 Areas and 300 Area Remedial Investigation/Feasibility Study Reports*.

ECF-HANFORD-10-0439, *Calculation of Nonradiological Preliminary Remediation Goals Using the Fixed Parameter 3-Phase Partitioning Equation for Surface Water Protection for the 100 Areas and 300 Area Remedial Investigation/Feasibility Study Reports*.

ECF-300FF5-11-0153, *Soil Modeling in Support of 300 Area FF-5 RI/FS Document*.

4.1.1 Soil Screening Levels Protective of Groundwater

Soil screening levels for the protection of groundwater at and near the 300 Area Source OU have been derived using the following models:

- MTCA Fixed Parameter Three-Phase Partitioning Model
- STOMP 1D 100:0 Contaminant Source Model

With the exception of uranium, the STOMP 1D soil screening levels are used to identify COPCs based on a comparison to EPCs, while the MTCA-based soil screening levels are provided for informational purposes. The groundwater protective soil screening levels for all detected analytes in the 300 Area Source OU are provided in Table 4-2.

4.1.1.1 MTCA Fixed Parameter Three-Phase Partitioning Model

Soil screening levels protective of groundwater for the 100 Areas and 300 Area calculated using the MTCA fixed parameter three-phase partitioning model are documented in ECF-HANFORD-10-0442, *Calculation of Nonradiological Preliminary Remediation Goals Using the Fixed Parameter 3-Phase Equilibrium Partitioning Equation for the Protection of Groundwater for the 100 Areas and 300 Area Remedial Investigation/Feasibility Study Reports*.

4.1.1.2 STOMP 1D 100:0 Contaminant Source Model

The STOMP 1D 100:0 Contaminant Source Model uses an irrigation recharge scenario and assumes the entire vadose zone is contaminated below clean fill. Operable unit-specific soil screening levels protective of groundwater for the 300 Area Source OU calculated using the STOMP 1D 100:0 Contaminant Source Model are documented in ECF-300FF5-11-0153, *Soil Modeling in Support of 300 Area FF-5 RI/FS Document*.

4.1.2 Soil Screening Levels Protective of Surface Water

Soil screening levels for the protection of surface water are used in the River Corridor RI/FS process because the operable units in this area abut surface water. Soil screening levels for the protection of surface water at and near the 300 Area Source OU have been derived using the following models:

- MTCA Fixed Parameter Three-Phase Partitioning Model
- STOMP 1D 100:0 Contaminant Source Model

With the exception of uranium, the STOMP 1D soil screening levels are used to identify COPCs based on a comparison to EPCs, while the MTCA-based soil screening levels are provided for informational purposes. The surface water protective soil screening levels for all detected analytes in the 300 Area Source OU are provided in Table 4-3.

4.1.2.1 MTCA Fixed Parameter Three-Phase Partitioning Model

Soil screening levels protective of surface water for the 100 Areas and 300 Area calculated using the MTCA fixed parameter three-phase partitioning model are documented in ECF-HANFORD-10-0439, *Calculation of Nonradiological Preliminary Remediation Goals Using the Fixed Parameter 3-Phase Partitioning Equation for Surface Water Protection for the 100 Areas and 300 Area Remedial Investigation/Feasibility Study Reports*.

4.1.2.2 STOMP 1D 100:0 Contaminant Source Model

The STOMP 1D 100:0 Contaminant Source Model uses an irrigation recharge scenario and assumes the entire vadose zone is contaminated below clean fill. The model takes no credit for dilution of groundwater by mixing with surface water. Operable unit-specific soil screening levels protective of surface water for the 300 Area Source OU calculated using the STOMP 1D 100:0 Contaminant Source Model are documented in ECF-300FF5-11-0153.

4.2 Exposure Point Concentrations

OSWER 9285.6-10, *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*, states that, "an exposure point concentration (EPC) is a conservative estimate of the average chemical concentration in an exposure medium." OSWER Publication 9285.7-081, *Supplemental Guidance to RAGS: Calculating the Concentration Term*, states that, "because of the uncertainty associated with estimating the true average concentration at a site, the 95 percent upper confidence limit (UCL) of the arithmetic mean should be used for this variable."

The EPCs used for comparison to soil screening levels are the analyte-specific values computed from the post-remediation soil sample results for each waste site decision unit in the 300 Area Source OU, as described in ECF-300NPL-11-0137, *Computation of Exposure Point Concentrations for the 300-FF-2 Source Operable Unit*. The EPCs for each waste site decision unit are presented in Table 4-4 for the 300 Area Source OU.

4.3 Hanford Site Background

EPA 540-R-01-003, *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites*, provides national policy considerations for application of background data in risk assessment and remedy selection. This policy recommends an approach that addresses site-specific background issues in the risk characterization. EPA 540-R-01-003 indicates the following:

> "COPCs that have both release-related and background-related sources should be included in the risk assessment. When concentrations of naturally occurring elements at a site exceed risk-based screening levels, that information should be discussed qualitatively in the risk characterization."

EPA 540-R-01-003 defines background constituents as the following: (1) *anthropogenic* - natural and human-made substances present in the environment as a result of human activities (not specifically related to the CERCLA release in question), and (2) *naturally occurring* - substances present in the environment in forms that have not been influenced by human activity.

Lognormal 90th percentile background values for the Hanford Site (representative of both naturally occurring and anthropogenic substances) have been developed for inorganic chemicals and identified in DOE/RL-92-24, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*, Summary Table 2. Radionuclide background values are identified in DOE/RL-96-12, *Hanford Site Background: Part 2, Soil Background for Radionuclides*, Table 5-1. ECF-HANFORD-11-0038, *Background Data for Interim Use at the Hanford Site*, reports lognormal 90th percentile background values for most of the metals that are absent from DOE/RL-92-24. The analyte-specific background concentrations are presented in Table 4-5.

5 Software Applications

Microsoft Excel® was used to tabulate the data in electronic spreadsheets. These spreadsheets are provided as tables that accompany this environmental calculation.

6 Calculation

Contaminants of potential concern for groundwater protection and surface water protection at the 300 Area Source OU are identified by comparing EPCs to soil screening levels and background concentrations, as described in Section 3. Results of the comparisons are presented in the accompanying tables. The results are provided in summary in Section 7 and in full in Appendix A. The accompanying tables all share a similar format, providing both the values being compared as well as a "Yes/No" column indicating the outcome of the comparison.

7 Results/Conclusions

A summary of the 300 Area Source OU waste site decision unit EPCs that exceed soil screening levels for groundwater protection and surface water protection, *without consideration of soil background concentrations*, are presented in Tables 7-1 and 7-2, respectively.

A summary of the 300 Area Source OU waste site decision unit EPCs that exceed soil screening levels for groundwater protection and surface water protection, *as well as soil background concentrations*, are presented in Tables 7-3 and 7-4, respectively.

Analytes that have an EPC that exceeds both the 90th percentile background concentration as well as a STOMP 1D soil screening level are considered COPCs to be carried forward for further analysis. Due to uranium's geochemical complexity in 300 Area OU soils, detections of uranium with EPCs that exceed the 90th percentile soil background concentration are considered COPCs for the protection of groundwater and the protection of surface water without comparison to a STOMP 1D soil screening level.

® Microsoft Excel is a registered product of the Microsoft Corporation.

A single detection of n-Nitrosodi-n-dipropylamine was reported at waste site 300-49 in the overburden pile. The single n-Nitrosodi-n-dipropylamine detection of 40 µg/kg was flagged with a "J" lab qualifier, with a method detection limit ranging between 330 and 350 µg /kg, indicating that this result is an estimated concentration considerably below the method detection limit. Therefore, n-Nitrosodi-n-dipropylamine was not considered to be a COPC for both the protection of groundwater and the protection of surface water.

Detailed tables showing the full series of comparison steps carried out in producing the summary tables presented in Tables 7-1 through 7-4 are provided in Appendix A.

8 References

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WAC 173-340-747, "Model Toxics Control Act—Cleanup," "Deriving Soil Concentrations for Groundwater Protection," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/wac/default.aspx?cite=173-340-747.

Appendix A
Detailed Comparison Tables

The full series of comparison steps carried out in identifying COPCs for groundwater protection and surface water protection for the 300 Area Source OU are presented in the tables listed below.

Tables for the 300 Area Source Operable Unit EPC Comparison to Groundwater Protective Soil Screening Levels and Surface Water Protective Soil Screening Levels

300 Area Source Operable Unit
Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)
Table A-2. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Soil Screening Levels Protective of Groundwater (Without Background Consideration)
Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)
Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)
Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values
Table A-6. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (With Background Consideration)
Table A-7. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Model Soil Screening Levels Protective of Groundwater (With Background Consideration)
Table A-8. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (With Background Consideration)
Table A-9. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Model Soil Screening Levels Protective of Surface Water (With Background Consideration)

Table 4-2. Summary of Groundwater Protective Soil Screening Levels for the 300 Area Source Operable Unit

Analyte	90th Percentile Background	Fixed Parameter Three-Phase Soil Soil Screening Level for Groundwater Protection	STOMP 1D (100:0 Contaminant Source Model) Soil Screening Level for Groundwater Protection
Radionuclides (pCi/g)			
Americium-241	--	--	35,570
Cesium-137	1.1	--	234,633
Cobalt-60	0.0084	--	374,301
Europium-155	0.054	--	1.42E+06
Plutonium-238	0.0038	--	35,570
Plutonium-239/240	0.025	--	35,570
Plutonium-241	--	--	711,401
Total beta radiostrontium	0.18	--	3,808
Tritium	--	--	9,170
Uranium-233/234	1.1	--	--[1]
Uranium-235	0.11	--	--[1]
Uranium-238	1.1	--	--[1]
Nonradionuclides (µg/kg)			
1,1,2,2-Tetrachloroethane	--	1.2	270
1,2,4-Trichlorobenzene	--	56	30,292
1,4-Dichlorobenzene	--	134	61,703
2,4-Dinitrotoluene	--	1.7	404
2-Butanone	--	19,700	1.70E+06
2-Butoxyethanol	--	3,245	251,000
2-Chlorophenol	--	472	195,557
2-Methylnaphthalene	--	2,040	1.15E+06
4,4'-DDE (Dichlorodiphenyldichloroethylene)	--	446	265,120
4-Chloro-3-methylphenol	--	22,100	9.81E+06
Acenaphthene	--	121,000	7.03E+07
Acetone	--	28,900	2.23E+06
Aldrin	--	2.5	1,495
Alpha-BHC	--	0.54	295
Aluminum	1.18E+07	1.50E+06	3.88E+08
Anthracene	--	2.28E+06	3.88E+08
Antimony	170	475	270,667
Aroclor-1016	--	1,070	637,866
Aroclor-1221	--	9.2	5,384
Aroclor-1232	--	9.2	5,384
Aroclor-1242	--	39	23,376
Aroclor-1248	--	39	22,907
Aroclor-1254	--	66	39,438
Aroclor-1260	--	719	428,686
Arsenic	6,470	3.7	2,103
Barium	132,000	1.01E+06	3.88E+08
Benzo(a)anthracene	--	863	514,391
Benzo(a)pyrene	--	1,320	785,825
Benzo(b)fluoranthene	--	1,930	1.15E+06
Benzo(k)fluoranthene	--	2,950	1.76E+06
Beryllium	1,510	63,200	3.77E+07
Bis(2-ethylhexyl) phthalate	--	13,200	7.87E+06
Boron	3,620	205,000	1.15E+08
Butylbenzylphthalate	--	12,900	7.59E+06
Cadmium	784	3,020	1.79E+06
Chlordane	--	256	152,053
Chloroform	--	7.5	1,310
Chromium	18,500	400,000	2.38E+08
Chrysene	--	4,800	2.86E+06
Cobalt	15,700	4,820	2.86E+06
Copper	22,000	284,000	1.68E+08
Dibenz[a,h]anthracene	--	4,290	2.56E+06
Dibenzofuran	--	3,680	2.16E+06
Dieldrin	--	2.8	1,670
Diethyl ether	--	6,850	665,673
Di-n-butylphthalate	--	56,600	3.04E+07
Endosulfan I	--	4,300	2.36E+06
Endosulfan II	--	4,300	2.36E+06
Ethylene glycol	--	64,320	5.03E+06
Fluoranthene	--	631,000	3.75E+08
Fluorene	--	101,000	5.90E+07

Table 4-2. Summary of Groundwater Protective Soil Screening Levels for the 300 Area Source Operable Unit

Analyte	90th Percentile Background	Fixed Parameter Three-Phase Soil Soil Screening Level for Groundwater Protection	STOMP 1D (100:0 Contaminant Source Model) Soil Screening Level for Groundwater Protection
Fluoride	2,810	1.44E+06	3.88E+08
Heptachlor epoxide	--	8.0	4,769
Hexachlorobutadiene	--	605	359,196
Hexachloroethane	--	125	67,218
Hexavalent Chromium	--	192	471,091
Indeno(1,2,3-cd)pyrene	--	8,320	4.96E+06
Iron	3.26E+07	151,000	8.95E+07
Lead	10,200	9,060	5.37E+06
Lithium	33,500	32,100	1.91E+07
Manganese	512,000	50,200	2.98E+07
Mercury	330	1,210	715,784
Methoxychlor	--	64,200	3.82E+07
Methylene chloride	--	22	2,098
Molybdenum	720	32,300	1.91E+07
Naphthalene	--	4,450	2.32E+06
Nickel	19,100	130,000	7.75E+07
Nitrate	52,000	180,000	1.36E+07
Nitrogen in Nitrite and Nitrate	--	40,000	3.03E+06
n-Nitrosodi-n-dipropylamine	--	0.056	7.3
Pentachlorophenol	--	12	5,344
Phenol	--	11,000	1.54E+06
Pyrene	--	655,000	3.88E+08
Selenium	780	5,200	2.99E+06
Silver	730	144,000	8.58E+07
Strontium	--	4.84E+06	3.88E+08

Table 4-2. Summary of Groundwater Protective Soil Screening Levels for the 300 Area Source Operable Unit

Analyte	90th Percentile Background	Fixed Parameter Three-Phase Soil Soil Screening Level for Groundwater Protection	STOMP 1D (100:0 Contaminant Source Model) Soil Screening Level for Groundwater Protection
Tetrachloroethene	--	0.87	282
Tin	--	2.50E+07	3.88E+08
Toluene	--	4,650	1.25E+06
Total petroleum hydrocarbons - diesel range[3]	--	--	2.00E+06
Total petroleum hydrocarbons - kerosene range[3]	--	--	2.00E+06
Total petroleum hydrocarbons - motor oil (high boiling)[3]	--	--	2.00E+06
Total_U_Isotopes	3,210	1,320	--[2]
Tributyl phosphate	--	406	217,026
Trichloroethene	--	3.3	695
Trichloromonofluoromethane	--	28,204	1.97E+06
Uranium	3,210	1,320	--[2]
Vanadium	85,100	1.60E+06	3.88E+08
Zinc	67,800	2.90E+06	3.88E+08

-- = Not Applicable

1. Uranium isotopes are accounted for by converting from activity-based (pCi/g) to mass-based (µg/kg) concentrations and summing to provide a mass-based total uranium concentration (identified as Total_U_Isotopes).

2. Due to the complex geochemistry of uranium in 300 Area OU soils, uranium was considered to be a COPC for groundwater protection without comparison to a STOMP 1D 100:0 soil screening level.

3. Total petroleum hydrocarbon values are obtained from WAC 173-340-900, Table 747-5, "Residual Saturation Screening Levels for TPH."

Table 4-3. Summary of Surface Water Protective Soil Screening Levels for the 300 Area Source Operable Unit

Analyte	90th Percentile Background	Fixed Parameter Three-Phase Soil Soil Screening Level for Surface Water Protection	STOMP 1D (100:0 Contaminant Source Model) Soil Screening Level for Surface Water Protection
Radionuclides (pCi/g)			
Americium-241	--	--	35,570
Cesium-137	1.1	--	234,633
Cobalt-60	0.00842	--	374,301
Europium-155	0.0539	--	1.42E+06
Plutonium-238	0.0038	--	35,570
Plutonium-239/240	0.025	--	35,570
Plutonium-241	--	--	711,401
Total beta radiostrontium	0.18	--	3,808
Tritium	--	--	9,170
Uranium-233/234	1.1	--	--[1]
Uranium-235	0.11	--	--[1]
Uranium-238	1.1	--	--[1]
Nonradionuclides (µg/kg)			
1,1,2,2-Tetrachloroethane	--	0.95	210
1,2,4-Trichlorobenzene	--	73	39,366
1,4-Dichlorobenzene	--	356	164,411
2,4-Dinitrotoluene	--	0.65	157
2-Butanone	--	2.02E+06	1.75E+08
2-Butoxyethanol	--	332,818	2.58E+07
2-Chlorophenol	--	955	396,004
2-Methylnaphthalene	--	8,830	4.97E+06
4,4'-DDE (Dichlorodiphenyldichloroethylene)	--	0.38	227
4-Chloro-3-methylphenol	--	422,000	1.87E+08
Acenaphthene	--	81,300	4.71E+07
Acetone	--	2.96E+06	2.29E+08
Aldrin	--	0.048	28
Alpha-BHC	--	0.10	55
Aluminum	1.18E+07	2.61E+06	3.88E+08
Anthracene	--	3.93E+06	3.88E+08
Antimony	170	444	252,623
Aroclor-1016	--	0.14	82
Aroclor-1221	--	0.013	7.9
Aroclor-1232	--	0.013	7.9
Aroclor-1242	--	0.058	34
Aroclor-1248	--	0.056	34
Aroclor-1254	--	0.097	58
Aroclor-1260	--	1.1	627
Arsenic	6,470	1.2	649
Barium	132,000	504,000	2.98E+08
Benzo(a)anthracene	--	20	12,016
Benzo(a)pyrene	--	308	183,569
Benzo(b)fluoranthene	--	45	26,802
Benzo(k)fluoranthene	--	69	41,053
Beryllium	1,510	4.31E+06	3.88E+08
Bis(2-ethylhexyl) phthalate	--	2,640	1.57E+06
Boron	3,620	--	--[2]
Butylbenzylphthalate	--	2,310	1.36E+06
Cadmium	784	151	89,473
Chlordane	--	0.58	347
Chloroform	--	30	5,291
Chromium	18,500	260,000	1.55E+08
Chrysene	--	11	6,676
Cobalt	15,700	2,600	1.55E+06
Copper	22,000	4,000	2.36E+06
Dibenz[a,h]anthracene	--	100	59,744
Dibenzofuran	--	392	230,243
Dieldrin	--	0.027	16
Diethyl ether	--	410,990	3.99E+07
Di-n-butylphthalate	--	70,800	3.80E+07
Endosulfan I	--	2.5	1,378
Endosulfan II	--	2.5	1,378
Ethylene glycol		6.59E+06	3.88E+08
Fluoranthene	--	88,900	5.28E+07
Fluorene	--	174,000	1.01E+08
Fluoride	2,810	--	--[2]
Heptachlor epoxide	--	0.065	39

Table 4-3. Summary of Surface Water Protective Soil Screening Levels for the 300 Area Source Operable Unit

Analyte	90th Percentile Background	Fixed Parameter Three-Phase Soil Soil Screening Level for Surface Water Protection	STOMP 1D (100:0 Contaminant Source Model) Soil Screening Level for Surface Water Protection
Hexachlorobutadiene	--	475	281,774
Hexachloroethane	--	56	30,113
Hexavalent Chromium	--	40	98,100
Indeno(1,2,3-cd)pyrene	--	194	115,816
Iron	3.26E+07	151,000	8.95E+07
Lead	10,200	1,270	754,293
Lithium	33,500	--	--[2]
Manganese	512,000	50,200	2.98E+07
Mercury	330	7.3	4,295
Methoxychlor	--	48	28,617
Methylene chloride	--	20	1,930
Molybdenum	720	524,000	3.09E+08
Naphthalene	--	137,000	7.15E+07
Nickel	19,100	67,800	4.03E+07
Nitrate	52,000	180,000	1.36E+07
Nitrogen in Nitrite and Nitrate	--	40,000	3.03E+06
n-Nitrosodi-n-dipropylamine	--	0.022	2.9
Pentachlorophenol	--	4.3	1,979
Phenol	--	45,800	6.42E+06
Pyrene	--	1.13E+06	3.88E+08
Selenium	780	520	299,460
Silver	730	4,710	2.80E+06
Strontium	--	1.31E+07	3.88E+08
Tetrachloroethene	--	4.1	1,348
Tin	--	1.35E+06	3.88E+08
Toluene	--	9,450	2.54E+06
Total petroleum hydrocarbons - diesel range	--	--	--[2]
Total petroleum hydrocarbons - kerosene range	--	--	--[2]
Total petroleum hydrocarbons - motor oil (high boiling)	--	--	--[2]
Total_U_Isotopes	3,210	34,200	--[3]
Tributyl phosphate	--	1,016	554,545
Trichloroethene	--	17	3,534
Trichloromonofluoromethane	--	4.21E+06	2.93E+07
Uranium	3,210	34,200	--[3]
Vanadium	85,100	--	--[2]
Zinc	67,800	55,000	3.26E+07

-- = Not Applicable

1. Uranium isotopes are accounted for by converting from activity-based (pCi/g) to mass-based (µg/kg) concentrations and summing to provide a mass-based total uranium concentration (identified as Total_U_Isotopes).

2. A soil screening level is not calculated because a groundwater cleanup level or MCL is not available for this analyte.

3. Due to the complex geochemistry of uranium in 300 Area OU soils, uranium was considered to be a COPC for surface water protection without comparison to a STOMP 1D 100:0 soil screening level.

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	52
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	6,078
300 ASH PITS_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	96
300 ASH PITS_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	76
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,450
300 ASH PITS_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.039
300 ASH PITS_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82
300 VTS_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.029
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	13,500
300-10_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	200
300-10_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	230
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,078
300-10_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.16
300-10_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.041
300-10_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	5.62E+06
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	122
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	40
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	2,420
300-109_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	63,300
300-109_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	1.2
300-109_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	2.3
300-109_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	180
300-109_Shallow_Focused	non-Rad	Boron	7440-42-8	µg/kg	632
300-109_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	59
300-109_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	6,950
300-109_Shallow_Focused	non-Rad	Chrysene	218-01-9	µg/kg	1.8
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	6,420
300-109_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	10,800
300-109_Shallow_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	14
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	1.75E+07
300-109_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	2,890
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	278,000
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	22
300-109_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	341
300-109_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	8,490
300-109_Shallow_Focused	non-Rad	Pyrene	129-00-0	µg/kg	1.6
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,108
300-109_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	47,600
300-109_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	34,700
300-109_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.4
300-109_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	5.78E+06
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	37
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	19
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	2,580
300-109_Staging Pile Area_Focused	non-Rad	Barium	7440-39-3	µg/kg	72,700
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	2.1
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	3.3
300-109_Staging Pile Area_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	1.3
300-109_Staging Pile Area_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	203
300-109_Staging Pile Area_Focused	non-Rad	Boron	7440-42-8	µg/kg	1,060
300-109_Staging Pile Area_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	66
300-109_Staging Pile Area_Focused	non-Rad	Chromium	7440-47-3	µg/kg	8,170
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	5,950
300-109_Staging Pile Area_Focused	non-Rad	Copper	7440-50-8	µg/kg	11,600
300-109_Staging Pile Area_Focused	non-Rad	Fluoranthene	206-44-0	µg/kg	5.1
300-109_Staging Pile Area_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	29
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	µg/kg	1.84E+07
300-109_Staging Pile Area_Focused	non-Rad	Lead	7439-92-1	µg/kg	5,030
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	µg/kg	286,000
300-109_Staging Pile Area_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	408
300-109_Staging Pile Area_Focused	non-Rad	Nickel	7440-02-0	µg/kg	8,570
300-109_Staging Pile Area_Focused	non-Rad	Pyrene	129-00-0	µg/kg	7.0
300-109_Staging Pile Area_Focused	non-Rad	Tin	7440-31-5	µg/kg	1,450
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	6,877
300-109_Staging Pile Area_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	45,100
300-109_Staging Pile Area_Focused	non-Rad	Zinc	7440-66-6	µg/kg	48,800
300-109_Staging Pile Area_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	2.5
300-109_Staging Pile Area_Focused	Rad	Uranium-238	U-238	pCi/g	2.3
300-18_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,200
300-18_Shallow	non-Rad	Barium	7440-39-3	µg/kg	63,400
300-18_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	650

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
300-18_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	40
300-18_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	6,900
300-18_Shallow	non-Rad	Lead	7439-92-1	µg/kg	3,600
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	1,136
300-18_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.65
300-18_Shallow	Rad	Uranium-238	U-238	pCi/g	0.41
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	µg/kg	120,000
300-223_Shallow_Focused	non-Rad	petroleum hydrocarbons - motor oil (high b	TPH/OILH	µg/kg	230,000
300-23_Shallow_Focused	non-Rad	petroleum hydrocarbons - motor oil (high b	TPH/OILH	µg/kg	52,000
300-259_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	5.99E+06
300-259_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	322
300-259_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,096
300-259_Shallow	non-Rad	Barium	7440-39-3	µg/kg	75,232
300-259_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	226
300-259_Shallow	non-Rad	Boron	7440-42-8	µg/kg	1,303
300-259_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	252
300-259_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	7,901
300-259_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	5,831
300-259_Shallow	non-Rad	Copper	7440-50-8	µg/kg	10,692
300-259_Shallow	non-Rad	Iron	7439-89-6	µg/kg	1.96E+07
300-259_Shallow	non-Rad	Lead	7439-92-1	µg/kg	4,625
300-259_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	318,874
300-259_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	10
300-259_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	303
300-259_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	8,751
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,876
300-259_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	42,626
300-259_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	479,584
300-259_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.6
300-259_Shallow	Rad	Uranium-238	U-238	pCi/g	1.3
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	8.17E+06
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	922
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	3,160
300-260_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	122,000
300-260_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	239
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	µg/kg	8,360
300-260_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	110
300-260_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	9,890
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	7,430
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	73,300
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	2.04E+07
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	18,300
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	328,000
300-260_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	12
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	537
300-260_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	10,200
300-260_Shallow_Focused	non-Rad	Silver	7440-22-4	µg/kg	206
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	12,800
300-260_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	59,000
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	77,400
300-260_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.25
300-260_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.3
300-272_Overburden_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	µg/kg	13,100
300-272_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	µg/kg	43,100
300-275_Shallow_1	non-Rad	Acenaphthene	83-32-9	µg/kg	960
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	µg/kg	5.61E+06
300-275_Shallow_1	non-Rad	Antimony	7440-36-0	µg/kg	260
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	µg/kg	2,211
300-275_Shallow_1	non-Rad	Barium	7440-39-3	µg/kg	75,261
300-275_Shallow_1	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	1.3
300-275_Shallow_1	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	1.9
300-275_Shallow_1	non-Rad	Beryllium	7440-41-7	µg/kg	452
300-275_Shallow_1	non-Rad	Boron	7440-42-8	µg/kg	1,466
300-275_Shallow_1	non-Rad	Cadmium	7440-43-9	µg/kg	83
300-275_Shallow_1	non-Rad	Chromium	7440-47-3	µg/kg	8,022
300-275_Shallow_1	non-Rad	Chrysene	218-01-9	µg/kg	2.2
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	µg/kg	5,847
300-275_Shallow_1	non-Rad	Copper	7440-50-8	µg/kg	42,923
300-275_Shallow_1	non-Rad	Fluoranthene	206-44-0	µg/kg	2,300
300-275_Shallow_1	non-Rad	Fluorene	86-73-7	µg/kg	81
300-275_Shallow_1	non-Rad	Iron	7439-89-6	µg/kg	1.79E+07
300-275_Shallow_1	non-Rad	Lead	7439-92-1	µg/kg	7,189
300-275_Shallow_1	non-Rad	Lithium	7439-93-2	µg/kg	6,686

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	µg/kg	276,815
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	µg/kg	17
300-275_Shallow_1	non-Rad	Molybdenum	7439-98-7	µg/kg	378
300-275_Shallow_1	non-Rad	Nickel	7440-02-0	µg/kg	9,461
300-275_Shallow_1	non-Rad	Silver	7440-22-4	µg/kg	121
300-275_Shallow_1	non-Rad	Strontium	7440-24-6	µg/kg	20,196
300-275_Shallow_1	non-Rad	Tin	7440-31-5	µg/kg	1,483
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	22,251
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	µg/kg	2,500
300-275_Shallow_1	non-Rad	Vanadium	7440-62-2	µg/kg	45,128
300-275_Shallow_1	non-Rad	Zinc	7440-66-6	µg/kg	41,014
300-275_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.046
300-275_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	7.7
300-275_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.0
300-275_Shallow_1	Rad	Uranium-238	U-238	pCi/g	7.4
300-275_Shallow_2	non-Rad	Acenaphthene	83-32-9	µg/kg	3.6
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	µg/kg	6.24E+06
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	µg/kg	2,761
300-275_Shallow_2	non-Rad	Barium	7440-39-3	µg/kg	68,607
300-275_Shallow_2	non-Rad	Beryllium	7440-41-7	µg/kg	254
300-275_Shallow_2	non-Rad	Boron	7440-42-8	µg/kg	1,147
300-275_Shallow_2	non-Rad	Cadmium	7440-43-9	µg/kg	144
300-275_Shallow_2	non-Rad	Chromium	7440-47-3	µg/kg	8,994
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	µg/kg	5,977
300-275_Shallow_2	non-Rad	Copper	7440-50-8	µg/kg	11,596
300-275_Shallow_2	non-Rad	Fluoranthene	206-44-0	µg/kg	56
300-275_Shallow_2	non-Rad	Fluorene	86-73-7	µg/kg	2.6
300-275_Shallow_2	non-Rad	Iron	7439-89-6	µg/kg	1.96E+07
300-275_Shallow_2	non-Rad	Lead	7439-92-1	µg/kg	4,099
300-275_Shallow_2	non-Rad	Lithium	7439-93-2	µg/kg	7,067
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	µg/kg	292,731
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	µg/kg	28
300-275_Shallow_2	non-Rad	Molybdenum	7439-98-7	µg/kg	404
300-275_Shallow_2	non-Rad	Nickel	7440-02-0	µg/kg	9,593
300-275_Shallow_2	non-Rad	Strontium	7440-24-6	µg/kg	27,081
300-275_Shallow_2	non-Rad	Tin	7440-31-5	µg/kg	1,149
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,725
300-275_Shallow_2	non-Rad	Vanadium	7440-62-2	µg/kg	51,632
300-275_Shallow_2	non-Rad	Zinc	7440-66-6	µg/kg	41,245
300-275_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3
300-275_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	0.24
300-275_Shallow_2	Rad	Uranium-238	U-238	pCi/g	1.2
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	6.32E+06
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	µg/kg	10
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	µg/kg	16
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	190
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	84
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	17
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,638
300-33, 300-41, 300-256_Shallow	non-Rad	Barium	7440-39-3	µg/kg	72,411
300-33, 300-41, 300-256_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	256
300-33, 300-41, 300-256_Shallow	non-Rad	Boron	7440-42-8	µg/kg	1,484
300-33, 300-41, 300-256_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	228
300-33, 300-41, 300-256_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	94
300-33, 300-41, 300-256_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	8,781
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	6,273
300-33, 300-41, 300-256_Shallow	non-Rad	Copper	7440-50-8	µg/kg	13,662
300-33, 300-41, 300-256_Shallow	non-Rad	Fluoride	16984-48-8	µg/kg	1,651
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	µg/kg	2.00E+07
300-33, 300-41, 300-256_Shallow	non-Rad	Lead	7439-92-1	µg/kg	4,268
300-33, 300-41, 300-256_Shallow	non-Rad	Lithium	7439-93-2	µg/kg	5,495
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	314,762
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	16
300-33, 300-41, 300-256_Shallow	non-Rad	Methylene chloride	75-09-2	µg/kg	2.9
300-33, 300-41, 300-256_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	486
300-33, 300-41, 300-256_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	8,880
300-33, 300-41, 300-256_Shallow	non-Rad	Nitrate	14797-55-8	µg/kg	8,617
300-33, 300-41, 300-256_Shallow	non-Rad	Silver	7440-22-4	µg/kg	782
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,349
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	7,260
300-33, 300-41, 300-256_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	52,694
300-33, 300-41, 300-256_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	41,462
300-33, 300-41, 300-256_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.1

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
300-33, 300-41, 300-256_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.34
300-33, 300-41, 300-256_Shallow	Rad	Uranium-238	U-238	pCi/g	2.1
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	5.51E+06
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	330
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	385
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	52
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	3,240
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	64,600
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	169
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Boron	7440-42-8	µg/kg	1,030
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	100
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	8,080
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	5,640
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	10,400
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Fluoride	16984-48-8	µg/kg	1,300
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	1.86E+07
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	3,160
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lithium	7439-93-2	µg/kg	6,580
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	259,000
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	2.2
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	275
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	8,040
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nitrate	14797-55-8	µg/kg	17,900
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	6,460
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	51,400
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	38,900
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	3.0
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	2.2
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	100
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	3,200
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	9,100
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	1,027
300-44_Overburden_Focused	Rad	Uranium-238	U-238	pCi/g	0.35
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	6.71E+06
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	4,100
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	16,900
300-44_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	75,200
300-44_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	480
300-44_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	9,300
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	8,200
300-44_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	7,800
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	1.94E+07
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	303,000
300-44_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	8,600
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	872
300-44_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	43,200
300-44_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	37,800
300-44_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.29
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	86
300-45_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	290
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,600
300-45_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.023
300-45_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.061
300-45_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.2
300-49_Overburden	non-Rad	1,2,4-Trichlorobenzene	120-82-1	µg/kg	31
300-49_Overburden	non-Rad	1,4-Dichlorobenzene	106-46-7	µg/kg	29
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	µg/kg	19
300-49_Overburden	non-Rad	2-Chlorophenol	95-57-8	µg/kg	51
300-49_Overburden	non-Rad	4-Chloro-3-methylphenol	59-50-7	µg/kg	46
300-49_Overburden	non-Rad	Acenaphthene	83-32-9	µg/kg	31
300-49_Overburden	non-Rad	Aluminum	7429-90-5	µg/kg	6.30E+06
300-49_Overburden	non-Rad	Antimony	7440-36-0	µg/kg	232
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	µg/kg	3,008
300-49_Overburden	non-Rad	Arsenic	7440-38-2	µg/kg	3,291
300-49_Overburden	non-Rad	Barium	7440-39-3	µg/kg	76,068
300-49_Overburden	non-Rad	Beryllium	7440-41-7	µg/kg	201
300-49_Overburden	non-Rad	Cadmium	7440-43-9	µg/kg	174
300-49_Overburden	non-Rad	Chromium	7440-47-3	µg/kg	18,106
300-49_Overburden	non-Rad	Cobalt	7440-48-4	µg/kg	7,127
300-49_Overburden	non-Rad	Copper	7440-50-8	µg/kg	536,000
300-49_Overburden	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	52
300-49_Overburden	non-Rad	Iron	7439-89-6	µg/kg	2.08E+07
300-49_Overburden	non-Rad	Lead	7439-92-1	µg/kg	36,964

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
300-49_Overburden	non-Rad	Manganese	7439-96-5	µg/kg	316,669
300-49_Overburden	non-Rad	Nickel	7440-02-0	µg/kg	13,035
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	µg/kg	40
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	µg/kg	50
300-49_Overburden	non-Rad	Phenol	108-95-2	µg/kg	50
300-49_Overburden	non-Rad	Pyrene	129-00-0	µg/kg	40
300-49_Overburden	non-Rad	Silver	7440-22-4	µg/kg	703
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,066
300-49_Overburden	non-Rad	Vanadium	7440-62-2	µg/kg	50,380
300-49_Overburden	non-Rad	Zinc	7440-66-6	µg/kg	141,984
300-49_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	1.0
300-49_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.057
300-49_Overburden	Rad	Uranium-238	U-238	pCi/g	1.0
300-49_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	6.92E+06
300-49_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	176
300-49_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	4,431
300-49_Shallow	non-Rad	Barium	7440-39-3	µg/kg	89,874
300-49_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	303
300-49_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	9,170
300-49_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	9,323
300-49_Shallow	non-Rad	Copper	7440-50-8	µg/kg	14,870
300-49_Shallow	non-Rad	Iron	7439-89-6	µg/kg	2.59E+07
300-49_Shallow	non-Rad	Lead	7439-92-1	µg/kg	6,629
300-49_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	361,805
300-49_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	10,664
300-49_Shallow	non-Rad	Silver	7440-22-4	µg/kg	621
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,983
300-49_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	58,672
300-49_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	54,651
300-49_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.15
300-49_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.3
300-49_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24
300-49_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1
300-50_Overburden	non-Rad	Aluminum	7429-90-5	µg/kg	6.68E+06
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	µg/kg	33
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	µg/kg	229
300-50_Overburden	non-Rad	Arsenic	7440-38-2	µg/kg	6,897
300-50_Overburden	non-Rad	Barium	7440-39-3	µg/kg	117,742
300-50_Overburden	non-Rad	Beryllium	7440-41-7	µg/kg	325
300-50_Overburden	non-Rad	Cadmium	7440-43-9	µg/kg	563
300-50_Overburden	non-Rad	Chromium	7440-47-3	µg/kg	12,197
300-50_Overburden	non-Rad	Cobalt	7440-48-4	µg/kg	9,389
300-50_Overburden	non-Rad	Copper	7440-50-8	µg/kg	64,527
300-50_Overburden	non-Rad	Iron	7439-89-6	µg/kg	1.90E+07
300-50_Overburden	non-Rad	Lead	7439-92-1	µg/kg	5,905
300-50_Overburden	non-Rad	Manganese	7439-96-5	µg/kg	314,271
300-50_Overburden	non-Rad	Nickel	7440-02-0	µg/kg	15,229
300-50_Overburden	non-Rad	Silver	7440-22-4	µg/kg	1,202
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	17,919
300-50_Overburden	non-Rad	Vanadium	7440-62-2	µg/kg	45,243
300-50_Overburden	non-Rad	Zinc	7440-66-6	µg/kg	45,889
300-50_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.056
300-50_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	6.0
300-50_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.45
300-50_Overburden	Rad	Uranium-238	U-238	pCi/g	6.0
300-50_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	6.88E+06
300-50_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	3,000
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	126
300-50_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	6,403
300-50_Shallow	non-Rad	Barium	7440-39-3	µg/kg	103,029
300-50_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	282
300-50_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	19
300-50_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	463
300-50_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	16,841
300-50_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	9,109
300-50_Shallow	non-Rad	Copper	7440-50-8	µg/kg	16,820
300-50_Shallow	non-Rad	Iron	7439-89-6	µg/kg	1.96E+07
300-50_Shallow	non-Rad	Lead	7439-92-1	µg/kg	6,381
300-50_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	318,120
300-50_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	12,413
300-50_Shallow	non-Rad	Silver	7440-22-4	µg/kg	2,992
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	22,938
300-50_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	46,964

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
300-50_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	41,344
300-50_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.056
300-50_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	7.9
300-50_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.66
300-50_Shallow	Rad	Uranium-238	U-238	pCi/g	8.4
300-8_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	574
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,374
300-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.79
300-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	40,572
316-1_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.10
316-1_Overburden	Rad	Cobalt-60	10198-40-0	pCi/g	0.32
316-1_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	13
316-1_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	1.1
316-1_Overburden	Rad	Uranium-238	U-238	pCi/g	13
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	µg/kg	3,000
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	µg/kg	19,014
316-1_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	69
316-1_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	98
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	83,027
316-1_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.032
316-1_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.2
316-1_Shallow_1	Rad	Uranium-238	U-238	pCi/g	28
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	µg/kg	1.11E+07
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	µg/kg	490
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	µg/kg	98
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	µg/kg	5,138
316-1_Shallow_3	non-Rad	Barium	7440-39-3	µg/kg	129,106
316-1_Shallow_3	non-Rad	Beryllium	7440-41-7	µg/kg	416
316-1_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	342
316-1_Shallow_3	non-Rad	Cadmium	7440-43-9	µg/kg	474
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	µg/kg	50,455
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	µg/kg	9,703
316-1_Shallow_3	non-Rad	Copper	7440-50-8	µg/kg	1.37E+06
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	µg/kg	3.2
316-1_Shallow_3	non-Rad	Iron	7439-89-6	µg/kg	2.44E+07
316-1_Shallow_3	non-Rad	Lead	7439-92-1	µg/kg	14,409
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	µg/kg	392,825
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	µg/kg	1,105
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	µg/kg	94,656
316-1_Shallow_3	non-Rad	Phenol	108-95-2	µg/kg	28
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	µg/kg	1,444
316-1_Shallow_3	non-Rad	Silver	7440-22-4	µg/kg	13,196
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	63,074
316-1_Shallow_3	non-Rad	Vanadium	7440-62-2	µg/kg	56,707
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	µg/kg	82,016
316-1_Shallow_3	Rad	Cesium-137	10045-97-3	pCi/g	0.37
316-1_Shallow_3	Rad	Cobalt-60	10198-40-0	pCi/g	2.3
316-1_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	23
316-1_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	2.6
316-1_Shallow_3	Rad	Uranium-238	U-238	pCi/g	21
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	µg/kg	62
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	42,963
316-1_Shallow_4	Rad	Cobalt-60	10198-40-0	pCi/g	0.12
316-1_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	16
316-1_Shallow_4	Rad	Uranium-235	15117-96-1	pCi/g	1.1
316-1_Shallow_4	Rad	Uranium-238	U-238	pCi/g	14
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	210,452
316-2_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.031
316-2_Shallow_1	Rad	Cobalt-60	10198-40-0	pCi/g	0.092
316-2_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	86
316-2_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	12
316-2_Shallow_1	Rad	Uranium-238	U-238	pCi/g	69
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	µg/kg	697
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	µg/kg	42
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	µg/kg	110
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	291,369
316-2_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	0.45
316-2_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.45
316-2_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	115
316-2_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	11
316-2_Shallow_2	Rad	Uranium-238	U-238	pCi/g	96
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	µg/kg	8,000

