

APPENDIX G

Human Health Risk Assessment Tables

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TABLES

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Table G-1. SRC and COPC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7

Analyte (mg/kg)	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	Background Criteria ^a	SRC? (yes/no)	SRC Justification	Screening FWCUG ^b (HQ=0.1 or Risk=10 ⁻⁶)			Risk Screening Level	Screening Level Source ^c	COPC? (yes/no)	COPC Justification	Station at Max Detect	Date Collected at Max Detect
									RA	RC	NGT						
Metals and Anions																	
Aluminum	7429-90-5	62/62	5100	18000	9690	17700	Yes	Exceeds background	52923	7380	3496	3496	NGT	Yes	Exceeds screening level	LL7ss-002M	11/08/04
Antimony	7440-36-0	23/61	0.092	0.72	1.48	0.96	No	Below background	13.6	2.82	175	2.82	RC	No	Below background	LL7ss-010M	11/09/04
Arsenic	7440-38-2	62/62	7.9	16	11.1	15.4	Yes	Exceeds background	0.425	0.524	2.78	0.425	RA	Yes	Exceeds screening level	LL7ss-015M	11/08/04
Barium	7440-39-3	62/62	40.3	160	70.2	88.4	Yes	Exceeds background	8966	1413	351	351	NGT	No	Below risk screening criteria	LL7ss-002M	11/08/04
Beryllium	7440-41-7	49/62	0.5	2.8	0.751	0.88	Yes	Exceeds background	--	--	--	16	RSL	No	Below risk screening criteria	LL7ss-002M	11/08/04
Cadmium	7440-43-9	40/62	0.08	8.5	0.456	0	Yes	Exceeds background	22.3	6.41	10.9	6.41	RC	Yes	Exceeds screening level	LL7ss-073M	03/15/10
Calcium	7440-70-2	62/62	561	77000	9750	15800	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7ss-002M	11/08/04
Chromium ^d	7440-47-3	62/62	12	97.5	23.7	17.4	Yes	Exceeds background	90.4	19.9	1.64	1.64	NGT	Yes	Exceeds screening level	LL7ss-052M	08/13/07
Cobalt	7440-48-4	62/62	3.8	13	7.82	10.4	Yes	Exceeds background	803	131	7.03	7.03	NGT	Yes	Exceeds screening level	LL7ss-032M	11/10/04
Copper	7440-50-8	62/62	9.4	88	18.2	17.7	Yes	Exceeds background	2714	311	25368	311	RC	No	Below risk screening criteria	LL7ss-018M	11/10/04
Iron	7439-89-6	62/62	12000	29000	19800	23100	No	Essential nutrient	19010	2313	184370	180000	RDA	No	Essential nutrient	LL7ss-024M	11/10/04
Lead	7439-92-1	62/62	11	160	31.6	26.1	Yes	Exceeds background	--	--	--	400	RSL	No	Below risk screening criteria	LL7ss-004M	11/08/04
Magnesium	7439-95-4	62/62	1590	9700	2640	3030	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7ss-002M	11/08/04
Manganese	7439-96-5	62/62	290	1600	601	1450	Yes	Exceeds background	1482	293	35.1	35.1	NGT	Yes	Exceeds screening level	LL7ss-002M	11/08/04
Mercury	7439-97-6	59/62	0.016	0.4	0.0516	0.036	Yes	Exceeds background	16.5	2.27	172	2.27	RC	No	Below risk screening criteria	LL7ss-004M	11/08/04
Nitrate	14797-55-8	26/32	0.25	9.1	1.94	--	Yes	Exceeds background	114196	12487	1000000	12487	RC	No	Below risk screening criteria	LL7ss-006M	11/09/04
Nickel	7440-02-0	62/62	13	31.1	20.3	21.1	Yes	Exceeds background	1346	155	12639	155	RC	No	Below risk screening criteria	LL7ss-043M	08/13/07
Potassium	7440-09-7	56/62	520	1800	860	927	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7ss-032M	11/10/04
Selenium	7782-49-2	49/62	0.46	2.5	0.786	1.4	Yes	Exceeds background	--	--	--	39	RSL	No	Below risk screening criteria	LL7sd-029M	11/09/04
