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?
618-2_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	6,600	1.55E+08	No
618-2_Overburden	non-Rad	Lead	7439-92-1	ug/kg	4,300	754,290	No
618-2_Overburden	non-Rad	Selenium	7782-49-2	ug/kg	1,000	299,460	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	649	Yes
618-2_Shallow	non-Rad	Barium	7440-39-3	ug/kg	79,100	2.98E+08	No
618-2_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,100	1.55E+08	No
618-2_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,600	754,290	No
618-2_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	760	299,460	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	649	Yes
618-2_Staging Pile	non-Rad	Barium	7440-39-3	ug/kg	67,690	2.98E+08	No
618-2_Staging Pile	non-Rad	Chromium	7440-47-3	ug/kg	6,424	1.55E+08	No
618-2_Staging Pile	non-Rad	Lead	7439-92-1	ug/kg	4,011	754,290	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	649	Yes
618-3_Shallow	non-Rad	Barium	7440-39-3	ug/kg	76,500	2.98E+08	No
618-3_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,700	1.55E+08	No
618-3_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,900	754,290	No
618-3_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	659	299,460	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	649	Yes
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	754,290	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	1.75E+08	No
618-4_Deep_Focused	non-Rad	Acetone	67-64-1	ug/kg	16	2.29E+08	No
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	58	Yes
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	649	Yes
618-4_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	104,000	2.98E+08	No
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	1.57E+06	No
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	89,473	No
618-4_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	27,700	1.55E+08	No
618-4_Deep_Focused	non-Rad	Diethyl ether	60-29-7	ug/kg	1.0	3.99E+07	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	754,290	No
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	1,931	No
618-4_Deep_Focused	non-Rad	Phenol	108-95-2	ug/kg	110	6.42E+06	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	1,348	No
618-4_Deep_Focused	non-Rad	Toluene	108-88-3	ug/kg	4.8	2.54E+06	No
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	34,000	--[3]	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - kerosene range	TPHKEROSENE	ug/kg	42,000	--[3]	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	65	--[3]	--
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	3,534	No
618-4_Deep_Focused	non-Rad	Trichloromonofluoromethane	75-69-4	ug/kg	12	2.93E+07	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]	--

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?
618-4_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	649	Yes
618-4_Overburden_2	non-Rad	Lead	7439-92-1	ug/kg	4,700	754,290	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	754,290	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	754,290	No
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	649	Yes
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	754,290	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	649	Yes
618-5_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	470	89,473	No
618-5_Deep	non-Rad	Chromium	7440-47-3	ug/kg	14,700	1.55E+08	No
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	754,290	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	252,620	No
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	649	Yes
618-5_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	106,000	2.98E+08	No
618-5_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	672	3.88E+08	No
618-5_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,500	1.55E+08	No
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	10,500	1.55E+06	No
618-5_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	21,400	2.36E+06	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	754,290	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	4,295	No
618-5_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	11,300	4.03E+07	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	299,460	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]	--
618-5_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	65,800	3.26E+07	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	649	Yes
618-5_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	170	89,473	No
618-5_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	9,700	1.55E+08	No
618-5_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,500	754,290	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	649	Yes
618-5_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	11,300	1.55E+08	No
618-5_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,100	754,290	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	649	Yes
618-5_Staging Pile_4	non-Rad	Cadmium	7440-43-9	ug/kg	50	89,473	No
618-5_Staging Pile_4	non-Rad	Chromium	7440-47-3	ug/kg	11,800	1.55E+08	No
618-5_Staging Pile_4	non-Rad	Lead	7439-92-1	ug/kg	5,300	754,290	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	649	Yes
618-5_Staging Pile_5	non-Rad	Chromium	7440-47-3	ug/kg	10,300	1.55E+08	No
618-5_Staging Pile_5	non-Rad	Lead	7439-92-1	ug/kg	3,900	754,290	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

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?
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	252,620	No
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	1,891	649	Yes
618-7_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	68,874	2.98E+08	No
618-7_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	278	3.88E+08	No
618-7_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	65	89,473	No
618-7_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	10,227	1.55E+08	No
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	9,152	1.55E+06	No
618-7_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	16,120	2.36E+06	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	754,290	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	4,295	No
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	20,977	4.03E+07	No
618-7_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,547	3.88E+08	No
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]	--
618-7_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	49,177	3.26E+07	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	252,620	No
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	649	Yes
618-7_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	73,800	2.98E+08	No
618-7_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	440	3.88E+08	No
618-7_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,800	1.55E+08	No
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	9,300	1.55E+06	No
618-7_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	13,600	2.36E+06	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	754,290	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	4,295	No
618-7_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,700	4.03E+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]	--
618-7_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	46,200	3.26E+07	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	252,620	No
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	649	Yes
618-7_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	82,500	2.98E+08	No
618-7_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	310	3.88E+08	No
618-7_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	190	89,473	No
618-7_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	10,100	1.55E+08	No
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	1.55E+06	No
618-7_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	13,600	2.36E+06	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	754,290	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	4,295	No
618-7_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	10,100	4.03E+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]	--
618-7_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	44,500	3.26E+07	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	252,620	No
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	649	Yes
618-7_Shallow_4	non-Rad	Barium	7440-39-3	ug/kg	57,900	2.98E+08	No
618-7_Shallow_4	non-Rad	Beryllium	7440-41-7	ug/kg	220	3.88E+08	No
618-7_Shallow_4	non-Rad	Cadmium	7440-43-9	ug/kg	90	89,473	No
618-7_Shallow_4	non-Rad	Chromium	7440-47-3	ug/kg	11,400	1.55E+08	No
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	ug/kg	6,700	1.55E+06	No
618-7_Shallow_4	non-Rad	Copper	7440-50-8	ug/kg	13,200	2.36E+06	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	754,290	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	4.03E+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]	--
618-7_Shallow_4	non-Rad	Zinc	7440-66-6	ug/kg	37,000	3.26E+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?
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	4.71E+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	252,620	No
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	34	No
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,200	649	Yes
618-7_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	92,800	2.98E+08	No
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	12,016	No
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	66	183,570	No
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	26,802	No
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	11	41,053	No
618-7_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	370	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	470	1.57E+06	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	89,473	No
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	65,900	1.55E+08	No
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	6,676	No
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,000	1.55E+06	No
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	2.36E+06	No
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	45	59,744	No
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	33	3.80E+07	No
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	48	5.28E+07	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	754,290	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	4,295	No
618-7_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	17,200	4.03E+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	--[3]	--
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]	--
618-7_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,400	3.26E+07	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	649	Yes
618-8_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,600	2.98E+08	No
618-8_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	12,400	1.55E+08	No
618-8_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,100	754,290	No
618-8_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	846	299,460	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	210	No
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	680	2.29E+08	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	28	Yes
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	82	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	7.9	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	7.9	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	58	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	627	Yes
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	649	Yes
618-9_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	90,200	2.98E+08	No
618-9_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	330	3.88E+08	No
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	1.57E+06	No
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	1.36E+06	No
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	347	No
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	5,291	No
618-9_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,700	1.55E+08	No
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,400	1.55E+06	No
618-9_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	16,700	2.36E+06	No
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	7,200	3.80E+07	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	39	Yes
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	281,770	No
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	30,113	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	754,290	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	4,295	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	1,931	Yes
618-9_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,600	4.03E+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	1,348	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?
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	ug/kg	9.0	2.54E+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	3,534	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]	--
618-9_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,300	3.26E+07	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	649	Yes
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	1.57E+06	No
628-4_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,284	754,290	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]	--
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	34	Yes
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	34	Yes
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	58	Yes
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	627	No
628-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,864	649	Yes
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	754,290	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	4.71E+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	252,620	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	34	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	58	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	627	No
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,573	649	Yes
UPR-300-17_Shallow	non-Rad	Barium	7440-39-3	ug/kg	81,014	2.98E+08	No
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	12,016	No
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	44	183,570	No
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	33	26,802	No
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	9.9	41,053	No
UPR-300-17_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	240	3.88E+08	No
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	ug/kg	3,903	--[3]	--
UPR-300-17_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	173	89,473	No
UPR-300-17_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	13,795	1.55E+08	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	6,676	No
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,688	1.55E+06	No
UPR-300-17_Shallow	non-Rad	Copper	7440-50-8	ug/kg	15,135	2.36E+06	No
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	35	5.28E+07	No
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.9	1.01E+08	No
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	5.9	115,820	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	754,290	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	4,295	No
UPR-300-17_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	412	3.09E+08	No
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	48	7.15E+07	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	4.03E+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	2.80E+06	No
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	2,950	--[3]	--
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	210,420	--[3]	--
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]	--
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	3.26E+07	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	4.71E+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	252,620	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	34	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	58	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	627	No
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,846	649	Yes
UPR-300-46_Shallow	non-Rad	Barium	7440-39-3	ug/kg	82,137	2.98E+08	No
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	3.9	12,016	No
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.4	183,570	No
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	5.4	26,802	No
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	2.8	41,053	No
UPR-300-46_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	222	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?
UPR-300-46_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,714	--[3]	--
UPR-300-46_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	95	89,473	No
UPR-300-46_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,173	1.55E+08	No
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	5.6	6,676	No
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,361	1.55E+06	No
UPR-300-46_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,151	2.36E+06	No
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	1.3	59,744	No
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	9.6	5.28E+07	No
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.2	1.01E+08	No
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	7.6	115,820	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	754,290	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	4,295	No
UPR-300-46_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	456	3.09E+08	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	7.15E+07	No
UPR-300-46_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	9,230	4.03E+07	No
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]	--
UPR-300-46_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	47,945	3.26E+07	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 surface water 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. A soil screening level is not calculated because a groundwater cleanup level or MCL is not available for this analyte.
4. 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-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	--	--
300 ASH PITS_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,078	6,470	No
300 ASH PITS_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	96	--	--
300 ASH PITS_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	76	--	--
300 ASH PITS_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,450	3,210	No
300 ASH PITS_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.039	0.11	No
300 ASH PITS_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	1.1	No
300 VTS_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.029	1.1	No
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	6,470	Yes
300-10_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	200	--	--
300-10_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	230	--	--
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078	3,210	Yes
300-10_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.16	1.1	No
300-10_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.041	0.11	No
300-10_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	1.1	Yes
300-109_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.62E+06	1.18E+07	No
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	--	--
300-109_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	40	--	--
300-109_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,420	6,470	No
300-109_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	63,300	132,000	No
300-109_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.2	--	--
300-109_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	2.3	--	--
300-109_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	180	1,510	No
300-109_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	632	3,890	No
300-109_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	59	563	No
300-109_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,950	18,500	No
300-109_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	1.8	--	--
300-109_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	6,420	15,700	No
300-109_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,800	22,000	No
300-109_Shallow_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	14	--	--
300-109_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.75E+07	3.26E+07	No
300-109_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	2,890	10,200	No
300-109_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	278,000	512,000	No
300-109_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	22	13	Yes
300-109_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	341	470	No
300-109_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,490	19,100	No
300-109_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	1.6	--	--
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108	3,210	Yes
300-109_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	47,600	85,100	No
300-109_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	34,700	67,800	No
300-109_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	1.1	Yes
300-109_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.4	1.1	Yes
300-109_Staging Pile Area_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.78E+06	1.18E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	37	--	--
300-109_Staging Pile Area_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	19	--	--
300-109_Staging Pile Area_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,580	6,470	No
300-109_Staging Pile Area_Focused	non-Rad	Barium	7440-39-3	ug/kg	72,700	132,000	No
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	2.1	--	--
300-109_Staging Pile Area_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.3	--	--
300-109_Staging Pile Area_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.3	--	--
300-109_Staging Pile Area_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	203	1,510	No
300-109_Staging Pile Area_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,060	3,890	No
300-109_Staging Pile Area_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	66	563	No
300-109_Staging Pile Area_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,170	18,500	No
300-109_Staging Pile Area_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,950	15,700	No
300-109_Staging Pile Area_Focused	non-Rad	Copper	7440-50-8	ug/kg	11,600	22,000	No
300-109_Staging Pile Area_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	5.1	--	--
300-109_Staging Pile Area_Focused	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	29	--	--
300-109_Staging Pile Area_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.84E+07	3.26E+07	No
300-109_Staging Pile Area_Focused	non-Rad	Lead	7439-92-1	ug/kg	5,030	10,200	No
300-109_Staging Pile Area_Focused	non-Rad	Manganese	7439-96-5	ug/kg	286,000	512,000	No
300-109_Staging Pile Area_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	408	470	No
300-109_Staging Pile Area_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,570	19,100	No
300-109_Staging Pile Area_Focused	non-Rad	Pyrene	129-00-0	ug/kg	7.0	--	--
300-109_Staging Pile Area_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,450	--	--
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877	3,210	Yes
300-109_Staging Pile Area_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	45,100	85,100	No
300-109_Staging Pile Area_Focused	non-Rad	Zinc	7440-66-6	ug/kg	48,800	67,800	No
300-109_Staging Pile Area_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	2.5	1.1	Yes
300-109_Staging Pile Area_Focused	Rad	Uranium-238	U-238	pCi/g	2.3	1.1	Yes
300-18_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	6,470	No
300-18_Shallow	non-Rad	Barium	7440-39-3	ug/kg	63,400	132,000	No
300-18_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	650	1,510	No
300-18_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	40	563	No
300-18_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	6,900	18,500	No
300-18_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,600	10,200	No
300-18_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,136	3,210	No
300-18_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.65	1.1	No
300-18_Shallow	Rad	Uranium-238	U-238	pCi/g	0.41	1.1	No
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	1.18E+07	No
300-259_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	322	130	Yes
300-259_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,096	6,470	No

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
300-259_Shallow	non-Rad	Barium	7440-39-3	ug/kg	75,232	132,000	No
300-259_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	226	1,510	No
300-259_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,303	3,890	No
300-259_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	252	563	No
300-259_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,901	18,500	No
300-259_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	5,831	15,700	No
300-259_Shallow	non-Rad	Copper	7440-50-8	ug/kg	10,692	22,000	No
300-259_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	3.26E+07	No
300-259_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,625	10,200	No
300-259_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,874	512,000	No
300-259_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	10	13	No
300-259_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	303	470	No
300-259_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,751	19,100	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	3,210	Yes
300-259_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	42,626	85,100	No
300-259_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	479,584	67,800	Yes
300-259_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.6	1.1	Yes
300-259_Shallow	Rad	Uranium-238	U-238	pCi/g	1.3	1.1	Yes
300-260_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.17E+06	1.18E+07	No
300-260_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	922	130	Yes
300-260_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,160	6,470	No
300-260_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	122,000	132,000	No
300-260_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	239	1,510	No
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	3,890	Yes
300-260_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	110	563	No
300-260_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,890	18,500	No
300-260_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	7,430	15,700	No
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	22,000	Yes
300-260_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.04E+07	3.26E+07	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	10,200	Yes
300-260_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	328,000	512,000	No
300-260_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	12	13	No
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	470	Yes
300-260_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,200	19,100	No
300-260_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	206	167	Yes
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800	3,210	Yes
300-260_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,000	85,100	No
300-260_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	77,400	67,800	Yes
300-260_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.25	0.11	Yes
300-260_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	4.3	1.1	Yes
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	--	--
300-275_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.61E+06	1.18E+07	No
300-275_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	260	130	Yes
300-275_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	2,211	6,470	No
300-275_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	75,261	132,000	No
300-275_Shallow_1	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	1.3	--	--
300-275_Shallow_1	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	1.9	--	--
300-275_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	452	1,510	No
300-275_Shallow_1	non-Rad	Boron	7440-42-8	ug/kg	1,466	3,890	No
300-275_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	83	563	No
300-275_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	8,022	18,500	No
300-275_Shallow_1	non-Rad	Chrysene	218-01-9	ug/kg	2.2	--	--
300-275_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	5,847	15,700	No
300-275_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	42,923	22,000	Yes
300-275_Shallow_1	non-Rad	Fluoranthene	206-44-0	ug/kg	2,300	--	--
300-275_Shallow_1	non-Rad	Fluorene	86-73-7	ug/kg	81	--	--
300-275_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	3.26E+07	No
300-275_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	7,189	10,200	No
300-275_Shallow_1	non-Rad	Lithium	7439-93-2	ug/kg	6,686	13,300	No
300-275_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	276,815	512,000	No
300-275_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	17	13	Yes
300-275_Shallow_1	non-Rad	Molybdenum	7439-98-7	ug/kg	378	470	No
300-275_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	9,461	19,100	No
300-275_Shallow_1	non-Rad	Silver	7440-22-4	ug/kg	121	167	No
300-275_Shallow_1	non-Rad	Strontium	7440-24-6	ug/kg	20,196	--	--
300-275_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,483	--	--
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251	3,210	Yes
300-275_Shallow_1	non-Rad	Uranium	7440-61-1	ug/kg	2,500	3,210	No
300-275_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	45,128	85,100	No
300-275_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	41,014	67,800	No
300-275_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.046	1.1	No
300-275_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	7.7	1.1	Yes
300-275_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.0	0.11	Yes
300-275_Shallow_1	Rad	Uranium-238	U-238	pCi/g	7.4	1.1	Yes
300-275_Shallow_2	non-Rad	Acenaphthene	83-32-9	ug/kg	3.6	--	--
300-275_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	6.24E+06	1.18E+07	No
300-275_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,761	6,470	No
300-275_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	68,607	132,000	No
300-275_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	254	1,510	No
300-275_Shallow_2	non-Rad	Boron	7440-42-8	ug/kg	1,147	3,890	No
300-275_Shallow_2	non-Rad	Cadmium	7440-43-9	ug/kg	144	563	No
300-275_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	8,994	18,500	No
300-275_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	5,977	15,700	No

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
300-275_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	11,596	22,000	No
300-275_Shallow_2	non-Rad	Fluoranthene	206-44-0	ug/kg	56	--	--
300-275_Shallow_2	non-Rad	Fluorene	86-73-7	ug/kg	2.6	--	--
300-275_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	3.26E+07	No
300-275_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	4,099	10,200	No
300-275_Shallow_2	non-Rad	Lithium	7439-93-2	ug/kg	7,067	13,300	No
300-275_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	292,731	512,000	No
300-275_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	28	13	Yes
300-275_Shallow_2	non-Rad	Molybdenum	7439-98-7	ug/kg	404	470	No
300-275_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,593	19,100	No
300-275_Shallow_2	non-Rad	Strontium	7440-24-6	ug/kg	27,081	--	--
300-275_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,149	--	--
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725	3,210	Yes
300-275_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	51,632	85,100	No
300-275_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	41,245	67,800	No
300-275_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	1.1	Yes
300-275_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	0.24	0.11	Yes
300-275_Shallow_2	Rad	Uranium-238	U-238	pCi/g	1.2	1.1	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.32E+06	1.18E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1016	12674-11-2	ug/kg	10	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	16	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	17	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,638	6,470	No
300-33, 300-41, 300-256_Shallow	non-Rad	Barium	7440-39-3	ug/kg	72,411	132,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	256	1,510	No
300-33, 300-41, 300-256_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,484	3,890	No
300-33, 300-41, 300-256_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	228	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	94	563	No
300-33, 300-41, 300-256_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	8,781	18,500	No
300-33, 300-41, 300-256_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,273	15,700	No
300-33, 300-41, 300-256_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,662	22,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	1,651	2,810	No
300-33, 300-41, 300-256_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.00E+07	3.26E+07	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lead	7439-92-1	ug/kg	4,268	10,200	No
300-33, 300-41, 300-256_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	5,495	13,300	No
300-33, 300-41, 300-256_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	314,762	512,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	16	13	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	2.9	--	--
300-33, 300-41, 300-256_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	486	470	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,880	19,100	No
300-33, 300-41, 300-256_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	8,617	52,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Silver	7440-22-4	ug/kg	782	167	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349	3,210	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260	3,210	Yes
300-33, 300-41, 300-256_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,694	85,100	No
300-33, 300-41, 300-256_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,462	67,800	No
300-33, 300-41, 300-256_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.1	1.1	Yes
300-33, 300-41, 300-256_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.34	0.11	Yes
300-33, 300-41, 300-256_Shallow	Rad	Uranium-238	U-238	pCi/g	2.1	1.1	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.51E+06	1.18E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,240	6,470	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	64,600	132,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	169	1,510	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,030	3,890	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	100	563	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,080	18,500	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,640	15,700	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,400	22,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	1,300	2,810	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.86E+07	3.26E+07	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	3,160	10,200	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	6,580	13,300	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	259,000	512,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2.2	--	--
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	275	470	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,040	19,100	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	17,900	52,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460	3,210	Yes
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	51,400	85,100	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	38,900	67,800	No
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	3.0	1.1	Yes
300-33, 300-41, 300-256_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	2.2	1.1	Yes
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	--	--
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	--	--
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	6,470	Yes
300-44_Overburden_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,027	3,210	No
300-44_Overburden_Focused	Rad	Uranium-238	U-238	pCi/g	0.35	1.1	No
300-44_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.71E+06	1.18E+07	No
300-44_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	4,100	130	Yes
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	6,470	Yes

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
300-44_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	75,200	132,000	No
300-44_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	480	1,510	No
300-44_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,300	18,500	No
300-44_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,200	15,700	No
300-44_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	7,800	22,000	No
300-44_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.94E+07	3.26E+07	No
300-44_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	303,000	512,000	No
300-44_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	8,600	19,100	No
300-44_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	872	3,210	No
300-44_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	43,200	85,100	No
300-44_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,800	67,800	No
300-44_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.29	1.1	No
300-45_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	86	--	--
300-45_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	290	--	--
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600	3,210	Yes
300-45_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.023	1.1	No
300-45_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.061	0.11	No
300-45_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	1.2	1.1	Yes
300-49_Overburden	non-Rad	1,2,4-Trichlorobenzene	120-82-1	ug/kg	31	--	--
300-49_Overburden	non-Rad	1,4-Dichlorobenzene	106-46-7	ug/kg	29	--	--
300-49_Overburden	non-Rad	2,4-Dinitrotoluene	121-14-2	ug/kg	19	--	--
300-49_Overburden	non-Rad	2-Chlorophenol	95-57-8	ug/kg	51	--	--
300-49_Overburden	non-Rad	4-Chloro-3-methylphenol	59-50-7	ug/kg	46	--	--
300-49_Overburden	non-Rad	Acenaphthene	83-32-9	ug/kg	31	--	--
300-49_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.30E+06	1.18E+07	No
300-49_Overburden	non-Rad	Antimony	7440-36-0	ug/kg	232	130	Yes
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	--	--
300-49_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,291	6,470	No
300-49_Overburden	non-Rad	Barium	7440-39-3	ug/kg	76,068	132,000	No
300-49_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	201	1,510	No
300-49_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	174	563	No
300-49_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	18,106	18,500	No
300-49_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	7,127	15,700	No
300-49_Overburden	non-Rad	Copper	7440-50-8	ug/kg	536,000	22,000	Yes
300-49_Overburden	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	52	--	--
300-49_Overburden	non-Rad	Iron	7439-89-6	ug/kg	2.08E+07	3.26E+07	No
300-49_Overburden	non-Rad	Lead	7439-92-1	ug/kg	36,964	10,200	Yes
300-49_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	316,669	512,000	No
300-49_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	13,035	19,100	No
300-49_Overburden	non-Rad	n-Nitrosodi-n-dipropylamine	621-64-7	ug/kg	40	--	--
300-49_Overburden	non-Rad	Pentachlorophenol	87-86-5	ug/kg	50	--	--
300-49_Overburden	non-Rad	Phenol	108-95-2	ug/kg	50	--	--
300-49_Overburden	non-Rad	Pyrene	129-00-0	ug/kg	40	--	--
300-49_Overburden	non-Rad	Silver	7440-22-4	ug/kg	703	167	Yes
300-49_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,066	3,210	No
300-49_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	50,380	85,100	No
300-49_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	141,984	67,800	Yes
300-49_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	1.0	1.1	No
300-49_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.057	0.11	No
300-49_Overburden	Rad	Uranium-238	U-238	pCi/g	1.0	1.1	No
300-49_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.92E+06	1.18E+07	No
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	130	Yes
300-49_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,431	6,470	No
300-49_Shallow	non-Rad	Barium	7440-39-3	ug/kg	89,874	132,000	No
300-49_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	303	1,510	No
300-49_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,170	18,500	No
300-49_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,323	15,700	No
300-49_Shallow	non-Rad	Copper	7440-50-8	ug/kg	14,870	22,000	No
300-49_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.59E+07	3.26E+07	No
300-49_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,629	10,200	No
300-49_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	361,805	512,000	No
300-49_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	10,664	19,100	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	167	Yes
300-49_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,983	3,210	No
300-49_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	58,672	85,100	No
300-49_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	54,651	67,800	No
300-49_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.15	1.1	No
300-49_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	1.1	Yes
300-49_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	0.11	Yes
300-49_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	1.1	Yes
300-50_Overburden	non-Rad	Aluminum	7429-90-5	ug/kg	6.68E+06	1.18E+07	No
300-50_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	33	--	--
300-50_Overburden	non-Rad	Aroclor-1260	11096-82-5	ug/kg	229	--	--
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	6,470	Yes
300-50_Overburden	non-Rad	Barium	7440-39-3	ug/kg	117,742	132,000	No
300-50_Overburden	non-Rad	Beryllium	7440-41-7	ug/kg	325	1,510	No
300-50_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	563	563	No
300-50_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	12,197	18,500	No
300-50_Overburden	non-Rad	Cobalt	7440-48-4	ug/kg	9,389	15,700	No
300-50_Overburden	non-Rad	Copper	7440-50-8	ug/kg	64,527	22,000	Yes
300-50_Overburden	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	3.26E+07	No
300-50_Overburden	non-Rad	Lead	7439-92-1	ug/kg	5,905	10,200	No
300-50_Overburden	non-Rad	Manganese	7439-96-5	ug/kg	314,271	512,000	No
300-50_Overburden	non-Rad	Nickel	7440-02-0	ug/kg	15,229	19,100	No
300-50_Overburden	non-Rad	Silver	7440-22-4	ug/kg	1,202	167	Yes

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919	3,210	Yes
300-50_Overburden	non-Rad	Vanadium	7440-62-2	ug/kg	45,243	85,100	No
300-50_Overburden	non-Rad	Zinc	7440-66-6	ug/kg	45,889	67,800	No
300-50_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.056	1.1	No
300-50_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	6.0	1.1	Yes
300-50_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	0.45	0.11	Yes
300-50_Overburden	Rad	Uranium-238	U-238	pCi/g	6.0	1.1	Yes
300-50_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.88E+06	1.18E+07	No
300-50_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	3,000	130	Yes
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	--	--
300-50_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,403	6,470	No
300-50_Shallow	non-Rad	Barium	7440-39-3	ug/kg	103,029	132,000	No
300-50_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	282	1,510	No
300-50_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	--	--
300-50_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	463	563	No
300-50_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	16,841	18,500	No
300-50_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	9,109	15,700	No
300-50_Shallow	non-Rad	Copper	7440-50-8	ug/kg	16,820	22,000	No
300-50_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.96E+07	3.26E+07	No
300-50_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,381	10,200	No
300-50_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	318,120	512,000	No
300-50_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,413	19,100	No
300-50_Shallow	non-Rad	Silver	7440-22-4	ug/kg	2,992	167	Yes
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938	3,210	Yes
300-50_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	46,964	85,100	No
300-50_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,344	67,800	No
300-50_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.056	1.1	No
300-50_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	7.9	1.1	Yes
300-50_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.66	0.11	Yes
300-50_Shallow	Rad	Uranium-238	U-238	pCi/g	8.4	1.1	Yes
300-8_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	574	1,510	No
300-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,374	3,210	No
300-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.79	1.1	No
300-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.82	1.1	No
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	3,210	Yes
316-1_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.10	1.1	No
316-1_Overburden	Rad	Cobalt-60	10198-40-0	pCi/g	0.32	0.0084	Yes
316-1_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	13	1.1	Yes
316-1_Overburden	Rad	Uranium-235	15117-96-1	pCi/g	1.1	0.11	Yes
316-1_Overburden	Rad	Uranium-238	U-238	pCi/g	13	1.1	Yes
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	--	--
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	6,470	Yes
316-1_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	69	--	--
316-1_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	98	--	--
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	3,210	Yes
316-1_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.032	1.1	No
316-1_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	1.2	0.11	Yes
316-1_Shallow_1	Rad	Uranium-238	U-238	pCi/g	28	1.1	Yes
316-1_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	1.11E+07	1.18E+07	No
316-1_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	490	130	Yes
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	--	--
316-1_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	5,138	6,470	No
316-1_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	129,106	132,000	No
316-1_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	416	1,510	No
316-1_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	--	--
316-1_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	474	563	No
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	18,500	Yes
316-1_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	9,703	15,700	No
316-1_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	1.37E+06	22,000	Yes
316-1_Shallow_3	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	3.2	--	--
316-1_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.44E+07	3.26E+07	No
316-1_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	14,409	10,200	Yes
316-1_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	392,825	512,000	No
316-1_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	1,105	13	Yes
316-1_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	94,656	19,100	Yes
316-1_Shallow_3	non-Rad	Phenol	108-95-2	ug/kg	28	--	--
316-1_Shallow_3	non-Rad	Selenium	7782-49-2	ug/kg	1,444	780	Yes
316-1_Shallow_3	non-Rad	Silver	7440-22-4	ug/kg	13,196	167	Yes
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074	3,210	Yes
316-1_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	56,707	85,100	No
316-1_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	82,016	67,800	Yes
316-1_Shallow_3	Rad	Cesium-137	10045-97-3	pCi/g	0.37	1.1	No
316-1_Shallow_3	Rad	Cobalt-60	10198-40-0	pCi/g	2.3	0.0084	Yes
316-1_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	23	1.1	Yes
316-1_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	2.6	0.11	Yes
316-1_Shallow_3	Rad	Uranium-238	U-238	pCi/g	21	1.1	Yes
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	--	--
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963	3,210	Yes
316-1_Shallow_4	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	0.0084	Yes
316-1_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	16	1.1	Yes
316-1_Shallow_4	Rad	Uranium-235	15117-96-1	pCi/g	1.1	0.11	Yes
316-1_Shallow_4	Rad	Uranium-238	U-238	pCi/g	14	1.1	Yes
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452	3,210	Yes
316-2_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.031	1.1	No
316-2_Shallow_1	Rad	Cobalt-60	10198-40-0	pCi/g	0.092	0.0084	Yes

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
316-2_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	86	1.1	Yes
316-2_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	12	0.11	Yes
316-2_Shallow_1	Rad	Uranium-238	U-238	pCi/g	69	1.1	Yes
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	--	--
316-2_Shallow_2	non-Rad	Aroclor-1254	11097-69-1	ug/kg	42	--	--
316-2_Shallow_2	non-Rad	Aroclor-1260	11096-82-5	ug/kg	110	--	--
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369	3,210	Yes
316-2_Shallow_2	Rad	Cesium-137	10045-97-3	pCi/g	0.45	1.1	No
316-2_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.45	0.0084	Yes
316-2_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	115	1.1	Yes
316-2_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	11	0.11	Yes
316-2_Shallow_2	Rad	Uranium-238	U-238	pCi/g	96	1.1	Yes
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	6,470	Yes
316-2_Shallow_3	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	260	--	--
316-2_Shallow_3	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	180	--	--
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174	3,210	Yes
316-2_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.91	0.11	Yes
316-2_Shallow_3	Rad	Uranium-238	U-238	pCi/g	24	1.1	Yes
316-5_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	3,070	6,470	No
316-5_Shallow_1	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	38	--	--
316-5_Shallow_1	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	146	--	--
316-5_Shallow_1	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	100	--	--
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835	3,210	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	1.1	Yes
316-5_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	19	0.11	Yes
316-5_Shallow_1	Rad	Uranium-238	U-238	pCi/g	89	1.1	Yes
316-5_Shallow_2	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	140	--	--
316-5_Shallow_2	non-Rad	2-Butoxyethanol	111-76-2	ug/kg	240	--	--
316-5_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	3,180	6,470	No
316-5_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	76,700	132,000	No
316-5_Shallow_2	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	180	--	--
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	110	--	--
316-5_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,900	18,500	No
316-5_Shallow_2	non-Rad	Chrysene	218-01-9	ug/kg	38	--	--
316-5_Shallow_2	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	146	--	--
316-5_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	3,200	10,200	No
316-5_Shallow_2	non-Rad	Selenium	7782-49-2	ug/kg	490	780	No
316-5_Shallow_2	non-Rad	Silver	7440-22-4	ug/kg	3,600	167	Yes
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701	3,210	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	1.1	Yes
316-5_Shallow_2	Rad	Cobalt-60	10198-40-0	pCi/g	0.12	0.0084	Yes
316-5_Shallow_2	Rad	Uranium-235	15117-96-1	pCi/g	9.0	0.11	Yes
316-5_Shallow_2	Rad	Uranium-238	U-238	pCi/g	68	1.1	Yes
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	--	--
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	--	--
316-5_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	52	--	--
316-5_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	6,470	No
316-5_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	190	--	--
316-5_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	1,500	--	--
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095	3,210	Yes
316-5_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	1.8	1.1	Yes
316-5_Shallow_Focused	Rad	Europium-155	14391-16-3	pCi/g	0.072	0.054	Yes
316-5_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	7.7	0.11	Yes
316-5_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	45	1.1	Yes
331 LSLDF_Shallow_Focused	non-Rad	4,4'-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	ug/kg	25	--	--
331 LSLDF_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	590	--	--
331 LSLDF_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	0.56	--	--
331 LSLDF_Shallow_Focused	non-Rad	Alpha-BHC	319-84-6	ug/kg	0.39	--	--
331 LSLDF_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	6.90E+06	1.18E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	360	130	Yes
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	--	--
331 LSLDF_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,400	6,470	No
331 LSLDF_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	78,600	132,000	No
331 LSLDF_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	570	1,510	No
331 LSLDF_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	--	--
331 LSLDF_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	1,700	3,890	No
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	--	--
331 LSLDF_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	140	563	No
331 LSLDF_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,300	18,500	No
331 LSLDF_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	15,700	No
331 LSLDF_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	15,400	22,000	No
331 LSLDF_Shallow_Focused	non-Rad	Dieldrin	60-57-1	ug/kg	13	--	--
331 LSLDF_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	98	--	--
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan I	959-98-8	ug/kg	1.9	--	--
331 LSLDF_Shallow_Focused	non-Rad	Endosulfan II	33213-65-9	ug/kg	3.1	--	--
331 LSLDF_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.20E+07	3.26E+07	No
331 LSLDF_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	9,000	10,200	No
331 LSLDF_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	349,000	512,000	No
331 LSLDF_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	110	13	Yes
331 LSLDF_Shallow_Focused	non-Rad	Methoxychlor	72-43-5	ug/kg	3.3	--	--
331 LSLDF_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	11	--	--
331 LSLDF_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	590	470	Yes
331 LSLDF_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	19,100	No

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
331 LSLDF_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	41,700	52,000	No
331 LSLDF_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	9,500	--	--
331 LSLDF_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,100	167	Yes
331 LSLDF_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,402	3,210	No
331 LSLDF_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	2,300	3,210	No
331 LSLDF_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	53,100	85,100	No
331 LSLDF_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	137,000	67,800	Yes
331 LSLDF_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	0.54	1.1	No
331 LSLDF_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.47	1.1	No
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	ug/kg	279	--	--
600-243_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	31	--	--
600-243_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	1,300	130	Yes
600-243_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	27	--	--
600-243_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	18	--	--
600-243_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	6,159	6,470	No
600-243_Shallow	non-Rad	Barium	7440-39-3	ug/kg	292,072	132,000	Yes
600-243_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	43	--	--
600-243_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	43	--	--
600-243_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	46	--	--
600-243_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	32	--	--
600-243_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	2,079	1,510	Yes
600-243_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	432	--	--
600-243_Shallow	non-Rad	Boron	7440-42-8	ug/kg	294,463	3,890	Yes
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	563	Yes
600-243_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	18,006	18,500	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	--	--
600-243_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,207	15,700	No
600-243_Shallow	non-Rad	Copper	7440-50-8	ug/kg	53,981	22,000	Yes
600-243_Shallow	non-Rad	Dibenzofuran	132-64-9	ug/kg	78	--	--
600-243_Shallow	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	37	--	--
600-243_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	79	--	--
600-243_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	28	--	--
600-243_Shallow	non-Rad	Lead	7439-92-1	ug/kg	40,139	10,200	Yes
600-243_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	208,289	512,000	No
600-243_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	1,869	470	Yes
600-243_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	204	--	--
600-243_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	21,395	19,100	Yes
600-243_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	70	--	--
600-243_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	5,709	780	Yes
600-243_Shallow	non-Rad	Silver	7440-22-4	ug/kg	500	167	Yes
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	85,100	No
600-243_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	84,099	67,800	Yes
600-259_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.034	1.1	No
600-259_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.068	1.1	No
600-259_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.038	1.1	No
600-47_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,300	6,470	No
600-47_Shallow	non-Rad	Barium	7440-39-3	ug/kg	67,000	132,000	No
600-47_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	500	1,510	No
600-47_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	90	563	No
600-47_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	5,500	18,500	No
600-47_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,500	10,200	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303	3,210	Yes
600-47_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.4	1.1	Yes
600-47_Shallow	Rad	Uranium-238	U-238	pCi/g	1.6	1.1	Yes
618-1_Deep	non-Rad	Aluminum	7429-90-5	ug/kg	6.37E+06	1.18E+07	No
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	--	--
618-1_Deep	non-Rad	Aroclor-1260	11096-82-5	ug/kg	294	--	--
618-1_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,550	6,470	No
618-1_Deep	non-Rad	Barium	7440-39-3	ug/kg	299,000	132,000	Yes
618-1_Deep	non-Rad	Beryllium	7440-41-7	ug/kg	218	1,510	No
618-1_Deep	non-Rad	Boron	7440-42-8	ug/kg	1,360	3,890	No
618-1_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	263	563	No
618-1_Deep	non-Rad	Chromium	7440-47-3	ug/kg	7,740	18,500	No
618-1_Deep	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	15,700	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	22,000	Yes
618-1_Deep	non-Rad	Fluoride	16984-48-8	ug/kg	2,800	2,810	No
618-1_Deep	non-Rad	Iron	7439-89-6	ug/kg	2.47E+07	3.26E+07	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	10,200	Yes
618-1_Deep	non-Rad	Lithium	7439-93-2	ug/kg	5,980	13,300	No
618-1_Deep	non-Rad	Manganese	7439-96-5	ug/kg	352,000	512,000	No
618-1_Deep	non-Rad	Mercury	7439-97-6	ug/kg	1,180	13	Yes
618-1_Deep	non-Rad	Molybdenum	7439-98-7	ug/kg	493	470	Yes
618-1_Deep	non-Rad	Nickel	7440-02-0	ug/kg	17,600	19,100	No
618-1_Deep	non-Rad	Nitrate	14797-55-8	ug/kg	1,700	52,000	No
618-1_Deep	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	220	--	--
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439	3,210	Yes
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400	3,210	Yes
618-1_Deep	non-Rad	Vanadium	7440-62-2	ug/kg	73,000	85,100	No
618-1_Deep	non-Rad	Zinc	7440-66-6	ug/kg	134,000	67,800	Yes
618-1_Deep	Rad	Cesium-137	10045-97-3	pCi/g	0.46	1.1	No
618-1_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	33	1.1	Yes
618-1_Deep	Rad	Uranium-235	15117-96-1	pCi/g	2.7	0.11	Yes
618-1_Deep	Rad	Uranium-238	U-238	pCi/g	32	1.1	Yes

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
618-1_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	1.18E+07	No
618-1_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	407	130	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	--	--
618-1_Deep_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	99	--	--
618-1_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,580	6,470	No
618-1_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	1.87E+06	132,000	Yes
618-1_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	323	1,510	No
618-1_Deep_Focused	non-Rad	Boron	7440-42-8	ug/kg	6,620	3,890	Yes
618-1_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,030	563	Yes
618-1_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	18,900	18,500	Yes
618-1_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,920	15,700	No
618-1_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	68,700	22,000	Yes
618-1_Deep_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	3,300	2,810	Yes
618-1_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.41E+07	3.26E+07	No
618-1_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	333,000	10,200	Yes
618-1_Deep_Focused	non-Rad	Lithium	7439-93-2	ug/kg	8,450	13,300	No
618-1_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	351,000	512,000	No
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	13	Yes
618-1_Deep_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	2,140	470	Yes
618-1_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	13,700	19,100	No
618-1_Deep_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	11,900	52,000	No
618-1_Deep_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	1,560	--	--
618-1_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,290	167	Yes
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154	3,210	Yes
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000	3,210	Yes
618-1_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	70,900	85,100	No
618-1_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	82,000	67,800	Yes
618-1_Deep_Focused	Rad	Cesium-137	10045-97-3	pCi/g	6.5	1.1	Yes
618-1_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	70	1.1	Yes
618-1_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.5	0.11	Yes
618-1_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	65	1.1	Yes
618-1_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.21E+06	1.18E+07	No
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	--	--
618-1_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	54	--	--
618-1_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,280	6,470	No
618-1_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,200	132,000	No
618-1_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	188	1,510	No
618-1_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,190	3,890	No
618-1_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	68	563	No
618-1_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,930	18,500	No
618-1_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,360	15,700	No
618-1_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,400	22,000	No
618-1_Shallow	non-Rad	Fluoride	16984-48-8	ug/kg	400	2,810	No
618-1_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	3.26E+07	No
618-1_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,100	10,200	No
618-1_Shallow	non-Rad	Lithium	7439-93-2	ug/kg	6,380	13,300	No
618-1_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	300,000	512,000	No
618-1_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	31	13	Yes
618-1_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	336	470	No
618-1_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	8,150	19,100	No
618-1_Shallow	non-Rad	Nitrate	14797-55-8	ug/kg	1,600	52,000	No
618-1_Shallow	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	300	--	--
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224	3,210	Yes
618-1_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	56,300	85,100	No
618-1_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	42,100	67,800	No
618-1_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	1.1	Yes
618-1_Shallow	Rad	Uranium-238	U-238	pCi/g	1.5	1.1	Yes
618-1_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	1.22E+07	1.18E+07	Yes
618-1_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	455	130	Yes
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	--	--
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	--	--
618-1_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	56	--	--
618-1_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	6,090	6,470	No
618-1_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	102,000	132,000	No
618-1_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	371	1,510	No
618-1_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	3,740	3,890	No
618-1_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	266	563	No
618-1_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	19,500	18,500	Yes
618-1_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	15,700	No
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	22,000	Yes
618-1_Shallow_Focused	non-Rad	Fluoride	16984-48-8	ug/kg	900	2,810	No
618-1_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.28E+07	3.26E+07	No
618-1_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,210	10,200	No
618-1_Shallow_Focused	non-Rad	Lithium	7439-93-2	ug/kg	13,300	13,300	No
618-1_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	403,000	512,000	No
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	13	Yes
618-1_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	356	470	No
618-1_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	16,800	19,100	No
618-1_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	3,800	52,000	No
618-1_Shallow_Focused	non-Rad	Nitrogen in Nitrite and Nitrate	NO2N	ug/kg	260	--	--
618-1_Shallow_Focused	non-Rad	Silver	7440-22-4	ug/kg	1,120	167	Yes
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957	3,210	Yes
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080	3,210	Yes
618-1_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	64,700	85,100	No
618-1_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	68,100	67,800	Yes