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
316-2_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	260
316-2_Shallow_3	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	180
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	73,174
316-2_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.91
316-2_Shallow_3	Rad	Uranium-238	U-238	pCi/g	24
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	µg/kg	3,070
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	38
316-5_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	146
316-5_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	100
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	271,835
316-5_Shallow_1	Rad	Americium-241	14596-10-2	pCi/g	0.48
316-5_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	2.3
316-5_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	19
316-5_Shallow_1	Rad	Uranium-238	U-238	pCi/g	89
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	µg/kg	140
316-5_Shallow_2	non-Rad	2-Butoxyethanol	111-76-2	µg/kg	240
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	µg/kg	3,180
316-5_Shallow_2	non-Rad	Barium	7440-39-3	µg/kg	76,700
316-5_Shallow_2	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	180
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	110
316-5_Shallow_2	non-Rad	Chromium	7440-47-3	µg/kg	6,900
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	µg/kg	38
316-5_Shallow_2	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	146
316-5_Shallow_2	non-Rad	Lead	7439-92-1	µg/kg	3,200
316-5_Shallow_2	non-Rad	Selenium	7782-49-2	µg/kg	490
316-5_Shallow_2	non-Rad	Silver	7440-22-4	µg/kg	3,600
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	204,701
316-5_Shallow_2	Rad	Americium-241	14596-10-2	pCi/g	0.12
316-5_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	1.7
316-5_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.12
316-5_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	9.0
316-5_Shallow_2	Rad	Uranium-238	U-238	pCi/g	68
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	57
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	70
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	52
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	4,300
316-5_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	190
316-5_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	1,500
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	138,095
316-5_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.8
316-5_Shallow_Focused	Rad	Europium-155	14391-16-3	pCi/g	0.072
316-5_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	7.7
316-5_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	45
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene	72-55-9	µg/kg	25
331 LSLDF_Shallow_Focused	non-Rad	Acetone	67-64-1	µg/kg	590
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	µg/kg	0.56
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	µg/kg	0.39
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	6.90E+06
331 LSLDF_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	360
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	850
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	2,400
331 LSLDF_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	78,600
331 LSLDF_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	570
331 LSLDF_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	910
331 LSLDF_Shallow_Focused	non-Rad	Boron	7440-42-8	µg/kg	1,700
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	340
331 LSLDF_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	140
331 LSLDF_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	10,300
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	8,600
331 LSLDF_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	15,400
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	µg/kg	13
331 LSLDF_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	98
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan I	959-98-8	µg/kg	1.9
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	µg/kg	3.1
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	2.20E+07
331 LSLDF_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	9,000
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	349,000
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	110
331 LSLDF_Shallow_Focused	non-Rad	Methoxychlor	72-43-5	µg/kg	3.3
331 LSLDF_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	11
331 LSLDF_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	590
331 LSLDF_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	10,000
331 LSLDF_Shallow_Focused	non-Rad	Nitrate	14797-55-8	µg/kg	41,700

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
331 LSLDF_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	µg/kg	9,500
331 LSLDF_Shallow_Focused	non-Rad	Silver	7440-22-4	µg/kg	1,100
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	1,402
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	µg/kg	2300.0
331 LSLDF_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	53,100
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	137,000
331 LSLDF_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	0.54
331 LSLDF_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.47
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	µg/kg	279
600-243_Shallow	non-Rad	Anthracene	120-12-7	µg/kg	31
600-243_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	1,300
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	27
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	18
600-243_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	6,159
600-243_Shallow	non-Rad	Barium	7440-39-3	µg/kg	292,072
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	43
600-243_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	43
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	46
600-243_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	32
600-243_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	2,079
600-243_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	432
600-243_Shallow	non-Rad	Boron	7440-42-8	µg/kg	294,463
600-243_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	793
600-243_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	18,006
600-243_Shallow	non-Rad	Chrysene	218-01-9	µg/kg	63
600-243_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	6,207
600-243_Shallow	non-Rad	Copper	7440-50-8	µg/kg	53,981
600-243_Shallow	non-Rad	Dibenzofuran	132-64-9	µg/kg	78
600-243_Shallow	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	37
600-243_Shallow	non-Rad	Fluoranthene	206-44-0	µg/kg	79
600-243_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	28
600-243_Shallow	non-Rad	Lead	7439-92-1	µg/kg	40,139
600-243_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	208,289
600-243_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	1,869
600-243_Shallow	non-Rad	Naphthalene	91-20-3	µg/kg	204
600-243_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	21,395
600-243_Shallow	non-Rad	Pyrene	129-00-0	µg/kg	70
600-243_Shallow	non-Rad	Selenium	7782-49-2	µg/kg	5,709
600-243_Shallow	non-Rad	Silver	7440-22-4	µg/kg	500
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	µg/kg	95,319
600-243_Shallow	non-Rad	petroleum hydrocarbons - motor oil (high b	TPH/OILH	µg/kg	334,524
600-243_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	46,986
600-243_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	84,099
600-259_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.034
600-259_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.068
600-259_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.038
600-47_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,300
600-47_Shallow	non-Rad	Barium	7440-39-3	µg/kg	67,000
600-47_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	500
600-47_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	90
600-47_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	5,500
600-47_Shallow	non-Rad	Lead	7439-92-1	µg/kg	3,500
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,303
600-47_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.4
600-47_Shallow	Rad	Uranium-238	U-238	pCi/g	1.6
618-1_Deep	non-Rad	Aluminum	7429-90-5	µg/kg	6.37E+06
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	µg/kg	1,760
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	µg/kg	294
618-1_Deep	non-Rad	Arsenic	7440-38-2	µg/kg	2,550
618-1_Deep	non-Rad	Barium	7440-39-3	µg/kg	299,000
618-1_Deep	non-Rad	Beryllium	7440-41-7	µg/kg	218
618-1_Deep	non-Rad	Boron	7440-42-8	µg/kg	1,360
618-1_Deep	non-Rad	Cadmium	7440-43-9	µg/kg	263
618-1_Deep	non-Rad	Chromium	7440-47-3	µg/kg	7,740
618-1_Deep	non-Rad	Cobalt	7440-48-4	µg/kg	8,600
618-1_Deep	non-Rad	Copper	7440-50-8	µg/kg	46,300
618-1_Deep	non-Rad	Fluoride	16984-48-8	µg/kg	2,800
618-1_Deep	non-Rad	Iron	7439-89-6	µg/kg	2.47E+07
618-1_Deep	non-Rad	Lead	7439-92-1	µg/kg	58,400
618-1_Deep	non-Rad	Lithium	7439-93-2	µg/kg	5,980
618-1_Deep	non-Rad	Manganese	7439-96-5	µg/kg	352,000
618-1_Deep	non-Rad	Mercury	7439-97-6	µg/kg	1,180
618-1_Deep	non-Rad	Molybdenum	7439-98-7	µg/kg	493

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-1_Deep	non-Rad	Nickel	7440-02-0	µg/kg	17,600
618-1_Deep	non-Rad	Nitrate	14797-55-8	µg/kg	1,700
618-1_Deep	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	µg/kg	220
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	89,439
618-1_Deep	non-Rad	Uranium	7440-61-1	µg/kg	37,400
618-1_Deep	non-Rad	Vanadium	7440-62-2	µg/kg	73,000
618-1_Deep	non-Rad	Zinc	7440-66-6	µg/kg	134,000
618-1_Deep	Rad	Cesium-137	10045-97-3	pCi/g	0.46
618-1_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	33
618-1_Deep	Rad	Uranium-235	15117-96-1	pCi/g	2.7
618-1_Deep	Rad	Uranium-238	U-238	pCi/g	32
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	8.57E+06
618-1_Deep_Focused	non-Rad	Antimony	7440-36-0	µg/kg	407
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	1.24E+06
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	99
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	4,580
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	µg/kg	1.87E+06
618-1_Deep_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	323
618-1_Deep_Focused	non-Rad	Boron	7440-42-8	µg/kg	6,620
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	1,030
618-1_Deep_Focused	non-Rad	Chromium	7440-47-3	µg/kg	18,900
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	8,920
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	µg/kg	68,700
618-1_Deep_Focused	non-Rad	Fluoride	16984-48-8	µg/kg	3,300
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	µg/kg	2.41E+07
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	µg/kg	333,000
618-1_Deep_Focused	non-Rad	Lithium	7439-93-2	µg/kg	8,450
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	µg/kg	351,000
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	µg/kg	8,940
618-1_Deep_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	2,140
618-1_Deep_Focused	non-Rad	Nickel	7440-02-0	µg/kg	13,700
618-1_Deep_Focused	non-Rad	Nitrate	14797-55-8	µg/kg	11,900
618-1_Deep_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	µg/kg	1,560
618-1_Deep_Focused	non-Rad	Silver	7440-22-4	µg/kg	1,290
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	196,154
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	µg/kg	209,000
618-1_Deep_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	70,900
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	µg/kg	82,000
618-1_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	6.5
618-1_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	70
618-1_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.5
618-1_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	65
618-1_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	6.21E+06
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	264
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	54
618-1_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,280
618-1_Shallow	non-Rad	Barium	7440-39-3	µg/kg	97,200
618-1_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	188
618-1_Shallow	non-Rad	Boron	7440-42-8	µg/kg	1,190
618-1_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	68
618-1_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	7,930
618-1_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	6,360
618-1_Shallow	non-Rad	Copper	7440-50-8	µg/kg	11,400
618-1_Shallow	non-Rad	Fluoride	16984-48-8	µg/kg	400
618-1_Shallow	non-Rad	Iron	7439-89-6	µg/kg	2.05E+07
618-1_Shallow	non-Rad	Lead	7439-92-1	µg/kg	3,100
618-1_Shallow	non-Rad	Lithium	7439-93-2	µg/kg	6,380
618-1_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	300,000
618-1_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	31
618-1_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	336
618-1_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	8,150
618-1_Shallow	non-Rad	Nitrate	14797-55-8	µg/kg	1,600
618-1_Shallow	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	µg/kg	300
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,224
618-1_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	56,300
618-1_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	42,100
618-1_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9
618-1_Shallow	Rad	Uranium-238	U-238	pCi/g	1.5
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	1.22E+07
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	455
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	35
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	981
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	56

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	6,090
618-1_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	102,000
618-1_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	371
618-1_Shallow_Focused	non-Rad	Boron	7440-42-8	µg/kg	3,740
618-1_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	266
618-1_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	19,500
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	8,600
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	23,800
618-1_Shallow_Focused	non-Rad	Fluoride	16984-48-8	µg/kg	900
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	2.28E+07
618-1_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	6,210
618-1_Shallow_Focused	non-Rad	Lithium	7439-93-2	µg/kg	13,300
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	403,000
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	198
618-1_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	356
618-1_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	16,800
618-1_Shallow_Focused	non-Rad	Nitrate	14797-55-8	µg/kg	3,800
618-1_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	µg/kg	260
618-1_Shallow_Focused	non-Rad	Silver	7440-22-4	µg/kg	1,120
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	24,957
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	µg/kg	7,080
618-1_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	64,700
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	68,100
618-1_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11
618-1_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.99
618-1_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	8.2
618-12_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	8,557
618-12_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	63
618-12_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	60
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	32,092
618-12_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.47
618-12_Shallow	Rad	Uranium-238	U-238	pCi/g	11
618-13_Shallow	non-Rad	Acetone	67-64-1	µg/kg	8.6
618-13_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	6.34E+06
618-13_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	312
618-13_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	3,500
618-13_Shallow	non-Rad	Barium	7440-39-3	µg/kg	74,000
618-13_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	212
618-13_Shallow	non-Rad	Boron	7440-42-8	µg/kg	1,050
618-13_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	63
618-13_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	10,700
618-13_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	6,290
618-13_Shallow	non-Rad	Copper	7440-50-8	µg/kg	11,500
618-13_Shallow	non-Rad	Iron	7439-89-6	µg/kg	2.01E+07
618-13_Shallow	non-Rad	Lead	7439-92-1	µg/kg	3,620
618-13_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	344,000
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	µg/kg	5.1
618-13_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	420
618-13_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	12,400
618-13_Shallow	non-Rad	Tin	7440-31-5	µg/kg	1,050
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,061
618-13_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	1,750
618-13_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	55,800
618-13_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	41,400
618-13_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.038
618-13_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9
618-13_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7
618-13_Shallow_Focused	non-Rad	Acetone	67-64-1	µg/kg	5.9
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	5.22E+06
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	233
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	3,390
618-13_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	57,700
618-13_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	184
618-13_Shallow_Focused	non-Rad	Boron	7440-42-8	µg/kg	960
618-13_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	47
618-13_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	8,740
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	5,710
618-13_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	10,100
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	µg/kg	150
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	1.79E+07
618-13_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	4,940
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	268,000
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	5.0

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-13_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	µg/kg	297
618-13_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	10,000
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	µg/kg	745
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,855
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	µg/kg	1,500
618-13_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	48,600
618-13_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	37,100
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1
618-13_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.96
618-2_Deep	non-Rad	Arsenic	7440-38-2	µg/kg	1,500
618-2_Deep	non-Rad	Barium	7440-39-3	µg/kg	83,300
618-2_Deep	non-Rad	Chromium	7440-47-3	µg/kg	6,700
618-2_Deep	non-Rad	Lead	7439-92-1	µg/kg	6,600
618-2_Deep	non-Rad	Selenium	7782-49-2	µg/kg	780
618-2_Deep	non-Rad	Tin	7440-31-5	µg/kg	2,900
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	491,176
618-2_Deep	non-Rad	Uranium	7440-61-1	µg/kg	501000
618-2_Deep	Rad	Americium-241	14596-10-2	pCi/g	7.9
618-2_Deep	Rad	Cesium-137	10045-97-3	pCi/g	1.0
618-2_Deep	Rad	Plutonium-238	13981-16-3	pCi/g	1.5
618-2_Deep	Rad	Plutonium-239/240	PU-239/240	pCi/g	91
618-2_Deep	Rad	Plutonium-241	14119-32-5	pCi/g	42
618-2_Deep	Rad	Total beta radiostrontium	SR-RAD	pCi/g	12
618-2_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	161
618-2_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.78
618-2_Deep	Rad	Uranium-238	U-238	pCi/g	165
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	6.9
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	3,300
618-2_Deep_Focused	non-Rad	Barium	7440-39-3	µg/kg	109,000
618-2_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	27
618-2_Deep_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	200
618-2_Deep_Focused	non-Rad	Chromium	7440-47-3	µg/kg	10,400
618-2_Deep_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	18
618-2_Deep_Focused	non-Rad	Lead	7439-92-1	µg/kg	6,800
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	µg/kg	1,200
618-2_Deep_Focused	non-Rad	Silver	7440-22-4	µg/kg	600
618-2_Deep_Focused	non-Rad	Tin	7440-31-5	µg/kg	42,500
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	150,259
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	µg/kg	148000
618-2_Deep_Focused	Rad	Americium-241	14596-10-2	pCi/g	9.2
618-2_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.1
618-2_Deep_Focused	Rad	Plutonium-238	13981-16-3	pCi/g	1.6
618-2_Deep_Focused	Rad	Plutonium-239/240	PU-239/240	pCi/g	92
618-2_Deep_Focused	Rad	Plutonium-241	14119-32-5	pCi/g	33
618-2_Deep_Focused	Rad	Total beta radiostrontium	SR-RAD	pCi/g	7.2
618-2_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	48
618-2_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	2.4
618-2_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	50
618-2_Overburden	non-Rad	Arsenic	7440-38-2	µg/kg	2,700
618-2_Overburden	non-Rad	Barium	7440-39-3	µg/kg	74,700
618-2_Overburden	non-Rad	Chromium	7440-47-3	µg/kg	6,600
618-2_Overburden	non-Rad	Lead	7439-92-1	µg/kg	4,300
618-2_Overburden	non-Rad	Selenium	7782-49-2	µg/kg	1,000
618-2_Overburden	non-Rad	Tin	7440-31-5	µg/kg	2,700
618-2_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	1,749
618-2_Overburden	non-Rad	Uranium	7440-61-1	µg/kg	1140.0
618-2_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.058
618-2_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.64
618-2_Overburden	Rad	Uranium-238	U-238	pCi/g	0.59
618-2_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	1,900
618-2_Shallow	non-Rad	Barium	7440-39-3	µg/kg	79,100
618-2_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	7,100
618-2_Shallow	non-Rad	Lead	7439-92-1	µg/kg	5,600
618-2_Shallow	non-Rad	Selenium	7782-49-2	µg/kg	760
618-2_Shallow	non-Rad	Tin	7440-31-5	µg/kg	2,400
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,852
618-2_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	4530.0
618-2_Shallow	Rad	Americium-241	14596-10-2	pCi/g	0.81
618-2_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	2.2
618-2_Shallow	Rad	Plutonium-239/240	PU-239/240	pCi/g	7.7
618-2_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.2
618-2_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.21
618-2_Shallow	Rad	Uranium-238	U-238	pCi/g	2.2

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-2_Staging Pile	non-Rad	Arsenic	7440-38-2	µg/kg	3,063
618-2_Staging Pile	non-Rad	Barium	7440-39-3	µg/kg	67,690
618-2_Staging Pile	non-Rad	Chromium	7440-47-3	µg/kg	6,424
618-2_Staging Pile	non-Rad	Lead	7439-92-1	µg/kg	4,011
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	9,201
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	µg/kg	5021.8
618-2_Staging Pile	Rad	Americium-241	14596-10-2	pCi/g	0.82
618-2_Staging Pile	Rad	Cesium-137	10045-97-3	pCi/g	0.095
618-2_Staging Pile	Rad	Plutonium-239/240	PU-239/240	pCi/g	10
618-2_Staging Pile	Rad	Tritium	10028-17-8	pCi/g	2.3
618-2_Staging Pile	Rad	Uranium-233/234	U-233/234	pCi/g	2.0
618-2_Staging Pile	Rad	Uranium-235	15117-96-1	pCi/g	0.12
618-2_Staging Pile	Rad	Uranium-238	U-238	pCi/g	2.0
618-3_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,800
618-3_Shallow	non-Rad	Barium	7440-39-3	µg/kg	76,500
618-3_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	9,700
618-3_Shallow	non-Rad	Lead	7439-92-1	µg/kg	3,900
618-3_Shallow	non-Rad	Selenium	7782-49-2	µg/kg	659
618-3_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,224
618-3_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	1610.0
618-3_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.68
618-3_Shallow	Rad	Uranium-238	U-238	pCi/g	0.75
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	238,577
618-3_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	80
618-3_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.8
618-3_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	79
618-4_Deep	non-Rad	Arsenic	7440-38-2	µg/kg	2,200
618-4_Deep	non-Rad	Lead	7439-92-1	µg/kg	20,000
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	64,506
618-4_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	20
618-4_Deep	Rad	Uranium-235	15117-96-1	pCi/g	1.1
618-4_Deep	Rad	Uranium-238	U-238	pCi/g	22
618-4_Deep_Focused	non-Rad	2-Butanone	78-93-3	µg/kg	130
618-4_Deep_Focused	non-Rad	Acetone	67-64-1	µg/kg	16
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	1,600
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	2,700
618-4_Deep_Focused	non-Rad	Barium	7440-39-3	µg/kg	104,000
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	4,700
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	1,500
618-4_Deep_Focused	non-Rad	Chromium	7440-47-3	µg/kg	27,700
618-4_Deep_Focused	non-Rad	Diethyl ether	60-29-7	µg/kg	1.0
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	µg/kg	24,900
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	40
618-4_Deep_Focused	non-Rad	Phenol	108-95-2	µg/kg	110
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	µg/kg	24
618-4_Deep_Focused	non-Rad	Toluene	108-88-3	µg/kg	4.8
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	µg/kg	34,000
618-4_Deep_Focused	non-Rad	otal petroleum hydrocarbons - kerosene ran	TPHKEROSENE	µg/kg	42,000
618-4_Deep_Focused	non-Rad	petroleum hydrocarbons - motor oil (high b	TPH/OILH	µg/kg	65
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	20,777
618-4_Deep_Focused	non-Rad	Trichloroethene	79-01-6	µg/kg	2.0
618-4_Deep_Focused	non-Rad	Trichloromonofluoromethane	75-69-4	µg/kg	12
618-4_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	7.2
618-4_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.51
618-4_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	6.9
618-4_Overburden_2	non-Rad	Arsenic	7440-38-2	µg/kg	2,500
618-4_Overburden_2	non-Rad	Lead	7439-92-1	µg/kg	4,700
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,197
618-4_Overburden_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3
618-4_Overburden_2	Rad	Uranium-238	U-238	pCi/g	1.4
618-4_Overburden_3	non-Rad	Lead	7439-92-1	µg/kg	5,000
618-4_Overburden_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	1,171
618-4_Overburden_3	Rad	Uranium-233/234	U-233/234	pCi/g	0.42
618-4_Overburden_3	Rad	Uranium-235	15117-96-1	pCi/g	0.032
618-4_Overburden_3	Rad	Uranium-238	U-238	pCi/g	0.44
618-4_Overburden_4	non-Rad	Lead	7439-92-1	µg/kg	4,800
618-4_Overburden_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,323
618-4_Overburden_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.94
618-4_Overburden_4	Rad	Uranium-238	U-238	pCi/g	0.94
618-4_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	3,200
618-4_Shallow	non-Rad	Lead	7439-92-1	µg/kg	49,000
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	7,456
618-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	3.2

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-4_Shallow	Rad	Uranium-238	U-238	pCi/g	3.1
618-5_Deep	non-Rad	Arsenic	7440-38-2	µg/kg	5,200
618-5_Deep	non-Rad	Cadmium	7440-43-9	µg/kg	470
618-5_Deep	non-Rad	Chromium	7440-47-3	µg/kg	14,700
618-5_Deep	non-Rad	Lead	7439-92-1	µg/kg	82,300
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	26,618
618-5_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	8.6
618-5_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.46
618-5_Deep	Rad	Uranium-238	U-238	pCi/g	8.9
618-5_Deep_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	7.65E+06
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	µg/kg	1,800
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	3,500
618-5_Deep_Focused	non-Rad	Barium	7440-39-3	µg/kg	106,000
618-5_Deep_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	672
618-5_Deep_Focused	non-Rad	Chromium	7440-47-3	µg/kg	6,500
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	10,500
618-5_Deep_Focused	non-Rad	Copper	7440-50-8	µg/kg	21,400
618-5_Deep_Focused	non-Rad	Iron	7439-89-6	µg/kg	3.02E+07
618-5_Deep_Focused	non-Rad	Lead	7439-92-1	µg/kg	6,600
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	µg/kg	579,000
618-5_Deep_Focused	non-Rad	Mercury	7439-97-6	µg/kg	33
618-5_Deep_Focused	non-Rad	Nickel	7440-02-0	µg/kg	11,300
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	µg/kg	2,270
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	36,540
618-5_Deep_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	79,500
618-5_Deep_Focused	non-Rad	Zinc	7440-66-6	µg/kg	65,800
618-5_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11
618-5_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.48
618-5_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	12
618-5_Overburden	non-Rad	Arsenic	7440-38-2	µg/kg	3,400
618-5_Overburden	non-Rad	Cadmium	7440-43-9	µg/kg	170
618-5_Overburden	non-Rad	Chromium	7440-47-3	µg/kg	9,700
618-5_Overburden	non-Rad	Lead	7439-92-1	µg/kg	7,500
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	9,773
618-5_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	4.1
618-5_Overburden	Rad	Uranium-238	U-238	pCi/g	4.6
618-5_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	4,300
618-5_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	11,300
618-5_Shallow	non-Rad	Lead	7439-92-1	µg/kg	6,100
618-5_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,849
618-5_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.94
618-5_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1
618-5_Staging Pile_4	non-Rad	Arsenic	7440-38-2	µg/kg	3,300
618-5_Staging Pile_4	non-Rad	Cadmium	7440-43-9	µg/kg	50
618-5_Staging Pile_4	non-Rad	Chromium	7440-47-3	µg/kg	11,800
618-5_Staging Pile_4	non-Rad	Lead	7439-92-1	µg/kg	5,300
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,364
618-5_Staging Pile_4	Rad	Uranium-233/234	U-233/234	pCi/g	1.2
618-5_Staging Pile_4	Rad	Uranium-238	U-238	pCi/g	1.1
618-5_Staging Pile_5	non-Rad	Arsenic	7440-38-2	µg/kg	2,700
618-5_Staging Pile_5	non-Rad	Chromium	7440-47-3	µg/kg	10,300
618-5_Staging Pile_5	non-Rad	Lead	7439-92-1	µg/kg	3,900
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,326
618-5_Staging Pile_5	Rad	Uranium-233/234	U-233/234	pCi/g	1.5
618-5_Staging Pile_5	Rad	Uranium-235	15117-96-1	pCi/g	0.17
618-5_Staging Pile_5	Rad	Uranium-238	U-238	pCi/g	1.7
618-7_Shallow_1	non-Rad	Aluminum	7429-90-5	µg/kg	5.25E+06
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	µg/kg	560
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	µg/kg	1,891
618-7_Shallow_1	non-Rad	Barium	7440-39-3	µg/kg	68,874
618-7_Shallow_1	non-Rad	Beryllium	7440-41-7	µg/kg	278
618-7_Shallow_1	non-Rad	Cadmium	7440-43-9	µg/kg	65
618-7_Shallow_1	non-Rad	Chromium	7440-47-3	µg/kg	10,227
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	µg/kg	9,152
618-7_Shallow_1	non-Rad	Copper	7440-50-8	µg/kg	16,120
618-7_Shallow_1	non-Rad	Iron	7439-89-6	µg/kg	2.60E+07
618-7_Shallow_1	non-Rad	Lead	7439-92-1	µg/kg	14,567
618-7_Shallow_1	non-Rad	Manganese	7439-96-5	µg/kg	326,067
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	µg/kg	44
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	µg/kg	20,977
618-7_Shallow_1	non-Rad	Tin	7440-31-5	µg/kg	1,547
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	10,814
618-7_Shallow_1	non-Rad	Vanadium	7440-62-2	µg/kg	74,576

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-7_Shallow_1	non-Rad	Zinc	7440-66-6	µg/kg	49,177
618-7_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.067
618-7_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	3.6
618-7_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	0.36
618-7_Shallow_1	Rad	Uranium-238	U-238	pCi/g	3.6
618-7_Shallow_2	non-Rad	Aluminum	7429-90-5	µg/kg	4.97E+06
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	µg/kg	660
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	µg/kg	2,500
618-7_Shallow_2	non-Rad	Barium	7440-39-3	µg/kg	73,800
618-7_Shallow_2	non-Rad	Beryllium	7440-41-7	µg/kg	440
618-7_Shallow_2	non-Rad	Chromium	7440-47-3	µg/kg	6,800
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	µg/kg	9,300
618-7_Shallow_2	non-Rad	Copper	7440-50-8	µg/kg	13,600
618-7_Shallow_2	non-Rad	Iron	7439-89-6	µg/kg	2.60E+07
618-7_Shallow_2	non-Rad	Lead	7439-92-1	µg/kg	2,800
618-7_Shallow_2	non-Rad	Manganese	7439-96-5	µg/kg	364,000
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	µg/kg	20
618-7_Shallow_2	non-Rad	Nickel	7440-02-0	µg/kg	9,700
618-7_Shallow_2	non-Rad	Tin	7440-31-5	µg/kg	1,500
618-7_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	1,574
618-7_Shallow_2	non-Rad	Vanadium	7440-62-2	µg/kg	74,700
618-7_Shallow_2	non-Rad	Zinc	7440-66-6	µg/kg	46,200
618-7_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	0.57
618-7_Shallow_2	Rad	Uranium-238	U-238	pCi/g	0.53
618-7_Shallow_3	non-Rad	Aluminum	7429-90-5	µg/kg	6.74E+06
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	µg/kg	450
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	µg/kg	2,800
618-7_Shallow_3	non-Rad	Barium	7440-39-3	µg/kg	82,500
618-7_Shallow_3	non-Rad	Beryllium	7440-41-7	µg/kg	310
618-7_Shallow_3	non-Rad	Cadmium	7440-43-9	µg/kg	190
618-7_Shallow_3	non-Rad	Chromium	7440-47-3	µg/kg	10,100
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	µg/kg	8,600
618-7_Shallow_3	non-Rad	Copper	7440-50-8	µg/kg	13,600
618-7_Shallow_3	non-Rad	Iron	7439-89-6	µg/kg	2.43E+07
618-7_Shallow_3	non-Rad	Lead	7439-92-1	µg/kg	4,300
618-7_Shallow_3	non-Rad	Manganese	7439-96-5	µg/kg	357,000
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	µg/kg	20
618-7_Shallow_3	non-Rad	Nickel	7440-02-0	µg/kg	10,100
618-7_Shallow_3	non-Rad	Tin	7440-31-5	µg/kg	1,800
618-7_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,852
618-7_Shallow_3	non-Rad	Vanadium	7440-62-2	µg/kg	68,200
618-7_Shallow_3	non-Rad	Zinc	7440-66-6	µg/kg	44,500
618-7_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	1.1
618-7_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.085
618-7_Shallow_3	Rad	Uranium-238	U-238	pCi/g	0.95
618-7_Shallow_4	non-Rad	Aluminum	7429-90-5	µg/kg	5.65E+06
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	µg/kg	250
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	µg/kg	5,200
618-7_Shallow_4	non-Rad	Barium	7440-39-3	µg/kg	57,900
618-7_Shallow_4	non-Rad	Beryllium	7440-41-7	µg/kg	220
618-7_Shallow_4	non-Rad	Cadmium	7440-43-9	µg/kg	90
618-7_Shallow_4	non-Rad	Chromium	7440-47-3	µg/kg	11,400
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	µg/kg	6,700
618-7_Shallow_4	non-Rad	Copper	7440-50-8	µg/kg	13,200
618-7_Shallow_4	non-Rad	Iron	7439-89-6	µg/kg	2.12E+07
618-7_Shallow_4	non-Rad	Lead	7439-92-1	µg/kg	3,000
618-7_Shallow_4	non-Rad	Manganese	7439-96-5	µg/kg	285,000
618-7_Shallow_4	non-Rad	Nickel	7440-02-0	µg/kg	12,900
618-7_Shallow_4	non-Rad	Tin	7440-31-5	µg/kg	710
618-7_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,064
618-7_Shallow_4	non-Rad	Vanadium	7440-62-2	µg/kg	54,800
618-7_Shallow_4	non-Rad	Zinc	7440-66-6	µg/kg	37,000
618-7_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.69
618-7_Shallow_4	Rad	Uranium-238	U-238	pCi/g	0.76
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	µg/kg	150
618-7_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	7.61E+06
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	µg/kg	980
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	6.7
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	4,200
618-7_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	92,800
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	88
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	66
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	52

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	11
618-7_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	370
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	470
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	µg/kg	6,200
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	65,900
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	µg/kg	69
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	11,000
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	25,000
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	µg/kg	45
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	33
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	µg/kg	48
618-7_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	2.87E+07
618-7_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	6,500
618-7_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	425,000
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	20
618-7_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	17,200
618-7_Shallow_Focused	non-Rad	Pyrene	129-00-0	µg/kg	410
618-7_Shallow_Focused	non-Rad	Tin	7440-31-5	µg/kg	1,200
618-7_Shallow_Focused	non-Rad	petroleum hydrocarbons - motor oil (high b	TPH/OILH	µg/kg	680,000
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	19,563
618-7_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	80,500
618-7_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	52,400
618-7_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.010
618-7_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11
618-7_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.97
618-7_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	6.4
618-8_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	4,100
618-8_Shallow	non-Rad	Barium	7440-39-3	µg/kg	97,600
618-8_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	12,400
618-8_Shallow	non-Rad	Lead	7439-92-1	µg/kg	5,100
618-8_Shallow	non-Rad	Selenium	7782-49-2	µg/kg	846
618-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	1,935
618-8_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	1720.0
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2
618-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.73
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	µg/kg	110
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	µg/kg	680
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	µg/kg	390
618-9_Shallow_Focused	non-Rad	Aluminum	7429-90-5	µg/kg	8.57E+06
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	µg/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	µg/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	µg/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	µg/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	µg/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	µg/kg	3,900
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	µg/kg	3,900
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	µg/kg	11,600
618-9_Shallow_Focused	non-Rad	Barium	7440-39-3	µg/kg	90,200
618-9_Shallow_Focused	non-Rad	Beryllium	7440-41-7	µg/kg	330
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	5,200
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	µg/kg	2,700
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	µg/kg	69
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	µg/kg	9.0
618-9_Shallow_Focused	non-Rad	Chromium	7440-47-3	µg/kg	9,700
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	µg/kg	11,400
618-9_Shallow_Focused	non-Rad	Copper	7440-50-8	µg/kg	16,700
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	µg/kg	7,200
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	µg/kg	44
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	µg/kg	760
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	µg/kg	17,000
618-9_Shallow_Focused	non-Rad	Iron	7439-89-6	µg/kg	2.49E+07
618-9_Shallow_Focused	non-Rad	Lead	7439-92-1	µg/kg	7,700
618-9_Shallow_Focused	non-Rad	Manganese	7439-96-5	µg/kg	359,000
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	µg/kg	330
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	µg/kg	2,300
618-9_Shallow_Focused	non-Rad	Nickel	7440-02-0	µg/kg	10,600
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	µg/kg	1.67E+06
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	µg/kg	920
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	µg/kg	9.0
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	8,963
618-9_Shallow_Focused	non-Rad	Trichloroethene	79-01-6	µg/kg	2.0
618-9_Shallow_Focused	non-Rad	Uranium	7440-61-1	µg/kg	3100.0
618-9_Shallow_Focused	non-Rad	Vanadium	7440-62-2	µg/kg	59,300

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
618-9_Shallow_Focused	non-Rad	Zinc	7440-66-6	µg/kg	52,300
618-9_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.071
618-9_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	3.0
628-4_Overburden	non-Rad	Arsenic	7440-38-2	µg/kg	3,374
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	µg/kg	61
628-4_Overburden	non-Rad	Lead	7439-92-1	µg/kg	7,284
628-4_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	2,308
628-4_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.033
628-4_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.87
628-4_Overburden	Rad	Uranium-238	U-238	pCi/g	0.78
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	µg/kg	42
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	1,115
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	243
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	38
628-4_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	3,864
628-4_Shallow	non-Rad	Lead	7439-92-1	µg/kg	99,167
628-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,163
628-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.1
628-4_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.11
628-4_Shallow	Rad	Uranium-238	U-238	pCi/g	1.0
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	µg/kg	117
UPR-300-17_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	6.34E+06
UPR-300-17_Shallow	non-Rad	Anthracene	120-12-7	µg/kg	7.0
UPR-300-17_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	359
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	1,970
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	450
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	113
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,573
UPR-300-17_Shallow	non-Rad	Barium	7440-39-3	µg/kg	81,014
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	59
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	44
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	33
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	10
UPR-300-17_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	240
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	µg/kg	3,903
UPR-300-17_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	173
UPR-300-17_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	13,795
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	µg/kg	39
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	6,688
UPR-300-17_Shallow	non-Rad	Copper	7440-50-8	µg/kg	15,135
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	µg/kg	35
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	µg/kg	2.9
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	5.9
UPR-300-17_Shallow	non-Rad	Iron	7439-89-6	µg/kg	1.90E+07
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	µg/kg	11,240
UPR-300-17_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	285,159
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	69
UPR-300-17_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	412
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	µg/kg	48
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	563,654
UPR-300-17_Shallow	non-Rad	Pyrene	129-00-0	µg/kg	34
UPR-300-17_Shallow	non-Rad	Silver	7440-22-4	µg/kg	340
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	µg/kg	2,950
UPR-300-17_Shallow	non-Rad	petroleum hydrocarbons - motor oil (high b	TPH/OILH	µg/kg	210,420
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	12,420
UPR-300-17_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	52,150
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	157,172
UPR-300-17_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	6.1
UPR-300-17_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.91
UPR-300-17_Shallow	Rad	Uranium-238	U-238	pCi/g	4.0
UPR-300-46_Shallow	non-Rad	Acenaphthene	83-32-9	µg/kg	13
UPR-300-46_Shallow	non-Rad	Aluminum	7429-90-5	µg/kg	6.80E+06
UPR-300-46_Shallow	non-Rad	Antimony	7440-36-0	µg/kg	381
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	µg/kg	879
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	µg/kg	490
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	µg/kg	84
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	µg/kg	2,846
UPR-300-46_Shallow	non-Rad	Barium	7440-39-3	µg/kg	82,137
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	µg/kg	3.9
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	µg/kg	3.4
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	µg/kg	5.4
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	µg/kg	2.8
UPR-300-46_Shallow	non-Rad	Beryllium	7440-41-7	µg/kg	222

Table 4-4. Exposure Point Concentrations for Each Waste Site Decision Unit in the 300 Area Source Operable Unit

Waste Site Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration[a]
UPR-300-46_Shallow	non-Rad	Boron	7440-42-8	µg/kg	1,714
UPR-300-46_Shallow	non-Rad	Cadmium	7440-43-9	µg/kg	95
UPR-300-46_Shallow	non-Rad	Chromium	7440-47-3	µg/kg	10,173
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	µg/kg	5.6
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	µg/kg	6,361
UPR-300-46_Shallow	non-Rad	Copper	7440-50-8	µg/kg	13,151
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	µg/kg	1.3
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	µg/kg	9.6
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	µg/kg	2.2
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	7.6
UPR-300-46_Shallow	non-Rad	Iron	7439-89-6	µg/kg	2.05E+07
UPR-300-46_Shallow	non-Rad	Lead	7439-92-1	µg/kg	7,105
UPR-300-46_Shallow	non-Rad	Manganese	7439-96-5	µg/kg	311,001
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	µg/kg	29
UPR-300-46_Shallow	non-Rad	Molybdenum	7439-98-7	µg/kg	456
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	µg/kg	36
UPR-300-46_Shallow	non-Rad	Nickel	7440-02-0	µg/kg	9,230
UPR-300-46_Shallow	non-Rad	Pyrene	129-00-0	µg/kg	4.4
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,897
UPR-300-46_Shallow	non-Rad	Vanadium	7440-62-2	µg/kg	53,808
UPR-300-46_Shallow	non-Rad	Zinc	7440-66-6	µg/kg	47,945
UPR-300-46_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.070
UPR-300-46_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.8
UPR-300-46_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24
UPR-300-46_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7

Notes:

a. ECF-300NPL-11-0137, *Computation of Exposure Point Concentrations for the 300-FF-2 Source Operable Unit.*

Table 4-5 Hanford Site Soil Background Values

Analyte Name	Analyte Class	Units	Lognormal 90th Percentile Background Value	Source of Background Values
Cesium-137	RAD	pCi/g	1.1	DOE/RL-96-12, Rev.0
Cobalt-60	RAD	pCi/g	0.0084	DOE/RL-96-12, Rev.0
Europium-154	RAD	pCi/g	0.033	DOE/RL-96-12, Rev.0
Europium-155	RAD	pCi/g	0.054	DOE/RL-96-12, Rev.0
Gross beta	RAD	pCi/g	23	DOE/RL-96-12, Rev.0
Plutonium-238	RAD	pCi/g	0.0038	DOE/RL-96-12, Rev.0
Plutonium-239/240	RAD	pCi/g	0.025	DOE/RL-96-12, Rev.0
Potassium-40	RAD	pCi/g	17	DOE/RL-96-12, Rev.0
Radium-226	RAD	pCi/g	0.82	DOE/RL-96-12, Rev.0
Radium-228	RAD	pCi/g	1.82	DOE/RL-96-12, Rev.0
Strontium-90	RAD	pCi/g	0.18	DOE/RL-96-12, Rev.0
Thorium-228	RAD	pCi/g	1.40	DOE/RL-96-12, Rev.0
Thorium-232	RAD	pCi/g	1.3	DOE/RL-96-12, Rev.0
Total beta radiostrontium	RAD	pCi/g	0.18	DOE/RL-96-12, Rev.0
Uranium-233/234	RAD	pCi/g	1.1	DOE/RL-96-12, Rev.0
Uranium-234	RAD	pCi/g	1.1	DOE/RL-96-12, Rev.0
Uranium-235	RAD	pCi/g	0.11	DOE/RL-96-12, Rev.0
Uranium-238	RAD	pCi/g	1.1	DOE/RL-96-12, Rev.0
Aluminum	METAL	µg/kg	1.18E+07	DOE/RL-92-24, V.1, Rev.4
Antimony	METAL	µg/kg	130	ECF-HANFORD-11-0038
Arsenic	METAL	µg/kg	6,470	DOE/RL-92-24, V.1, Rev.4
Barium	METAL	µg/kg	132,000	DOE/RL-92-24, V.1, Rev.4
Beryllium	METAL	µg/kg	1,510	DOE/RL-92-24, V.1, Rev.4
Cadmium	METAL	µg/kg	563	ECF-HANFORD-11-0038
Calcium	METAL	µg/kg	1.72E+07	DOE/RL-92-24, V.1, Rev.4
Chromium	METAL	µg/kg	18,500	DOE/RL-92-24, V.1, Rev.4
Cobalt	METAL	µg/kg	15,700	DOE/RL-92-24, V.1, Rev.4
Copper	METAL	µg/kg	22,000	DOE/RL-92-24, V.1, Rev.4
Iron	METAL	µg/kg	3.26E+07	DOE/RL-92-24, V.1, Rev.4
Lead	METAL	µg/kg	10,200	DOE/RL-92-24, V.1, Rev.4
Lithium	METAL	µg/kg	13300	ECF-HANFORD-11-0038
Magnesium	METAL	µg/kg	7.06E+06	DOE/RL-92-24, V.1, Rev.4
Manganese	METAL	µg/kg	512,000	DOE/RL-92-24, V.1, Rev.4
Mercury	METAL	µg/kg	13	ECF-HANFORD-11-0038
Molybdenum	METAL	µg/kg	470	ECF-HANFORD-11-0038
Nickel	METAL	µg/kg	19,100	DOE/RL-92-24, V.1, Rev.4
Potassium	METAL	µg/kg	2.15E+06	DOE/RL-92-24, V.1, Rev.4
Silver	METAL	µg/kg	167	ECF-HANFORD-11-0038
Sodium	METAL	µg/kg	690,000	DOE/RL-92-24, V.1, Rev.4
Total_U_Isotopes	METAL	µg/kg	3,210	Isotopic Activity Conversion based on DOE/RL-96-12 values
Uranium	METAL	µg/kg	3,210	Isotopic Activity Conversion based on DOE/RL-96-12 values
Vanadium	METAL	µg/kg	85,100	DOE/RL-92-24, V.1, Rev.4
Zinc	METAL	µg/kg	67,800	DOE/RL-92-24, V.1, Rev.4
Ammonia	ANIONS	µg/kg	9,230	DOE/RL-92-24, V.1, Rev.4

Table 4-5 Hanford Site Soil Background Values

Analyte Name	Analyte Class	Units	Lognormal 90th Percentile Background Value	Source of Background Values
Chloride	ANIONS	µg/kg	100,000	DOE/RL-92-24, V.1, Rev.4
Fluoride	ANIONS	µg/kg	2,810	DOE/RL-92-24, V.1, Rev.4
Nitrate	ANIONS	µg/kg	52,000	DOE/RL-92-24, V.1, Rev.4
Phosphate	ANIONS	µg/kg	785	DOE/RL-92-24, V.1, Rev.4
Sulfate	ANIONS	µg/kg	237,000	DOE/RL-92-24, V.1, Rev.4
Boron	METAL	µg/kg	3,890	ECF-HANFORD-11-0038
Selenium	METAL	µg/kg	780	ECF-HANFORD-11-0038
Thallium	METAL	µg/kg	185	ECF-HANFORD-11-0038

Notes:

DOE/RL-92-24, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes.*

DOE/RL-96-12, *Hanford Site Background: Part 2, Soil Background for Radionuclides.*