Silver	7440-22-4	14/62	0.026	80	1.86	0	Yes	Exceeds background	324	38.6	3105	38.6	RC	Yes	Exceeds screening level	LL7ss-027M	11/10/04
Sodium	7440-23-5	39/62	26.5	670	171	123	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7ss-002M	11/08/04
Thallium	7440-28-0	21/62	0.1	0.31	0.416	0	Yes	Exceeds background	4.76	0.612	47.7	0.612	RC	No	Below risk screening criteria	LL7ss-007M	11/08/04
Vanadium	7440-62-2	62/62	8.2	28	16.8	31.1	No	Below background	156	44.9	2304	44.9	RC	No	Below background	LL7ss-020M	11/10/04
Zinc	7440-66-6	62/62	38	999	88.5	61.8	Yes	Exceeds background	19659	2321	187269	2321	RC	No	Below risk screening criteria	LL7ss-073M	03/15/10
Explosives																	
2,4,6-Trinitrotoluene	118-96-7	3/62	0.09	2.7	0.142	--	Yes	Detected organic	21.1	3.65	249	3.65	RC	No	Below risk screening criteria	LL7ss-014M	11/09/04
2,6-Dinitrotoluene	606-20-2	1/62	0.28	0.28	0.114	--	Yes	Detected organic	0.769	1.1	13.6	0.769	RA	No	Below risk screening criteria	LL7ss-013M	11/09/04
2-Amino-4,6-Dinitrotoluene	35572-78-2	1/62	0.1	0.1	0.111	--	Yes	Detected organic	12.8	1.54	124	1.54	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
3-Nitrotoluene	99-08-1	5/62	0.018	0.13	0.105	--	Yes	Detected organic	--	--	--	0.63	RSL	No	Below risk screening criteria	LL7ss-013M	11/09/04
HMX	2691-41-0	6/62	0.039	7.9	0.274	--	Yes	Detected organic	1909	359	23464	359	RC	No	Below risk screening criteria	LL7ss-014M	11/09/04
Nitrocellulose	9004-70-0	5/20	3	156	9.58	--	Yes	Detected organic	--	--	--	19000000	RSL	No	Below risk screening criteria	LL7ss-009M	11/08/04
Nitroglycerin	55-63-0	2/46	2.9	18	0.691	--	Yes	Detected organic	81.6	52.5	982	52.5	RC	No	Below risk screening criteria	LL7ss-009M	11/08/04
RDX	121-82-4	5/62	0.08	45	0.85	--	Yes	Detected organic	11.5	8.03	145	8.03	RC	Yes	Exceeds screening level	LL7ss-014M	11/09/04
Tetryl	479-45-8	4/62	0.017	0.033	0.156	--	Yes	Detected organic	--	--	--	16	RSL	No	Below risk screening criteria	LL7ss-074M	03/15/10
Pesticides/PCBs																	
PCB-1254	11097-69-1	1/8	0.07	0.07	0.0255	--	Yes	Detected organic	0.203	0.12	3.46	0.12	RC	No	Below risk screening criteria	LL7ss-005M	11/08/04
Semi-volatile Organic Compounds																	
2-Methylnaphthalene	91-57-6	3/8	0.018	0.088	0.143	--	Yes	Detected organic	238	30.6	2384	30.6	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
Acenaphthene	83-32-9	10/23	0.0072	0.83	0.073	--	Yes	Detected organic	--	--	--	360	RSL	No	Below risk screening criteria	LL7ss-013M	11/09/04
Anthracene	120-12-7	13/23	0.0093	1.5	0.127	--	Yes	Detected organic	--	--	--	1800	RSL	No	Below risk screening criteria	LL7ss-013M	11/09/04
Benz(a)anthracene	56-55-3	28/29	0.01	3.1	0.374	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RA	Yes	Exceeds screening level	LL7ss-013M	11/09/04
Benzenemethanol	100-51-6	2/6	0.32	0.77	0.433	--	Yes	Detected organic	--	--	--	630	RSL	No	Below risk screening criteria	LL7ss-032M	11/10/04
Benzo(a)pyrene	50-32-8	28/29	0.0071	2.3	0.299	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RA	Yes	Exceeds screening level	LL7ss-013M	11/09/04