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
618-1_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	1.1	Yes
618-1_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.99	0.11	Yes
618-1_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	8.2	1.1	Yes
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	6,470	Yes
618-12_Shallow	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	63	--	--
618-12_Shallow	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	60	--	--
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092	3,210	Yes
618-12_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.47	0.11	Yes
618-12_Shallow	Rad	Uranium-238	U-238	pCi/g	11	1.1	Yes
618-13_Shallow	non-Rad	Acetone	67-64-1	ug/kg	8.6	--	--
618-13_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	1.18E+07	No
618-13_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	312	130	Yes
618-13_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	6,470	No
618-13_Shallow	non-Rad	Barium	7440-39-3	ug/kg	74,000	132,000	No
618-13_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	212	1,510	No
618-13_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,050	3,890	No
618-13_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	63	563	No
618-13_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,700	18,500	No
618-13_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,290	15,700	No
618-13_Shallow	non-Rad	Copper	7440-50-8	ug/kg	11,500	22,000	No
618-13_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.01E+07	3.26E+07	No
618-13_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,620	10,200	No
618-13_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	344,000	512,000	No
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	--	--
618-13_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	420	470	No
618-13_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	12,400	19,100	No
618-13_Shallow	non-Rad	Tin	7440-31-5	ug/kg	1,050	--	--
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	3,210	Yes
618-13_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,750	3,210	No
618-13_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	55,800	85,100	No
618-13_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	41,400	67,800	No
618-13_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.038	1.1	No
618-13_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.9	1.1	Yes
618-13_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	1.1	Yes
618-13_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	5.9	--	--
618-13_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	5.22E+06	1.18E+07	No
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	233	130	Yes
618-13_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,390	6,470	No
618-13_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	57,700	132,000	No
618-13_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	184	1,510	No
618-13_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	960	3,890	No
618-13_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	47	563	No
618-13_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	8,740	18,500	No
618-13_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	5,710	15,700	No
618-13_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	10,100	22,000	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	--	--
618-13_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	1.79E+07	3.26E+07	No
618-13_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	4,940	10,200	No
618-13_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	268,000	512,000	No
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	5.0	--	--
618-13_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	297	470	No
618-13_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,000	19,100	No
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	745	--	--
618-13_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,855	3,210	No
618-13_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	1,500	3,210	No
618-13_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	48,600	85,100	No
618-13_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	37,100	67,800	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	1.1	Yes
618-13_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	0.96	1.1	No
618-2_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	1,500	6,470	No
618-2_Deep	non-Rad	Barium	7440-39-3	ug/kg	83,300	132,000	No
618-2_Deep	non-Rad	Chromium	7440-47-3	ug/kg	6,700	18,500	No
618-2_Deep	non-Rad	Lead	7439-92-1	ug/kg	6,600	10,200	No
618-2_Deep	non-Rad	Selenium	7782-49-2	ug/kg	780	780	No
618-2_Deep	non-Rad	Tin	7440-31-5	ug/kg	2,900	--	--
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176	3,210	Yes
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000	3,210	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	1.1	No
618-2_Deep	Rad	Plutonium-238	13981-16-3	pCi/g	1.5	0.0038	Yes
618-2_Deep	Rad	Plutonium-239/240	PU-239/240	pCi/g	91	0.025	Yes
618-2_Deep	Rad	Plutonium-241	14119-32-5	pCi/g	42	--	--
618-2_Deep	Rad	Total beta radiostrontium	SR-RAD	pCi/g	12	0.18	Yes
618-2_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	161	1.1	Yes
618-2_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.78	0.11	Yes
618-2_Deep	Rad	Uranium-238	U-238	pCi/g	165	1.1	Yes
618-2_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	6.9	--	--
618-2_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	6,470	No
618-2_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	109,000	132,000	No
618-2_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	--	--
618-2_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	200	563	No
618-2_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	10,400	18,500	No
618-2_Deep_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	18	--	--
618-2_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,800	10,200	No
618-2_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	1,200	780	Yes

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
618-2_Deep_Focused	non-Rad	Silver	7440-22-4	ug/kg	600	167	Yes
618-2_Deep_Focused	non-Rad	Tin	7440-31-5	ug/kg	42,500	--	--
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259	3,210	Yes
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000	3,210	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	1.1	Yes
618-2_Deep_Focused	Rad	Plutonium-238	13981-16-3	pCi/g	1.6	0.0038	Yes
618-2_Deep_Focused	Rad	Plutonium-239/240	PU-239/240	pCi/g	92	0.025	Yes
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	0.18	Yes
618-2_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	48	1.1	Yes
618-2_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	2.4	0.11	Yes
618-2_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	50	1.1	Yes
618-2_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	6,470	No
618-2_Overburden	non-Rad	Barium	7440-39-3	ug/kg	74,700	132,000	No
618-2_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	6,600	18,500	No
618-2_Overburden	non-Rad	Lead	7439-92-1	ug/kg	4,300	10,200	No
618-2_Overburden	non-Rad	Selenium	7782-49-2	ug/kg	1,000	780	Yes
618-2_Overburden	non-Rad	Tin	7440-31-5	ug/kg	2,700	--	--
618-2_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,749	3,210	No
618-2_Overburden	non-Rad	Uranium	7440-61-1	ug/kg	1,140	3,210	No
618-2_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.058	1.1	No
618-2_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.64	1.1	No
618-2_Overburden	Rad	Uranium-238	U-238	pCi/g	0.59	1.1	No
618-2_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	1,900	6,470	No
618-2_Shallow	non-Rad	Barium	7440-39-3	ug/kg	79,100	132,000	No
618-2_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	7,100	18,500	No
618-2_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,600	10,200	No
618-2_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	760	780	No
618-2_Shallow	non-Rad	Tin	7440-31-5	ug/kg	2,400	--	--
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852	3,210	Yes
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530	3,210	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	1.1	Yes
618-2_Shallow	Rad	Plutonium-239/240	PU-239/240	pCi/g	7.7	0.025	Yes
618-2_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	2.2	1.1	Yes
618-2_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.21	0.11	Yes
618-2_Shallow	Rad	Uranium-238	U-238	pCi/g	2.2	1.1	Yes
618-2_Staging Pile	non-Rad	Arsenic	7440-38-2	ug/kg	3,063	6,470	No
618-2_Staging Pile	non-Rad	Barium	7440-39-3	ug/kg	67,690	132,000	No
618-2_Staging Pile	non-Rad	Chromium	7440-47-3	ug/kg	6,424	18,500	No
618-2_Staging Pile	non-Rad	Lead	7439-92-1	ug/kg	4,011	10,200	No
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201	3,210	Yes
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022	3,210	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	1.1	No
618-2_Staging Pile	Rad	Plutonium-239/240	PU-239/240	pCi/g	10	0.025	Yes
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	1.1	Yes
618-2_Staging Pile	Rad	Uranium-235	15117-96-1	pCi/g	0.12	0.11	Yes
618-2_Staging Pile	Rad	Uranium-238	U-238	pCi/g	2.0	1.1	Yes
618-3_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	6,470	No
618-3_Shallow	non-Rad	Barium	7440-39-3	ug/kg	76,500	132,000	No
618-3_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	9,700	18,500	No
618-3_Shallow	non-Rad	Lead	7439-92-1	ug/kg	3,900	10,200	No
618-3_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	659	780	No
618-3_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,224	3,210	No
618-3_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,610	3,210	No
618-3_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.68	1.1	No
618-3_Shallow	Rad	Uranium-238	U-238	pCi/g	0.75	1.1	No
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577	3,210	Yes
618-3_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	80	1.1	Yes
618-3_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	4.8	0.11	Yes
618-3_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	79	1.1	Yes
618-4_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	2,200	6,470	No
618-4_Deep	non-Rad	Lead	7439-92-1	ug/kg	20,000	10,200	Yes
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506	3,210	Yes
618-4_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	20	1.1	Yes
618-4_Deep	Rad	Uranium-235	15117-96-1	pCi/g	1.1	0.11	Yes
618-4_Deep	Rad	Uranium-238	U-238	pCi/g	22	1.1	Yes
618-4_Deep_Focused	non-Rad	2-Butanone	78-93-3	ug/kg	130	--	--
618-4_Deep_Focused	non-Rad	Acetone	67-64-1	ug/kg	16	--	--
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	--	--
618-4_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	6,470	No
618-4_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	104,000	132,000	No
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	--	--
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	563	Yes
618-4_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	27,700	18,500	Yes
618-4_Deep_Focused	non-Rad	Diethyl ether	60-29-7	ug/kg	1.0	--	--
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	10,200	Yes
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	--	--
618-4_Deep_Focused	non-Rad	Phenol	108-95-2	ug/kg	110	--	--
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	--	--
618-4_Deep_Focused	non-Rad	Toluene	108-88-3	ug/kg	4.8	--	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	34,000	--	--

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
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	3,210	Yes
618-4_Deep_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	--	--
618-4_Deep_Focused	non-Rad	Trichloromonofluoromethane	75-69-4	ug/kg	12	--	--
618-4_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	7.2	1.1	Yes
618-4_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.51	0.11	Yes
618-4_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	6.9	1.1	Yes
618-4_Overburden_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	6,470	No
618-4_Overburden_2	non-Rad	Lead	7439-92-1	ug/kg	4,700	10,200	No
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197	3,210	Yes
618-4_Overburden_2	Rad	Uranium-233/234	U-233/234	pCi/g	1.3	1.1	Yes
618-4_Overburden_2	Rad	Uranium-238	U-238	pCi/g	1.4	1.1	Yes
618-4_Overburden_3	non-Rad	Lead	7439-92-1	ug/kg	5,000	10,200	No
618-4_Overburden_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,171	3,210	No
618-4_Overburden_3	Rad	Uranium-233/234	U-233/234	pCi/g	0.42	1.1	No
618-4_Overburden_3	Rad	Uranium-235	15117-96-1	pCi/g	0.032	0.11	No
618-4_Overburden_3	Rad	Uranium-238	U-238	pCi/g	0.44	1.1	No
618-4_Overburden_4	non-Rad	Lead	7439-92-1	ug/kg	4,800	10,200	No
618-4_Overburden_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,323	3,210	No
618-4_Overburden_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	1.1	No
618-4_Overburden_4	Rad	Uranium-238	U-238	pCi/g	0.94	1.1	No
618-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,200	6,470	No
618-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	10,200	Yes
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456	3,210	Yes
618-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	3.2	1.1	Yes
618-4_Shallow	Rad	Uranium-238	U-238	pCi/g	3.1	1.1	Yes
618-5_Deep	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	6,470	No
618-5_Deep	non-Rad	Cadmium	7440-43-9	ug/kg	470	563	No
618-5_Deep	non-Rad	Chromium	7440-47-3	ug/kg	14,700	18,500	No
618-5_Deep	non-Rad	Lead	7439-92-1	ug/kg	82,300	10,200	Yes
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618	3,210	Yes
618-5_Deep	Rad	Uranium-233/234	U-233/234	pCi/g	8.6	1.1	Yes
618-5_Deep	Rad	Uranium-235	15117-96-1	pCi/g	0.46	0.11	Yes
618-5_Deep	Rad	Uranium-238	U-238	pCi/g	8.9	1.1	Yes
618-5_Deep_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.65E+06	1.18E+07	No
618-5_Deep_Focused	non-Rad	Antimony	7440-36-0	ug/kg	1,800	130	Yes
618-5_Deep_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	3,500	6,470	No
618-5_Deep_Focused	non-Rad	Barium	7440-39-3	ug/kg	106,000	132,000	No
618-5_Deep_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	672	1,510	No
618-5_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	6,500	18,500	No
618-5_Deep_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	10,500	15,700	No
618-5_Deep_Focused	non-Rad	Copper	7440-50-8	ug/kg	21,400	22,000	No
618-5_Deep_Focused	non-Rad	Iron	7439-89-6	ug/kg	3.02E+07	3.26E+07	No
618-5_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,600	10,200	No
618-5_Deep_Focused	non-Rad	Manganese	7439-96-5	ug/kg	579,000	512,000	Yes
618-5_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	33	13	Yes
618-5_Deep_Focused	non-Rad	Nickel	7440-02-0	ug/kg	11,300	19,100	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	780	Yes
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	3,210	Yes
618-5_Deep_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	79,500	85,100	No
618-5_Deep_Focused	non-Rad	Zinc	7440-66-6	ug/kg	65,800	67,800	No
618-5_Deep_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	1.1	Yes
618-5_Deep_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.48	0.11	Yes
618-5_Deep_Focused	Rad	Uranium-238	U-238	pCi/g	12	1.1	Yes
618-5_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,400	6,470	No
618-5_Overburden	non-Rad	Cadmium	7440-43-9	ug/kg	170	563	No
618-5_Overburden	non-Rad	Chromium	7440-47-3	ug/kg	9,700	18,500	No
618-5_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,500	10,200	No
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773	3,210	Yes
618-5_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	4.1	1.1	Yes
618-5_Overburden	Rad	Uranium-238	U-238	pCi/g	4.6	1.1	Yes
618-5_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,300	6,470	No
618-5_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	11,300	18,500	No
618-5_Shallow	non-Rad	Lead	7439-92-1	ug/kg	6,100	10,200	No
618-5_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,849	3,210	No
618-5_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	0.94	1.1	No
618-5_Shallow	Rad	Uranium-238	U-238	pCi/g	1.1	1.1	No
618-5_Staging Pile_4	non-Rad	Arsenic	7440-38-2	ug/kg	3,300	6,470	No
618-5_Staging Pile_4	non-Rad	Cadmium	7440-43-9	ug/kg	50	563	No
618-5_Staging Pile_4	non-Rad	Chromium	7440-47-3	ug/kg	11,800	18,500	No
618-5_Staging Pile_4	non-Rad	Lead	7439-92-1	ug/kg	5,300	10,200	No
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364	3,210	Yes
618-5_Staging Pile_4	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	1.1	Yes
618-5_Staging Pile_4	Rad	Uranium-238	U-238	pCi/g	1.1	1.1	Yes
618-5_Staging Pile_5	non-Rad	Arsenic	7440-38-2	ug/kg	2,700	6,470	No
618-5_Staging Pile_5	non-Rad	Chromium	7440-47-3	ug/kg	10,300	18,500	No
618-5_Staging Pile_5	non-Rad	Lead	7439-92-1	ug/kg	3,900	10,200	No
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326	3,210	Yes
618-5_Staging Pile_5	Rad	Uranium-233/234	U-233/234	pCi/g	1.5	1.1	Yes
618-5_Staging Pile_5	Rad	Uranium-235	15117-96-1	pCi/g	0.17	0.11	Yes
618-5_Staging Pile_5	Rad	Uranium-238	U-238	pCi/g	1.7	1.1	Yes
618-7_Shallow_1	non-Rad	Aluminum	7429-90-5	ug/kg	5.25E+06	1.18E+07	No
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	130	Yes
618-7_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	1,891	6,470	No

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
618-7_Shallow_1	non-Rad	Barium	7440-39-3	ug/kg	68,874	132,000	No
618-7_Shallow_1	non-Rad	Beryllium	7440-41-7	ug/kg	278	1,510	No
618-7_Shallow_1	non-Rad	Cadmium	7440-43-9	ug/kg	65	563	No
618-7_Shallow_1	non-Rad	Chromium	7440-47-3	ug/kg	10,227	18,500	No
618-7_Shallow_1	non-Rad	Cobalt	7440-48-4	ug/kg	9,152	15,700	No
618-7_Shallow_1	non-Rad	Copper	7440-50-8	ug/kg	16,120	22,000	No
618-7_Shallow_1	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	3.26E+07	No
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	10,200	Yes
618-7_Shallow_1	non-Rad	Manganese	7439-96-5	ug/kg	326,067	512,000	No
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	44	13	Yes
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	20,977	19,100	Yes
618-7_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,547	--	--
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	3,210	Yes
618-7_Shallow_1	non-Rad	Vanadium	7440-62-2	ug/kg	74,576	85,100	No
618-7_Shallow_1	non-Rad	Zinc	7440-66-6	ug/kg	49,177	67,800	No
618-7_Shallow_1	Rad	Cesium-137	10045-97-3	pCi/g	0.067	1.1	No
618-7_Shallow_1	Rad	Uranium-233/234	U-233/234	pCi/g	3.6	1.1	Yes
618-7_Shallow_1	Rad	Uranium-235	15117-96-1	pCi/g	0.36	0.11	Yes
618-7_Shallow_1	Rad	Uranium-238	U-238	pCi/g	3.6	1.1	Yes
618-7_Shallow_2	non-Rad	Aluminum	7429-90-5	ug/kg	4.97E+06	1.18E+07	No
618-7_Shallow_2	non-Rad	Antimony	7440-36-0	ug/kg	660	130	Yes
618-7_Shallow_2	non-Rad	Arsenic	7440-38-2	ug/kg	2,500	6,470	No
618-7_Shallow_2	non-Rad	Barium	7440-39-3	ug/kg	73,800	132,000	No
618-7_Shallow_2	non-Rad	Beryllium	7440-41-7	ug/kg	440	1,510	No
618-7_Shallow_2	non-Rad	Chromium	7440-47-3	ug/kg	6,800	18,500	No
618-7_Shallow_2	non-Rad	Cobalt	7440-48-4	ug/kg	9,300	15,700	No
618-7_Shallow_2	non-Rad	Copper	7440-50-8	ug/kg	13,600	22,000	No
618-7_Shallow_2	non-Rad	Iron	7439-89-6	ug/kg	2.60E+07	3.26E+07	No
618-7_Shallow_2	non-Rad	Lead	7439-92-1	ug/kg	2,800	10,200	No
618-7_Shallow_2	non-Rad	Manganese	7439-96-5	ug/kg	364,000	512,000	No
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	13	Yes
618-7_Shallow_2	non-Rad	Nickel	7440-02-0	ug/kg	9,700	19,100	No
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	--	--
618-7_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,574	3,210	No
618-7_Shallow_2	non-Rad	Vanadium	7440-62-2	ug/kg	74,700	85,100	No
618-7_Shallow_2	non-Rad	Zinc	7440-66-6	ug/kg	46,200	67,800	No
618-7_Shallow_2	Rad	Uranium-233/234	U-233/234	pCi/g	0.57	1.1	No
618-7_Shallow_2	Rad	Uranium-238	U-238	pCi/g	0.53	1.1	No
618-7_Shallow_3	non-Rad	Aluminum	7429-90-5	ug/kg	6.74E+06	1.18E+07	No
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	130	Yes
618-7_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	2,800	6,470	No
618-7_Shallow_3	non-Rad	Barium	7440-39-3	ug/kg	82,500	132,000	No
618-7_Shallow_3	non-Rad	Beryllium	7440-41-7	ug/kg	310	1,510	No
618-7_Shallow_3	non-Rad	Cadmium	7440-43-9	ug/kg	190	563	No
618-7_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	10,100	18,500	No
618-7_Shallow_3	non-Rad	Cobalt	7440-48-4	ug/kg	8,600	15,700	No
618-7_Shallow_3	non-Rad	Copper	7440-50-8	ug/kg	13,600	22,000	No
618-7_Shallow_3	non-Rad	Iron	7439-89-6	ug/kg	2.43E+07	3.26E+07	No
618-7_Shallow_3	non-Rad	Lead	7439-92-1	ug/kg	4,300	10,200	No
618-7_Shallow_3	non-Rad	Manganese	7439-96-5	ug/kg	357,000	512,000	No
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	13	Yes
618-7_Shallow_3	non-Rad	Nickel	7440-02-0	ug/kg	10,100	19,100	No
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	--	--
618-7_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,852	3,210	No
618-7_Shallow_3	non-Rad	Vanadium	7440-62-2	ug/kg	68,200	85,100	No
618-7_Shallow_3	non-Rad	Zinc	7440-66-6	ug/kg	44,500	67,800	No
618-7_Shallow_3	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	1.1	No
618-7_Shallow_3	Rad	Uranium-235	15117-96-1	pCi/g	0.085	0.11	No
618-7_Shallow_3	Rad	Uranium-238	U-238	pCi/g	0.95	1.1	No
618-7_Shallow_4	non-Rad	Aluminum	7429-90-5	ug/kg	5.65E+06	1.18E+07	No
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	ug/kg	250	130	Yes
618-7_Shallow_4	non-Rad	Arsenic	7440-38-2	ug/kg	5,200	6,470	No
618-7_Shallow_4	non-Rad	Barium	7440-39-3	ug/kg	57,900	132,000	No
618-7_Shallow_4	non-Rad	Beryllium	7440-41-7	ug/kg	220	1,510	No
618-7_Shallow_4	non-Rad	Cadmium	7440-43-9	ug/kg	90	563	No
618-7_Shallow_4	non-Rad	Chromium	7440-47-3	ug/kg	11,400	18,500	No
618-7_Shallow_4	non-Rad	Cobalt	7440-48-4	ug/kg	6,700	15,700	No
618-7_Shallow_4	non-Rad	Copper	7440-50-8	ug/kg	13,200	22,000	No
618-7_Shallow_4	non-Rad	Iron	7439-89-6	ug/kg	2.12E+07	3.26E+07	No
618-7_Shallow_4	non-Rad	Lead	7439-92-1	ug/kg	3,000	10,200	No
618-7_Shallow_4	non-Rad	Manganese	7439-96-5	ug/kg	285,000	512,000	No
618-7_Shallow_4	non-Rad	Nickel	7440-02-0	ug/kg	12,900	19,100	No
618-7_Shallow_4	non-Rad	Tin	7440-31-5	ug/kg	710	--	--
618-7_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,064	3,210	No
618-7_Shallow_4	non-Rad	Vanadium	7440-62-2	ug/kg	54,800	85,100	No
618-7_Shallow_4	non-Rad	Zinc	7440-66-6	ug/kg	37,000	67,800	No
618-7_Shallow_4	Rad	Uranium-233/234	U-233/234	pCi/g	0.69	1.1	No
618-7_Shallow_4	Rad	Uranium-238	U-238	pCi/g	0.76	1.1	No
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	--	--
618-7_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	7.61E+06	1.18E+07	No
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	130	Yes
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	--	--
618-7_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	4,200	6,470	No
618-7_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	92,800	132,000	No
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	--	--

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	66	--	--
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	--	--
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	11	--	--
618-7_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	370	1,510	No
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	470	--	--
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	563	Yes
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	65,900	18,500	Yes
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	--	--
618-7_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,000	15,700	No
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	22,000	Yes
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	45	--	--
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	33	--	--
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	48	--	--
618-7_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.87E+07	3.26E+07	No
618-7_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	6,500	10,200	No
618-7_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	425,000	512,000	No
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	20	13	Yes
618-7_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	17,200	19,100	No
618-7_Shallow_Focused	non-Rad	Pyrene	129-00-0	ug/kg	410	--	--
618-7_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	1,200	--	--
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	3,210	Yes
618-7_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	80,500	85,100	No
618-7_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,400	67,800	No
618-7_Shallow_Focused	Rad	Cesium-137	10045-97-3	pCi/g	0.010	1.1	No
618-7_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	11	1.1	Yes
618-7_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.97	0.11	Yes
618-7_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	6.4	1.1	Yes
618-8_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	4,100	6,470	No
618-8_Shallow	non-Rad	Barium	7440-39-3	ug/kg	97,600	132,000	No
618-8_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	12,400	18,500	No
618-8_Shallow	non-Rad	Lead	7439-92-1	ug/kg	5,100	10,200	No
618-8_Shallow	non-Rad	Selenium	7782-49-2	ug/kg	846	780	Yes
618-8_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	1,935	3,210	No
618-8_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	1,720	3,210	No
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	1.1	Yes
618-8_Shallow	Rad	Uranium-238	U-238	pCi/g	0.73	1.1	No
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	--	--
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	680	--	--
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	--	--
618-9_Shallow_Focused	non-Rad	Aluminum	7429-90-5	ug/kg	8.57E+06	1.18E+07	No
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	--	--
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	--	--
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	6,470	Yes
618-9_Shallow_Focused	non-Rad	Barium	7440-39-3	ug/kg	90,200	132,000	No
618-9_Shallow_Focused	non-Rad	Beryllium	7440-41-7	ug/kg	330	1,510	No
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	--	--
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	--	--
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	--	--
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	--	--
618-9_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	9,700	18,500	No
618-9_Shallow_Focused	non-Rad	Cobalt	7440-48-4	ug/kg	11,400	15,700	No
618-9_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	16,700	22,000	No
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	7,200	--	--
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	--	--
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	--	--
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	--	--
618-9_Shallow_Focused	non-Rad	Iron	7439-89-6	ug/kg	2.49E+07	3.26E+07	No
618-9_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	7,700	10,200	No
618-9_Shallow_Focused	non-Rad	Manganese	7439-96-5	ug/kg	359,000	512,000	No
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	330	13	Yes
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	--	--
618-9_Shallow_Focused	non-Rad	Nickel	7440-02-0	ug/kg	10,600	19,100	No
618-9_Shallow_Focused	non-Rad	Nitrate	14797-55-8	ug/kg	1.67E+06	52,000	Yes
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	--	--
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	ug/kg	9.0	--	--
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963	3,210	Yes
618-9_Shallow_Focused	non-Rad	Trichloroethene	79-01-6	ug/kg	2.0	--	--
618-9_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	3,100	3,210	No
618-9_Shallow_Focused	non-Rad	Vanadium	7440-62-2	ug/kg	59,300	85,100	No
618-9_Shallow_Focused	non-Rad	Zinc	7440-66-6	ug/kg	52,300	67,800	No
618-9_Shallow_Focused	Rad	Uranium-235	15117-96-1	pCi/g	0.071	0.11	No
618-9_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	3.0	1.1	Yes
628-4_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	3,374	6,470	No
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	--	--
628-4_Overburden	non-Rad	Lead	7439-92-1	ug/kg	7,284	10,200	No
628-4_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	2,308	3,210	No
628-4_Overburden	Rad	Cesium-137	10045-97-3	pCi/g	0.033	1.1	No
628-4_Overburden	Rad	Uranium-233/234	U-233/234	pCi/g	0.87	1.1	No
628-4_Overburden	Rad	Uranium-238	U-238	pCi/g	0.78	1.1	No

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	--	--
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	--	--
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	--	--
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	--	--
628-4_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	3,864	6,470	No
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	10,200	Yes
628-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,163	3,210	No
628-4_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	1.1	Yes
628-4_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.11	0.11	Yes
628-4_Shallow	Rad	Uranium-238	U-238	pCi/g	1.0	1.1	No
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	--	--
UPR-300-17_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.34E+06	1.18E+07	No
UPR-300-17_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	7.0	--	--
UPR-300-17_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	359	130	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	--	--
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	--	--
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	--	--
UPR-300-17_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,573	6,470	No
UPR-300-17_Shallow	non-Rad	Barium	7440-39-3	ug/kg	81,014	132,000	No
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	--	--
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	44	--	--
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	33	--	--
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	9.9	--	--
UPR-300-17_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	240	1,510	No
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	ug/kg	3,903	3,890	Yes
UPR-300-17_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	173	563	No
UPR-300-17_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	13,795	18,500	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	--	--
UPR-300-17_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,688	15,700	No
UPR-300-17_Shallow	non-Rad	Copper	7440-50-8	ug/kg	15,135	22,000	No
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	35	--	--
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.9	--	--
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	5.9	--	--
UPR-300-17_Shallow	non-Rad	Iron	7439-89-6	ug/kg	1.90E+07	3.26E+07	No
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	10,200	Yes
UPR-300-17_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	285,159	512,000	No
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	13	Yes
UPR-300-17_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	412	470	No
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	48	--	--
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	19,100	Yes
UPR-300-17_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	34	--	--
UPR-300-17_Shallow	non-Rad	Silver	7440-22-4	ug/kg	340	167	Yes
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	3,210	Yes
UPR-300-17_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	52,150	85,100	No
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	67,800	Yes
UPR-300-17_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	6.1	1.1	Yes
UPR-300-17_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.91	0.11	Yes
UPR-300-17_Shallow	Rad	Uranium-238	U-238	pCi/g	4.0	1.1	Yes
UPR-300-46_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	13	--	--
UPR-300-46_Shallow	non-Rad	Aluminum	7429-90-5	ug/kg	6.80E+06	1.18E+07	No
UPR-300-46_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	381	130	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	--	--
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	--	--
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	--	--
UPR-300-46_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	2,846	6,470	No
UPR-300-46_Shallow	non-Rad	Barium	7440-39-3	ug/kg	82,137	132,000	No
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	3.9	--	--
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.4	--	--
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	5.4	--	--
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	2.8	--	--
UPR-300-46_Shallow	non-Rad	Beryllium	7440-41-7	ug/kg	222	1,510	No
UPR-300-46_Shallow	non-Rad	Boron	7440-42-8	ug/kg	1,714	3,890	No
UPR-300-46_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	95	563	No
UPR-300-46_Shallow	non-Rad	Chromium	7440-47-3	ug/kg	10,173	18,500	No
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	5.6	--	--
UPR-300-46_Shallow	non-Rad	Cobalt	7440-48-4	ug/kg	6,361	15,700	No
UPR-300-46_Shallow	non-Rad	Copper	7440-50-8	ug/kg	13,151	22,000	No
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	1.3	--	--
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	9.6	--	--
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.2	--	--
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	7.6	--	--
UPR-300-46_Shallow	non-Rad	Iron	7439-89-6	ug/kg	2.05E+07	3.26E+07	No
UPR-300-46_Shallow	non-Rad	Lead	7439-92-1	ug/kg	7,105	10,200	No
UPR-300-46_Shallow	non-Rad	Manganese	7439-96-5	ug/kg	311,001	512,000	No
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	29	13	Yes
UPR-300-46_Shallow	non-Rad	Molybdenum	7439-98-7	ug/kg	456	470	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	--	--
UPR-300-46_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	9,230	19,100	No
UPR-300-46_Shallow	non-Rad	Pyrene	129-00-0	ug/kg	4.4	--	--
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897	3,210	Yes
UPR-300-46_Shallow	non-Rad	Vanadium	7440-62-2	ug/kg	53,808	85,100	No
UPR-300-46_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	47,945	67,800	No
UPR-300-46_Shallow	Rad	Cesium-137	10045-97-3	pCi/g	0.070	1.1	No

Table A-5. Comparison of EPCs for Waste Site Decision Units in 300 Area Source OU to Hanford Site Soil Background Values

Waste Site/Decision Unit	Analyte Group	Analyte Name	CAS No.	Units	Exposure Point Concentration	Lognormal 90th Percentile Background Value	Is EPC > Background?
UPR-300-46_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.8	1.1	Yes
UPR-300-46_Shallow	Rad	Uranium-235	15117-96-1	pCi/g	0.24	0.11	Yes
UPR-300-46_Shallow	Rad	Uranium-238	U-238	pCi/g	1.7	1.1	Yes

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)

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?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	39	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
300-10_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	Uranium-238	U-238	pCi/g	1.4	--	--
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	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	Chrysene	218-01-9	ug/kg	1.8	4,800	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	Mercury	7439-97-6	ug/kg	22	1,210	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	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	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	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	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	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	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	--	--
300-223_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	Antimony	7440-36-0	ug/kg	322	475	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	1,320	Yes
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	Antimony	7440-36-0	ug/kg	922	475	Yes
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	205,000	No
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	284,000	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	9,060	Yes
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	32,300	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	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	Antimony	7440-36-0	ug/kg	260	475	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	Chrysene	218-01-9	ug/kg	2.2	4,800	No
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	Mercury	7439-97-6	ug/kg	17	1,210	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	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	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	Mercury	7439-97-6	ug/kg	28	1,210	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	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	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	Butylbenzylphthalate	85-68-7	ug/kg	228	12,900	No
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	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

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)

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?
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	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	Methylene chloride	75-09-2	ug/kg	2.2	22	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	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_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
300-45_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	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	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	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	Lead	7439-92-1	ug/kg	36,964	9,060	Yes
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	Zinc	7440-66-6	ug/kg	141,984	2.90E+06	No
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	475	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	144,000	No
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	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	Copper	7440-50-8	ug/kg	64,527	284,000	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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	13,200	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	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	--	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	1,320	Yes
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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	13,200	No
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	400,000	No
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	Lead	7439-92-1	ug/kg	14,409	9,060	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	Zinc	7440-66-6	ug/kg	82,016	2.90E+06	No
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	--	--

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)

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?
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	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	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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	180	6.85E+03	No
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	110	2.82E+04	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	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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	13,200	No
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	12,900	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	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	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	Zinc	7440-66-6	ug/kg	137,000	2.90E+06	No
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
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	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

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)

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?
600-243_Shallow	non-Rad	Cadmium	7440-43-9	ug/kg	793	3,020	No
600-243_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	63	4,800	No
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	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	Zinc	7440-66-6	ug/kg	84,099	2.90E+06	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	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	Barium	7440-39-3	ug/kg	299,000	1.01E+06	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	284,000	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	9,060	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	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	Zinc	7440-66-6	ug/kg	134,000	2.90E+06	No
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	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	Barium	7440-39-3	ug/kg	1.87E+06	1.01E+06	Yes
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	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	Lead	7439-92-1	ug/kg	333,000	9,060	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	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	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	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	Mercury	7439-97-6	ug/kg	31	1,210	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	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	Chromium	7440-47-3	ug/kg	19,500	400,000	No
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	284,000	No
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	1,210	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	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	Antimony	7440-36-0	ug/kg	312	475	No
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	22	No
618-13_Shallow	non-Rad	Tin	7440-31-5	ug/kg	1,050	2.50E+07	No

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)

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?
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061	1,320	Yes
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	Antimony	7440-36-0	ug/kg	233	475	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	192	No
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	5.0	22	No
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	745	2.50E+07	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	13,200	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	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	Selenium	7782-49-2	ug/kg	1,000	5,200	No
618-2_Overburden	non-Rad	Tin	7440-31-5	ug/kg	2,700	2.50E+07	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	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	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_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	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	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	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	--	--

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)

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?
618-4_Overburden_2	Rad	Uranium-238	U-238	pCi/g	1.4	--	--
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	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	Antimony	7440-36-0	ug/kg	1,800	475	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	1,210	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	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	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_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	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	Antimony	7440-36-0	ug/kg	560	475	Yes
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	9,060	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	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	Antimony	7440-36-0	ug/kg	660	475	Yes
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	1,210	No
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	2.50E+07	No
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	475	No
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	1,210	No
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	2.50E+07	No
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	ug/kg	250	475	No
618-7_Shallow_4	non-Rad	Tin	7440-31-5	ug/kg	710	2.50E+07	No
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	121,000	No
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	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	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	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	Mercury	7439-97-6	ug/kg	20	1,210	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	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	Selenium	7782-49-2	ug/kg	846	5,200	No
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--	--
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	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	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	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

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)

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?
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	125	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	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	Rad	Uranium-238	U-238	pCi/g	3.0	--	--
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	13,200	No
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	Lead	7439-92-1	ug/kg	99,167	9,060	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	--	--
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	121,000	No
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	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	Boron	7440-42-8	ug/kg	3,903	205,000	No
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	4,800	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	Lead	7439-92-1	ug/kg	11,240	9,060	Yes
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	1,210	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	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	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	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	Chrysene	218-01-9	ug/kg	5.6	4,800	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	Mercury	7439-97-6	ug/kg	29	1,210	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	4,450	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	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-7. 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 Groundwater (With 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	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
300-10_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	Uranium-238	U-238	pCi/g	1.4	--[2]	--
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	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	Chrysene	218-01-9	ug/kg	1.8	2.86E+06	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	Mercury	7439-97-6	ug/kg	22	715,780	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	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	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	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	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	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	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]	--
300-223_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	Antimony	7440-36-0	ug/kg	322	270,670	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	--[1]	--
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	Antimony	7440-36-0	ug/kg	922	270,670	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	Copper	7440-50-8	ug/kg	73,300	1.68E+08	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	Molybdenum	7439-98-7	ug/kg	537	1.91E+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	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	Antimony	7440-36-0	ug/kg	260	270,670	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	Chrysene	218-01-9	ug/kg	2.2	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	Mercury	7439-97-6	ug/kg	17	715,780	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	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	7.03E+07	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	Mercury	7439-97-6	ug/kg	28	715,780	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	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	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

Table A-7. 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 Groundwater (With 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	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	Butylbenzylphthalate	85-68-7	ug/kg	228	7.59E+06	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	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	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	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	Methylene chloride	75-09-2	ug/kg	2.2	2,098	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	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_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
300-45_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	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	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	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	Lead	7439-92-1	ug/kg	36,964	5.37E+06	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	Zinc	7440-66-6	ug/kg	141,984	3.88E+08	No
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	270,670	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	8.58E+07	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	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	Copper	7440-50-8	ug/kg	64,527	1.68E+08	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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	7.87E+06	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	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]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	--[1]	--
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

Table A-7. 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 Groundwater (With 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_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027	--[1]	--
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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	7.87E+06	No
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	2.38E+08	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	Lead	7439-92-1	ug/kg	14,409	5.37E+06	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	Zinc	7440-66-6	ug/kg	82,016	3.88E+08	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	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	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	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	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	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	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	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]	--

Table A-7. 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 Groundwater (With 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?
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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	7.87E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	7.59E+06	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	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	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	Zinc	7440-66-6	ug/kg	137,000	3.88E+08	No
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	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	Chrysene	218-01-9	ug/kg	63	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	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	Zinc	7440-66-6	ug/kg	84,099	3.88E+08	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	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	Barium	7440-39-3	ug/kg	299,000	3.88E+08	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	1.68E+08	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	5.37E+06	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	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	Zinc	7440-66-6	ug/kg	134,000	3.88E+08	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	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	Barium	7440-39-3	ug/kg	1.87E+06	3.88E+08	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	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	Lead	7439-92-1	ug/kg	333,000	5.37E+06	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	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

Table A-7. 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 Groundwater (With 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_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	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	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	Mercury	7439-97-6	ug/kg	31	715,780	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	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	Chromium	7440-47-3	ug/kg	19,500	2.38E+08	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	Mercury	7439-97-6	ug/kg	198	715,780	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	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	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	Antimony	7440-36-0	ug/kg	312	270,670	No
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	2,098	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	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	2.23E+06	No
618-13_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	233	270,670	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	471,090	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	Tin	7440-31-5	ug/kg	745	3.88E+08	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--[2]	--
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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	7.87E+06	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	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]	--

Table A-7. 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 Groundwater (With 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_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_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	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	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_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	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	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	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_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	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	Antimony	7440-36-0	ug/kg	1,800	270,670	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	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	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	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_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]	--

Table A-7. 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 Groundwater (With 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?
618-5_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	Antimony	7440-36-0	ug/kg	560	270,670	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	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
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	--[1]	--
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	Antimony	7440-36-0	ug/kg	660	270,670	No
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	715,780	No
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	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	Mercury	7439-97-6	ug/kg	20	715,780	No
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	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	Tin	7440-31-5	ug/kg	710	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	7.03E+07	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	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	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
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	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	Mercury	7439-97-6	ug/kg	20	715,780	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	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	Selenium	7782-49-2	ug/kg	846	2.99E+06	No
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--[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	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	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	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	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	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	Rad	Uranium-238	U-238	pCi/g	3.0	--[2]	--
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	7.87E+06	No
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	Lead	7439-92-1	ug/kg	99,167	5.37E+06	No

Table A-7. 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 Groundwater (With 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	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]	--
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	7.03E+07	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	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	Boron	7440-42-8	ug/kg	3,903	1.15E+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	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	Lead	7439-92-1	ug/kg	11,240	5.37E+06	No
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	715,780	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	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	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	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	Chrysene	218-01-9	ug/kg	5.6	2.86E+06	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	Mercury	7439-97-6	ug/kg	29	715,780	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	2.32E+06	No
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	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-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)

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	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
300-10_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	Uranium-238	U-238	pCi/g	1.4	--	--
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	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	Chrysene	218-01-9	ug/kg	1.8	11	No
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	Mercury	7439-97-6	ug/kg	22	7.3	Yes
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	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	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	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	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	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	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	--	--
300-223_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	Antimony	7440-36-0	ug/kg	322	444	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	34,200	No
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	Antimony	7440-36-0	ug/kg	922	444	Yes
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	--	--
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	4,000	Yes
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	1,270	Yes
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	524,000	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	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	Antimony	7440-36-0	ug/kg	260	444	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	Chrysene	218-01-9	ug/kg	2.2	11	No
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	Mercury	7439-97-6	ug/kg	17	7.3	Yes
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	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	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	Mercury	7439-97-6	ug/kg	28	7.3	Yes
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	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	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	Butylbenzylphthalate	85-68-7	ug/kg	228	2,310	No
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

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)

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?
300-33, 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	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	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	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	Methylene chloride	75-09-2	ug/kg	2.2	20	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	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_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
300-45_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	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	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	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	Lead	7439-92-1	ug/kg	36,964	1,270	Yes
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	Zinc	7440-66-6	ug/kg	141,984	55,000	Yes
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	444	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	4,710	No
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	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	Copper	7440-50-8	ug/kg	64,527	4,000	Yes
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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	2,640	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	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	--	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	34,200	Yes
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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	2,640	No
316-1_Shallow_3	non-Rad	Chromium	7440-47-3	ug/kg	50,455	260,000	No
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	Lead	7439-92-1	ug/kg	14,409	1,270	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

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)

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?
316-1_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	Zinc	7440-66-6	ug/kg	82,016	55,000	Yes
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	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	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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	180	332,818	No
316-5_Shallow_2	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	110	332,818	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	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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	2,640	No
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	2,310	No
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	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	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	Zinc	7440-66-6	ug/kg	137,000	55,000	Yes
600-243_Shallow	non-Rad	2-Methylnaphthalene	91-57-6	ug/kg	279	8,830	No

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)

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	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
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	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	Chrysene	218-01-9	ug/kg	63	11	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	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	Zinc	7440-66-6	ug/kg	84,099	55,000	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	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	Barium	7440-39-3	ug/kg	299,000	504,000	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	4,000	Yes
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	1,270	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	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	Zinc	7440-66-6	ug/kg	134,000	55,000	Yes
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	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	Barium	7440-39-3	ug/kg	1.87E+06	504,000	Yes
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	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	Lead	7439-92-1	ug/kg	333,000	1,270	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	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	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	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	Mercury	7439-97-6	ug/kg	31	7.3	Yes
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	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	Chromium	7440-47-3	ug/kg	19,500	260,000	No
618-1_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	23,800	4,000	Yes
618-1_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	198	7.3	Yes
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

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)

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_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	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	Antimony	7440-36-0	ug/kg	312	444	No
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	20	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	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	Antimony	7440-36-0	ug/kg	233	444	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	40	Yes
618-13_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	5.0	20	No
618-13_Shallow_Focused	non-Rad	Tin	7440-31-5	ug/kg	745	1.35E+06	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--	--
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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	2,640	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	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	Selenium	7782-49-2	ug/kg	1,000	520	Yes
618-2_Overburden	non-Rad	Tin	7440-31-5	ug/kg	2,700	1.35E+06	No
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	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	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_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	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

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)

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_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	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_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	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	Antimony	7440-36-0	ug/kg	1,800	444	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	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	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	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_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	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	Antimony	7440-36-0	ug/kg	560	444	Yes
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	1,270	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	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	Antimony	7440-36-0	ug/kg	660	444	Yes
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	1.35E+06	No
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	444	Yes
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	7.3	Yes
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	1.35E+06	No
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	ug/kg	250	444	No
618-7_Shallow_4	non-Rad	Tin	7440-31-5	ug/kg	710	1.35E+06	No
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	81,300	No
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	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	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	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	Mercury	7439-97-6	ug/kg	20	7.3	Yes
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	--	--

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)

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	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	34,200	No
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	Selenium	7782-49-2	ug/kg	846	520	Yes
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--	--
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	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	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	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	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	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	Rad	Uranium-238	U-238	pCi/g	3.0	--	--
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	2,640	No
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	Lead	7439-92-1	ug/kg	99,167	1,270	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	--	--
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	81,300	No
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	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	Boron	7440-42-8	ug/kg	3,903	--	--
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	11	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	Lead	7439-92-1	ug/kg	11,240	1,270	Yes
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	7.3	Yes
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	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	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	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	Chrysene	218-01-9	ug/kg	5.6	11	No
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	Mercury	7439-97-6	ug/kg	29	7.3	Yes

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)