ECF-HANFORD-11-0038, *Soil Background Data for Interim Use at the Hanford Site.*

Table 7-1. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	39	Yes	22,907	No
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,078	3.7	Yes	2,103	Yes
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,450	1,320	Yes	--[1]	--
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	3.7	Yes	2,103	Yes
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	1,320	Yes	--[1]	--
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.62E+06	1.50E+06	Yes	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	66	Yes	39,438	No
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,420	3.7	Yes	2,103	Yes
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	6,420	4,820	Yes	2.86E+06	No
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.75E+07	151,000	Yes	8.95E+07	No
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	278,000	50,200	Yes	2.98E+07	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	1,320	Yes	--[1]	--
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.78E+06	1.50E+06	Yes	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,580	3.7	Yes	2,103	Yes
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,950	4,820	Yes	2.86E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.84E+07	151,000	Yes	8.95E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	ug/kg	286,000	50,200	Yes	2.98E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	1,320	Yes	--[1]	--
300-18_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	3.7	Yes	2,103	Yes
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,136	1,320	No	--[1]	--
300-259_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	5.99E+06	1.50E+06	Yes	3.88E+08	No
300-259_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,096	3.7	Yes	2,103	No
300-259_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	5,831	4,820	Yes	2.86E+06	No
300-259_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes	8.95E+07	No
300-259_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,874	50,200	Yes	2.98E+07	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	1,320	Yes	--[1]	--
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.17E+06	1.50E+06	Yes	3.88E+08	No
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	475	Yes	270,670	No
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,160	3.7	Yes	2,103	Yes
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	7,430	4,820	Yes	2.86E+06	No
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.04E+07	151,000	Yes	8.95E+07	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	9,060	Yes	5.37E+06	No
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	328,000	50,200	Yes	2.98E+07	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	1,320	Yes	--[1]	--
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.61E+06	1.50E+06	Yes	3.88E+08	No
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	2,211	3.7	Yes	2,103	Yes
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	5,847	4,820	Yes	2.86E+06	No
300-275_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes	8.95E+07	No
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	276,815	50,200	Yes	2.98E+07	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	1,320	Yes	--[1]	--
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	ug/kg	2,500	1,320	Yes	--[1]	--
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	6.24E+06	1.50E+06	Yes	3.88E+08	No
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,761	3.7	Yes	2,103	Yes
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	5,977	4,820	Yes	2.86E+06	No
300-275_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes	8.95E+07	No
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	292,731	50,200	Yes	2.98E+07	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	1,320	Yes	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.32E+06	1.50E+06	Yes	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	39	Yes	22,907	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	66	Yes	39,438	No
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,638	3.7	Yes	2,103	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,273	4,820	Yes	2.86E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.00E+07	151,000	Yes	8.95E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	314,762	50,200	Yes	2.98E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	1,320	Yes	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	1,320	Yes	--[1]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.51E+06	1.50E+06	Yes	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	39	Yes	22,907	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	66	Yes	39,438	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,240	3.7	Yes	2,103	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,640	4,820	Yes	2.86E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.86E+07	151,000	Yes	8.95E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	259,000	50,200	Yes	2.98E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	1,320	Yes	--[1]	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	66	Yes	39,438	No
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	719	Yes	428,690	No
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	3.7	Yes	2,103	Yes
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,027	1,320	No	--[1]	--
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.71E+06	1.50E+06	Yes	3.88E+08	No
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	475	Yes	270,670	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	3.7	Yes	2,103	Yes
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,200	4,820	Yes	2.86E+06	No
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.94E+07	151,000	Yes	8.95E+07	No
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	303,000	50,200	Yes	2.98E+07	No
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	872	1,320	No	--[1]	--
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	1,320	Yes	--[1]	--
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	1.7	Yes	404	No
300-49_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.30E+06	1.50E+06	Yes	3.88E+08	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	66	Yes	39,438	No
300-49_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,291	3.7	Yes	2,103	Yes
300-49_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	7,127	4,820	Yes	2.86E+06	No
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	284,000	Yes	1.68E+08	No
300-49_Overburden	non-Rad	Iron	7439-89-6	ug/kg	2.08E+07	151,000	Yes	8.95E+07	No
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	9,060	Yes	5.37E+06	No
300-49_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	316,669	50,200	Yes	2.98E+07	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	0.056	Yes	7.3	Yes[2]
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	12	Yes	5,344	No
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,066	1,320	Yes	--[1]	--
300-49_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.92E+06	1.50E+06	Yes	3.88E+08	No
300-49_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,431	3.7	Yes	2,103	Yes
300-49_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,323	4,820	Yes	2.86E+06	No
300-49_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.59E+07	151,000	Yes	8.95E+07	No
300-49_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	361,805	50,200	Yes	2.98E+07	No
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,983	1,320	Yes	--[1]	--
300-50_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.68E+06	1.50E+06	Yes	3.88E+08	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	3.7	Yes	2,103	Yes
300-50_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	9,389	4,820	Yes	2.86E+06	No
300-50_Overburden	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes	8.95E+07	No
300-50_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	314,271	50,200	Yes	2.98E+07	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	1,320	Yes	--[1]	--
300-50_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.88E+06	1.50E+06	Yes	3.88E+08	No
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	475	Yes	270,670	No
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	66	Yes	39,438	No
300-50_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,403	3.7	Yes	2,103	Yes
300-50_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,109	4,820	Yes	2.86E+06	No
300-50_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes	8.95E+07	No
300-50_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,120	50,200	Yes	2.98E+07	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	1,320	Yes	--[1]	--

Table 7-1. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,374	1,320	Yes	--[1]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	1,320	Yes	--[1]	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	39	Yes	22,907	No
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	3.7	Yes	2,103	Yes
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	1,320	Yes	--[1]	--
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	1.11E+07	1.50E+06	Yes	3.88E+08	No
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	475	Yes	270,670	No
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	66	Yes	39,438	No
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	5,138	3.7	Yes	2,103	Yes
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	9,703	4,820	Yes	2.86E+06	No
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	284,000	Yes	1.68E+08	No
316-1_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.44E+07	151,000	Yes	8.95E+07	No
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	9,060	Yes	5.37E+06	No
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	392,825	50,200	Yes	2.98E+07	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	1,320	Yes	--[1]	--
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	1,320	Yes	--[1]	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	1,320	Yes	--[1]	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	39	Yes	22,907	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	1,320	Yes	--[1]	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	3.7	Yes	2,103	Yes
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	1,320	Yes	--[1]	--
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	3,070	3.7	Yes	2,103	Yes
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	1,320	Yes	--[1]	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	1.2	Yes	270	No
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	3,180	3.7	Yes	2,103	Yes
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	1,320	Yes	--[1]	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	39	Yes	22,907	No
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	66	Yes	39,438	No
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	3.7	Yes	2,103	Yes
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	1,320	Yes	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.90E+06	1.50E+06	Yes	3.88E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	66	Yes	39,438	No
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,400	3.7	Yes	2,103	Yes
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes	2.86E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	2.8	Yes	1,670	No
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.20E+07	151,000	Yes	8.95E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	349,000	50,200	Yes	2.98E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,402	1,320	Yes	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	2,300	1,320	Yes	--[1]	--
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	475	Yes	270,670	No
600-243_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,159	3.7	Yes	2,103	Yes
600-243_Shallow	non-Rad	Boron	7440-42-8	ug/kg	294,463	205,000	Yes	1.15E+08	No
600-243_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,207	4,820	Yes	2.86E+06	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	9,060	Yes	5.37E+06	No
600-243_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	208,289	50,200	Yes	2.98E+07	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	5,200	Yes	2.99E+06	No
600-47_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,300	3.7	Yes	2,103	Yes
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	1,320	Yes	--[1]	--
618-1_Deep	non-Rad	Aluminum	7429-90-5	ug/kg	6.37E+06	1.50E+06	Yes	3.88E+08	No
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	66	Yes	39,438	No
618-1_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,550	3.7	Yes	2,103	Yes
618-1_Deep	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes	2.86E+06	No
618-1_Deep	non-Rad	Iron	7439-89-6	ug/kg	2.47E+07	151,000	Yes	8.95E+07	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	9,060	Yes	5.37E+06	No
618-1_Deep	non-Rad	Manganese	7439-96-5	ug/kg	352,000	50,200	Yes	2.98E+07	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	1,320	Yes	--[1]	--
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	1,320	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	1.50E+06	Yes	3.88E+08	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	66	Yes	39,438	Yes
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,580	3.7	Yes	2,103	Yes
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	1.01E+06	Yes	3.88E+08	No
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,920	4,820	Yes	2.86E+06	No
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.41E+07	151,000	Yes	8.95E+07	No
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	9,060	Yes	5.37E+06	No
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	351,000	50,200	Yes	2.98E+07	No
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	1,210	Yes	715,780	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	1,320	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	1,320	Yes	--[1]	--
618-1_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.21E+06	1.50E+06	Yes	3.88E+08	No
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	66	Yes	39,438	No
618-1_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,280	3.7	Yes	2,103	Yes
618-1_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,360	4,820	Yes	2.86E+06	No
618-1_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes	8.95E+07	No
618-1_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	300,000	50,200	Yes	2.98E+07	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	1,320	Yes	--[1]	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	1.50E+06	Yes	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	66	Yes	39,438	No
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	6,090	3.7	Yes	2,103	Yes
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes	2.86E+06	No
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.28E+07	151,000	Yes	8.95E+07	No
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	403,000	50,200	Yes	2.98E+07	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	1,320	Yes	--[1]	--
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	1,320	Yes	--[1]	--
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	3.7	Yes	2,103	Yes
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	1,320	Yes	--[1]	--
618-13_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	1.50E+06	Yes	3.88E+08	No
618-13_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	3.7	Yes	2,103	Yes
618-13_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,290	4,820	Yes	2.86E+06	No
618-13_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.01E+07	151,000	Yes	8.95E+07	No
618-13_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	344,000	50,200	Yes	2.98E+07	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	1,320	Yes	--[1]	--
618-13_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,750	1,320	Yes	--[1]	--
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.22E+06	1.50E+06	Yes	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,390	3.7	Yes	2,103	Yes
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,710	4,820	Yes	2.86E+06	No
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes	8.95E+07	No
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	268,000	50,200	Yes	2.98E+07	No
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,855	1,320	Yes	--[1]	--
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	1,500	1,320	Yes	--[1]	--
618-2_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	1,500	3.7	Yes	2,103	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	1,320	Yes	--[1]	--
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	1,320	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	3.7	Yes	2,103	Yes
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	1,320	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	1,320	Yes	--[1]	--
618-2_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	3.7	Yes	2,103	Yes
618-2_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,749	1,320	Yes	--[1]	--

Table 7-1. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-2_Overburden	non-Rad	Uranium	7440-61-1	ug/kg	1,140	1,320	No	--[1]	--
618-2_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	1,900	3.7	Yes	2,103	No
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	1,320	Yes	--[1]	--
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	1,320	Yes	--[1]	--
618-2_Staging Pile	non-Rad	Arsenic	7440-38-2	ug/kg	3,063	3.7	Yes	2,103	Yes
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	1,320	Yes	--[1]	--
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	1,320	Yes	--[1]	--
618-3_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	3.7	Yes	2,103	Yes
618-3_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,224	1,320	Yes	--[1]	--
618-3_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,610	1,320	Yes	--[1]	--
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	1,320	Yes	--[1]	--
618-4_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	3.7	Yes	2,103	Yes
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	9,060	Yes	5.37E+06	No
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	1,320	Yes	--[1]	--
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	66	Yes	39,438	No
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	3.7	Yes	2,103	Yes
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	9,060	Yes	5.37E+06	No
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	22	Yes	2,098	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	0.87	Yes	282	No
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777	1,320	Yes	--[1]	--
618-4_Overburden_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	3.7	Yes	2,103	Yes
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	1,320	Yes	--[1]	--
618-4_Overburden_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,171	1,320	No	--[1]	--
618-4_Overburden_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,323	1,320	Yes	--[1]	--
618-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,200	3.7	Yes	2,103	Yes
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	9,060	Yes	5.37E+06	No
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	1,320	Yes	--[1]	--
618-5_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	3.7	Yes	2,103	Yes
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	9,060	Yes	5.37E+06	No
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	1,320	Yes	--[1]	--
618-5_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.65E+06	1.50E+06	Yes	3.88E+08	No
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	475	Yes	270,670	No
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	3.7	Yes	2,103	Yes
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	10,500	4,820	Yes	2.86E+06	No
618-5_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	3.02E+07	151,000	Yes	8.95E+07	No
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	50,200	Yes	2.98E+07	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	1,320	Yes	--[1]	--
618-5_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,400	3.7	Yes	2,103	Yes
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	1,320	Yes	--[1]	--
618-5_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	3.7	Yes	2,103	Yes
618-5_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,849	1,320	Yes	--[1]	--
618-5_Staging Pile_4	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	3.7	Yes	2,103	Yes
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	1,320	Yes	--[1]	--
618-5_Staging Pile_5	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	3.7	Yes	2,103	Yes
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	1,320	Yes	--[1]	--
618-7_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.25E+06	1.50E+06	Yes	3.88E+08	No
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	475	Yes	270,670	No
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	1,891	3.7	Yes	2,103	No
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	9,152	4,820	Yes	2.86E+06	No
618-7_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	9,060	Yes	5.37E+06	No
618-7_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	326,067	50,200	Yes	2.98E+07	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	1,320	Yes	--[1]	--
618-7_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	4.97E+06	1.50E+06	Yes	3.88E+08	No
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	475	Yes	270,670	No
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	3.7	Yes	2,103	Yes
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	9,300	4,820	Yes	2.86E+06	No
618-7_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	364,000	50,200	Yes	2.98E+07	No
618-7_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,574	1,320	Yes	--[1]	--
618-7_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	6.74E+06	1.50E+06	Yes	3.88E+08	No
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	3.7	Yes	2,103	Yes
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes	2.86E+06	No
618-7_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.43E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	357,000	50,200	Yes	2.98E+07	No
618-7_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,852	1,320	Yes	--[1]	--
618-7_Shallow_4	non-Rad	Aluminum	7429-90-5	ug/kg	5.65E+06	1.50E+06	Yes	3.88E+08	No
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	3.7	Yes	2,103	Yes
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	ug/kg	6,700	4,820	Yes	2.86E+06	No
618-7_Shallow_4	non-Rad	Iron	7439-89-6	ug/kg	2.12E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_4	non-Rad	Manganese	7439-96-5	ug/kg	285,000	50,200	Yes	2.98E+07	No
618-7_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,064	1,320	Yes	--[1]	--
618-7_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.61E+06	1.50E+06	Yes	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	475	Yes	270,670	No
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,200	3.7	Yes	2,103	Yes
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	3,020	Yes	1.79E+06	No
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,000	4,820	Yes	2.86E+06	No
618-7_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.87E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	425,000	50,200	Yes	2.98E+07	No
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	1,320	Yes	--[1]	--
618-8_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,100	3.7	Yes	2,103	Yes
618-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,935	1,320	Yes	--[1]	--
618-8_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,720	1,320	Yes	--[1]	--
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	1.2	Yes	270	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	2.5	Yes	1,495	No
618-9_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	1.50E+06	Yes	3.88E+08	No
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	1,070	Yes	637,870	No
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	9.2	Yes	5,384	No
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	9.2	Yes	5,384	No
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	39	Yes	23,376	No
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	39	Yes	22,907	No
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	66	Yes	39,438	No
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	719	Yes	428,690	No
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	3.7	Yes	2,103	Yes
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	7.5	Yes	1,310	No
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,400	4,820	Yes	2.86E+06	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	8.0	Yes	4,769	No
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	605	Yes	359,200	No
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	125	Yes	67,218	No
618-9_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.49E+07	151,000	Yes	8.95E+07	No
618-9_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	359,000	50,200	Yes	2.98E+07	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	22	Yes	2,098	Yes
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	180,000	Yes	1.36E+07	No
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	0.87	Yes	282	Yes
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	1,320	Yes	--[1]	--
618-9_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	3,100	1,320	Yes	--[1]	--
628-4_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,374	3.7	Yes	2,103	Yes

Table 7-1. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
628-4_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,308	1,320	Yes	--[1]	--
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	39	Yes	23,376	No
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	39	Yes	22,907	No
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	66	Yes	39,438	No
628-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,864	3.7	Yes	2,103	Yes
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	9,060	Yes	5.37E+06	No
628-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,163	1,320	Yes	--[1]	--
UPR-300-17_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	1.50E+06	Yes	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	39	Yes	22,907	No
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	66	Yes	39,438	No
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,573	3.7	Yes	2,103	Yes
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,688	4,820	Yes	2.86E+06	No
UPR-300-17_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes	8.95E+07	No
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	9,060	Yes	5.37E+06	No
UPR-300-17_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	285,159	50,200	Yes	2.98E+07	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	130,000	Yes	7.75E+07	No
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	1,320	Yes	--[1]	--
UPR-300-46_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.80E+06	1.50E+06	Yes	3.88E+08	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	39	Yes	22,907	No
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	66	Yes	39,438	No
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,846	3.7	Yes	2,103	Yes
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,361	4,820	Yes	2.86E+06	No
UPR-300-46_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes	8.95E+07	No

Table 7-1. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
UPR-300-46_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	311,001	50,200	Yes	2.98E+07	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	1,320	Yes	--[1]	--

Notes:

1. Due to the complex geochemistry of uranium in 300 Area OU soils, uranium is considered to be a COPC for groundwater protection without comparison to a STOMP 1D 100:0 soil screening level.

2. The single detection of n-Nitrosodi-n-dipropylamine is an estimated concentration considerably below the method detection limit. Therefore, n-Nitrosodi-n-dipropylamine was not considered to be a COPC for both the protection of groundwater and the protection of surface water.

Table 7-2. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	0.056	Yes	34	Yes
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,078	1.2	Yes	649	Yes
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,450	34,200	No	--[1]	--
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	1.2	Yes	649	Yes
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	34,200	No	--[1]	--
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.62E+06	2.61E+06	Yes	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	0.097	Yes	58	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	40	1.1	Yes	627	No
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,420	1.2	Yes	649	Yes
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	6,420	2,600	Yes	1.55E+06	No
300-109_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,800	4,000	Yes	2.36E+06	No
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.75E+07	151,000	Yes	8.95E+07	No
300-109_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	2,890	1,270	Yes	754,290	No
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	278,000	50,200	Yes	2.98E+07	No
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	22	7.3	Yes	4,295	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	34,200	No	--[1]	--
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.78E+06	2.61E+06	Yes	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	37	0.097	Yes	58	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	19	1.1	Yes	627	No
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,580	1.2	Yes	649	Yes
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,950	2,600	Yes	1.55E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Copper	7440-50-8	ug/kg	11,600	4,000	Yes	2.36E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.84E+07	151,000	Yes	8.95E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Lead	7439-92-1	ug/kg	5,030	1,270	Yes	754,290	No
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	ug/kg	286,000	50,200	Yes	2.98E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	34,200	No	--[1]	--
300-18_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	1.2	Yes	649	Yes
300-18_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,600	1,270	Yes	754,290	No
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,136	34,200	No	--[1]	--
300-259_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	5.99E+06	2.61E+06	Yes	3.88E+08	No
300-259_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,096	1.2	Yes	649	Yes
300-259_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	252	151	Yes	89,473	No
300-259_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	5,831	2,600	Yes	1.55E+06	No
300-259_Shallow	non-Rad	Copper	7440-50-8	ug/kg	10,692	4,000	Yes	2.36E+06	No
300-259_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes	8.95E+07	No
300-259_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,625	1,270	Yes	754,290	No
300-259_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,874	50,200	Yes	2.98E+07	No
300-259_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	10	7.3	Yes	4,295	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	34,200	No	--[1]	--
300-259_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	479,584	55,000	Yes	3.26E+07	No
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.17E+06	2.61E+06	Yes	3.88E+08	No
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	444	Yes	252,620	No
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,160	1.2	Yes	649	Yes
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	7,430	2,600	Yes	1.55E+06	No
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	4,000	Yes	2.36E+06	No
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.04E+07	151,000	Yes	8.95E+07	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	1,270	Yes	754,290	No
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	328,000	50,200	Yes	2.98E+07	No
300-260_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	12	7.3	Yes	4,295	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	34,200	No	--[1]	--
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	77,400	55,000	Yes	3.26E+07	No
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.61E+06	2.61E+06	Yes	3.88E+08	No
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	2,211	1.2	Yes	649	Yes
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	5,847	2,600	Yes	1.55E+06	No
300-275_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	42,923	4,000	Yes	2.36E+06	No
300-275_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes	8.95E+07	No
300-275_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	7,189	1,270	Yes	754,290	No
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	276,815	50,200	Yes	2.98E+07	No
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	17	7.3	Yes	4,295	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	34,200	No	--[1]	--
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	ug/kg	2,500	34,200	No	--[1]	--
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	6.24E+06	2.61E+06	Yes	3.88E+08	No
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,761	1.2	Yes	649	Yes
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	5,977	2,600	Yes	1.55E+06	No
300-275_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	11,596	4,000	Yes	2.36E+06	No
300-275_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes	8.95E+07	No
300-275_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	4,099	1,270	Yes	754,290	No
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	292,731	50,200	Yes	2.98E+07	No
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	28	7.3	Yes	4,295	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	34,200	No	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.32E+06	2.61E+06	Yes	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	ug/kg	10	0.14	Yes	82	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	16	0.058	Yes	34	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	0.056	Yes	34	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	0.097	Yes	58	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	17	1.1	Yes	627	No
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,638	1.2	Yes	649	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,273	2,600	Yes	1.55E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,662	4,000	Yes	2.36E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.00E+07	151,000	Yes	8.95E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,268	1,270	Yes	754,290	No
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	314,762	50,200	Yes	2.98E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	16	7.3	Yes	4,295	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	34,200	No	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	34,200	No	--[1]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.51E+06	2.61E+06	Yes	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	0.056	Yes	34	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	0.097	Yes	58	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	1.1	Yes	627	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,240	1.2	Yes	649	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,640	2,600	Yes	1.55E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,400	4,000	Yes	2.36E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.86E+07	151,000	Yes	8.95E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	3,160	1,270	Yes	754,290	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	259,000	50,200	Yes	2.98E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	34,200	No	--[1]	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	0.097	Yes	58	Yes
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	1.1	Yes	627	Yes
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	1.2	Yes	649	Yes
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,027	34,200	No	--[1]	--
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.71E+06	2.61E+06	Yes	3.88E+08	No
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	444	Yes	252,620	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	1.2	Yes	649	Yes
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,200	2,600	Yes	1.55E+06	No
300-44_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	7,800	4,000	Yes	2.36E+06	No
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.94E+07	151,000	Yes	8.95E+07	No
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	303,000	50,200	Yes	2.98E+07	No
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	872	34,200	No	--[1]	--
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	86	1.1	Yes	627	No

Table 7-2. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	34,200	No	--[1]	--
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	0.65	Yes	157	No
300-49_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.30E+06	2.61E+06	Yes	3.88E+08	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	0.097	Yes	58	Yes
300-49_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,291	1.2	Yes	649	Yes
300-49_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	174	151	Yes	89,473	No
300-49_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	7,127	2,600	Yes	1.55E+06	No
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	4,000	Yes	2.36E+06	No
300-49_Overburden	non-Rad	Iron	7439-89-6	ug/kg	2.08E+07	151,000	Yes	8.95E+07	No
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	1,270	Yes	754,290	No
300-49_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	316,669	50,200	Yes	2.98E+07	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	0.022	Yes	2.9	Yes[2]
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	4.3	Yes	1,979	No
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,066	34,200	No	--[1]	--
300-49_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	141,984	55,000	Yes	3.26E+07	No
300-49_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.92E+06	2.61E+06	Yes	3.88E+08	No
300-49_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,431	1.2	Yes	649	Yes
300-49_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,323	2,600	Yes	1.55E+06	No
300-49_Shallow	non-Rad	Copper	7440-50-8	ug/kg	14,870	4,000	Yes	2.36E+06	No
300-49_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.59E+07	151,000	Yes	8.95E+07	No
300-49_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,629	1,270	Yes	754,290	No
300-49_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	361,805	50,200	Yes	2.98E+07	No
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,983	34,200	No	--[1]	--
300-50_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.68E+06	2.61E+06	Yes	3.88E+08	No
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	33	0.097	Yes	58	No
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	ug/kg	229	1.1	Yes	627	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	1.2	Yes	649	Yes
300-50_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	563	151	Yes	89,473	No
300-50_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	9,389	2,600	Yes	1.55E+06	No
300-50_Overburden	non-Rad	Copper	7440-50-8	ug/kg	64,527	4,000	Yes	2.36E+06	No
300-50_Overburden	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes	8.95E+07	No
300-50_Overburden	non-Rad	Lead	7439-92-1	ug/kg	5,905	1,270	Yes	754,290	No
300-50_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	314,271	50,200	Yes	2.98E+07	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	34,200	No	--[1]	--
300-50_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.88E+06	2.61E+06	Yes	3.88E+08	No
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	444	Yes	252,620	No
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	0.097	Yes	58	Yes
300-50_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,403	1.2	Yes	649	Yes
300-50_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	463	151	Yes	89,473	No
300-50_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,109	2,600	Yes	1.55E+06	No
300-50_Shallow	non-Rad	Copper	7440-50-8	ug/kg	16,820	4,000	Yes	2.36E+06	No
300-50_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes	8.95E+07	No
300-50_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,381	1,270	Yes	754,290	No
300-50_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,120	50,200	Yes	2.98E+07	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	34,200	No	--[1]	--
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,374	34,200	No	--[1]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	34,200	Yes	--[1]	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	0.056	Yes	34	Yes
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	1.2	Yes	649	Yes
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	34,200	Yes	--[1]	--
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	1.11E+07	2.61E+06	Yes	3.88E+08	No
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	444	Yes	252,620	No
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	0.097	Yes	58	Yes
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	5,138	1.2	Yes	649	Yes
316-1_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	474	151	Yes	89,473	No
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	9,703	2,600	Yes	1.55E+06	No
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	4,000	Yes	2.36E+06	No
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	3.2	0.065	Yes	39	No
316-1_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.44E+07	151,000	Yes	8.95E+07	No
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	1,270	Yes	754,290	No
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	392,825	50,200	Yes	2.98E+07	No
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	1,105	7.3	Yes	4,295	No
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	94,656	67,800	Yes	4.03E+07	No
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	ug/kg	1,444	520	Yes	299,460	No
316-1_Shallow_3	non-Rad	Silver	7440-22-4	ug/kg	13,196	4,710	Yes	2.80E+06	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	34,200	Yes	--[1]	--
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	82,016	55,000	Yes	3.26E+07	No
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	0.097	Yes	58	Yes
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	34,200	Yes	--[1]	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	34,200	Yes	--[1]	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	0.056	Yes	34	Yes
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	ug/kg	42	0.097	Yes	58	No
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	ug/kg	110	1.1	Yes	627	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	34,200	Yes	--[1]	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	1.2	Yes	649	Yes
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	34,200	Yes	--[1]	--
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	3,070	1.2	Yes	649	Yes
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	38	20	Yes	12,016	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	34,200	Yes	--[1]	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	0.95	Yes	210	No
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	3,180	1.2	Yes	649	Yes
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	ug/kg	38	11	Yes	6,676	No
316-5_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	3,200	1,270	Yes	754,290	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	34,200	Yes	--[1]	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	0.056	Yes	34	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	0.097	Yes	58	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	1.1	Yes	627	No
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	1.2	Yes	649	Yes
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	34,200	Yes	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	ug/kg	25	0.38	Yes	227	No
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	0.56	0.048	Yes	28	No
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	ug/kg	0.39	0.10	Yes	55	No
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.90E+06	2.61E+06	Yes	3.88E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	0.097	Yes	58	Yes
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,400	1.2	Yes	649	Yes
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes	1.55E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	15,400	4,000	Yes	2.36E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	0.027	Yes	16	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	ug/kg	3.1	2.5	Yes	1,378	No
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.20E+07	151,000	Yes	8.95E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	9,000	1,270	Yes	754,290	No
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	349,000	50,200	Yes	2.98E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	110	7.3	Yes	4,295	No
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,402	34,200	No	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	2,300	34,200	No	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	137,000	55,000	Yes	3.26E+07	No
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	444	Yes	252,620	No
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	27	0.097	Yes	58	No

Table 7-2. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	18	1.1	Yes	627	No
600-243_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,159	1.2	Yes	649	Yes
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	43	20	Yes	12,016	No
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	46	45	Yes	26,802	No
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	151	Yes	89,473	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	11	Yes	6,676	No
600-243_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,207	2,600	Yes	1.55E+06	No
600-243_Shallow	non-Rad	Copper	7440-50-8	ug/kg	53,981	4,000	Yes	2.36E+06	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	1,270	Yes	754,290	No
600-243_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	208,289	50,200	Yes	2.98E+07	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	520	Yes	299,460	No
600-243_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	84,099	55,000	Yes	3.26E+07	No
600-47_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,300	1.2	Yes	649	Yes
600-47_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,500	1,270	Yes	754,290	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	34,200	No	--[1]	--
618-1_Deep	non-Rad	Aluminum	7429-90-5	ug/kg	6.37E+06	2.61E+06	Yes	3.88E+08	No
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	0.097	Yes	58	Yes
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	ug/kg	294	1.1	Yes	627	No
618-1_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,550	1.2	Yes	649	Yes
618-1_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	263	151	Yes	89,473	No
618-1_Deep	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes	1.55E+06	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	4,000	Yes	2.36E+06	No
618-1_Deep	non-Rad	Iron	7439-89-6	ug/kg	2.47E+07	151,000	Yes	8.95E+07	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	1,270	Yes	754,290	No
618-1_Deep	non-Rad	Manganese	7439-96-5	ug/kg	352,000	50,200	Yes	2.98E+07	No
618-1_Deep	non-Rad	Mercury	7439-97-6	ug/kg	1,180	7.3	Yes	4,295	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	34,200	Yes	--[1]	--
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	34,200	Yes	--[1]	--
618-1_Deep	non-Rad	Zinc	7440-66-6	ug/kg	134,000	55,000	Yes	3.26E+07	No
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	2.61E+06	Yes	3.88E+08	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	0.097	Yes	58	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	99	1.1	Yes	627	No
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,580	1.2	Yes	649	Yes
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	504,000	Yes	2.98E+08	No
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,030	151	Yes	89,473	No
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,920	2,600	Yes	1.55E+06	No
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	68,700	4,000	Yes	2.36E+06	No
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.41E+07	151,000	Yes	8.95E+07	No
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	1,270	Yes	754,290	No
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	351,000	50,200	Yes	2.98E+07	No
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	7.3	Yes	4,295	Yes
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	34,200	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	34,200	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	82,000	55,000	Yes	3.26E+07	No
618-1_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.21E+06	2.61E+06	Yes	3.88E+08	No
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	0.097	Yes	58	Yes
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	54	1.1	Yes	627	No
618-1_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,280	1.2	Yes	649	Yes
618-1_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,360	2,600	Yes	1.55E+06	No
618-1_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,400	4,000	Yes	2.36E+06	No
618-1_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes	8.95E+07	No
618-1_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,100	1,270	Yes	754,290	No
618-1_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	300,000	50,200	Yes	2.98E+07	No
618-1_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	31	7.3	Yes	4,295	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	34,200	No	--[1]	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	2.61E+06	Yes	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	455	444	Yes	252,620	No
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	0.056	Yes	34	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	0.097	Yes	58	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	56	1.1	Yes	627	No
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	6,090	1.2	Yes	649	Yes
618-1_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	266	151	Yes	89,473	No
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes	1.55E+06	No
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	4,000	Yes	2.36E+06	No
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.28E+07	151,000	Yes	8.95E+07	No
618-1_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,210	1,270	Yes	754,290	No
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	403,000	50,200	Yes	2.98E+07	No
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	7.3	Yes	4,295	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	34,200	No	--[1]	--
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	34,200	No	--[1]	--
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	68,100	55,000	Yes	3.26E+07	No
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	1.2	Yes	649	Yes
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	34,200	No	--[1]	--
618-13_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	2.61E+06	Yes	3.88E+08	No
618-13_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	1.2	Yes	649	Yes
618-13_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,290	2,600	Yes	1.55E+06	No
618-13_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,500	4,000	Yes	2.36E+06	No
618-13_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.01E+07	151,000	Yes	8.95E+07	No
618-13_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,620	1,270	Yes	754,290	No
618-13_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	344,000	50,200	Yes	2.98E+07	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	34,200	No	--[1]	--
618-13_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,750	34,200	No	--[1]	--
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.22E+06	2.61E+06	Yes	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,390	1.2	Yes	649	Yes
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,710	2,600	Yes	1.55E+06	No
618-13_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,100	4,000	Yes	2.36E+06	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	40	Yes	98,100	No
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes	8.95E+07	No
618-13_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	4,940	1,270	Yes	754,290	No
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	268,000	50,200	Yes	2.98E+07	No
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,855	34,200	No	--[1]	--
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	1,500	34,200	No	--[1]	--
618-2_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	1,500	1.2	Yes	649	Yes
618-2_Deep	non-Rad	Lead	7439-92-1	ug/kg	6,600	1,270	Yes	754,290	No
618-2_Deep	non-Rad	Selenium	7782-49-2	ug/kg	780	520	Yes	299,460	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	34,200	Yes	--[1]	--
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	34,200	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	6.9	0.097	Yes	58	No
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	1.2	Yes	649	Yes
618-2_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	200	151	Yes	89,473	No
618-2_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,800	1,270	Yes	754,290	No
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	1,200	520	Yes	299,460	No
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	34,200	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	34,200	Yes	--[1]	--
618-2_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	1.2	Yes	649	Yes
618-2_Overburden	non-Rad	Lead	7439-92-1	ug/kg	4,300	1,270	Yes	754,290	No
618-2_Overburden	non-Rad	Selenium	7782-49-2	ug/kg	1,000	520	Yes	299,460	No
618-2_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,749	34,200	No	--[1]	--

Table 7-2. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
618-2_Overburden	non-Rad	Uranium	7440-61-1	ug/kg	1,140	34,200	No	--[1]	--
618-2_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	1,900	1.2	Yes	649	Yes
618-2_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,600	1,270	Yes	754,290	No
618-2_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	760	520	Yes	299,460	No
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	34,200	No	--[1]	--
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	34,200	No	--[1]	--
618-2_Staging Pile	non-Rad	Arsenic	7440-38-2	ug/kg	3,063	1.2	Yes	649	Yes
618-2_Staging Pile	non-Rad	Lead	7439-92-1	ug/kg	4,011	1,270	Yes	754,290	No
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	34,200	No	--[1]	--
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	34,200	No	--[1]	--
618-3_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	1.2	Yes	649	Yes
618-3_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,900	1,270	Yes	754,290	No
618-3_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	659	520	Yes	299,460	No
618-3_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,224	34,200	No	--[1]	--
618-3_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,610	34,200	No	--[1]	--
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	34,200	Yes	--[1]	--
618-4_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	1.2	Yes	649	Yes
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	1,270	Yes	754,290	No
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	34,200	Yes	--[1]	--
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	0.097	Yes	58	Yes
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	1.2	Yes	649	Yes
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	2,640	Yes	1.57E+06	No
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	151	Yes	89,473	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	1,270	Yes	754,290	No
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	20	Yes	1,931	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	4.1	Yes	1,348	No
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777	34,200	No	--[1]	--
618-4_Overburden_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	1.2	Yes	649	Yes
618-4_Overburden_2	non-Rad	Lead	7439-92-1	ug/kg	4,700	1,270	Yes	754,290	No
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	34,200	No	--[1]	--
618-4_Overburden_3	non-Rad	Lead	7439-92-1	ug/kg	5,000	1,270	Yes	754,290	No
618-4_Overburden_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,171	34,200	No	--[1]	--
618-4_Overburden_4	non-Rad	Lead	7439-92-1	ug/kg	4,800	1,270	Yes	754,290	No
618-4_Overburden_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,323	34,200	No	--[1]	--
618-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,200	1.2	Yes	649	Yes
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	1,270	Yes	754,290	No
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	34,200	No	--[1]	--
618-5_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	1.2	Yes	649	Yes
618-5_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	470	151	Yes	89,473	No
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	1,270	Yes	754,290	No
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	34,200	No	--[1]	--
618-5_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.65E+06	2.61E+06	Yes	3.88E+08	No
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	444	Yes	252,620	No
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	1.2	Yes	649	Yes
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	10,500	2,600	Yes	1.55E+06	No
618-5_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	21,400	4,000	Yes	2.36E+06	No
618-5_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	3.02E+07	151,000	Yes	8.95E+07	No
618-5_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,600	1,270	Yes	754,290	No
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	50,200	Yes	2.98E+07	No
618-5_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	33	7.3	Yes	4,295	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	520	Yes	299,460	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	34,200	Yes	--[1]	--
618-5_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	65,800	55,000	Yes	3.26E+07	No
618-5_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,400	1.2	Yes	649	Yes
618-5_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	170	151	Yes	89,473	No
618-5_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,500	1,270	Yes	754,290	No
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	34,200	No	--[1]	--
618-5_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	1.2	Yes	649	Yes
618-5_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,100	1,270	Yes	754,290	No
618-5_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,849	34,200	No	--[1]	--
618-5_Staging Pile_4	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	1.2	Yes	649	Yes
618-5_Staging Pile_4	non-Rad	Lead	7439-92-1	ug/kg	5,300	1,270	Yes	754,290	No
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	34,200	No	--[1]	--
618-5_Staging Pile_5	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	1.2	Yes	649	Yes
618-5_Staging Pile_5	non-Rad	Lead	7439-92-1	ug/kg	3,900	1,270	Yes	754,290	No
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	34,200	No	--[1]	--
618-7_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.25E+06	2.61E+06	Yes	3.88E+08	No
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	444	Yes	252,620	No
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	1,891	1.2	Yes	649	Yes
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	9,152	2,600	Yes	1.55E+06	No
618-7_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	16,120	4,000	Yes	2.36E+06	No
618-7_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	1,270	Yes	754,290	No
618-7_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	326,067	50,200	Yes	2.98E+07	No
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	44	7.3	Yes	4,295	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	34,200	No	--[1]	--
618-7_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	4.97E+06	2.61E+06	Yes	3.88E+08	No
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	444	Yes	252,620	No
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	1.2	Yes	649	Yes
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	9,300	2,600	Yes	1.55E+06	No
618-7_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	13,600	4,000	Yes	2.36E+06	No
618-7_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	2,800	1,270	Yes	754,290	No
618-7_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	364,000	50,200	Yes	2.98E+07	No
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes	4,295	No
618-7_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,574	34,200	No	--[1]	--
618-7_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	6.74E+06	2.61E+06	Yes	3.88E+08	No
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	444	Yes	252,620	No
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	1.2	Yes	649	Yes
618-7_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	190	151	Yes	89,473	No
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes	1.55E+06	No
618-7_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	13,600	4,000	Yes	2.36E+06	No
618-7_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.43E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	4,300	1,270	Yes	754,290	No
618-7_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	357,000	50,200	Yes	2.98E+07	No
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes	4,295	No
618-7_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,852	34,200	No	--[1]	--
618-7_Shallow_4	non-Rad	Aluminum	7429-90-5	ug/kg	5.65E+06	2.61E+06	Yes	3.88E+08	No
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	1.2	Yes	649	Yes
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	ug/kg	6,700	2,600	Yes	1.55E+06	No
618-7_Shallow_4	non-Rad	Copper	7440-50-8	ug/kg	13,200	4,000	Yes	2.36E+06	No
618-7_Shallow_4	non-Rad	Iron	7439-89-6	ug/kg	2.12E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_4	non-Rad	Lead	7439-92-1	ug/kg	3,000	1,270	Yes	754,290	No
618-7_Shallow_4	non-Rad	Manganese	7439-96-5	ug/kg	285,000	50,200	Yes	2.98E+07	No
618-7_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,064	34,200	No	--[1]	--
618-7_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.61E+06	2.61E+06	Yes	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	444	Yes	252,620	No
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	0.056	Yes	34	No

Table 7-2. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,200	1.2	Yes	649	Yes
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	20	Yes	12,016	No
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	45	Yes	26,802	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	151	Yes	89,473	No
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	11	Yes	6,676	No
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,000	2,600	Yes	1.55E+06	No
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	4,000	Yes	2.36E+06	No
618-7_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.87E+07	151,000	Yes	8.95E+07	No
618-7_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,500	1,270	Yes	754,290	No
618-7_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	425,000	50,200	Yes	2.98E+07	No
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes	4,295	No
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	34,200	No	--[1]	--
618-8_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,100	1.2	Yes	649	Yes
618-8_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,100	1,270	Yes	754,290	No
618-8_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	846	520	Yes	299,460	No
618-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,935	34,200	No	--[1]	--
618-8_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,720	34,200	No	--[1]	--
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	0.95	Yes	210	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	0.048	Yes	28	Yes
618-9_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	2.61E+06	Yes	3.88E+08	No
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	0.14	Yes	82	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	0.013	Yes	7.9	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	0.013	Yes	7.9	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	0.058	Yes	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	0.056	Yes	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	0.097	Yes	58	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	1.1	Yes	627	Yes
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	1.2	Yes	649	Yes
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	2,640	Yes	1.57E+06	No
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	2,310	Yes	1.36E+06	No
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	0.58	Yes	347	No
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,400	2,600	Yes	1.55E+06	No
618-9_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	16,700	4,000	Yes	2.36E+06	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	0.065	Yes	39	Yes
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	475	Yes	281,770	No
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	56	Yes	30,113	No
618-9_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.49E+07	151,000	Yes	8.95E+07	No
618-9_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	7,700	1,270	Yes	754,290	No
618-9_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	359,000	50,200	Yes	2.98E+07	No
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	330	7.3	Yes	4,295	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	20	Yes	1,931	Yes
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	180,000	Yes	1.36E+07	No
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	4.1	Yes	1,348	No
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	34,200	No	--[1]	--
618-9_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	3,100	34,200	No	--[1]	--
628-4_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,374	1.2	Yes	649	Yes
628-4_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,284	1,270	Yes	754,290	No
628-4_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,308	34,200	No	--[1]	--
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	0.058	Yes	34	Yes
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	0.056	Yes	34	Yes
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	0.097	Yes	58	Yes
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	1.1	Yes	627	No
628-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,864	1.2	Yes	649	Yes
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	1,270	Yes	754,290	No
628-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,163	34,200	No	--[1]	--
UPR-300-17_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	2.61E+06	Yes	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	0.056	Yes	34	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	0.097	Yes	58	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	1.1	Yes	627	No
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,573	1.2	Yes	649	Yes
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	20	Yes	12,016	No
UPR-300-17_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	173	151	Yes	89,473	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	11	Yes	6,676	No
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,688	2,600	Yes	1.55E+06	No
UPR-300-17_Shallow	non-Rad	Copper	7440-50-8	ug/kg	15,135	4,000	Yes	2.36E+06	No
UPR-300-17_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes	8.95E+07	No
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	1,270	Yes	754,290	No
UPR-300-17_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	285,159	50,200	Yes	2.98E+07	No
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	7.3	Yes	4,295	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	67,800	Yes	4.03E+07	No
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	34,200	No	--[1]	--
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	55,000	Yes	3.26E+07	No
UPR-300-46_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.80E+06	2.61E+06	Yes	3.88E+08	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	0.056	Yes	34	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	0.097	Yes	58	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	1.1	Yes	627	No
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,846	1.2	Yes	649	Yes
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,361	2,600	Yes	1.55E+06	No
UPR-300-46_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,151	4,000	Yes	2.36E+06	No
UPR-300-46_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes	8.95E+07	No
UPR-300-46_Shallow	non-Rad	Lead	7439-92-1	ug/kg	7,105	1,270	Yes	754,290	No
UPR-300-46_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	311,001	50,200	Yes	2.98E+07	No
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	29	7.3	Yes	4,295	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	34,200	No	--[1]	--

Notes:

1. Due to the complex geochemistry of uranium in 300 Area OU soils, uranium is considered to be a COPC for surface water protection without comparison to a STOMP 1D 100:0 soil screening level.