Table G-1. SRC and COPC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 (continued)

Analyte (mg/kg)	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	Background Criteria ^a	SRC? (yes/no)	SRC Justification	Screening FWCUG ^b (HQ=0.1 or Risk=10 ⁻⁶)			Risk Screening Level	Screening Level Source ^c	COPC? (yes/no)	COPC Justification	Station at Max Detect	Date Collected at Max Detect
									RA	RC	NGT						
Benzo(b)fluoranthene	205-99-2	27/29	0.011	3	0.38	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RA	Yes	Exceeds screening level	LL7ss-013M	11/09/04
Benzo(ghi)perylene ^e	191-24-2	20/23	0.0078	0.88	0.109	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7ss-013M	11/09/04
Benzo(k)fluoranthene	207-08-9	19/23	0.0095	1.9	0.153	--	Yes	Detected organic	2.21	6.5	47.7	2.21	RA	No	Below risk screening criteria	LL7ss-013M	11/09/04
Bis(2-ethylhexyl)phthalate	117-81-7	1/8	0.61	0.61	0.241	--	Yes	Detected organic	--	--	--	39	RSL	No	Below risk screening criteria	LL7ss-078M	03/15/10
Carbazole	86-74-8	1/8	0.85	0.85	0.194	--	Yes	Detected organic	69.4	44.6	835	44.6	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
Chrysene	218-01-9	20/23	0.014	3.3	0.28	--	Yes	Detected organic	22.1	65	477	22.1	RA	No	Below risk screening criteria	LL7ss-013M	11/09/04
Dibenz(a,h)anthracene	53-70-3	18/29	0.0076	0.42	0.0598	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RA	Yes	Exceeds screening level	LL7ss-013M	11/09/04
Dibenzofuran	132-64-9	2/8	0.06	0.21	0.186	--	Yes	Detected organic	119	15.3	1192	15.3	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
Diethyl phthalate	84-66-2	1/8	0.016	0.016	0.141	--	Yes	Detected organic	--	--	--	5100	RSL	No	Below risk screening criteria	LL7ss-078M	03/15/10
Fluoranthene	206-44-0	22/23	0.013	8.2	0.698	--	Yes	Detected organic	276	163	5087	163	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
Fluorene	86-73-7	14/23	0.007	0.45	0.0566	--	Yes	Detected organic	737	243	11458	243	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
Indeno(1,2,3-cd)pyrene	193-39-5	20/23	0.0075	0.83	0.106	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RA	Yes	Exceeds screening level	LL7ss-013M	11/09/04
Naphthalene	91-20-3	17/23	0.012	0.17	0.0472	--	Yes	Detected organic	368	122	1541	122	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
Phenanthrene ^e	85-01-8	22/23	0.0093	5.2	0.452	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7ss-013M	11/09/04
Pyrene	129-00-0	22/23	0.01	5.9	0.51	--	Yes	Detected organic	207	122	3815	122	RC	No	Below risk screening criteria	LL7ss-013M	11/09/04
Volatile Organic Compounds																	
Acetone	67-64-1	1/8	0.011	0.011	0.0112	--	Yes	Detected organic	--	--	--	6100	RSL	No	Below risk screening criteria	LL7ss-023D	11/09/04
Ethylbenzene	100-41-4	1/8	0.00034	0.00034	0.00282	--	Yes	Detected organic	--	--	--	5.8	RSL	No	Below risk screening criteria	LL7ss-051D	08/13/07
Xylenes, total	1330-20-7	1/8	0.0018	0.0018	0.00545	--	Yes	Detected organic	--	--	--	65	RSL	No	Below risk screening criteria	LL7ss-051D	08/13/07

^aBackground criteria for soil 0-1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

^bFacility-Wide Cleanup Goals (FWCUGs) for Resident Adult (RA), Resident Child (RC), and National Guard Trainee (NGT) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^cScreening Level Source:

NGT = FWCUG for National Guard Trainee.