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-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	137,000	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	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-9. 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 (With 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	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
300-10_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	Uranium-238	U-238	pCi/g	1.4	--[2]	--
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	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	Chrysene	218-01-9	ug/kg	1.8	6,676	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	Mercury	7439-97-6	ug/kg	22	4,295	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	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	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	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	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	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	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]	--
300-223_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	Antimony	7440-36-0	ug/kg	322	252,620	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876	--[1]	--
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	Antimony	7440-36-0	ug/kg	922	252,620	No
300-260_Shallow_Focused	non-Rad	Boron	7440-42-8	ug/kg	8,360	--[3]	--
300-260_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	73,300	2.36E+06	No
300-260_Shallow_Focused	non-Rad	Lead	7439-92-1	ug/kg	18,300	754,290	No
300-260_Shallow_Focused	non-Rad	Molybdenum	7439-98-7	ug/kg	537	3.09E+08	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	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	Antimony	7440-36-0	ug/kg	260	252,620	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	Chrysene	218-01-9	ug/kg	2.2	6,676	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	Mercury	7439-97-6	ug/kg	17	4,295	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	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	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	Mercury	7439-97-6	ug/kg	28	4,295	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	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	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

Table A-9. 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 (With 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	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	Butylbenzylphthalate	85-68-7	ug/kg	228	1.36E+06	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	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	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	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	Methylene chloride	75-09-2	ug/kg	2.2	1,931	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	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_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
300-45_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	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	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	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	Lead	7439-92-1	ug/kg	36,964	754,290	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	Zinc	7440-66-6	ug/kg	141,984	3.26E+07	No
300-49_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	176	252,620	No
300-49_Shallow	non-Rad	Silver	7440-22-4	ug/kg	621	2.80E+06	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	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	Copper	7440-50-8	ug/kg	64,527	2.36E+06	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	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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	19	1.57E+06	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	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]	--
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572	--[1]	--
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]	--

Table A-9. 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 (With 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_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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	342	1.57E+06	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	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	Lead	7439-92-1	ug/kg	14,409	754,290	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	Zinc	7440-66-6	ug/kg	82,016	3.26E+07	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	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	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	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	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	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	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
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	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

Table A-9. 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 (With 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?
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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	910	1.57E+06	No
331 LSLDF_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	340	1.36E+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	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	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	Zinc	7440-66-6	ug/kg	137,000	3.26E+07	No
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	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	Chrysene	218-01-9	ug/kg	63	6,676	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	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
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	Zinc	7440-66-6	ug/kg	84,099	3.26E+07	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	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	Barium	7440-39-3	ug/kg	299,000	2.98E+08	No
618-1_Deep	non-Rad	Copper	7440-50-8	ug/kg	46,300	2.36E+06	No
618-1_Deep	non-Rad	Lead	7439-92-1	ug/kg	58,400	754,290	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	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	Zinc	7440-66-6	ug/kg	134,000	3.26E+07	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	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	Barium	7440-39-3	ug/kg	1.87E+06	2.98E+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	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	Lead	7439-92-1	ug/kg	333,000	754,290	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	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]	--

Table A-9. 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 (With 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	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]	--
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	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	Mercury	7439-97-6	ug/kg	31	4,295	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	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	Chromium	7440-47-3	ug/kg	19,500	1.55E+08	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	Mercury	7439-97-6	ug/kg	198	4,295	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	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	Antimony	7440-36-0	ug/kg	312	252,620	No
618-13_Shallow	non-Rad	Methylene chloride	75-09-2	ug/kg	5.1	1,931	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	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	Antimony	7440-36-0	ug/kg	233	252,620	No
618-13_Shallow_Focused	non-Rad	Hexavalent Chromium	18540-29-9	ug/kg	150	98,100	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	Tin	7440-31-5	ug/kg	745	3.88E+08	No
618-13_Shallow_Focused	Rad	Uranium-233/234	U-233/234	pCi/g	1.1	--[2]	--
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	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	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	27	1.57E+06	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	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	Selenium	7782-49-2	ug/kg	1,000	299,460	No
618-2_Overburden	non-Rad	Tin	7440-31-5	ug/kg	2,700	3.88E+08	No
618-2_Shallow	non-Rad	Tin	7440-31-5	ug/kg	2,400	3.88E+08	No

Table A-9. 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 (With 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?
618-2_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	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	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_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	Lead	7439-92-1	ug/kg	20,000	754,290	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	1.75E+08	No
618-4_Deep_Focused	non-Rad	Acetone	67-64-1	ug/kg	16	2.29E+08	No
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	58	Yes
618-4_Deep_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	4,700	1.57E+06	No
618-4_Deep_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	1,500	89,473	No
618-4_Deep_Focused	non-Rad	Chromium	7440-47-3	ug/kg	27,700	1.55E+08	No
618-4_Deep_Focused	non-Rad	Diethyl ether	60-29-7	ug/kg	1.0	3.99E+07	No
618-4_Deep_Focused	non-Rad	Lead	7439-92-1	ug/kg	24,900	754,290	No
618-4_Deep_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	40	1,931	No
618-4_Deep_Focused	non-Rad	Phenol	108-95-2	ug/kg	110	6.42E+06	No
618-4_Deep_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	24	1,348	No
618-4_Deep_Focused	non-Rad	Toluene	108-88-3	ug/kg	4.8	2.54E+06	No
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	34,000	--[3]	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - kerosene range	TPHKEROSENE	ug/kg	42,000	--[3]	--
618-4_Deep_Focused	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	65	--[3]	--
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	3,534	No
618-4_Deep_Focused	non-Rad	Trichloromonofluoromethane	75-69-4	ug/kg	12	2.93E+07	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	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_Shallow	non-Rad	Lead	7439-92-1	ug/kg	49,000	754,290	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	Lead	7439-92-1	ug/kg	82,300	754,290	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	Antimony	7440-36-0	ug/kg	1,800	252,620	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	4,295	No
618-5_Deep_Focused	non-Rad	Selenium	7782-49-2	ug/kg	2,270	299,460	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540	--[1]	--
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	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_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	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]	--

Table A-9. 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 (With 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?
618-5_Staging Pile_5	Rad	Uranium-238	U-238	pCi/g	1.7	--[2]	--
618-7_Shallow_1	non-Rad	Antimony	7440-36-0	ug/kg	560	252,620	No
618-7_Shallow_1	non-Rad	Lead	7439-92-1	ug/kg	14,567	754,290	No
618-7_Shallow_1	non-Rad	Mercury	7439-97-6	ug/kg	44	4,295	No
618-7_Shallow_1	non-Rad	Nickel	7440-02-0	ug/kg	20,977	4.03E+07	No
618-7_Shallow_1	non-Rad	Tin	7440-31-5	ug/kg	1,547	3.88E+08	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814	--[1]	--
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	Antimony	7440-36-0	ug/kg	660	252,620	No
618-7_Shallow_2	non-Rad	Mercury	7439-97-6	ug/kg	20	4,295	No
618-7_Shallow_2	non-Rad	Tin	7440-31-5	ug/kg	1,500	3.88E+08	No
618-7_Shallow_3	non-Rad	Antimony	7440-36-0	ug/kg	450	252,620	No
618-7_Shallow_3	non-Rad	Mercury	7439-97-6	ug/kg	20	4,295	No
618-7_Shallow_3	non-Rad	Tin	7440-31-5	ug/kg	1,800	3.88E+08	No
618-7_Shallow_4	non-Rad	Antimony	7440-36-0	ug/kg	250	252,620	No
618-7_Shallow_4	non-Rad	Tin	7440-31-5	ug/kg	710	3.88E+08	No
618-7_Shallow_Focused	non-Rad	Acenaphthene	83-32-9	ug/kg	150	4.71E+07	No
618-7_Shallow_Focused	non-Rad	Antimony	7440-36-0	ug/kg	980	252,620	No
618-7_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	6.7	34	No
618-7_Shallow_Focused	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	88	12,016	No
618-7_Shallow_Focused	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	66	183,570	No
618-7_Shallow_Focused	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	52	26,802	No
618-7_Shallow_Focused	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	11	41,053	No
618-7_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	470	1.57E+06	No
618-7_Shallow_Focused	non-Rad	Cadmium	7440-43-9	ug/kg	6,200	89,473	No
618-7_Shallow_Focused	non-Rad	Chromium	7440-47-3	ug/kg	65,900	1.55E+08	No
618-7_Shallow_Focused	non-Rad	Chrysene	218-01-9	ug/kg	69	6,676	No
618-7_Shallow_Focused	non-Rad	Copper	7440-50-8	ug/kg	25,000	2.36E+06	No
618-7_Shallow_Focused	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	45	59,744	No
618-7_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	33	3.80E+07	No
618-7_Shallow_Focused	non-Rad	Fluoranthene	206-44-0	ug/kg	48	5.28E+07	No
618-7_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	20	4,295	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	--[3]	--
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563	--[1]	--
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	Selenium	7782-49-2	ug/kg	846	299,460	No
618-8_Shallow	Rad	Uranium-233/234	U-233/234	pCi/g	1.2	--[2]	--
618-9_Shallow_Focused	non-Rad	1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	110	210	No
618-9_Shallow_Focused	non-Rad	Acetone	67-64-1	ug/kg	680	2.29E+08	No
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	28	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	82	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	7.9	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	7.9	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	34	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	58	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	627	Yes
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	649	Yes
618-9_Shallow_Focused	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	5,200	1.57E+06	No
618-9_Shallow_Focused	non-Rad	Butylbenzylphthalate	85-68-7	ug/kg	2,700	1.36E+06	No
618-9_Shallow_Focused	non-Rad	Chlordane	57-74-9	ug/kg	69	347	No
618-9_Shallow_Focused	non-Rad	Chloroform	67-66-3	ug/kg	9.0	5,291	No
618-9_Shallow_Focused	non-Rad	Di-n-butylphthalate	84-74-2	ug/kg	7,200	3.80E+07	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	39	Yes
618-9_Shallow_Focused	non-Rad	Hexachlorobutadiene	87-68-3	ug/kg	760	281,770	No
618-9_Shallow_Focused	non-Rad	Hexachloroethane	67-72-1	ug/kg	17,000	30,113	No
618-9_Shallow_Focused	non-Rad	Mercury	7439-97-6	ug/kg	330	4,295	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	1,931	Yes
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	1,348	No
618-9_Shallow_Focused	non-Rad	Toluene	108-88-3	ug/kg	9.0	2.54E+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	3,534	No
618-9_Shallow_Focused	Rad	Uranium-238	U-238	pCi/g	3.0	--[2]	--
628-4_Overburden	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	ug/kg	61	1.57E+06	No
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	34	Yes
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	34	Yes
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	58	Yes
628-4_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	38	627	No
628-4_Shallow	non-Rad	Lead	7439-92-1	ug/kg	99,167	754,290	No
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]	--
UPR-300-17_Shallow	non-Rad	Acenaphthene	83-32-9	ug/kg	117	4.71E+07	No
UPR-300-17_Shallow	non-Rad	Anthracene	120-12-7	ug/kg	7.0	3.88E+08	No

Table A-9. 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 (With 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?
UPR-300-17_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	359	252,620	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	34	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	58	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	113	627	No
UPR-300-17_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	59	12,016	No
UPR-300-17_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	44	183,570	No
UPR-300-17_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	33	26,802	No
UPR-300-17_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	9.9	41,053	No
UPR-300-17_Shallow	non-Rad	Boron	7440-42-8	ug/kg	3,903	--[3]	--
UPR-300-17_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	39	6,676	No
UPR-300-17_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	35	5.28E+07	No
UPR-300-17_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.9	1.01E+08	No
UPR-300-17_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	5.9	115,820	No
UPR-300-17_Shallow	non-Rad	Lead	7439-92-1	ug/kg	11,240	754,290	No
UPR-300-17_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	69	4,295	No
UPR-300-17_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	48	7.15E+07	No
UPR-300-17_Shallow	non-Rad	Nickel	7440-02-0	ug/kg	563,654	4.03E+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	2.80E+06	No
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - diesel range	TPHDIESEL	ug/kg	2,950	--[3]	--
UPR-300-17_Shallow	non-Rad	Total petroleum hydrocarbons - motor oil (high boiling)	TPH/OILH	ug/kg	210,420	--[3]	--
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420	--[1]	--
UPR-300-17_Shallow	non-Rad	Zinc	7440-66-6	ug/kg	157,172	3.26E+07	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	4.71E+07	No
UPR-300-46_Shallow	non-Rad	Antimony	7440-36-0	ug/kg	381	252,620	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	34	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	58	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1260	11096-82-5	ug/kg	84	627	No
UPR-300-46_Shallow	non-Rad	Benzo(a)anthracene	56-55-3	ug/kg	3.9	12,016	No
UPR-300-46_Shallow	non-Rad	Benzo(a)pyrene	50-32-8	ug/kg	3.4	183,570	No
UPR-300-46_Shallow	non-Rad	Benzo(b)fluoranthene	205-99-2	ug/kg	5.4	26,802	No
UPR-300-46_Shallow	non-Rad	Benzo(k)fluoranthene	207-08-9	ug/kg	2.8	41,053	No
UPR-300-46_Shallow	non-Rad	Chrysene	218-01-9	ug/kg	5.6	6,676	No
UPR-300-46_Shallow	non-Rad	Dibenz[a,h]anthracene	53-70-3	ug/kg	1.3	59,744	No
UPR-300-46_Shallow	non-Rad	Fluoranthene	206-44-0	ug/kg	9.6	5.28E+07	No
UPR-300-46_Shallow	non-Rad	Fluorene	86-73-7	ug/kg	2.2	1.01E+08	No
UPR-300-46_Shallow	non-Rad	Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	7.6	115,820	No
UPR-300-46_Shallow	non-Rad	Mercury	7439-97-6	ug/kg	29	4,295	No
UPR-300-46_Shallow	non-Rad	Naphthalene	91-20-3	ug/kg	36	7.15E+07	No
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	Rad	Uranium-233/234	U-233/234	pCi/g	1.8	--[2]	--

Table A-9. 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 (With 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?
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 surface water 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. A soil screening level is not calculated because a groundwater cleanup level or MCL is not available for this analyte.
4. 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.

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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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Environmental Calculation Cover Page

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Project: 100 Areas and 300 Area Remedial Investigation/Feasibility Study Reports **Date: December 8, 2011**

Calculation Title & Description: **Comparison of the 300-FF-2 Source Operable Unit Exposure Point Concentrations to Preliminary Remediation Goals Protective of Groundwater and Preliminary Remediation Goals Protective of Surface Water**

Preparer: Ian Ross	**Basis of Qualification: Education and Experience**
Checker: Doug Evans	**Basis of Qualification: Education and Experience**
Senior Reviewer: Doug Evans	**Basis of Qualification: Education and Experience**

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Contents

1 Purpose 5
2 Background 5
3 Methodology 5
4 Assumptions and Inputs 6
4.1 Identification of COPCs 6
4.2 Preliminary Remediation Goals for the Protection of Groundwater 7
4.3 Uranium Preliminary Remediation Goal for the Protection of Groundwater 7
4.4 Preliminary Remediation Goals for the Protection of Surface Water 7
4.5 Uranium Preliminary Remediation Goal for the Protection of Surface Water 7
4.6 Exposure Point Concentrations 7
5 Software Applications 8
6 Calculation 8
7 Results/Conclusions 8
8 References 8

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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
OU	Operable unit
PRG	Preliminary Remediation Goal
RI	Remedial investigation
STOMP	Subsurface Transport Over Multiple Phases

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1 Purpose

This environmental calculation documents the methodology used to identify waste sites in the 300 Area where post-remediation soil sample results exceed soil preliminary remediation goals (PRGs) 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 identified constituents of potential concern (COPCs) for each waste site decision unit in the 300 Area Source OU are compared to both groundwater protective and surface water protective PRGs for a base case recharge scenario. The waste sites where EPCs exceed a PRG will be evaluated through 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*. A summary based upon the comparison of EPCs to PRGs described in this environmental calculation will be presented in the RI/FS report.

2 Background

PRGs for the protection of groundwater and the protection of surface water were estimated with 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 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. The STOMP 1D 100-0 Contaminant Source Model was used to develop PRGs for a base case recharge scenario. The recharge rate for the base case scenario represents a site re-vegetated with a natural (shrub-steppe) land cover. Other modeling conditions used for the one-dimensional 100-0 model are described in ECF-300FF5-11-0153, *Soil Modeling in Support of 300 Area FF-5 RI/FS Document*.

Due to the geochemical complexity of uranium in the 300 Area OU soils, as well as the uncertainty associated with the OU-specific uranium soil-water distribution coefficient (K_d), the uranium PRGs for the protection of groundwater and the protection of surface water were estimated using the STOMP 2D 100-0 Uranium Source Model. The recharge rate and other modeling conditions used for the two-dimensional 100-0 uranium model are described in ECF-300FF5-11-0151, *Groundwater Flow and Uranium Transport Modeling in Support of the 300 Area FF-5 RI/FS Document*.

Based on agreements with the Senior Executive Council, modeling with the STOMP simulator (PNNL-15782, *STOMP Subsurface Transport Over Multiple Phases, Version 4.0: User's Guide*) was performed to provide a site-specific basis for estimating PRGs for groundwater protection and surface water protection.

Comparisons are conducted herein between EPCs and the PRGs for both groundwater protection and surface water protection for the identified COPCs at each waste site decision unit in the 300-Area Source OU.

3 Methodology

This section describes the methodology used to compare EPCs for identified COPCs at each waste site decision unit to PRGs for groundwater protection and surface water protection.

For all of the COPCs identified at the 300 Area waste site decision units, the following steps are performed:

1. Obtain COPCs for each waste site decision unit in the 300 Area Source OU.
2. Obtain PRGs for the protection of groundwater and the protection of surface water for the STOMP 1D 100-0 base case scenario.
3. Obtain the uranium PRGs for the protection of groundwater and the protection of surface water for the STOMP 2D 100-0 Uranium Source Model.
4. Obtain EPC values for each waste site decision unit in the 300 Area Source OU.
5. Individually compare EPCs for each waste site decision unit in the 300 Area Source OU to soil PRGs for the protection of groundwater and the protection of surface water.

4 Assumptions and Inputs

Assumptions and inputs associated with COPCs, PRGs, and EPCs are described below.

Table 4-1 documents the sources of information for the PRGs.

Table 4-1. Reference Sources

Preliminary Remediation Goal	Pathway	Reference
STOMP 1D 100-0 Contaminant Source Model – Base Case Scenario	Groundwater	ECF-300FF5-11-0153
	Surface Water	ECF-300FF5-11-0153
STOMP 2D 100-0 Uranium Source Model	Groundwater	ECF-300FF5-11-0151
	Surface Water	ECF-300FF5-11-0151

Notes:

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

ECF-300FF5-11-0151, *Groundwater Flow and Uranium Transport Modeling in Support of the 300 Area FF-5 RI/FS Document.*

4.1 Identification of COPCs

For the purposes of this environmental calculation, a COPC is defined as an analyte suspected of being associated with site-related activities, which represents a potential threat to human health or the environment, and whose data are of sufficient quality for use in a quantitative baseline risk assessment.

With the exception of uranium, all analytes identified as exceeding background soil concentrations and soil screening levels in a waste site decision unit are identified as COPCs because the soil sample results represent post-remediation conditions. For uranium, all detections with EPCs that exceed the 90th percentile soil background concentration in a waste site decision unit are considered to be COPCs for the protection of groundwater and the protection of surface water. COPCs for the 300 Area Source OU are identified in ECF-300NPL-11-0154, C*omparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water*. The COPCs for groundwater protection for each waste site decision unit are presented

in Table 4-2. The COPCs for surface water protection for each waste site decision unit are presented in Table 4-3.

4.2 Preliminary Remediation Goals for the Protection of Groundwater

With the exception of uranium, PRGs for the protection of groundwater at and near the 300 Area Source OU have been derived using the following model:

- STOMP 1D 100-0 Contaminant Source Model, base case scenario

The STOMP 1D 100-0 Contaminant Source Model assumes that the entire vadose zone is contaminated below a clean fill layer. The recharge rate for the base case scenario represents a site re-vegetated with natural (shrub steppe) land cover. OU-specific PRGs 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. The STOMP 1D 100-0 groundwater protective PRGs are presented in Table 4-4.

4.3 Uranium Preliminary Remediation Goal for the Protection of Groundwater

Due to the geochemical complexity of uranium in the 300 Area OU soils, as well as the uncertainty associated with the OU-specific uranium K_d, the uranium PRG for the protection of groundwater is estimated using the STOMP 2D 100-0 Uranium Source Model as documented in ECF-300FF5-11-0151. The groundwater protective PRG for uranium is presented in Table 4-5.

4.4 Preliminary Remediation Goals for the Protection of Surface Water

With the exception of uranium, PRGs for the protection of surface water at and near the 300 Area Source OU have been derived using the following model:

- STOMP 1D 100-0 Contaminant Source Model, base case scenario

The STOMP 1D 100-0 Model assumes the entire vadose zone is contaminated below clean fill. The recharge rate for the base case scenario represents a site re-vegetated with a natural (shrub steppe) land cover. The model takes no credit for dilution of groundwater by mixing with surface water. OU-specific PRGs protective of surface water for the 300 Area Source OU calculated using the STOMP 1D 100-0 Contaminant Source Model are documented in ECF300FF5-11-0153. The STOMP 1D 100-0 surface water protective PRGs are presented in Table 4-6.

4.5 Uranium Preliminary Remediation Goal for the Protection of Surface Water

Due to the geochemical complexity of uranium in the 300 Area OU soils, as well as the uncertainty associated with the OU-specific uranium K_d, the uranium PRG for the protection of surface water is estimated using the STOMP 2D 100-0 Uranium Source Model as documented in ECF-F300FF5-11-0151. The surface water protective PRG for uranium is presented in Table 4-7.

4.6 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 PRGs 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 corresponding to the identified COPCs for each waste site decision unit in the 300 Area Source OU are presented in Tables 4-2 and 4-3.

5 Software Applications

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

6 Calculation

Comparison of EPCs to PRGs is conducted as described in Sections 3 to determine which COPCs exceed a PRG. Results of the comparisons are presented in the accompanying tables, as discussed in Section 7. The tables 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 COPCs with EPCs that exceed PRGs protective of groundwater is presented in Table 7-1. A summary of the 300 Area Source OU waste site decision units with uranium EPCs that exceed PRGs protective of groundwater is presented in Table 7-2. A summary of the 300 Area Source OU waste site decision unit COPCs with EPCs that exceed PRGs protective of surface water is presented in Table 7-3. A summary of the 300 Area Source OU waste site decision units with uranium EPCs that exceed PRGs protective of surface water is presented in Table 7-4.

8 References

DOE/RL-2010-99, 2011, *Remedial Investigation/Feasibility Study for the 300-FF-1, 300-FF-2, and 300-FF-5 Operable Units*, Draft A, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

ECF-300NPL-11-0137, 2011, *Computation of Exposure Point Concentrations for the 300-FF-2 Source Operable Unit*, Draft, CH2M HILL Plateau Remediation Company, Richland, Washington.

ECF-300NPL-11-0154, 2011, C*omparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water*, Draft, CH2M HILL Plateau Remediation Company, Richland, Washington.

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ECF-300FF5-11-0153, 2011, *Soil Modeling in Support of 300 Area FF-5 RI/FS Document*, Rev. 1, CH2M HILL Plateau Remediation Company, Richland, Washington.

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OSWER 9285.6-10, 2002, *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C. Available at: http://epa.gov/oswer/riskassessment/pdf/ucl.pdf.

OSWER Publication 9285.7-081, 1992, *Supplemental Guidance to RAGS: Calculating the Concentration Term*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. Available at: http://www.deq.state.or.us/lq/pubs/forms/tanks/UCLsEPASupGuidance.pdf.

PNNL-15782, 2006, *STOMP Subsurface Transport Over Multiple Phases, Version 4.0: User's Guide*, Pacific Northwest National Laboratory, Richland, Washington. Available at: http://stomp.pnnl.gov/.

Table 4-2. Summary of COPCs and EPCs for Groundwater Protection for the 300 Area Source Operable Unit

Waste Site/Decision Unit	Analyte Group	COPC[a]	CAS No.	Units	Exposure Point Concentration[b]
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963

Table 4-2. Summary of COPCs and EPCs for Groundwater Protection for the 300 Area Source Operable Unit

Waste Site/Decision Unit	Analyte Group	COPC[a]	CAS No.	Units	Exposure Point Concentration[b]
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897

Notes:

a. ECF-300NPL-11-0154, *Comparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water.*

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

Table 4-3. Summary of COPCs and EPCs for Surface Water Protection for the 300 Area Source Operable Unit

Waste Site/Decision Unit	Analyte Group	COPC[a]	CAS No.	Units	Exposure Point Concentration[b]
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,078
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,108
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,877
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,876
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,800
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,251
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,725
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,349
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	7,260
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	6,460
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,600
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	17,919
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	22,938
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	40,572
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	83,027
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	63,074
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	42,963
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	210,452
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	291,369
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	73,174
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	271,835
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	204,701
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	138,095
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,303
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	89,439
618-1_Deep	non-Rad	Uranium	7440-61-1	ug/kg	37,400
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	196,154
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	209,000
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,224
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	24,957
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	ug/kg	7,080
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	32,092
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,061
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	491,176
618-2_Deep	non-Rad	Uranium	7440-61-1	ug/kg	501,000
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	150,259
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	ug/kg	148,000
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	5,852
618-2_Shallow	non-Rad	Uranium	7440-61-1	ug/kg	4,530
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,201
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	ug/kg	5,022
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	238,577
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	64,506
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	20,777
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,197
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	7,456
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	26,618
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	36,540
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	9,773
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	3,364
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,326
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	10,814
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	19,563
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	8,963
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	12,420
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	ug/kg	4,897

Notes:

a. ECF-300NPL-11-0154, *Comparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil*

Table 4-3. Summary of COPCs and EPCs for Surface Water Protection for the 300 Area Source Operable Unit

Waste Site/Decision Unit	Analyte Group	COPC[a]	CAS No.	Units	Exposure Point Concentration[b]

Screening Levels Protective of Surface Water.

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

Table 4-4. STOMP 1D 100-0 Contaminant Source Model Base Case Preliminary Remediation Goals for Groundwater Protection for Identified COPCs at the 300 Area Source Operable Unit

COPC[a]	CAS No.	100-0 Source Base Case GWP Preliminary Remediation Goal[b]
Nonradionuclides (µg/kg)		
Aroclor-1254	11097-69-1	747,151
Arsenic	7440-38-2	39,854
Methylene chloride	75-09-2	3,161
Tetrachloroethene	127-18-4	825

Notes:

a. ECF-300NPL-11-0154, *Comparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water.*

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

Table 4-5. STOMP 2D 100-0 Uranium Source Model Preliminary Remediation Goals for Groundwater Protection at the 300 Area Source Operable Unit

COPC[a]	CAS No.	STOMP 2D 100-0 Uranium Model GWP Preliminary Remediation Goal[b]
Nonradionuclides (µg/kg)		
Uranium	7440-61-1	117,000
Total_U_Isotopes	Total_U_Isotopes	117,000

Notes:

a. ECF-300NPL-11-0154, *Comparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water.*

b. ECF-300FF5-11-0151, *Groundwater Flow and Uranium Transport Modeling in Support of the 300 Area FF-5 RI/FS Document* .

Table 4-6. STOMP 1D 100-0 Contaminant Source Model Base Case Preliminary Remediation Goals for Surface Water Protection for Identified COPCs at the 300 Area Source Operable Unit

COPC[a]	CAS No.	100-0 Source Base Case SWP Preliminary Remediation Goal[b]
Nonradionuclides (µg/kg)		
Aldrin	309-00-2	539
Aroclor-1016	12674-11-2	1,547
Aroclor-1221	11104-28-2	149
Aroclor-1232	11141-16-5	149
Aroclor-1242	53469-21-9	648
Aroclor-1248	12672-29-6	635
Aroclor-1254	11097-69-1	1,093
Aroclor-1260	11096-82-5	11,880
Arsenic	7440-38-2	12,298
Heptachlor epoxide	1024-57-3	733
Mercury	7439-97-6	81,364
Methylene chloride	75-09-2	2,908

Notes:

a. ECF-300NPL-11-0154, *Comparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water.*

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

Table 4-7. STOMP 2D 100-0 Uranium Source Model Preliminary Remediation Goals for Surface Water Protection at the 300 Area Source Operable

COPC[a]	CAS No.	STOMP 2D 100-0 Uranium Model SWP Preliminary Remediation Goal[b]
Nonradionuclides (µg/kg)		
Uranium	7440-61-1	3,044,000
Total_U_Isotopes	Total_U_Isotopes	3,044,000

Notes:

a. ECF-300NPL-11-0154, *Comparison of 300-FF-2 Source Operable Unit Exposure Point Concentrations to Soil Screening Levels Protective of Groundwater and Soil Screening Levels Protective of Surface Water.*

b. ECF-300FF5-11-0151, *Groundwater Flow and Uranium Transport Modeling in Support of the 300 Area FF-5 RI/FS Document* .

Table 7-1. Comparison of EPCs for 300 Area Source Operable Unit COPCs to STOMP 1D 100-0 Contaminant Source Model Base Case Preliminary Remediation Goals Protective of Groundwater

Waste Site/Decision Unit	Analyte Group	COPC	CAS No.	Units	Exposure Point Concentration	100-0 Source Base Case GWP Preliminary Remediation Goal	Is EPC > 100-0 Source Base Case GWP PRG?
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	39,854	No
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	39,854	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	39,854	No
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	39,854	No
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	39,854	No
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	39,854	No
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	747,151	Yes
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	39,854	No
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	39,854	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	3,161	No
618-9_Shallow_Focused	non-Rad	Tetrachloroethene	127-18-4	ug/kg	920	825	Yes

Table 7-2. Comparison of Uranium EPCs for 300 Area Source Operable Unit to STOMP 2D 100-0 Uranium Source Model Preliminary Remediation Goals Protective of Groundwater

Waste Site/Decision Unit	Analyte Group	COPC	CAS No.	Units	Exposure Point Concentration	STOMP 2D 100-0 Uranium Model GWP Preliminary Remediation Goal	Is EPC > STOMP 2D 100-0 Uranium GWP PRG?
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,078	117,000	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,108	117,000	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	6,877	117,000	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,876	117,000	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	12,800	117,000	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	22,251	117,000	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,725	117,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,349	117,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	7,260	117,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	6,460	117,000	No
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,600	117,000	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	17,919	117,000	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	22,938	117,000	No
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	40,572	117,000	No
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	83,027	117,000	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	63,074	117,000	No
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	42,963	117,000	No
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	210,452	117,000	Yes
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	291,369	117,000	Yes
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	73,174	117,000	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	271,835	117,000	Yes
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	204,701	117,000	Yes
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	138,095	117,000	Yes
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,303	117,000	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	89,439	117,000	No
618-1_Deep	non-Rad	Uranium	7440-61-1	µg/kg	37,400	117,000	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	196,154	117,000	Yes
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	µg/kg	209,000	117,000	Yes
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,224	117,000	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	24,957	117,000	No
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	µg/kg	7,080	117,000	No
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	32,092	117,000	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,061	117,000	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	491,176	117,000	Yes
618-2_Deep	non-Rad	Uranium	7440-61-1	µg/kg	501,000	117,000	Yes
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	150,259	117,000	Yes
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	µg/kg	148,000	117,000	Yes
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,852	117,000	No
618-2_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	4,530	117,000	No
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	9,201	117,000	No
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	µg/kg	5,022	117,000	No
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	238,577	117,000	Yes

Table 7-2. Comparison of Uranium EPCs for 300 Area Source Operable Unit to STOMP 2D 100-0 Uranium Source Model Preliminary Remediation Goals Protective of Groundwater

Waste Site/Decision Unit	Analyte Group	COPC	CAS No.	Units	Exposure Point Concentration	STOMP 2D 100-0 Uranium Model GWP Preliminary Remediation Goal	Is EPC > STOMP 2D 100-0 Uranium GWP PRG?
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	64,506	117,000	No
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	20,777	117,000	No
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,197	117,000	No
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	7,456	117,000	No
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	26,618	117,000	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	36,540	117,000	No
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	9,773	117,000	No
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,364	117,000	No
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,326	117,000	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	10,814	117,000	No
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	19,563	117,000	No
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	8,963	117,000	No
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	12,420	117,000	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,897	117,000	No

Table 7-3. Comparison of EPCs for 300 Area Source Operable Unit COPCs to STOMP 1D 100-0 Contaminant Source Model Base Case Preliminary Remediation Goals Protective of Surface Water

Waste Site/Decision Unit	Analyte Group	COPC	CAS No.	Units	Exposure Point Concentration	100-0 Source Base Case SWP Preliminary Remediation Goal	Is EPC > 100-0 Source Base Case SWP PRG?
300 ASH PITS_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	52	635	No
300-10_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	13,500	12,298	Yes
300-109_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	122	1,093	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	190	635	No
300-33, 300-41, 300-256_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	84	1,093	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	330	635	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	385	1,093	No
300-37_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	100	1,093	No
300-37_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,200	11,880	No
300-44_Overburden_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	9,100	12,298	No
300-44_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	16,900	12,298	Yes
300-49_Overburden	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,008	1,093	Yes
300-50_Overburden	non-Rad	Arsenic	7440-38-2	ug/kg	6,897	12,298	No
300-50_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	126	1,093	No
316-1_Shallow_1	non-Rad	Aroclor-1248	12672-29-6	ug/kg	3,000	635	Yes
316-1_Shallow_1	non-Rad	Arsenic	7440-38-2	ug/kg	19,014	12,298	Yes
316-1_Shallow_3	non-Rad	Aroclor-1254	11097-69-1	ug/kg	98	1,093	No
316-1_Shallow_4	non-Rad	Aroclor-1254	11097-69-1	ug/kg	62	1,093	No
316-2_Shallow_2	non-Rad	Aroclor-1248	12672-29-6	ug/kg	697	635	Yes
316-2_Shallow_3	non-Rad	Arsenic	7440-38-2	ug/kg	8,000	12,298	No
316-5_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	57	635	No
316-5_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	70	1,093	No
331 LSLDF_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	850	1,093	No
618-1_Deep	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,760	1,093	Yes
618-1_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1.24E+06	1,093	Yes
618-1_Deep_Focused	non-Rad	Mercury	7439-97-6	ug/kg	8,940	81,364	No
618-1_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	264	1,093	No
618-1_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	35	635	No
618-1_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	981	1,093	No
618-12_Shallow	non-Rad	Arsenic	7440-38-2	ug/kg	8,557	12,298	No
618-4_Deep_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	1,600	1,093	Yes
618-9_Shallow_Focused	non-Rad	Aldrin	309-00-2	ug/kg	390	539	No
618-9_Shallow_Focused	non-Rad	Aroclor-1016	12674-11-2	ug/kg	1,900	1,547	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1221	11104-28-2	ug/kg	1,900	149	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1232	11141-16-5	ug/kg	1,900	149	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1242	53469-21-9	ug/kg	1,900	648	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,900	635	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1254	11097-69-1	ug/kg	3,900	1,093	Yes
618-9_Shallow_Focused	non-Rad	Aroclor-1260	11096-82-5	ug/kg	3,900	11,880	No

Table 7-3. Comparison of EPCs for 300 Area Source Operable Unit COPCs to STOMP 1D 100-0 Contaminant Source Model Base Case Preliminary Remediation Goals Protective of Surface Water

Waste Site/Decision Unit	Analyte Group	COPC	CAS No.	Units	Exposure Point Concentration	100-0 Source Base Case SWP Preliminary Remediation Goal	Is EPC > 100-0 Source Base Case SWP PRG?
618-9_Shallow_Focused	non-Rad	Arsenic	7440-38-2	ug/kg	11,600	12,298	No
618-9_Shallow_Focused	non-Rad	Heptachlor epoxide	1024-57-3	ug/kg	44	733	No
618-9_Shallow_Focused	non-Rad	Methylene chloride	75-09-2	ug/kg	2,300	2,908	No
628-4_Shallow	non-Rad	Aroclor-1242	53469-21-9	ug/kg	42	648	No
628-4_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,115	635	Yes
628-4_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	243	1,093	No
UPR-300-17_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	1,970	635	Yes
UPR-300-17_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	450	1,093	No
UPR-300-46_Shallow	non-Rad	Aroclor-1248	12672-29-6	ug/kg	879	635	Yes
UPR-300-46_Shallow	non-Rad	Aroclor-1254	11097-69-1	ug/kg	490	1,093	No

Table 7-4. Comparison of Uranium EPCs for 300 Area Source Operable Unit COPCs to STOMP 2D 100-0 Uranium Source Model Preliminary Remediation Goals Protective of Surace Water

Waste Site/Decision Unit	Analyte Group	COPC	CAS No.	Units	Exposure Point Concentration	STOMP 2D 100-0 Uranium Model SWP Preliminary Remediation Goal	Is EPC > STOMP 2D 100-0 Uranium SWP PRG?
300-10_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,078	3,044,000	No
300-109_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,108	3,044,000	No
300-109_Staging Pile Area_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	6,877	3,044,000	No
300-259_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,876	3,044,000	No
300-260_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	12,800	3,044,000	No
300-275_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	22,251	3,044,000	No
300-275_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,725	3,044,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,349	3,044,000	No
300-33, 300-41, 300-256_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	7,260	3,044,000	No
300-33, 300-41, 300-256_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	6,460	3,044,000	No
300-45_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,600	3,044,000	No
300-50_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	17,919	3,044,000	No
300-50_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	22,938	3,044,000	No
316-1_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	40,572	3,044,000	No
316-1_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	83,027	3,044,000	No
316-1_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	63,074	3,044,000	No
316-1_Shallow_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	42,963	3,044,000	No
316-2_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	210,452	3,044,000	No
316-2_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	291,369	3,044,000	No
316-2_Shallow_3	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	73,174	3,044,000	No
316-5_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	271,835	3,044,000	No
316-5_Shallow_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	204,701	3,044,000	No
316-5_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	138,095	3,044,000	No
600-47_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,303	3,044,000	No
618-1_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	89,439	3,044,000	No
618-1_Deep	non-Rad	Uranium	7440-61-1	µg/kg	37,400	3,044,000	No
618-1_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	196,154	3,044,000	No
618-1_Deep_Focused	non-Rad	Uranium	7440-61-1	µg/kg	209,000	3,044,000	No
618-1_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,224	3,044,000	No
618-1_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	24,957	3,044,000	No
618-1_Shallow_Focused	non-Rad	Uranium	7440-61-1	µg/kg	7,080	3,044,000	No
618-12_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	32,092	3,044,000	No
618-13_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,061	3,044,000	No
618-2_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	491,176	3,044,000	No
618-2_Deep	non-Rad	Uranium	7440-61-1	µg/kg	501,000	3,044,000	No
618-2_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	150,259	3,044,000	No
618-2_Deep_Focused	non-Rad	Uranium	7440-61-1	µg/kg	148,000	3,044,000	No
618-2_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	5,852	3,044,000	No
618-2_Shallow	non-Rad	Uranium	7440-61-1	µg/kg	4,530	3,044,000	No

Table 7-4. Comparison of Uranium EPCs for 300 Area Source Operable Unit COPCs to STOMP 2D 100-0 Uranium Source Model Preliminary Remediation Goals Protective of Surace Water

Waste Site/Decision Unit	Analyte Group	COPC	CAS No.	Units	Exposure Point Concentration	STOMP 2D 100-0 Uranium Model SWP Preliminary Remediation Goal	Is EPC > STOMP 2D 100-0 Uranium SWP PRG?
618-2_Staging Pile	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	9,201	3,044,000	No
618-2_Staging Pile	non-Rad	Uranium	7440-61-1	µg/kg	5,022	3,044,000	No
618-3_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	238,577	3,044,000	No
618-4_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	64,506	3,044,000	No
618-4_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	20,777	3,044,000	No
618-4_Overburden_2	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,197	3,044,000	No
618-4_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	7,456	3,044,000	No
618-5_Deep	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	26,618	3,044,000	No
618-5_Deep_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	36,540	3,044,000	No
618-5_Overburden	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	9,773	3,044,000	No
618-5_Staging Pile_4	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	3,364	3,044,000	No
618-5_Staging Pile_5	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,326	3,044,000	No
618-7_Shallow_1	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	10,814	3,044,000	No
618-7_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	19,563	3,044,000	No
618-9_Shallow_Focused	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	8,963	3,044,000	No
UPR-300-17_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	12,420	3,044,000	No
UPR-300-46_Shallow	non-Rad	Total_U_Isotopes	Total_U_Isotopes	µg/kg	4,897	3,044,000	No