2. The single detection of n-Nitrosodi-n-dipropylamine is an estimated concentration considerably below the method detection limit. Therefore, n-Nitrosodi-n-dipropylamine was not considered to be a COPC for both the protection of groundwater and the protection of surface water.

Table 7-3. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Groundwater (With Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	39	Yes	22,907	No
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	3.7	Yes	2,103	Yes
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	1,320	Yes	--[1]	--
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	66	Yes	39,438	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	1,320	Yes	--[1]	--
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	1,320	Yes	--[1]	--
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	1,320	Yes	--[1]	--
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	475	Yes	270,670	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	9,060	Yes	5.37E+06	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	1,320	Yes	--[1]	--
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	1,320	Yes	--[1]	--
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	1,320	Yes	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	39	Yes	22,907	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	66	Yes	39,438	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	1,320	Yes	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	1,320	Yes	--[1]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	39	Yes	22,907	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	66	Yes	39,438	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	1,320	Yes	--[1]	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	66	Yes	39,438	No
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	719	Yes	428,690	No
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	3.7	Yes	2,103	Yes
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	475	Yes	270,670	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	3.7	Yes	2,103	Yes
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	1,320	Yes	--[1]	--
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	1.7	Yes	404	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	66	Yes	39,438	No
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	284,000	Yes	1.68E+08	No
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	9,060	Yes	5.37E+06	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	0.056	Yes	7.3	Yes[2]
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	12	Yes	5,344	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	3.7	Yes	2,103	Yes
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	1,320	Yes	--[1]	--
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	475	Yes	270,670	No
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	66	Yes	39,438	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	1,320	Yes	--[1]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	1,320	Yes	--[1]	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	39	Yes	22,907	No
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	3.7	Yes	2,103	Yes
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	1,320	Yes	--[1]	--
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	475	Yes	270,670	No
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	66	Yes	39,438	No
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	284,000	Yes	1.68E+08	No
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	9,060	Yes	5.37E+06	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	1,320	Yes	--[1]	--
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	1,320	Yes	--[1]	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	1,320	Yes	--[1]	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	39	Yes	22,907	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	1,320	Yes	--[1]	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	3.7	Yes	2,103	Yes
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	1,320	Yes	--[1]	--
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	1,320	Yes	--[1]	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	1.2	Yes	270	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	1,320	Yes	--[1]	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	39	Yes	22,907	No
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	66	Yes	39,438	No
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	1,320	Yes	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	66	Yes	39,438	No
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	2.8	Yes	1,670	No
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	475	Yes	270,670	No
600-243_Shallow	non-Rad	Boron	7440-42-8	ug/kg	294,463	205,000	Yes	1.15E+08	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	9,060	Yes	5.37E+06	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	5,200	Yes	2.99E+06	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	1,320	Yes	--[1]	--
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	66	Yes	39,438	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	9,060	Yes	5.37E+06	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	1,320	Yes	--[1]	--
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	1,320	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	66	Yes	39,438	Yes
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	1.01E+06	Yes	3.88E+08	No
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	9,060	Yes	5.37E+06	No
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	1,210	Yes	715,780	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	1,320	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	1,320	Yes	--[1]	--
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	66	Yes	39,438	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	1,320	Yes	--[1]	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	1.50E+06	Yes	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	66	Yes	39,438	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	1,320	Yes	--[1]	--
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	1,320	Yes	--[1]	--
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	3.7	Yes	2,103	Yes
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	1,320	Yes	--[1]	--
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	1,320	Yes	--[1]	--
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	1,320	Yes	--[1]	--
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	1,320	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	1,320	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	1,320	Yes	--[1]	--
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	1,320	Yes	--[1]	--
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	1,320	Yes	--[1]	--
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	1,320	Yes	--[1]	--
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	1,320	Yes	--[1]	--
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	1,320	Yes	--[1]	--
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	9,060	Yes	5.37E+06	No
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	1,320	Yes	--[1]	--
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	66	Yes	39,438	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	9,060	Yes	5.37E+06	No
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	22	Yes	2,098	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	0.87	Yes	282	No
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777	1,320	Yes	--[1]	--
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	1,320	Yes	--[1]	--
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	9,060	Yes	5.37E+06	No
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	1,320	Yes	--[1]	--
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	9,060	Yes	5.37E+06	No
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	1,320	Yes	--[1]	--
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	475	Yes	270,670	No

Table 7-3. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Groundwater (With Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	50,200	Yes	2.98E+07	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	1,320	Yes	--[1]	--
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	1,320	Yes	--[1]	--
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	1,320	Yes	--[1]	--
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	1,320	Yes	--[1]	--
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	475	Yes	270,670	No
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	9,060	Yes	5.37E+06	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	1,320	Yes	--[1]	--
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	475	Yes	270,670	No
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	475	Yes	270,670	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	3,020	Yes	1.79E+06	No
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	1,320	Yes	--[1]	--
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	1.2	Yes	270	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	2.5	Yes	1,495	No
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	1,070	Yes	637,870	No
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	9.2	Yes	5,384	No
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	9.2	Yes	5,384	No
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	39	Yes	23,376	No
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	39	Yes	22,907	No
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	66	Yes	39,438	No
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	719	Yes	428,690	No
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	3.7	Yes	2,103	Yes
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	7.5	Yes	1,310	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	8.0	Yes	4,769	No
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	605	Yes	359,200	No
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	125	Yes	67,218	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	22	Yes	2,098	Yes
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	180,000	Yes	1.36E+07	No
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	0.87	Yes	282	Yes
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	1,320	Yes	--[1]	--
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	39	Yes	23,376	No
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	39	Yes	22,907	No
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	66	Yes	39,438	No
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	9,060	Yes	5.37E+06	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	39	Yes	22,907	No
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	66	Yes	39,438	No
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	9,060	Yes	5.37E+06	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	130,000	Yes	7.75E+07	No
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	1,320	Yes	--[1]	--
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	39	Yes	22,907	No
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	66	Yes	39,438	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	1,320	Yes	--[1]	--

Notes:

1. Due to the complex geochemistry of uranium in 300 Area OU soils, uranium was considered to be a COPC for groundwater protection without comparison to a STOMP 1D 100:0 soil screening level.

2. The single detection of n-Nitrosodi-n-dipropylamine is an estimated concentration considerably below the method detection limit. Therefore, n-Nitrosodi-n-dipropylamine was not considered to be a COPC for both the protection of groundwater and the protection of surface water.

Table 7-4. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (With Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	0.056	Yes	34	Yes
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	1.2	Yes	649	Yes
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	34,200	No	--[1]	--
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	0.097	Yes	58	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	40	1.1	Yes	627	No
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	22	7.3	Yes	4,295	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	34,200	No	--[1]	--
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	37	0.097	Yes	58	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	19	1.1	Yes	627	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	34,200	No	--[1]	--
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	34,200	No	--[1]	--
300-259_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	479,584	55,000	Yes	3.26E+07	No
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	444	Yes	252,620	No
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	4,000	Yes	2.36E+06	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	1,270	Yes	754,290	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	34,200	No	--[1]	--
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	77,400	55,000	Yes	3.26E+07	No
300-275_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	42,923	4,000	Yes	2.36E+06	No
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	17	7.3	Yes	4,295	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	34,200	No	--[1]	--
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	28	7.3	Yes	4,295	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	34,200	No	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	ug/kg	10	0.14	Yes	82	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	16	0.058	Yes	34	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	0.056	Yes	34	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	0.097	Yes	58	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	17	1.1	Yes	627	No
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	16	7.3	Yes	4,295	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	34,200	No	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	34,200	No	--[1]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	0.056	Yes	34	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	0.097	Yes	58	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	1.1	Yes	627	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	34,200	No	--[1]	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	0.097	Yes	58	Yes
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	1.1	Yes	627	Yes
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	1.2	Yes	649	Yes
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	444	Yes	252,620	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	1.2	Yes	649	Yes
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	86	1.1	Yes	627	No
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	34,200	No	--[1]	--
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	0.65	Yes	157	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	0.097	Yes	58	Yes
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	4,000	Yes	2.36E+06	No
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	1,270	Yes	754,290	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	0.022	Yes	2.9	Yes[2]
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	4.3	Yes	1,979	No
300-49_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	141,984	55,000	Yes	3.26E+07	No
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	33	0.097	Yes	58	No
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	ug/kg	229	1.1	Yes	627	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	1.2	Yes	649	Yes
300-50_Overburden	non-Rad	Copper	7440-50-8	ug/kg	64,527	4,000	Yes	2.36E+06	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	34,200	No	--[1]	--
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	444	Yes	252,620	No
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	0.097	Yes	58	Yes
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	34,200	No	--[1]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	34,200	Yes	--[1]	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	0.056	Yes	34	Yes
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	1.2	Yes	649	Yes
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	34,200	Yes	--[1]	--
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	444	Yes	252,620	No
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	0.097	Yes	58	Yes
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	4,000	Yes	2.36E+06	No
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	3.2	0.065	Yes	39	No
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	1,270	Yes	754,290	No
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	1,105	7.3	Yes	4,295	No
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	94,656	67,800	Yes	4.03E+07	No
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	ug/kg	1,444	520	Yes	299,460	No
316-1_Shallow_3	non-Rad	Silver	7440-22-4	ug/kg	13,196	4,710	Yes	2.80E+06	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	34,200	Yes	--[1]	--
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	82,016	55,000	Yes	3.26E+07	No
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	0.097	Yes	58	Yes
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	34,200	Yes	--[1]	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	34,200	Yes	--[1]	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	0.056	Yes	34	Yes
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	ug/kg	42	0.097	Yes	58	No
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	ug/kg	110	1.1	Yes	627	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	34,200	Yes	--[1]	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	1.2	Yes	649	Yes
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	34,200	Yes	--[1]	--
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	38	20	Yes	12,016	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	34,200	Yes	--[1]	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	0.95	Yes	210	No
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	ug/kg	38	11	Yes	6,676	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	34,200	Yes	--[1]	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	0.056	Yes	34	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	0.097	Yes	58	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	1.1	Yes	627	No
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	34,200	Yes	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	ug/kg	25	0.38	Yes	227	No
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	0.56	0.048	Yes	28	No
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	ug/kg	0.39	0.10	Yes	55	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	0.097	Yes	58	Yes
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	0.027	Yes	16	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	ug/kg	3.1	2.5	Yes	1,378	No
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	110	7.3	Yes	4,295	No
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	137,000	55,000	Yes	3.26E+07	No
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	444	Yes	252,620	No
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	27	0.097	Yes	58	No
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	18	1.1	Yes	627	No
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	43	20	Yes	12,016	No

Table 7-4. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (With Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	46	45	Yes	26,802	No
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	151	Yes	89,473	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	11	Yes	6,676	No
600-243_Shallow	non-Rad	Copper	7440-50-8	ug/kg	53,981	4,000	Yes	2.36E+06	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	1,270	Yes	754,290	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	520	Yes	299,460	No
600-243_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	84,099	55,000	Yes	3.26E+07	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	34,200	No	--[1]	--
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	0.097	Yes	58	Yes
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	ug/kg	294	1.1	Yes	627	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	4,000	Yes	2.36E+06	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	1,270	Yes	754,290	No
618-1_Deep	non-Rad	Mercury	7439-97-6	ug/kg	1,180	7.3	Yes	4,295	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	34,200	Yes	--[1]	--
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	34,200	Yes	--[1]	--
618-1_Deep	non-Rad	Zinc	7440-66-6	ug/kg	134,000	55,000	Yes	3.26E+07	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	0.097	Yes	58	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	99	1.1	Yes	627	No
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	504,000	Yes	2.98E+08	No
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,030	151	Yes	89,473	No
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	68,700	4,000	Yes	2.36E+06	No
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	1,270	Yes	754,290	No
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	7.3	Yes	4,295	Yes
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	34,200	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	34,200	Yes	--[1]	--
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	82,000	55,000	Yes	3.26E+07	No
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	0.097	Yes	58	Yes
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	54	1.1	Yes	627	No
618-1_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	31	7.3	Yes	4,295	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	34,200	No	--[1]	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	2.61E+06	Yes	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	455	444	Yes	252,620	No
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	0.056	Yes	34	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	0.097	Yes	58	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	56	1.1	Yes	627	No
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	4,000	Yes	2.36E+06	No
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	7.3	Yes	4,295	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	34,200	No	--[1]	--
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	34,200	No	--[1]	--
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	68,100	55,000	Yes	3.26E+07	No
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	1.2	Yes	649	Yes
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	34,200	No	--[1]	--
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	34,200	No	--[1]	--
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	40	Yes	98,100	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	34,200	Yes	--[1]	--
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	34,200	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	6.9	0.097	Yes	58	No
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	1,200	520	Yes	299,460	No
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	34,200	Yes	--[1]	--
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	34,200	Yes	--[1]	--
618-2_Overburden	non-Rad	Selenium	7782-49-2	ug/kg	1,000	520	Yes	299,460	No
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	34,200	No	--[1]	--
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	34,200	No	--[1]	--
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	34,200	No	--[1]	--
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	34,200	No	--[1]	--
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	34,200	Yes	--[1]	--
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	1,270	Yes	754,290	No
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	34,200	Yes	--[1]	--
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	0.097	Yes	58	Yes
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	2,640	Yes	1.57E+06	No
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	151	Yes	89,473	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	1,270	Yes	754,290	No
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	20	Yes	1,931	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	4.1	Yes	1,348	No
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777	34,200	No	--[1]	--
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	34,200	No	--[1]	--
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	1,270	Yes	754,290	No
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	34,200	No	--[1]	--
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	1,270	Yes	754,290	No
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	34,200	No	--[1]	--
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	444	Yes	252,620	No
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	50,200	Yes	2.98E+07	No
618-5_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	33	7.3	Yes	4,295	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	520	Yes	299,460	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	34,200	Yes	--[1]	--
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	34,200	No	--[1]	--
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	34,200	No	--[1]	--
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	34,200	No	--[1]	--
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	444	Yes	252,620	No
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	1,270	Yes	754,290	No
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	44	7.3	Yes	4,295	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	34,200	No	--[1]	--
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	444	Yes	252,620	No
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes	4,295	No
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	444	Yes	252,620	No
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes	4,295	No
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	444	Yes	252,620	No
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	0.056	Yes	34	No
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	20	Yes	12,016	No
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	45	Yes	26,802	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	151	Yes	89,473	No
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	11	Yes	6,676	No
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	4,000	Yes	2.36E+06	No
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes	4,295	No
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	34,200	No	--[1]	--
618-8_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	846	520	Yes	299,460	No
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	0.95	Yes	210	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	0.048	Yes	28	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	0.14	Yes	82	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	0.013	Yes	7.9	Yes

Table 7-4. Summary of Analytes that Exceed MTCA Fixed Parameter Three-Phase or STOMP 1D Soil Screening Levels Protective of Surface Water (With Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	0.013	Yes	7.9	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	0.058	Yes	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	0.056	Yes	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	0.097	Yes	58	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	1.1	Yes	627	Yes
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	1.2	Yes	649	Yes
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	2,640	Yes	1.57E+06	No
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	2,310	Yes	1.36E+06	No
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	0.58	Yes	347	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	0.065	Yes	39	Yes
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	475	Yes	281,770	No
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	56	Yes	30,113	No
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	330	7.3	Yes	4,295	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	20	Yes	1,931	Yes
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	180,000	Yes	1.36E+07	No
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	4.1	Yes	1,348	No
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	34,200	No	--[1]	--
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	0.058	Yes	34	Yes
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	0.056	Yes	34	Yes
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	0.097	Yes	58	Yes
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	1.1	Yes	627	No
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	1,270	Yes	754,290	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	0.056	Yes	34	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	0.097	Yes	58	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	1.1	Yes	627	No
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	20	Yes	12,016	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	11	Yes	6,676	No
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	1,270	Yes	754,290	No
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	7.3	Yes	4,295	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	67,800	Yes	4.03E+07	No
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	34,200	No	--[1]	--
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	55,000	Yes	3.26E+07	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	0.056	Yes	34	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	0.097	Yes	58	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	1.1	Yes	627	No
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	29	7.3	Yes	4,295	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	34,200	No	--[1]	--

Notes:

1. Due to the complex geochemistry of uranium in 300 Area OU soils, uranium was considered to be a COPC for surface water protection without comparison to a STOMP 1D 100:0 soil screening level.

2. The single detection of n-Nitrosodi-n-dipropylamine is an estimated concentration considerably below the method detection limit. Therefore, n-Nitrosodi-n-dipropylamine was not considered to be a COPC for both the protection of groundwater and the protection of surface water.

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	39	Yes
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,078	3.7	Yes
300 ASH PITS_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	96	13,200	No
300 ASH PITS_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	76	12,900	No
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,450	1,320	Yes
300 ASH PITS_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.039	--	--
300 ASH PITS_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--	--
300 VTS_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.029	--	--
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	3.7	Yes
300-10_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	200	13,200	No
300-10_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	230	12,900	No
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	1,320	Yes
300-10_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.16	--	--
300-10_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.041	--	--
300-10_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--	--
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.62E+06	1.50E+06	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	66	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	40	719	No
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,420	3.7	Yes
300-109_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	63,300	1.01E+06	No
300-109_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.2	1,320	No
300-109_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	2.3	1,930	No
300-109_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	180	63,200	No
300-109_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	632	205,000	No
300-109_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	59	3,020	No
300-109_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,950	400,000	No
300-109_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	1.8	4,800	No
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	6,420	4,820	Yes
300-109_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,800	284,000	No
300-109_Shallow_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	14	8,320	No
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.75E+07	151,000	Yes
300-109_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	2,890	9,060	No
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	278,000	50,200	Yes
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	22	1,210	No
300-109_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	341	32,300	No
300-109_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,490	130,000	No
300-109_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	1.6	655,000	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	1,320	Yes
300-109_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	47,600	1.60E+06	No
300-109_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	34,700	2.90E+06	No
300-109_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--	--
300-109_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--	--
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.78E+06	1.50E+06	Yes
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	37	66	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	19	719	No
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,580	3.7	Yes
300-109_Staging Pile Area_Focused	non-Rad	Barium	7440-39-3	ug/kg	72,700	1.01E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	2.1	863	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.3	1,320	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.3	1,930	No
300-109_Staging Pile Area_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	203	63,200	No
300-109_Staging Pile Area_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,060	205,000	No
300-109_Staging Pile Area_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	66	3,020	No
300-109_Staging Pile Area_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,170	400,000	No
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,950	4,820	Yes
300-109_Staging Pile Area_Focused	non-Rad	Copper	7440-50-8	ug/kg	11,600	284,000	No
300-109_Staging Pile Area_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	5.1	631,000	No
300-109_Staging Pile Area_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	29	8,320	No
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.84E+07	151,000	Yes
300-109_Staging Pile Area_Focused	non-Rad	Lead	7439-92-1	ug/kg	5,030	9,060	No
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	ug/kg	286,000	50,200	Yes
300-109_Staging Pile Area_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	408	32,300	No
300-109_Staging Pile Area_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,570	130,000	No
300-109_Staging Pile Area_Focused	non-Rad	Pyrene	129-00-0	ug/kg	7.0	655,000	No
300-109_Staging Pile Area_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,450	2.50E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	1,320	Yes
300-109_Staging Pile Area_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	45,100	1.60E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Zinc	7440-66-6	ug/kg	48,800	2.90E+06	No
300-109_Staging Pile Area_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	2.5	--	--
300-109_Staging Pile Area_Focused	Rad	Uranium-238	U-238	pCi/g	2.3	--	--
300-18_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	3.7	Yes
300-18_Shallow	non-Rad	Barium	7440-39-3	ug/kg	63,400	1.01E+06	No
300-18_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	650	63,200	No
300-18_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	40	3,020	No
300-18_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	6,900	400,000	No
300-18_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,600	9,060	No
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,136	1,320	No
300-18_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.65	--	--
300-18_Shallow	Rad	Uranium-238	U-238	pCi/g	0.41	--	--
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	120,000	--	--
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	230,000	--	--
300-23_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	52,000	--	--
300-259_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	5.99E+06	1.50E+06	Yes
300-259_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	322	475	No
300-259_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,096	3.7	Yes
300-259_Shallow	non-Rad	Barium	7440-39-3	ug/kg	75,232	1.01E+06	No
300-259_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	226	63,200	No

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
300-259_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,303	205,000	No
300-259_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	252	3,020	No
300-259_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,901	400,000	No
300-259_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	5,831	4,820	Yes
300-259_Shallow	non-Rad	Copper	7440-50-8	ug/kg	10,692	284,000	No
300-259_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes
300-259_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,625	9,060	No
300-259_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,874	50,200	Yes
300-259_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	10	1,210	No
300-259_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	303	32,300	No
300-259_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,751	130,000	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	1,320	Yes
300-259_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	42,626	1.60E+06	No
300-259_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	479,584	2.90E+06	No
300-259_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.6	--	--
300-259_Shallow	Rad	Uranium-238	U-238	pCi/g	1.3	--	--
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.17E+06	1.50E+06	Yes
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	475	Yes
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,160	3.7	Yes
300-260_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	122,000	1.01E+06	No
300-260_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	239	63,200	No
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	205,000	No
300-260_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	110	3,020	No
300-260_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,890	400,000	No
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	7,430	4,820	Yes
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	284,000	No
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.04E+07	151,000	Yes
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	9,060	Yes
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	328,000	50,200	Yes
300-260_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	12	1,210	No
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	32,300	No
300-260_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,200	130,000	No
300-260_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	206	144,000	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	1,320	Yes
300-260_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,000	1.60E+06	No
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	77,400	2.90E+06	No
300-260_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.25	--	--
300-260_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.3	--	--
300-272_Overburden_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	13,100	--	--
300-272_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	43,100	--	--
300-275_Shallow_1	non-Rad	Acenaphthene	83-32-9	ug/kg	960	121,000	No
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.61E+06	1.50E+06	Yes
300-275_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	260	475	No
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	2,211	3.7	Yes
300-275_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	75,261	1.01E+06	No
300-275_Shallow_1	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.3	1,320	No
300-275_Shallow_1	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.9	1,930	No
300-275_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	452	63,200	No
300-275_Shallow_1	non-Rad	Boron	7440-42-8	ug/kg	1,466	205,000	No
300-275_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	83	3,020	No
300-275_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	8,022	400,000	No
300-275_Shallow_1	non-Rad	Chrysene	218-01-9	ug/kg	2.2	4,800	No
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	5,847	4,820	Yes
300-275_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	42,923	284,000	No
300-275_Shallow_1	non-Rad	Fluoranthene	206-44-0	ug/kg	2,300	631,000	No
300-275_Shallow_1	non-Rad	Fluorene	86-73-7	ug/kg	81	101,000	No
300-275_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes
300-275_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	7,189	9,060	No
300-275_Shallow_1	non-Rad	Lithium	7439-93-2	ug/kg	6,686	32,100	No
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	276,815	50,200	Yes
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	17	1,210	No
300-275_Shallow_1	non-Rad	Molybdenum	7439-98-7	ug/kg	378	32,300	No
300-275_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	9,461	130,000	No
300-275_Shallow_1	non-Rad	Silver	7440-22-4	ug/kg	121	144,000	No
300-275_Shallow_1	non-Rad	Strontium	7440-24-6	ug/kg	20,196	4.84E+06	No
300-275_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,483	2.50E+07	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	1,320	Yes
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	ug/kg	2,500	1,320	Yes
300-275_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	45,128	1.60E+06	No
300-275_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	41,014	2.90E+06	No
300-275_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.046	--	--
300-275_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	7.7	--	--
300-275_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.0	--	--
300-275_Shallow_1	Rad	Uranium-238	U-238	pCi/g	7.4	--	--
300-275_Shallow_2	non-Rad	Acenaphthene	83-32-9	ug/kg	3.6	121,000	No
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	6.24E+06	1.50E+06	Yes
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,761	3.7	Yes
300-275_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	68,607	1.01E+06	No
300-275_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	254	63,200	No
300-275_Shallow_2	non-Rad	Boron	7440-42-8	ug/kg	1,147	205,000	No
300-275_Shallow_2	non-Rad	Cadmium	7440-43-9	ug/kg	144	3,020	No
300-275_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	8,994	400,000	No
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	5,977	4,820	Yes
300-275_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	11,596	284,000	No
300-275_Shallow_2	non-Rad	Fluoranthene	206-44-0	ug/kg	56	631,000	No
300-275_Shallow_2	non-Rad	Fluorene	86-73-7	ug/kg	2.6	101,000	No
300-275_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
300-275_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	4,099	9,060	No
300-275_Shallow_2	non-Rad	Lithium	7439-93-2	ug/kg	7,067	32,100	No
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	292,731	50,200	Yes
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	28	1,210	No
300-275_Shallow_2	non-Rad	Molybdenum	7439-98-7	ug/kg	404	32,300	No
300-275_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,593	130,000	No
300-275_Shallow_2	non-Rad	Strontium	7440-24-6	ug/kg	27,081	4.84E+06	No
300-275_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,149	2.50E+07	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	1,320	Yes
300-275_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	51,632	1.60E+06	No
300-275_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	41,245	2.90E+06	No
300-275_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--	--
300-275_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--	--
300-275_Shallow_2	Rad	Uranium-238	U-238	pCi/g	1.2	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.32E+06	1.50E+06	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	ug/kg	10	1,070	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	16	39	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	39	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	66	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	17	719	No
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,638	3.7	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Barium	7440-39-3	ug/kg	72,411	1.01E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	256	63,200	No
300-33, 300-41, 300-256_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,484	205,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	228	12,900	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	94	3,020	No
300-33, 300-41, 300-256_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	8,781	400,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,273	4,820	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,662	284,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	1,651	1.44E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.00E+07	151,000	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,268	9,060	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	5,495	32,100	No
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	314,762	50,200	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	16	1,210	No
300-33, 300-41, 300-256_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	2.9	22	No
300-33, 300-41, 300-256_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	486	32,300	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,880	130,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	8,617	180,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Silver	7440-22-4	ug/kg	782	144,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	1,320	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	1,320	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,694	1.60E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,462	2.90E+06	No
300-33, 300-41, 300-256_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.1	--	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.34	--	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-238	U-238	pCi/g	2.1	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.51E+06	1.50E+06	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	39	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	66	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	719	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,240	3.7	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	64,600	1.01E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	169	63,200	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,030	205,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	100	3,020	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,080	400,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,640	4,820	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,400	284,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	1,300	1.44E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.86E+07	151,000	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	3,160	9,060	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	6,580	32,100	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	259,000	50,200	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2.2	22	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	275	32,300	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,040	130,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	17,900	180,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	1,320	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	51,400	1.60E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	38,900	2.90E+06	No
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	3.0	--	--
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	2.2	--	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	66	Yes
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	719	Yes
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	3.7	Yes
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,027	1,320	No
300-44_Overburden_Focused	Rad	Uranium-238	U-238	pCi/g	0.35	--	--
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.71E+06	1.50E+06	Yes
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	475	Yes
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	3.7	Yes
300-44_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	75,200	1.01E+06	No
300-44_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	480	63,200	No
300-44_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,300	400,000	No
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,200	4,820	Yes
300-44_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	7,800	284,000	No
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.94E+07	151,000	Yes

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	303,000	50,200	Yes
300-44_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,600	130,000	No
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	872	1,320	No
300-44_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	43,200	1.60E+06	No
300-44_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,800	2.90E+06	No
300-44_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.29	--	--
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	86	719	No
300-45_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	290	13,200	No
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	1,320	Yes
300-45_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.023	--	--
300-45_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.061	--	--
300-45_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.2	--	--
300-49_Overburden	non-Rad	1,2,4-Trichlorobenzene	120-82-1	ug/kg	31	56	No
300-49_Overburden	non-Rad	1,4-Dichlorobenzene	106-46-7	ug/kg	29	134	No
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	1.7	Yes
300-49_Overburden	non-Rad	2-Chlorophenol	95-57-8	ug/kg	51	472	No
300-49_Overburden	non-Rad	4-Chloro-3-methylphenol	59-50-7	ug/kg	46	22,100	No
300-49_Overburden	non-Rad	Acenaphthene	83-32-9	ug/kg	31	121,000	No
300-49_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.30E+06	1.50E+06	Yes
300-49_Overburden	non-Rad	Antimony	7440-36-0	ug/kg	232	475	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	66	Yes
300-49_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,291	3.7	Yes
300-49_Overburden	non-Rad	Barium	7440-39-3	ug/kg	76,068	1.01E+06	No
300-49_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	201	63,200	No
300-49_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	174	3,020	No
300-49_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	18,106	400,000	No
300-49_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	7,127	4,820	Yes
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	284,000	Yes
300-49_Overburden	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	52	56,600	No
300-49_Overburden	non-Rad	Iron	7439-89-6	ug/kg	2.08E+07	151,000	Yes
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	9,060	Yes
300-49_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	316,669	50,200	Yes
300-49_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	13,035	130,000	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	0.056	Yes
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	12	Yes
300-49_Overburden	non-Rad	Phenol	108-95-2	ug/kg	50	11,000	No
300-49_Overburden	non-Rad	Pyrene	129-00-0	ug/kg	40	655,000	No
300-49_Overburden	non-Rad	Silver	7440-22-4	ug/kg	703	144,000	No
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,066	1,320	Yes
300-49_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	50,380	1.60E+06	No
300-49_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	141,984	2.90E+06	No
300-49_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	1.0	--	--
300-49_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.057	--	--
300-49_Overburden	Rad	Uranium-238	U-238	pCi/g	1.0	--	--
300-49_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.92E+06	1.50E+06	Yes
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	475	No
300-49_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,431	3.7	Yes
300-49_Shallow	non-Rad	Barium	7440-39-3	ug/kg	89,874	1.01E+06	No
300-49_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	303	63,200	No
300-49_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,170	400,000	No
300-49_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,323	4,820	Yes
300-49_Shallow	non-Rad	Copper	7440-50-8	ug/kg	14,870	284,000	No
300-49_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.59E+07	151,000	Yes
300-49_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,629	9,060	No
300-49_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	361,805	50,200	Yes
300-49_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	10,664	130,000	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	144,000	No
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,983	1,320	Yes
300-49_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	58,672	1.60E+06	No
300-49_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	54,651	2.90E+06	No
300-49_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.15	--	--
300-49_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--	--
300-49_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--	--
300-49_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	--	--
300-50_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.68E+06	1.50E+06	Yes
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	33	66	No
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	ug/kg	229	719	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	3.7	Yes
300-50_Overburden	non-Rad	Barium	7440-39-3	ug/kg	117,742	1.01E+06	No
300-50_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	325	63,200	No
300-50_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	563	3,020	No
300-50_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	12,197	400,000	No
300-50_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	9,389	4,820	Yes
300-50_Overburden	non-Rad	Copper	7440-50-8	ug/kg	64,527	284,000	No
300-50_Overburden	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes
300-50_Overburden	non-Rad	Lead	7439-92-1	ug/kg	5,905	9,060	No
300-50_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	314,271	50,200	Yes
300-50_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	15,229	130,000	No
300-50_Overburden	non-Rad	Silver	7440-22-4	ug/kg	1,202	144,000	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	1,320	Yes
300-50_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	45,243	1.60E+06	No
300-50_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	45,889	2.90E+06	No
300-50_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.056	--	--
300-50_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	6.0	--	--
300-50_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.45	--	--
300-50_Overburden	Rad	Uranium-238	U-238	pCi/g	6.0	--	--
300-50_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.88E+06	1.50E+06	Yes

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	475	Yes
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	66	Yes
300-50_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,403	3.7	Yes
300-50_Shallow	non-Rad	Barium	7440-39-3	ug/kg	103,029	1.01E+06	No
300-50_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	282	63,200	No
300-50_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	13,200	No
300-50_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	463	3,020	No
300-50_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	16,841	400,000	No
300-50_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,109	4,820	Yes
300-50_Shallow	non-Rad	Copper	7440-50-8	ug/kg	16,820	284,000	No
300-50_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes
300-50_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,381	9,060	No
300-50_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,120	50,200	Yes
300-50_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,413	130,000	No
300-50_Shallow	non-Rad	Silver	7440-22-4	ug/kg	2,992	144,000	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	1,320	Yes
300-50_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,964	1.60E+06	No
300-50_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,344	2.90E+06	No
300-50_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.056	--	--
300-50_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	7.9	--	--
300-50_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.66	--	--
300-50_Shallow	Rad	Uranium-238	U-238	pCi/g	8.4	--	--
300-8_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	574	63,200	No
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,374	1,320	Yes
300-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.79	--	--
300-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	1,320	Yes
316-1_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.10	--	--
316-1_Overburden	Rad	Cobalt-60	10198-40-0	pCi/g	0.32	--	--
316-1_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	13	--	--
316-1_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--	--
316-1_Overburden	Rad	Uranium-238	U-238	pCi/g	13	--	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	39	Yes
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	3.7	Yes
316-1_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	69	13,200	No
316-1_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	98	12,900	No
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	1,320	Yes
316-1_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.032	--	--
316-1_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.2	--	--
316-1_Shallow_1	Rad	Uranium-238	U-238	pCi/g	28	--	--
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	1.11E+07	1.50E+06	Yes
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	475	Yes
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	66	Yes
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	5,138	3.7	Yes
316-1_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	129,106	1.01E+06	No
316-1_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	416	63,200	No
316-1_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	13,200	No
316-1_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	474	3,020	No
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	400,000	No
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	9,703	4,820	Yes
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	284,000	Yes
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	3.2	8.0	No
316-1_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.44E+07	151,000	Yes
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	9,060	Yes
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	392,825	50,200	Yes
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	1,105	1,210	No
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	94,656	130,000	No
316-1_Shallow_3	non-Rad	Phenol	108-95-2	ug/kg	28	11,000	No
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	ug/kg	1,444	5,200	No
316-1_Shallow_3	non-Rad	Silver	7440-22-4	ug/kg	13,196	144,000	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	1,320	Yes
316-1_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	56,707	1.60E+06	No
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	82,016	2.90E+06	No
316-1_Shallow_3	Rad	Cesium-137	10045-97-3	pCi/g	0.37	--	--
316-1_Shallow_3	Rad	Cobalt-60	10198-40-0	pCi/g	2.3	--	--
316-1_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	23	--	--
316-1_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	2.6	--	--
316-1_Shallow_3	Rad	Uranium-238	U-238	pCi/g	21	--	--
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	66	No
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	1,320	Yes
316-1_Shallow_4	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	--	--
316-1_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	16	--	--
316-1_Shallow_4	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--	--
316-1_Shallow_4	Rad	Uranium-238	U-238	pCi/g	14	--	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	1,320	Yes
316-2_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.031	--	--
316-2_Shallow_1	Rad	Cobalt-60	10198-40-0	pCi/g	0.092	--	--
316-2_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	86	--	--
316-2_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	12	--	--
316-2_Shallow_1	Rad	Uranium-238	U-238	pCi/g	69	--	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	39	Yes
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	ug/kg	42	66	No
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	ug/kg	110	719	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	1,320	Yes
316-2_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	0.45	--	--
316-2_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.45	--	--
316-2_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	115	--	--

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
316-2_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	11	--	--
316-2_Shallow_2	Rad	Uranium-238	U-238	pCi/g	96	--	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	3.7	Yes
316-2_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	260	13,200	No
316-2_Shallow_3	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	180	12,900	No
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	1,320	Yes
316-2_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.91	--	--
316-2_Shallow_3	Rad	Uranium-238	U-238	pCi/g	24	--	--
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	3,070	3.7	Yes
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	38	863	No
316-5_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	146	13,200	No
316-5_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	100	12,900	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	1,320	Yes
316-5_Shallow_1	Rad	Americium-241	14596-10-2	pCi/g	0.48	--	--
316-5_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	2.3	--	--
316-5_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	19	--	--
316-5_Shallow_1	Rad	Uranium-238	U-238	pCi/g	89	--	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	1.2	Yes
316-5_Shallow_2	non-Rad	2-Butoxyethanol	111-76-2	ug/kg	240	3,245	No
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	3,180	3.7	Yes
316-5_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	76,700	1.01E+06	No
316-5_Shallow_2	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	180	13,200	No
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	110	12,900	No
316-5_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,900	400,000	No
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	ug/kg	38	4,800	No
316-5_Shallow_2	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	146	56,600	No
316-5_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	3,200	9,060	No
316-5_Shallow_2	non-Rad	Selenium	7782-49-2	ug/kg	490	5,200	No
316-5_Shallow_2	non-Rad	Silver	7440-22-4	ug/kg	3,600	144,000	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	1,320	Yes
316-5_Shallow_2	Rad	Americium-241	14596-10-2	pCi/g	0.12	--	--
316-5_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	1.7	--	--
316-5_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	--	--
316-5_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	9.0	--	--
316-5_Shallow_2	Rad	Uranium-238	U-238	pCi/g	68	--	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	39	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	66	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	719	No
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	3.7	Yes
316-5_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	190	13,200	No
316-5_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	1,500	56,600	No
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	1,320	Yes
316-5_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.8	--	--
316-5_Shallow_Focused	Rad	Europium-155	14391-16-3	pCi/g	0.072	--	--
316-5_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	7.7	--	--
316-5_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	45	--	--
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	ug/kg	25	446	No
331 LSLDF_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	590	28,900	No
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	0.56	2.5	No
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	ug/kg	0.39	0.54	No
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.90E+06	1.50E+06	Yes
331 LSLDF_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	360	475	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	66	Yes
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,400	3.7	Yes
331 LSLDF_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	78,600	1.01E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	570	63,200	No
331 LSLDF_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	13,200	No
331 LSLDF_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,700	205,000	No
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	12,900	No
331 LSLDF_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	140	3,020	No
331 LSLDF_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,300	400,000	No
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes
331 LSLDF_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	15,400	284,000	No
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	2.8	Yes
331 LSLDF_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	98	56,600	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan I	959-98-8	ug/kg	1.9	4,300	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	ug/kg	3.1	4,300	No
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.20E+07	151,000	Yes
331 LSLDF_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	9,000	9,060	No
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	349,000	50,200	Yes
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	110	1,210	No
331 LSLDF_Shallow_Focused	non-Rad	Methoxychlor	72-43-5	ug/kg	3.3	64,200	No
331 LSLDF_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	11	22	No
331 LSLDF_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	590	32,300	No
331 LSLDF_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	130,000	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	41,700	180,000	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	9,500	40,000	No
331 LSLDF_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,100	144,000	No
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,402	1,320	Yes
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	2,300	1,320	Yes
331 LSLDF_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	53,100	1.60E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	137,000	2.90E+06	No
331 LSLDF_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	0.54	--	--
331 LSLDF_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.47	--	--
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	ug/kg	279	2,040	No
600-243_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	31	2.28E+06	No
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	475	Yes

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	27	66	No
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	18	719	No
600-243_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,159	3.7	Yes
600-243_Shallow	non-Rad	Barium	7440-39-3	ug/kg	292,072	1.01E+06	No
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	43	863	No
600-243_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	43	1,320	No
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	46	1,930	No
600-243_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	32	2,950	No
600-243_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	2,079	63,200	No
600-243_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	432	13,200	No
600-243_Shallow	non-Rad	Boron	7440-42-8	ug/kg	294,463	205,000	Yes
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	3,020	No
600-243_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	18,006	400,000	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	4,800	No
600-243_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,207	4,820	Yes
600-243_Shallow	non-Rad	Copper	7440-50-8	ug/kg	53,981	284,000	No
600-243_Shallow	non-Rad	Dibenzofuran	132-64-9	ug/kg	78	3,680	No
600-243_Shallow	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	37	56,600	No
600-243_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	79	631,000	No
600-243_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	28	8,320	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	9,060	Yes
600-243_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	208,289	50,200	Yes
600-243_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	1,869	32,300	No
600-243_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	204	4,450	No
600-243_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	21,395	130,000	No
600-243_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	70	655,000	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	5,200	Yes
600-243_Shallow	non-Rad	Silver	7440-22-4	ug/kg	500	144,000	No
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	95,319	--	--
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	334,524	--	--
600-243_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,986	1.60E+06	No
600-243_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	84,099	2.90E+06	No
600-259_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.034	--	--
600-259_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.068	--	--
600-259_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.038	--	--
600-47_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,300	3.7	Yes
600-47_Shallow	non-Rad	Barium	7440-39-3	ug/kg	67,000	1.01E+06	No
600-47_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	500	63,200	No
600-47_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	90	3,020	No
600-47_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	5,500	400,000	No
600-47_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,500	9,060	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	1,320	Yes
600-47_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--	--
600-47_Shallow	Rad	Uranium-238	U-238	pCi/g	1.6	--	--
618-1_Deep	non-Rad	Aluminum	7429-90-5	ug/kg	6.37E+06	1.50E+06	Yes
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	66	Yes
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	ug/kg	294	719	No
618-1_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,550	3.7	Yes
618-1_Deep	non-Rad	Barium	7440-39-3	ug/kg	299,000	1.01E+06	No
618-1_Deep	non-Rad	Beryllium	7440-41-7	ug/kg	218	63,200	No
618-1_Deep	non-Rad	Boron	7440-42-8	ug/kg	1,360	205,000	No
618-1_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	263	3,020	No
618-1_Deep	non-Rad	Chromium	7440-47-3	ug/kg	7,740	400,000	No
618-1_Deep	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	284,000	No
618-1_Deep	non-Rad	Fluoride	16984-48-8	ug/kg	2,800	1.44E+06	No
618-1_Deep	non-Rad	Iron	7439-89-6	ug/kg	2.47E+07	151,000	Yes
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	9,060	Yes
618-1_Deep	non-Rad	Lithium	7439-93-2	ug/kg	5,980	32,100	No
618-1_Deep	non-Rad	Manganese	7439-96-5	ug/kg	352,000	50,200	Yes
618-1_Deep	non-Rad	Mercury	7439-97-6	ug/kg	1,180	1,210	No
618-1_Deep	non-Rad	Molybdenum	7439-98-7	ug/kg	493	32,300	No
618-1_Deep	non-Rad	Nickel	7440-02-0	ug/kg	17,600	130,000	No
618-1_Deep	non-Rad	Nitrate	14797-55-8	ug/kg	1,700	180,000	No
618-1_Deep	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	220	40,000	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	1,320	Yes
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	1,320	Yes
618-1_Deep	non-Rad	Vanadium	7440-62-2	ug/kg	73,000	1.60E+06	No
618-1_Deep	non-Rad	Zinc	7440-66-6	ug/kg	134,000	2.90E+06	No
618-1_Deep	Rad	Cesium-137	10045-97-3	pCi/g	0.46	--	--
618-1_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	33	--	--
618-1_Deep	Rad	Uranium-235	15117-96-1	pCi/g	2.7	--	--
618-1_Deep	Rad	Uranium-238	U-238	pCi/g	32	--	--
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	1.50E+06	Yes
618-1_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	407	475	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	66	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	99	719	No
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,580	3.7	Yes
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	1.01E+06	Yes
618-1_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	323	63,200	No
618-1_Deep_Focused	non-Rad	Boron	7440-42-8	ug/kg	6,620	205,000	No
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,030	3,020	No
618-1_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	18,900	400,000	No
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,920	4,820	Yes
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	68,700	284,000	No
618-1_Deep_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	3,300	1.44E+06	No
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.41E+07	151,000	Yes