RDA = Concentration associated with recommended daily allowance of essential nutrient.

RA = FWCUG for Resident Adult.

RC = FWCUG for Resident Child.

RSL = United States Environmental Protection Agency Residential Regional Screening Level.

^dFWCUG is the most conservative (smallest) of the FWCUGs for hexavalent and trivalent chromium.

^eNo reference dose or cancer potency factors are available for these PAHs, therefore, the RSL value for pyrene was used (NDEP 2006).

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COPC = Chemical of Potential Concern.

HMX = Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine.

HQ = Hazard Quotient.

ISM = Incremental Sampling Method.

mg/kg = Milligrams per Kilogram.

PAH = Polycyclic Aromatic Hydrocarbon.

PCB = Polychlorinated Biphenyl.

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

SRC = Site-related Contaminant.

-- = No value available.

Bold = Chemical is a COPC.

Table G-2. SRC and COPC Screening for Deep Surface Soil (1-4 ft bgs Discrete Samples) at Load Line 7

Analyte (mg/kg)	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	Background Criteria ^a	SRC?	SRC Justification	Screening FWCUG ^b (HQ= 0.1 or Risk=10 ⁻⁶)			Risk Screening Level	Screening Level Source ^c	COPC?	COPC Justification	Station at Max Detect	Date Collected at Max Detect
									RFA	RFC	NGT						
Metals																	
Aluminum	7429-90-5	9/9	7630	21700	11300	19500	Yes	Exceeds background	52923	7380	3496	3496	NGT	Yes	Exceeds screening level	LL7sb-061	03/09/2010
Antimony	7440-36-0	7/9	0.083	0.21	0.168	0.96	No	Below background	13.6	2.82	175	2.82	RFC	No	Below background	LL7sb-068	03/10/2010
Arsenic	7440-38-2	9/9	8.7	27	15.4	19.8	Yes	Exceeds background	0.425	0.524	2.78	0.425	RFA	Yes	Exceeds screening level	LL7sb-068	03/10/2010
Barium	7440-39-3	9/9	25.5	92	57.2	124	No	Below background	8966	1413	351	351	NGT	No	Below background	LL7sb-063	03/11/2010
Beryllium	7440-41-7	9/9	0.31	0.71	0.578	0.88	No	Below background	--	--	--	16	RSL	No	Below background	LL7sb-060	03/09/2010
Cadmium	7440-43-9	8/9	0.023	0.11	0.0528	0	Yes	Exceeds background	22.3	6.41	10.9	6.41	RFC	No	Below risk screening criteria	LL7sb-061	03/09/2010
Calcium	7440-70-2	9/9	384	24600	4340	35500	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/2010
Chromium ^d	7440-47-3	9/9	10.9	21.7	14.8	27.2	No	Below background	90.4	19.9	1.64	1.64	NGT	No	Below background	LL7sb-063	03/11/2010
Cobalt	7440-48-4	9/9	3.4	13.4	9.36	23.2	No	Below background	803	131	7.03	7.03	NGT	No	Below background	LL7sb-060	03/09/2010
Copper	7440-50-8	9/9	9.5	21.4	16.8	32.3	No	Below background	2714	311	25368	311	RFC	No	Below background	LL7sb-068	03/10/2010
Iron	7439-89-6	9/9	13900	32600	24800	35200	No	Essential nutrient	19010	2313	184370	180000	RDA	No	Essential nutrient	LL7sb-068	03/10/2010
Lead	7439-92-1	9/9	6.7	17.6	13.9	19.1	No	Below background	--	--	--	400	RSL	No	Below background	LL7sb-064	03/11/2010
Magnesium	7439-95-4	9/9	1740	7030	2830	8790	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/2010
Manganese	7439-96-5	9/9	59.7	794	394	3030	No	Below background	1482	293	35.1	35.1	NGT	No	Below background	LL7sb-064	03/11/2010
Mercury	7439-97-6	7/9	0.017	0.054	0.0341	0.044	Yes	Exceeds background	16.5	2.27	172	2.27	RFC	No	Below risk screening criteria	LL7sb-062	03/11/2010
Nickel	7440-02-0	9/9	9.9	31.5	18.7	60.7	No	Below background	1346	155	12639	155	RFC	No	Below background	LL7sb-063	03/11/2010