Appendix E

Nature and Extent Supporting Information

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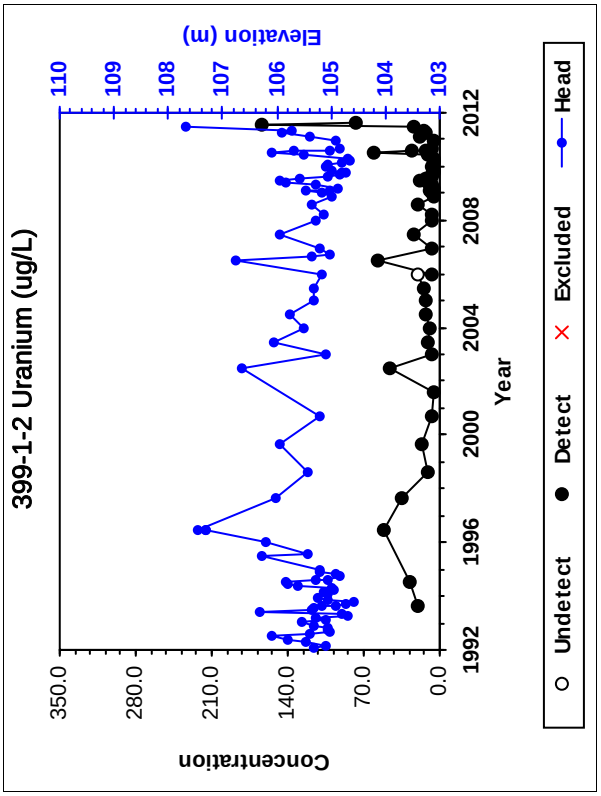
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Elevation (m)
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140.0
70.0
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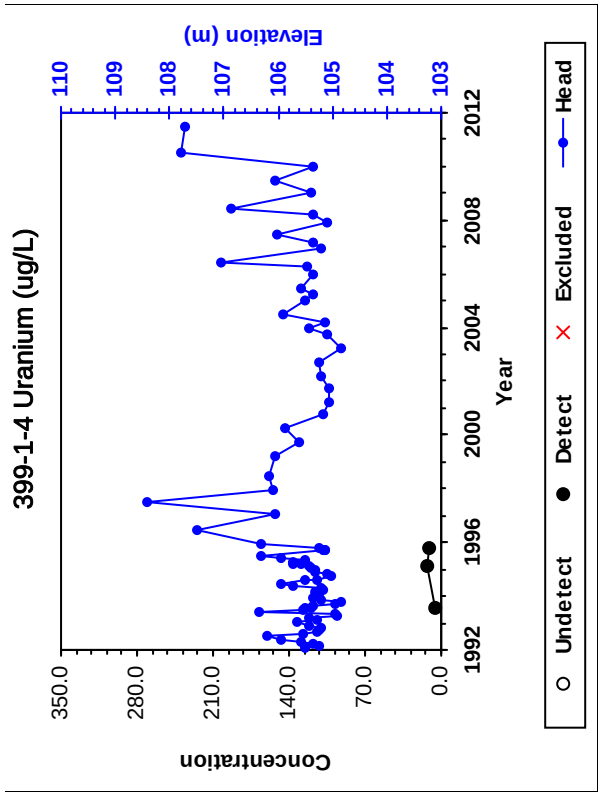
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head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Concentration
Elevation (m)
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105
104
103
1992
1996
2000
2004
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2012
Undetect
Detect
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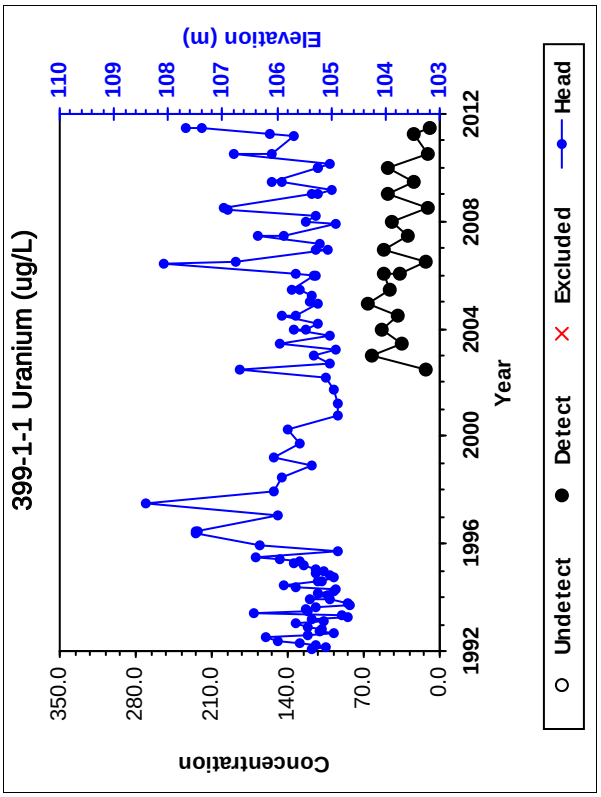
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Elevation (m)
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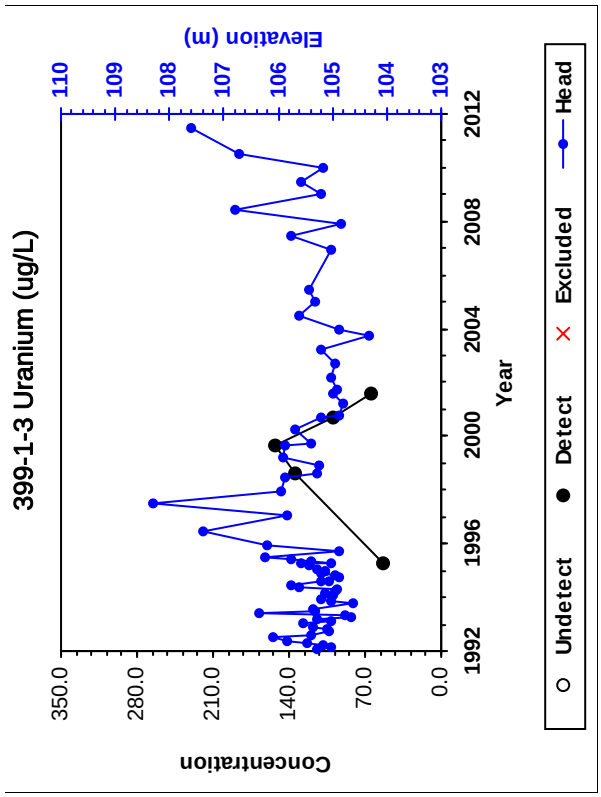
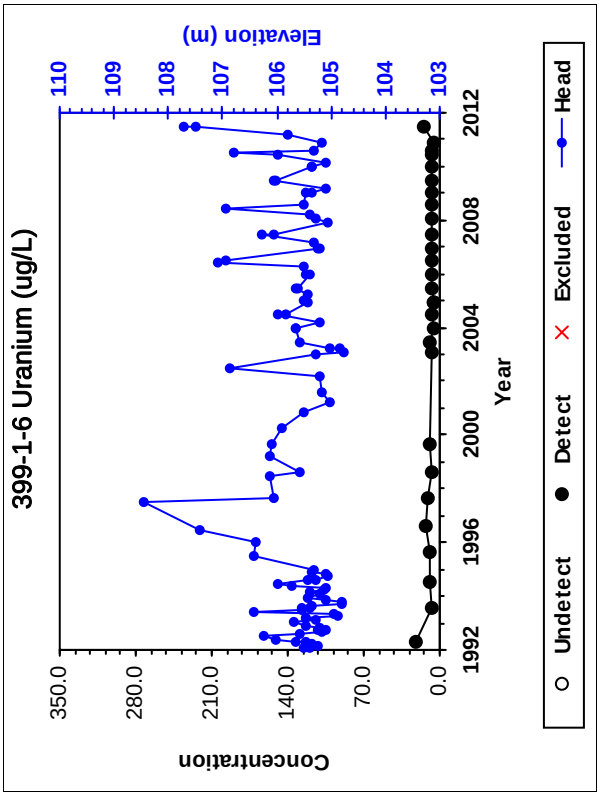
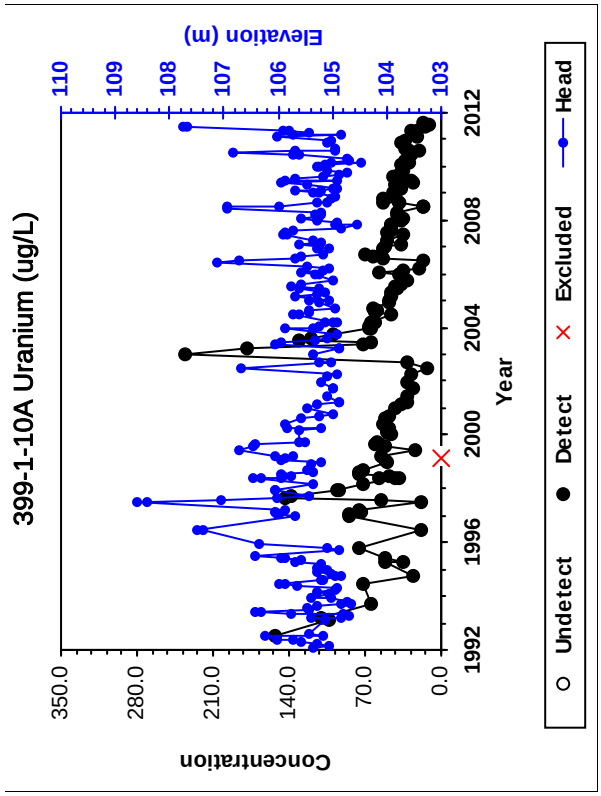
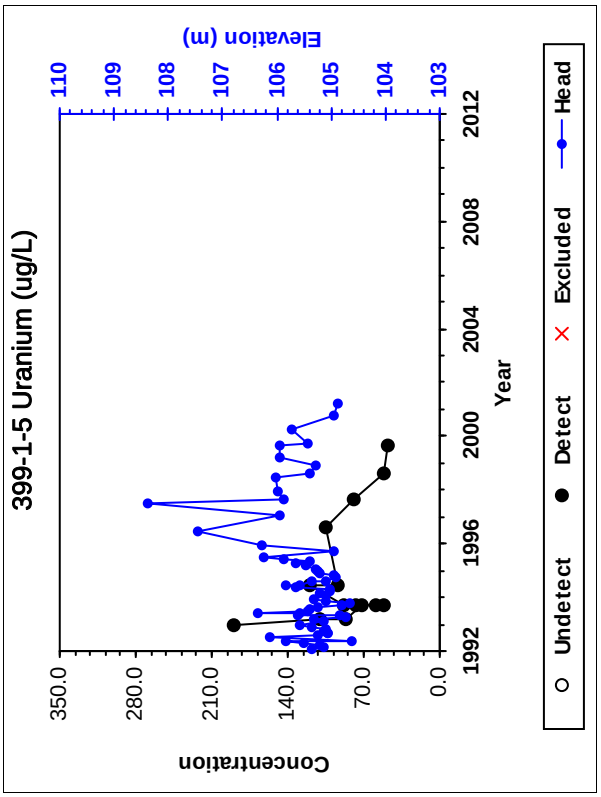
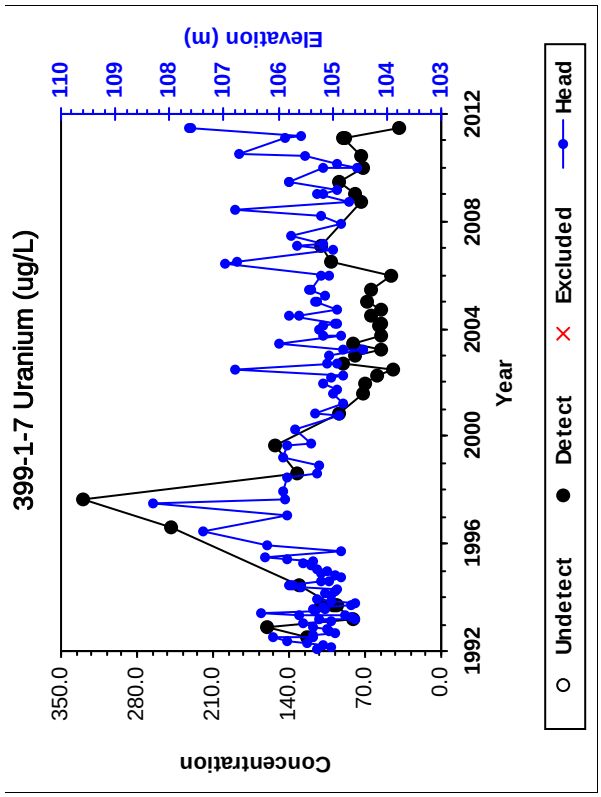
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

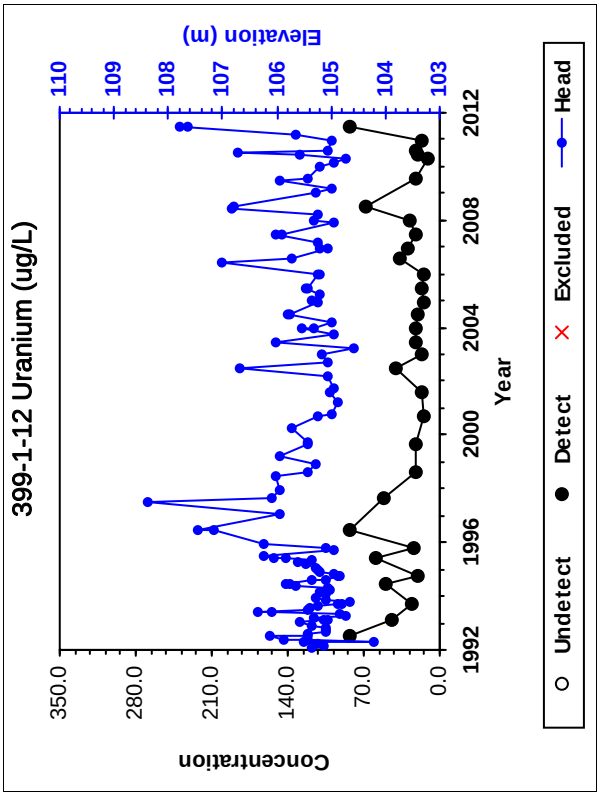

399-1-3 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

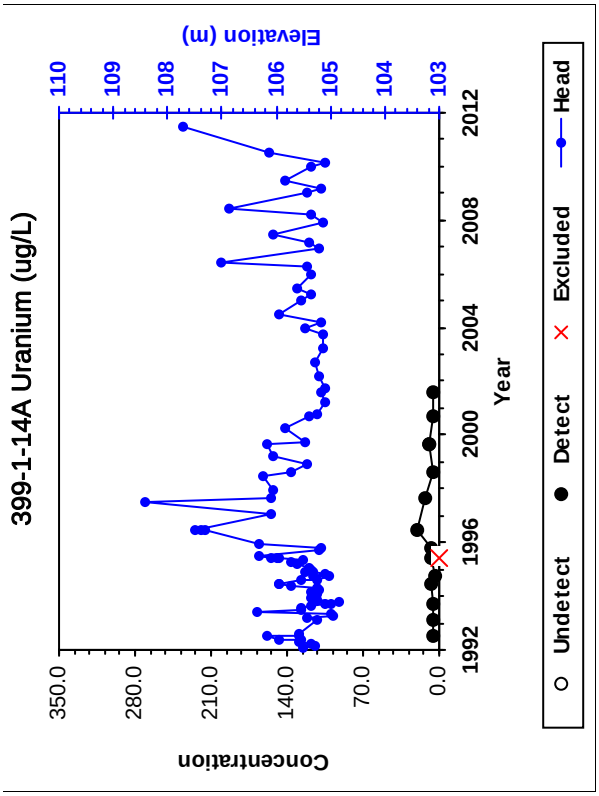

399-1-6 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

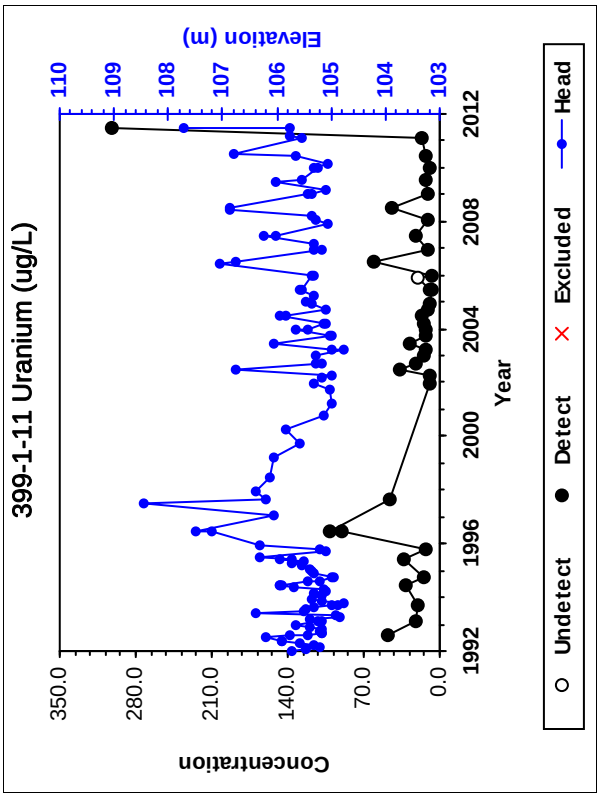

399-1-10A Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

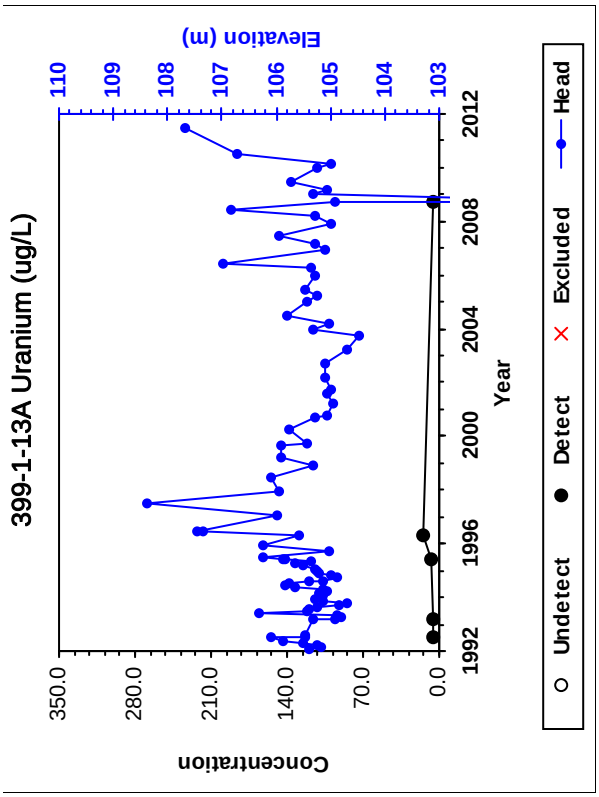

399-1-5 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

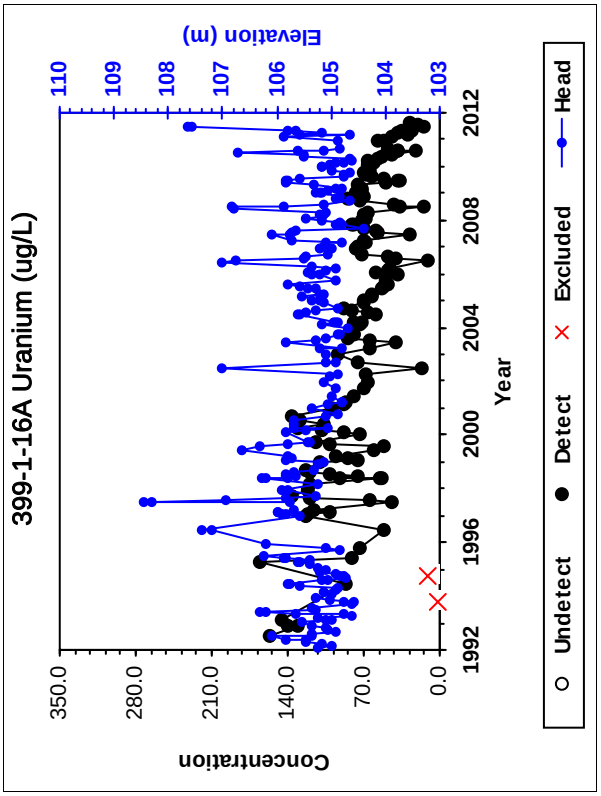

399-1-7 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

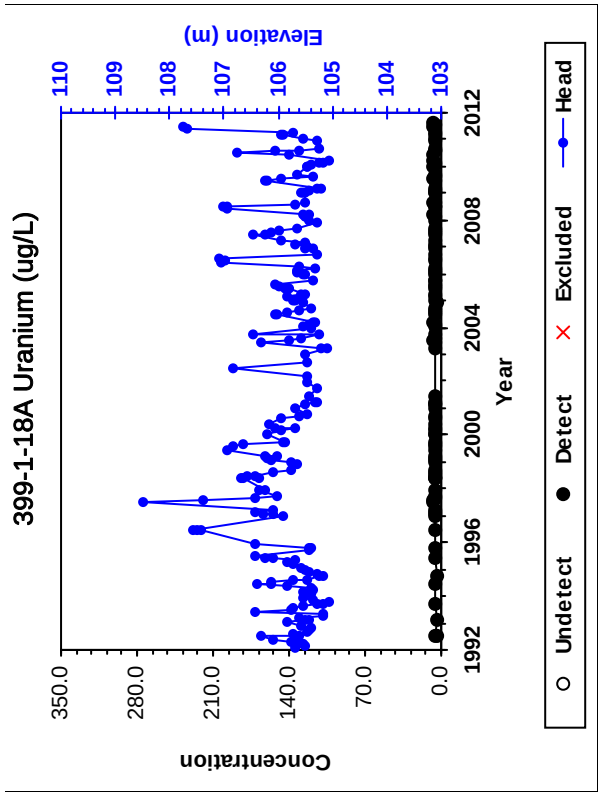

399-1-12 Uranium (ug/L)
Concentration
Elevation (m)
Year
Undetect
Detect
Excluded
Head

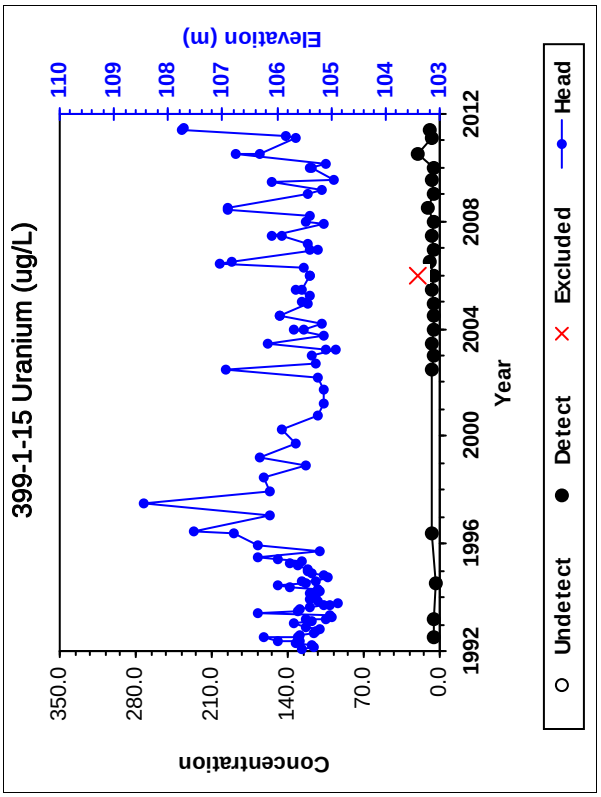

399-1-14A Uranium (ug/L)
Concentration
Elevation (m)
Year
Undetect
Detect
Excluded
Head

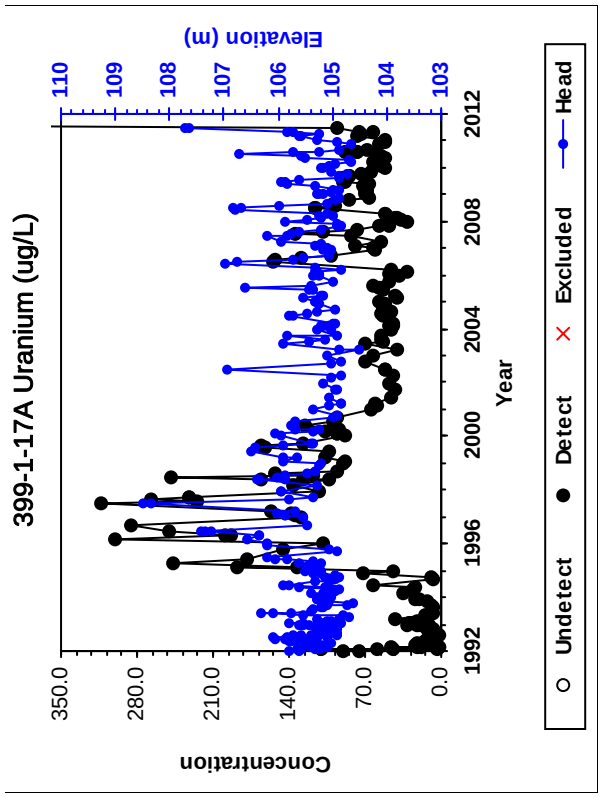

399-1-11 Uranium (ug/L)
Concentration
Elevation (m)
Year
Undetect
Detect
Excluded
Head

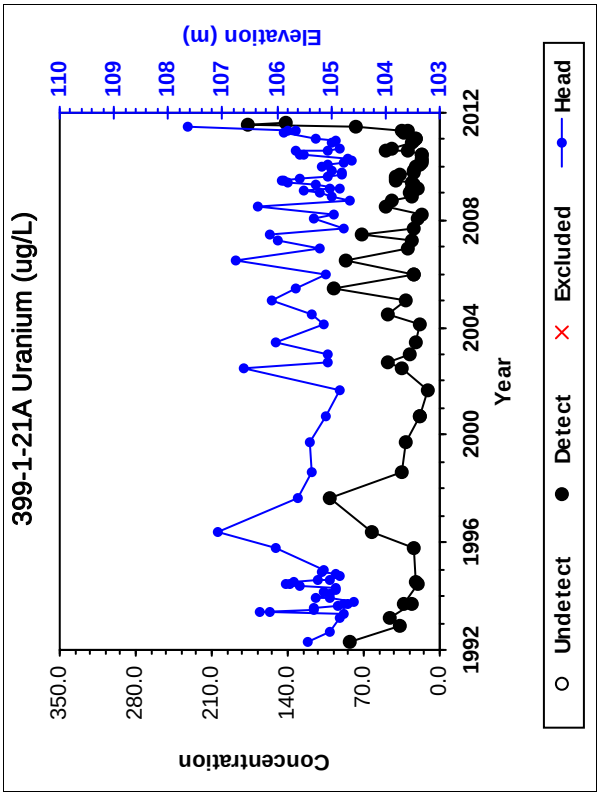

399-1-13A Uranium (ug/L)
Concentration
Elevation (m)
Year
Undetect
Detect
Excluded
Head