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	9,060	Yes
618-1_Deep_Focused	non-Rad	Lithium	7439-93-2	ug/kg	8,450	32,100	No
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	351,000	50,200	Yes
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	1,210	Yes
618-1_Deep_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	2,140	32,300	No
618-1_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	13,700	130,000	No
618-1_Deep_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	11,900	180,000	No
618-1_Deep_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	1,560	40,000	No
618-1_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,290	144,000	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	1,320	Yes
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	1,320	Yes
618-1_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	70,900	1.60E+06	No
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	82,000	2.90E+06	No
618-1_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	6.5	--	--
618-1_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	70	--	--
618-1_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.5	--	--
618-1_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	65	--	--
618-1_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.21E+06	1.50E+06	Yes
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	66	Yes
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	54	719	No
618-1_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,280	3.7	Yes
618-1_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,200	1.01E+06	No
618-1_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	188	63,200	No
618-1_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,190	205,000	No
618-1_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	68	3,020	No
618-1_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,930	400,000	No
618-1_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,360	4,820	Yes
618-1_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,400	284,000	No
618-1_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	400	1.44E+06	No
618-1_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes
618-1_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,100	9,060	No
618-1_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	6,380	32,100	No
618-1_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	300,000	50,200	Yes
618-1_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	31	1,210	No
618-1_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	336	32,300	No
618-1_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,150	130,000	No
618-1_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	1,600	180,000	No
618-1_Shallow	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	300	40,000	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	1,320	Yes
618-1_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	56,300	1.60E+06	No
618-1_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	42,100	2.90E+06	No
618-1_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--	--
618-1_Shallow	Rad	Uranium-238	U-238	pCi/g	1.5	--	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	1.50E+06	Yes
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	455	475	No
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	39	No
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	66	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	56	719	No
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	6,090	3.7	Yes
618-1_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	102,000	1.01E+06	No
618-1_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	371	63,200	No
618-1_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	3,740	205,000	No
618-1_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	266	3,020	No
618-1_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	19,500	400,000	No
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	284,000	No
618-1_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	900	1.44E+06	No
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.28E+07	151,000	Yes
618-1_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,210	9,060	No
618-1_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	13,300	32,100	No
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	403,000	50,200	Yes
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	1,210	No
618-1_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	356	32,300	No
618-1_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	16,800	130,000	No
618-1_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	3,800	180,000	No
618-1_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	260	40,000	No
618-1_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,120	144,000	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	1,320	Yes
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	1,320	Yes
618-1_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	64,700	1.60E+06	No
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	68,100	2.90E+06	No
618-1_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--	--
618-1_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.99	--	--
618-1_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	8.2	--	--
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	3.7	Yes
618-12_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	63	13,200	No
618-12_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	60	12,900	No
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	1,320	Yes
618-12_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.47	--	--
618-12_Shallow	Rad	Uranium-238	U-238	pCi/g	11	--	--
618-13_Shallow	non-Rad	Acetone	67-64-1	ug/kg	8.6	28,900	No
618-13_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	1.50E+06	Yes
618-13_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	312	475	No
618-13_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	3.7	Yes
618-13_Shallow	non-Rad	Barium	7440-39-3	ug/kg	74,000	1.01E+06	No
618-13_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	212	63,200	No
618-13_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,050	205,000	No

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
618-13_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	63	3,020	No
618-13_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,700	400,000	No
618-13_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,290	4,820	Yes
618-13_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,500	284,000	No
618-13_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.01E+07	151,000	Yes
618-13_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,620	9,060	No
618-13_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	344,000	50,200	Yes
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	22	No
618-13_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	420	32,300	No
618-13_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,400	130,000	No
618-13_Shallow	non-Rad	Tin	7440-31-5	ug/kg	1,050	2.50E+07	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	1,320	Yes
618-13_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,750	1,320	Yes
618-13_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	55,800	1.60E+06	No
618-13_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,400	2.90E+06	No
618-13_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.038	--	--
618-13_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--	--
618-13_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	--	--
618-13_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	5.9	28,900	No
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.22E+06	1.50E+06	Yes
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	233	475	No
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,390	3.7	Yes
618-13_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	57,700	1.01E+06	No
618-13_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	184	63,200	No
618-13_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	960	205,000	No
618-13_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	47	3,020	No
618-13_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,740	400,000	No
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,710	4,820	Yes
618-13_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,100	284,000	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	192	No
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes
618-13_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	4,940	9,060	No
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	268,000	50,200	Yes
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	5.0	22	No
618-13_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	297	32,300	No
618-13_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	130,000	No
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	745	2.50E+07	No
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,855	1,320	Yes
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	1,500	1,320	Yes
618-13_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	48,600	1.60E+06	No
618-13_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,100	2.90E+06	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
618-13_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.96	--	--
618-2_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	1,500	3.7	Yes
618-2_Deep	non-Rad	Barium	7440-39-3	ug/kg	83,300	1.01E+06	No
618-2_Deep	non-Rad	Chromium	7440-47-3	ug/kg	6,700	400,000	No
618-2_Deep	non-Rad	Lead	7439-92-1	ug/kg	6,600	9,060	No
618-2_Deep	non-Rad	Selenium	7782-49-2	ug/kg	780	5,200	No
618-2_Deep	non-Rad	Tin	7440-31-5	ug/kg	2,900	2.50E+07	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	1,320	Yes
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	1,320	Yes
618-2_Deep	Rad	Americium-241	14596-10-2	pCi/g	7.9	--	--
618-2_Deep	Rad	Cesium-137	10045-97-3	pCi/g	1.0	--	--
618-2_Deep	Rad	Plutonium-238	13981-16-3	pCi/g	1.5	--	--
618-2_Deep	Rad	Plutonium-239/240	PU-239/240	pCi/g	91	--	--
618-2_Deep	Rad	Plutonium-241	14119-32-5	pCi/g	42	--	--
618-2_Deep	Rad	Total beta radiostrontium	SR-RAD	pCi/g	12	--	--
618-2_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	161	--	--
618-2_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.78	--	--
618-2_Deep	Rad	Uranium-238	U-238	pCi/g	165	--	--
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	6.9	66	No
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	3.7	Yes
618-2_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	109,000	1.01E+06	No
618-2_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	13,200	No
618-2_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	200	3,020	No
618-2_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,400	400,000	No
618-2_Deep_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	18	56,600	No
618-2_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,800	9,060	No
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	1,200	5,200	No
618-2_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	600	144,000	No
618-2_Deep_Focused	non-Rad	Tin	7440-31-5	ug/kg	42,500	2.50E+07	No
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	1,320	Yes
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	1,320	Yes
618-2_Deep_Focused	Rad	Americium-241	14596-10-2	pCi/g	9.2	--	--
618-2_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.1	--	--
618-2_Deep_Focused	Rad	Plutonium-238	13981-16-3	pCi/g	1.6	--	--
618-2_Deep_Focused	Rad	Plutonium-239/240	PU-239/240	pCi/g	92	--	--
618-2_Deep_Focused	Rad	Plutonium-241	14119-32-5	pCi/g	33	--	--
618-2_Deep_Focused	Rad	Total beta radiostrontium	SR-RAD	pCi/g	7.2	--	--
618-2_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	48	--	--
618-2_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	2.4	--	--
618-2_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	50	--	--
618-2_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	3.7	Yes
618-2_Overburden	non-Rad	Barium	7440-39-3	ug/kg	74,700	1.01E+06	No
618-2_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	6,600	400,000	No
618-2_Overburden	non-Rad	Lead	7439-92-1	ug/kg	4,300	9,060	No
618-2_Overburden	non-Rad	Selenium	7782-49-2	ug/kg	1,000	5,200	No

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
618-2_Overburden	non-Rad	Tin	7440-31-5	ug/kg	2,700	2.50E+07	No
618-2_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,749	1,320	Yes
618-2_Overburden	non-Rad	Uranium	7440-61-1	ug/kg	1,140	1,320	No
618-2_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.058	--	--
618-2_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.64	--	--
618-2_Overburden	Rad	Uranium-238	U-238	pCi/g	0.59	--	--
618-2_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	1,900	3.7	Yes
618-2_Shallow	non-Rad	Barium	7440-39-3	ug/kg	79,100	1.01E+06	No
618-2_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,100	400,000	No
618-2_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,600	9,060	No
618-2_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	760	5,200	No
618-2_Shallow	non-Rad	Tin	7440-31-5	ug/kg	2,400	2.50E+07	No
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	1,320	Yes
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	1,320	Yes
618-2_Shallow	Rad	Americium-241	14596-10-2	pCi/g	0.81	--	--
618-2_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	2.2	--	--
618-2_Shallow	Rad	Plutonium-239/240	PU-239/240	pCi/g	7.7	--	--
618-2_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.2	--	--
618-2_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.21	--	--
618-2_Shallow	Rad	Uranium-238	U-238	pCi/g	2.2	--	--
618-2_Staging Pile	non-Rad	Arsenic	7440-38-2	ug/kg	3,063	3.7	Yes
618-2_Staging Pile	non-Rad	Barium	7440-39-3	ug/kg	67,690	1.01E+06	No
618-2_Staging Pile	non-Rad	Chromium	7440-47-3	ug/kg	6,424	400,000	No
618-2_Staging Pile	non-Rad	Lead	7439-92-1	ug/kg	4,011	9,060	No
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	1,320	Yes
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	1,320	Yes
618-2_Staging Pile	Rad	Americium-241	14596-10-2	pCi/g	0.82	--	--
618-2_Staging Pile	Rad	Cesium-137	10045-97-3	pCi/g	0.095	--	--
618-2_Staging Pile	Rad	Plutonium-239/240	PU-239/240	pCi/g	10	--	--
618-2_Staging Pile	Rad	Tritium	10028-17-8	pCi/g	2.3	--	--
618-2_Staging Pile	Rad	Uranium-233/234	U-233/234	pCi/g	2.0	--	--
618-2_Staging Pile	Rad	Uranium-235	15117-96-1	pCi/g	0.12	--	--
618-2_Staging Pile	Rad	Uranium-238	U-238	pCi/g	2.0	--	--
618-3_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	3.7	Yes
618-3_Shallow	non-Rad	Barium	7440-39-3	ug/kg	76,500	1.01E+06	No
618-3_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,700	400,000	No
618-3_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,900	9,060	No
618-3_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	659	5,200	No
618-3_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,224	1,320	Yes
618-3_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,610	1,320	Yes
618-3_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.68	--	--
618-3_Shallow	Rad	Uranium-238	U-238	pCi/g	0.75	--	--
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	1,320	Yes
618-3_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	80	--	--
618-3_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.8	--	--
618-3_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	79	--	--
618-4_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	3.7	Yes
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	9,060	Yes
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	1,320	Yes
618-4_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	20	--	--
618-4_Deep	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--	--
618-4_Deep	Rad	Uranium-238	U-238	pCi/g	22	--	--
618-4_Deep_Focused	non-Rad	2-Butanone	78-93-3	ug/kg	130	19,700	No
618-4_Deep_Focused	non-Rad	Acetone	67-64-1	ug/kg	16	28,900	No
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	66	Yes
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	3.7	Yes
618-4_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	104,000	1.01E+06	No
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	13,200	No
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	3,020	No
618-4_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	27,700	400,000	No
618-4_Deep_Focused	non-Rad	Diethyl ether	60-29-7	ug/kg	1.0	6,850	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	9,060	Yes
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	22	Yes
618-4_Deep_Focused	non-Rad	Phenol	108-95-2	ug/kg	110	11,000	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	0.87	Yes
618-4_Deep_Focused	non-Rad	Toluene	108-88-3	ug/kg	4.8	4,650	No
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	34,000	--	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - kerosene range	TPHKEROSENE	ug/kg	42,000	--	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	65	--	--
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777	1,320	Yes
618-4_Deep_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	3.3	No
618-4_Deep_Focused	non-Rad	Trichloromonofluoromethane	75-69-4	ug/kg	12	28,204	No
618-4_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	7.2	--	--
618-4_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.51	--	--
618-4_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	6.9	--	--
618-4_Overburden_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	3.7	Yes
618-4_Overburden_2	non-Rad	Lead	7439-92-1	ug/kg	4,700	9,060	No
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	1,320	Yes
618-4_Overburden_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--	--
618-4_Overburden_2	Rad	Uranium-238	U-238	pCi/g	1.4	--	--
618-4_Overburden_3	non-Rad	Lead	7439-92-1	ug/kg	5,000	9,060	No
618-4_Overburden_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,171	1,320	No
618-4_Overburden_3	Rad	Uranium-233/234	U-233/234	pCi/g	0.42	--	--
618-4_Overburden_3	Rad	Uranium-235	15117-96-1	pCi/g	0.032	--	--
618-4_Overburden_3	Rad	Uranium-238	U-238	pCi/g	0.44	--	--
618-4_Overburden_4	non-Rad	Lead	7439-92-1	ug/kg	4,800	9,060	No
618-4_Overburden_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,323	1,320	Yes

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
618-4_Overburden_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	--	--
618-4_Overburden_4	Rad	Uranium-238	U-238	pCi/g	0.94	--	--
618-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,200	3.7	Yes
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	9,060	Yes
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	1,320	Yes
618-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	3.2	--	--
618-4_Shallow	Rad	Uranium-238	U-238	pCi/g	3.1	--	--
618-5_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	3.7	Yes
618-5_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	470	3,020	No
618-5_Deep	non-Rad	Chromium	7440-47-3	ug/kg	14,700	400,000	No
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	9,060	Yes
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	1,320	Yes
618-5_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	8.6	--	--
618-5_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.46	--	--
618-5_Deep	Rad	Uranium-238	U-238	pCi/g	8.9	--	--
618-5_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.65E+06	1.50E+06	Yes
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	475	Yes
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	3.7	Yes
618-5_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	106,000	1.01E+06	No
618-5_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	672	63,200	No
618-5_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,500	400,000	No
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	10,500	4,820	Yes
618-5_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	21,400	284,000	No
618-5_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	3.02E+07	151,000	Yes
618-5_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,600	9,060	No
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	50,200	Yes
618-5_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	33	1,210	No
618-5_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	11,300	130,000	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	5,200	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	1,320	Yes
618-5_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	79,500	1.60E+06	No
618-5_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	65,800	2.90E+06	No
618-5_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--	--
618-5_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.48	--	--
618-5_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	12	--	--
618-5_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,400	3.7	Yes
618-5_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	170	3,020	No
618-5_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	9,700	400,000	No
618-5_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,500	9,060	No
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	1,320	Yes
618-5_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	4.1	--	--
618-5_Overburden	Rad	Uranium-238	U-238	pCi/g	4.6	--	--
618-5_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	3.7	Yes
618-5_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	11,300	400,000	No
618-5_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,100	9,060	No
618-5_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,849	1,320	Yes
618-5_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	--	--
618-5_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	--	--
618-5_Staging Pile_4	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	3.7	Yes
618-5_Staging Pile_4	non-Rad	Cadmium	7440-43-9	ug/kg	50	3,020	No
618-5_Staging Pile_4	non-Rad	Chromium	7440-47-3	ug/kg	11,800	400,000	No
618-5_Staging Pile_4	non-Rad	Lead	7439-92-1	ug/kg	5,300	9,060	No
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	1,320	Yes
618-5_Staging Pile_4	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--	--
618-5_Staging Pile_4	Rad	Uranium-238	U-238	pCi/g	1.1	--	--
618-5_Staging Pile_5	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	3.7	Yes
618-5_Staging Pile_5	non-Rad	Chromium	7440-47-3	ug/kg	10,300	400,000	No
618-5_Staging Pile_5	non-Rad	Lead	7439-92-1	ug/kg	3,900	9,060	No
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	1,320	Yes
618-5_Staging Pile_5	Rad	Uranium-233/234	U-233/234	pCi/g	1.5	--	--
618-5_Staging Pile_5	Rad	Uranium-235	15117-96-1	pCi/g	0.17	--	--
618-5_Staging Pile_5	Rad	Uranium-238	U-238	pCi/g	1.7	--	--
618-7_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.25E+06	1.50E+06	Yes
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	475	Yes
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	1,891	3.7	Yes
618-7_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	68,874	1.01E+06	No
618-7_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	278	63,200	No
618-7_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	65	3,020	No
618-7_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	10,227	400,000	No
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	9,152	4,820	Yes
618-7_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	16,120	284,000	No
618-7_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	9,060	Yes
618-7_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	326,067	50,200	Yes
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	44	1,210	No
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	20,977	130,000	No
618-7_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,547	2.50E+07	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	1,320	Yes
618-7_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	74,576	1.60E+06	No
618-7_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	49,177	2.90E+06	No
618-7_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.067	--	--
618-7_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	3.6	--	--
618-7_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	0.36	--	--
618-7_Shallow_1	Rad	Uranium-238	U-238	pCi/g	3.6	--	--
618-7_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	4.97E+06	1.50E+06	Yes
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	475	Yes
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	3.7	Yes

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
618-7_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	73,800	1.01E+06	No
618-7_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	440	63,200	No
618-7_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,800	400,000	No
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	9,300	4,820	Yes
618-7_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	13,600	284,000	No
618-7_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes
618-7_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	2,800	9,060	No
618-7_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	364,000	50,200	Yes
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	1,210	No
618-7_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,700	130,000	No
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	2.50E+07	No
618-7_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,574	1,320	Yes
618-7_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	74,700	1.60E+06	No
618-7_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	46,200	2.90E+06	No
618-7_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	0.57	--	--
618-7_Shallow_2	Rad	Uranium-238	U-238	pCi/g	0.53	--	--
618-7_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	6.74E+06	1.50E+06	Yes
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	475	No
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	3.7	Yes
618-7_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	82,500	1.01E+06	No
618-7_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	310	63,200	No
618-7_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	190	3,020	No
618-7_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	10,100	400,000	No
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	4,820	Yes
618-7_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	13,600	284,000	No
618-7_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.43E+07	151,000	Yes
618-7_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	4,300	9,060	No
618-7_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	357,000	50,200	Yes
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	1,210	No
618-7_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	10,100	130,000	No
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	2.50E+07	No
618-7_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,852	1,320	Yes
618-7_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	68,200	1.60E+06	No
618-7_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	44,500	2.90E+06	No
618-7_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
618-7_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.085	--	--
618-7_Shallow_3	Rad	Uranium-238	U-238	pCi/g	0.95	--	--
618-7_Shallow_4	non-Rad	Aluminum	7429-90-5	ug/kg	5.65E+06	1.50E+06	Yes
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	ug/kg	250	475	No
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	3.7	Yes
618-7_Shallow_4	non-Rad	Barium	7440-39-3	ug/kg	57,900	1.01E+06	No
618-7_Shallow_4	non-Rad	Beryllium	7440-41-7	ug/kg	220	63,200	No
618-7_Shallow_4	non-Rad	Cadmium	7440-43-9	ug/kg	90	3,020	No
618-7_Shallow_4	non-Rad	Chromium	7440-47-3	ug/kg	11,400	400,000	No
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	ug/kg	6,700	4,820	Yes
618-7_Shallow_4	non-Rad	Copper	7440-50-8	ug/kg	13,200	284,000	No
618-7_Shallow_4	non-Rad	Iron	7439-89-6	ug/kg	2.12E+07	151,000	Yes
618-7_Shallow_4	non-Rad	Lead	7439-92-1	ug/kg	3,000	9,060	No
618-7_Shallow_4	non-Rad	Manganese	7439-96-5	ug/kg	285,000	50,200	Yes
618-7_Shallow_4	non-Rad	Nickel	7440-02-0	ug/kg	12,900	130,000	No
618-7_Shallow_4	non-Rad	Tin	7440-31-5	ug/kg	710	2.50E+07	No
618-7_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,064	1,320	Yes
618-7_Shallow_4	non-Rad	Vanadium	7440-62-2	ug/kg	54,800	1.60E+06	No
618-7_Shallow_4	non-Rad	Zinc	7440-66-6	ug/kg	37,000	2.90E+06	No
618-7_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.69	--	--
618-7_Shallow_4	Rad	Uranium-238	U-238	pCi/g	0.76	--	--
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	121,000	No
618-7_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.61E+06	1.50E+06	Yes
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	475	Yes
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	39	No
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,200	3.7	Yes
618-7_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	92,800	1.01E+06	No
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	863	No
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	66	1,320	No
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	1,930	No
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	11	2,950	No
618-7_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	370	63,200	No
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	470	13,200	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	3,020	Yes
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	65,900	400,000	No
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	4,800	No
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,000	4,820	Yes
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	284,000	No
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	45	4,290	No
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	33	56,600	No
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	48	631,000	No
618-7_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.87E+07	151,000	Yes
618-7_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,500	9,060	No
618-7_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	425,000	50,200	Yes
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	20	1,210	No
618-7_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	17,200	130,000	No
618-7_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	410	655,000	No
618-7_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,200	2.50E+07	No
618-7_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	680,000	--	--
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	1,320	Yes
618-7_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	80,500	1.60E+06	No
618-7_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,400	2.90E+06	No

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
618-7_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.010	--	--
618-7_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--	--
618-7_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.97	--	--
618-7_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	6.4	--	--
618-8_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,100	3.7	Yes
618-8_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,600	1.01E+06	No
618-8_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	12,400	400,000	No
618-8_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,100	9,060	No
618-8_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	846	5,200	No
618-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,935	1,320	Yes
618-8_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,720	1,320	Yes
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--	--
618-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.73	--	--
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	1.2	Yes
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	680	28,900	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	2.5	Yes
618-9_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	1.50E+06	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	1,070	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	9.2	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	9.2	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	39	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	39	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	66	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	719	Yes
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	3.7	Yes
618-9_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	90,200	1.01E+06	No
618-9_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	330	63,200	No
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	13,200	No
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	12,900	No
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	256	No
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	7.5	Yes
618-9_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,700	400,000	No
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,400	4,820	Yes
618-9_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	16,700	284,000	No
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	7,200	56,600	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	8.0	Yes
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	605	Yes
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	125	Yes
618-9_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.49E+07	151,000	Yes
618-9_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	7,700	9,060	No
618-9_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	359,000	50,200	Yes
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	330	1,210	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	22	Yes
618-9_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,600	130,000	No
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	180,000	Yes
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	0.87	Yes
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	ug/kg	9.0	4,650	No
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	1,320	Yes
618-9_Shallow_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	3.3	No
618-9_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	3,100	1,320	Yes
618-9_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,300	1.60E+06	No
618-9_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,300	2.90E+06	No
618-9_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.071	--	--
618-9_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	3.0	--	--
628-4_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,374	3.7	Yes
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	13,200	No
628-4_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,284	9,060	No
628-4_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,308	1,320	Yes
628-4_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.033	--	--
628-4_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.87	--	--
628-4_Overburden	Rad	Uranium-238	U-238	pCi/g	0.78	--	--
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	39	Yes
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	39	Yes
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	66	Yes
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	719	No
628-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,864	3.7	Yes
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	9,060	Yes
628-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,163	1,320	Yes
628-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
628-4_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.11	--	--
628-4_Shallow	Rad	Uranium-238	U-238	pCi/g	1.0	--	--
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	121,000	No
UPR-300-17_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	1.50E+06	Yes
UPR-300-17_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	7.0	2.28E+06	No
UPR-300-17_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	359	475	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	39	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	66	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	719	No
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,573	3.7	Yes
UPR-300-17_Shallow	non-Rad	Barium	7440-39-3	ug/kg	81,014	1.01E+06	No
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	863	No
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	44	1,320	No
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	33	1,930	No
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	9.9	2,950	No
UPR-300-17_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	240	63,200	No
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	ug/kg	3,903	205,000	No
UPR-300-17_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	173	3,020	No

Table A-1. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Groundwater	Is EPC > Soil Screening Level Protective of Groundwater?
UPR-300-17_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	13,795	400,000	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	4,800	No
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,688	4,820	Yes
UPR-300-17_Shallow	non-Rad	Copper	7440-50-8	ug/kg	15,135	284,000	No
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	35	631,000	No
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.9	101,000	No
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	5.9	8,320	No
UPR-300-17_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	9,060	Yes
UPR-300-17_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	285,159	50,200	Yes
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	1,210	No
UPR-300-17_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	412	32,300	No
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	48	4,450	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	130,000	Yes
UPR-300-17_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	34	655,000	No
UPR-300-17_Shallow	non-Rad	Silver	7440-22-4	ug/kg	340	144,000	No
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	2,950	--	--
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	210,420	--	--
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	1,320	Yes
UPR-300-17_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,150	1.60E+06	No
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	2.90E+06	No
UPR-300-17_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	6.1	--	--
UPR-300-17_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.91	--	--
UPR-300-17_Shallow	Rad	Uranium-238	U-238	pCi/g	4.0	--	--
UPR-300-46_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	13	121,000	No
UPR-300-46_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.80E+06	1.50E+06	Yes
UPR-300-46_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	381	475	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	39	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	66	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	719	No
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,846	3.7	Yes
UPR-300-46_Shallow	non-Rad	Barium	7440-39-3	ug/kg	82,137	1.01E+06	No
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	3.9	863	No
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.4	1,320	No
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	5.4	1,930	No
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	2.8	2,950	No
UPR-300-46_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	222	63,200	No
UPR-300-46_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,714	205,000	No
UPR-300-46_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	95	3,020	No
UPR-300-46_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,173	400,000	No
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	5.6	4,800	No
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,361	4,820	Yes
UPR-300-46_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,151	284,000	No
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	1.3	4,290	No
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	9.6	631,000	No
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.2	101,000	No
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	7.6	8,320	No
UPR-300-46_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes
UPR-300-46_Shallow	non-Rad	Lead	7439-92-1	ug/kg	7,105	9,060	No
UPR-300-46_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	311,001	50,200	Yes
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	29	1,210	No
UPR-300-46_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	456	32,300	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	4,450	No
UPR-300-46_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	9,230	130,000	No
UPR-300-46_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	4.4	655,000	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	1,320	Yes
UPR-300-46_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	53,808	1.60E+06	No
UPR-300-46_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	47,945	2.90E+06	No
UPR-300-46_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.070	--	--
UPR-300-46_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.8	--	--
UPR-300-46_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--	--
UPR-300-46_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	--	--

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	22,907	No
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,078	2,103	Yes
300 ASH PITS_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	96	7.87E+06	No
300 ASH PITS_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	76	7.59E+06	No
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,450	--[1]	--
300 ASH PITS_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.039	--[2]	--
300 ASH PITS_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--[2]	--
300 VTS_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.029	234,630	No
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	2,103	Yes
300-10_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	200	7.87E+06	No
300-10_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	230	7.59E+06	No
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	--[1]	--
300-10_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.16	234,630	No
300-10_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.041	--[2]	--
300-10_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--[2]	--
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.62E+06	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	39,438	No
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	40	428,690	No
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,420	2,103	Yes
300-109_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	63,300	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.2	785,830	No
300-109_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	2.3	1.15E+06	No
300-109_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	180	3.77E+07	No
300-109_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	632	1.15E+08	No
300-109_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	59	1.79E+06	No
300-109_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,950	2.38E+08	No
300-109_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	1.8	2.86E+06	No
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	6,420	2.86E+06	No
300-109_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,800	1.68E+08	No
300-109_Shallow_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	14	4.96E+06	No
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.75E+07	8.95E+07	No
300-109_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	2,890	5.37E+06	No
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	278,000	2.98E+07	No
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	22	715,780	No
300-109_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	341	1.91E+07	No
300-109_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,490	7.75E+07	No
300-109_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	1.6	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	--[1]	--
300-109_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	47,600	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	34,700	3.88E+08	No
300-109_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--[2]	--
300-109_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--[2]	--
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.78E+06	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	37	39,438	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	19	428,690	No
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,580	2,103	Yes
300-109_Staging Pile Area_Focused	non-Rad	Barium	7440-39-3	ug/kg	72,700	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	2.1	514,390	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.3	785,830	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.3	1.15E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	203	3.77E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,060	1.15E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	66	1.79E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,170	2.38E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,950	2.86E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Copper	7440-50-8	ug/kg	11,600	1.68E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	5.1	3.75E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	29	4.96E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.84E+07	8.95E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Lead	7439-92-1	ug/kg	5,030	5.37E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	ug/kg	286,000	2.98E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	408	1.91E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,570	7.75E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Pyrene	129-00-0	ug/kg	7.0	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,450	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	--[1]	--
300-109_Staging Pile Area_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	45,100	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Zinc	7440-66-6	ug/kg	48,800	3.88E+08	No
300-109_Staging Pile Area_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	2.5	--[2]	--
300-109_Staging Pile Area_Focused	Rad	Uranium-238	U-238	pCi/g	2.3	--[2]	--
300-18_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	2,103	Yes
300-18_Shallow	non-Rad	Barium	7440-39-3	ug/kg	63,400	3.88E+08	No
300-18_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	650	3.77E+07	No
300-18_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	40	1.79E+06	No
300-18_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	6,900	2.38E+08	No
300-18_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,600	5.37E+06	No
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,136	--[1]	--
300-18_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.65	--[2]	--
300-18_Shallow	Rad	Uranium-238	U-238	pCi/g	0.41	--[2]	--

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	120,000	2.00E+06	No
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	230,000	2.00E+06	No
300-23_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	52,000	2.00E+06	No
300-259_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	5.99E+06	3.88E+08	No
300-259_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	322	270,670	No
300-259_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,096	2,103	No
300-259_Shallow	non-Rad	Barium	7440-39-3	ug/kg	75,232	3.88E+08	No
300-259_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	226	3.77E+07	No
300-259_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,303	1.15E+08	No
300-259_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	252	1.79E+06	No
300-259_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,901	2.38E+08	No
300-259_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	5,831	2.86E+06	No
300-259_Shallow	non-Rad	Copper	7440-50-8	ug/kg	10,692	1.68E+08	No
300-259_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	8.95E+07	No
300-259_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,625	5.37E+06	No
300-259_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,874	2.98E+07	No
300-259_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	10	715,780	No
300-259_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	303	1.91E+07	No
300-259_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,751	7.75E+07	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	--[1]	--
300-259_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	42,626	3.88E+08	No
300-259_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	479,584	3.88E+08	No
300-259_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.6	--[2]	--
300-259_Shallow	Rad	Uranium-238	U-238	pCi/g	1.3	--[2]	--
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.17E+06	3.88E+08	No
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	270,670	No
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,160	2,103	Yes
300-260_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	122,000	3.88E+08	No
300-260_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	239	3.77E+07	No
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	1.15E+08	No
300-260_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	110	1.79E+06	No
300-260_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,890	2.38E+08	No
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	7,430	2.86E+06	No
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	1.68E+08	No
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.04E+07	8.95E+07	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	5.37E+06	No
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	328,000	2.98E+07	No
300-260_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	12	715,780	No
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	1.91E+07	No
300-260_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,200	7.75E+07	No
300-260_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	206	8.58E+07	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	--[1]	--
300-260_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,000	3.88E+08	No
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	77,400	3.88E+08	No
300-260_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.25	--[2]	--
300-260_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.3	--[2]	--
300-272_Overburden_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	13,100	2.00E+06	No
300-272_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	43,100	2.00E+06	No
300-275_Shallow_1	non-Rad	Acenaphthene	83-32-9	ug/kg	960	7.03E+07	No
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.61E+06	3.88E+08	No
300-275_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	260	270,670	No
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	2,211	2,103	Yes
300-275_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	75,261	3.88E+08	No
300-275_Shallow_1	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.3	785,830	No
300-275_Shallow_1	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.9	1.15E+06	No
300-275_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	452	3.77E+07	No
300-275_Shallow_1	non-Rad	Boron	7440-42-8	ug/kg	1,466	1.15E+08	No
300-275_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	83	1.79E+06	No
300-275_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	8,022	2.38E+08	No
300-275_Shallow_1	non-Rad	Chrysene	218-01-9	ug/kg	2.2	2.86E+06	No
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	5,847	2.86E+06	No
300-275_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	42,923	1.68E+08	No
300-275_Shallow_1	non-Rad	Fluoranthene	206-44-0	ug/kg	2,300	3.75E+08	No
300-275_Shallow_1	non-Rad	Fluorene	86-73-7	ug/kg	81	5.90E+07	No
300-275_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	8.95E+07	No
300-275_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	7,189	5.37E+06	No
300-275_Shallow_1	non-Rad	Lithium	7439-93-2	ug/kg	6,686	1.91E+07	No
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	276,815	2.98E+07	No
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	17	715,780	No
300-275_Shallow_1	non-Rad	Molybdenum	7439-98-7	ug/kg	378	1.91E+07	No
300-275_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	9,461	7.75E+07	No
300-275_Shallow_1	non-Rad	Silver	7440-22-4	ug/kg	121	8.58E+07	No
300-275_Shallow_1	non-Rad	Strontium	7440-24-6	ug/kg	20,196	3.88E+08	No
300-275_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,483	3.88E+08	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	--[1]	--
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	ug/kg	2,500	--[1]	--
300-275_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	45,128	3.88E+08	No
300-275_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	41,014	3.88E+08	No
300-275_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.046	234,630	No
300-275_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	7.7	--[2]	--

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300-275_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.0	--[2]	--
300-275_Shallow_1	Rad	Uranium-238	U-238	pCi/g	7.4	--[2]	--
300-275_Shallow_2	non-Rad	Acenaphthene	83-32-9	ug/kg	3.6	7.03E+07	No
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	6.24E+06	3.88E+08	No
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,761	2,103	Yes
300-275_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	68,607	3.88E+08	No
300-275_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	254	3.77E+07	No
300-275_Shallow_2	non-Rad	Boron	7440-42-8	ug/kg	1,147	1.15E+08	No
300-275_Shallow_2	non-Rad	Cadmium	7440-43-9	ug/kg	144	1.79E+06	No
300-275_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	8,994	2.38E+08	No
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	5,977	2.86E+06	No
300-275_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	11,596	1.68E+08	No
300-275_Shallow_2	non-Rad	Fluoranthene	206-44-0	ug/kg	56	3.75E+08	No
300-275_Shallow_2	non-Rad	Fluorene	86-73-7	ug/kg	2.6	5.90E+07	No
300-275_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	8.95E+07	No
300-275_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	4,099	5.37E+06	No
300-275_Shallow_2	non-Rad	Lithium	7439-93-2	ug/kg	7,067	1.91E+07	No
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	292,731	2.98E+07	No
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	28	715,780	No
300-275_Shallow_2	non-Rad	Molybdenum	7439-98-7	ug/kg	404	1.91E+07	No
300-275_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,593	7.75E+07	No
300-275_Shallow_2	non-Rad	Strontium	7440-24-6	ug/kg	27,081	3.88E+08	No
300-275_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,149	3.88E+08	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	--[1]	--
300-275_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	51,632	3.88E+08	No
300-275_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	41,245	3.88E+08	No
300-275_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--[2]	--
300-275_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--[2]	--
300-275_Shallow_2	Rad	Uranium-238	U-238	pCi/g	1.2	--[2]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.32E+06	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	ug/kg	10	637,870	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	16	23,376	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	22,907	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	39,438	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	17	428,690	No
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,638	2,103	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Barium	7440-39-3	ug/kg	72,411	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	256	3.77E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,484	1.15E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	228	7.59E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	94	1.79E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	8,781	2.38E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,273	2.86E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,662	1.68E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	1,651	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.00E+07	8.95E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,268	5.37E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	5,495	1.91E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	314,762	2.98E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	16	715,780	No
300-33, 300-41, 300-256_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	2.9	2,098	No
300-33, 300-41, 300-256_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	486	1.91E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,880	7.75E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	8,617	1.36E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Silver	7440-22-4	ug/kg	782	8.58E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,694	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,462	3.88E+08	No
300-33, 300-41, 300-256_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.1	--[2]	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.34	--[2]	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-238	U-238	pCi/g	2.1	--[2]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.51E+06	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	22,907	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	39,438	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	428,690	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,240	2,103	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	64,600	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	169	3.77E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,030	1.15E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	100	1.79E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,080	2.38E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,640	2.86E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,400	1.68E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	1,300	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.86E+07	8.95E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	3,160	5.37E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	6,580	1.91E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	259,000	2.98E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2.2	2,098	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	275	1.91E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,040	7.75E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	17,900	1.36E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	--[1]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	51,400	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	38,900	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	3.0	--[2]	--
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	2.2	--[2]	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	39,438	No
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	428,690	No
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	2,103	Yes
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,027	--[1]	--
300-44_Overburden_Focused	Rad	Uranium-238	U-238	pCi/g	0.35	--[2]	--
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.71E+06	3.88E+08	No
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	270,670	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	2,103	Yes
300-44_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	75,200	3.88E+08	No
300-44_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	480	3.77E+07	No
300-44_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,300	2.38E+08	No
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,200	2.86E+06	No
300-44_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	7,800	1.68E+08	No
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.94E+07	8.95E+07	No
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	303,000	2.98E+07	No
300-44_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,600	7.75E+07	No
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	872	--[1]	--
300-44_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	43,200	3.88E+08	No
300-44_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,800	3.88E+08	No
300-44_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.29	--[2]	--
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	86	428,690	No
300-45_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	290	7.87E+06	No
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	--[1]	--
300-45_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.023	234,630	No
300-45_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.061	--[2]	--
300-45_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.2	--[2]	--
300-49_Overburden	non-Rad	1,2,4-Trichlorobenzene	120-82-1	ug/kg	31	30,292	No
300-49_Overburden	non-Rad	1,4-Dichlorobenzene	106-46-7	ug/kg	29	61,703	No
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	404	No
300-49_Overburden	non-Rad	2-Chlorophenol	95-57-8	ug/kg	51	195,560	No
300-49_Overburden	non-Rad	4-Chloro-3-methylphenol	59-50-7	ug/kg	46	9.81E+06	No
300-49_Overburden	non-Rad	Acenaphthene	83-32-9	ug/kg	31	7.03E+07	No
300-49_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.30E+06	3.88E+08	No
300-49_Overburden	non-Rad	Antimony	7440-36-0	ug/kg	232	270,670	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	39,438	No
300-49_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,291	2,103	Yes
300-49_Overburden	non-Rad	Barium	7440-39-3	ug/kg	76,068	3.88E+08	No
300-49_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	201	3.77E+07	No
300-49_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	174	1.79E+06	No
300-49_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	18,106	2.38E+08	No
300-49_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	7,127	2.86E+06	No
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	1.68E+08	No
300-49_Overburden	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	52	3.04E+07	No
300-49_Overburden	non-Rad	Iron	7439-89-6	ug/kg	2.08E+07	8.95E+07	No
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	5.37E+06	No
300-49_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	316,669	2.98E+07	No
300-49_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	13,035	7.75E+07	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	7.3	Yes[3]
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	5,344	No
300-49_Overburden	non-Rad	Phenol	108-95-2	ug/kg	50	1.54E+06	No
300-49_Overburden	non-Rad	Pyrene	129-00-0	ug/kg	40	3.88E+08	No
300-49_Overburden	non-Rad	Silver	7440-22-4	ug/kg	703	8.58E+07	No
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,066	--[1]	--
300-49_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	50,380	3.88E+08	No
300-49_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	141,984	3.88E+08	No
300-49_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	1.0	--[2]	--
300-49_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.057	--[2]	--
300-49_Overburden	Rad	Uranium-238	U-238	pCi/g	1.0	--[2]	--
300-49_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.92E+06	3.88E+08	No
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	270,670	No
300-49_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,431	2,103	Yes
300-49_Shallow	non-Rad	Barium	7440-39-3	ug/kg	89,874	3.88E+08	No
300-49_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	303	3.77E+07	No
300-49_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,170	2.38E+08	No
300-49_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,323	2.86E+06	No
300-49_Shallow	non-Rad	Copper	7440-50-8	ug/kg	14,870	1.68E+08	No
300-49_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.59E+07	8.95E+07	No
300-49_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,629	5.37E+06	No
300-49_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	361,805	2.98E+07	No
300-49_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	10,664	7.75E+07	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	8.58E+07	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,983	--[1]	--
300-49_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	58,672	3.88E+08	No
300-49_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	54,651	3.88E+08	No
300-49_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.15	234,630	No
300-49_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--[2]	--
300-49_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--[2]	--
300-49_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	--[2]	--
300-50_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.68E+06	3.88E+08	No
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	33	39,438	No
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	ug/kg	229	428,690	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	2,103	Yes
300-50_Overburden	non-Rad	Barium	7440-39-3	ug/kg	117,742	3.88E+08	No
300-50_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	325	3.77E+07	No
300-50_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	563	1.79E+06	No
300-50_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	12,197	2.38E+08	No
300-50_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	9,389	2.86E+06	No
300-50_Overburden	non-Rad	Copper	7440-50-8	ug/kg	64,527	1.68E+08	No
300-50_Overburden	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	8.95E+07	No
300-50_Overburden	non-Rad	Lead	7439-92-1	ug/kg	5,905	5.37E+06	No
300-50_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	314,271	2.98E+07	No
300-50_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	15,229	7.75E+07	No
300-50_Overburden	non-Rad	Silver	7440-22-4	ug/kg	1,202	8.58E+07	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	--[1]	--
300-50_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	45,243	3.88E+08	No
300-50_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	45,889	3.88E+08	No
300-50_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.056	234,630	No
300-50_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	6.0	--[2]	--
300-50_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.45	--[2]	--
300-50_Overburden	Rad	Uranium-238	U-238	pCi/g	6.0	--[2]	--
300-50_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.88E+06	3.88E+08	No
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	270,670	No
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	39,438	No
300-50_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,403	2,103	Yes
300-50_Shallow	non-Rad	Barium	7440-39-3	ug/kg	103,029	3.88E+08	No
300-50_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	282	3.77E+07	No
300-50_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	7.87E+06	No
300-50_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	463	1.79E+06	No
300-50_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	16,841	2.38E+08	No
300-50_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,109	2.86E+06	No
300-50_Shallow	non-Rad	Copper	7440-50-8	ug/kg	16,820	1.68E+08	No
300-50_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	8.95E+07	No
300-50_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,381	5.37E+06	No
300-50_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,120	2.98E+07	No
300-50_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,413	7.75E+07	No
300-50_Shallow	non-Rad	Silver	7440-22-4	ug/kg	2,992	8.58E+07	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	--[1]	--
300-50_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,964	3.88E+08	No
300-50_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,344	3.88E+08	No
300-50_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.056	234,630	No
300-50_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	7.9	--[2]	--
300-50_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.66	--[2]	--
300-50_Shallow	Rad	Uranium-238	U-238	pCi/g	8.4	--[2]	--
300-8_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	574	3.77E+07	No
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,374	--[1]	--
300-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.79	--[2]	--
300-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--[2]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	--[1]	--
316-1_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.10	234,630	No
316-1_Overburden	Rad	Cobalt-60	10198-40-0	pCi/g	0.32	374,300	No
316-1_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	13	--[2]	--
316-1_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--[2]	--
316-1_Overburden	Rad	Uranium-238	U-238	pCi/g	13	--[2]	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	22,907	No
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	2,103	Yes
316-1_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	69	7.87E+06	No
316-1_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	98	7.59E+06	No
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	--[1]	--
316-1_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.032	234,630	No
316-1_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.2	--[2]	--
316-1_Shallow_1	Rad	Uranium-238	U-238	pCi/g	28	--[2]	--
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	1.11E+07	3.88E+08	No
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	270,670	No
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	39,438	No
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	5,138	2,103	Yes
316-1_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	129,106	3.88E+08	No
316-1_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	416	3.77E+07	No
316-1_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	7.87E+06	No
316-1_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	474	1.79E+06	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	2.38E+08	No
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	9,703	2.86E+06	No
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	1.68E+08	No
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	3.2	4,769	No
316-1_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.44E+07	8.95E+07	No
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	5.37E+06	No
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	392,825	2.98E+07	No
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	1,105	715,780	No
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	94,656	7.75E+07	No
316-1_Shallow_3	non-Rad	Phenol	108-95-2	ug/kg	28	1.54E+06	No
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	ug/kg	1,444	2.99E+06	No
316-1_Shallow_3	non-Rad	Silver	7440-22-4	ug/kg	13,196	8.58E+07	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	--[1]	--
316-1_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	56,707	3.88E+08	No
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	82,016	3.88E+08	No
316-1_Shallow_3	Rad	Cesium-137	10045-97-3	pCi/g	0.37	234,630	No
316-1_Shallow_3	Rad	Cobalt-60	10198-40-0	pCi/g	2.3	374,300	No
316-1_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	23	--[2]	--
316-1_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	2.6	--[2]	--
316-1_Shallow_3	Rad	Uranium-238	U-238	pCi/g	21	--[2]	--
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	39,438	No
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	--[1]	--
316-1_Shallow_4	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	374,300	No
316-1_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	16	--[2]	--
316-1_Shallow_4	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--[2]	--
316-1_Shallow_4	Rad	Uranium-238	U-238	pCi/g	14	--[2]	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	--[1]	--
316-2_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.031	234,630	No
316-2_Shallow_1	Rad	Cobalt-60	10198-40-0	pCi/g	0.092	374,300	No
316-2_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	86	--[2]	--
316-2_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	12	--[2]	--
316-2_Shallow_1	Rad	Uranium-238	U-238	pCi/g	69	--[2]	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	22,907	No
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	ug/kg	42	39,438	No
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	ug/kg	110	428,690	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	--[1]	--
316-2_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	0.45	234,630	No
316-2_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.45	374,300	No
316-2_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	115	--[2]	--
316-2_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	11	--[2]	--
316-2_Shallow_2	Rad	Uranium-238	U-238	pCi/g	96	--[2]	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	2,103	Yes
316-2_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	260	7.87E+06	No
316-2_Shallow_3	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	180	7.59E+06	No
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	--[1]	--
316-2_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.91	--[2]	--
316-2_Shallow_3	Rad	Uranium-238	U-238	pCi/g	24	--[2]	--
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	3,070	2,103	Yes
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	38	514,390	No
316-5_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	146	7.87E+06	No
316-5_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	100	7.59E+06	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	--[1]	--
316-5_Shallow_1	Rad	Americium-241	14596-10-2	pCi/g	0.48	35,570	No
316-5_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	2.3	234,630	No
316-5_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	19	--[2]	--
316-5_Shallow_1	Rad	Uranium-238	U-238	pCi/g	89	--[2]	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	270	No
316-5_Shallow_2	non-Rad	2-Butoxyethanol	111-76-2	ug/kg	240	251,000	No
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	3,180	2,103	Yes
316-5_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	76,700	3.88E+08	No
316-5_Shallow_2	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	180	7.87E+06	No
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	110	7.59E+06	No
316-5_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,900	2.38E+08	No
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	ug/kg	38	2.86E+06	No
316-5_Shallow_2	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	146	3.04E+07	No
316-5_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	3,200	5.37E+06	No
316-5_Shallow_2	non-Rad	Selenium	7782-49-2	ug/kg	490	2.99E+06	No
316-5_Shallow_2	non-Rad	Silver	7440-22-4	ug/kg	3,600	8.58E+07	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	--[1]	--
316-5_Shallow_2	Rad	Americium-241	14596-10-2	pCi/g	0.12	35,570	No
316-5_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	1.7	234,630	No
316-5_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	374,300	No
316-5_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	9.0	--[2]	--
316-5_Shallow_2	Rad	Uranium-238	U-238	pCi/g	68	--[2]	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	22,907	No
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	39,438	No
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	428,690	No
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	2,103	Yes