Potassium	7440-09-7	9/9	708	1530	913	3350	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/2010
Selenium	7782-49-2	9/9	0.67	1.1	0.814	1.5	No	Below background	--	--	--	39	RSL	No	Below background	LL7sb-062	03/11/2010
Silver	7440-22-4	7/9	0.0049	0.11	0.0279	0	Yes	Exceeds background	324	38.6	3105	38.6	RFC	No	Below risk screening criteria	LL7sb-065	03/10/2010
Sodium	7440-23-5	7/9	29.5	89.4	44	145	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/2010
Thallium	7440-28-0	9/9	0.094	0.18	0.147	0.91	No	Below background	4.76	0.612	47.7	0.612	RFC	No	Below background	LL7sb-060	03/09/2010
Vanadium	7440-62-2	9/9	14.3	28.7	20.2	37.6	No	Below background	156	44.9	2304	44.9	RFC	No	Below background	LL7sb-060	03/09/2010
Zinc	7440-66-6	9/9	26.2	88.3	54.1	93.3	No	Below background	19659	2321	187269	2321	RFC	No	Below background	LL7sb-068	03/10/2010
Explosives																	
HMX	2691-41-0	2/9	0.016	0.02	0.101	--	Yes	Detected organic	1909	359	23464	359	RFC	No	Below risk screening criteria	LL7sb-061	03/09/2010
PETN	78-11-5	2/9	0.032	0.043	0.203	--	Yes	Detected organic	--	--	--	13	RSL	No	Below risk screening criteria	LL7sb-061	03/09/2010
Tetryl	479-45-8	2/9	0.02	0.04	0.104	--	Yes	Detected organic	--	--	--	16	RSL	No	Below risk screening criteria	LL7sb-069	03/10/2010
Semi-volatile Organic Compounds																	
Acenaphthene	83-32-9	2/9	0.17	0.79	0.116	--	Yes	Detected organic	--	--	--	360	RSL	No	Below risk screening criteria	LL7sb-061	03/09/2010
Anthracene	120-12-7	2/9	0.29	1.5	0.208	--	Yes	Detected organic	--	--	--	1800	RSL	No	Below risk screening criteria	LL7sb-061	03/09/2010
Benz(a)anthracene	56-55-3	2/9	0.56	2.7	0.371	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RFA	Yes	Exceeds screening level	LL7sb-061	03/09/2010
Benzo(a)pyrene	50-32-8	2/9	0.41	2	0.277	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RFA	Yes	Exceeds screening level	LL7sb-061	03/09/2010
Benzo(b)fluoranthene	205-99-2	2/9	0.6	2.8	0.387	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RFA	Yes	Exceeds screening level	LL7sb-061	03/09/2010
Benzo(ghi)perylene ^e	191-24-2	2/9	0.2	0.97	0.139	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7sb-061	03/09/2010
Benzo(k)fluoranthene	207-08-9	2/9	0.21	1.1	0.155	--	Yes	Detected organic	2.21	6.5	47.7	2.21	RFA	No	Below risk screening criteria	LL7sb-061	03/09/2010
Chrysene	218-01-9	2/9	0.55	2.7	0.37	--	Yes	Detected organic	22.1	65	477	22.1	RFA	No	Below risk screening criteria	LL7sb-061	03/09/2010
Dibenz(a,h)anthracene	53-70-3	2/9	0.049	0.32	0.0501	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RFA	Yes	Exceeds screening level	LL7sb-061	03/09/2010
Fluoranthene	206-44-0	2/9	1.5	6.5	0.898	--	Yes	Detected organic	276	163	5087	163	RFC	No	Below risk screening criteria	LL7sb-061	03/09/2010
Fluorene	86-73-7	2/9	0.12	0.71	0.101	--	Yes	Detected organic	737	243	11458	243	RFC	No	Below risk screening criteria	LL7sb-061	03/09/2010
Indeno(1,2,3-cd)pyrene	193-39-5	2/9	0.18	0.86	0.125	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RFA	Yes	Exceeds screening level	LL7sb-061	03/09/2010
Naphthalene	91-20-3	2/9	0.15	0.5	0.0813	--	Yes	Detected organic	368	122	1541	122	RFC	No	Below risk screening criteria	LL7sb-061	03/09/2010
Phenanthrene ^e	85-01-8	2/9	1	4.8	0.654	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7sb-061	03/09/2010
Pyrene	129-00-0	2/9	1.1	5.4	0.731	--	Yes	Detected organic	207	122	3815	122	RFC	No	Below risk screening criteria	LL7sb-061	03/09/2010