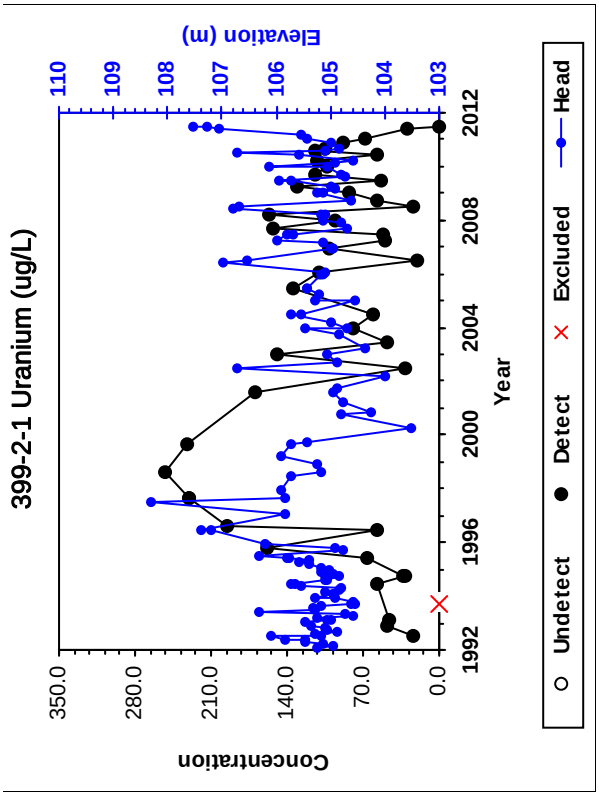

399-1-16A Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

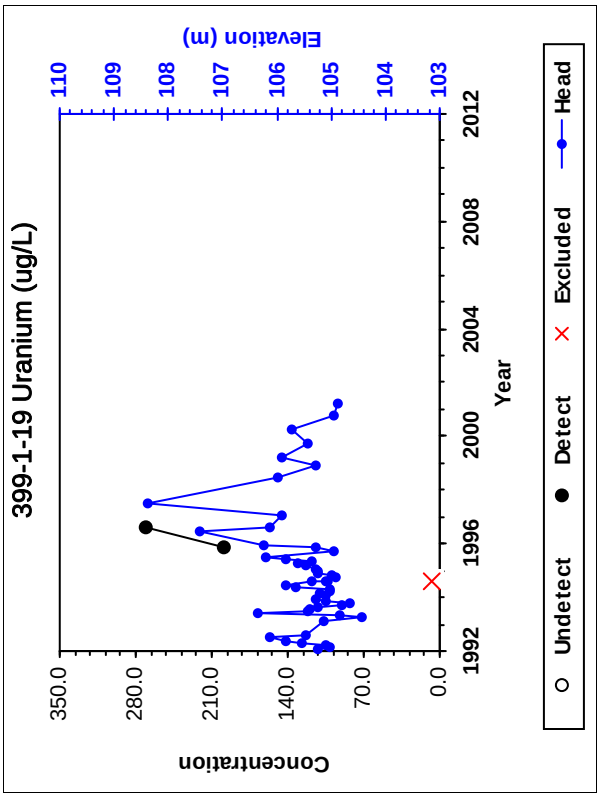

399-1-18A Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

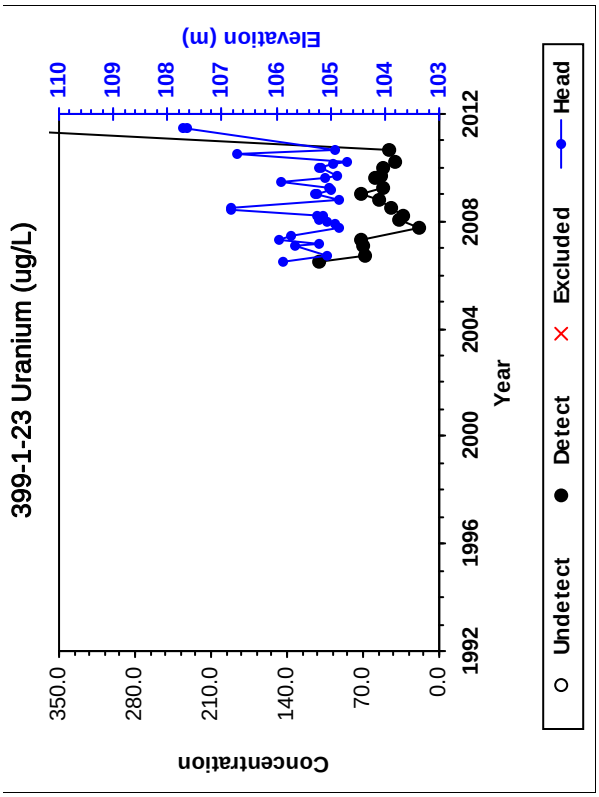

399-1-15 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

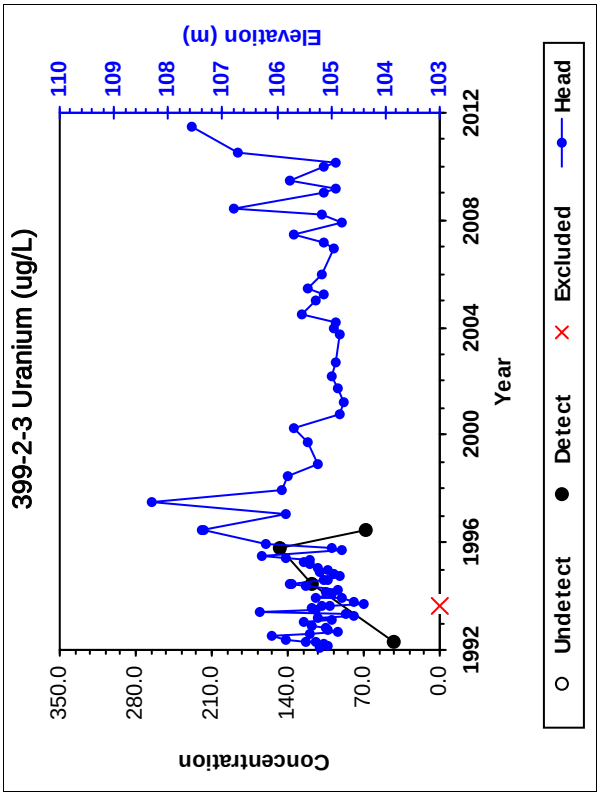

399-1-17A Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

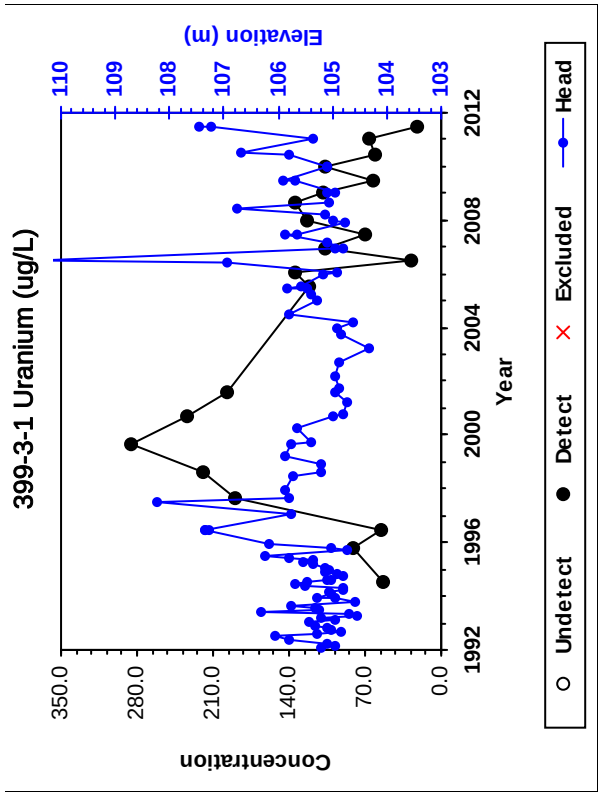

399-1-21A Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

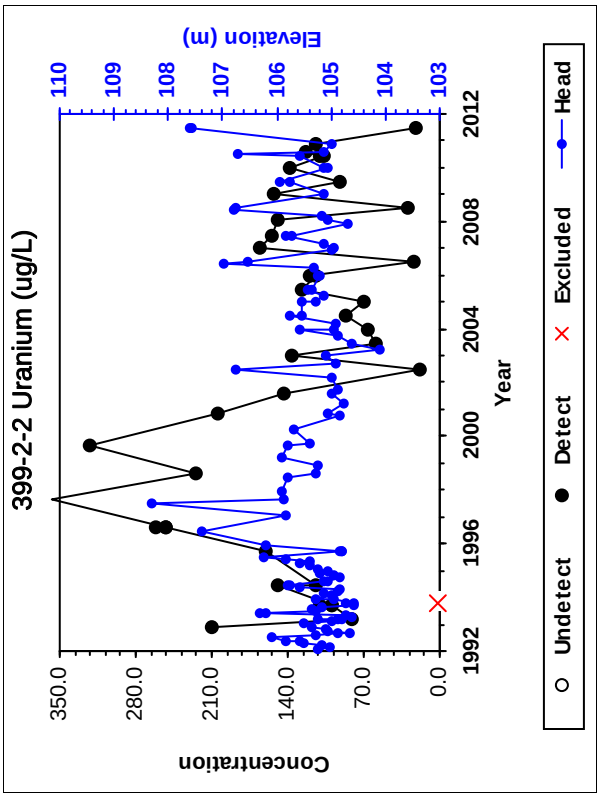

399-2-1 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

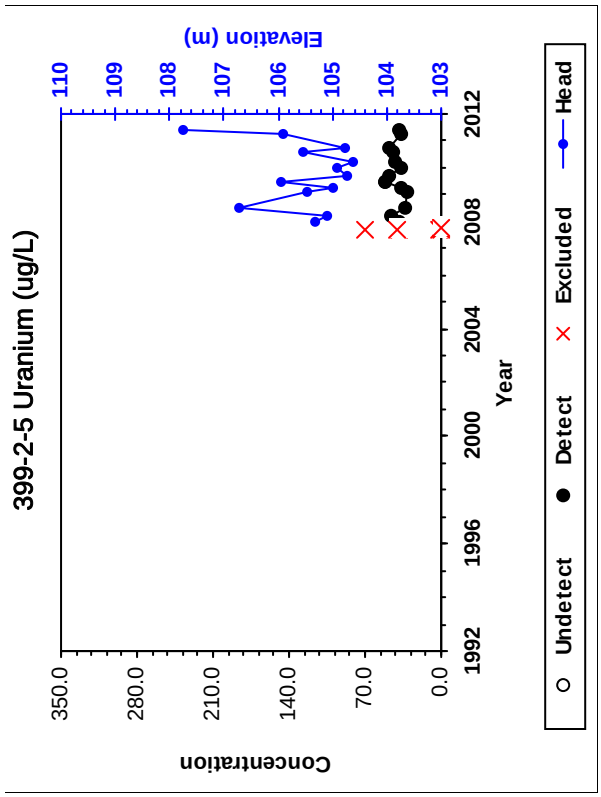

399-1-19 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

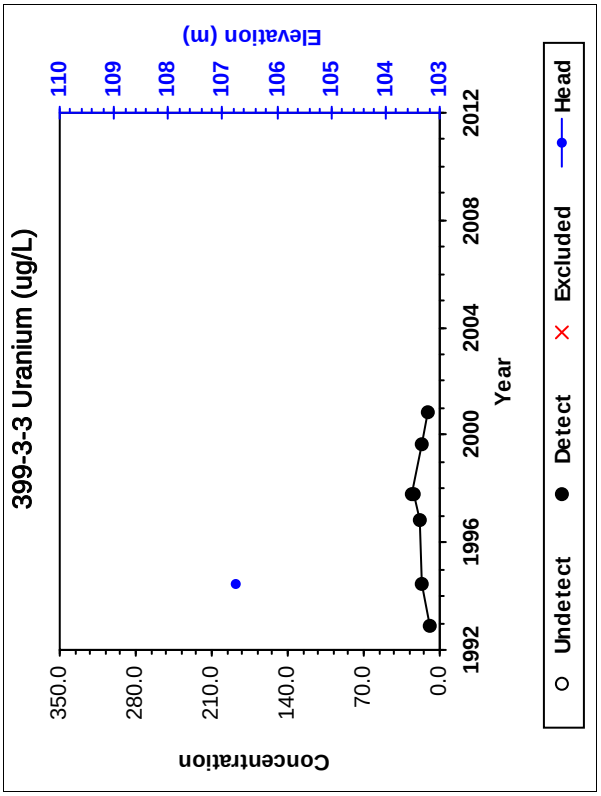

399-1-23 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

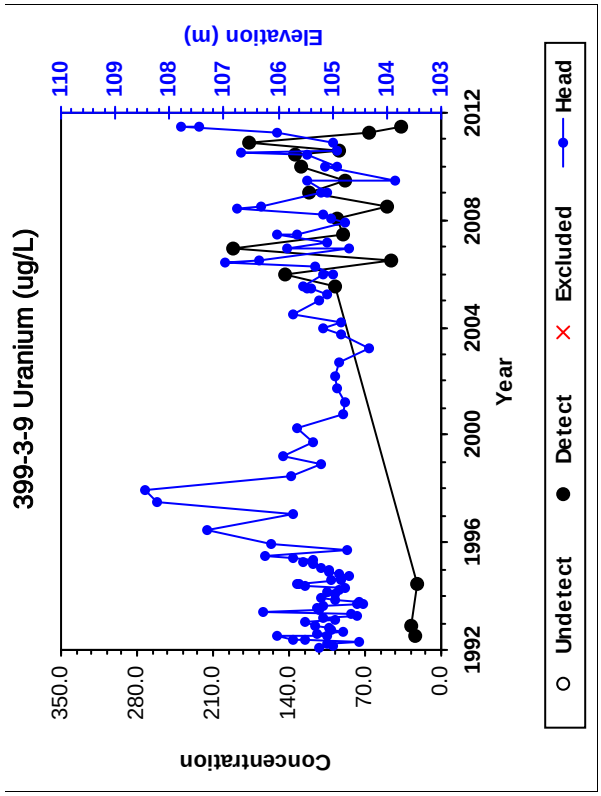

399-2-3 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

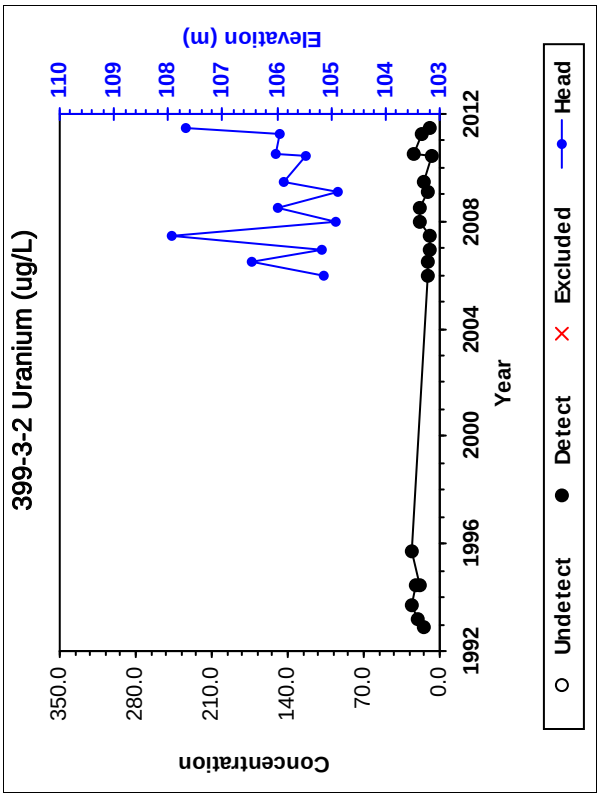

399-3-1 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

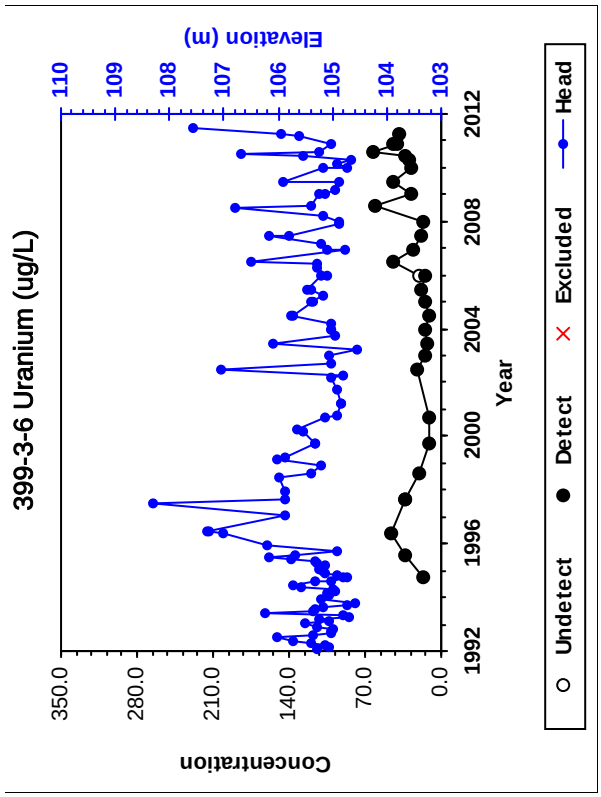

399-2-2 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

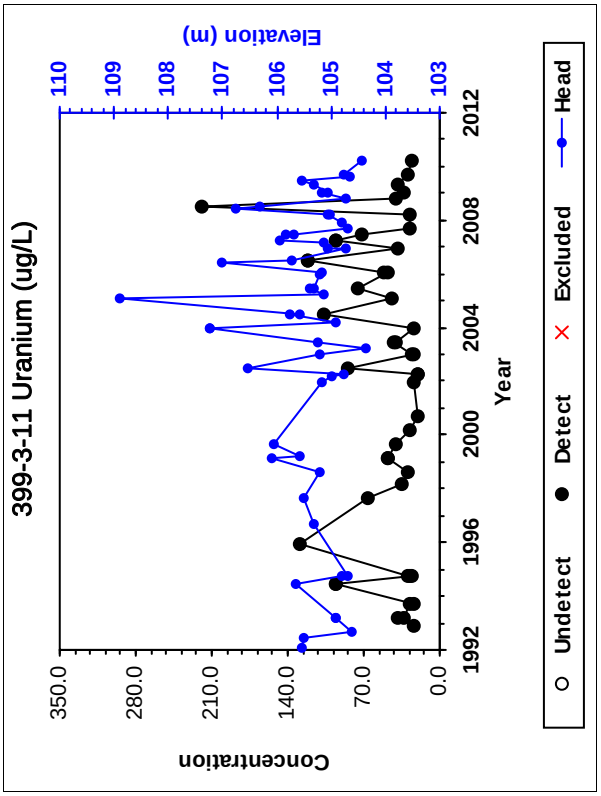

399-2-5 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

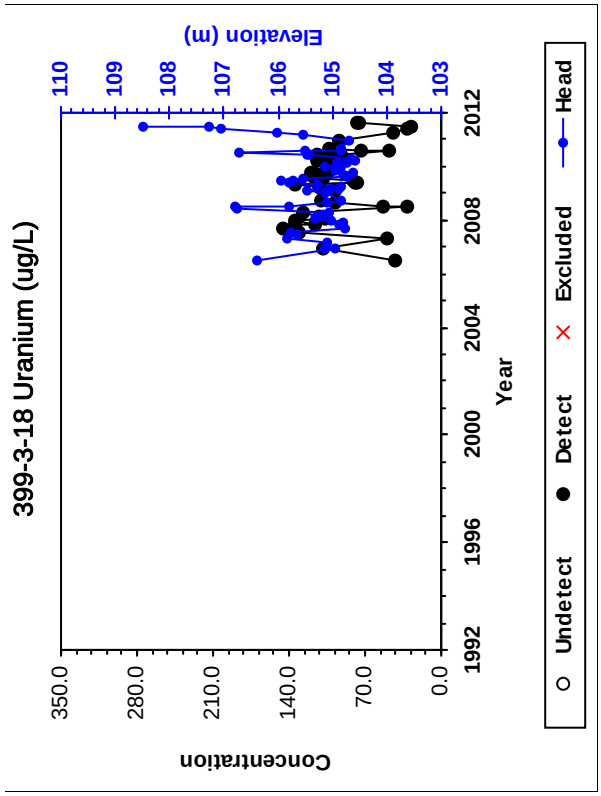

399-3-3 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

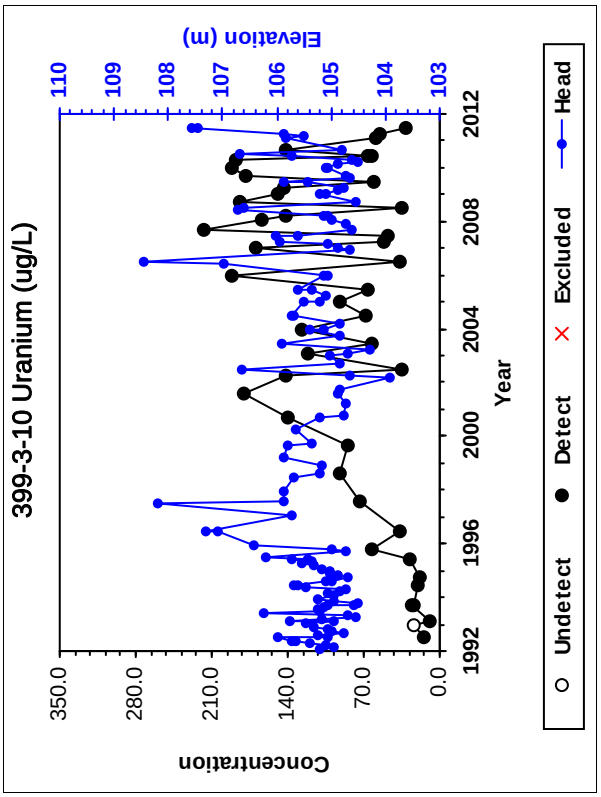

399-3-9 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

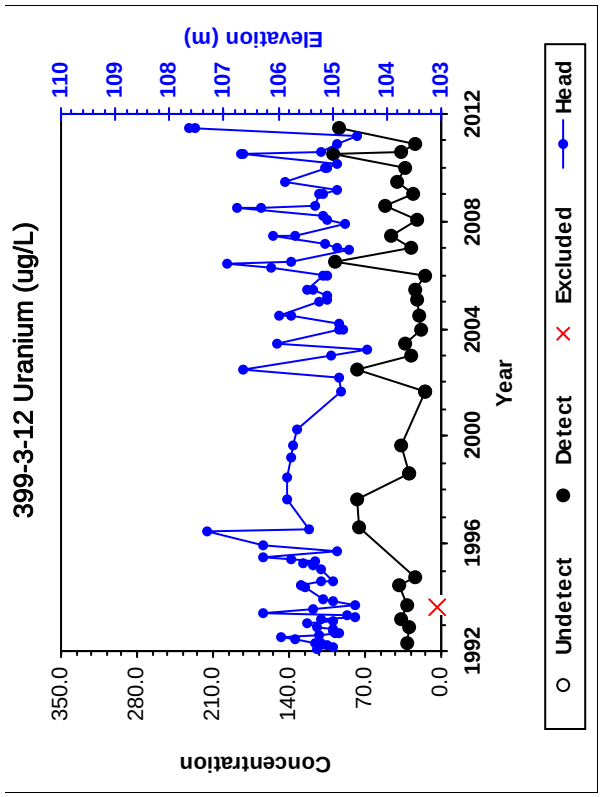

399-3-2 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

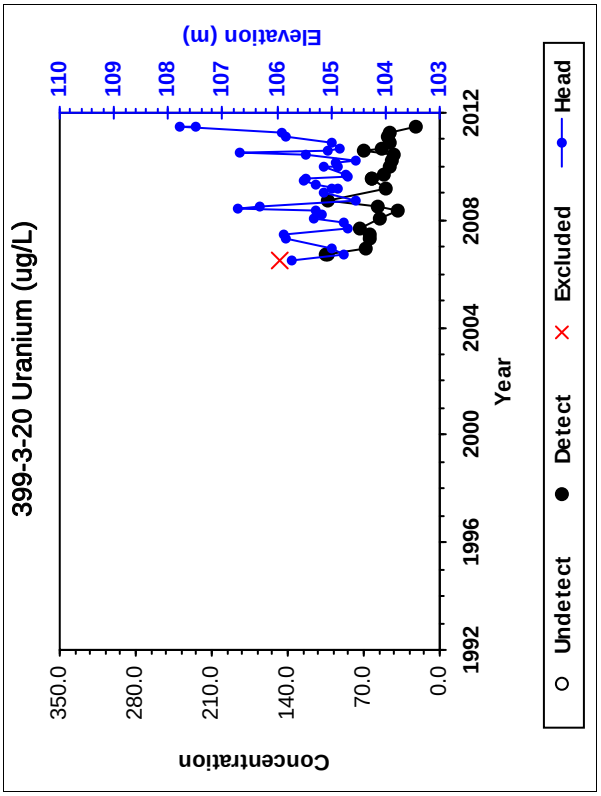

399-3-6 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

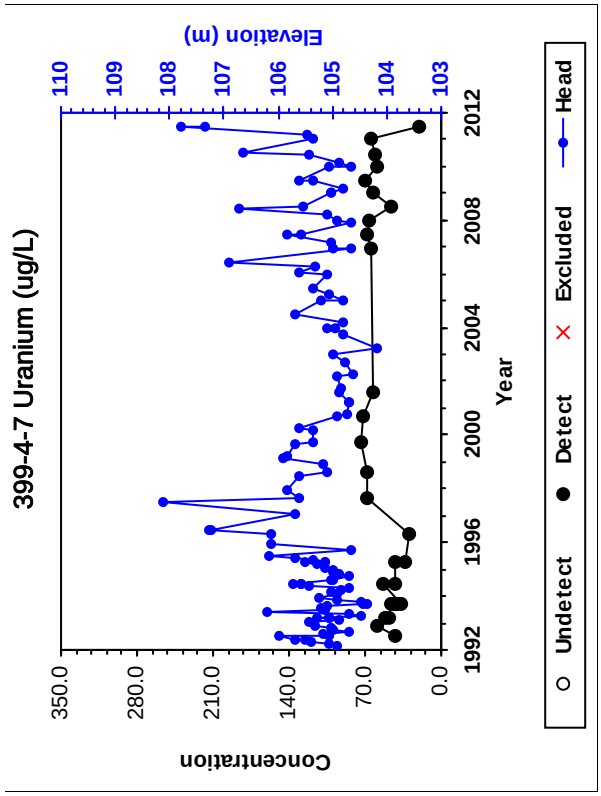

399-3-11 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

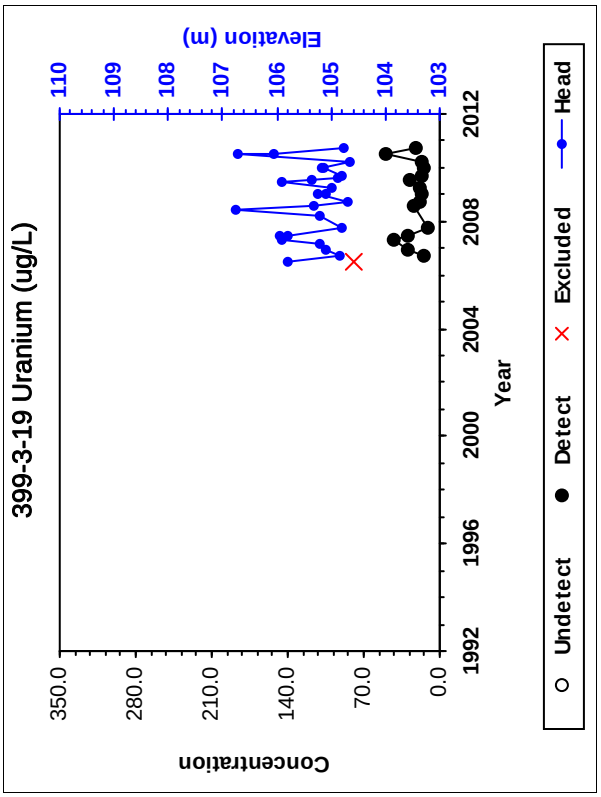

399-3-18 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

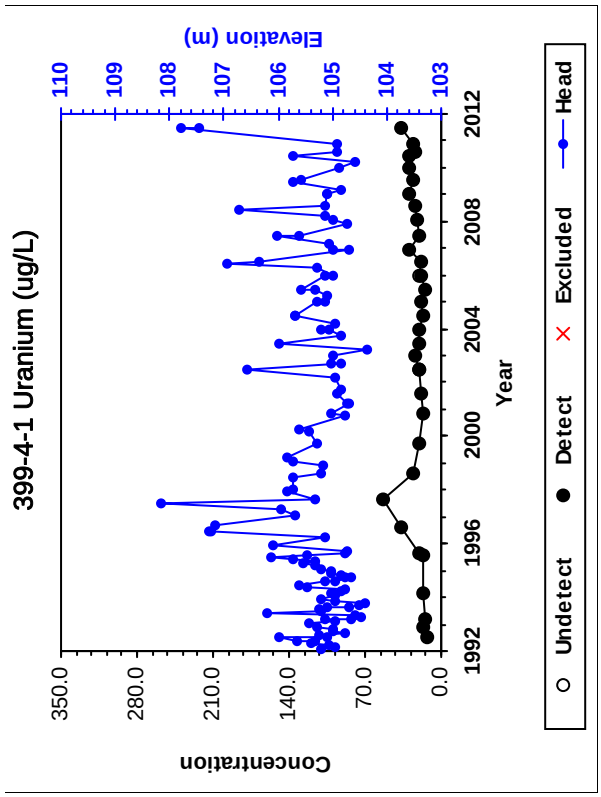

399-3-10 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

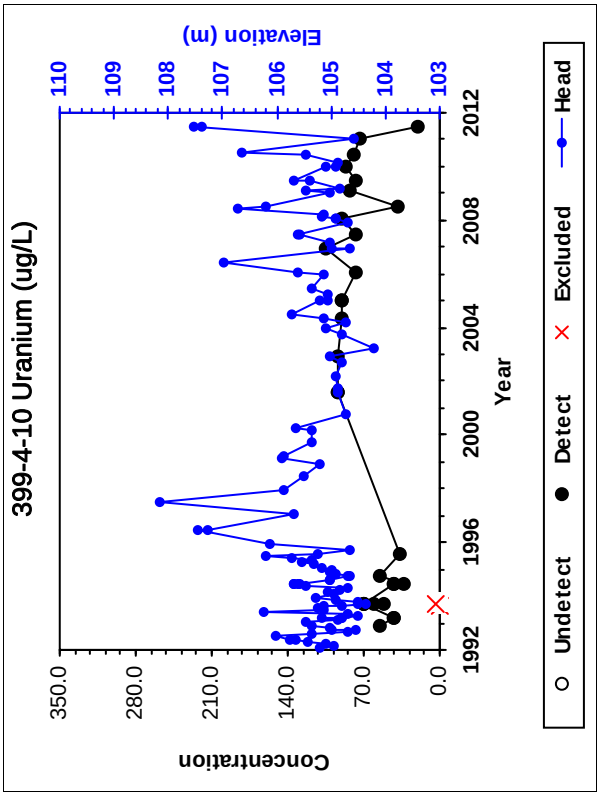

399-3-12 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

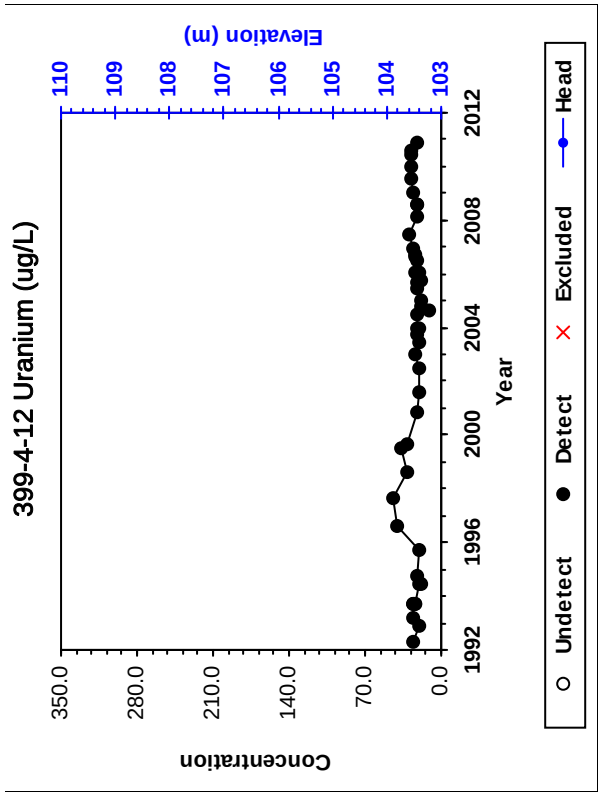

399-3-20 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

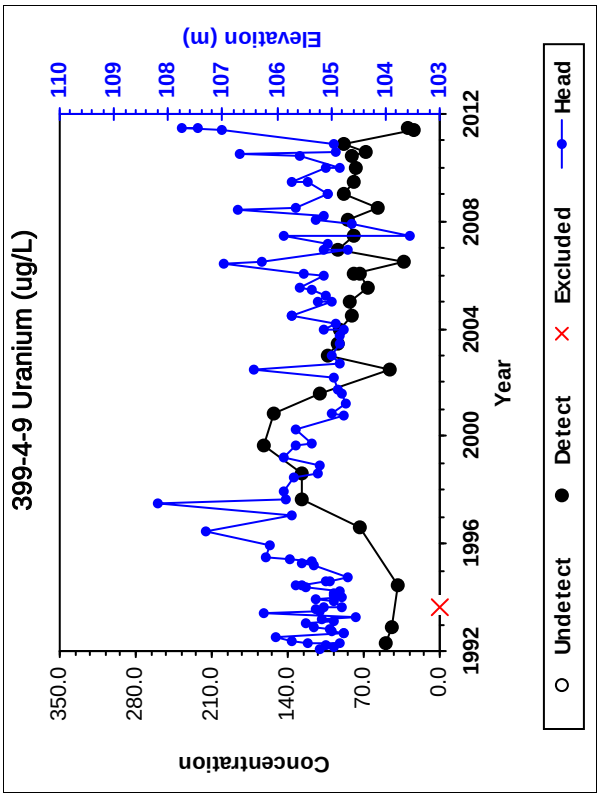

399-4-7 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

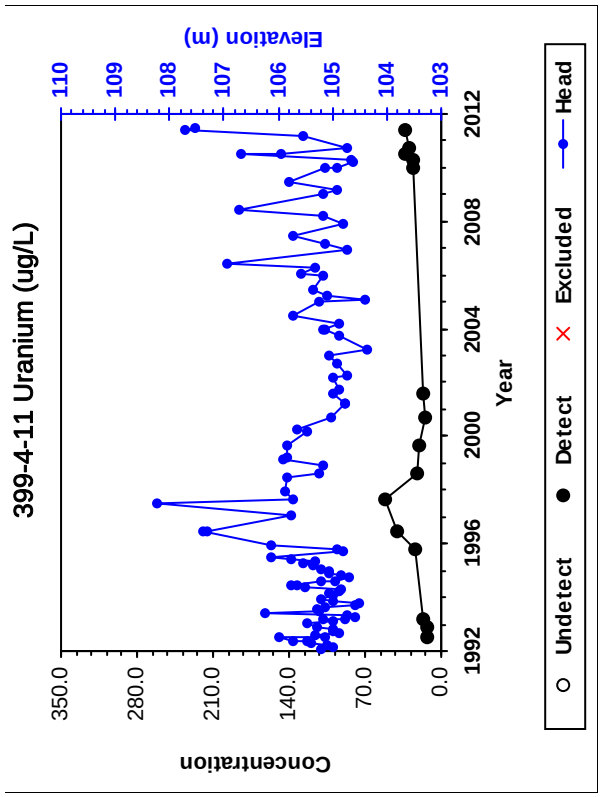

399-3-19 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

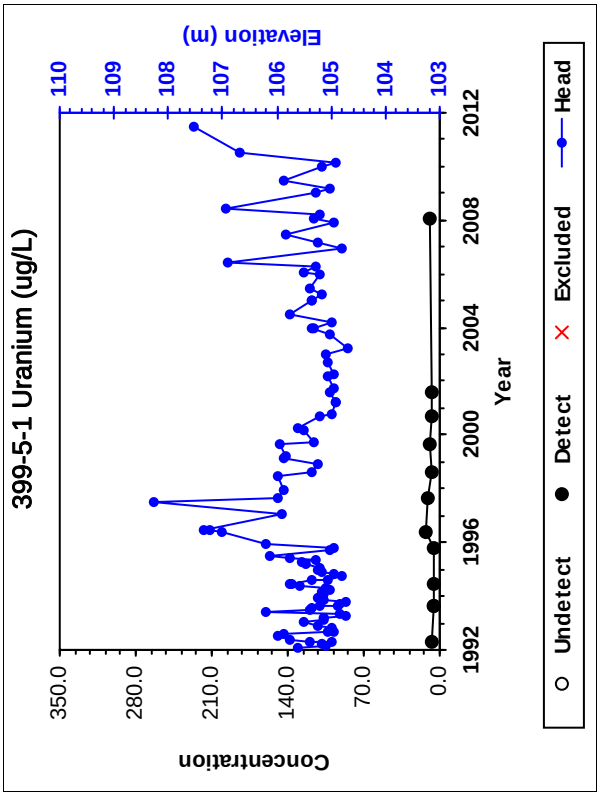

399-4-1 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

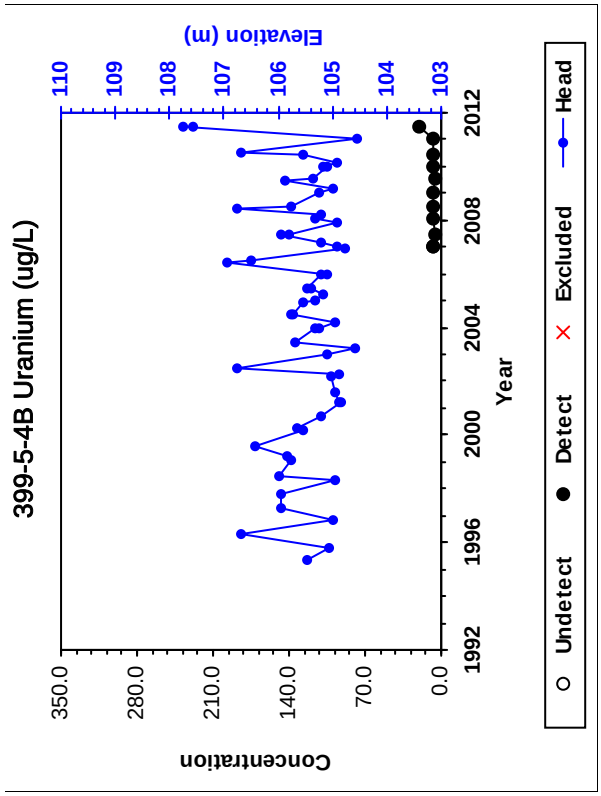

399-4-10 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

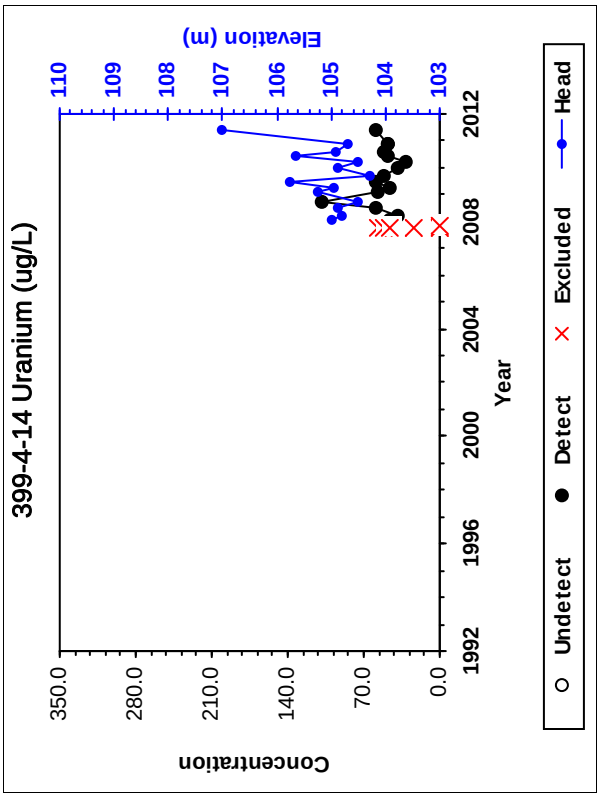

399-4-12 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

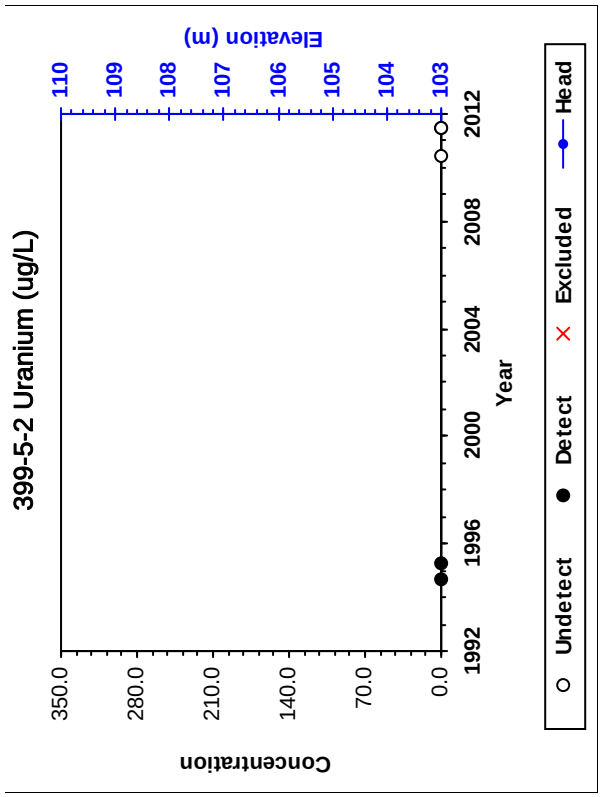

399-4-9 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

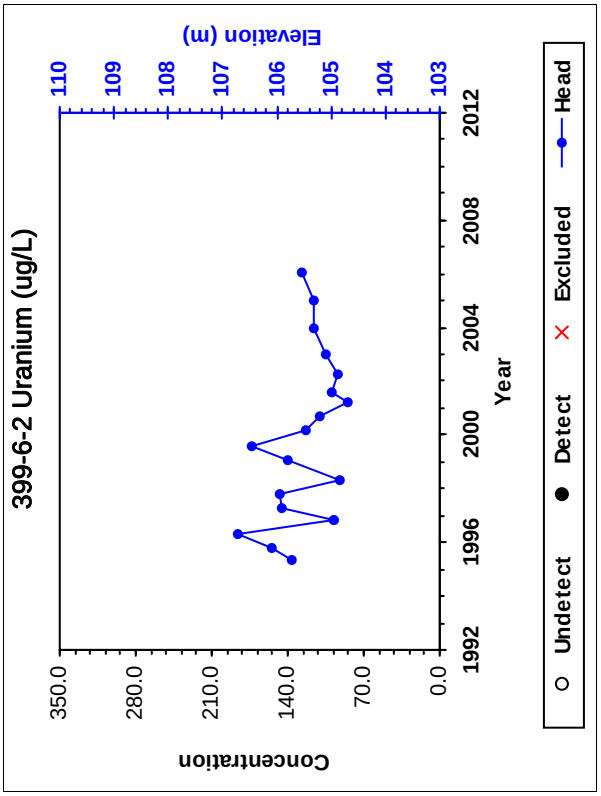

399-4-11 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

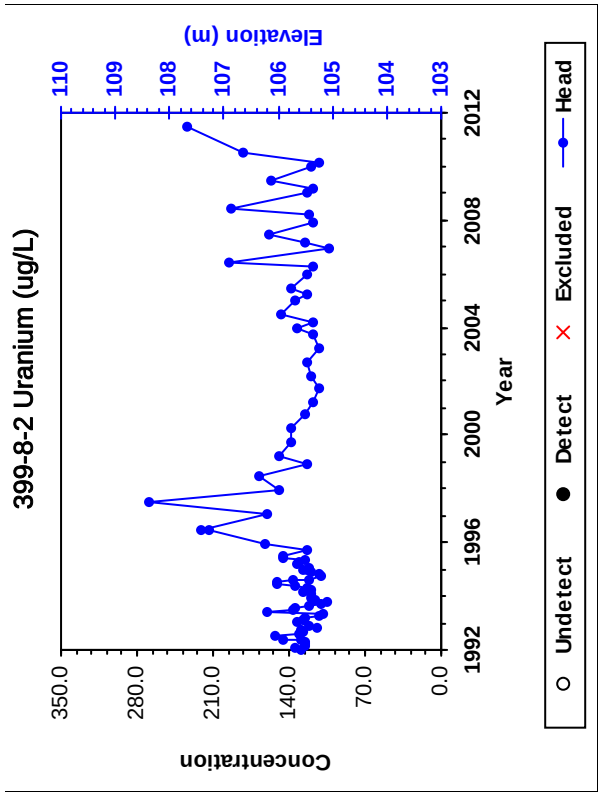

399-5-1 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

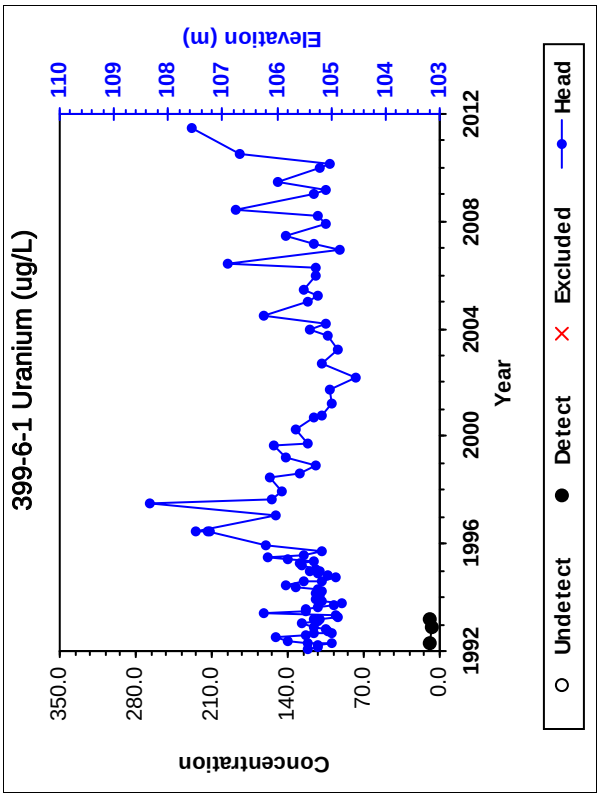

399-5-4B Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

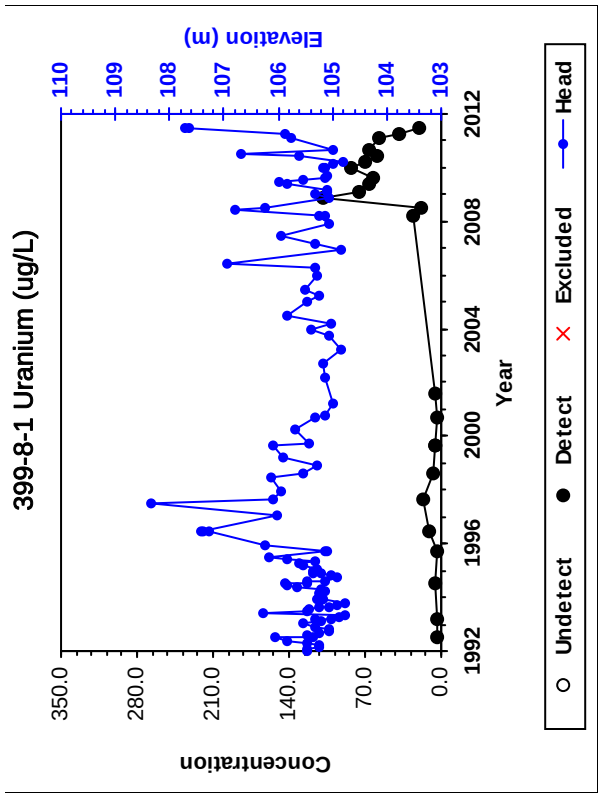

399-4-14 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

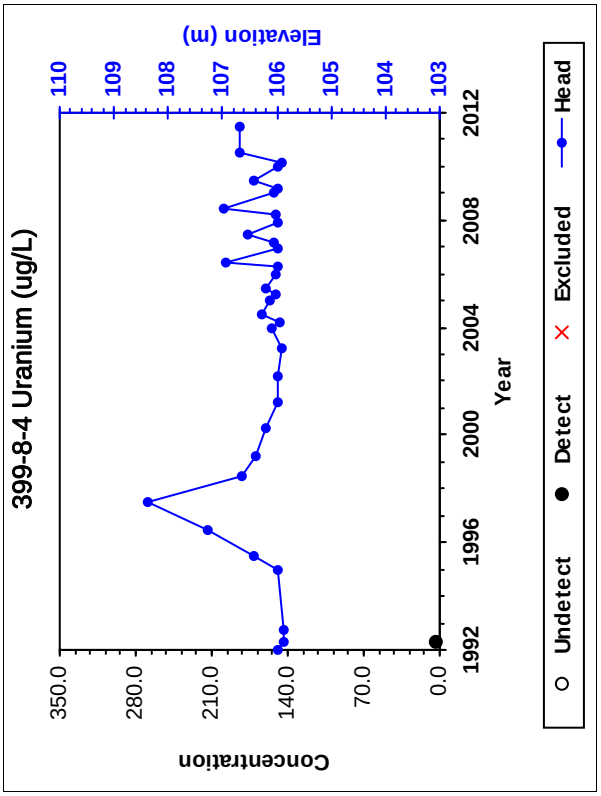

399-5-2 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

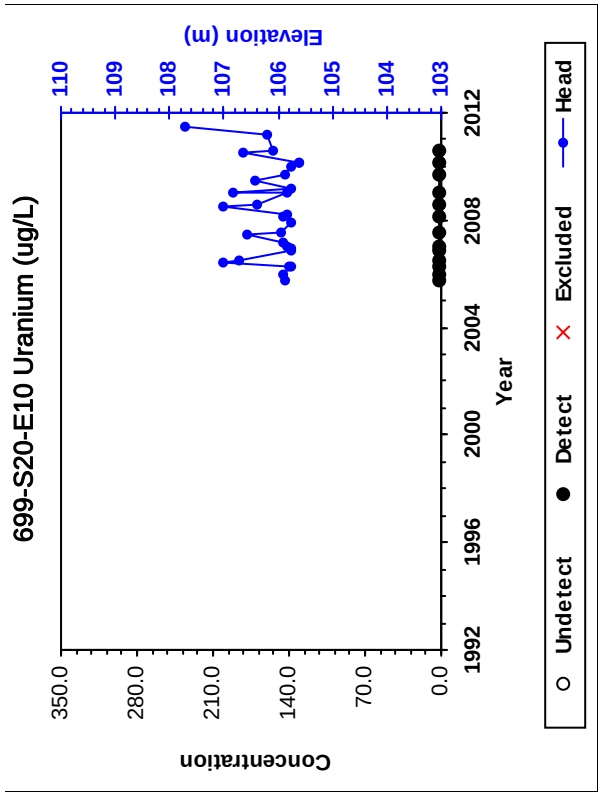

399-6-2 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

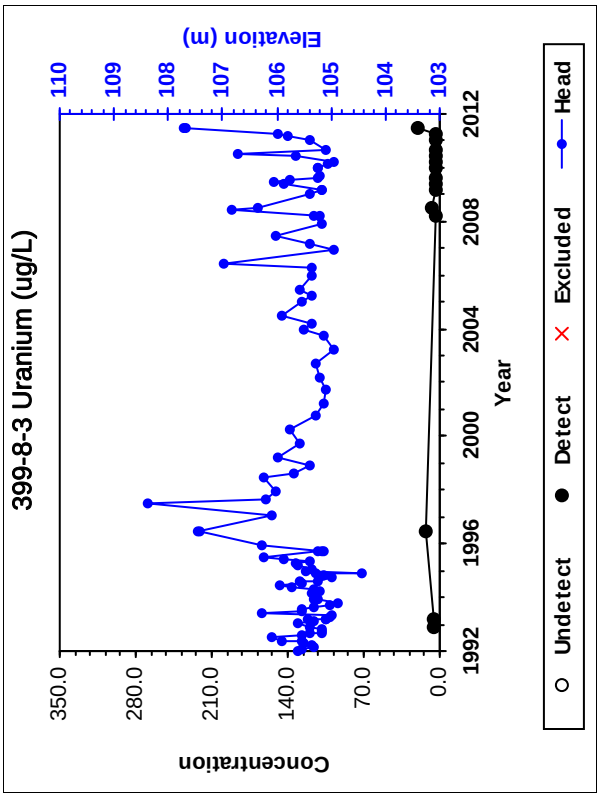

399-8-2 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

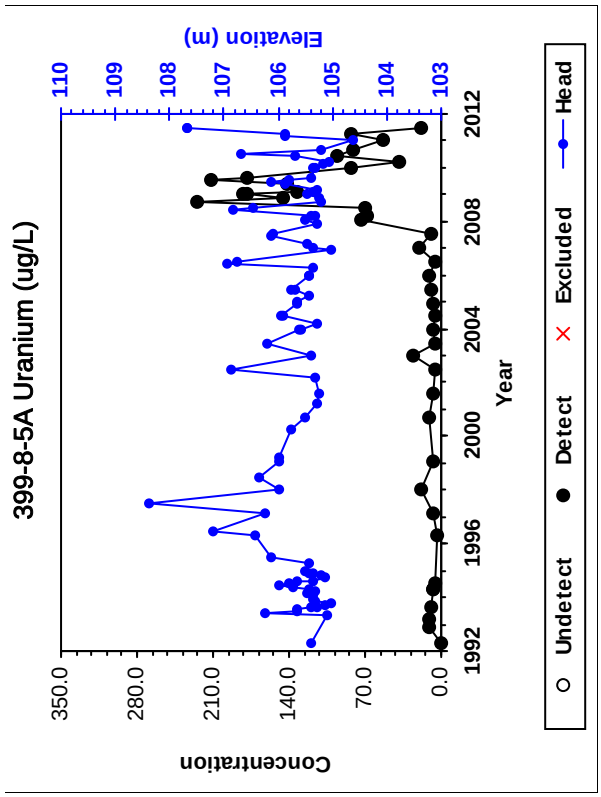

399-6-1 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

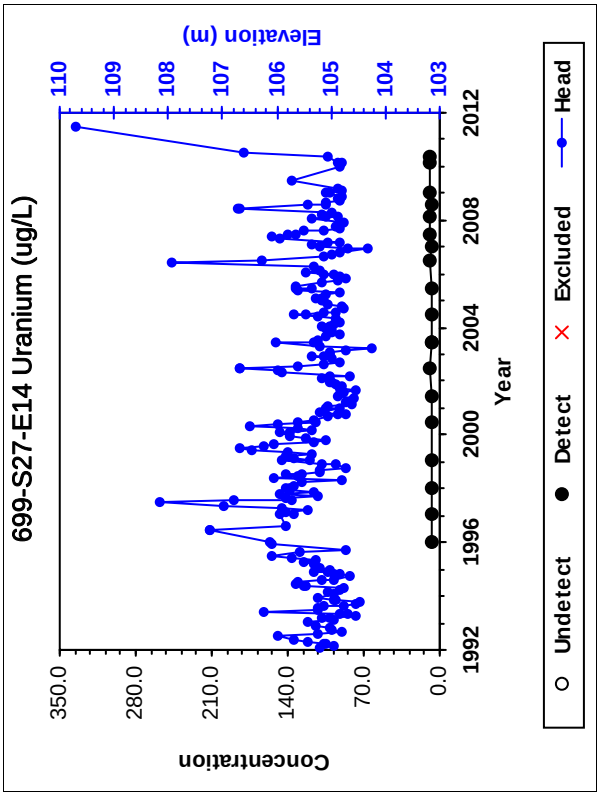

399-8-1 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head

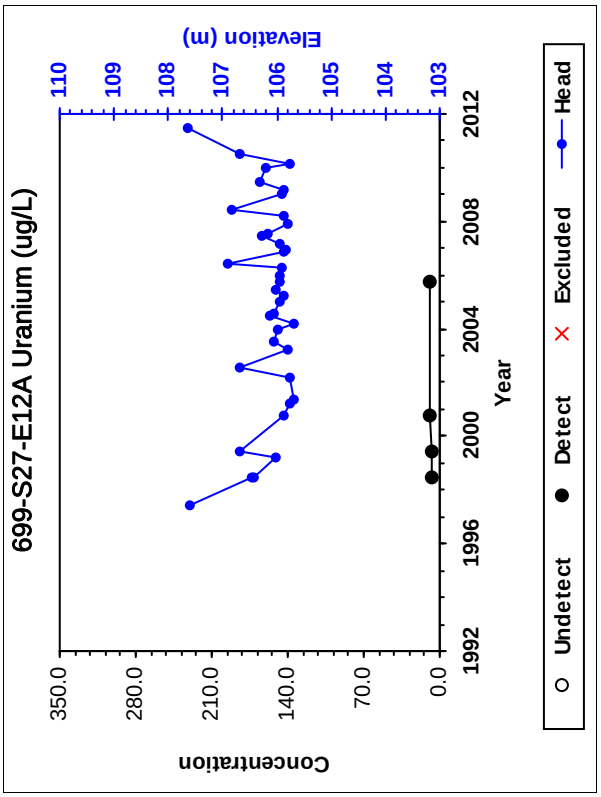

399-8-4 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head


699-S20-E10 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head


399-8-3 Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head


399-8-5A Uranium (ug/L)
Concentration
Elevation (m)
Year
350.0
280.0
210.0
140.0
70.0
0.0
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Undetect
Detect
Excluded
Head


699-S27-E14 Uranium (ug/L)
Concentration
350.0
280.0
210.0
140.0
70.0
0.0
Elevation (m)
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Year
Undetect
Detect
Excluded
Head


699-S27-E12A Uranium (ug/L)
Concentration
350.0
280.0
210.0
140.0
70.0
0.0
Elevation (m)
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Year
Undetect
Detect
Excluded
Head

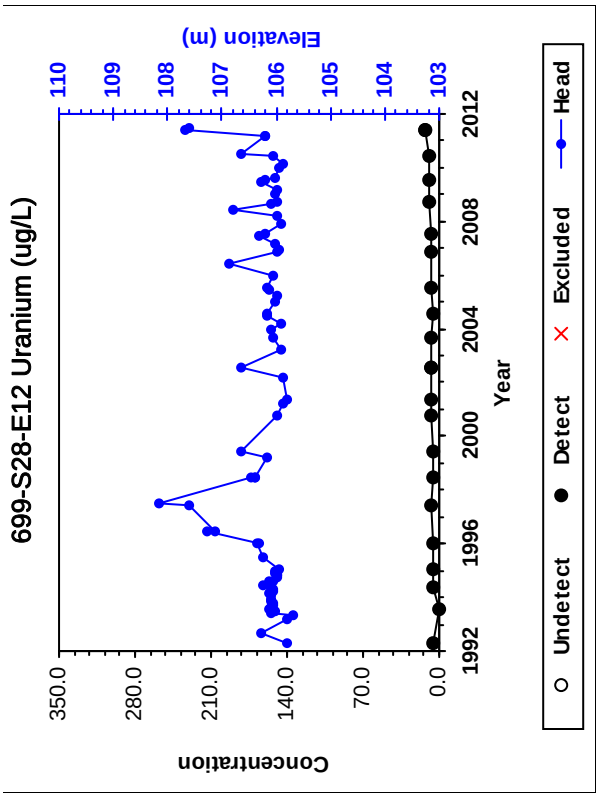

699-S28-E12 Uranium (ug/L)
Concentration
350.0
280.0
210.0
140.0
70.0
0.0
Elevation (m)
110
109
108
107
106
105
104
103
1992
1996
2000
2004
2008
2012
Year
Undetect
Detect
Excluded
Head

Table E-1. Analytes Detected Above Background in Soil Samples Used for Waste Site Reclassification in 300 Area.

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]		300 Area Target Analytes[c]																																								
		Shallow Zone	Deep Zone	Am-241	Cs-137	Co-60	H-3	Pu-238	Pu-239/240	Pu-241	Sr-90	U-233/234	U-235	U-238	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Nickel	Selenium	Silver	Strontium	Tin	Thallium	Uranium	Zinc	Mercury	Aroclor-1016	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Chloroform	Hexachloroethane	Hexachlorobutadiene	Methyl isobutyl ketone (hexone)	Methyl ethyl ketone	Toluene	Tetrachloroethene	Trichloroethene
Waste Sites Reclassified as Interim Closed or Closed Out																																												
4843	RCRA closure	--[d]	--[d]																																									
300 ASH PITS	98-004	Yes	No													S												S						S										
300 RFBP 300-262 316-1 UPR-300-32 UPR-300-33 UPR-300-34 UPR-300-35 UPR-300-36 UPR-300-37 UPR-300-FF-1	CVP-2003-00002	Yes	No			S						S	S	S																				S	S									
300 SE	98-080	--[d]	--[d]																																									
300-10	99-105	Yes	No									S	S	S		S																												
300-19	98-063	--[d]	--[d]																																									
300-223	2001-042	Yes	No																																									
300-23	NA	Yes	No																																									
300-231	99-038	--[d]	--[d]																																									
300-272	2002-049	Yes	No																																									
300-35	99-003	--[d]	--[d]																																									
300-37	98-231	Yes	No																																S	S								
300-44	99-109	Yes	No													S																												
300-45	99-110	Yes	No									S		S																														
300-49	CVP-2000-00020	Yes	No									S																							S									
300-50	CVP-2000-00021	Yes	No									S	S	S		S																			S	S								
300-53	99-014	--[d]	--[d]																																									
300-57	98-174	--[d]	--[d]																																									
303-K CWS	2003-031	--[d]	--[d]																																									
304 CF	99-094	--[d]	--[d]																																									
304 SA	2001-001	--[d]	--[d]																																									
305-B SF	2008-051	--[d]	--[d]																																									
311 MT1	99-006	--[d]	--[d]																																									
311 MT2	99-007	--[d]	--[d]																																									
311-TK-40	2001-100	--[d]	--[d]																																									
311-TK-50	2001-101	--[d]	--[d]																																									
313 CENTRIFUGE	2001-102	--[d]	--[d]																																									
313 FP	2001-103	--[d]	--[d]																																									
313 MT	99-008	--[d]	--[d]																																									

Table E-1. Analytes Detected Above Background in Soil Samples Used for Waste Site Reclassification in 300 Area.

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]		300 Area Target Analytes[c]																																								
		Shallow Zone	Deep Zone	Am-241	Cs-137	Co-60	H-3	Pu-238	Pu-239/240	Pu-241	Sr-90	U-233/234	U-235	U-238	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Nickel	Selenium	Silver	Strontium	Tin	Thallium	Uranium	Zinc	Mercury	Aroclor-1016	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Chloroform	Hexachloroethane	Hexachlorobutadiene	Methyl isobutyl ketone (hexone)	Methyl ethyl ketone	Toluene	Tetrachloroethene	Trichloroethene
313 URO	99-016	--[d]	--[d]																																									
313-TK-2	2001-104	--[d]	--[d]																																									
316-2 618-12 UPR-300-7	99-050	Yes	No			S						S	S	S																				S	S	S								
316-5 UPR-300-8 UPR-300-9 UPR-300-15 UPR-300-19 UPR-300-20 UPR-300-21 UPR-300-22 UPR-300-23 UPR-300-24 UPR-300-25 UPR-300-26 UPR-300-27 UPR-300-28 UPR-300-29 UPR-300-30 UPR-300-47	99-108	Yes	No			S						S	S	S		S																		S	S	S								
332 SF	98-062	--[d]	--[d]																																									
333-TK-11	2001-105	--[d]	--[d]																																									
333-TK-7	2001-109	--[d]	--[d]																																									
334 TFWAST	2001-106	--[d]	--[d]																																									
334-A-TK-B	2001-107	--[d]	--[d]																																									
334-A-TK-C	2001-108	--[d]	--[d]																																									
3718-F BS	98-085	--[d]	--[d]																																									
3718-F SF	98-086	--[d]	--[d]																																									
3718-F TT1	98-087	--[d]	--[d]																																									
3718-F TT2	98-088	--[d]	--[d]																																									
400-31	NA	--[d]	--[d]																																									
400-5	NA	--[d]	--[d]																																									
427 HWSA	NA	--[d]	--[d]																																									
4831 LHWSA	NA	--[d]	--[d]																																									
600-278	2003-054	--[d]	--[d]																																									
600-46	98-097	--[d]	--[d]																																									
618-4	CVP-2003-00020	Yes	Yes									S,D	S,D	S,D								S																		S				
618-9	98-075	Yes	No									S		S																							S	S	S	S		S	S	S

Table E-1. Analytes Detected Above Background in Soil Samples Used for Waste Site Reclassification in 300 Area.