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
316-5_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	190	7.87E+06	No
316-5_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	1,500	3.04E+07	No
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	--[1]	--
316-5_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.8	234,630	No
316-5_Shallow_Focused	Rad	Europium-155	14391-16-3	pCi/g	0.072	1.42E+06	No
316-5_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	7.7	--[2]	--
316-5_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	45	--[2]	--
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	ug/kg	25	265,120	No
331 LSLDF_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	590	2.23E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	0.56	1,495	No
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	ug/kg	0.39	295	No
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.90E+06	3.88E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	360	270,670	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	39,438	No
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,400	2,103	Yes
331 LSLDF_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	78,600	3.88E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	570	3.77E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	7.87E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,700	1.15E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	7.59E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	140	1.79E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,300	2.38E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2.86E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	15,400	1.68E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	1,670	No
331 LSLDF_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	98	3.04E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan I	959-98-8	ug/kg	1.9	2.36E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	ug/kg	3.1	2.36E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.20E+07	8.95E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	9,000	5.37E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	349,000	2.98E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	110	715,780	No
331 LSLDF_Shallow_Focused	non-Rad	Methoxychlor	72-43-5	ug/kg	3.3	3.82E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	11	2,098	No
331 LSLDF_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	590	1.91E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	7.75E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	41,700	1.36E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	9,500	3.03E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,100	8.58E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,402	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	2,300	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	53,100	3.88E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	137,000	3.88E+08	No
331 LSLDF_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	0.54	--[2]	--
331 LSLDF_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.47	--[2]	--
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	ug/kg	279	1.15E+06	No
600-243_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	31	3.88E+08	No
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	270,670	No
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	27	39,438	No
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	18	428,690	No
600-243_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,159	2,103	Yes
600-243_Shallow	non-Rad	Barium	7440-39-3	ug/kg	292,072	3.88E+08	No
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	43	514,390	No
600-243_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	43	785,830	No
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	46	1.15E+06	No
600-243_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	32	1.76E+06	No
600-243_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	2,079	3.77E+07	No
600-243_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	432	7.87E+06	No
600-243_Shallow	non-Rad	Boron	7440-42-8	ug/kg	294,463	1.15E+08	No
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	1.79E+06	No
600-243_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	18,006	2.38E+08	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	2.86E+06	No
600-243_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,207	2.86E+06	No
600-243_Shallow	non-Rad	Copper	7440-50-8	ug/kg	53,981	1.68E+08	No
600-243_Shallow	non-Rad	Dibenzofuran	132-64-9	ug/kg	78	2.16E+06	No
600-243_Shallow	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	37	3.04E+07	No
600-243_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	79	3.75E+08	No
600-243_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	28	4.96E+06	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	5.37E+06	No
600-243_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	208,289	2.98E+07	No
600-243_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	1,869	1.91E+07	No
600-243_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	204	2.32E+06	No
600-243_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	21,395	7.75E+07	No
600-243_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	70	3.88E+08	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	2.99E+06	No
600-243_Shallow	non-Rad	Silver	7440-22-4	ug/kg	500	8.58E+07	No
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	95,319	2.00E+06	No
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	334,524	2.00E+06	No
600-243_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,986	3.88E+08	No
600-243_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	84,099	3.88E+08	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
600-259_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.034	234,630	No
600-259_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.068	234,630	No
600-259_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.038	234,630	No
600-47_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,300	2,103	Yes
600-47_Shallow	non-Rad	Barium	7440-39-3	ug/kg	67,000	3.88E+08	No
600-47_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	500	3.77E+07	No
600-47_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	90	1.79E+06	No
600-47_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	5,500	2.38E+08	No
600-47_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,500	5.37E+06	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	--[1]	--
600-47_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--[2]	--
600-47_Shallow	Rad	Uranium-238	U-238	pCi/g	1.6	--[2]	--
618-1_Deep	non-Rad	Aluminum	7429-90-5	ug/kg	6.37E+06	3.88E+08	No
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	39,438	No
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	ug/kg	294	428,690	No
618-1_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,550	2,103	Yes
618-1_Deep	non-Rad	Barium	7440-39-3	ug/kg	299,000	3.88E+08	No
618-1_Deep	non-Rad	Beryllium	7440-41-7	ug/kg	218	3.77E+07	No
618-1_Deep	non-Rad	Boron	7440-42-8	ug/kg	1,360	1.15E+08	No
618-1_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	263	1.79E+06	No
618-1_Deep	non-Rad	Chromium	7440-47-3	ug/kg	7,740	2.38E+08	No
618-1_Deep	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2.86E+06	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	1.68E+08	No
618-1_Deep	non-Rad	Fluoride	16984-48-8	ug/kg	2,800	3.88E+08	No
618-1_Deep	non-Rad	Iron	7439-89-6	ug/kg	2.47E+07	8.95E+07	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	5.37E+06	No
618-1_Deep	non-Rad	Lithium	7439-93-2	ug/kg	5,980	1.91E+07	No
618-1_Deep	non-Rad	Manganese	7439-96-5	ug/kg	352,000	2.98E+07	No
618-1_Deep	non-Rad	Mercury	7439-97-6	ug/kg	1,180	715,780	No
618-1_Deep	non-Rad	Molybdenum	7439-98-7	ug/kg	493	1.91E+07	No
618-1_Deep	non-Rad	Nickel	7440-02-0	ug/kg	17,600	7.75E+07	No
618-1_Deep	non-Rad	Nitrate	14797-55-8	ug/kg	1,700	1.36E+07	No
618-1_Deep	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	220	3.03E+06	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	--[1]	--
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	--[1]	--
618-1_Deep	non-Rad	Vanadium	7440-62-2	ug/kg	73,000	3.88E+08	No
618-1_Deep	non-Rad	Zinc	7440-66-6	ug/kg	134,000	3.88E+08	No
618-1_Deep	Rad	Cesium-137	10045-97-3	pCi/g	0.46	234,630	No
618-1_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	33	--[2]	--
618-1_Deep	Rad	Uranium-235	15117-96-1	pCi/g	2.7	--[2]	--
618-1_Deep	Rad	Uranium-238	U-238	pCi/g	32	--[2]	--
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	3.88E+08	No
618-1_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	407	270,670	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	39,438	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	99	428,690	No
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,580	2,103	Yes
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	3.88E+08	No
618-1_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	323	3.77E+07	No
618-1_Deep_Focused	non-Rad	Boron	7440-42-8	ug/kg	6,620	1.15E+08	No
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,030	1.79E+06	No
618-1_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	18,900	2.38E+08	No
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,920	2.86E+06	No
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	68,700	1.68E+08	No
618-1_Deep_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	3,300	3.88E+08	No
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.41E+07	8.95E+07	No
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	5.37E+06	No
618-1_Deep_Focused	non-Rad	Lithium	7439-93-2	ug/kg	8,450	1.91E+07	No
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	351,000	2.98E+07	No
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	715,780	No
618-1_Deep_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	2,140	1.91E+07	No
618-1_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	13,700	7.75E+07	No
618-1_Deep_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	11,900	1.36E+07	No
618-1_Deep_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	1,560	3.03E+06	No
618-1_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,290	8.58E+07	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	--[1]	--
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	--[1]	--
618-1_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	70,900	3.88E+08	No
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	82,000	3.88E+08	No
618-1_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	6.5	234,630	No
618-1_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	70	--[2]	--
618-1_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.5	--[2]	--
618-1_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	65	--[2]	--
618-1_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.21E+06	3.88E+08	No
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	39,438	No
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	54	428,690	No
618-1_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,280	2,103	Yes
618-1_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,200	3.88E+08	No
618-1_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	188	3.77E+07	No
618-1_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,190	1.15E+08	No
618-1_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	68	1.79E+06	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-1_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,930	2.38E+08	No
618-1_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,360	2.86E+06	No
618-1_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,400	1.68E+08	No
618-1_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	400	3.88E+08	No
618-1_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	8.95E+07	No
618-1_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,100	5.37E+06	No
618-1_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	6,380	1.91E+07	No
618-1_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	300,000	2.98E+07	No
618-1_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	31	715,780	No
618-1_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	336	1.91E+07	No
618-1_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,150	7.75E+07	No
618-1_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	1,600	1.36E+07	No
618-1_Shallow	non-Rad	Nitrogen in Nitrite and Nitrate	NO2?N	ug/kg	300	3.03E+06	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	--[1]	--
618-1_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	56,300	3.88E+08	No
618-1_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	42,100	3.88E+08	No
618-1_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--[2]	--
618-1_Shallow	Rad	Uranium-238	U-238	pCi/g	1.5	--[2]	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	455	270,670	No
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	22,907	No
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	39,438	No
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	56	428,690	No
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	6,090	2,103	Yes
618-1_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	102,000	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	371	3.77E+07	No
618-1_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	3,740	1.15E+08	No
618-1_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	266	1.79E+06	No
618-1_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	19,500	2.38E+08	No
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2.86E+06	No
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	1.68E+08	No
618-1_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	900	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.28E+07	8.95E+07	No
618-1_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,210	5.37E+06	No
618-1_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	13,300	1.91E+07	No
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	403,000	2.98E+07	No
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	715,780	No
618-1_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	356	1.91E+07	No
618-1_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	16,800	7.75E+07	No
618-1_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	3,800	1.36E+07	No
618-1_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2?N	ug/kg	260	3.03E+06	No
618-1_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,120	8.58E+07	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	--[1]	--
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	--[1]	--
618-1_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	64,700	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	68,100	3.88E+08	No
618-1_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--[2]	--
618-1_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.99	--[2]	--
618-1_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	8.2	--[2]	--
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	2,103	Yes
618-12_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	63	7.87E+06	No
618-12_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	60	7.59E+06	No
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	--[1]	--
618-12_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.47	--[2]	--
618-12_Shallow	Rad	Uranium-238	U-238	pCi/g	11	--[2]	--
618-13_Shallow	non-Rad	Acetone	67-64-1	ug/kg	8.6	2.23E+06	No
618-13_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	3.88E+08	No
618-13_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	312	270,670	No
618-13_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	2,103	Yes
618-13_Shallow	non-Rad	Barium	7440-39-3	ug/kg	74,000	3.88E+08	No
618-13_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	212	3.77E+07	No
618-13_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,050	1.15E+08	No
618-13_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	63	1.79E+06	No
618-13_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,700	2.38E+08	No
618-13_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,290	2.86E+06	No
618-13_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,500	1.68E+08	No
618-13_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.01E+07	8.95E+07	No
618-13_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,620	5.37E+06	No
618-13_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	344,000	2.98E+07	No
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	2,098	No
618-13_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	420	1.91E+07	No
618-13_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,400	7.75E+07	No
618-13_Shallow	non-Rad	Tin	7440-31-5	ug/kg	1,050	3.88E+08	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	--[1]	--
618-13_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,750	--[1]	--
618-13_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	55,800	3.88E+08	No
618-13_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,400	3.88E+08	No
618-13_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.038	234,630	No
618-13_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--[2]	--

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-13_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	--[2]	--
618-13_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	5.9	2.23E+06	No
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.22E+06	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	233	270,670	No
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,390	2,103	Yes
618-13_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	57,700	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	184	3.77E+07	No
618-13_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	960	1.15E+08	No
618-13_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	47	1.79E+06	No
618-13_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,740	2.38E+08	No
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,710	2.86E+06	No
618-13_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,100	1.68E+08	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	471,090	No
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	8.95E+07	No
618-13_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	4,940	5.37E+06	No
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	268,000	2.98E+07	No
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	5.0	2,098	No
618-13_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	297	1.91E+07	No
618-13_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	7.75E+07	No
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	745	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,855	--[1]	--
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	1,500	--[1]	--
618-13_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	48,600	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,100	3.88E+08	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--[2]	--
618-13_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.96	--[2]	--
618-2_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	1,500	2,103	No
618-2_Deep	non-Rad	Barium	7440-39-3	ug/kg	83,300	3.88E+08	No
618-2_Deep	non-Rad	Chromium	7440-47-3	ug/kg	6,700	2.38E+08	No
618-2_Deep	non-Rad	Lead	7439-92-1	ug/kg	6,600	5.37E+06	No
618-2_Deep	non-Rad	Selenium	7782-49-2	ug/kg	780	2.99E+06	No
618-2_Deep	non-Rad	Tin	7440-31-5	ug/kg	2,900	3.88E+08	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	--[1]	--
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	--[1]	--
618-2_Deep	Rad	Americium-241	14596-10-2	pCi/g	7.9	35,570	No
618-2_Deep	Rad	Cesium-137	10045-97-3	pCi/g	1.0	234,630	No
618-2_Deep	Rad	Plutonium-238	13981-16-3	pCi/g	1.5	35,570	No
618-2_Deep	Rad	Plutonium-239/240	PU-239/240	pCi/g	91	35,570	No
618-2_Deep	Rad	Plutonium-241	14119-32-5	pCi/g	42	711,401	No
618-2_Deep	Rad	Total beta radiostrontium	SR-RAD	pCi/g	12	3,808	No
618-2_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	161	--[2]	--
618-2_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.78	--[2]	--
618-2_Deep	Rad	Uranium-238	U-238	pCi/g	165	--[2]	--
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	6.9	39,438	No
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	2,103	Yes
618-2_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	109,000	3.88E+08	No
618-2_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	7.87E+06	No
618-2_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	200	1.79E+06	No
618-2_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,400	2.38E+08	No
618-2_Deep_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	18	3.04E+07	No
618-2_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,800	5.37E+06	No
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	1,200	2.99E+06	No
618-2_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	600	8.58E+07	No
618-2_Deep_Focused	non-Rad	Tin	7440-31-5	ug/kg	42,500	3.88E+08	No
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	--[1]	--
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	--[1]	--
618-2_Deep_Focused	Rad	Americium-241	14596-10-2	pCi/g	9.2	35,570	No
618-2_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.1	234,630	No
618-2_Deep_Focused	Rad	Plutonium-238	13981-16-3	pCi/g	1.6	35,570	No
618-2_Deep_Focused	Rad	Plutonium-239/240	PU-239/240	pCi/g	92	35,570	No
618-2_Deep_Focused	Rad	Plutonium-241	14119-32-5	pCi/g	33	711,401	No
618-2_Deep_Focused	Rad	Total beta radiostrontium	SR-RAD	pCi/g	7.2	3,808	No
618-2_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	48	--[2]	--
618-2_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	2.4	--[2]	--
618-2_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	50	--[2]	--
618-2_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	2,103	Yes
618-2_Overburden	non-Rad	Barium	7440-39-3	ug/kg	74,700	3.88E+08	No
618-2_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	6,600	2.38E+08	No
618-2_Overburden	non-Rad	Lead	7439-92-1	ug/kg	4,300	5.37E+06	No
618-2_Overburden	non-Rad	Selenium	7782-49-2	ug/kg	1,000	2.99E+06	No
618-2_Overburden	non-Rad	Tin	7440-31-5	ug/kg	2,700	3.88E+08	No
618-2_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,749	--[1]	--
618-2_Overburden	non-Rad	Uranium	7440-61-1	ug/kg	1,140	--[1]	--
618-2_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.058	234,630	No
618-2_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.64	--[2]	--
618-2_Overburden	Rad	Uranium-238	U-238	pCi/g	0.59	--[2]	--
618-2_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	1,900	2,103	No
618-2_Shallow	non-Rad	Barium	7440-39-3	ug/kg	79,100	3.88E+08	No
618-2_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,100	2.38E+08	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-2_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,600	5.37E+06	No
618-2_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	760	2.99E+06	No
618-2_Shallow	non-Rad	Tin	7440-31-5	ug/kg	2,400	3.88E+08	No
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	--[1]	--
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	--[1]	--
618-2_Shallow	Rad	Americium-241	14596-10-2	pCi/g	0.81	35,570	No
618-2_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	2.2	234,630	No
618-2_Shallow	Rad	Plutonium-239/240	PU-239/240	pCi/g	7.7	35,570	No
618-2_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.2	--[2]	--
618-2_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.21	--[2]	--
618-2_Shallow	Rad	Uranium-238	U-238	pCi/g	2.2	--[2]	--
618-2_Staging Pile	non-Rad	Arsenic	7440-38-2	ug/kg	3,063	2,103	Yes
618-2_Staging Pile	non-Rad	Barium	7440-39-3	ug/kg	67,690	3.88E+08	No
618-2_Staging Pile	non-Rad	Chromium	7440-47-3	ug/kg	6,424	2.38E+08	No
618-2_Staging Pile	non-Rad	Lead	7439-92-1	ug/kg	4,011	5.37E+06	No
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	--[1]	--
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	--[1]	--
618-2_Staging Pile	Rad	Americium-241	14596-10-2	pCi/g	0.82	35,570	No
618-2_Staging Pile	Rad	Cesium-137	10045-97-3	pCi/g	0.095	234,630	No
618-2_Staging Pile	Rad	Plutonium-239/240	PU-239/240	pCi/g	10	35,570	No
618-2_Staging Pile	Rad	Tritium	10028-17-8	pCi/g	2.3	9,171	No
618-2_Staging Pile	Rad	Uranium-233/234	U-233/234	pCi/g	2.0	--[2]	--
618-2_Staging Pile	Rad	Uranium-235	15117-96-1	pCi/g	0.12	--[2]	--
618-2_Staging Pile	Rad	Uranium-238	U-238	pCi/g	2.0	--[2]	--
618-3_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	2,103	Yes
618-3_Shallow	non-Rad	Barium	7440-39-3	ug/kg	76,500	3.88E+08	No
618-3_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,700	2.38E+08	No
618-3_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,900	5.37E+06	No
618-3_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	659	2.99E+06	No
618-3_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,224	--[1]	--
618-3_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,610	--[1]	--
618-3_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.68	--[2]	--
618-3_Shallow	Rad	Uranium-238	U-238	pCi/g	0.75	--[2]	--
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	--[1]	--
618-3_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	80	--[2]	--
618-3_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.8	--[2]	--
618-3_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	79	--[2]	--
618-4_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	2,103	Yes
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	5.37E+06	No
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	--[1]	--
618-4_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	20	--[2]	--
618-4_Deep	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--[2]	--
618-4_Deep	Rad	Uranium-238	U-238	pCi/g	22	--[2]	--
618-4_Deep_Focused	non-Rad	2-Butanone	78-93-3	ug/kg	130	1.70E+06	No
618-4_Deep_Focused	non-Rad	Acetone	67-64-1	ug/kg	16	2.23E+06	No
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	39,438	No
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	2,103	Yes
618-4_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	104,000	3.88E+08	No
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	7.87E+06	No
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	1.79E+06	No
618-4_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	27,700	2.38E+08	No
618-4_Deep_Focused	non-Rad	Diethyl ether	60-29-7	ug/kg	1.0	665,673	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	5.37E+06	No
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	2,098	No
618-4_Deep_Focused	non-Rad	Phenol	108-95-2	ug/kg	110	1.54E+06	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	282	No
618-4_Deep_Focused	non-Rad	Toluene	108-88-3	ug/kg	4.8	1.25E+06	No
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	34,000	2.00E+06	No
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - kerosene range	TPHKEROSENE	ug/kg	42,000	2.00E+06	No
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	65	2.00E+06	No
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777	--[1]	--
618-4_Deep_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	695	No
618-4_Deep_Focused	non-Rad	Trichloromonofluoromethane	75-69-4	ug/kg	12	1.97E+06	No
618-4_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	7.2	--[2]	--
618-4_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.51	--[2]	--
618-4_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	6.9	--[2]	--
618-4_Overburden_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	2,103	Yes
618-4_Overburden_2	non-Rad	Lead	7439-92-1	ug/kg	4,700	5.37E+06	No
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	--[1]	--
618-4_Overburden_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--[2]	--
618-4_Overburden_2	Rad	Uranium-238	U-238	pCi/g	1.4	--[2]	--
618-4_Overburden_3	non-Rad	Lead	7439-92-1	ug/kg	5,000	5.37E+06	No
618-4_Overburden_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,171	--[1]	--
618-4_Overburden_3	Rad	Uranium-233/234	U-233/234	pCi/g	0.42	--[2]	--
618-4_Overburden_3	Rad	Uranium-235	15117-96-1	pCi/g	0.032	--[2]	--
618-4_Overburden_3	Rad	Uranium-238	U-238	pCi/g	0.44	--[2]	--
618-4_Overburden_4	non-Rad	Lead	7439-92-1	ug/kg	4,800	5.37E+06	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-4_Overburden_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,323	--[1]	--
618-4_Overburden_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	--[2]	--
618-4_Overburden_4	Rad	Uranium-238	U-238	pCi/g	0.94	--[2]	--
618-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,200	2,103	Yes
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	5.37E+06	No
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	--[1]	--
618-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	3.2	--[2]	--
618-4_Shallow	Rad	Uranium-238	U-238	pCi/g	3.1	--[2]	--
618-5_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	2,103	Yes
618-5_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	470	1.79E+06	No
618-5_Deep	non-Rad	Chromium	7440-47-3	ug/kg	14,700	2.38E+08	No
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	5.37E+06	No
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	--[1]	--
618-5_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	8.6	--[2]	--
618-5_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.46	--[2]	--
618-5_Deep	Rad	Uranium-238	U-238	pCi/g	8.9	--[2]	--
618-5_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.65E+06	3.88E+08	No
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	270,670	No
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	2,103	Yes
618-5_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	106,000	3.88E+08	No
618-5_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	672	3.77E+07	No
618-5_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,500	2.38E+08	No
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	10,500	2.86E+06	No
618-5_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	21,400	1.68E+08	No
618-5_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	3.02E+07	8.95E+07	No
618-5_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,600	5.37E+06	No
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	2.98E+07	No
618-5_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	33	715,780	No
618-5_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	11,300	7.75E+07	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	2.99E+06	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	--[1]	--
618-5_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	79,500	3.88E+08	No
618-5_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	65,800	3.88E+08	No
618-5_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--[2]	--
618-5_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.48	--[2]	--
618-5_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	12	--[2]	--
618-5_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,400	2,103	Yes
618-5_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	170	1.79E+06	No
618-5_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	9,700	2.38E+08	No
618-5_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,500	5.37E+06	No
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	--[1]	--
618-5_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	4.1	--[2]	--
618-5_Overburden	Rad	Uranium-238	U-238	pCi/g	4.6	--[2]	--
618-5_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	2,103	Yes
618-5_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	11,300	2.38E+08	No
618-5_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,100	5.37E+06	No
618-5_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,849	--[1]	--
618-5_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	--[2]	--
618-5_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	--[2]	--
618-5_Staging Pile_4	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	2,103	Yes
618-5_Staging Pile_4	non-Rad	Cadmium	7440-43-9	ug/kg	50	1.79E+06	No
618-5_Staging Pile_4	non-Rad	Chromium	7440-47-3	ug/kg	11,800	2.38E+08	No
618-5_Staging Pile_4	non-Rad	Lead	7439-92-1	ug/kg	5,300	5.37E+06	No
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	--[1]	--
618-5_Staging Pile_4	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--[2]	--
618-5_Staging Pile_4	Rad	Uranium-238	U-238	pCi/g	1.1	--[2]	--
618-5_Staging Pile_5	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	2,103	Yes
618-5_Staging Pile_5	non-Rad	Chromium	7440-47-3	ug/kg	10,300	2.38E+08	No
618-5_Staging Pile_5	non-Rad	Lead	7439-92-1	ug/kg	3,900	5.37E+06	No
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	--[1]	--
618-5_Staging Pile_5	Rad	Uranium-233/234	U-233/234	pCi/g	1.5	--[2]	--
618-5_Staging Pile_5	Rad	Uranium-235	15117-96-1	pCi/g	0.17	--[2]	--
618-5_Staging Pile_5	Rad	Uranium-238	U-238	pCi/g	1.7	--[2]	--
618-7_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.25E+06	3.88E+08	No
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	270,670	No
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	1,891	2,103	No
618-7_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	68,874	3.88E+08	No
618-7_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	278	3.77E+07	No
618-7_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	65	1.79E+06	No
618-7_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	10,227	2.38E+08	No
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	9,152	2.86E+06	No
618-7_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	16,120	1.68E+08	No
618-7_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	8.95E+07	No
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	5.37E+06	No
618-7_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	326,067	2.98E+07	No
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	44	715,780	No
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	20,977	7.75E+07	No
618-7_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,547	3.88E+08	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	--[1]	--
618-7_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	74,576	3.88E+08	No
618-7_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	49,177	3.88E+08	No
618-7_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.067	234,630	No
618-7_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	3.6	--[2]	--
618-7_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	0.36	--[2]	--
618-7_Shallow_1	Rad	Uranium-238	U-238	pCi/g	3.6	--[2]	--
618-7_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	4.97E+06	3.88E+08	No
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	270,670	No
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	2,103	Yes
618-7_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	73,800	3.88E+08	No
618-7_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	440	3.77E+07	No
618-7_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,800	2.38E+08	No
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	9,300	2.86E+06	No
618-7_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	13,600	1.68E+08	No
618-7_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	8.95E+07	No
618-7_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	2,800	5.37E+06	No
618-7_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	364,000	2.98E+07	No
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	715,780	No
618-7_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,700	7.75E+07	No
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	3.88E+08	No
618-7_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,574	--[1]	--
618-7_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	74,700	3.88E+08	No
618-7_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	46,200	3.88E+08	No
618-7_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	0.57	--[2]	--
618-7_Shallow_2	Rad	Uranium-238	U-238	pCi/g	0.53	--[2]	--
618-7_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	6.74E+06	3.88E+08	No
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	270,670	No
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	2,103	Yes
618-7_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	82,500	3.88E+08	No
618-7_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	310	3.77E+07	No
618-7_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	190	1.79E+06	No
618-7_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	10,100	2.38E+08	No
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2.86E+06	No
618-7_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	13,600	1.68E+08	No
618-7_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.43E+07	8.95E+07	No
618-7_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	4,300	5.37E+06	No
618-7_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	357,000	2.98E+07	No
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	715,780	No
618-7_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	10,100	7.75E+07	No
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	3.88E+08	No
618-7_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,852	--[1]	--
618-7_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	68,200	3.88E+08	No
618-7_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	44,500	3.88E+08	No
618-7_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--[2]	--
618-7_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.085	--[2]	--
618-7_Shallow_3	Rad	Uranium-238	U-238	pCi/g	0.95	--[2]	--
618-7_Shallow_4	non-Rad	Aluminum	7429-90-5	ug/kg	5.65E+06	3.88E+08	No
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	ug/kg	250	270,670	No
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	2,103	Yes
618-7_Shallow_4	non-Rad	Barium	7440-39-3	ug/kg	57,900	3.88E+08	No
618-7_Shallow_4	non-Rad	Beryllium	7440-41-7	ug/kg	220	3.77E+07	No
618-7_Shallow_4	non-Rad	Cadmium	7440-43-9	ug/kg	90	1.79E+06	No
618-7_Shallow_4	non-Rad	Chromium	7440-47-3	ug/kg	11,400	2.38E+08	No
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	ug/kg	6,700	2.86E+06	No
618-7_Shallow_4	non-Rad	Copper	7440-50-8	ug/kg	13,200	1.68E+08	No
618-7_Shallow_4	non-Rad	Iron	7439-89-6	ug/kg	2.12E+07	8.95E+07	No
618-7_Shallow_4	non-Rad	Lead	7439-92-1	ug/kg	3,000	5.37E+06	No
618-7_Shallow_4	non-Rad	Manganese	7439-96-5	ug/kg	285,000	2.98E+07	No
618-7_Shallow_4	non-Rad	Nickel	7440-02-0	ug/kg	12,900	7.75E+07	No
618-7_Shallow_4	non-Rad	Tin	7440-31-5	ug/kg	710	3.88E+08	No
618-7_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,064	--[1]	--
618-7_Shallow_4	non-Rad	Vanadium	7440-62-2	ug/kg	54,800	3.88E+08	No
618-7_Shallow_4	non-Rad	Zinc	7440-66-6	ug/kg	37,000	3.88E+08	No
618-7_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.69	--[2]	--
618-7_Shallow_4	Rad	Uranium-238	U-238	pCi/g	0.76	--[2]	--
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	7.03E+07	No
618-7_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.61E+06	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	270,670	No
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	22,907	No
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,200	2,103	Yes
618-7_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	92,800	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	514,390	No
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	66	785,830	No
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	1.15E+06	No
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	11	1.76E+06	No
618-7_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	370	3.77E+07	No
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	470	7.87E+06	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	1.79E+06	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	65,900	2.38E+08	No
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	2.86E+06	No
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,000	2.86E+06	No
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	1.68E+08	No
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	45	2.56E+06	No
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	33	3.04E+07	No
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	48	3.75E+08	No
618-7_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.87E+07	8.95E+07	No
618-7_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,500	5.37E+06	No
618-7_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	425,000	2.98E+07	No
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	20	715,780	No
618-7_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	17,200	7.75E+07	No
618-7_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	410	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,200	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	680,000	2.00E+06	No
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	--[1]	--
618-7_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	80,500	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,400	3.88E+08	No
618-7_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.010	234,630	No
618-7_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--[2]	--
618-7_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.97	--[2]	--
618-7_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	6.4	--[2]	--
618-8_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,100	2,103	Yes
618-8_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,600	3.88E+08	No
618-8_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	12,400	2.38E+08	No
618-8_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,100	5.37E+06	No
618-8_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	846	2.99E+06	No
618-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,935	--[1]	--
618-8_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,720	--[1]	--
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--[2]	--
618-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.73	--[2]	--
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	270	No
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	680	2.23E+06	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	1,495	No
618-9_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	3.88E+08	No
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	637,870	No
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	5,384	No
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	5,384	No
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	23,376	No
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	22,907	No
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	39,438	No
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	428,690	No
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	2,103	Yes
618-9_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	90,200	3.88E+08	No
618-9_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	330	3.77E+07	No
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	7.87E+06	No
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	7.59E+06	No
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	152,050	No
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	1,310	No
618-9_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,700	2.38E+08	No
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,400	2.86E+06	No
618-9_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	16,700	1.68E+08	No
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	7,200	3.04E+07	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	4,769	No
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	359,200	No
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	67,218	No
618-9_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.49E+07	8.95E+07	No
618-9_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	7,700	5.37E+06	No
618-9_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	359,000	2.98E+07	No
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	330	715,780	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	2,098	Yes
618-9_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,600	7.75E+07	No
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	1.36E+07	No
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	282	Yes
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	ug/kg	9.0	1.25E+06	No
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	--[1]	--
618-9_Shallow_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	695	No
618-9_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	3,100	--[1]	--
618-9_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,300	3.88E+08	No
618-9_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,300	3.88E+08	No
618-9_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.071	--[2]	--
618-9_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	3.0	--[2]	--
628-4_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,374	2,103	Yes
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	7.87E+06	No
628-4_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,284	5.37E+06	No
628-4_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,308	--[1]	--
628-4_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.033	234,630	No
628-4_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.87	--[2]	--
628-4_Overburden	Rad	Uranium-238	U-238	pCi/g	0.78	--[2]	--

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	23,376	No
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	22,907	No
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	39,438	No
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	428,690	No
628-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,864	2,103	Yes
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	5.37E+06	No
628-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,163	--[1]	--
628-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--[2]	--
628-4_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.11	--[2]	--
628-4_Shallow	Rad	Uranium-238	U-238	pCi/g	1.0	--[2]	--
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	7.03E+07	No
UPR-300-17_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	7.0	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	359	270,670	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	22,907	No
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	39,438	No
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	428,690	No
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,573	2,103	Yes
UPR-300-17_Shallow	non-Rad	Barium	7440-39-3	ug/kg	81,014	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	514,390	No
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	44	785,830	No
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	33	1.15E+06	No
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	9.9	1.76E+06	No
UPR-300-17_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	240	3.77E+07	No
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	ug/kg	3,903	1.15E+08	No
UPR-300-17_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	173	1.79E+06	No
UPR-300-17_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	13,795	2.38E+08	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	2.86E+06	No
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,688	2.86E+06	No
UPR-300-17_Shallow	non-Rad	Copper	7440-50-8	ug/kg	15,135	1.68E+08	No
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	35	3.75E+08	No
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.9	5.90E+07	No
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	5.9	4.96E+06	No
UPR-300-17_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	8.95E+07	No
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	5.37E+06	No
UPR-300-17_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	285,159	2.98E+07	No
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	715,780	No
UPR-300-17_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	412	1.91E+07	No
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	48	2.32E+06	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	7.75E+07	No
UPR-300-17_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	34	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Silver	7440-22-4	ug/kg	340	8.58E+07	No
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	2,950	2.00E+06	No
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	210,420	2.00E+06	No
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	--[1]	--
UPR-300-17_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,150	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	3.88E+08	No
UPR-300-17_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	6.1	--[2]	--
UPR-300-17_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.91	--[2]	--
UPR-300-17_Shallow	Rad	Uranium-238	U-238	pCi/g	4.0	--[2]	--
UPR-300-46_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	13	7.03E+07	No
UPR-300-46_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.80E+06	3.88E+08	No
UPR-300-46_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	381	270,670	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	22,907	No
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	39,438	No
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	428,690	No
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,846	2,103	Yes
UPR-300-46_Shallow	non-Rad	Barium	7440-39-3	ug/kg	82,137	3.88E+08	No
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	3.9	514,390	No
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.4	785,830	No
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	5.4	1.15E+06	No
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	2.8	1.76E+06	No
UPR-300-46_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	222	3.77E+07	No
UPR-300-46_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,714	1.15E+08	No
UPR-300-46_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	95	1.79E+06	No
UPR-300-46_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,173	2.38E+08	No
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	5.6	2.86E+06	No
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,361	2.86E+06	No
UPR-300-46_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,151	1.68E+08	No
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	1.3	2.56E+06	No
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	9.6	3.75E+08	No
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.2	5.90E+07	No
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	7.6	4.96E+06	No
UPR-300-46_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	8.95E+07	No
UPR-300-46_Shallow	non-Rad	Lead	7439-92-1	ug/kg	7,105	5.37E+06	No
UPR-300-46_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	311,001	2.98E+07	No
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	29	715,780	No
UPR-300-46_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	456	1.91E+07	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	2.32E+06	No
UPR-300-46_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	9,230	7.75E+07	No

Table A-2. Comparison of EPC from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Groundwater (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Groundwater Protection	Is EPC > Soil Screening Level Protective of Groundwater?
UPR-300-46_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	4.4	3.88E+08	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	--[1]	--
UPR-300-46_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	53,808	3.88E+08	No
UPR-300-46_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	47,945	3.88E+08	No
UPR-300-46_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.070	234,630	No
UPR-300-46_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.8	--[2]	--
UPR-300-46_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--[2]	--
UPR-300-46_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	--[2]	--

Notes:

1. Due to the complex geochemistry of uranium in 300 Area OU soils, uranium was considered to be a COPC for groundwater protection without comparison to a STOMP 1D 100:0 soil screening level.
2. Uranium isotopes are accounted for by converting from activity-based (pCi/g) to mass-based (µg/kg) concentrations and summing to provide a mass-based total uranium concentration (identified as Total_U_Isotopes).
3. The single detection of n-Nitrosodi-n-dipropylamine is an estimated concentration considerably below the method detection limit. Therefore, n-Nitrosodi-n-dipropylamine was not considered to be a COPC for both the protection of groundwater and the protection of surface water.