Table G-2. SRC and COPC Screening for Deep Surface Soil (1-4 ft bgs Discrete Samples) at Load Line 7 (continued)

Analyte (mg/kg)	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	Background Criteria ^a	SRC?	SRC Justification	Screening FWCUG ^b (HQ= 0.1 or Risk=10 ⁻⁶)			Risk Screening Level	Screening Level Source ^c	COPC?	COPC Justification	Station at Max Detect	Date Collected at Max Detect
									RFA	RFC	NGT						
Volatile Organic Compounds																	
2-Butanone	78-93-3	1/2	0.0018	0.0018	0.00715	--	Yes	Detected organic	--	--	--	2700	RSL	No	Below risk screening criteria	LL7sb-064	03/11/2010

^aBackground criteria for > 1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

^bFacility-wide Clean-up Goals (FWCUG) for Resident Farmer Adult (RFA), Resident Farmer Child (RFC), and National Guard Trainee (NGT) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^cScreening Level Source:

NGT = FWCUG for National Guard Trainee.

RDA = Concentration associated with recommended daily allowance of essential nutrient.

RFA = FWCUG for Resident Farmer Adult.

RFC = FWCUG for Resident Farmer Child.

RSL = United States Environmental Protection Agency Residential Regional Screening Level.

^dFWCUG is the most conservative (smallest) of the FWCUGs for hexavalent and trivalent chromium.

^eNo reference dose or cancer potency factors are available for these PAHs, therefore, the RSL value for pyrene was used (NDEP 2006).

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COPC = Chemical of Potential Concern.

HMX = Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine.

ID = Identification.

HQ = Hazard Quotient.

mg/kg = Milligrams per Kilogram.

PETN = Pentaerythrite Tetranitrate.

SRC = Site Related Contaminant.

-- = No value available.

Bold = Chemical is a COPC.

Table G-3. SRC and COPC Screening for National Guard Trainee Subsurface Soil (4-7 ft bgs Discrete Samples) at Load Line 7