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]		300 Area Target Analytes[c]																																								
		Shallow Zone	Deep Zone	Am-241	Cs-137	Co-60	H-3	Pu-238	Pu-239/240	Pu-241	Sr-90	U-233/234	U-235	U-238	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Nickel	Selenium	Silver	Strontium	Tin	Thallium	Uranium	Zinc	Mercury	Aroclor-1016	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Chloroform	Hexachloroethane	Hexachlorobutadiene	Methyl isobutyl ketone (hexone)	Methyl ethyl ketone	Toluene	Tetrachloroethene	Trichloroethene
628-4	CVP-2003-00001	Yes	No																			S						S					S	S	S										
BTTF	98-073	--[d]	--[d]																																									
PCTTF	98-074	--[d]	--[d]																																									
TTTF	98-072	--[d]	--[d]																																									
UPR-300-41	99-011	--[d]	--[d]																																									
UPR-600-11	98-215	--[d]	--[d]																																									
300 VTS	CVP-2005-00009	Yes	No		S																																							
300-109 UPR-300-46	CVP-2010-00004	Yes	No		S							S	S	S													S							S	S									
300-110 303-M SA 303-M UOF 333 LHWSA 333 ESHWSA 618-1 618-1:1 618-1:2 UPR-300-13 UPR-300-14	CVP-2010-00001	Yes	Yes			D						S,D	S,D	S,D			D		D	S,D	S,D	D			S,D				S,D	S,D	D			S	S,D	S,D								
300-18	CVP-2005-00004	Yes	No																																									
300-259	2009-059	Yes	No									S		S																S														
300-275	2008-059	Yes	No		S							S	S	S							S					S	S																	
300-33 300-41 300-256	2010-058	Yes	No									S	S	S											S				S		S	S	S	S	S									
300-8	CVP-2005-00007	Yes	No																																									
600-243	2007-033	Yes	No														S	S	S		S	S	S	S						S					S	S								
600-259:1 600-259:2	CVP-2005-00008	Yes	No		S																																							
600-290:1 618-13	CVP-2009-00005	Yes	No																																									
600-47	CVP-2005-00005	Yes	No									S		S																														
618-2	CVP-2006-00010	Yes	Yes	S,D	S,D		S	D	S,D	D	D	S,D	S,D	S,D										S,D			S,D		S,D						S									
618-3	CVP-2006-00005	Yes	No									S	S	S																														
618-5	CVP-2003-00021	Yes	Yes									S,D	S,D	S,D								D																						
618-7	CVP-2008-00002	Yes	No		S							S	S	S					S	S	S		S				S	S						S	S									
618-8	CVP-2006-00006	Yes	No																					S																				
JA JONES 1	CVP-2001-00019	Yes	No																			S																						
UPR-300-17	2010-014	Yes	No									S	S	S								S	S							S				S	S	S								
Waste Sites Reclassified as No Action																																												

Table E-1. Analytes Detected Above Background in Soil Samples Used for Waste Site Reclassification in 300 Area.

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]		300 Area Target Analytes[c]																																									
		Shallow Zone	Deep Zone	Am-241	Cs-137	Co-60	H-3	Pu-238	Pu-239/240	Pu-241	Sr-90	U-233/234	U-235	U-238	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Copper	Lead	Nickel	Selenium	Silver	Strontium	Tin	Thallium	Uranium	Zinc	Mercury	Aroclor-1016	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Chloroform	Hexachloroethane	Hexachlorobutadiene	Methyl isobutyl ketone (hexone)	Methyl ethyl ketone	Toluene	Tetrachloroethene	Trichloroethene
300 FBP:1	98-005	--[d]	--[d]																																										
300 FBP:2	2000-116	--[d]	--[d]																																										
300-1	98-081	--[d]	--[d]																																										
300-253	99-042	--[d]	--[d]																																										
300-260	2010-074	Yes	No										S	S							S	S								S															
300-29	NA	--[d]	--[d]																																										
300-3	NA	--[d]	--[d]																																										
300-51	NA	--[d]	--[d]																																										
300-52	NA	--[d]	--[d]																																										
331 LSLDF	2008-020	Yes	No												S		S		S	S	S	S		S	S					S	S				S										
400-36	2004-102	--[d]	--[d]																																										
600-22	98-219	--[d]	--[d]																																										
UPR-600-15	2004-097	--[d]	--[d]																																										

[b] Shallow zone decision units sampled for reclassification include excavated areas generally 15 ft. or less bgs, overburden or below cleanup level soil stockpile, and/or waste staging area footprints, as needed for specific remediation area. For No Action reclassification, data from confirmatory samples collected less than 15 ft. bgs are considered shallow zone. Deep zone decision units are always located greater than 15 ft bgs.

[c] Radiological results evaluated based on original data without accounting for subsequent decay.

[d] No soil samples were obtained for waste site reclassification.

bgs = below ground surface
CVP = closeout verification package
D = analyte detected or detected above background in soil data from deep zone decision unit(s) used to support site reclassification
S = analyte detected or detected above background in soil data from shallow zone decision unit(s) used to support site reclassification
TPH = total petroleum hydrocarbons
WSRF = waste site reclassification form

Table E-1. Analytes Detected Above Background in Soil Samples Us

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]								Other Analytes[c]																																		
		Shallow Zone	Deep Zone	Butylbenzylphthalate	Bis(2-ethylhexyl) phthalate	Benzo(a)pyrene	Chrysene	Phenanthrene	TPH	Boron	Molybdenum	Titanium	Chloride	Fluroide	Nitrate	Sulfate	1,1,2,2-tetrachloroethene	Acetone	Methylene chloride	Di-n-butyl phthalate	Isophorone	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(ghi)pherylene	Benzo(k)fluoranthene	Dibenzofuran	Dibenz(a,h)anthracene	Fluorene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Naphthalene	Pyrene	Aldrin	alpha-BHC	gamma-BHC	delta-BHC	4,4'-DDE	Endrin (aldehyde, ketone)	Ensodulfan (I, II, sulfate)	Heptachlor epoxide	Methoxychlor
Waste Sites Reclassified as Interim Closed or Closed Out																																												
4843	RCRA closure	--[d]	--[d]																																									
300 ASH PITS	98-004	Yes	No																																									
300 RFBP 300-262 316-1 UPR-300-32 UPR-300-33 UPR-300-34 UPR-300-35 UPR-300-36 UPR-300-37 UPR-300-FF-1	CVP-2003-00002	Yes	No																																									
300 SE	98-080	--[d]	--[d]																																									
300-10	99-105	Yes	No																																									
300-19	98-063	--[d]	--[d]																																									
300-223	2001-042	Yes	No						S																																			
300-23	NA	Yes	No						S																																			
300-231	99-038	--[d]	--[d]																																									
300-272	2002-049	Yes	No						S																																			
300-35	99-003	--[d]	--[d]																																									
300-37	98-231	Yes	No																																									
300-44	99-109	Yes	No																																									
300-45	99-110	Yes	No																																									
300-49	CVP-2000-00020	Yes	No																																									
300-50	CVP-2000-00021	Yes	No																																									
300-53	99-014	--[d]	--[d]																																									
300-57	98-174	--[d]	--[d]																																									
303-K CWS	2003-031	--[d]	--[d]																																									
304 CF	99-094	--[d]	--[d]																																									
304 SA	2001-001	--[d]	--[d]																																									
305-B SF	2008-051	--[d]	--[d]																																									
311 MT1	99-006	--[d]	--[d]																																									
311 MT2	99-007	--[d]	--[d]																																									
311-TK-40	2001-100	--[d]	--[d]																																									
311-TK-50	2001-101	--[d]	--[d]																																									
313 CENTRIFUGE	2001-102	--[d]	--[d]																																									
313 FP	2001-103	--[d]	--[d]																																									
313 MT	99-008	--[d]	--[d]																																									

Table E-1. Analytes Detected Above Background in Soil Samples Us

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]								Other Analytes[c]																																		
		Shallow Zone	Deep Zone	Butylbenzylphthalate	Bis(2-ethylhexyl) phthalate	Benzo(a)pyrene	Chrysene	Phenanthrene	TPH	Boron	Molybdenum	Titanium	Chloride	Fluroide	Nitrate	Sulfate	1,1,2,2-tetrachloroethene	Acetone	Methylene chloride	Di-n-butyl phthalate	Isophorone	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(ghi)pherylene	Benzo(k)fluoranthene	Dibenzofuran	Dibenz(a,h)anthracene	Fluorene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Naphthalene	Pyrene	Aldrin	alpha-BHC	gamma-BHC	delta-BHC	4,4'-DDE	Endrin (aldehyde, ketone)	Ensodulfan (I, II, sulfate)	Heptachlor epoxide	Methoxychlor
313 URO	99-016	--[d]	--[d]																																									
313-TK-2	2001-104	--[d]	--[d]																																									
316-2 618-12 UPR-300-7	99-050	Yes	No																																									
316-5 UPR-300-8 UPR-300-9 UPR-300-15 UPR-300-19 UPR-300-20 UPR-300-21 UPR-300-22 UPR-300-23 UPR-300-24 UPR-300-25 UPR-300-26 UPR-300-27 UPR-300-28 UPR-300-29 UPR-300-30 UPR-300-47	99-108	Yes	No				**S**																																					
332 SF	98-062	--[d]	--[d]																																									
333-TK-11	2001-105	--[d]	--[d]																																									
333-TK-7	2001-109	--[d]	--[d]																																									
334 TFWAST	2001-106	--[d]	--[d]																																									
334-A-TK-B	2001-107	--[d]	--[d]																																									
334-A-TK-C	2001-108	--[d]	--[d]																																									
3718-F BS	98-085	--[d]	--[d]																																									
3718-F SF	98-086	--[d]	--[d]																																									
3718-F TT1	98-087	--[d]	--[d]																																									
3718-F TT2	98-088	--[d]	--[d]																																									
400-31	NA	--[d]	--[d]																																									
400-5	NA	--[d]	--[d]																																									
427 HWSA	NA	--[d]	--[d]																																									
4831 LHWSA	NA	--[d]	--[d]																																									
600-278	2003-054	--[d]	--[d]																																									
600-46	98-097	--[d]	--[d]																																									
618-4	CVP-2003-00020	Yes	Yes						**S,D**																																			
618-9	98-075	Yes	No	**S**	**S**			**S**							**S**		**S**	**S**	**S**	**S**																									

Table E-1. Analytes Detected Above Background in Soil Samples Us

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]								Other Analytes[c]																																		
		Shallow Zone	Deep Zone	Butylbenzylphthalate	Bis(2-ethylhexyl) phthalate	Benzo(a)pyrene	Chrysene	Phenanthrene	TPH	Boron	Molybdenum	Titanium	Chloride	Fluroide	Nitrate	Sulfate	1,1,2,2-tetrachloroethene	Acetone	Methylene chloride	Di-n-butyl phthalate	Isophorone	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(ghi)pherylene	Benzo(k)fluoranthene	Dibenzofuran	Dibenz(a,h)anthracene	Fluorene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Naphthalene	Pyrene	Aldrin	alpha-BHC	gamma-BHC	delta-BHC	4,4'-DDE	Endrin (aldehyde, ketone)	Ensodulfan (I, II, sulfate)	Heptachlor epoxide	Methoxychlor
628-4	CVP-2003-00001	Yes	No																																									
BTTF	98-073	--[d]	--[d]																																									
PCTTF	98-074	--[d]	--[d]																																									
TTTF	98-072	--[d]	--[d]																																									
UPR-300-41	99-011	--[d]	--[d]																																									
UPR-600-11	98-215	--[d]	--[d]																																									
300 VTS	CVP-2005-00009	Yes	No																																									
300-109 UPR-300-46	CVP-2010-00004	Yes	No			S	S	S		S	S													S		S	S	S	S		S	S	S	S	S	S									
300-110 303-M SA 303-M UOF 333 LHWSA 333 ESHWSA 618-1 618-1:1 618-1:2 UPR-300-13 UPR-300-14	CVP-2010-00001	Yes	Yes							S,D	S,D			D		D																												
300-18	CVP-2005-00004	Yes	No																																									
300-259	2009-059	Yes	No							S	S																																	
300-275	2008-059	Yes	No			S	S	S		S	S													S			S	S				S	S											
300-33 300-41 300-256	2010-058	Yes	No	S						S	S								S																									
300-8	CVP-2005-00007	Yes	No																																									
600-243	2007-033	Yes	No			S	S	S	S	S	S									S		S			S	S	S	S	S	S			S	S	S	S									
600-259:1 600-259:2	CVP-2005-00008	Yes	No																																									
600-290:1 618-13	CVP-2009-00005	Yes	No							S	S							S																										
600-47	CVP-2005-00005	Yes	No																																									
618-2	CVP-2006-00010	Yes	Yes		S																																							
618-3	CVP-2006-00005	Yes	No																																									
618-5	CVP-2003-00021	Yes	Yes																																									
618-7	CVP-2008-00002	Yes	No		S	S	S	S	S											S				S		S	S	S	S		S		S			S									
618-8	CVP-2006-00006	Yes	No																																									
JA JONES 1	CVP-2001-00019	Yes	No																																									
UPR-300-17	2010-014	Yes	No			S	S	S	S	S	S												S	S	S	S	S	S	S			S	S	S		S									
Waste Sites Reclassified as No Action																																												

Table E-1. Analytes Detected Above Background in Soil Samples Us

Waste site(s)	CVP/WSRF Number	Waste Site-Specific Decision Unit(s) Sampled for Reclassification[b]								Other Analytes[c]																																			
		Shallow Zone	Deep Zone	Butylbenzylphthalate	Bis(2-ethylhexyl) phthalate	Benzo(a)pyrene	Chrysene	Phenanthrene	TPH	Boron	Molybdenum	Titanium	Chloride	Fluroide	Nitrate	Sulfate	1,1,2,2-tetrachloroethene	Acetone	Methylene chloride	Di-n-butyl phthalate	Isophorone	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(ghi)pherylene	Benzo(k)fluoranthene	Dibenzofuran	Dibenz(a,h)anthracene	Fluorene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Naphthalene	Pyrene	Aldrin	alpha-BHC	gamma-BHC	delta-BHC	4,4'-DDE	Endrin (aldehyde, ketone)	Ensodulfan (I, II, sulfate)	Heptachlor epoxide	Methoxychlor
300 FBP:1	98-005	--[d]	--[d]																																										
300 FBP:2	2000-116	--[d]	--[d]																																										
300-1	98-081	--[d]	--[d]																																										
300-253	99-042	--[d]	--[d]																																										
300-260	2010-074	Yes	No								S																																		
300-29	NA	--[d]	--[d]																																										
300-3	NA	--[d]	--[d]																																										
300-51	NA	--[d]	--[d]																																										
300-52	NA	--[d]	--[d]																																										
331 LSLDF	2008-020	Yes	No	S	S					S	S							S	S	S	S															S	S	S	S	S	S	S	S	S
400-36	2004-102	--[d]	--[d]																																										
600-22	98-219	--[d]	--[d]																																										
UPR-600-15	2004-097	--[d]	--[d]																																										

[b] Shallow zone decision units sampled for reclassification include excavated area
remediation area. For No Action reclassification, data from confirmatory samples
[c] Radiological results evaluated based on original data without accounting for sub
[d] No soil samples were obtained for waste site reclassification.

bgs = below ground surface
CVP = closeout verification package
D = analyte detected or detected above background in soil data from deep zone
S = analyte detected or detected above background in soil data from shallow zon
TPH = total petroleum hydrocarbons
WSRF = waste site reclassification form

Appendix N

Previous Investigations

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Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Baseline Reports		
300-FF-1 Facility and Waste Characterization (1990)—Gather additional information on facility and waste characteristics for the 300-FF-1 OU by gathering and reporting: (1) meetings and onsite visits with current and past personnel having knowledge of operations in the operable unit, (2) a more precise determination of the location of the Process Sewer lines and Retired Radioactive Liquid Waste Sewer, (3) a better understanding of the phosphoric acid spill at the 340 Complex, and (4) a search for engineering plans and environmental reports related to the operable unit.	Provides additional information on facility and waste characteristics for the 300-FF-1 OU. The gathered and reported information includes meetings and onsite visits with current and past personnel having OU operations knowledge, a more precise determination for the Process Sewer lines and Retired Radioactive Liquid Waste Sewer location, a better understanding of the phosphoric acid spill at the 340 Complex, and a search for related OU engineering plans and environmental reports. This data-gathering effort resulted in recommendations for further investigation that include: (1) the 307 Trench characterization to determine the underlying groundwater uranium plume origin, (2) more extensive sampling of near-surface and dike sediments in the North and South Process Ponds to better define the horizontal contamination extent, and (3) possible leak detection in the abandoned Radioactive Waste Sewer by either electromagnetic induction or remote television camera inspection techniques.	*Data Compilation Task Report for the Source Investigation of the 300-FF-1 Operable Unit Phase I Remedial Investigation* (PNL-7241)
Additional Facility and Waste Characterization in 300-FF-1 (1991)—Gather additional information beyond what was presented in the *300-FF-1 Work Plan* (DOE/RL-88-13), including information on undesignated waste sites, process chemicals, and waste disposal practices. This involves conducting interviews with present and former personnel; inspecting old reports, drawings, and aerial photographs; and visiting sites.	The purpose of this document was to expand on facility information and waste characterization in the 300-FF-1 OU beyond what was presented in the *300-FF-1 Work Plan* (DOE/RL-88-13). It was recommended that geophysical surveys that include ground-penetrating radar (GPR), magnetometry, and metal detection be conducted in undesignated burial grounds, suspect areas, and any area that may be excavated in the future to ascertain the nature and location of buried debris. In addition, further investigation of spills from tank storage facilities is advised.	*Addendum to Data Compilation Task Report for the Source Investigation of the 300 FF-1 Operable Unit Phase I Remedial Investigations* (EMO-1026)
300 Area Facilities and Activities Data Compilation (1992)—Gathered data and information from historical 300 Area reports regarding facilities and activities within the 300 Area.	This report is a compilation of historical information of the 300 Area activities and facilities since 1943.	*Compilation of Historical Information of 300 Area Facilities and Activities* (WHC-MR-0388)
Data Compilation 618-11 Burial Ground (1993)—Compiled records dating back to 1962 on site use and inventory.	This report is a collection of site inventory, initial contaminant levels, and site history dating back to 1962.	*Miscellaneous Information Regarding Operation and Inventory of 618-11 Burial Ground* (WHC-MR-0416)
Data Compilation 618-10 Burial Ground (1993)—Compiled records dating back to 1962 on site use and inventory.	This report is a collection of site inventory, initial contaminant levels, and site history.	*Miscellaneous Information Regarding Operation and Inventory of 618-10 Burial Ground* (WHC-MR-0415)
Technical Baseline and Characterization (1994)—Waste sites described in this document include structures, contaminated equipment and facilities, waste distribution systems, French drains, solid waste burial grounds, septic tanks, drainfields, unplanned releases, trenches, and other types of sites.	This report provides a technical baseline and characterization of waste sites located in the 300-FF-2 OU and results from an environmental investigation undertaken by the Bechtel Hanford, Inc. (BHI) History Office in support of the Environmental Restoration Engineering Function.	*300-FF-2 Operable Unit Technical Baseline Report* (BHI-00012)
Construction and Completion Summary (1994)—This report contains documentation of remediation and decommissioning activities for existing wells in the 300-FF-5 OU. It also includes summaries of construction data for newly constructed wells drilled during the 300-FF-5 Phase I Remedial Investigation.	This report is a compilation of "as-built" well documents as well as construction data tabulated from driller or geologist logs for wells in the 300 Area up to 1994.	*Summaries of Well Construction Data and Field Observations for Existing 300-FF-5 Operable Unit Resource Protection Wells* (WHC-SD-ER-TI-004)
TCLP Data (1995)—Toxicity Characteristic Leaching Procedure (TCLP) tests were performed on two samples (B01038 and B01044) collected from the 300 Area Process Trenches during the expedited response action conducted in 1991.	Splits were taken of samples B01038 and B01044 for TCLP analysis during the expedited response action taken at the 300 Area Process Trenches in 1991. Specific sample location information can be found in the *300-FF-1 Phase I Remedial Investigation Report* (DOE-RL 1993). One sample was taken near the head end and the other near the tail end of the east process trench. TCLP tests were run for herbicides, metals, pesticides, semivolatiles, and volatiles. Matrix spike and duplicate analyses were performed on B01038. All sample results passed regulatory limits.	*300-FF-1 Phase I Remedial Investigation TCLP Data* (BHI-00452)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
100 and 300 Area Burial Ground Study (1996)—The purpose of this study was to evaluate alternatives for the removal of burial grounds in the 100 and 300 Areas. These alternatives consist of in-place remediation options that include barriers, institutional controls, and combinations of the two. Factors that include exposure scenarios, relative risks, costs, characterization potential, timing, and actions at other sites are evaluated. The results of evaluating these factors are then used to formulate options that are assessed in further detail site by site, considering the specific characteristics of each site, such as location and content.	Factors influencing burial ground remedial decisions are future exposure risk, relative risks to workers, ability to characterize, and cost. The study recognized that each burial ground is unique when its size and content are considered in conjunction with its location. Even if in-place closure options are considered, they may not necessarily make sense for all burial grounds. For example, as the cost analysis indicates, it is more cost effective to remove small-sized burial grounds than to cap them. Evaluation of remedial alternatives for burial grounds should consider site-specific factors such as the site's location relative to sites that will be removed and the site's proximity to reactor buildings that are expected to remain under DOE control for many years. The results of this study show that considerable cost savings can be realized if remedial options other than complete removal can be considered for 100 and 300 Area burial grounds. However, for in-place remedial options to be considered viable, some portions of the 100 and 300 Areas would not be available for unrestricted land use and DOE's continued presence (or deed restrictions) would be necessary to enforce access and/or activity restrictions. DOE's presence would need to continue until the reactors are dispositioned or until other future events occur that warrant a re-evaluation.	*100 and 300 Area Burial Ground Remediation Study* (BHI-00768)
Radiological Investigations		
Radiological Survey Along Columbia River Shoreline (1980)—A radiological survey was performed to evaluate the magnitude and distribution of radioactive contamination on the exposed shorelines of the Columbia River along and downstream of the Hanford Site.	Measurable radioactive contamination, resulting from past Hanford Site operations was found to be present on the shorelines of the Columbia River along the study area. The average exposure rate over the survey area measured 11 ± 3 microroentgens per hour (μR/hr) compared to a background exposure rate measured along the shoreline upstream of 7 ± 1 μR/hr. Exposure rate readings exceeded 25 μR/hr in 92 areas. Discrete particles of contamination containing Co-60 were found along the river, usually in flat, rocky areas with little or no vegetation.	*Radiological Survey of Exposed Shorelines and Islands of the Columbia River Between Vernita and the Snake River Confluence* (PNL-3127)
Aerial Radiological Surveys - 1988 (1990)— Aerial radiological surveys of the Hanford Site and surrounding area were performed.	An aerial radiological survey was conducted over the Hanford Site from July 5 to August 26, 1988. The survey was flown at an altitude of 61 m by a helicopter containing 17 L of sodium iodide detectors. The processed data indicated that detected radioisotopes and their associated gamma ray exposure rates were generally consistent with those expected from normal background emitters and man-made fission/activation products resulting from activities at the site. External exposure rates were generally 10 μR/h with some operating areas over 1,000 μR/h. The radiation levels over more than 95 percent of the site are due to normal background exposure rates.	*An Aerial Radiological Survey of the Hanford Site and Surrounding Area*, *Richland, Washington* (EGG-10617-1062)
Surface Radiation Survey (1990)—Radiation surveys were completed and soil samples collected within the 300-FF-1 OU as part of OU characterization.	Radiation occurred above background levels at 42 locations. Chemical analysis of samples from selected locations showed that above-background radiation levels were due primarily to the presence of uranium. Several pieces of non-radioactive, brown, fibrous, tile were observed on the ground surface in the northeast portion of the OU. A sample of this tile was collected and analyzed; the results indicated that the sample contained 10 to 20 percent asbestos. The presence of asbestos in this tile scrap is not considered a health hazard for surface activities.	*Surface Radiation Survey of the 300-FF-1 Operable Unit: A Status Report* (WHC-MR-0147)
Surface Radiation Survey (1990)—This project included: (1) radiation level determination near the 300 Area, (2) surface radiation surveys outside of established radiation areas, (3) geodetic surveys of locations above background, and (4) soil sampling and analysis.	As a result of radiation survey and sampling activities, radiation occurred above a statistically calculated background estimate in 77 locations. Contamination was primarily associated with soil; however, some contaminated metal and other materials were found. Chemical analysis of samples from selected locations showed that above-background radiation levels were caused primarily by the presence of uranium. Some of the soil samples also contained relatively high concentrations of copper, but there does not appear to be a linear relationship between the concentration of copper and uranium. Additional surface radiation survey work was recommended to be performed using ultrasonic ranging and data system (USRADS) equipment with the sodium iodide (NaI) detector. This work is needed to more completely characterize selected sites and provide information that will aid picking borehole locations for soil sampling.	*Final Report: Surface Radiation Survey for the Phase 1 Remedial Investigation of the 300-FF-1 Operable Unit on the Hanford Site* (EMO-1008)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Oil Uranium Survey (1990)—Sampling sites were chosen randomly based on a grid system. Surface soil samples were collected at each site by compositing four 1 in. deep × 4 in. diameter cores taken from within a radius of 5 m or less of the site identification stake. The objective of the study was to determine the spatial distribution of uranium in the study area and to ascertain if background levels of uranium have been increased by Hanford Site operations.	Based on spatial distributions of U-238, the highest concentrations of uranium are located in the southern portion of the study area adjacent to the 300 Area industrial complex and in the most eastern zone of the study site bordering the Columbia River. Concentrations of U-238 in the southern portion of the study area are higher than mean concentrations of U-238 reported in control areas at the Hanford Site. While no Federal or Washington State guidelines existed for levels of uranium in soil, Westinghouse Hanford Company instituted operational guidelines for management of contaminated soil. Levels of uranium isotopes detected in soil collected from the study area routinely fall at least an order of magnitude below these guidelines.	*A Survey for Elevated Levels of Uranium North of the 300 Area on the Hanford Site* (PNL-7271)
Radiological Characterization 618-10 (1993)—This report summarizes and documents the results of the radiological surveys conducted from February 11 through February 17, and March 30, 1993 over the 618-10 Burial Ground. Surveys were conducted at or near 6 in. and at 3 ft from the surface soil.	No statistically elevated radiation/contamination readings were observed in any of the surveys conducted.	*618-10 Burial Ground USRADS Radiological Surveys* (WHC SD-EN-RPT-010)
Radiological Characterization 618-11 (1993)—This report summarizes and documents the results of the radiological surveys conducted from February 4 through February 10, 1993 over the 618-11 Burial Ground. Surveys were conducted at or near 6 in. and at 3 ft from the surface soil.	No statistically elevated radiation/contamination readings were observed in any of the surveys conducted.	*618-11 Burial Ground USRADS Radiological Surveys* (WHC SD-EN-RPT-011)
Cobalt Sampling South Process Pond (1995)—Statistically based sampling was designed to provide sufficient data to state confidence and error in estimating the mean cobalt-60 concentrations in the SPP surface soils. A total of 94 samples were collected: 73 were collected from random locations in the pond, 8 were duplicate samples, and 13 were biased samples. All samples were analyzed for cobalt-57, cobalt-60, cesium-137, uranium-235, and uranium-238.	The average concentration of cobalt-60 was about half of the expected concentration. The question of whether there is a large area of the main South Process Pond with high cobalt-60 concentrations is no longer an issue. The previous high sample value of concern was 30 pCi/g. The new maximum is 19.7 pCi/g, and the average is 3.2 to 3.8 pCi/g, depending on which samples are included in the calculation.	*Sample Activity Report for Cobalt Sampling at the 300-FF-1 South Process Pond* (BHI-00618)
Radiological and Chemical Sampling Near-Shore 300 Area (2003)—Sample areas included an upriver control site and the 300 Area shoreline in the vicinity of four riverbank springs reported from previous studies. Water samples collected included near-shore river water, cross-river transects, river-bank spring water, and shallow groundwater collected from drive point wells. Sediment samples were collected at riverbank spring locations and at the background site. Biota samples with sufficient sample mass (100 grams or more) to detect low levels of radioactivity were analyzed for gamma-emitting isotopes, strontium-90, and technetium-99. For each biota, a composite sample from each site was sent to the analytical laboratory. Other sampling included radiological and chemical sampling.	This study was able to monitor the progression of contaminants in 300 Area groundwater from shallow groundwater to riverbank springs, and ultimately to river water, sediment, and biota. Discharges of riverbank spring water appear to be the major source of 300 Area groundwater contaminants entering the river during low river flow conditions. There was evidence of groundwater upwelling into the near-shore river water at locations where no flowing riverbank springs were observed; however, river water samples from these locations had lower concentrations of contaminants than the locations with active riverbank springs. Clam samples were shown to be effective for estimating the aquatic habitat in the 300 Area with elevated concentrations of chromium, selenium, and uranium. Similar spatial profiles were observed for uranium concentrations in near-shore river water (at low river stage) and uranium in soft tissues of clams.	*Survey of Radiological and Chemical Contaminants in the Near Shore Environment at the Hanford Site 300 Area* (PNNL-13692)
Aerial Radiological Surveys - 1996 (2007)—Aerial radiological surveys of the Hanford Site and surrounding area were performed.	An aerial radiological survey was conducted in 1996 of the Hanford Site. The results of the survey are reported as contours of the terrestrial exposure rate extrapolated to 1 m (3 ft) aboveground level, contours of man-made gross count activity (characteristic of all long-lived man-made radionuclides that emit gamma radiation with energies less than 1,400 keV), and contours of Cs-137 activity. Excluding cosmic radiation (3.7 μR/h), implied exposure rates for background areas (areas undisturbed by Hanford Site radiological activities) ranged from 3 to 7 μR/h at 1 m (3 ft) above ground level. In radiologically disturbed areas, implied exposure rates in excess of background levels (as high as 500 μR/h in some cases) were observed. Typically disturbed areas were the nine deactivated reactors in the 100 Area, the Columbia Generating Station (Unit No. 2 reactor; Energy Northwest [Washington Public Power Supply System in 1996]), and the facilities and radioactive storage sites within the 200 East/West and 300 Areas.	*An Aerial Radiological Survey of the Hanford Reservation Richland Washington: Date of Survey: February 29 to March 21, 1996* (DOE-0335)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Soils and Vadose Zone Investigations		
Ground Contamination 307 Basin Transfer Line (1971)—A leak of apparently long duration was discovered on December 9, 1969, in the transfer line from the 307 retention basins to the 340 contaminated waste systems. Soil samples were collected to determine approximate location and quantity of each radionuclide that had leaked to the soil.	Approximately 900 curies of relatively short-lived radionuclides, including 10 curies each of strontium-90 and cesium-137 inadvertently leaked to the soil as a result of the corrosion of an underground carbon steel pipe section. More than 90 percent of the contamination from this incident is confined within a cylindrical section of earth approximately 25 ft deep and 12 ft in diameter. Despite the fact that promethium and cerium were combined with complexing agents, both were retained by the soil. Any groundwater contamination from this incident was minimal, because no 300 Area groundwater samples showed detectable concentrations of the nuclides found in the soil. Since the leak existed from some time, any further migration of the activity from its sorbed position in the soil should be negligible.	*Failure of 307 Basin Transfer Line and Resultant Ground Contamination* (BNWL-CC-2617)
Process Trench Sediment Sampling 300 Area (1987)—Sediment samples were collected at the bottom of the trench every 100 ft at three separate depths. Deeper sediments were sampled by drilling wells every 300 ft between the trenches. The goal was to provide a basis for remedial action plans.	The goal of sampling at the Process Trenches in the 300 Area was to determine contaminant levels in the sediments between the surface and groundwater caused by past disposal of hazardous materials in the process sewer systems and to provide the basis for remedial action plans. Contaminant levels above background were found for various metals including mercury, lead, nickel, chromium, and uranium in the shallow sediments. No significant concentrations of hazardous materials were found in the deep sediments from well samples. The concentration of metals in the shallow sediments is expected based on the chemistry of the process trench environment. The concentrations were not high enough to cause the shallow sediments themselves to be considered hazardous waste. The highest concentration is for uranium. Remedial action is necessary either to remove the contamination or to stabilize the contamination in place. Among options considered, the preferred remedial action is to remove the contamination and continue to use the trenches for the disposal of nonhazardous process water.	*300 Area Process Trench Sediment Analysis Report* (WHC-SP-0193)
300 Area Process Ponds Soil Sampling (1989)—In 1987, sediment samples were collected from excavations at 14 locations in and adjacent to the 300 Area Process Ponds. The samples were analyzed for several inorganic, organic, and radioactive hazardous substances. In addition, geochemical characterization of sediments through the use of x-ray diffraction, scanning electron microscopy, and energy-dispersive x-ray microanalysis began.	Initial Remedial Investigation (RI) results indicated that contamination in the process ponds was typically associated with greenish sediment that contained high gross alpha and gross beta activities, and elevated concentrations of Ag, Al, Cr, Cu, Ni, and Zn relative to background levels. Additionally, As, F, Hg, Pb, Sb, Sr, V, and nitrate were present in concentrations above background levels at several locations. Radiochemical analyses showed that the primary radiological contaminant was uranium. Cobalt-60 and cesium-137 were also detected. Contaminant concentrations tended to decrease with distance and with depth from the former inlets to the ponds. Continued geochemical characterization of sediments was recommended.	*Status Report on Remedial Investigation of the 300 Area Process Ponds* (PNL-6442)
Soil Gas Sampling at the 618-4 and 618-5 Burial Grounds (1991)—Soil gas sampling was conducted on burial grounds 618-4 and 618-5 to determine if volatile organic compounds (VOCs) were present. Sixty soil gas samples were collected from 618-4 and 24 soil gas samples were collected from 618-5.	A soil gas survey was conducted at 618-4 and 618-5. Eighty-four soil gas samples were collected and analyzed using gas chromatography. VOCs were detected in eight locations at 618-4 and five locations at 618-5. Sample analyses indicated the presence of trichloroethylene (TCE), perchloroethane (PCE), and dichloroethene (DCE) in 618-4, and TCE and PCE in BG-5. Detected VOCs are well dispersed throughout 618-4, with a major clustering in the southwestern end of the area and a small cluster near the northeastern side. VOCs were detected near the northeastern and southeastern edges of 618-5. The highest concentrations of subsurface contamination in the burial areas may be in the locations of detected VOCs. Additional sampling is necessary to more accurately determine if VOCs extend beyond burial ground areas. VOC concentration levels detected are not indicative of the contaminant volumes contained in the burial areas.	*Soil Gas Survey of Burial Grounds 618-4 and 618-5, 300-FF-1 Operable Unit* (WHC-MR-0288)
Drilling and Test Pit Activities 300-FF-1 Phase I (1992)—Seven characterization boreholes were drilled and 11 test pits were excavated in 7 waste management units in the 300 Area.	The investigation of the waste facilities was accomplished using the cable-tool drilling method for making boreholes and a backhoe for making test pits. Boreholes were drilled to approximately 10 ft below the water table and abandoned with bentonite chunks and bentonite crumbles. The test pit method of sample collecting was used at most of the waste sites to reduce costs, recover schedule, and provide a better sample. A field sampling plan was used as a guide for determining sample locations. Actual sampling locations were determined in the field by the geologist and the field team leader.	*Summary of Drilling and Test Pit Activities for the 300-FF-1 Operable Unit Phase I Soil Sampling Investigation* (WHC-SD-EN-TI-038)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Geophysical Surveys at Waste Burial Sites (1992)—Geophysical surveys were performed at four waste burial sites in the 300-FF-1 OU. Four instruments were used, including GPR, metal detector, electromagnetic induction ground-conductivity meter, and magnetometer. The objectives were to determine the depths of fill, identify subsurface structures such as trenches and pits, and detect and map buried waste material and other significant features within the areas of interest.	The geophysical surveys have successfully detected and delineated the buried waste deposits at the four sites that were included in this characterization task. The results provide an effective basis for the selection of follow-up characterization procedures. It is important to recognize, however, that available geophysical methods cannot provide subsurface information that is completely without uncertainty.	*Geophysical Surveys Performed by the Automation and Measurement Sciences Department of the Pacific Northwest Laboratory* (At Landfills 1A, 1B, 1C, and 1D)(WHC-SD-EN-TI-060)
Geophysical Surveys at Hanford Burial Grounds (1992)—Geophysical surveys were performed at the 618-4 and 618-5 burial grounds in 1989.	The geophysical surveys have effectively detected and mapped the buried waste material in and around Burial Grounds 618-4 and 618-5. The GPR, magnetic, and metal detector data proved to be consistent and complementary. The results are reasonably clear, although there are certain limited areas, particularly the fringe areas around the major waste deposits, where waste materials could not be unambiguously identified. Some useful supplemental or confirmative information might be gained by performing a survey with a Geonics EM31 ground conductivity meter. The in-phase component of the EM31 data would probably be most useful at these sites. This type of survey could be performed quickly and at relatively low cost. In addition, if the surface-contaminated area on the west side of 618-4 is covered by soil and thereby made accessible, it would be appropriate to perform geophysical surveys there.	*Geophysical Surveys Performed by the Automation and Measurement Sciences Department of the Pacific Northwest Laboratory at Hanford Burial Grounds 618-4 and 618-5* (WHC-SD-EN-TI-061)
Geophysical Surveys at 307 Retention Basins and 307 Process Trench (1992)—Geophysical surveys were performed at the 307 Retention Basins and the 307 Process Trench.	The GPR survey at the 307 Retention Basin was successful in locating subsurface obstructions that could be damaged by well drilling or that could constitute a potential hazard to personnel engaged in drilling activities. At the 307 Trench site, environmental factors severely limited the amount of information that could be obtained about the trench boundaries. Nevertheless, a considerable amount of information relating to possible subsurface obstructions or hazards to drilling operations was obtained. These results should be sufficient to define reasonably safe drilling locations at the east and west ends of the trench. It is important to recognize, however, that available geophysical methods cannot provide subsurface information that is completely without uncertainty.	*Geophysical Surveys at the 307 Trenches and the 307 Retention Basins in the 300-FF-1 Operable Unit* (WHC-SD-EN-TI-062)
Closed Circuit Television Survey Results (1992)—The survey of the retired Radioactive Liquid Waste Site (RLWS) was performed with color camera systems, which were introduced into the piping through various cleanouts.	The abandoned RLWS is in good condition considering the service history of this piping. It was assumed that the types and volumes of chemicals disposed of through the system would have corroded it in places. No breaches in piping were confirmed and no areas of heavy corrosion were observed.	*Final Report for the Remote CCTV Survey of the 300 Area Retired Radioactive Liquid Waste System* (WHC-SD-GN-ER-30015)
XRF Field Screening (1992) - Work consisted primarily of excavation of contaminated sediments and underlying soil in the 316-5 Process Trenches. Samples were collected before and after excavation in each trench. An x-ray fluorescence (XRF) spectrometer was used to screen samples in the field for heavy metal contamination. In addition, in situ measurements were made on soil surfaces in the west trench before and after excavation.	In general, XRF measurements exhibited evidence of heavy metal contamination, primarily zirconium, and uranium, with minor copper. Comparison of in situ measurements in the west process trench before and after the Environmental Risk Assessment (ERA) indicates that contamination was reduced to approximately background levels. The data obtained from this investigation suggest that the "scan model" approach can be used for field screening to detect anomalous concentrations of heavy metals in soils and like materials. However, reliability of this method depends on the degree of agreement between the field screening results and validated data.	*Summary of XRF Field Screening Data from 316-5 Process Trenches Expedited Response Action* (WHC-SD-EN-TI-013)
Radiological Survey of the 316-5 Process Trenches (1992)—This report summarizes the results of the radiological surveys conducted over the entire surface of the 316-5 Process Trenches site. It also explains the survey methodology using the USRADS automatic data recording equipment. Two surveys were conducted at the site.	For both surveys, the entire fenced area at the Process Trench site was surveyed, with the exception of the steep embankments and the covered trenches themselves. The pre-remediation survey consisted of 11 individual USRADS surveys collecting 30,453 data points. The post-remediation survey also consisted of 11 surveys totaling 29,356 data points.	*316-5 Process Trenches Site USRADS Survey* (WHC-SD-EN-TI-018)
Borehole Summary (1992)—Well 699-S20-E10 was drilled approximately 20 ft into the uppermost unconfined aquifer and installed upgradient of the 300 Area. Sediment core samples were analyzed for physical properties. Estimation of aquifer recharge under natural conditions using chloride mass balance techniques from data collected on sediment samples was also completed.	The drill cuttings from 699-S20-10 were screened in the field for volatile organics and beta-gamma activity by radiation control technicians. Screening revealed only natural background levels. Sediment grab samples were collected from the borehole at 5-ft intervals from ground surface to total depth. The sediment samples are used for geologic description, digital photography, and for archival purposes. In addition to grab samples, a total of 43 near continuous intact 1 ft long split-spoon core samples were collected from 7 to 63 ft bgs. Sample recovery on intact cores was good to poor. Geophysical logging detected no manmade radionuclides in the borehole.	*Borehole Data Package for One CY 2005 CERCLA Well 699-S20-E10; 300-FF-5 Operable Unit, Hanford Site* (PNNL-15417)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
300-FF-1 OU Remedial Investigation (1993)—Data collection activities include: (1) contaminant sources within waste facilities, (2) meteorology, (3) surface hydrology and surface water, (4) geology, including characteristics and structure of bedrock and unconsolidated sediments, (5) soil characterization of the vadose zone, and (6) ecology and potential receptor organisms.	This document came to the conclusion that (1) there is no evidence of imminent and substantial endangerment to either human health or the environment from exposures to the 300-FF-1 OU contaminants, (2) no sensitive ecosystems are known to be contaminated by the 300-FF-1 OU, and (3) none of the potential contaminants of concern (COCs) are present in the form of bulk storage. Although some high level soil contamination is present, the COCs are not readily subject to migration. Nor are weather conditions expected to arise that would result in the migration of such contamination. There is also no known threat of fire or explosion, and it appears that the 300-FF-1 RI/FS, and any subsequent necessary remediation, can be completed in a timely manner. The impact on drinking-water supplies will be evaluated at the conclusion of the 300-FF-5 OU Phase I RI. Therefore, it is recommended that no immediate removal actions be implemented, at this time, for any 300-FF-1 OU waste management unit. It is recommended, however, that this evaluation be repeated at the conclusion of the continued Phase I RI data evaluation activities, and at other appropriate points in the remedial response process.	*Phase I Remedial Investigation Report for the 300-FF-1 Operable Unit* (DOE/RL-92-43)
Surface Geophysical Study (1993)—The purpose of this study is to use geophysical techniques, particularly seismic reflection surveys, in the 300-FF-5 OU to determine feasibility to aid subsurface site characterization.	Three geologic horizons were mapped with the geophysical methods. A Holocene soil horizon, typically 0 to 4.6 m (15 ft) below the surface, appears to separate eolian sands and silts from fluvial deposits from the Missoula floods and Columbia River. The Hanford formation/Ringold Formation contact and the lower mud unit of the Ringold Formation are the deeper horizons mapped. The top of basalt was not detected consistently to map. The seismic refraction data were used primarily for bracketing velocity values for the seismic reflecting process. The results from the GPR, EMI, and the refraction survey provided valuable information on the shallower sediments for processing.	*Phase I Summary of Surface Geophysical Studies in the 300-FF-5 Operable Unit* (WHC-SD-EN-TI-069)
307 Retention Basins and 307 Trenches Remedial Investigation (1994)—Investigation included the following: (1) Geophysical surveys conducted using GPR and electromagnetic inductance (EMI) surveys. The GPR surveys were conducted along north-south and east-west oriented grid lines spaces 1 m apart and EMI surveys were conducted along north-south oriented lines spaced 2 m apart. (2) Soil sampling. Two boreholes were drilled and profiled within the 307 retention basins and three boreholes were completed and samples within the 307 trenches. (3) Laboratory analyses. Soil samples collected from the RI boreholes were analyzed for organics, inorganics (metals and cyanide), general chemistry, and radionuclides.	Remedial investigations at the 307 retention basins and 307 trenches (316-3) in the 300 Area were conducted as part of the 300-FF-1 OU Phase I RI in accordance with the approved RI work plan. The GRP and EMI scans revealed subsurface pipelines running to the south, east, and west of the 307 retention basins. Analysis and evaluation of the soil samples collected as part of this activity are included in the 300-FF-2 RI report.	*Summary of Remedial Investigations at the 307 Retention Basins and 307 Trenches (316-3), 300-FF-2 Operable Unit* (WHC-SD-EN-TI-279)
Physical Separation of Soils Study (1994)—In 1994, a pilot study for the physical separation of soils in the North Process Ponds of the 300 Area took place. The process involved first moving a pilot plant into the contamination area. Two soil types were treated during the testing—a natural soil contaminated with low levels of uranium, cesium, cobalt, and heavy metals, and a natural soil contaminated with a uranium carbonate material that was visually recognizable by the presence of a green sludge material in the soil matrix. Both source materials were treated by the plant in a manner that fed the material, produced clean gravel and sand fractions, and concentrated the contaminants in a sludge cake.	The testing was successful in that for both source waste streams, it was demonstrated that volume reductions of greater than 90 percent could be achieved while also meeting the test performance criteria. The volume reduction for the natural soils averaged 93.8 percent, while the "green" soils showed a 91.4 percent volume reduction. Based upon the success of the study, soil washing using physical separation techniques has been shown to effectively meet the test performance criteria. Therefore, soil washing has been included in the Phase III Feasibility Study (FS) for the 300-FF-1 OU as an applicable remedial alternative for further evaluation.	*300-FF-1 Operable Unit Physical Separation of Soils Pilot Plant Study* (WHC-SD-EN-TI-277)
Physical Separation of Soils Study (1994)—Tests were performed to evaluate the use of water-based physical separations systems as a means of concentrating chemical and radiochemical contaminants into fine soil fractions and thereby minimizing the amount of contaminated soils.	This treatability test showed that the primary risk drivers in the 300-FF-1 OU are uranium-238 and uranium-235. In general, the physical separation system tested met the test goals, thereby demonstrating the potential to reduce the amount of contaminated soils in the 300-FF-1 OU without the use of chemical processes. Therefore, the physical separation of excavated soils prior to disposal is an alternative that should be carried into the Phase II FS.	*300-FF-1 Operable Unit Remedial Investigation Phase II Report: Physical Separation of Soils Treatability Study* (DOE/RL-93-96)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Geophysical Investigations (1995)—Geophysical investigations were conducted at the 618-10 and 618-11 Burial Grounds. Geophysical techniques were used to characterize the distribution of solid waste in the subsurface.	The survey design and interpretation philosophy were reconnaissance in nature with the exception of the southwest corner of the 618-10 Burial Ground. Therefore, many isolated anomalies were not plotted or detected. Typical depths were posted at generalized locations and do not represent the actual interpreted depth to an individual anomaly. The entire set of GPR and EMI data for both the 618-10 and 618-11 Burial Grounds can be found in the 300-FF-2 OU project file.	*Geophysical Investigations of the 618-10 and 618-11 Burial Grounds, 300-FF-2 Operable Unit* (BHI-00291)
300-FF-2 LFI (1996)—Twenty-four waste groups were selected to be a part of the 300-FF-2 OU LFI based on priority. Within these 24 waste site groupings are 54 individual waste sites. Sites were evaluated based on physical characteristics, historical information, surface radiation surveys, surface soil sampling, surface geophysics surveys, ecological investigations, and groundwater sampling.	The following conclusions were made concerning the 618-11 Burial Ground: (1) The estimate derived from data presented is that 618-11 Burial Ground drum storage units and caissons have waste containing about 5 kg of plutonium plus other TRU radionuclides including slightly enriched uranium. (2) The presence of 5 kg of plutonium at 618-11 defines it as a TRU burial ground (>100nCi/g). (3) Different records show different burial contents. Combined together, the records give a good indication of the burial ground activity. (4) Burial ground contents include defense plutonium, Pu-238, Np-237, Am-241, uranium, thorium, Pm-147, radiostrontium and radiocesium, salt cycle molten salt residues, plutonium recycle test reactor (PRTR) test fuel pieces, plutonium uranium extraction (PUREX) and oxidation-reduction (REDOX) research and development (R&D) reprocessing residues, building debris, contaminated casks, lead bricks and shielding, concrete and lead shielded drums, contaminated glassware and columns, contaminated piping, and other equipment including glove boxes. (5) Categories of waste buried include TRU, non-TRU, contact handled (CH), remote handled (RH) low-level, and mixed waste. Trench wastes will contain both CH and RH waste. Much of the waste will also be mixed waste, including hazardous chemicals. An effort will be made to segregate hazardous materials. In addition, equipment and other larger waste containers will probably have to be either cut up or over packed. Wastes will have to be certified for disposal to the Waste Isolation Pilot Plant.	*Limited Field Investigation Report for the 300-FF-2 Operable Unit* (DOE/RL-96-42)
Waste Site Characterization 618-11 (1997)—The purpose of this document is to characterize the 618-11 solid waste burial ground by describing the site, burial practices, the disposed wastes, and the waste generating facilities. This document provides information showing that kilogram of plutonium were disposed to the drum storage units and caissons, making them transuranic (TRU).	Different records show different burial contents. Combined together, the records give a good indication of the burial ground activity. Categories of waste buried include TRU, non-TRU, contact handled, remote handled, low-level, and mixed waste. Records indicate that the waste generated in the 4.8 years the 618-11 Burial Ground was open, contained about 5 kg of plutonium. A limited amount of dose rate plutonium waste went to the 200 West burial grounds for disposal from the 308 and 325 buildings. All other 300 Area waste went to the 618-11 Burial Ground, including most of the waste from the 325 building and some from the 308 building. The estimate derived from data presented is that the 618-11Burial Ground drum storage units and caissons have waste containing about 5 kg of plutonium plus other TRU radionuclides including slightly enriched uranium. The trenches also contain hundreds of grams to kg quantities of plutonium and other fissile material. The TRU curie content, however, is thought to be primarily because of the plutonium concentration.	*Characterization of the 618-11 Solid Waste Burial Ground, Disposed Waste, and Description of the Waste-Generating Facilities* (HNF-EP-0649)
618-11 Tritium Investigation (2001)—Groundwater samples were collected from six new boreholes. Four of these boreholes were completed at long-term monitoring wells to be used for tracking the tritium plume.	Drilling and completion activities took place from August 18, 2001 through September 24, 2001. A total of 440.3 ft was drilled in all boreholes. A cable tool drill rig was used to install 8 in. temporary carbon steel casing. The boreholes were advanced with a drive barrel. Groundwater samples were collected immediately after penetrating the static water level in each borehole.	*Borehole Summary Report for the 618-11 Burial Ground Tritium Investigation* (BHI-01567)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Helium 3/Helium 4 Ratios (2001)—This report presents the results of a study that measured helium-3/helium-4 ratios relative to ambient air in soil gas samples to detect and delineate groundwater tritium plumes originating from the 618-11 Burial Ground. Seventy soil gas sampling points were installed around the perimeter of the 618-11 Burial Ground, approximately 122 m (400 ft) downgradient of well 699-13-3A, and in four transects down gradient of the burial ground to a maximum distance of 945.5 m (3,100 ft). Soil gas samples were collected, analyzed for helium isotopes, and helium-3/helium-4 ratios were calculated from these 70 points. Helium-3/helium-4 ratios determined from the sampling points showed significant enrichments, compared to ambient air helium-3/helium-4 ratios.	The highest helium-3/helium-4 ratios (normalized to the abundances in ambient air) were located along the north perimeter of the burial ground. Helium-3/ helium-4 ratios ranged from 1.0 to 62 around the burial ground. The helium-3/helium-4 ratios from the 4 transect downgradient of the burial ground ranged from 0.988 to 1.68. The helium-3/helium-4 ratios from around the burial ground suggest there is a vadose zone source of tritium along the north side of the burial ground. This vadose zone source is likely the source of tritium in the groundwater. The helium-3/helium-4 ratios also suggest the groundwater plume is traveling east-northeast from the burial ground and the highest groundwater tritium value may be to the north of well 699-13-3A. Finally, there appears to be no immediately upgradient sources of tritium impacting the burial ground since all the upgradient helium-3/helium-4 ratios approach or equal the air background level of 1.0. Based on the helium-3/helium-4 results from the soil gas survey, six downgradient groundwater grab and well locations were identified to verify the tritium groundwater plume locations, tritium groundwater concentrations as a function of depth in aquifer, and tritium groundwater concentrations. The measurement of helium isotopes in soil gas provided a rapid and cost-effective technique to define the shape and extent of tritium contamination from the 618-11 Burial Ground.	*Measurement of Helium-3/Helium-4 Ratios in Soil Gas at the 618-11 Burial Ground* (PNNL-13675)
Sampling and Hydrogeology of 300 Area Process Ponds (2004)—Four open pits were excavated with the aid of a backhoe beneath the 300 Area Process Ponds in April 2003. Pits were excavated to the water table between 10 to 22 ft bgs. Representative sediment samples were collected with the backhoe at 2-ft increments and laid in piles on the ground next to the pit. A water sample was collected by the backhoe from the bottom of the pit.	The vadose zone sediments within the 300 Area consist entirely of coarse-grained Hanford formation. Sediments in both pits were uniformly moist all the way to the water table, most likely from water applied at the surface in the days preceding pit excavation. Within North Process Pond Pit #2, radioactive contamination was found, associated with a greenish-colored mineral observed at and just below the surface. The mineralization was described by one on-site worker, with many years of clean-up experience in the 300 Area Process Ponds, as copper uranyl phosphate. The contamination was not found below a few feet of the surface.	*Sampling and Hydrogeology of the Vadose Zone Beneath the 300 Area Process Ponds* (PNNL-14834)
Uranium (VI) Sorption and Transport (1998) —Three sediments were evaluated to determine whether moisture content affects the measured distribution coefficient (K_d) values for U(VI) coarse sand, fine sand, and silt loam. These sediments were selected to augment the existing data for one coarse and two fine-grained sediments. Unsaturated column transport experiments were conducted using the unsaturated flow apparatus (UFA^{TM}) method at two unsaturated moisture contents for each of the three sediments (UFA is a trademark of UFA Ventures, Richland, Washington). For each moisture condition, bromide was used as a conservative, noninteractive tracer. In this investigation a mechanistic approach was used to evaluate tracer breakthrough in an effort to evaluate hydrodynamic properties, including solute dispersion and the effective water-filled porosity (immobile versus mobile water domains). U (VI) was applied as uranyl (UO_2^{+2}) in uncontaminated Hanford Site groundwater. The entire breakthrough curve (both the leading edge and trailing edge of a pulse input) was attained to permit more detailed evaluation of the curves for determining the retardation factor and K_d. Saturated column experiments were conducted with U (VI) on the fine sand and silt loam; pentafluorobenzoic acid (PFBA) was used as the conservative, noninteractive tracer. Breakthrough curves, depicting the relative effluent concentration versus dimensionless time (cumulative pore volumes of water passed through the column), were constructed from the experimental data for further analysis.	Breakthrough curves exhibited nonequilibrium characteristics, particularly at the lowest moisture condition for each sediment. An approach for assessing mobile-immobile water domains was applied for the fine sand at 23 percent moisture saturation. The data were well-described with a two-region transport model. More important, the parameters for dispersion, fiction of mobile water, and rate-limited mass transfer between mobile and immobile water regions were applied to predict U (VI) transport with reasonable success. Two key conclusion where made based on this study: (1) At decreasing moisture saturation, the proportion of immobile water increased in unsaturated coarse sand, fine sand, and silt loam sediments and (2) U (W) and values decreased with decreasing moisture saturation, irrespective of sediment texture. Mass transfer of solutes, including U (VI), to regions of microporosity is limited when mobile-immobile water conditions develop. Immobile water domains are associated with regions of microporosity and free-textured particles. Relationships among texture, surface area, and exchange or sorption capacity is well-established. An important implication of this research is that the effective exchange capacity of the sediment maybe reduced for solutes undergoing transport in unsaturated, sandy sediments, where immobile water domains develop. The observed decrease in K_d, particularly for the sandy sediments, is consistent with limbed mass transfer to sorption sites in the immobile water region.	*Uranium(VI) Sorption and Transport in Unsaturated, Subsurface Hanford Site Sediments – Effect of Moisture Content and Sediment Texture: Final Report for Subtask 2b (PNNL-11975)*