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	0.056	Yes
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,078	1.2	Yes
300 ASH PITS_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	96	2,640	No
300 ASH PITS_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	76	2,310	No
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,450	34,200	No
300 ASH PITS_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.039	--	--
300 ASH PITS_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--	--
300 VTS_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.029	--	--
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	1.2	Yes
300-10_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	200	2,640	No
300-10_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	230	2,310	No
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	34,200	No
300-10_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.16	--	--
300-10_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.041	--	--
300-10_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--	--
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.62E+06	2.61E+06	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	0.097	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	40	1.1	Yes
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,420	1.2	Yes
300-109_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	63,300	504,000	No
300-109_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.2	308	No
300-109_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	2.3	45	No
300-109_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	180	4.31E+06	No
300-109_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	632	--	--
300-109_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	59	151	No
300-109_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,950	260,000	No
300-109_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	1.8	11	No
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	6,420	2,600	Yes
300-109_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,800	4,000	Yes
300-109_Shallow_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	14	194	No
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.75E+07	151,000	Yes
300-109_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	2,890	1,270	Yes
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	278,000	50,200	Yes
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	22	7.3	Yes
300-109_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	341	524,000	No
300-109_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,490	67,800	No
300-109_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	1.6	1.13E+06	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	34,200	No
300-109_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	47,600	--	--
300-109_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	34,700	55,000	No
300-109_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--	--
300-109_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--	--
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.78E+06	2.61E+06	Yes
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	37	0.097	Yes
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	19	1.1	Yes
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,580	1.2	Yes
300-109_Staging Pile Area_Focused	non-Rad	Barium	7440-39-3	ug/kg	72,700	504,000	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	2.1	20	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.3	308	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.3	45	No
300-109_Staging Pile Area_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	203	4.31E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,060	--	--
300-109_Staging Pile Area_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	66	151	No
300-109_Staging Pile Area_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,170	260,000	No
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,950	2,600	Yes
300-109_Staging Pile Area_Focused	non-Rad	Copper	7440-50-8	ug/kg	11,600	4,000	Yes
300-109_Staging Pile Area_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	5.1	88,900	No
300-109_Staging Pile Area_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	29	194	No
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.84E+07	151,000	Yes
300-109_Staging Pile Area_Focused	non-Rad	Lead	7439-92-1	ug/kg	5,030	1,270	Yes
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	ug/kg	286,000	50,200	Yes
300-109_Staging Pile Area_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	408	524,000	No
300-109_Staging Pile Area_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,570	67,800	No
300-109_Staging Pile Area_Focused	non-Rad	Pyrene	129-00-0	ug/kg	7.0	1.13E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,450	1.35E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	34,200	No
300-109_Staging Pile Area_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	45,100	--	--
300-109_Staging Pile Area_Focused	non-Rad	Zinc	7440-66-6	ug/kg	48,800	55,000	No
300-109_Staging Pile Area_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	2.5	--	--
300-109_Staging Pile Area_Focused	Rad	Uranium-238	U-238	pCi/g	2.3	--	--
300-18_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	1.2	Yes
300-18_Shallow	non-Rad	Barium	7440-39-3	ug/kg	63,400	504,000	No
300-18_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	650	4.31E+06	No
300-18_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	40	151	No
300-18_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	6,900	260,000	No
300-18_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,600	1,270	Yes
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,136	34,200	No
300-18_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.65	--	--
300-18_Shallow	Rad	Uranium-238	U-238	pCi/g	0.41	--	--
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	120,000	--	--
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	230,000	--	--
300-23_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	52,000	--	--
300-259_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	5.99E+06	2.61E+06	Yes
300-259_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	322	444	No
300-259_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,096	1.2	Yes
300-259_Shallow	non-Rad	Barium	7440-39-3	ug/kg	75,232	504,000	No
300-259_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	226	4.31E+06	No

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
300-259_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,303	--	--
300-259_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	252	151	Yes
300-259_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,901	260,000	No
300-259_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	5,831	2,600	Yes
300-259_Shallow	non-Rad	Copper	7440-50-8	ug/kg	10,692	4,000	Yes
300-259_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes
300-259_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,625	1,270	Yes
300-259_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,874	50,200	Yes
300-259_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	10	7.3	Yes
300-259_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	303	524,000	No
300-259_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,751	67,800	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	34,200	No
300-259_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	42,626	--	--
300-259_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	479,584	55,000	Yes
300-259_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.6	--	--
300-259_Shallow	Rad	Uranium-238	U-238	pCi/g	1.3	--	--
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.17E+06	2.61E+06	Yes
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	444	Yes
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,160	1.2	Yes
300-260_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	122,000	504,000	No
300-260_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	239	4.31E+06	No
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	--	--
300-260_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	110	151	No
300-260_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,890	260,000	No
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	7,430	2,600	Yes
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	4,000	Yes
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.04E+07	151,000	Yes
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	1,270	Yes
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	328,000	50,200	Yes
300-260_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	12	7.3	Yes
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	524,000	No
300-260_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,200	67,800	No
300-260_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	206	4,710	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	34,200	No
300-260_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,000	--	--
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	77,400	55,000	Yes
300-260_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.25	--	--
300-260_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.3	--	--
300-272_Overburden_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	13,100	--	--
300-272_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	43,100	--	--
300-275_Shallow_1	non-Rad	Acenaphthene	83-32-9	ug/kg	960	81,300	No
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.61E+06	2.61E+06	Yes
300-275_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	260	444	No
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	2,211	1.2	Yes
300-275_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	75,261	504,000	No
300-275_Shallow_1	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.3	308	No
300-275_Shallow_1	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.9	45	No
300-275_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	452	4.31E+06	No
300-275_Shallow_1	non-Rad	Boron	7440-42-8	ug/kg	1,466	--	--
300-275_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	83	151	No
300-275_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	8,022	260,000	No
300-275_Shallow_1	non-Rad	Chrysene	218-01-9	ug/kg	2.2	11	No
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	5,847	2,600	Yes
300-275_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	42,923	4,000	Yes
300-275_Shallow_1	non-Rad	Fluoranthene	206-44-0	ug/kg	2,300	88,900	No
300-275_Shallow_1	non-Rad	Fluorene	86-73-7	ug/kg	81	174,000	No
300-275_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes
300-275_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	7,189	1,270	Yes
300-275_Shallow_1	non-Rad	Lithium	7439-93-2	ug/kg	6,686	--	--
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	276,815	50,200	Yes
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	17	7.3	Yes
300-275_Shallow_1	non-Rad	Molybdenum	7439-98-7	ug/kg	378	524,000	No
300-275_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	9,461	67,800	No
300-275_Shallow_1	non-Rad	Silver	7440-22-4	ug/kg	121	4,710	No
300-275_Shallow_1	non-Rad	Strontium	7440-24-6	ug/kg	20,196	1.31E+07	No
300-275_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,483	1.35E+06	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	34,200	No
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	ug/kg	2,500	34,200	No
300-275_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	45,128	--	--
300-275_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	41,014	55,000	No
300-275_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.046	--	--
300-275_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	7.7	--	--
300-275_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.0	--	--
300-275_Shallow_1	Rad	Uranium-238	U-238	pCi/g	7.4	--	--
300-275_Shallow_2	non-Rad	Acenaphthene	83-32-9	ug/kg	3.6	81,300	No
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	6.24E+06	2.61E+06	Yes
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,761	1.2	Yes
300-275_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	68,607	504,000	No
300-275_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	254	4.31E+06	No
300-275_Shallow_2	non-Rad	Boron	7440-42-8	ug/kg	1,147	--	--
300-275_Shallow_2	non-Rad	Cadmium	7440-43-9	ug/kg	144	151	No
300-275_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	8,994	260,000	No
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	5,977	2,600	Yes
300-275_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	11,596	4,000	Yes
300-275_Shallow_2	non-Rad	Fluoranthene	206-44-0	ug/kg	56	88,900	No
300-275_Shallow_2	non-Rad	Fluorene	86-73-7	ug/kg	2.6	174,000	No
300-275_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
300-275_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	4,099	1,270	Yes
300-275_Shallow_2	non-Rad	Lithium	7439-93-2	ug/kg	7,067	--	--
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	292,731	50,200	Yes
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	28	7.3	Yes
300-275_Shallow_2	non-Rad	Molybdenum	7439-98-7	ug/kg	404	524,000	No
300-275_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,593	67,800	No
300-275_Shallow_2	non-Rad	Strontium	7440-24-6	ug/kg	27,081	1.31E+07	No
300-275_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,149	1.35E+06	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	34,200	No
300-275_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	51,632	--	--
300-275_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	41,245	55,000	No
300-275_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--	--
300-275_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--	--
300-275_Shallow_2	Rad	Uranium-238	U-238	pCi/g	1.2	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.32E+06	2.61E+06	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	ug/kg	10	0.14	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	16	0.058	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	0.056	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	0.097	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	17	1.1	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,638	1.2	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Barium	7440-39-3	ug/kg	72,411	504,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	256	4.31E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,484	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	228	2,310	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	94	151	No
300-33, 300-41, 300-256_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	8,781	260,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,273	2,600	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,662	4,000	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	1,651	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.00E+07	151,000	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,268	1,270	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	5,495	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	314,762	50,200	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	16	7.3	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	2.9	20	No
300-33, 300-41, 300-256_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	486	524,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,880	67,800	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	8,617	180,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Silver	7440-22-4	ug/kg	782	4,710	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	34,200	No
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	34,200	No
300-33, 300-41, 300-256_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,694	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,462	55,000	No
300-33, 300-41, 300-256_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.1	--	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.34	--	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-238	U-238	pCi/g	2.1	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.51E+06	2.61E+06	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	0.056	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	0.097	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	1.1	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,240	1.2	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	64,600	504,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	169	4.31E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,030	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	100	151	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,080	260,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,640	2,600	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,400	4,000	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	1,300	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.86E+07	151,000	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	3,160	1,270	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	6,580	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	259,000	50,200	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2.2	20	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	275	524,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,040	67,800	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	17,900	180,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	34,200	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	51,400	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	38,900	55,000	No
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	3.0	--	--
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	2.2	--	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	0.097	Yes
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	1.1	Yes
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	1.2	Yes
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,027	34,200	No
300-44_Overburden_Focused	Rad	Uranium-238	U-238	pCi/g	0.35	--	--
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.71E+06	2.61E+06	Yes
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	444	Yes
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	1.2	Yes
300-44_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	75,200	504,000	No
300-44_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	480	4.31E+06	No
300-44_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,300	260,000	No
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,200	2,600	Yes
300-44_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	7,800	4,000	Yes
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.94E+07	151,000	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	303,000	50,200	Yes
300-44_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,600	67,800	No
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	872	34,200	No
300-44_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	43,200	--	--
300-44_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,800	55,000	No
300-44_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.29	--	--
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	86	1.1	Yes
300-45_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	290	2,640	No
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	34,200	No
300-45_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.023	--	--
300-45_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.061	--	--
300-45_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.2	--	--
300-49_Overburden	non-Rad	1,2,4-Trichlorobenzene	120-82-1	ug/kg	31	73	No
300-49_Overburden	non-Rad	1,4-Dichlorobenzene	106-46-7	ug/kg	29	356	No
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	0.65	Yes
300-49_Overburden	non-Rad	2-Chlorophenol	95-57-8	ug/kg	51	955	No
300-49_Overburden	non-Rad	4-Chloro-3-methylphenol	59-50-7	ug/kg	46	422,000	No
300-49_Overburden	non-Rad	Acenaphthene	83-32-9	ug/kg	31	81,300	No
300-49_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.30E+06	2.61E+06	Yes
300-49_Overburden	non-Rad	Antimony	7440-36-0	ug/kg	232	444	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	0.097	Yes
300-49_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,291	1.2	Yes
300-49_Overburden	non-Rad	Barium	7440-39-3	ug/kg	76,068	504,000	No
300-49_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	201	4.31E+06	No
300-49_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	174	151	Yes
300-49_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	18,106	260,000	No
300-49_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	7,127	2,600	Yes
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	4,000	Yes
300-49_Overburden	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	52	70,800	No
300-49_Overburden	non-Rad	Iron	7439-89-6	ug/kg	2.08E+07	151,000	Yes
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	1,270	Yes
300-49_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	316,669	50,200	Yes
300-49_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	13,035	67,800	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	0.022	Yes
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	4.3	Yes
300-49_Overburden	non-Rad	Phenol	108-95-2	ug/kg	50	45,800	No
300-49_Overburden	non-Rad	Pyrene	129-00-0	ug/kg	40	1.13E+06	No
300-49_Overburden	non-Rad	Silver	7440-22-4	ug/kg	703	4,710	No
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,066	34,200	No
300-49_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	50,380	--	--
300-49_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	141,984	55,000	Yes
300-49_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	1.0	--	--
300-49_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.057	--	--
300-49_Overburden	Rad	Uranium-238	U-238	pCi/g	1.0	--	--
300-49_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.92E+06	2.61E+06	Yes
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	444	No
300-49_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,431	1.2	Yes
300-49_Shallow	non-Rad	Barium	7440-39-3	ug/kg	89,874	504,000	No
300-49_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	303	4.31E+06	No
300-49_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,170	260,000	No
300-49_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,323	2,600	Yes
300-49_Shallow	non-Rad	Copper	7440-50-8	ug/kg	14,870	4,000	Yes
300-49_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.59E+07	151,000	Yes
300-49_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,629	1,270	Yes
300-49_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	361,805	50,200	Yes
300-49_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	10,664	67,800	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	4,710	No
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,983	34,200	No
300-49_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	58,672	--	--
300-49_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	54,651	55,000	No
300-49_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.15	--	--
300-49_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--	--
300-49_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--	--
300-49_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	--	--
300-50_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.68E+06	2.61E+06	Yes
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	33	0.097	Yes
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	ug/kg	229	1.1	Yes
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	1.2	Yes
300-50_Overburden	non-Rad	Barium	7440-39-3	ug/kg	117,742	504,000	No
300-50_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	325	4.31E+06	No
300-50_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	563	151	Yes
300-50_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	12,197	260,000	No
300-50_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	9,389	2,600	Yes
300-50_Overburden	non-Rad	Copper	7440-50-8	ug/kg	64,527	4,000	Yes
300-50_Overburden	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes
300-50_Overburden	non-Rad	Lead	7439-92-1	ug/kg	5,905	1,270	Yes
300-50_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	314,271	50,200	Yes
300-50_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	15,229	67,800	No
300-50_Overburden	non-Rad	Silver	7440-22-4	ug/kg	1,202	4,710	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	34,200	No
300-50_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	45,243	--	--
300-50_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	45,889	55,000	No
300-50_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.056	--	--
300-50_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	6.0	--	--
300-50_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.45	--	--
300-50_Overburden	Rad	Uranium-238	U-238	pCi/g	6.0	--	--
300-50_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.88E+06	2.61E+06	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	444	Yes
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	0.097	Yes
300-50_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,403	1.2	Yes
300-50_Shallow	non-Rad	Barium	7440-39-3	ug/kg	103,029	504,000	No
300-50_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	282	4.31E+06	No
300-50_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	2,640	No
300-50_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	463	151	Yes
300-50_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	16,841	260,000	No
300-50_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,109	2,600	Yes
300-50_Shallow	non-Rad	Copper	7440-50-8	ug/kg	16,820	4,000	Yes
300-50_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	151,000	Yes
300-50_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,381	1,270	Yes
300-50_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,120	50,200	Yes
300-50_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,413	67,800	No
300-50_Shallow	non-Rad	Silver	7440-22-4	ug/kg	2,992	4,710	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	34,200	No
300-50_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,964	--	--
300-50_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,344	55,000	No
300-50_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.056	--	--
300-50_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	7.9	--	--
300-50_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.66	--	--
300-50_Shallow	Rad	Uranium-238	U-238	pCi/g	8.4	--	--
300-8_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	574	4.31E+06	No
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,374	34,200	No
300-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.79	--	--
300-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	34,200	Yes
316-1_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.10	--	--
316-1_Overburden	Rad	Cobalt-60	10198-40-0	pCi/g	0.32	--	--
316-1_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	13	--	--
316-1_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--	--
316-1_Overburden	Rad	Uranium-238	U-238	pCi/g	13	--	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	0.056	Yes
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	1.2	Yes
316-1_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	69	2,640	No
316-1_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	98	2,310	No
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	34,200	Yes
316-1_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.032	--	--
316-1_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.2	--	--
316-1_Shallow_1	Rad	Uranium-238	U-238	pCi/g	28	--	--
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	1.11E+07	2.61E+06	Yes
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	444	Yes
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	0.097	Yes
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	5,138	1.2	Yes
316-1_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	129,106	504,000	No
316-1_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	416	4.31E+06	No
316-1_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	2,640	No
316-1_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	474	151	Yes
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	260,000	No
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	9,703	2,600	Yes
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	4,000	Yes
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	3.2	0.065	Yes
316-1_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.44E+07	151,000	Yes
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	1,270	Yes
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	392,825	50,200	Yes
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	1,105	7.3	Yes
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	94,656	67,800	Yes
316-1_Shallow_3	non-Rad	Phenol	108-95-2	ug/kg	28	45,800	No
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	ug/kg	1,444	520	Yes
316-1_Shallow_3	non-Rad	Silver	7440-22-4	ug/kg	13,196	4,710	Yes
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	34,200	Yes
316-1_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	56,707	--	--
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	82,016	55,000	Yes
316-1_Shallow_3	Rad	Cesium-137	10045-97-3	pCi/g	0.37	--	--
316-1_Shallow_3	Rad	Cobalt-60	10198-40-0	pCi/g	2.3	--	--
316-1_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	23	--	--
316-1_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	2.6	--	--
316-1_Shallow_3	Rad	Uranium-238	U-238	pCi/g	21	--	--
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	0.097	Yes
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	34,200	Yes
316-1_Shallow_4	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	--	--
316-1_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	16	--	--
316-1_Shallow_4	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--	--
316-1_Shallow_4	Rad	Uranium-238	U-238	pCi/g	14	--	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	34,200	Yes
316-2_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.031	--	--
316-2_Shallow_1	Rad	Cobalt-60	10198-40-0	pCi/g	0.092	--	--
316-2_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	86	--	--
316-2_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	12	--	--
316-2_Shallow_1	Rad	Uranium-238	U-238	pCi/g	69	--	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	0.056	Yes
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	ug/kg	42	0.097	Yes
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	ug/kg	110	1.1	Yes
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	34,200	Yes
316-2_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	0.45	--	--
316-2_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.45	--	--
316-2_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	115	--	--

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
316-2_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	11	--	--
316-2_Shallow_2	Rad	Uranium-238	U-238	pCi/g	96	--	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	1.2	Yes
316-2_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	260	2,640	No
316-2_Shallow_3	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	180	2,310	No
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	34,200	Yes
316-2_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.91	--	--
316-2_Shallow_3	Rad	Uranium-238	U-238	pCi/g	24	--	--
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	3,070	1.2	Yes
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	38	20	Yes
316-5_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	146	2,640	No
316-5_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	100	2,310	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	34,200	Yes
316-5_Shallow_1	Rad	Americium-241	14596-10-2	pCi/g	0.48	--	--
316-5_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	2.3	--	--
316-5_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	19	--	--
316-5_Shallow_1	Rad	Uranium-238	U-238	pCi/g	89	--	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	0.95	Yes
316-5_Shallow_2	non-Rad	2-Butoxyethanol	111-76-2	ug/kg	240	332,818	No
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	3,180	1.2	Yes
316-5_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	76,700	504,000	No
316-5_Shallow_2	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	180	2,640	No
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	110	2,310	No
316-5_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,900	260,000	No
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	ug/kg	38	11	Yes
316-5_Shallow_2	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	146	70,800	No
316-5_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	3,200	1,270	Yes
316-5_Shallow_2	non-Rad	Selenium	7782-49-2	ug/kg	490	520	No
316-5_Shallow_2	non-Rad	Silver	7440-22-4	ug/kg	3,600	4,710	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	34,200	Yes
316-5_Shallow_2	Rad	Americium-241	14596-10-2	pCi/g	0.12	--	--
316-5_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	1.7	--	--
316-5_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	--	--
316-5_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	9.0	--	--
316-5_Shallow_2	Rad	Uranium-238	U-238	pCi/g	68	--	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	0.056	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	0.097	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	1.1	Yes
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	1.2	Yes
316-5_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	190	2,640	No
316-5_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	1,500	70,800	No
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	34,200	Yes
316-5_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.8	--	--
316-5_Shallow_Focused	Rad	Europium-155	14391-16-3	pCi/g	0.072	--	--
316-5_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	7.7	--	--
316-5_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	45	--	--
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	ug/kg	25	0.38	Yes
331 LSLDF_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	590	2.96E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	0.56	0.048	Yes
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	ug/kg	0.39	0.10	Yes
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.90E+06	2.61E+06	Yes
331 LSLDF_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	360	444	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	0.097	Yes
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,400	1.2	Yes
331 LSLDF_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	78,600	504,000	No
331 LSLDF_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	570	4.31E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	2,640	No
331 LSLDF_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,700	--	--
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	2,310	No
331 LSLDF_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	140	151	No
331 LSLDF_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,300	260,000	No
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes
331 LSLDF_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	15,400	4,000	Yes
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	0.027	Yes
331 LSLDF_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	98	70,800	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan I	959-98-8	ug/kg	1.9	2.5	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	ug/kg	3.1	2.5	Yes
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.20E+07	151,000	Yes
331 LSLDF_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	9,000	1,270	Yes
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	349,000	50,200	Yes
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	110	7.3	Yes
331 LSLDF_Shallow_Focused	non-Rad	Methoxychlor	72-43-5	ug/kg	3.3	48	No
331 LSLDF_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	11	20	No
331 LSLDF_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	590	524,000	No
331 LSLDF_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	67,800	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	41,700	180,000	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	9,500	40,000	No
331 LSLDF_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,100	4,710	No
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,402	34,200	No
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	2,300	34,200	No
331 LSLDF_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	53,100	--	--
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	137,000	55,000	Yes
331 LSLDF_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	0.54	--	--
331 LSLDF_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.47	--	--
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	ug/kg	279	8,830	No
600-243_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	31	3.93E+06	No
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	444	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	27	0.097	Yes
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	18	1.1	Yes
600-243_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,159	1.2	Yes
600-243_Shallow	non-Rad	Barium	7440-39-3	ug/kg	292,072	504,000	No
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	43	20	Yes
600-243_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	43	308	No
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	46	45	Yes
600-243_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	32	69	No
600-243_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	2,079	4.31E+06	No
600-243_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	432	2,640	No
600-243_Shallow	non-Rad	Boron	7440-42-8	ug/kg	294,463	--	--
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	151	Yes
600-243_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	18,006	260,000	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	11	Yes
600-243_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,207	2,600	Yes
600-243_Shallow	non-Rad	Copper	7440-50-8	ug/kg	53,981	4,000	Yes
600-243_Shallow	non-Rad	Dibenzofuran	132-64-9	ug/kg	78	392	No
600-243_Shallow	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	37	70,800	No
600-243_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	79	88,900	No
600-243_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	28	194	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	1,270	Yes
600-243_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	208,289	50,200	Yes
600-243_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	1,869	524,000	No
600-243_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	204	137,000	No
600-243_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	21,395	67,800	No
600-243_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	70	1.13E+06	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	520	Yes
600-243_Shallow	non-Rad	Silver	7440-22-4	ug/kg	500	4,710	No
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	95,319	--	--
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	334,524	--	--
600-243_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,986	--	--
600-243_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	84,099	55,000	Yes
600-259_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.034	--	--
600-259_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.068	--	--
600-259_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.038	--	--
600-47_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,300	1.2	Yes
600-47_Shallow	non-Rad	Barium	7440-39-3	ug/kg	67,000	504,000	No
600-47_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	500	4.31E+06	No
600-47_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	90	151	No
600-47_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	5,500	260,000	No
600-47_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,500	1,270	Yes
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	34,200	No
600-47_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--	--
600-47_Shallow	Rad	Uranium-238	U-238	pCi/g	1.6	--	--
618-1_Deep	non-Rad	Aluminum	7429-90-5	ug/kg	6.37E+06	2.61E+06	Yes
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	0.097	Yes
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	ug/kg	294	1.1	Yes
618-1_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,550	1.2	Yes
618-1_Deep	non-Rad	Barium	7440-39-3	ug/kg	299,000	504,000	No
618-1_Deep	non-Rad	Beryllium	7440-41-7	ug/kg	218	4.31E+06	No
618-1_Deep	non-Rad	Boron	7440-42-8	ug/kg	1,360	--	--
618-1_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	263	151	Yes
618-1_Deep	non-Rad	Chromium	7440-47-3	ug/kg	7,740	260,000	No
618-1_Deep	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	4,000	Yes
618-1_Deep	non-Rad	Fluoride	16984-48-8	ug/kg	2,800	--	--
618-1_Deep	non-Rad	Iron	7439-89-6	ug/kg	2.47E+07	151,000	Yes
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	1,270	Yes
618-1_Deep	non-Rad	Lithium	7439-93-2	ug/kg	5,980	--	--
618-1_Deep	non-Rad	Manganese	7439-96-5	ug/kg	352,000	50,200	Yes
618-1_Deep	non-Rad	Mercury	7439-97-6	ug/kg	1,180	7.3	Yes
618-1_Deep	non-Rad	Molybdenum	7439-98-7	ug/kg	493	524,000	No
618-1_Deep	non-Rad	Nickel	7440-02-0	ug/kg	17,600	67,800	No
618-1_Deep	non-Rad	Nitrate	14797-55-8	ug/kg	1,700	180,000	No
618-1_Deep	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	220	40,000	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	34,200	Yes
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	34,200	Yes
618-1_Deep	non-Rad	Vanadium	7440-62-2	ug/kg	73,000	--	--
618-1_Deep	non-Rad	Zinc	7440-66-6	ug/kg	134,000	55,000	Yes
618-1_Deep	Rad	Cesium-137	10045-97-3	pCi/g	0.46	--	--
618-1_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	33	--	--
618-1_Deep	Rad	Uranium-235	15117-96-1	pCi/g	2.7	--	--
618-1_Deep	Rad	Uranium-238	U-238	pCi/g	32	--	--
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	2.61E+06	Yes
618-1_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	407	444	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	0.097	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	99	1.1	Yes
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,580	1.2	Yes
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	504,000	Yes
618-1_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	323	4.31E+06	No
618-1_Deep_Focused	non-Rad	Boron	7440-42-8	ug/kg	6,620	--	--
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,030	151	Yes
618-1_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	18,900	260,000	No
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,920	2,600	Yes
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	68,700	4,000	Yes
618-1_Deep_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	3,300	--	--
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.41E+07	151,000	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	1,270	Yes
618-1_Deep_Focused	non-Rad	Lithium	7439-93-2	ug/kg	8,450	--	--
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	351,000	50,200	Yes
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	7.3	Yes
618-1_Deep_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	2,140	524,000	No
618-1_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	13,700	67,800	No
618-1_Deep_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	11,900	180,000	No
618-1_Deep_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	1,560	40,000	No
618-1_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,290	4,710	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	34,200	Yes
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	34,200	Yes
618-1_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	70,900	--	--
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	82,000	55,000	Yes
618-1_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	6.5	--	--
618-1_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	70	--	--
618-1_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.5	--	--
618-1_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	65	--	--
618-1_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.21E+06	2.61E+06	Yes
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	0.097	Yes
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	54	1.1	Yes
618-1_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,280	1.2	Yes
618-1_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,200	504,000	No
618-1_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	188	4.31E+06	No
618-1_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,190	--	--
618-1_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	68	151	No
618-1_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,930	260,000	No
618-1_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,360	2,600	Yes
618-1_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,400	4,000	Yes
618-1_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	400	--	--
618-1_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes
618-1_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,100	1,270	Yes
618-1_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	6,380	--	--
618-1_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	300,000	50,200	Yes
618-1_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	31	7.3	Yes
618-1_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	336	524,000	No
618-1_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,150	67,800	No
618-1_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	1,600	180,000	No
618-1_Shallow	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	300	40,000	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	34,200	No
618-1_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	56,300	--	--
618-1_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	42,100	55,000	No
618-1_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--	--
618-1_Shallow	Rad	Uranium-238	U-238	pCi/g	1.5	--	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	2.61E+06	Yes
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	455	444	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	0.056	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	0.097	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	56	1.1	Yes
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	6,090	1.2	Yes
618-1_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	102,000	504,000	No
618-1_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	371	4.31E+06	No
618-1_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	3,740	--	--
618-1_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	266	151	Yes
618-1_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	19,500	260,000	No
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	4,000	Yes
618-1_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	900	--	--
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.28E+07	151,000	Yes
618-1_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,210	1,270	Yes
618-1_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	13,300	--	--
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	403,000	50,200	Yes
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	7.3	Yes
618-1_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	356	524,000	No
618-1_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	16,800	67,800	No
618-1_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	3,800	180,000	No
618-1_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	260	40,000	No
618-1_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,120	4,710	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	34,200	No
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	34,200	No
618-1_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	64,700	--	--
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	68,100	55,000	Yes
618-1_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--	--
618-1_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.99	--	--
618-1_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	8.2	--	--
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	1.2	Yes
618-12_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	63	2,640	No
618-12_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	60	2,310	No
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	34,200	No
618-12_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.47	--	--
618-12_Shallow	Rad	Uranium-238	U-238	pCi/g	11	--	--
618-13_Shallow	non-Rad	Acetone	67-64-1	ug/kg	8.6	2.96E+06	No
618-13_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	2.61E+06	Yes
618-13_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	312	444	No
618-13_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	1.2	Yes
618-13_Shallow	non-Rad	Barium	7440-39-3	ug/kg	74,000	504,000	No
618-13_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	212	4.31E+06	No
618-13_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,050	--	--

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
618-13_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	63	151	No
618-13_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,700	260,000	No
618-13_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,290	2,600	Yes
618-13_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,500	4,000	Yes
618-13_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.01E+07	151,000	Yes
618-13_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,620	1,270	Yes
618-13_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	344,000	50,200	Yes
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	20	No
618-13_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	420	524,000	No
618-13_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,400	67,800	No
618-13_Shallow	non-Rad	Tin	7440-31-5	ug/kg	1,050	1.35E+06	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	34,200	No
618-13_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,750	34,200	No
618-13_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	55,800	--	--
618-13_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,400	55,000	No
618-13_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.038	--	--
618-13_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--	--
618-13_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	--	--
618-13_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	5.9	2.96E+06	No
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.22E+06	2.61E+06	Yes
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	233	444	No
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,390	1.2	Yes
618-13_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	57,700	504,000	No
618-13_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	184	4.31E+06	No
618-13_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	960	--	--
618-13_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	47	151	No
618-13_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,740	260,000	No
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,710	2,600	Yes
618-13_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,100	4,000	Yes
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	40	Yes
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	151,000	Yes
618-13_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	4,940	1,270	Yes
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	268,000	50,200	Yes
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	5.0	20	No
618-13_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	297	524,000	No
618-13_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	67,800	No
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	745	1.35E+06	No
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,855	34,200	No
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	1,500	34,200	No
618-13_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	48,600	--	--
618-13_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,100	55,000	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
618-13_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.96	--	--
618-2_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	1,500	1.2	Yes
618-2_Deep	non-Rad	Barium	7440-39-3	ug/kg	83,300	504,000	No
618-2_Deep	non-Rad	Chromium	7440-47-3	ug/kg	6,700	260,000	No
618-2_Deep	non-Rad	Lead	7439-92-1	ug/kg	6,600	1,270	Yes
618-2_Deep	non-Rad	Selenium	7782-49-2	ug/kg	780	520	Yes
618-2_Deep	non-Rad	Tin	7440-31-5	ug/kg	2,900	1.35E+06	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	34,200	Yes
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	34,200	Yes
618-2_Deep	Rad	Americium-241	14596-10-2	pCi/g	7.9	--	--
618-2_Deep	Rad	Cesium-137	10045-97-3	pCi/g	1.0	--	--
618-2_Deep	Rad	Plutonium-238	13981-16-3	pCi/g	1.5	--	--
618-2_Deep	Rad	Plutonium-239/240	PU-239/240	pCi/g	91	--	--
618-2_Deep	Rad	Plutonium-241	14119-32-5	pCi/g	42	--	--
618-2_Deep	Rad	Total beta radiostrontium	SR-RAD	pCi/g	12	--	--
618-2_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	161	--	--
618-2_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.78	--	--
618-2_Deep	Rad	Uranium-238	U-238	pCi/g	165	--	--
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	6.9	0.097	Yes
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	1.2	Yes
618-2_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	109,000	504,000	No
618-2_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	2,640	No
618-2_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	200	151	Yes
618-2_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,400	260,000	No
618-2_Deep_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	18	70,800	No
618-2_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,800	1,270	Yes
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	1,200	520	Yes
618-2_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	600	4,710	No
618-2_Deep_Focused	non-Rad	Tin	7440-31-5	ug/kg	42,500	1.35E+06	No
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	34,200	Yes
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	34,200	Yes
618-2_Deep_Focused	Rad	Americium-241	14596-10-2	pCi/g	9.2	--	--
618-2_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.1	--	--
618-2_Deep_Focused	Rad	Plutonium-238	13981-16-3	pCi/g	1.6	--	--
618-2_Deep_Focused	Rad	Plutonium-239/240	PU-239/240	pCi/g	92	--	--
618-2_Deep_Focused	Rad	Plutonium-241	14119-32-5	pCi/g	33	--	--
618-2_Deep_Focused	Rad	Total beta radiostrontium	SR-RAD	pCi/g	7.2	--	--
618-2_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	48	--	--
618-2_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	2.4	--	--
618-2_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	50	--	--
618-2_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	1.2	Yes
618-2_Overburden	non-Rad	Barium	7440-39-3	ug/kg	74,700	504,000	No
618-2_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	6,600	260,000	No
618-2_Overburden	non-Rad	Lead	7439-92-1	ug/kg	4,300	1,270	Yes
618-2_Overburden	non-Rad	Selenium	7782-49-2	ug/kg	1,000	520	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
618-2_Overburden	non-Rad	Tin	7440-31-5	ug/kg	2,700	1.35E+06	No
618-2_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,749	34,200	No
618-2_Overburden	non-Rad	Uranium	7440-61-1	ug/kg	1,140	34,200	No
618-2_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.058	--	--
618-2_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.64	--	--
618-2_Overburden	Rad	Uranium-238	U-238	pCi/g	0.59	--	--
618-2_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	1,900	1.2	Yes
618-2_Shallow	non-Rad	Barium	7440-39-3	ug/kg	79,100	504,000	No
618-2_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,100	260,000	No
618-2_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,600	1,270	Yes
618-2_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	760	520	Yes
618-2_Shallow	non-Rad	Tin	7440-31-5	ug/kg	2,400	1.35E+06	No
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	34,200	No
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	34,200	No
618-2_Shallow	Rad	Americium-241	14596-10-2	pCi/g	0.81	--	--
618-2_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	2.2	--	--
618-2_Shallow	Rad	Plutonium-239/240	PU-239/240	pCi/g	7.7	--	--
618-2_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.2	--	--
618-2_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.21	--	--
618-2_Shallow	Rad	Uranium-238	U-238	pCi/g	2.2	--	--
618-2_Staging Pile	non-Rad	Arsenic	7440-38-2	ug/kg	3,063	1.2	Yes
618-2_Staging Pile	non-Rad	Barium	7440-39-3	ug/kg	67,690	504,000	No
618-2_Staging Pile	non-Rad	Chromium	7440-47-3	ug/kg	6,424	260,000	No
618-2_Staging Pile	non-Rad	Lead	7439-92-1	ug/kg	4,011	1,270	Yes
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	34,200	No
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	34,200	No
618-2_Staging Pile	Rad	Americium-241	14596-10-2	pCi/g	0.82	--	--
618-2_Staging Pile	Rad	Cesium-137	10045-97-3	pCi/g	0.095	--	--
618-2_Staging Pile	Rad	Plutonium-239/240	PU-239/240	pCi/g	10	--	--
618-2_Staging Pile	Rad	Tritium	10028-17-8	pCi/g	2.3	--	--
618-2_Staging Pile	Rad	Uranium-233/234	U-233/234	pCi/g	2.0	--	--
618-2_Staging Pile	Rad	Uranium-235	15117-96-1	pCi/g	0.12	--	--
618-2_Staging Pile	Rad	Uranium-238	U-238	pCi/g	2.0	--	--
618-3_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	1.2	Yes
618-3_Shallow	non-Rad	Barium	7440-39-3	ug/kg	76,500	504,000	No
618-3_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,700	260,000	No
618-3_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,900	1,270	Yes
618-3_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	659	520	Yes
618-3_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,224	34,200	No
618-3_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,610	34,200	No
618-3_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.68	--	--
618-3_Shallow	Rad	Uranium-238	U-238	pCi/g	0.75	--	--
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	34,200	Yes
618-3_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	80	--	--
618-3_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.8	--	--
618-3_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	79	--	--
618-4_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	1.2	Yes
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	1,270	Yes
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	34,200	Yes
618-4_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	20	--	--
618-4_Deep	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--	--
618-4_Deep	Rad	Uranium-238	U-238	pCi/g	22	--	--
618-4_Deep_Focused	non-Rad	2-Butanone	78-93-3	ug/kg	130	2.02E+06	No
618-4_Deep_Focused	non-Rad	Acetone	67-64-1	ug/kg	16	2.96E+06	No
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	0.097	Yes
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	1.2	Yes
618-4_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	104,000	504,000	No
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	2,640	Yes
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	151	Yes
618-4_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	27,700	260,000	No
618-4_Deep_Focused	non-Rad	Diethyl ether	60-29-7	ug/kg	1.0	410,990	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	1,270	Yes
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	20	Yes
618-4_Deep_Focused	non-Rad	Phenol	108-95-2	ug/kg	110	45,800	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	4.1	Yes
618-4_Deep_Focused	non-Rad	Toluene	108-88-3	ug/kg	4.8	9,450	No
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	34,000	--	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - kerosene range	TPHKEROSENE	ug/kg	42,000	--	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	65	--	--
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777	34,200	No
618-4_Deep_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	17	No
618-4_Deep_Focused	non-Rad	Trichloromonofluoromethane	75-69-4	ug/kg	12	4.21E+06	No
618-4_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	7.2	--	--
618-4_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.51	--	--
618-4_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	6.9	--	--
618-4_Overburden_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	1.2	Yes
618-4_Overburden_2	non-Rad	Lead	7439-92-1	ug/kg	4,700	1,270	Yes
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	34,200	No
618-4_Overburden_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--	--
618-4_Overburden_2	Rad	Uranium-238	U-238	pCi/g	1.4	--	--
618-4_Overburden_3	non-Rad	Lead	7439-92-1	ug/kg	5,000	1,270	Yes
618-4_Overburden_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,171	34,200	No
618-4_Overburden_3	Rad	Uranium-233/234	U-233/234	pCi/g	0.42	--	--
618-4_Overburden_3	Rad	Uranium-235	15117-96-1	pCi/g	0.032	--	--
618-4_Overburden_3	Rad	Uranium-238	U-238	pCi/g	0.44	--	--
618-4_Overburden_4	non-Rad	Lead	7439-92-1	ug/kg	4,800	1,270	Yes
618-4_Overburden_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,323	34,200	No

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
618-4_Overburden_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	--	--
618-4_Overburden_4	Rad	Uranium-238	U-238	pCi/g	0.94	--	--
618-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,200	1.2	Yes
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	1,270	Yes
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	34,200	No
618-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	3.2	--	--
618-4_Shallow	Rad	Uranium-238	U-238	pCi/g	3.1	--	--
618-5_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	1.2	Yes
618-5_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	470	151	Yes
618-5_Deep	non-Rad	Chromium	7440-47-3	ug/kg	14,700	260,000	No
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	1,270	Yes
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	34,200	No
618-5_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	8.6	--	--
618-5_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.46	--	--
618-5_Deep	Rad	Uranium-238	U-238	pCi/g	8.9	--	--
618-5_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.65E+06	2.61E+06	Yes
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	444	Yes
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	1.2	Yes
618-5_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	106,000	504,000	No
618-5_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	672	4.31E+06	No
618-5_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,500	260,000	No
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	10,500	2,600	Yes
618-5_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	21,400	4,000	Yes
618-5_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	3.02E+07	151,000	Yes
618-5_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,600	1,270	Yes
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	50,200	Yes
618-5_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	33	7.3	Yes
618-5_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	11,300	67,800	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	520	Yes
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	34,200	Yes
618-5_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	79,500	--	--
618-5_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	65,800	55,000	Yes
618-5_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--	--
618-5_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.48	--	--
618-5_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	12	--	--
618-5_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,400	1.2	Yes
618-5_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	170	151	Yes
618-5_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	9,700	260,000	No
618-5_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,500	1,270	Yes
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	34,200	No
618-5_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	4.1	--	--
618-5_Overburden	Rad	Uranium-238	U-238	pCi/g	4.6	--	--
618-5_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	1.2	Yes
618-5_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	11,300	260,000	No
618-5_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,100	1,270	Yes
618-5_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,849	34,200	No
618-5_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	--	--
618-5_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	--	--
618-5_Staging Pile_4	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	1.2	Yes
618-5_Staging Pile_4	non-Rad	Cadmium	7440-43-9	ug/kg	50	151	No
618-5_Staging Pile_4	non-Rad	Chromium	7440-47-3	ug/kg	11,800	260,000	No
618-5_Staging Pile_4	non-Rad	Lead	7439-92-1	ug/kg	5,300	1,270	Yes
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	34,200	No
618-5_Staging Pile_4	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--	--
618-5_Staging Pile_4	Rad	Uranium-238	U-238	pCi/g	1.1	--	--
618-5_Staging Pile_5	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	1.2	Yes
618-5_Staging Pile_5	non-Rad	Chromium	7440-47-3	ug/kg	10,300	260,000	No
618-5_Staging Pile_5	non-Rad	Lead	7439-92-1	ug/kg	3,900	1,270	Yes
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	34,200	No
618-5_Staging Pile_5	Rad	Uranium-233/234	U-233/234	pCi/g	1.5	--	--
618-5_Staging Pile_5	Rad	Uranium-235	15117-96-1	pCi/g	0.17	--	--
618-5_Staging Pile_5	Rad	Uranium-238	U-238	pCi/g	1.7	--	--
618-7_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.25E+06	2.61E+06	Yes
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	444	Yes
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	1,891	1.2	Yes
618-7_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	68,874	504,000	No
618-7_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	278	4.31E+06	No
618-7_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	65	151	No
618-7_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	10,227	260,000	No
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	9,152	2,600	Yes
618-7_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	16,120	4,000	Yes
618-7_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	1,270	Yes
618-7_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	326,067	50,200	Yes
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	44	7.3	Yes
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	20,977	67,800	No
618-7_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,547	1.35E+06	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	34,200	No
618-7_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	74,576	--	--
618-7_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	49,177	55,000	No
618-7_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.067	--	--
618-7_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	3.6	--	--
618-7_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	0.36	--	--
618-7_Shallow_1	Rad	Uranium-238	U-238	pCi/g	3.6	--	--
618-7_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	4.97E+06	2.61E+06	Yes
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	444	Yes
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	1.2	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
618-7_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	73,800	504,000	No
618-7_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	440	4.31E+06	No
618-7_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,800	260,000	No
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	9,300	2,600	Yes
618-7_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	13,600	4,000	Yes
618-7_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	151,000	Yes
618-7_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	2,800	1,270	Yes
618-7_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	364,000	50,200	Yes
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes
618-7_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,700	67,800	No
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	1.35E+06	No
618-7_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,574	34,200	No
618-7_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	74,700	--	--
618-7_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	46,200	55,000	No
618-7_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	0.57	--	--
618-7_Shallow_2	Rad	Uranium-238	U-238	pCi/g	0.53	--	--
618-7_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	6.74E+06	2.61E+06	Yes
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	444	Yes
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	1.2	Yes
618-7_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	82,500	504,000	No
618-7_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	310	4.31E+06	No
618-7_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	190	151	Yes
618-7_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	10,100	260,000	No
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	2,600	Yes
618-7_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	13,600	4,000	Yes
618-7_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.43E+07	151,000	Yes
618-7_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	4,300	1,270	Yes
618-7_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	357,000	50,200	Yes
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes
618-7_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	10,100	67,800	No
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	1.35E+06	No
618-7_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,852	34,200	No
618-7_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	68,200	--	--
618-7_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	44,500	55,000	No
618-7_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
618-7_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.085	--	--
618-7_Shallow_3	Rad	Uranium-238	U-238	pCi/g	0.95	--	--
618-7_Shallow_4	non-Rad	Aluminum	7429-90-5	ug/kg	5.65E+06	2.61E+06	Yes
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	ug/kg	250	444	No
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	1.2	Yes
618-7_Shallow_4	non-Rad	Barium	7440-39-3	ug/kg	57,900	504,000	No
618-7_Shallow_4	non-Rad	Beryllium	7440-41-7	ug/kg	220	4.31E+06	No
618-7_Shallow_4	non-Rad	Cadmium	7440-43-9	ug/kg	90	151	No
618-7_Shallow_4	non-Rad	Chromium	7440-47-3	ug/kg	11,400	260,000	No
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	ug/kg	6,700	2,600	Yes
618-7_Shallow_4	non-Rad	Copper	7440-50-8	ug/kg	13,200	4,000	Yes
618-7_Shallow_4	non-Rad	Iron	7439-89-6	ug/kg	2.12E+07	151,000	Yes
618-7_Shallow_4	non-Rad	Lead	7439-92-1	ug/kg	3,000	1,270	Yes
618-7_Shallow_4	non-Rad	Manganese	7439-96-5	ug/kg	285,000	50,200	Yes
618-7_Shallow_4	non-Rad	Nickel	7440-02-0	ug/kg	12,900	67,800	No
618-7_Shallow_4	non-Rad	Tin	7440-31-5	ug/kg	710	1.35E+06	No
618-7_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,064	34,200	No
618-7_Shallow_4	non-Rad	Vanadium	7440-62-2	ug/kg	54,800	--	--
618-7_Shallow_4	non-Rad	Zinc	7440-66-6	ug/kg	37,000	55,000	No
618-7_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.69	--	--
618-7_Shallow_4	Rad	Uranium-238	U-238	pCi/g	0.76	--	--
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	81,300	No
618-7_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.61E+06	2.61E+06	Yes
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	444	Yes
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	0.056	Yes
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,200	1.2	Yes
618-7_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	92,800	504,000	No
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	20	Yes
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	66	308	No
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	45	Yes
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	11	69	No
618-7_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	370	4.31E+06	No
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	470	2,640	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	151	Yes
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	65,900	260,000	No
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	11	Yes
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,000	2,600	Yes
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	4,000	Yes
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	45	100	No
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	33	70,800	No
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	48	88,900	No
618-7_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.87E+07	151,000	Yes
618-7_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,500	1,270	Yes
618-7_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	425,000	50,200	Yes
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes
618-7_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	17,200	67,800	No
618-7_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	410	1.13E+06	No
618-7_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,200	1.35E+06	No
618-7_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	680,000	--	--
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	34,200	No
618-7_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	80,500	--	--
618-7_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,400	55,000	No