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Groundwater Investigations		
Geology and Groundwater Quality (1979)—To determine the location and concentration of groundwater contaminants in the 300 Area, data were collected by compiling existing 300 Area data, gathering information on present processes in the 300 Area that impact the groundwater system, and systematic gathering of new hydrologic data from the study area through calendar year 1977.	Groundwater enters the 300 Area from the northwest, west, and southwest. However, throughout most of the 300 Area, the flow is to the east and southeast. Groundwater flows to the northeast only in the southern portion of the 300 Area. Water quality tests of Hanford Site groundwater adjacent to the 300 Area showed that in the area of the Process Water Trenches and Sanitary Leaching Trenches, calcium, magnesium, sodium, bicarbonate, and sulfate ions are more dilute, and nitrate and chloride ions are more concentrated than in surrounding areas. Fluoride, uranium, and beta emitters are more concentrated in groundwater along the bank of the Columbia River in the central and southern portions of the 300 Area near the 340 Building.	*Geology and Groundwater Quality Beneath the 300 Area, Hanford Site, Washington* (PNL-2949)
Groundwater Monitoring (1988)—This report contains data from the Hanford Site groundwater monitoring program located within the 300-FF-1 OU. It represents data from January 1985 to June 1988.	Information collected provides data on a wide range of measured groundwater parameters that are of interest to the ongoing investigation of the 300-FF-1 OU.	*The 300-FF-1 Operable Unit Well Report from Data Collected 1985 through June 1988* (WHC-MR-0081)
Borehole Completion and Seal Testing (1991)—Eight new groundwater monitoring wells are to be constructed in the upper confined aquifer beneath the 300-FF-5 OU during fiscal year 1991.	The upper confined aquifer has a head gradient significantly higher (approximately 30 ft) than the unconfined aquifer. Because of this, the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Ecology requested, through review comments associated with the OU work plan, the U.S. Department of Energy to prepare a description of borehole seal emplacement and testing for this specific OU. They further requested that the resulting documentation be approved by the regulatory agencies prior to constructing the first confined aquifer monitoring well.	*Borehole Completion and Seal Testing for Upper Confined Aquifer-Monitoring Wells in the 300-FF-5 Operable Unit* (EMO-1029)
Phase I Hydrogeologic Summary (1992)—This report summarizes the characterization results for field work performed in the 300-FF-5 OU. The field work consisted of drilling and completing 19 groundwater monitoring wells, characterizing the geology and hydrostratigraphy, installing 2 aquifer test wells and performing multiple aquifer tests, and surveying the 11 wells using radiological borehole geophysics.	Data and interpretations presented in this report are from characterization activities begun in the spring of 1991 and completed in the spring of 1992. The characterization effort focused primarily on the suprabasalt sediments with a brief description on the uppermost part of the Columbia River Basalt Group. *Note* - An engineering change notice exists for this document.	*Phase I Hydrogeologic Summary of the 300-FF-5 Operable Unit* (WHC-SD-EN-TI-052)
Groundwater Impact Assessment (1992)—The 400 Area Secondary Cooling Water stream discharges to the 4608B and 4608C percolation ponds located north of the 400 Area perimeter fence. This report satisfies Tri-Party Agreement Milestone M-17-00B, which includes a requirement to assess impacts to groundwater from disposal of the process effluent to the 400 Area ponds.	There are no significant hydrologic or contaminant impacts from the disposal of process sewer effluent in the 400 Area ponds. The monitoring well immediately downgradient of the 400 Area ponds may be screened too deeply to representatively monitor the uppermost portion of the aquifer and hence the impact of the process sewer effluent on groundwater. Monitoring of the process sewer effluent directly should provide adequate monitoring for the level of impacts from this site to the underlying groundwater.	*Groundwater Impact Assessment Report for the 400 Area Ponds* (WHC-EP-0587) *Hanford Federal Facility Agreement and Consent Order* (Ecology et al., 1989a)
RI/FS Report 300-FF-5 (1994)—The purpose of the 300-FF-5 OU RI is to gather and develop the necessary information to assess the nature and extent of contamination in OU environmental media, to understand the associated risks posed to human health and the environment, and to support the development and evaluation of remedial alternatives during the FS.	Contaminated groundwater from the 300 Area does not currently pose unacceptable risk to human health or the environment. The only current use of groundwater in the 300 Area is the industrial production well 399-4-12. There is no current or planned use of 300 Area groundwater for drinking. The estimated risk in this well primarily results from chloroform at concentrations below the maximum contaminant level (MCL) typical of municipal water supplies.	*Remedial Investigation/Feasibility Study Report for the 300-FF-5 Operable Unit* (DOE/RL-94-85)
Soil-Gas Survey and Well Installations at the 618-10 Burial Ground (2003)—Two groundwater monitoring wells are required in the immediate vicinity of the 618-10 Burial Ground to monitor the impact, if any, that potential releases from the burial ground may have on current groundwater conditions. A soil-gas survey was conducted to help determine the optimal locations for the two wells.	Results of the soil-gas survey indicated that tritium levels are probably similar to the levels found in the regional tritium groundwater plume; the well locations were equally spaced to provide the best coverage down gradient of the burial ground. The wells (699-S6-E4K and 699-S6-E4L) were installed in February and March 2003. During drilling and construction of the new wells, sampling was conducted to screen for radiological contaminants in the vadose zone and to develop a preliminary hydrogeologic model for the area.	*Soil Gas Survey and Well Installations at the 618-10 Burial Ground, 300-FF-5 Operable Unit; Hanford Site, Washington* (PNNL-14320)
Contaminant Summary 300-FF-5 OU (2005)—The maximum concentration values for each COC or potential concern (COPC) for the period 1992 through 2004 are used to show where standards are still exceeded and to illustrate trends.	Uranium in the 300 Area and tritium in the 618-11 sub-region remain at concentrations well above drinking water standards. Other COPC reveal recent concentrations near or below the standards. For many waste constituents, concentrations remain generally consistent or are decreasing. A primary contributor to concentration changes since 1992 appears to be plume migration under natural groundwater flow	*Contaminants of Potential Concern in the 300-FF-5 Operable Unit: Expanded Annual Groundwater Report for Fiscal Year 2004* (PNNL-15127)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
	conditions. Interim remedial action for the OU includes continued monitoring of groundwater that is contaminated above health-based levels and institutional controls to ensure that groundwater use is restricted.	
Limited Field Investigation (LFI) for Uranium Contamination in the 300-FF-5 OU (2007)—The four LFI borehole locations were chosen to represent various combinations of proximity to former waste disposal sites, proximity to the Columbia River, and wide ranging hydrogeologic features. The report includes highly detailed descriptions of geologic features encountered during drilling facilitated re-interpretation of descriptions from earlier activities. Extensive analytical work was conducted on sediment samples collected from the continuous core recovered from each borehole, and on water samples collected from the saturated zone at depth discrete intervals during drilling. Hydrologic testing was conducted at multiple depth levels in each borehole to provide data on the ability of the sediment to transmit water. Geophysical logging of the entire borehole was conducted to provide additional details on stratigraphic features, in an attempt to identify and quantify contaminant uranium concentrations.	The principal findings, relative to the objective of this LFI, help to re-define the hydrogeologic framework for the 300 Area, deterred Phase II, which depended on using spectral gamma logging to map distribution of uranium, based on lower than expected levels of contaminant uranium encountered in the sediment samples from the vadose zone, found elevated levels of contamination in "smear zone" near the water table have been postulated as a source region that continues to supply uranium to the groundwater plume. Outside the objectives of the LFI, unexpected high concentrations of trichloroethene were encountered in some deep aquifer water samples from two of the boreholes.	*Limited Field Investigation Report for Uranium Contamination in the 300-FF-5 Operable Unit at the 300 Area, Hanford Site, Washington* (PNNL-16435)
TCE Characterization Monitoring Wells (2008)—The scope of the activities described in this report includes the technical data that encompasses the drilling of four boreholes and related well construction.	Drilling was performed using a cable tool drill rig with core barrel and hard tool drilling methods on two wells. Multiple water samples were collected and later tested for various physical and chemical properties. A well was then built and developed. A permanent pump was installed in the well to provide TCE monitoring.	*Borehole Summary Report for 300-FF-5 Operable Unit TCE Characterization Monitoring Wells C5575, C5706, C5707 and C5708* (SGW-36424)
Remediation Strategy for Uranium in Groundwater, 300-FF-5 OU (2008)—Two general remediation strategies were considered: (1) Decrease the flux of uranium from the vadose zone to the groundwater, and (2) directly decrease the concentration of uranium in the groundwater.	The formulation of alternatives and comparative evaluation of remedies are limited by the present state of knowledge regarding (1) uranium that acts as a source to resupply the plume, and (2) implementation of a promising remediation technology. Consequently, it is premature to proceed to a feasibility study until information that clarifies key elements of these two potential remedy components is obtained. Two data gaps include uranium contamination in the vadose zone beneath the 300 Area, and the science and engineering associated with a promising, but not yet fully developed, remediation technology; i.e., uranium stabilization in the vadose sediments using phosphate reagents. A more comprehensive description of the extent of residual inventory of uranium remaining in the environment, and an improved understanding of the processes that control uranium movement through environmental pathways, would be beneficial before commencing a feasibility study that will lead to an effective remedy selection process. Additional site characterization efforts that would reduce uncertainties in the conceptual model include testing uranium in the vadose zone sediments, hydraulic testing of the aquifer, and using monitoring data to support simulations.	*Remediation Strategy for Uranium in Groundwater at the Hanford Site 300 Area, 300-FF-5 Operable Unit* (DOE/RL-2008-36)
Volatile Organic Compound Investigation (2008)—Four new boreholes were drilled as part of this investigation. They are located in up- and down-gradient groundwater flow directions from well 399-3-20, the location where the highest concentrations of TCE were observed during the LFI. Characterization activities conducted during drilling included geologic descriptions by well-site geologist, collection of sediment and groundwater samples, depth-discrete aquifer tests, and spectral gamma and neutron moisture geophysical logging.	This report presents new information regarding the nature and extent of contamination by VOCs obtained by drilling four additional characterization boreholes to supplement the information obtained at four locations drilled during an earlier investigation in 2006. The results of the combined drilling indicate that the newly discovered contamination is limited to an interval within the Ringold Formation that contains relatively finer-grained sediment than is found in other portions of the unconfined aquifer. The lateral extent of this contamination appears to be the area immediately east and south of the former South Process Pond. Samples collected from the finer-grained sediment at locations along the shoreline confirm the presence of the contamination near the groundwater–river interface. Contamination was not detected in river water that flows over the area where the river channel potentially incises the finer-grained interval of aquifer sediment. The source for this contamination is not readily apparent. It is likely that large quantities of degreasing solutions were disposed to the North and South Process Ponds during the 1950s and 1960s. The infiltration of these discharges through the vadose zone was probably sufficient to cause widespread contamination of the underlying aquifer, and to depths that included the finer-grained material where contamination currently remains because of the low permeability associated with this sediment.	*Volatile Organic Compounds Investigation Results, 300 Area, Hanford Site, Washington* (PNNL-17666)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
	Evidence for the earlier widespread contamination in the upper portion of the unconfined aquifer has been removed because of rapid groundwater movement through the much more transmissive sediment. Investigations to date have revealed no evidence to suggest that a dense, nonaqueous phase liquid remains undetected in the subsurface. Potential pathways for contamination to migrate from this finer-grained sediment include groundwater movement through the interval to offshore locations in the Columbia River channel, dispersion out of the finer-grained interval into the overlying transmissive sediment (again, with transport to the riverbed), and potential future withdrawal via water supply wells. However, the rate of withdrawal from a water supply well would be dominated by groundwater from the relatively uncontaminated saturated Hanford formation sediment, and any additional contaminant contribution caused by release from the finer-grained interval would likely have little impact on the quality of groundwater withdrawn.	
Slug Test Characterization (2008)—Multiple, stress-level slug tests were performed at selected test/depth intervals within wells 399-2-5, 399-3-22, and 399-4-14 as part of the 300 Area VOC characterization program at the Hanford Site	Analysis of the slug-tests conducted within six test/depth intervals within the Ringold Formation (Unit 5) indicates average hydraulic conductivity estimates ranging from ≤0.01 to 2.48 m/day. Hydraulic conductivity estimates for the Ringold Formation (Unit 5) were derived for test-interval sections that ranged from 0.6 to 2.9 m in length. These average hydraulic conductivity values are comparable to the lower range of 0.04 to 41.2 m/day, with a geometric mean of 2.38 m/day, for 16 other Ringold Formation test/depth intervals recently obtained for test-characterization boreholes in the 300 Area.	*300 Area VOC Program Slug Test Characterization Results for Selected Test/Depth Intervals for Wells 399-2-5, 399-3-22, and 399-4-14* (PNNL-17439)
Hanford Site Groundwater Monitoring Report for Fiscal Year 2007 (2008)—In fiscal year 2007, workers sampled 861 monitoring wells and 202 shoreline aquifer tubes to determine the distribution and movement of contaminants. A total of 4,230 samples of Hanford Site groundwater were analyzed for chromium, 2,196 for nitrate and 1,421 for tritium. Other constituents frequently analyzed include technetium-99 (1,053), uranium (991), and carbon tetrachloride (923). These totals include results for routinely samples groundwater wells, pump-and-treat operational samples, and aquifer tube samples.	This report presents results of groundwater monitoring for fiscal year 2007. Interim groundwater remediation in 100-K, 100-D, and 100-H, using a combination of pump-and-treat and in situ methods, continued to reduce the amount of chromium reaching the Columbia River. An in situ treatment system for strontium-90 was being implemented in 100-N. A pump-and-treat system and a soil-gas extraction system in the northern half of the 200 West Area continued to be used to decrease the spread of the carbon tetrachloride plume. A pump-and-treat system for technetium-99 and uranium in the south part of the 200 West Area was restarted in fiscal year 2007. Groundwater monitoring remains a part of the Hanford Site baseline throughout the cleanup mission and will remain a component of long-term stewardship after remediation is completed.	*Hanford Site Groundwater Monitoring for Fiscal Year 2007* (DOE/RL-2008-01)
Hanford Site Groundwater Monitoring for Fiscal Year 2008 (2009)—In fiscal year 2008, workers sampled 865 monitoring wells and 297 shoreline aquifer tubes to determine the distribution and movement of contaminants. Many of the wells and some of the aquifer tubes were sampled multiple times during the year. A total of 3,968 samples of Hanford Site groundwater were analyzed for chromium, 2,146 for nitrate, and 1,409 for tritium. Other constituents frequently analyzed include gross beta (1,139), technetium-99 (1,068), uranium (994), gross alpha (933), and carbon tetrachloride (835). These totals include results for routinely sampled groundwater wells, pump-and-treat operational samples, and aquifer tube samples.	This report presents results of groundwater monitoring for fiscal year 2008. The most extensive of contaminant plumes at the Hanford Site are tritium, iodine-129, and nitrate. These contaminants originated from multiple sources and are mobile in groundwater. The largest portions of these plumes are migrating from the central Hanford Site to the southeast, toward the Columbia River, and concentrations generally are declining. Carbon tetrachloride and associated organic constituents form a large plume beneath the west-central part of the Site. Hexavalent chromium is present in plumes beneath the reactor areas along the river and beneath the central part of the Site. Strontium-90 concentrations exceed drinking water standards beneath portions of all but one of the reactor areas. Technetium-99 and uranium plumes exceeding standards are present in the 200 Area. A uranium plume exceeding standards also underlies part of the 300 Area. Small contaminant plumes with concentrations greater than standards include carbon-14, cesium-137, cis-1,2-dichloroethene, cyanide, fluoride, plutonium, and trichloroethene.	*Hanford Site Groundwater Monitoring for Fiscal Year 2008* (DOE/RL-2008-66)
Hanford Site Groundwater Monitoring for Fiscal Year 2009 (2010)—During the reporting period, 922 monitoring wells and 326 shoreline aquifer tubes were sampled to determine the distribution and movement of contaminants. A total of 18,899 samples were analyzed for the reporting period. During the reporting period, a total of 4,746 samples of Hanford Site groundwater were analyzed for total chromium (with a nearly equal amount of hexavalent chromium analyses), 3,024 samples for nitrate, and 2,029 samples for tritium. Other constituents frequently analyzed include technetium-99 (1,502 samples), uranium (1,495 samples), and carbon tetrachloride (1,427 samples). These totals include results for routinely samples groundwater monitoring wells, pump-and-treat operational samples, and	This report describes groundwater monitoring adjacent to the Columbia River in the River Corridor. Groundwater discharges to the Columbia River in the River Corridor and is the primary exposure route for contaminants to reach human and environmental receptors. Groundwater flows from the Hanford Site aquifer to the Columbia River at a rate between 1.1 and 2.5 m^3/sec. This rate is less than 0.075 percent of the average flow of the Columbia River. The rise and fall of the Columbia River creates a zone of interaction that influences contaminant concentrations and groundwater flow direction. Dilution by river water decreases with depth in the unconfined aquifer. Groundwater pump-and-treat systems have been implemented in the River Corridor to clean up groundwater contamination (especially Cr(VI)).	*Hanford Site Groundwater Monitoring and Performance Report for 2009: Volumes 1 &2* (DOE/RL-2010-11)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
aquifer tube samples.		
Hydrogeology Along Southern Boundary (1994) —This study was conducted in four phases: 1) collection and review of existing hydrogeologic data, 2) establishment of a water-level monitoring network, 3) data analysis, and 4) interpretation of results. A well network was established to characterize the hydrogeology and monitor water levels in the unconfined aquifer. Field activities included installation and maintenance of continuous water-level recorders, water-level measurements, and natural gamma and borehole television logging. Field activities were conducted between June 1989 and May 1990.	Fluctuations in the Yakima and Columbia Rivers have significant influence on water levels and hydraulic gradients in the unconfined beneath the study area. Responses to fluctuations in the Columbia River can be seen at least 1500 ft inland in the northeastern part of the study area.	*Hydrogeology Along the Southern Boundary of the Hanford Site Between the Yakima and Columbia Rivers (PNNL-10094)*
Evaluation of Using Caged Clams to Monitor Contaminated Groundwater (2008) — This report describes the use of caged Asiatic clams to assess seasonal differences in uranium accumulation in a near-shore environment adjacent to the 300 Area. Potential effects on clam growth, survival, and tissue condition are discussed with respect to both uranium accumulation and possible cage-related sources of variation.	The use of field-caged clams was successful in assessing general seasonal differences in uranium accumulation in the near-shore environment. This conclusion was supported by the results of continuous monitoring of specific conductance in shallow riverbed water (3 to 33 cm), which helped to confirm that seasonal mean soft-tissue concentrations of uranium did correspond with relative exposure. However, several potential sources of variation may have affected uranium accumulation in this study. The first was the design of the cages, which may have prevented clams from feeding or behaving normally, thereby affecting filtration rates and subsequent uptake of uranium in the water. The second source of variation was the time in which clams were retrieved from the river at the end of each deployment period (DP). Results of a recent PNNL laboratory study suggest that uranium soft-tissue concentrations in clams may change significantly in relatively short periods of time (24 hours); thus, it is reasonable to assume, given the daily variation in river discharge on the Hanford Reach, that the tissue concentrations of uranium measured in this study may have been influenced by the concentration of groundwater present in the riverbed at the times when clams were retrieved. Another source of variation was the potential effects on clam biology of abiotic factors such as substrate, temperature, water velocity, and depth. These factors may play a complicated role in contaminant uptake because they may influence the delivery of food and nutrients to clams, which may subsequently alter their feeding behavior. Differences in growth, survival, and tissue condition that may have been related to uranium accumulation were not apparent in this study. Growth results were considered largely inconclusive because of a large proportion of clams that experienced a reduction in shell length. These reductions in shell size are believed to be related to the cage designs, which may have affected clam behavior and made them prone to shell erosion. Interpretation of histological data also was limited because of a lack of knowledge about the physiological pathways and effects of uranium in clams.	*Evaluation of Using Caged Clams to Monitor Contaminated Groundwater Exposure in the Near-Shore Environment of the Hanford Site 300 Area (PNNL-17270)*
Surface Water Investigations/Studies		
Hanford Groundwater Seepage Into the Columbia River (1984)—The study was conducted in two sequential phases between October 1982 and September 1983. Phase I involved visual inspection of approximately 41 miles of Columbia River shoreline, within the Hanford Site, for indications of groundwater seepage. During Phase 2, water samples were collected from a distribution of 115 springs suspected of discharging groundwater and analyzed for Hanford-related materials known to be present in the groundwater, including tritium, nitrate, and uranium. Water samples were also collected from the Columbia River to investigate the localized effects of groundwater discharges occurring above and below the river level. These samples were collected within 2 to 4 m of the Hanford Site shoreline, and analyzed for tritium, nitrate, and uranium.	Groundwater discharges to the Columbia River were evaluated by the Hanford Site Environmental Surveillance and Groundwater Surveillance Programs via monitoring of the Columbia River and Hanford Site groundwater. Both programs concluded that Hanford Site groundwater has not adversely affect Columbia River water quality downstream from the Hanford Site, nor has it affected the public through use of the river as a source of municipal drinking water, for irrigation, or for fishing and other forms of recreation. The results of the Phase I visual inspection concluded that 115 "springs" were suspected of discharging groundwater. These springs were accessible only during periods of low water level caused by reductions in Columbia River discharge rates from Priest Rapids Dam. Phase II, which sampled 115 springs, found consistency in magnitude and distribution of concentrations measured in both the spring samples and groundwater samples taken near the sampled spring locations. Elevated contaminant concentrations were measured in river samples near areas where groundwater and spring concentrations were elevated. All concentrations were well below applicable DOE Concentration Guides.	*Investigation of Ground-Water Seepage from the Hanford Shoreline of the Columbia River* (PNL-5289)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Riverbank Springs Characterization (1990)—Radiological and nonradiological analyses were performed in the Columbia River. River water samples were also analyzed from upstream and downstream of the Hanford Site as well as from the immediate vicinity of the springs. In addition, irrigation return water and spring water entering the river along the shoreline opposite the Hanford Site were analyzed.	This document summarized Hanford-origin contaminants were detected in spring water entering the Columbia River along the Hanford Site. The type and concentrations of contaminants in the spring water were similar to those known to exist in the groundwater near the river. The location and extent of the contaminated discharges compared favorably with recent groundwater reports and predictions. Spring discharge volumes remain very small relative to the flow of the Columbia River. Downstream river sampling demonstrates the impact of groundwater discharges to be minimal to negligible in most cases. Radionuclide concentrations were below the DOE Derived Concentration Guides (DCGs) with the exception of Sr-90 near 100-N. Tritium, while below the DCG, was detected at concentrations above DOE drinking water standards in several springs. All other radionuclide concentrations were below drinking water standards. River water contaminant concentrations, outside of the immediate discharge zones, were below drinking water standards in all cases.	*1988 Hanford Riverbank Springs Characterization Report* (PNL-7500)
Columbia River Sediment Sampling (1993)—Forty-four sediment samples were collected from 28 locations in the Hanford Reach of the Columbia River to assess the presence of metals and man-made radionuclides in the near shore and shoreline settings on the Hanford Site. Three locations were sampled upriver of the Hanford Site plutonium-production reactors. Twenty-two locations were samples near the reactors. Three locations were sampled downstream of the reactors near the Hanford Townsite. Sediment was collected from depths of 0 to 6 in. and 12 to 14 in. below the surface.	Samples containing concentrations of metals exceeding the 95 percent upper threshold limit values are considered contaminated. Contamination by arsenic, chromium, copper, lead, and zinc was found. Zinc and lead were the most frequent contaminants; 91 and 68 percent of the samples exceeded the zinc and lead 95 percent upper threshold limit values, respectively. Arsenic, lead, and zinc contamination may not be attributable to Hanford Site activities; elevated concentrations occur in the upriver samples. Zinc and lead contamination was found in 75 percent of the upriver samples. Arsenic contamination was found in one upriver sample and in one sample from 100 K. Chromium contamination was found in 25 percent of the samples. Copper contamination was found in 23 percent of the samples. Man-made radionuclides occur in all samples except four collected opposite the Hanford Townsite. Man-made radionuclide concentrations were generally less than 1 pCi/g. Cesium-137 and europium-152 were the most frequently detected radionuclides and had the highest concentrations. Maximum concentrations of cesium-137 and europium-152 were 4.6 and 1.8 pCi/g, from a 100 H sample. Radionuclide varieties and abundances and concentrations were greatest in the area from 100 D to the 100 F Slough. Fewer radionuclide varieties and generally lower concentrations were found upriver, and at 100 B/C, 100 K, and Hanford Townsite localities.	*100 Area Columbia River Sediment Sampling* (WHC-SD-EN-TI-198)
Wells, Springs, and River Water, and Sediment Sampling in the 300-FF-5 OU (1993)—Selected wells, springs and river water, and sediments samples were collected from the 300-FF-5 OU in support of Phase I RI studies. During low flow in September 1992, water was collected from wells 399-1-10A, 399-4-9, and five springs located along the Columbia River shoreline in the 300 Area. River samples were collected off-shore at 3, 10, and 20 ft distances at river stations located upriver, adjacent, and downriver of three selected flowing seeps. Sediment samples were collected at four spring stations at the point of spring entrance into the river. COCs for all samples included radionuclides, metals, and VOCs.	For the COCs, only total uranium was found to exceed drinking water standards at both wells and two springs. River concentration of uranium exceeded the standard at one location at the 3 ft distance. Tritium was elevated at the northern springs and decreased downriver. Sediments were not found to be an important sink for COCs.	*Sampling and Analysis of the 300-FF-5 Operable Unit Springs and Near Shore Sediments and River Water* (WHC-SD-EN-TI-125)
Zone of Groundwater/River Interaction (2001)—A numerical simulation model was developed that illustrates the water movement within the zone of groundwater/river interaction (ZOI) in 100-H. Another focus on this study involved the mixing between groundwater and river water within the ZOI.	One of the key findings to this study was that the two-dimensional flow model for 100 H indicates that as river water infiltrates the bank during high river stage, groundwater flow path lines are deflected downward beneath the riverbank region. In the mixing study, it was determined that the degree of mixing that occurs is a function of the stratigraphy at the interface, the amplitude of the river stage change, and the duration of the river stage change. The topical areas where information from field studies is most relevant to near-term information needs include water movement in three dimensions, contaminant attenuation in the zone of interaction, and methods to monitor contaminant movement through the zone of interaction.	*Zone of Interaction Between Hanford Site Groundwater and Adjacent Columbia River: Progress Report for the Groundwater/River Interface Task Science and Technology Groundwater/Vadose Zone Integration Project* (PNNL-13674)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Hyporheic Zone Investigation (2007)—This report documents research conducted to meet these objectives by developing baseline data for future evaluation of remedial technologies, evaluating the effects of changing river stage on near-shore groundwater chemistry, improving estimates of contaminant flux to the river, providing estimates on the extent of contaminant discharge areas along the shoreline, and providing data to support computer models used to evaluate remedial alternatives. This report summarizes the activities conducted to date and provides an overview of data collected through July 2006.	At the Hanford Site, contaminated groundwater discharges to the Columbia River after passing through a zone of groundwater/river water interaction at the shoreline; i.e., the hyporheic zone. The Remediation Task of the Remediation and Closure Science Project conducts research to meet several objectives concerning the discharge of groundwater contamination into the river at the 300 Area of the Hanford Site. The general conclusions as a result of this work are listed below: ***Geology*:** A hydro stratigraphic contact between two distinct geologic layers exists in the near-shore region adjacent to the 300 Area. This contact is interpreted to be the interface between the Hanford formation (or river alluvium) and the Ringold Formation. This is consistent with recent geologic interpretations conducted inland of the Columbia River; the elevation of this contact in the near-shore region is generally consistent with the elevations mapped out inland based on well log data and it outcrops directly in the river channel in some locations. ***Water Sampling*:** Specific conductance provided a good indication of uranium concentration in water samples collected from the hyporheic zone; concentrations of most constituents measured in water in the hyporheic zone varied proportionally with specific conductance, indicating the relative dilution of groundwater by Columbia River water; uranium concentrations in the hyporheic zone were measured as high as 195 µg/L; there was no evidence of uranium sorption onto sediment in the hyporheic zone. The ratio of tritium to uranium in samples did not vary with specific conductance. In addition, filtered/unfiltered sample pairs had similar measured uranium concentrations; the Ringold Formation appeared to limit vertical movement of contamination for both tritium and uranium; and the uranium concentration in the hyporheic zone changed rapidly in response to changing river stages, although deeper locations responded slower than shallower locations. ***Uranium Uptake in Clam*:** The uranium concentration in clam soft tissue increased in a matter of days when the uranium concentration in water was increased; the uranium concentration in clam soft tissue decreased at a slower rate when the uranium concentration in water was decreased. ***Continuous Monitoring*:** Specific conductance, temperature, and uranium concentration change rapidly in the hyporheic zone in response to changing stages in the Columbia River; the direction of the hydraulic gradient at the water-sediment interface is determined by the river elevation and the near-shore aquifer elevation.	*Investigation of the Hyporheic Zone at the 300 Area, Hanford Site* (PNNL-16805)
Aquifer Tube Sampling (2007)—In fiscal year 2007, 319 tubes were scheduled for sampling, and 289 of these were usable for sampling. A total of 202 tubes had high enough specific conductance to collect samples.	Several 300 Area aquifer tubes detected higher levels of TCE than were detected in groundwater monitoring wells. The routinely-monitored wells are completed at the top of the aquifer and deeper into the Ringold Formation, while the aquifer tubes were screened at an intermediate depth. The 300-FF-5 LFI continues to investigate the distribution of TCE with depth in 300 Area.	*Aquifer Sampling Tube Results for Fiscal Year 2007* (SGW-35028)
Groundwater Upwelling Study(2010)—This report summarizes field work conducted from 2008 through 2010 throughout an approximate 64 km (40 mi) section of the Columbia River where contaminated groundwater was known or suspect. The work included preliminary mapping and measurement of Hanford Site contaminants in sediment, pore water, and surface water located in areas where groundwater upwelling were found.	This report summarizes the field work associated with one of the components of the remedial investigation of Hanford Site releases to the Columbia River. The focus of this component was to delineate areas where contaminated groundwater is upwelling (emerging) in the Columbia River bottom within the Hanford Reach area and to determine concentrations of radionuclides, trace metals, and organic compounds in sediment, pore water, and surface water at those locations. In the 300 Area, nine sample locations were selected for the final phase (Phase III). Concentrations of total uranium in surface water ranged from 5 to 197 µg/L, which is consistent with known plumes in the 300 Area. Data collected during this activity supported development of a conceptual site model, and was utilized for both ecological and human health risk assessments.	*Field Summary Report for Remedial Investigation of Hanford Site Releases to the Columbia River, Hanford Site, Washington: Collection of Surface Water, Pore Water, and Sediment Samples for Characterization of Groundwater Upwelling* (WCH-380)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Air Studies/Investigations		
Stack Air Emissions Deposition (2005)—This report provides historical information regarding Hanford Site stack air emissions and soil sampling study results for the purpose of assessing the potential for areas of contamination from stack air emission deposition in the 100 and 300 Areas. The report also presents previous background surface soil sample locations assessing airborne contaminant deposition on the Hanford Site.	This report provides historical information regarding Hanford Site stack emissions and soil investigations to assess stack-related deposition in the 100 and 300 Areas. The report concludes: (1) there is no evidence that waste sites should exist in the River Corridor as a result of historical air emission deposition; (2) recent Hanford Site radiological surveys and recent onsite and offsite vegetation and soil studies have not identified any areas of elevated contamination caused by historical air emissions; and (3) the evaluation of known air emissions and non-radionuclide contaminants included in Hanford Site processes shows that deposition of hazardous or toxic materials from air emissions have been negligible.	*RCBRA Stack Air Emissions Deposition Scoping Document* (DOE/RL-2005-49)
Remedial Investigation/Feasibility Studies		
Phase I/II Feasibility Study 300-FF-1 OU (1992)—The scope of work for this Phase I/II FS included five primary tasks: (1) review existing documents and their associated data from relevant investigations and studies, (2) establish remedial action objectives (RAOs) and general response actions (GRAs), (3) identify applicable or relevant and appropriate requirements (ARARs) pertinent to all GRAs (including waste disposal), (4) develop remedial alternatives (Phase I) applicable to the 300-FF-1 OU including identification and screening of technologies and process options, and assembly of remedial alternatives from representative technology types, and (5) screen alternatives (Phase II) developed in Phase I for implementability, effectiveness, and cost to identify those alternatives which warrant advancement to the detailed analysis phase (Phase III) of the FS.	The purpose of this Phase I/Il FS was to develop and screen a range of alternatives for remediation of contamination present in the vadose zone of the 300-FF-1 OU. Risk assessment results from both the 300-FF-1 preliminary baseline risk assessment and the RI Report were reviewed and compared for the process ponds and trenches. A comparison of the results indicates that the primary sources of risk for both assessments are the same, i.e., the radionuclides, cobalt-60, cesium-137, and uranium-238. In the PBRA, the highest risk was shown to be cobalt-60 (cancer risk 2×10^{-3}), whereas in the RI, the highest risk was cobalt-60 at 2×10^{-4}, an order of magnitude lower than the PBRA for this radionuclide. The RI identified additional contaminants, which were not identified in the preliminary baseline risk assessment as follows: Thorium-228 at both process trenches and South Process Pond, Uranium-234 at the North Process Pond, benzo(a)pyrene in the pre-expedited response action process trench soils, and arsenic at the filter backwash. However, risks calculated for all these contaminants did not alter the conclusion that the principal radionuclides (cobalt-60, cesium-137, and uranium-238) pose the greatest risk in terms of human health effects. In conclusion, the difference in risk assessment results does not impact the identification, development, and screening of remedial alternatives in this FS, because the FS was developed based on the principal contaminant types.	*Phase I and II Feasibility Study Report for the 300 FF 1 Operable Unit* (DOE/RL-92-46)
Phase I Remedial Investigation 300-FF-5 (1994)—Data collected and evaluated during the remedial investigation provided information needed to develop and analyze remedial alternatives in the feasibility study, while preliminary FS analyses provide a focus for further RI activities. The goal was to increase the initial understanding of the 300-FF-5 OU by characterizing the nature and extent of the threat to human health and the environment posed by the contamination in the groundwater and saturated sediments of the OU.	Groundwater contamination at the 300-FF-5 OU generally consists of three main plumes. The primary plume, and the only one of the three derived from 300 Area operations, is centered in the 300-FF-1 OU, primarily in the vicinity of the 316-5 process trenches, and the 316-2 and 316-1 North and South Process Ponds. Compounds associated with this plume are the organic compounds (DCE and TCE), nickel, copper, Sr-90, and the uranium isotopes. This document concluded that there is no evidence of imminent and substantial endangerment to human health from exposure to the 300-FF5 OU contaminants. The greatest current risk to humans exists from inhalation of chloroform from the industrial onsite well 399-4-12. All other current risk levels to humans are below an increased cancer risk (ICR) of 10^{-6}. The ecological risk assessment does indicate a potential risk to aquatic organisms. Additional data to determine average near shore river concentrations of contaminants at various river stages are required for a more accurate evaluation of ecological risks. The recommendation for additional investigation includes determination of valence state of chromium in 300-FF-1 sources, Columbia River sampling to determine average concentration of 300-FF-5 contaminants of concern in the river, continued monitoring of the TCE and DCE plumes in the 300-FF-5 OU, and determination of uranium fate and transport.	*Phase I Remedial Investigation Report for the 300-FF-5 Operable Unit* (DOE/RL-93-21)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Phase III FS Report (1994)—The purpose of this Phase III FS was to develop alternatives for remediation of the 300-FF-1 OU. These alternatives provide a range of potential response actions for remediation.	Two groups of alternatives were developed and evaluated in the Phase III FS. The alternatives for the process waste units, including the process and sanitary sewers, the Sanitary Tile Field and the Sanitary Sewage Trenches, and Landfill 1b, were no action, consolidation and surface barrier, excavation and disposal, and excavation, soil washing, and fines disposal. The alternatives for Burial Grounds No. 4 and No. 5 and Landfills 1a, 1c, and 1d were no action, institutional controls, consolidation and surface barrier, and excavation and disposal.	*Phase III Feasibility Study Report for the 300-FF-1 Operable Unit*, (DOE/RL-94-49)
RI/FS Report 300-FF-5 (1994)—The purpose of the 300-FF-5 OU RI was to gather and develop the necessary information to assess the nature and extent of contamination in OU environmental media, to understand the associated risks posed to human health and the environment, and to support the development and evaluation of remedial alternatives during the FS.	Contaminated groundwater from the 300 Area does not currently pose unacceptable risk to human health or the environment. The only current use of groundwater in the 300 Area is the industrial production Well 399-4-12. Groundwater in the 300 Area is not planned to be used for drinking water. The estimated risk in this well primarily results from chloroform at concentrations below the MCL typical of municipal water supplies.	*Remedial Investigation/Feasibility Study Report for the 300-FF-5 Operable Unit* (DOE/RL-94-85)
Phase I/II FS Report (1994)—The purpose of this report was to assemble and screen a list of alternatives for remediation of the 300-FF-5 OU, based on the information gathered in the Phase I RI. These alternatives will, to the degree feasible, provide a range of response actions for remediation.	Sixteen alternatives were identified for meeting remedial action objectives at the 300-FF-5 OU, including alternatives that rely on natural recovery (no action and institutional controls), alternatives that provide active remediation of the highest contaminant concentrations and natural recovery or remaining contamination, and alternatives that provide extensive active remediation. Eight of these alternatives remained after screening based on effectiveness, implementability, and cost.	*Phase I and II Feasibility Study for the 300-FF-5 Operable Unit* (DOE/RL-93-22)
300-FF-5 RI/FS Report (1995)—The RI/FS was performed to characterize the nature and extent of contamination, assess risks to human health and the environment, and develop and evaluate alternatives for remediation of contamination in the 300-FF-5 OU that has resulted from 300 Area operations.	Conclusions of the RI/FS cover the following: uranium and DCE/TCE trends in the unconfined aquifer; filtered versus unfiltered uranium analyses; evaluation of sorption-controlled release mechanism; refinement of the estimates regarding time required for uranium to reach acceptable levels; and baseline risk assessment. If groundwater extraction and treatment are included in the selected remedy, treatability studies during final design will be needed to determine parameters needed for final design of the system.	*Remedial Investigation/Feasibility Study Report for the 300-FF-5 Operable Unit* (DOE/RL-94-85)
300-FF-2 Focused Feasibility Study (2000)—Forty 300 Area Complex source waste sites, seven outlying source waste sites, seven general content burial ground sites, and two transuranic-contaminated burial ground sites are included in the remedial action scope for the 300-FF-2 OU. Groundwater assessment and remedial actions associated with groundwater contamination from these waste sites were identified as part of ongoing actions associated with the 300-FF-5 OU.	The FFS provided information and rationale to evaluate waste sites in the 300-FF-2 OU. The analysis was conducted using several human health exposure scenarios and known characteristics specific to OU waste sites. Three remedial alternatives were retained: no action, containment, and remove/treat/dispose (RTD). Each alternative was evaluated using Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) threshold, balancing, and state and community acceptance criteria.	*Focused Feasibility Study for the 300-FF-2 Operable Unit* (DOE/RL-99-40)
Risk Assessments		
Biota of 300-FF-1 OU Summary (1990)—In 1989 and 1990, surveys were conducted of plants, birds, and medium- to large-sized mammals at the 300-FF-1 OU. The purpose was to determine what species are present, focusing on those species that are listed by U.S. Fish and Wildlife Service or the State of Washington as threatened or endangered, are of economic importance, or that constitute significant components of the human food chain.	The plan community over most of the OU is primarily cheatgrass, Russian thistle, and grey rabbitbrush. Plant species indicated as contaminant migration pathways to humans or threatened or endangered species include mulberry, bitterbrush, cheatgrass, bulrushes, and asparagus. Twenty-five bird species were seen during the transect surveys. The bird species potentially involved in the spread of contaminants to people through dietary intakes are rock dove, mallard, Canada goose, and mourning dove. Seven medium- to large-sized mammals used the 300-FF-1 OU. The mule deer presents the most likely pathway for contaminant exposure to humans. Its mobility and use as a desirable food by humans place it in a position of exposure risk to humans.	*Biota of the 300-FF-1 Operable Unit* (EMO-1016)
Nonradioactive Metals Concentrations (1991)—Collection sites for asparagus were identified to provide local background estimates, Hanford Site background, and regional background, as well as potentially contaminated areas. Twigs and leaves of rabbitbrush were collected by clipping the terminal few inches of branches of new growth. Sandberg's bluegrass was also collected by clipping.	The nonradioactive metals of most environmental concern to the 300-FF-1 OU are chromium, copper, lead, nickel, and zinc. Metals released in smaller amounts were silver, beryllium, cadmium, and mercury. Metal concentrations in asparagus were compared between commercial fields, abandoned fields, and wild plants growing along the shoreline of the Columbia River. Rabbitbrush plants sampled along the exclusion-zone fence had higher mean concentrations of chromium, copper, lead, nickel, and zinc than did shrubs collected at locations remote of the OU. The only metal found in concentrations above background within the Sandberg's bluegrass was zinc.	*Nonradioactive Metals Concentrations in Asparagus, Rabbitbrush, and Sandberg's Bluegrass* (WHC-MR-0255)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Small Mammals and Harvester Ants Study (1992)—A survey or burrowing rodents and harvester ants was conducted in the vicinity of the 300-FF-1 OU during late summer 1991.	The pocket mouse was the most abundant mammal trapped at 300 Area waste sites. Deer mice prefer green vegetation and arthropods, and tend to occupy areas in shrub cover near a water source, as evidenced by the higher percentage of deer mice captured near the river. Deep-rooted plants growing on a burial ground could, if demonstrated to uptake contaminants, provide a pathway for radionuclides and other hazardous material to reach deer mice. Ground squirrels may also be an important link in the potential transport of hazardous materials from the waste site because their diet is dependent on plant material. Unlike those from small mammals, food chain transfers from ants may lead to humans if ants are found to be contaminated. The potential exposure pathway for game birds in the area shows that contaminated insects could be eaten by game birds. Another route of exposure or movement of contaminants offsite may be initiated by harvester ants as they turn over contaminated soils. The exposed soils then would be exposed to wind and water erosion. Ants may excavate deeply buried wastes and mobilize a large amount of material.	*Small Mammals and Harvester Ants in the 300-FF-1 Operable Unit* (WHC-SD-EN-TI-028)
Metal Concentration in Vegetation (1992)—Samples of asparagus were collected from the operable unit, its immediate vicinity, old fields at the Hanford Townsite, and commercial fields. Grey rabbitbrush and Sandberg's bluegrass samples were collected just outside the exclusion zone fences in the OU and a control area north of the OU. Samples were dried, ground, and analyzed for metal COCs, isotopic uranium, beryllium-7, and technetium-99.	Asparagus plants growing in and just downriver from the 300-FF-1 OU contained aluminum, barium, iron, manganese, and uranium in concentrations greater than those found in samples representative of local background. For rabbitbrush samples, the only reported concentrations of chromium and nickel that were above detection limits were found in a sample of rabbitbrush from east of the Process Trenches. Concentrations of copper, lead, zinc, and uranium were higher in samples from the margin of the North Process Pond than anywhere else, although only lead and zinc were significantly elevated statistically in the OU versus local background. Concentrations of copper, zinc, and uranium in Sandberg's bluegrass exhibited elevated concentrations. Copper and uranium concentrations were highest in samples from the margin of Burial Ground #4.	*Metals Concentrations in Vegetation of the 300-FF-1 Operable Unit and Vicinity* (WHC-SD-EN-TI-026)
300-FF-1 Risk Assessment (1992)—A preliminary baseline risk assessment has been prepared to evaluate the potential threats posed by contaminants historically detected at 300-FF-1. The purpose is to provide COPCs at the 300-FF-1 OU to facilitate the development of the FS.	The preliminary baseline risk assessment provides a relative indication of the contaminants that pose a potential human health risk. Within the 316-5 Process Trenches, the overall risk from the external exposure pathway is the greatest with the soil ingestion pathway providing the next highest risk. The dermal exposure pathway at the process trenches in negligible. Within the 316-1 and 316-2 Process Ponds, the pathway representing the greatest risk is the external exposure pathway, followed by the fugitive dust pathway, the soil ingestion pathway, and the dermal exposure pathway. At the 307 Trenches, no radioactive contaminants of potential concern were evaluated. The highest estimated risk is associated with soil ingestion, followed by the dermal exposure and fugitive dust pathways.	*300-FF-1 Preliminary Baseline Risk Assessment* (WHC-SD-EN-RA-002)
Update to Current Conditions Portion of Baseline Risk Assessment (2007)—The scope for this assessment includes only current measured environmental concentrations and potential scenarios under current access restrictions. Environmental concentrations used in this report were collected from 1994 through 2005.	Three major conclusions result from this risk assessment: (1) the results of this risk assessment are consistent with the 1994 baseline risk assessment for those constituents of concern included in the 1996 Record of Decision (ROD) and for current exposure scenarios. (2) uranium was the primary contributor to ecological and human health impacts under current conditions in the 300 Area as the result of migration of uranium-contaminated groundwater to surface water exposure points where direct ingestion occurred and also where uranium was incorporated into the food chain, and (3) direct exposure to groundwater is currently prevented by access restrictions in the 300-FF-5 Groundwater OU. If access restrictions are not imposed, direct ingestion of groundwater may yield hazards and risks that exceed threshold levels.	*Current Conditions Risk Assessment for the 300-FF-5 Groundwater Operable Unit* (PNNL-16454)
Risk Assessment Report for the 100 and 300 Areas (2007)—The 100 and 300 Area Component of the River Corridor Baseline Risk Assessment addresses post-remediation residual contaminant concentrations in the 100 Area and 300 Area, as well as the Hanford Townsite and White Bluffs Townsite. This assessment also investigated risks related to the potential transport of Hanford Site contaminants into Columbian River riparian and near-shore environments adjacent to the operational areas.	Potential health impacts were estimated for humans who may use the Hanford Site along the Columbia River. Risk at remediated waste sites associated with soil, groundwater, and fish ingestion pathways under various exposure scenarios (Recreational, Industrial/Commercial, Resident National Monument/Refuge, Rural Resident, and Native American) were evaluated. The risk assessment results for individual waste sites sometimes exceeded protective thresholds for the exposure scenarios and health effects evaluated.	*Risk Assessment Report for the 100 Area and 300 Area Component of the River Corridor Baseline Risk Assessment* (DOE/RL-2007-21)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Leaching Studies		
Physical Separations Soil Washing (1993)—The physical separations soil washing test was conducted in preparation for a treatability test to be conducted in the North Process Pond of the 300-FF-1 OU. The setup test was conducted at an uncontrolled area located approximately 3.2 km northwest of the 300-FF-1 OU.	The physical separations test was considered a success because soil material was sorted cleanly into +6 in. particles, 6 in. to 1 in. particles, 1 in. to 2 mm particles, and 2 mm to 0.425 mm particles with a small percentage of fines in the separated soil. The system operated well and processed 45 tons of soil. Regulators and the DOE Richland Operation Office (DOE-RL) were able to see the system in operation and look closely at the equipment while still in an unrestricted area. As a result of the test, equipment modifications for processing in the radiation zone were identified to provide dust control and reduce splashing.	*Physical Separations Soil Washing System Cold Test Results* (WHC-SD-EN-TI-188)
Leaching Tendencies of Uranium and Regulated Trace Metals (1994)—Various leach tests were performed on the 300 Area North Process Pond sediments, a sample from outside the pond, and the fine sludges obtained by physical soil washing pond sediments. Absorption tests were performed to evaluate the potential for contaminant removal by uncontaminated sediments underlying the Process Pond and in the upper unconfined aquifer.	None of the leach tests performed generated leachates that exceeded limits for Resource Conservation and Recovery Act (RCRA) regulated metals that would require designating the sediments as hazardous waste. The sediment obtained outside the North Process Pond and used in the absorption tests contained significant amounts of evaporated salts that dissolved and released significant quantities of chemicals.	*Leaching Tendencies of Uranium and Regulated Trace Metals from the Hanford Site 300 Area North Process Pond Sediments* (PNL-10109)
Uranium Leach and Adsorption Project (2002)—Three batch adsorption experiments were performed to investigate the effect of uranium solution concentration, pH, and dissolved inorganic carbon solution concentration on uranium adsorption onto the uncontaminated sediment.	The objective of the 300 Area K_d/leach study was to perform controlled laboratory experiments to measure the leaching and adsorption characteristics of uranium in near-surface sediment samples collected from the 300 Area of the Hanford Site for later use in modeling uranium mobility for the 300-FF-1 and 300-FF-2 OU waste sites. The study found that less than 4 percent of the existing uranium in the contaminated near-surface sediments readily leached into "simulated" rainwater over a period of 6 months. Uranium sorption onto uncontaminated 300 Area sediment was shown to be highly variable and dependent upon solution conditions. Therefore, predicted K_d values based on site specific conditions expected in the 300 Area range from a low of 0 to 1 mL/g in the near-surface vadose zone that is influenced by evapotranspiration to 2 to 4 mL/g in the unconfined aquifer sediments not influenced by dilution with Columbia River water. Although not studied in detail, adsorption K_d values in the saturated aquifer where dilution due to River water is present (lower total carbonate solution concentration) could create adsorption Kd values in excess of 7 mL/g.	*300 Area Uranium Leach and Adsorption Project* (PNNL-14022)
Treatability Studies		
Mass Transfer of the 300 Area Uranium Plume (2007)—The primary objectives included: (1) quantify the role of mass transfer in controlling U(VI) distribution under various geochemical, hydrologic, and remedial conditions in the vadose and saturated zones, (2) investigate in-situ microbiologic processes that couple with mass transfer to control U(VI) fate, transport, and remediation, (3) create enduring field experimental data sets for model and field-scale hypothesis evaluation, (4) test and improve existing models of multi-reaction chemistry and multi-scale mass transfer by comparison to new, robust experimental data, and (5) proactively transfer results to site for decision making and remediation. The approach to these objectives are the following: (1) robust three dimensional (3D) geostatistical characterization of the experimental domain, (2) field experimental campaigns based on three hypotheses at an integrated vadose zone-saturated zone site, (3) modeling of different types, and (4) leverage of broad data base and other site activities.	The accomplishments of the study include: (1) Subcontracts with external collaborators are being finalized, (2) Project Management, Field Site Management, Quality Assurance/Quality Control (QA/QC), and Health and Safety Plans, and the National Environmental Policy Act (NEPA) documentation completed, (3) Web-site under development with problems, (4) Criteria established for site selections. Geophysical surveys to aid in site placement in South Process Pond completed. Collaboration with EM-40 on SPP borehole provides data and "free well," (5) Wells nearby SPP instrumented for continual monitoring to improve site hydrological model, (6) premodeling of tracer experiments performed to aid in site design and monitoring array and configuration and spacing, (7) Design of experimental site and monitoring system completed; drilling to begin in January, (8) Characterization and Field Experimental Plans underway in response to final site design, (9) Infrastructure for injection experiments identified and needed equipment is being procured, (10) Data base management task initiated. Prototype data sets for geology, geochemistry, hydrogeology, and geophysics input to data base, and (11) Coordination with electromagnetic projects established. PNNL laid out anticipated outcomes for this project: an outstanding, multidisciplinary collaborative effort that could significantly advance science; enduring and accessible field experiment data sets for hypothesis and model testing; improved linked multi-scale mass transfer/biogeochemical models for reactive contaminants; and new conceptual understanding of mass transfer processes at different scales influencing field behavior.	*Multi-Scale Mass Transfer Processes Controlling Natural Attenuation and Engineered Remediation: An IFC Focused on Hanford's 300 Area Uranium Plume*, (PNNL-SA-58090)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Challenges with Apatite Remediation (2008)—The objective of the treatability test was to evaluate the efficacy of using polyphosphate injections to treat uranium-contaminated groundwater in situ. A test site consisting of an injection well and 15 monitoring wells was installed in the 300 Area near the process trenches that had previously received uranium-bearing effluents.	This report describes bench- and field-scale treatability testing designed to evaluate the efficacy of using polyphosphate injections to reduce uranium concentrations in the groundwater to meet drinking water standards (30 µg/L) in situ. Polyphosphate injection was selected for testing based on technology screening as part of the 300-FF-5 Phase III Feasibility Study for treatment of uranium in the 300 Area. This report summarizes the issues limiting the formation of apatite within the test. Two separate overarching issues affect the efficacy of apatite remediation for uranium sequestration within the 300 Area: (1) the efficacy of apatite for sequestering uranium under the present geochemical and hydrodynamic conditions, and (2) the formation and emplacement of apatite via polyphosphate technology. In addition, the long-term stability of uranium sequestered via apatite is dependent on the chemical speciation of uranium, surface speciation of apatite, and the mechanism of retention, which is highly susceptible to dynamic geochemical conditions. It is expected that uranium sequestration in the presence of hydroxyapatite would occur by sorption and/or surface complexation until all surface sites have been depleted, but the high carbonate concentrations in the 300 Area would act to inhibit the transformation of sorbed uranium to chernikovite and/or autunite. Adsorption of uranium by apatite was never considered a viable approach for in situ of uranium sequestration in of itself, because by definition, this is a reversible reaction. The efficacy of uranium sequestration by apatite assumes that the adsorbed uranium would subsequently convert to autunite, or other stable uranium phases. Because this appears to not be the case in the 300 Area aquifer, even in locations near the river, apatite may have limited efficacy for the retention and long-term immobilization of uranium at the 300 Area site.	*Challenges Associated with Apatite Remediation of Uranium in the 300 Area Aquifer* (PNNL-17480)
Uranium Stabilization through Polyphosphate Injection (2009)—A test site consisting of an injection well and 15 monitoring wells was installed in the 300 Area near the process trenches that had previously received uranium-bearing effluent. This report summarizes the work on the polyphosphate injection project, including bench-scale laboratory studies, a field injection test, and the subsequent analysis and interpretation of the results.	The baseline uranium concentration in the targeted primary treatment zone ranged from approximately 60 to 80 µg/L during the three pre-treatment monitoring events. After the injection test, aqueous uranium concentrations were routinely monitored to assess treatment performance. The initial uranium performance data indicate relatively good direct treatment of uranium through the formation of uranyl-phosphate mineral phases (i.e., autunite). Although initial post-treatment uranium concentrations decreased to below the drinking water standard of 30 µg/L, a significant rebound in uranium concentration was observed approximately 2 months after treatment. In general, uranium performance monitoring results support the hypothesis that limited long-term treatment capacity (i.e., apatite formation) was established during the injection test.	*300 Area Uranium Stabilization Through Polyphosphate Injection: Final Report* (PNNL–18529)
Other Studies/Investigations		
Unconfined Underground Radioactive Waste (1955)—This report summarizes unconfined underground radioactive waste in the 300 Area, which had not been mentioned in other reports.	Short summaries of the following waste sites are included in this report: relocated burial ground, liquid waste disposal trenches for new laboratory area, old waste pond, new waste pond, various solid waste burial grounds, various burning grounds, 321 Cribs, 300 North Solid Waste Burial Ground, buried contaminated soil from the 303 Area, buried solvent wastes, P-11 Crib, and the 120 Building and immediate surrounding area.	*Unconfined Underground Radioactive Waste And Contamination in the 300 Area and Miscellaneous Areas Not Included in Other Reports* (HW-39076)
300 Area Burial Ground Characterization (1979)—Characterization of the 300 Area Burial Grounds included geophysical evaluation, geochemical analysis, fluid transport characterization and modeling, and biological transport.	The work in this task consisted of characterizing the geohydrologic system and applying a computer model to describe unsaturated zone fluid flow. Some conclusions of this project include evaporative drying, capillarity, and gravity flow are the dominant forces moving fluid through sediments at the Hanford Site. Thermally induced water flow is insignificant in subsurface sediments at the Hanford Site. Isothermal models of fluid transport are acceptable for seasonal predictions of water flow. Effects of previous rainfall history have a significant influence on the drainage of water balance. It is believed that the example simulations clarify an indispensable need for using model simulation as an approach to estimating drainage, because direct field measurements using neutron probes and other instrumentation may prove inadequate due to measurement error or uncertainty.	*Characterization of the Hanford 300 Area Burial Grounds: Task III - Fluid Transport and Modeling* (PNL-2921)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Biological Transport (1979)—This report provides and ecological description of the waste burial sites of the 300 Area and discusses major ecological pathways of radionuclide transport important to consider in the decontamination and decommissioning of dry land waste burial sites.	The potential for biological uptake and transport of buried waste in the 300 Area is low but does exist. The principal ecological mechanisms or radionuclide uptake and transport involve plant root penetration to buried waste and small mammal exposure to ionizing radiation, ingestion of contaminated plant material, and direct external contamination by utilization of cave-ins for shelter. Recommendations include a reduction in wind-induced soil erosion through soil additives, alteration of surface texture, and plantings of shallow-rooted plants, as well as establishment of biobarriers to plants and animals.	*Characterization of the Hanford 300 Area Burial Grounds: Task IV - Biological Transport* (PNL-2774)
Burial Grounds Characterization (1980)—Characterization involves the following: (1) review of pervious related investigations, (2) identification of suitable disposition alternatives for nuclear waste burial grounds, (3) review of regulatory issues, (4) survey of the general area, burial sites, and operations, (5) analysis of the geohydrologic system, potential transport pathways, and monitoring procedures, and (6) technology development and characterization.	The "Characterization of the Hanford Site 300 Area Burial Grounds" project consisted of a review of decontamination and decommissioning alternatives; an overview of the burial sites and operations; a description of the surrounding environment; and an assessment of radionuclide migration. Methodologies for characterizing nuclear waste burial grounds were developed and/or applied to the 300 Area.	*Characterization of the Hanford 300 Area Burial Grounds* (PNL-2557)
Hexavalent Chromium Evaluation (1992)—In order to resolve the issue regarding the existence or nonexistence of hexavalent chromium in the 300-FF-1 and 300-FF-5 OUs, a close look at the sample data from the representative wells in and around 300-FF-1 was taken. Samples were collected from 20 wells and a total of 686 samples were collected during the period between June 17, 1985 and December 18, 1991.	Since hexavalent chromium is soluble and hence much more mobile, it is expected that any hexavalent chromium that did not reduce to trivalent chromium would have long since been transported to the river via the groundwater and is no longer onsite. The amount of chromium detected in the samples was below drinking water standard (50 ppb) for 99.7 percent of the unfiltered samples. Only one sample was over 50 ppb and that sample was still under the freshwater aquatic life standard. Therefore, it can be concluded that the chromium found in the soils of 300-FF-1 and in the groundwater of 300-FF-5 will cause no significant risk to human health and the environment.	*Evaluation of Hexavalent Chromium for 300-FF-1 and 300-FF-5 Operable Units* (WHC-SD-EN-TI-039)
Contaminant Concentration vs. Particle Size in North Process Ponds (1992)—Three sediment samples from the 300 Area North Process Ponds were characterized for uranium-238, uranium-235, gamma emitters, and selected metals as a function of particle size.	Based on dry sieving, all three sediment samples were coarse with greater than 70% of the particles being gravel and less than 2.5 percent silt and clay. The sediments showed elevated concentrations of uranium-238, uranium-235, and numerous metals. In general, the concentrations of metals show a progression of higher concentrations as the particle size decreases. When cleanup goals are determined, it may be necessary to adjust the amount of sediments removed by raising or lowering the split point in order to achieve a clean soil. A treatability test that simulates actual soil washing could provide additional information on this issue.	*Contaminant Concentrations Versus Particle Size for the 300 Area North Process Pond Samples* (WHC-SD-EN-TI-049)
Soil Washington Physical Separations Test 300-FF-1 (1992)—The report provides the operations approach, a field sampling plan, and laboratory procedures for a soil washing test to be conducted in the 300-FF-1 OU.	This document describes specifications, responsibilities, and general procedures followed to conduct the physical separation soil treatability tests in the North Process Pond of the 300-FF-1 OU. The purpose of the test is not to prove or disprove technology but to determine effectiveness for reducing the mass of contaminated material. The test's effectiveness was discussed in a final report.	*Soil Washing Physical Separations Test Procedure for the 300-FF-1 Operable Unit* (WHC-SD-EN-TP-036)
Sediment and Process Water Characterization (1994)—The original scope included wet sieving 12 sediment samples received in a field-washed moist state within 1 gal or 5 gal paint cans, or large plastic carboys, depending upon the projected sediment particle size.	A total of 19 sediment and 1 filtered spent process water samples were analyzed. The moisture content of the coarse material shipped from the piles generated during the field washing were quite low but variable. Dry bulk density calculations were inaccurate because containers were not filled completely. Based on data collected, recommendations include changing the operating parameters such that the first vibrating screen rejects all particles larger than 9.5 mm, as opposed to larger than 1 in. Because there appears to be a large drop in uranium activity in particles above 9.5 mm size, such a preliminary cut would allow the washing process to concentrate on the "problem" size material. The spent process water from campaigns one and two appears to contain significant quantities of dissolved uranium. Dissolved chromium concentrations also reach 50 to 100 ppb. Based on measurements of the spent waters from the laboratory wet sieving that show little drop in observed concentrations for water used to wash fines up to cobbles/boulders, it is suspected that much of the "dissolved" material is actually colloidal particles smaller than 0.425 µm. It was recommended that spent wash water be treated to coagulate colloids. If coagulation is not successful, then reduction processes to reduce uranium-6 and hexavalent chromium to uranium-4 and trivalent chromium would likely prove useful.	*Sediment and Process Water Characterization in Support of 300 Area North Process Pond Physical Soil Washing Test* (WHC-SD-EN-TI-214)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Vitrification Testing (1994)—Crucible scale vitrification tests were conducted on soil fines. The soil fines test included both nonradioactive surrogate from the 600 Area and actual radioactive soil fines from the 100 and 300 Areas. Both physical and chemical properties were tested. Nine different glass compositions were formulated using the surrogate material, and the results of these tests were used to choose the glass formulation for use with the radioactive test materials. Radioactive samples from both the 100 and 300 Areas were vitrified, and the resulting products were tests for durability and for processability.	It was determined that the soil fines were generally similar in composition to the bulk Hanford Site soil, although the fraction <0.025 mm in the 100 Area soil sample appears to differ somewhat from the bulk soil composition. The soil fines are readily melted into a homogenous glass with the simple additions of CaO and/or Na_2o. The vitrified waste occupies only 60 percent of the volume of the initial untreated waste. Leach testing has shown the glasses made from the soil fines to be very durable relative to natural and man-made glasses and has demonstrated the ability of the vitrified waste to greatly reduce the release of radionuclides to the environment. Viscosity and electrical conductivity measurements indicate that the soil fines will be readily processable, although with levels of additives slightly greater than used in the radioactive melts. These tests demonstrate the applicability of vitrification to the contaminated soil fines and the exceptional performance of the waste form resulting from the vitrification of contaminated Hanford soils.	*Vitrification Testing of Soil Fines from Contaminated Hanford 100 Area and 300 Area Soils* (WHC-SD-EN-TI-240)
Ecological Investigation (1995)—The main objectives for this investigation were: (1) determine species composition and major species (2) identify and evaluate potential biocontamination pathways, and (3) evaluate the existing concentration levels of contaminants in plants and animals.	Common plant and animal species that could be considered as indicator species at the 300-FF-2 OU include the Great Basin pocket mouse, deer mouse, harvester ant, and Russian thistle. No plant or animal species classified as threatened or endangered by the state and/or federal governments reside at any of the high priority waste sites. Ecological surveys indicate that species of concern such as eagles, ferruginous hawks, loggerhead shrikes, and burrowing owls may use the 300-FF-2 OU on a seasonal basis, and precautions should be taken to minimize impacts during field operations.	*Ecological Investigation Technical Report for the 300-FF-2 Operable Unit* (BHI-00170)
618-11 Burial Ground Phase I Investigation (2000)—The Phase I investigation consisted of sampling existing monitoring wells in the vicinity of the 618-11 burial ground. The sampling included wells upgradient of the burial ground, downgradient wells, Energy Northwest water supply wells, and Energy Northwest monitoring wells. The samples were analyzed for a variety of radionuclides and chemicals including water quality parameters and potential contaminants. Sampling was conducted in February 2000.	The distribution of tritium points strongly to a probable source within the 618-11 Burial Ground. Other sources considered include the tritium plume from the 200 East Area and Energy Northwest operations. However, the tritium levels are too high to be explained by either of these sources. The distribution is inconsistent with the 200 East Area plume. Similarly, the high tritium is located upgradient of Energy Northwest WNP-2 reactor, so known discharges from Energy Northwest are unlikely to be the source.	*Evaluation of Elevated Tritium Levels in Groundwater Downgradient from the 618-11 Burial Ground Phase I Investigations* (PNNL-13228)
Uranium Geochemistry (2005)—This report summarizes research conducted to improve the conceptual model of the 300 Area uranium plume and to develop a final ROD for the 300-FF-5 OU.	The research goals included updating the conceptual model of uranium release/flux rates from the vadose zone and the migration velocity/desorption rate of uranium contamination in the aquifer by investigating the linked geochemical and hydrologic phenomena that govern those processes; identifying a geochemical reaction network that is responsible for uranium retardation in the vadose zone and groundwater, and describing the parameters of the reaction network in terms of thermodynamic and kinetic (chemical, mass transfer) variables; and integrating the conceptual model and reaction network into reactive transport simulations to evaluate vadose zone and capillary fringe fluxes and to forecast the future evolution of the uranium plume.	*Uranium Geochemistry in Vadose Zone and Aquifer Sediments from the 300 Area Uranium Plume* (PNNL-15121)
Fate and Transport of Tritium Contaminated Groundwater (2005)—Three tritium release scenarios were investigated to measure the impact expected at the primary receptor locations under different release conditions. The three cases include (1) a pulse release of tritium from the burial ground that provided the best fit between observed and simulated tritium concentrations, and (2) two alternative release scenarios designed to evaluate the effects of increasing mass release on predicted tritium concentration.	This report presents a detailed evaluation of the fate and transport of the 618-11 Burial Ground tritium plume and its potential impact on downgradient receptors. Tritium transport simulations conducted during this modeling effort indicate that mechanisms associated with dilution, dispersion, and radioactive decay have, in the past, and continue to attenuate the tritium plume from the 618-11 Burial Ground and limit the risk to the primary receptors (the Columbia River and Energy Northwest water supply wells). The alternative release scenarios include a continuing, decaying source beneath the burial ground through 2015, the milestone for source removal under the River Corridor Closure Contract, and a pulse release, similar to the best fit case, but at twice the concentration. In the best fit case, the model predicts that the maximum tritium concentration will decline to below the drinking water standard of 20,000 pCi/L by 2031. For the two alternative release scenarios, maximum tritium concentrations will decline to below the drinking water standard by 2040 and 2037, respectively. Simulations also indicate that tritium from the 618-11 Burial Ground is not expected to migrate to the primary receptor locations (the Columbia River and Energy Northwest water supply wells MW-31 and -32) at concentrations exceeding the drinking water standard. These simulations did not consider pumping from the Energy Northwest water supply wells, which, if sustained at high rates for long periods of time, could increase the observed concentration at this location.	*Evaluation of the Fate and Transport of Tritium Contaminated Groundwater from the 618-11 Burial Ground* (PNNL-15293)

Table N-1. Previous Investigations and Remedial Action Summary

Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Uranium Contamination 300 Area (2008)—The scope described in this report reflects the iterative nature of the remedial investigation process and is limited to the following: (1) The contaminant is uranium. (2) The geographic area is the 300 Area subregion of the 300-FF-5 OU, and includes the underlying vadose zone and uppermost aquifer. (3) The media include sediment and water (moisture) in the vadose zone, the uppermost aquifer, and the interface between the aquifer and the Columbia River systems.	The persistence of uranium contamination in groundwater at concentrations that exceed the EPA drinking water stand of 30µg/L prompted additional investigation of the plume itself and of technologies that could potentially be used to reduce concentrations to meet the standard. A new discovery is that the level of contamination in the plume is not falling at a rate that would cause concentrations to drop to below the drinking water standard in a reasonable length of time, which in the past has been defined as "by 2018," or the earliest date at which institutional controls on the use of the 300 Area may be relaxed. The conceptual model for this contamination identifies the following potential zones where contaminant uranium may be sequestered: (1) Vadose zone sediment immediately adjacent to the former liquid-waste disposal sites; (2) lower portion of vadose zone beneath the footprints of formal disposal sites; (3) a vertical zone through which the water table rises and falls, which is subdivided laterally into regions immediately beneath waste sites and other more widespread regions defined by the extent of the groundwater plume; (4) groundwater and solid materials in the upper portion of the unconfined aquifer; and (5) a zone of interaction between the aquifer and river systems.	*Uranium Contamination in the Subsurface Beneath the 300 Area, Hanford Site*, *Washington* (PNNL-17034)
Hanford Site Environmental Report (2009)—Individual sections within this report are designed to provide detail on the following: the Hanford Site and its mission; Hanford Site compliance with all applicable DOE, federal, state, and local regulations; status and results of Hanford Site cleanup and remediation activities; Hanford Site environmental management performance; Hanford Site environmental and groundwater monitoring programs and monitoring data findings; potential radiation doses to onsite staff and the public residing in the Hanford Site vicinity; and data quality assurance methods.	This report is prepared annually by PNNL and summarizes environmental data that characterize Hanford Site environmental management performance. The report also highlights significant environmental and public protection programs and efforts. Although this report is primarily written to meet DOE reporting requirements and guidelines, it also provides useful summary information for the public, Native American tribes, public officials, regulatory agencies, and Hanford Site contractors.	*Hanford Site Environmental Report for Calendar Year 2008* (PNNL-18427)
Borehole Completion and Conceptual Model (2009)—This report documents the details of the drilling, sampling, and well construction for 35 wells installed in 2008 over a former waste site, the South Process Pond (316-1 waste site), in the Hanford Site 300 Area.	Sediments overlying the Columbia River Basalt bedrock at the site belong to three geologic units: (1) the Ringold Formation, (2) the Hanford formation, and (3) backfill materials. The Ringold Formation ranges in age from late Miocene to Pliocene (8.5 to 3.4 million years) and consists of mostly fluvial-lacustrine sediments laid down during tectonic downwarping and infilling of the Pasco Basin. Overlying the Ringold Formation beneath the site are up to 50 ft of heterogeneous sand and gravel with variable amounts of silt and clay of the Hanford formation. The Hanford formation encompasses all the sediments deposited during Pleistocene-age cataclysmic floods. The water table lies within the Hanford formation everywhere within the site. Backfill materials consist of grayish-brown, poorly sorted, homogeneous mixtures of loose basaltic gravel and sand with lesser amounts of silt, derived from excavated and mixed, gravel-dominated facies of the Hanford formation. The thickness of the backfill varies across the site from about 5 m (16 ft) on the western side and approximately 2 m (7 ft) along the eastern side of the site.	*Borehole Completion and Conceptual Hydrogeologic Model for the IFRC Well Field, 300 Area, Hanford Site* (PNNL-18340)
Uranium Contamination in the 300 Area (2008) -The primary objectives of this characterization were to 1) determine the extent of uranium contamination in the sediments, 2) quantify the leachable (labile) concentration of uranium in the sediments, and 3) create a data set that could be used to correlate the present data to existing 300 Area data. To meet these objectives, sediment < 2mm in diameter collected from wells 399-2-5 (C5708), 399-3-22 (C5706) and 399-4-14 (C5707) was analyzed for moisture content, 1:1 sediment: water extracts (which provide soil pH, EC, cation, anion, and uranium data), total carbon and inorganic carbon content, 8 M nitric acid extracts (which provide a measure of the total leachable sediment content of contaminants and major constituents), microwave-assisted digestion (which results in total digestion of the sediment), and carbonate leaches (which provide an assessment of the concentration of labile uranium present in the sediments). Additionally, pore waters present in select samples were extracted using unsaturated flow apparatus (UFA).	Based on results from the present study, it appears that uranium contamination in the 300 Area vadose zone can be characterized using a two-source model. The first source is fairly widespread, with an area extent as large as the total 300 Area footprint that has been affected by fluctuations in river stage (i.e., elevated water table during times of high river stage). The uranium within this source is concentrated in the deeper vadose zone and capillary fringe, also known as the "smear zone," and is likely present at total concentrations ranging from 3 to 10 µg/g of sediment. The second source term is much more variable and has a much smaller footprint within the 300 Area. This source can be classified as containing "hot spots" of contaminant uranium at depths ranging from ground surface to the top of the unconfined aquifer. While uranium contamination from this second source term was not encountered as part of this investigation, previous studies (e.g., Serne et al. 2002) have reported concentrations in excess of 900 µg of sediment in the 300 Area.	*Uranium Contamination in the 300 Area: Emergent Data and their Impact on the Source Term Conceptual Model (PNNL-17793)*

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Scope of Work and (Publication Date)	Conclusions/Implications	Reference
Evaluation and Screening of Remedial Technologies for Uranium (2007) – This report documents the re-evaluation of remedies addressing persistent dissolved uranium concentrations in the upper aquifer under the 300 Area. This work is being conducted as a Phase III feasibility study for the 300-FF-5 Operable Unit.	Fifty-three technologies or management techniques for groundwater were initially identified. Thirteen of the 53 technologies were additions to the 40 identified in the original feasibility study *Phase I and II Feasibility Study Report for the 300-FF-5 Operable Unit*., U.S. Department of Energy, Richland Operations Office, Richland, Washington (DOE/RL-93-22). The additions are new in-situ technologies that were not known earlier. Evaluation of these technologies on the basis of criteria from the 1994 feasibility study (DOE/RL-93-22), including adjustments for 2006 conditions and with a focus on groundwater technologies, narrowed the original 53 technologies to 29 candidate technologies for groundwater. With the consolidation of 3 institutional control actions into 1 action, 27 actions and technologies were reduced to 13 using criteria of effectiveness and implementability. The 13 remaining technologies were reduced to two active technologies and two passive management strategies using the relative cost criteria. The resulting active technologies for groundwater are In-situ polyphosphate treatment and In-situ calcium citrate and sodium phosphate treatment. The resulting passive management strategies for groundwater are institutional controls (land-use restrictions, access controls) and monitored natural attenuation. The 1994 feasibility study (DOE/RL-93-22) also did not address the lower vadose zone; rather, the authors assumed that remedies deployed in the 300-FF-1 OU upper vadose zone would protect groundwater. A new list of 10 candidate technologies was identified. Using criteria of effectiveness and implementability, the 10 were reduced to 4 technologies. Three active technologies remained after applying relative cost criteria. The resulting active technologies for the vadose zone are more extensive excavation of sediment to the water table, vadose flushing with polyphosphate immobilizing agent, and vadose flushing with calcium citrate and sodium phosphate.	*Evaluation and Screening of Remedial Technologies for Uranium at the 300-FF-5 Operable Unit, Hanford Site, Washington (PNNL-16761)*

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