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
618-7_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.010	--	--
618-7_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--	--
618-7_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.97	--	--
618-7_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	6.4	--	--
618-8_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,100	1.2	Yes
618-8_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,600	504,000	No
618-8_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	12,400	260,000	No
618-8_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,100	1,270	Yes
618-8_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	846	520	Yes
618-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,935	34,200	No
618-8_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,720	34,200	No
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--	--
618-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.73	--	--
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	0.95	Yes
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	680	2.96E+06	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	0.048	Yes
618-9_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	2.61E+06	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	0.14	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	0.013	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	0.013	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	0.058	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	0.056	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	0.097	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	1.1	Yes
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	1.2	Yes
618-9_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	90,200	504,000	No
618-9_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	330	4.31E+06	No
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	2,640	Yes
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	2,310	Yes
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	0.58	Yes
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	30	No
618-9_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,700	260,000	No
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,400	2,600	Yes
618-9_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	16,700	4,000	Yes
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	7,200	70,800	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	0.065	Yes
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	475	Yes
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	56	Yes
618-9_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.49E+07	151,000	Yes
618-9_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	7,700	1,270	Yes
618-9_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	359,000	50,200	Yes
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	330	7.3	Yes
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	20	Yes
618-9_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,600	67,800	No
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	180,000	Yes
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	4.1	Yes
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	ug/kg	9.0	9,450	No
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	34,200	No
618-9_Shallow_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	17	No
618-9_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	3,100	34,200	No
618-9_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,300	--	--
618-9_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,300	55,000	No
618-9_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.071	--	--
618-9_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	3.0	--	--
628-4_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,374	1.2	Yes
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	2,640	No
628-4_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,284	1,270	Yes
628-4_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,308	34,200	No
628-4_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.033	--	--
628-4_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.87	--	--
628-4_Overburden	Rad	Uranium-238	U-238	pCi/g	0.78	--	--
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	0.058	Yes
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	0.056	Yes
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	0.097	Yes
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	1.1	Yes
628-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,864	1.2	Yes
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	1,270	Yes
628-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,163	34,200	No
628-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
628-4_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.11	--	--
628-4_Shallow	Rad	Uranium-238	U-238	pCi/g	1.0	--	--
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	81,300	No
UPR-300-17_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	2.61E+06	Yes
UPR-300-17_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	7.0	3.93E+06	No
UPR-300-17_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	359	444	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	0.056	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	0.097	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	1.1	Yes
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,573	1.2	Yes
UPR-300-17_Shallow	non-Rad	Barium	7440-39-3	ug/kg	81,014	504,000	No
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	20	Yes
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	44	308	No
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	33	45	No
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	9.9	69	No
UPR-300-17_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	240	4.31E+06	No
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	ug/kg	3,903	--	--
UPR-300-17_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	173	151	Yes

Table A-3. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to MTCA Fixed Parameter Three-Phase Partitioning Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	MTCA Fixed Parameter Three-Phase Soil Screening Level Protective of Surface Water	Is EPC > Soil Screening Level Protective of Surface Water?
UPR-300-17_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	13,795	260,000	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	11	Yes
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,688	2,600	Yes
UPR-300-17_Shallow	non-Rad	Copper	7440-50-8	ug/kg	15,135	4,000	Yes
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	35	88,900	No
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.9	174,000	No
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	5.9	194	No
UPR-300-17_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	151,000	Yes
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	1,270	Yes
UPR-300-17_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	285,159	50,200	Yes
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	7.3	Yes
UPR-300-17_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	412	524,000	No
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	48	137,000	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	67,800	Yes
UPR-300-17_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	34	1.13E+06	No
UPR-300-17_Shallow	non-Rad	Silver	7440-22-4	ug/kg	340	4,710	No
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	2,950	--	--
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	210,420	--	--
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	34,200	No
UPR-300-17_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,150	--	--
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	55,000	Yes
UPR-300-17_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	6.1	--	--
UPR-300-17_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.91	--	--
UPR-300-17_Shallow	Rad	Uranium-238	U-238	pCi/g	4.0	--	--
UPR-300-46_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	13	81,300	No
UPR-300-46_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.80E+06	2.61E+06	Yes
UPR-300-46_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	381	444	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	0.056	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	0.097	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	1.1	Yes
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,846	1.2	Yes
UPR-300-46_Shallow	non-Rad	Barium	7440-39-3	ug/kg	82,137	504,000	No
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	3.9	20	No
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.4	308	No
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	5.4	45	No
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	2.8	69	No
UPR-300-46_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	222	4.31E+06	No
UPR-300-46_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,714	--	--
UPR-300-46_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	95	151	No
UPR-300-46_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,173	260,000	No
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	5.6	11	No
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,361	2,600	Yes
UPR-300-46_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,151	4,000	Yes
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	1.3	100	No
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	9.6	88,900	No
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.2	174,000	No
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	7.6	194	No
UPR-300-46_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	151,000	Yes
UPR-300-46_Shallow	non-Rad	Lead	7439-92-1	ug/kg	7,105	1,270	Yes
UPR-300-46_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	311,001	50,200	Yes
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	29	7.3	Yes
UPR-300-46_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	456	524,000	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	137,000	No
UPR-300-46_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	9,230	67,800	No
UPR-300-46_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	4.4	1.13E+06	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	34,200	No
UPR-300-46_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	53,808	--	--
UPR-300-46_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	47,945	55,000	No
UPR-300-46_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.070	--	--
UPR-300-46_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.8	--	--
UPR-300-46_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--	--
UPR-300-46_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	--	--

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	34	Yes
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,078	649	Yes
300 ASH PITS_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	96	1.57E+06	No
300 ASH PITS_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	76	1.36E+06	No
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,450	--[1]	--
300 ASH PITS_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.039	--[2]	--
300 ASH PITS_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--[2]	--
300 VTS_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.029	234,630	No
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	649	Yes
300-10_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	200	1.57E+06	No
300-10_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	230	1.36E+06	No
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	--[1]	--
300-10_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.16	234,630	No
300-10_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.041	--[2]	--
300-10_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--[2]	--
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.62E+06	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	58	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	40	627	No
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,420	649	Yes
300-109_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	63,300	2.98E+08	No
300-109_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.2	183,570	No
300-109_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	2.3	26,802	No
300-109_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	180	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	632	--[3]	--
300-109_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	59	89,473	No
300-109_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,950	1.55E+08	No
300-109_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	1.8	6,676	No
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	6,420	1.55E+06	No
300-109_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,800	2.36E+06	No
300-109_Shallow_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	14	115,820	No
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.75E+07	8.95E+07	No
300-109_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	2,890	754,290	No
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	278,000	2.98E+07	No
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	22	4,295	No
300-109_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	341	3.09E+08	No
300-109_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,490	4.03E+07	No
300-109_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	1.6	3.88E+08	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	--[1]	--
300-109_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	47,600	--[3]	--
300-109_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	34,700	3.26E+07	No
300-109_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--[2]	--
300-109_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	--[2]	--
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.78E+06	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	37	58	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	19	627	No
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,580	649	Yes
300-109_Staging Pile Area_Focused	non-Rad	Barium	7440-39-3	ug/kg	72,700	2.98E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	2.1	12,016	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.3	183,570	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.3	26,802	No
300-109_Staging Pile Area_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	203	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,060	--[3]	--
300-109_Staging Pile Area_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	66	89,473	No
300-109_Staging Pile Area_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,170	1.55E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,950	1.55E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Copper	7440-50-8	ug/kg	11,600	2.36E+06	No
300-109_Staging Pile Area_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	5.1	5.28E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	29	115,820	No
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.84E+07	8.95E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Lead	7439-92-1	ug/kg	5,030	754,290	No
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	ug/kg	286,000	2.98E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	408	3.09E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,570	4.03E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Pyrene	129-00-0	ug/kg	7.0	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,450	3.88E+08	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	--[1]	--
300-109_Staging Pile Area_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	45,100	--[3]	--
300-109_Staging Pile Area_Focused	non-Rad	Zinc	7440-66-6	ug/kg	48,800	3.26E+07	No
300-109_Staging Pile Area_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	2.5	--[2]	--
300-109_Staging Pile Area_Focused	Rad	Uranium-238	U-238	pCi/g	2.3	--[2]	--
300-18_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	649	Yes
300-18_Shallow	non-Rad	Barium	7440-39-3	ug/kg	63,400	2.98E+08	No
300-18_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	650	3.88E+08	No
300-18_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	40	89,473	No
300-18_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	6,900	1.55E+08	No
300-18_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,600	754,290	No
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,136	--[1]	--
300-18_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.65	--[2]	--

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300-18_Shallow	Rad	Uranium-238	U-238	pCi/g	0.41	--[2]	--
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	120,000	--[3]	--
300-223_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	230,000	--[3]	--
300-23_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	52,000	--[3]	--
300-259_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	5.99E+06	3.88E+08	No
300-259_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	322	252,620	No
300-259_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,096	649	Yes
300-259_Shallow	non-Rad	Barium	7440-39-3	ug/kg	75,232	2.98E+08	No
300-259_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	226	3.88E+08	No
300-259_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,303	--[3]	--
300-259_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	252	89,473	No
300-259_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,901	1.55E+08	No
300-259_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	5,831	1.55E+06	No
300-259_Shallow	non-Rad	Copper	7440-50-8	ug/kg	10,692	2.36E+06	No
300-259_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	8.95E+07	No
300-259_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,625	754,290	No
300-259_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,874	2.98E+07	No
300-259_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	10	4,295	No
300-259_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	303	3.09E+08	No
300-259_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,751	4.03E+07	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	--[1]	--
300-259_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	42,626	--[3]	--
300-259_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	479,584	3.26E+07	No
300-259_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.6	--[2]	--
300-259_Shallow	Rad	Uranium-238	U-238	pCi/g	1.3	--[2]	--
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.17E+06	3.88E+08	No
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	252,620	No
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,160	649	Yes
300-260_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	122,000	2.98E+08	No
300-260_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	239	3.88E+08	No
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	--[3]	--
300-260_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	110	89,473	No
300-260_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,890	1.55E+08	No
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	7,430	1.55E+06	No
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	2.36E+06	No
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.04E+07	8.95E+07	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	754,290	No
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	328,000	2.98E+07	No
300-260_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	12	4,295	No
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	3.09E+08	No
300-260_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,200	4.03E+07	No
300-260_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	206	2.80E+06	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	--[1]	--
300-260_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,000	--[3]	--
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	77,400	3.26E+07	No
300-260_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.25	--[2]	--
300-260_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.3	--[2]	--
300-272_Overburden_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	13,100	--[3]	--
300-272_Shallow_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	43,100	--[3]	--
300-275_Shallow_1	non-Rad	Acenaphthene	83-32-9	ug/kg	960	4.71E+07	No
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.61E+06	3.88E+08	No
300-275_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	260	252,620	No
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	2,211	649	Yes
300-275_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	75,261	2.98E+08	No
300-275_Shallow_1	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.3	183,570	No
300-275_Shallow_1	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.9	26,802	No
300-275_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	452	3.88E+08	No
300-275_Shallow_1	non-Rad	Boron	7440-42-8	ug/kg	1,466	--[3]	--
300-275_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	83	89,473	No
300-275_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	8,022	1.55E+08	No
300-275_Shallow_1	non-Rad	Chrysene	218-01-9	ug/kg	2.2	6,676	No
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	5,847	1.55E+06	No
300-275_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	42,923	2.36E+06	No
300-275_Shallow_1	non-Rad	Fluoranthene	206-44-0	ug/kg	2,300	5.28E+07	No
300-275_Shallow_1	non-Rad	Fluorene	86-73-7	ug/kg	81	1.01E+08	No
300-275_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	8.95E+07	No
300-275_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	7,189	754,290	No
300-275_Shallow_1	non-Rad	Lithium	7439-93-2	ug/kg	6,686	--[3]	--
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	276,815	2.98E+07	No
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	17	4,295	No
300-275_Shallow_1	non-Rad	Molybdenum	7439-98-7	ug/kg	378	3.09E+08	No
300-275_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	9,461	4.03E+07	No
300-275_Shallow_1	non-Rad	Silver	7440-22-4	ug/kg	121	2.80E+06	No
300-275_Shallow_1	non-Rad	Strontium	7440-24-6	ug/kg	20,196	3.88E+08	No
300-275_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,483	3.88E+08	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	--[1]	--
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	ug/kg	2,500	--[1]	--
300-275_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	45,128	--[3]	--

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300-275_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	41,014	3.26E+07	No
300-275_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.046	234,630	No
300-275_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	7.7	--[2]	--
300-275_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.0	--[2]	--
300-275_Shallow_1	Rad	Uranium-238	U-238	pCi/g	7.4	--[2]	--
300-275_Shallow_2	non-Rad	Acenaphthene	83-32-9	ug/kg	3.6	4.71E+07	No
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	6.24E+06	3.88E+08	No
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,761	649	Yes
300-275_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	68,607	2.98E+08	No
300-275_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	254	3.88E+08	No
300-275_Shallow_2	non-Rad	Boron	7440-42-8	ug/kg	1,147	--[3]	--
300-275_Shallow_2	non-Rad	Cadmium	7440-43-9	ug/kg	144	89,473	No
300-275_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	8,994	1.55E+08	No
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	5,977	1.55E+06	No
300-275_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	11,596	2.36E+06	No
300-275_Shallow_2	non-Rad	Fluoranthene	206-44-0	ug/kg	56	5.28E+07	No
300-275_Shallow_2	non-Rad	Fluorene	86-73-7	ug/kg	2.6	1.01E+08	No
300-275_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	8.95E+07	No
300-275_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	4,099	754,290	No
300-275_Shallow_2	non-Rad	Lithium	7439-93-2	ug/kg	7,067	--[3]	--
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	292,731	2.98E+07	No
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	28	4,295	No
300-275_Shallow_2	non-Rad	Molybdenum	7439-98-7	ug/kg	404	3.09E+08	No
300-275_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,593	4.03E+07	No
300-275_Shallow_2	non-Rad	Strontium	7440-24-6	ug/kg	27,081	3.88E+08	No
300-275_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,149	3.88E+08	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	--[1]	--
300-275_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	51,632	--[3]	--
300-275_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	41,245	3.26E+07	No
300-275_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--[2]	--
300-275_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--[2]	--
300-275_Shallow_2	Rad	Uranium-238	U-238	pCi/g	1.2	--[2]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.32E+06	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	ug/kg	10	82	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	16	34	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	34	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	58	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	17	627	No
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,638	649	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Barium	7440-39-3	ug/kg	72,411	2.98E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	256	3.88E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,484	--[3]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	228	1.36E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	94	89,473	No
300-33, 300-41, 300-256_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	8,781	1.55E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,273	1.55E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,662	2.36E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	1,651	--[3]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.00E+07	8.95E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,268	754,290	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	5,495	--[3]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	314,762	2.98E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	16	4,295	No
300-33, 300-41, 300-256_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	2.9	1,931	No
300-33, 300-41, 300-256_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	486	3.09E+08	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,880	4.03E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	8,617	1.36E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Silver	7440-22-4	ug/kg	782	2.80E+06	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	--[1]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,694	--[3]	--
300-33, 300-41, 300-256_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,462	3.26E+07	No
300-33, 300-41, 300-256_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.1	--[2]	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.34	--[2]	--
300-33, 300-41, 300-256_Shallow	Rad	Uranium-238	U-238	pCi/g	2.1	--[2]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.51E+06	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	34	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	58	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	627	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,240	649	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	64,600	2.98E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	169	3.88E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,030	--[3]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	100	89,473	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,080	1.55E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,640	1.55E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,400	2.36E+06	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	1,300	--[3]	--

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.86E+07	8.95E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	3,160	754,290	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	6,580	--[3]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	259,000	2.98E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2.2	1,931	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	275	3.09E+08	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,040	4.03E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	17,900	1.36E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	--[1]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	51,400	--[3]	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	38,900	3.26E+07	No
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	3.0	--[2]	--
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	2.2	--[2]	--
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	58	Yes
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	627	Yes
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	649	Yes
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,027	--[1]	--
300-44_Overburden_Focused	Rad	Uranium-238	U-238	pCi/g	0.35	--[2]	--
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.71E+06	3.88E+08	No
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	252,620	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	649	Yes
300-44_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	75,200	2.98E+08	No
300-44_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	480	3.88E+08	No
300-44_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,300	1.55E+08	No
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,200	1.55E+06	No
300-44_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	7,800	2.36E+06	No
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.94E+07	8.95E+07	No
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	303,000	2.98E+07	No
300-44_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,600	4.03E+07	No
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	872	--[1]	--
300-44_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	43,200	--[3]	--
300-44_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,800	3.26E+07	No
300-44_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.29	--[2]	--
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	86	627	No
300-45_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	290	1.57E+06	No
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	--[1]	--
300-45_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.023	234,630	No
300-45_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.061	--[2]	--
300-45_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.2	--[2]	--
300-49_Overburden	non-Rad	1,2,4-Trichlorobenzene	120-82-1	ug/kg	31	39,366	No
300-49_Overburden	non-Rad	1,4-Dichlorobenzene	106-46-7	ug/kg	29	164,410	No
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	157	No
300-49_Overburden	non-Rad	2-Chlorophenol	95-57-8	ug/kg	51	396,000	No
300-49_Overburden	non-Rad	4-Chloro-3-methylphenol	59-50-7	ug/kg	46	1.87E+08	No
300-49_Overburden	non-Rad	Acenaphthene	83-32-9	ug/kg	31	4.71E+07	No
300-49_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.30E+06	3.88E+08	No
300-49_Overburden	non-Rad	Antimony	7440-36-0	ug/kg	232	252,620	No
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	58	Yes
300-49_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,291	649	Yes
300-49_Overburden	non-Rad	Barium	7440-39-3	ug/kg	76,068	2.98E+08	No
300-49_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	201	3.88E+08	No
300-49_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	174	89,473	No
300-49_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	18,106	1.55E+08	No
300-49_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	7,127	1.55E+06	No
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	2.36E+06	No
300-49_Overburden	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	52	3.80E+07	No
300-49_Overburden	non-Rad	Iron	7439-89-6	ug/kg	2.08E+07	8.95E+07	No
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	754,290	No
300-49_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	316,669	2.98E+07	No
300-49_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	13,035	4.03E+07	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	2.9	Yes[4]
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	1,979	No
300-49_Overburden	non-Rad	Phenol	108-95-2	ug/kg	50	6.42E+06	No
300-49_Overburden	non-Rad	Pyrene	129-00-0	ug/kg	40	3.88E+08	No
300-49_Overburden	non-Rad	Silver	7440-22-4	ug/kg	703	2.80E+06	No
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,066	--[1]	--
300-49_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	50,380	--[3]	--
300-49_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	141,984	3.26E+07	No
300-49_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	1.0	--[2]	--
300-49_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.057	--[2]	--
300-49_Overburden	Rad	Uranium-238	U-238	pCi/g	1.0	--[2]	--
300-49_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.92E+06	3.88E+08	No
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	252,620	No
300-49_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,431	649	Yes
300-49_Shallow	non-Rad	Barium	7440-39-3	ug/kg	89,874	2.98E+08	No
300-49_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	303	3.88E+08	No
300-49_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,170	1.55E+08	No
300-49_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,323	1.55E+06	No

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
300-49_Shallow	non-Rad	Copper	7440-50-8	ug/kg	14,870	2.36E+06	No
300-49_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.59E+07	8.95E+07	No
300-49_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,629	754,290	No
300-49_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	361,805	2.98E+07	No
300-49_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	10,664	4.03E+07	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	2.80E+06	No
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,983	--[1]	--
300-49_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	58,672	--[3]	--
300-49_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	54,651	3.26E+07	No
300-49_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.15	234,630	No
300-49_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	--[2]	--
300-49_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	--[2]	--
300-49_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	--[2]	--
300-50_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.68E+06	3.88E+08	No
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	33	58	No
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	ug/kg	229	627	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	649	Yes
300-50_Overburden	non-Rad	Barium	7440-39-3	ug/kg	117,742	2.98E+08	No
300-50_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	325	3.88E+08	No
300-50_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	563	89,473	No
300-50_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	12,197	1.55E+08	No
300-50_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	9,389	1.55E+06	No
300-50_Overburden	non-Rad	Copper	7440-50-8	ug/kg	64,527	2.36E+06	No
300-50_Overburden	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	8.95E+07	No
300-50_Overburden	non-Rad	Lead	7439-92-1	ug/kg	5,905	754,290	No
300-50_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	314,271	2.98E+07	No
300-50_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	15,229	4.03E+07	No
300-50_Overburden	non-Rad	Silver	7440-22-4	ug/kg	1,202	2.80E+06	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	--[1]	--
300-50_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	45,243	--[3]	--
300-50_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	45,889	3.26E+07	No
300-50_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.056	234,630	No
300-50_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	6.0	--[2]	--
300-50_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.45	--[2]	--
300-50_Overburden	Rad	Uranium-238	U-238	pCi/g	6.0	--[2]	--
300-50_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.88E+06	3.88E+08	No
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	252,620	No
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	58	Yes
300-50_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,403	649	Yes
300-50_Shallow	non-Rad	Barium	7440-39-3	ug/kg	103,029	2.98E+08	No
300-50_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	282	3.88E+08	No
300-50_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	1.57E+06	No
300-50_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	463	89,473	No
300-50_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	16,841	1.55E+08	No
300-50_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,109	1.55E+06	No
300-50_Shallow	non-Rad	Copper	7440-50-8	ug/kg	16,820	2.36E+06	No
300-50_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	8.95E+07	No
300-50_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,381	754,290	No
300-50_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,120	2.98E+07	No
300-50_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,413	4.03E+07	No
300-50_Shallow	non-Rad	Silver	7440-22-4	ug/kg	2,992	2.80E+06	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	--[1]	--
300-50_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,964	--[3]	--
300-50_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,344	3.26E+07	No
300-50_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.056	234,630	No
300-50_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	7.9	--[2]	--
300-50_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.66	--[2]	--
300-50_Shallow	Rad	Uranium-238	U-238	pCi/g	8.4	--[2]	--
300-8_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	574	3.88E+08	No
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,374	--[1]	--
300-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.79	--[2]	--
300-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	--[2]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	--[1]	--
316-1_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.10	234,630	No
316-1_Overburden	Rad	Cobalt-60	10198-40-0	pCi/g	0.32	374,300	No
316-1_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	13	--[2]	--
316-1_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--[2]	--
316-1_Overburden	Rad	Uranium-238	U-238	pCi/g	13	--[2]	--
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	34	Yes
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	649	Yes
316-1_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	69	1.57E+06	No
316-1_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	98	1.36E+06	No
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	--[1]	--
316-1_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.032	234,630	No
316-1_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.2	--[2]	--
316-1_Shallow_1	Rad	Uranium-238	U-238	pCi/g	28	--[2]	--
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	1.11E+07	3.88E+08	No

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	252,620	No
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	58	Yes
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	5,138	649	Yes
316-1_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	129,106	2.98E+08	No
316-1_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	416	3.88E+08	No
316-1_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	1.57E+06	No
316-1_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	474	89,473	No
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	1.55E+08	No
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	9,703	1.55E+06	No
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	2.36E+06	No
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	3.2	39	No
316-1_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.44E+07	8.95E+07	No
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	754,290	No
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	392,825	2.98E+07	No
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	1,105	4,295	No
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	94,656	4.03E+07	No
316-1_Shallow_3	non-Rad	Phenol	108-95-2	ug/kg	28	6.42E+06	No
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	ug/kg	1,444	299,460	No
316-1_Shallow_3	non-Rad	Silver	7440-22-4	ug/kg	13,196	2.80E+06	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	--[1]	--
316-1_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	56,707	--[3]	--
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	82,016	3.26E+07	No
316-1_Shallow_3	Rad	Cesium-137	10045-97-3	pCi/g	0.37	234,630	No
316-1_Shallow_3	Rad	Cobalt-60	10198-40-0	pCi/g	2.3	374,300	No
316-1_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	23	--[2]	--
316-1_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	2.6	--[2]	--
316-1_Shallow_3	Rad	Uranium-238	U-238	pCi/g	21	--[2]	--
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	58	Yes
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	--[1]	--
316-1_Shallow_4	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	374,300	No
316-1_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	16	--[2]	--
316-1_Shallow_4	Rad	Uranium-235	15117-96-1	pCi/g	1.1	--[2]	--
316-1_Shallow_4	Rad	Uranium-238	U-238	pCi/g	14	--[2]	--
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	--[1]	--
316-2_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.031	234,630	No
316-2_Shallow_1	Rad	Cobalt-60	10198-40-0	pCi/g	0.092	374,300	No
316-2_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	86	--[2]	--
316-2_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	12	--[2]	--
316-2_Shallow_1	Rad	Uranium-238	U-238	pCi/g	69	--[2]	--
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	34	Yes
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	ug/kg	42	58	No
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	ug/kg	110	627	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	--[1]	--
316-2_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	0.45	234,630	No
316-2_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.45	374,300	No
316-2_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	115	--[2]	--
316-2_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	11	--[2]	--
316-2_Shallow_2	Rad	Uranium-238	U-238	pCi/g	96	--[2]	--
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	649	Yes
316-2_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	260	1.57E+06	No
316-2_Shallow_3	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	180	1.36E+06	No
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	--[1]	--
316-2_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.91	--[2]	--
316-2_Shallow_3	Rad	Uranium-238	U-238	pCi/g	24	--[2]	--
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	3,070	649	Yes
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	38	12,016	No
316-5_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	146	1.57E+06	No
316-5_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	100	1.36E+06	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	--[1]	--
316-5_Shallow_1	Rad	Americium-241	14596-10-2	pCi/g	0.48	35,570	No
316-5_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	2.3	234,630	No
316-5_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	19	--[2]	--
316-5_Shallow_1	Rad	Uranium-238	U-238	pCi/g	89	--[2]	--
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	210	No
316-5_Shallow_2	non-Rad	2-Butoxyethanol	111-76-2	ug/kg	240	2.58E+07	No
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	3,180	649	Yes
316-5_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	76,700	2.98E+08	No
316-5_Shallow_2	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	180	1.57E+06	No
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	110	1.36E+06	No
316-5_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,900	1.55E+08	No
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	ug/kg	38	6,676	No
316-5_Shallow_2	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	146	3.80E+07	No
316-5_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	3,200	754,290	No
316-5_Shallow_2	non-Rad	Selenium	7782-49-2	ug/kg	490	299,460	No
316-5_Shallow_2	non-Rad	Silver	7440-22-4	ug/kg	3,600	2.80E+06	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	--[1]	--
316-5_Shallow_2	Rad	Americium-241	14596-10-2	pCi/g	0.12	35,570	No
316-5_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	1.7	234,630	No

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
316-5_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	374,300	No
316-5_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	9.0	--[2]	--
316-5_Shallow_2	Rad	Uranium-238	U-238	pCi/g	68	--[2]	--
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	34	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	58	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	627	No
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	649	Yes
316-5_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	190	1.57E+06	No
316-5_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	1,500	3.80E+07	No
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	--[1]	--
316-5_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.8	234,630	No
316-5_Shallow_Focused	Rad	Europium-155	14391-16-3	pCi/g	0.072	1.42E+06	No
316-5_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	7.7	--[2]	--
316-5_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	45	--[2]	--
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	ug/kg	25	227	No
331 LSLDF_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	590	2.29E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	0.56	28	No
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	ug/kg	0.39	55	No
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.90E+06	3.88E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	360	252,620	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	58	Yes
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,400	649	Yes
331 LSLDF_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	78,600	2.98E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	570	3.88E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	1.57E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,700	--[3]	--
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	1.36E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	140	89,473	No
331 LSLDF_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,300	1.55E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	1.55E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	15,400	2.36E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	16	No
331 LSLDF_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	98	3.80E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan I	959-98-8	ug/kg	1.9	1,378	No
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	ug/kg	3.1	1,378	No
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.20E+07	8.95E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	9,000	754,290	No
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	349,000	2.98E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	110	4,295	No
331 LSLDF_Shallow_Focused	non-Rad	Methoxychlor	72-43-5	ug/kg	3.3	28,617	No
331 LSLDF_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	11	1,931	No
331 LSLDF_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	590	3.09E+08	No
331 LSLDF_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	4.03E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	41,700	1.36E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	9,500	3.03E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,100	2.80E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,402	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	2,300	--[1]	--
331 LSLDF_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	53,100	--[3]	--
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	137,000	3.26E+07	No
331 LSLDF_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	0.54	--[2]	--
331 LSLDF_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.47	--[2]	--
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	ug/kg	279	4.97E+06	No
600-243_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	31	3.88E+08	No
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	252,620	No
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	27	58	No
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	18	627	No
600-243_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,159	649	Yes
600-243_Shallow	non-Rad	Barium	7440-39-3	ug/kg	292,072	2.98E+08	No
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	43	12,016	No
600-243_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	43	183,570	No
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	46	26,802	No
600-243_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	32	41,053	No
600-243_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	2,079	3.88E+08	No
600-243_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	432	1.57E+06	No
600-243_Shallow	non-Rad	Boron	7440-42-8	ug/kg	294,463	--[3]	--
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	89,473	No
600-243_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	18,006	1.55E+08	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	6,676	No
600-243_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,207	1.55E+06	No
600-243_Shallow	non-Rad	Copper	7440-50-8	ug/kg	53,981	2.36E+06	No
600-243_Shallow	non-Rad	Dibenzofuran	132-64-9	ug/kg	78	230,240	No
600-243_Shallow	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	37	3.80E+07	No
600-243_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	79	5.28E+07	No
600-243_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	28	115,820	No
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	754,290	No
600-243_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	208,289	2.98E+07	No
600-243_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	1,869	3.09E+08	No
600-243_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	204	7.15E+07	No

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
600-243_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	21,395	4.03E+07	No
600-243_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	70	3.88E+08	No
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	299,460	No
600-243_Shallow	non-Rad	Silver	7440-22-4	ug/kg	500	2.80E+06	No
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	95,319	--[3]	--
600-243_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	334,524	--[3]	--
600-243_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,986	--[3]	--
600-243_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	84,099	3.26E+07	No
600-259_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.034	234,630	No
600-259_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.068	234,630	No
600-259_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.038	234,630	No
600-47_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,300	649	Yes
600-47_Shallow	non-Rad	Barium	7440-39-3	ug/kg	67,000	2.98E+08	No
600-47_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	500	3.88E+08	No
600-47_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	90	89,473	No
600-47_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	5,500	1.55E+08	No
600-47_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,500	754,290	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	--[1]	--
600-47_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	--[2]	--
600-47_Shallow	Rad	Uranium-238	U-238	pCi/g	1.6	--[2]	--
618-1_Deep	non-Rad	Aluminum	7429-90-5	ug/kg	6.37E+06	3.88E+08	No
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	58	Yes
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	ug/kg	294	627	No
618-1_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,550	649	Yes
618-1_Deep	non-Rad	Barium	7440-39-3	ug/kg	299,000	2.98E+08	No
618-1_Deep	non-Rad	Beryllium	7440-41-7	ug/kg	218	3.88E+08	No
618-1_Deep	non-Rad	Boron	7440-42-8	ug/kg	1,360	--[3]	--
618-1_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	263	89,473	No
618-1_Deep	non-Rad	Chromium	7440-47-3	ug/kg	7,740	1.55E+08	No
618-1_Deep	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	1.55E+06	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	2.36E+06	No
618-1_Deep	non-Rad	Fluoride	16984-48-8	ug/kg	2,800	--[3]	--
618-1_Deep	non-Rad	Iron	7439-89-6	ug/kg	2.47E+07	8.95E+07	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	754,290	No
618-1_Deep	non-Rad	Lithium	7439-93-2	ug/kg	5,980	--[3]	--
618-1_Deep	non-Rad	Manganese	7439-96-5	ug/kg	352,000	2.98E+07	No
618-1_Deep	non-Rad	Mercury	7439-97-6	ug/kg	1,180	4,295	No
618-1_Deep	non-Rad	Molybdenum	7439-98-7	ug/kg	493	3.09E+08	No
618-1_Deep	non-Rad	Nickel	7440-02-0	ug/kg	17,600	4.03E+07	No
618-1_Deep	non-Rad	Nitrate	14797-55-8	ug/kg	1,700	1.36E+07	No
618-1_Deep	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	220	3.03E+06	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	--[1]	--
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	--[1]	--
618-1_Deep	non-Rad	Vanadium	7440-62-2	ug/kg	73,000	--[3]	--
618-1_Deep	non-Rad	Zinc	7440-66-6	ug/kg	134,000	3.26E+07	No
618-1_Deep	Rad	Cesium-137	10045-97-3	pCi/g	0.46	234,630	No
618-1_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	33	--[2]	--
618-1_Deep	Rad	Uranium-235	15117-96-1	pCi/g	2.7	--[2]	--
618-1_Deep	Rad	Uranium-238	U-238	pCi/g	32	--[2]	--
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	3.88E+08	No
618-1_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	407	252,620	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	58	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	99	627	No
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,580	649	Yes
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	2.98E+08	No
618-1_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	323	3.88E+08	No
618-1_Deep_Focused	non-Rad	Boron	7440-42-8	ug/kg	6,620	--[3]	--
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,030	89,473	No
618-1_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	18,900	1.55E+08	No
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,920	1.55E+06	No
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	68,700	2.36E+06	No
618-1_Deep_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	3,300	--[3]	--
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.41E+07	8.95E+07	No
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	754,290	No
618-1_Deep_Focused	non-Rad	Lithium	7439-93-2	ug/kg	8,450	--[3]	--
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	351,000	2.98E+07	No
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	4,295	Yes
618-1_Deep_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	2,140	3.09E+08	No
618-1_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	13,700	4.03E+07	No
618-1_Deep_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	11,900	1.36E+07	No
618-1_Deep_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	1,560	3.03E+06	No
618-1_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,290	2.80E+06	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	--[1]	--
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	--[1]	--
618-1_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	70,900	--[3]	--
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	82,000	3.26E+07	No
618-1_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	6.5	234,630	No
618-1_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	70	--[2]	--

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
618-1_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.5	--[2]	--
618-1_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	65	--[2]	--
618-1_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.21E+06	3.88E+08	No
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	58	Yes
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	54	627	No
618-1_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,280	649	Yes
618-1_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,200	2.98E+08	No
618-1_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	188	3.88E+08	No
618-1_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,190	--[3]	--
618-1_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	68	89,473	No
618-1_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,930	1.55E+08	No
618-1_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,360	1.55E+06	No
618-1_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,400	2.36E+06	No
618-1_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	400	--[3]	--
618-1_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	8.95E+07	No
618-1_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,100	754,290	No
618-1_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	6,380	--[3]	--
618-1_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	300,000	2.98E+07	No
618-1_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	31	4,295	No
618-1_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	336	3.09E+08	No
618-1_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,150	4.03E+07	No
618-1_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	1,600	1.36E+07	No
618-1_Shallow	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	300	3.03E+06	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	--[1]	--
618-1_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	56,300	--[3]	--
618-1_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	42,100	3.26E+07	No
618-1_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--[2]	--
618-1_Shallow	Rad	Uranium-238	U-238	pCi/g	1.5	--[2]	--
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	455	252,620	No
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	34	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	58	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	56	627	No
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	6,090	649	Yes
618-1_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	102,000	2.98E+08	No
618-1_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	371	3.88E+08	No
618-1_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	3,740	--[3]	--
618-1_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	266	89,473	No
618-1_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	19,500	1.55E+08	No
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	1.55E+06	No
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	2.36E+06	No
618-1_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	900	--[3]	--
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.28E+07	8.95E+07	No
618-1_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,210	754,290	No
618-1_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	13,300	--[3]	--
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	403,000	2.98E+07	No
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	4,295	No
618-1_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	356	3.09E+08	No
618-1_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	16,800	4.03E+07	No
618-1_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	3,800	1.36E+07	No
618-1_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	260	3.03E+06	No
618-1_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,120	2.80E+06	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	--[1]	--
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	--[1]	--
618-1_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	64,700	--[3]	--
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	68,100	3.26E+07	No
618-1_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	--[2]	--
618-1_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.99	--[2]	--
618-1_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	8.2	--[2]	--
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	649	Yes
618-12_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	63	1.57E+06	No
618-12_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	60	1.36E+06	No
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	--[1]	--
618-12_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.47	--[2]	--
618-12_Shallow	Rad	Uranium-238	U-238	pCi/g	11	--[2]	--
618-13_Shallow	non-Rad	Acetone	67-64-1	ug/kg	8.6	2.29E+08	No
618-13_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	3.88E+08	No
618-13_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	312	252,620	No
618-13_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	649	Yes
618-13_Shallow	non-Rad	Barium	7440-39-3	ug/kg	74,000	2.98E+08	No
618-13_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	212	3.88E+08	No
618-13_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,050	--[3]	--
618-13_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	63	89,473	No
618-13_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,700	1.55E+08	No
618-13_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,290	1.55E+06	No
618-13_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,500	2.36E+06	No
618-13_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.01E+07	8.95E+07	No
618-13_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,620	754,290	No

Table A-4. Comparison of EPCs from 300 Area Source OU Waste Site Decision Units to STOMP 1D 100:0 Contaminant Source Model Soil Screening Levels Protective of Surface Water (Without Background Consideration)

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	STOMP 1D 100:0 Contaminant Source Model Soil Screening Level for Surface Water Protection	Is EPC > Soil Screening Level Protective of Surface Water?
618-13_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	344,000	2.98E+07	No
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	1,931	No
618-13_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	420	3.09E+08	No
618-13_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,400	4.03E+07	No
618-13_Shallow	non-Rad	Tin	7440-31-5	ug/kg	1,050	3.88E+08	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	--[1]	--
618-13_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,750	--[1]	--
618-13_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	55,800	--[3]	--
618-13_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,400	3.26E+07	No
618-13_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.038	234,630	No
618-13_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	--[2]	--
618-13_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	--[2]	--
618-13_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	5.9	2.29E+08	No
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.22E+06	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	233	252,620	No
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,390	649	Yes
618-13_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	57,700	2.98E+08	No
618-13_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	184	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	960	--[3]	--
618-13_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	47	89,473	No
618-13_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,740	1.55E+08	No
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,710	1.55E+06	No
618-13_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,100	2.36E+06	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	98,100	No
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	8.95E+07	No
618-13_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	4,940	754,290	No
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	268,000	2.98E+07	No
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	5.0	1,931	No
618-13_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	297	3.09E+08	No
618-13_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	4.03E+07	No
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	745	3.88E+08	No
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,855	--[1]	--
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	1,500	--[1]	--
618-13_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	48,600	--[3]	--
618-13_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,100	3.26E+07	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--[2]	--
618-13_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.96	--[2]	--
618-2_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	1,500	649	Yes
618-2_Deep	non-Rad	Barium	7440-39-3	ug/kg	83,300	2.98E+08	No
618-2_Deep	non-Rad	Chromium	7440-47-3	ug/kg	6,700	1.55E+08	No
618-2_Deep	non-Rad	Lead	7439-92-1	ug/kg	6,600	754,290	No
618-2_Deep	non-Rad	Selenium	7782-49-2	ug/kg	780	299,460	No
618-2_Deep	non-Rad	Tin	7440-31-5	ug/kg	2,900	3.88E+08	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	--[1]	--
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	--[1]	--
618-2_Deep	Rad	Americium-241	14596-10-2	pCi/g	7.9	35,570	No
618-2_Deep	Rad	Cesium-137	10045-97-3	pCi/g	1.0	234,630	No
618-2_Deep	Rad	Plutonium-238	13981-16-3	pCi/g	1.5	35,570	No
618-2_Deep	Rad	Plutonium-239/240	PU-239/240	pCi/g	91	35,570	No
618-2_Deep	Rad	Plutonium-241	14119-32-5	pCi/g	42	711,401	No
618-2_Deep	Rad	Total beta radiostrontium	SR-RAD	pCi/g	12	3,808	No
618-2_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	161	--[2]	--
618-2_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.78	--[2]	--
618-2_Deep	Rad	Uranium-238	U-238	pCi/g	165	--[2]	--
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	6.9	58	No
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	649	Yes
618-2_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	109,000	2.98E+08	No
618-2_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	1.57E+06	No
618-2_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	200	89,473	No
618-2_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,400	1.55E+08	No
618-2_Deep_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	18	3.80E+07	No
618-2_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,800	754,290	No
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	1,200	299,460	No
618-2_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	600	2.80E+06	No
618-2_Deep_Focused	non-Rad	Tin	7440-31-5	ug/kg	42,500	3.88E+08	No
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	--[1]	--
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	--[1]	--
618-2_Deep_Focused	Rad	Americium-241	14596-10-2	pCi/g	9.2	35,570	No
618-2_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.1	234,630	No
618-2_Deep_Focused	Rad	Plutonium-238	13981-16-3	pCi/g	1.6	35,570	No
618-2_Deep_Focused	Rad	Plutonium-239/240	PU-239/240	pCi/g	92	35,570	No
618-2_Deep_Focused	Rad	Plutonium-241	14119-32-5	pCi/g	33	711,401	No
618-2_Deep_Focused	Rad	Total beta radiostrontium	SR-RAD	pCi/g	7.2	3,808	No
618-2_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	48	--[2]	--
618-2_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	2.4	--[2]	--
618-2_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	50	--[2]	--
618-2_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	649	Yes
618-2_Overburden	non-Rad	Barium	7440-39-3	ug/kg	74,700	2.98E+08	No