Analyte (mg/kg)	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	Background Criteria ^a	SRC?	SRC Justification	Screening FWCUG ^b (HQ= 0.1 or Risk=10 ⁻⁶)			Risk Screening Level	Screening Level Source ^c	COPC?	COPC Justification	Station at Max Detect	Date Collected at Max Detect
									RFA	RFC	NGT						
Metals																	
Aluminum	7429-90-5	8/8	3250	14900	8550	19500	No	Below background	52923	7380	3496	3496	NGT	No	Below background	LL7sb-062	03/11/2010
Antimony	7440-36-0	6/8	0.074	0.11	0.14	0.96	No	Below background	13.6	2.82	175	2.82	RFC	No	Below background	LL7sb-064	03/11/2010
Arsenic	7440-38-2	8/8	3	17.3	11.1	19.8	No	Below background	0.425	0.524	2.78	0.425	RFA	No	Below background	LL7sb-064	03/11/2010
Barium	7440-39-3	8/8	15.8	88.4	50.2	124	No	Below background	8966	1413	351	351	NGT	No	Below background	LL7sb-062	03/11/2010
Beryllium	7440-41-7	8/8	0.19	0.89	0.483	0.88	Yes	Exceeds background	--	--	--	16	RSL	No	Below risk screening criteria	LL7sb-062	03/11/2010
Cadmium	7440-43-9	3/8	0.04	0.05	0.0339	0	Yes	Exceeds background	22.3	6.41	10.9	6.41	RFC	No	Below risk screening criteria	LL7sb-060	03/09/2010
Calcium	7440-70-2	8/8	295	37200	6710	35500	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/2010
Chromium ^d	7440-47-3	8/8	5.2	22	13.7	27.2	No	Below background	90.4	19.9	1.64	1.64	NGT	No	Below background	LL7sb-062	03/11/2010
Cobalt	7440-48-4	8/8	4.9	12.5	8.71	23.2	No	Below background	803	131	7.03	7.03	NGT	No	Below background	LL7sb-060	03/09/2010
Copper	7440-50-8	8/8	5.2	22.6	15.9	32.3	No	Below background	2714	311	25368	311	RFC	No	Below background	LL7sb-062	03/11/2010
Iron	7439-89-6	8/8	7590	32000	22600	35200	No	Essential nutrient	19010	2313	184370	180000	RDA	No	Essential nutrient	LL7sb-062	03/11/2010
Lead	7439-92-1	8/8	6.7	14.2	10.6	19.1	No	Below background	--	--	--	400	RSL	No	Below background	LL7sb-064	03/11/2010
Magnesium	7439-95-4	8/8	1040	6920	3260	8790	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/2010
Manganese	7439-96-5	8/8	92	408	280	3030	No	Below background	1482	293	35.1	35.1	NGT	No	Below background	LL7sb-063	03/11/2010
Mercury	7439-97-6	2/8	0.018	0.029	0.049	0.044	No	Below background	16.5	2.27	172	2.27	RFC	No	Below background	LL7sb-064	03/11/2010
Nickel	7440-02-0	8/8	6.3	33	19.5	60.7	No	Below background	1346	155	12639	155	RFC	No	Below background	LL7sb-062	03/11/2010
Potassium	7440-09-7	8/8	513	1760	1030	3350	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-060	03/09/2010
Selenium	7782-49-2	8/8	0.85	1.3	1.03	1.5	No	Below background	--	--	--	39	RSL	No	Below background	LL7sb-062	03/11/2010
Sodium	7440-23-5	5/8	19.1	159	56.1	145	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-064	03/11/2010
Thallium	7440-28-0	8/8	0.071	0.21	0.143	0.91	No	Below background	4.76	0.612	47.7	0.612	RFC	No	Below background	LL7sb-062	03/11/2010
Vanadium	7440-62-2	8/8	5.5	25.4	15.4	37.6	No	Below background	156	44.9	2304	44.9	RFC	No	Below background	LL7sb-062	03/11/2010
Zinc	7440-66-6	8/8	21	66.9	49.8	93.3	No	Below background	19659	2321	187269	2321	RFC	No	Below background	LL7sb-060	03/09/2010
Semi-volatile Organic Compounds																	
Acenaphthene	83-32-9	1/8	0.026	0.026	0.0132	--	Yes	Detected organic	--	--	--	360	RSL	No	Below risk screening criteria	LL7sb-069	03/10/2010
Anthracene	120-12-7	1/8	0.057	0.057	0.017	--	Yes	Detected organic	--	--	--	1800	RSL	No	Below risk screening criteria	LL7sb-069	03/10/2010
Benz(a)anthracene	56-55-3	1/8	0.13	0.13	0.0262	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RFA	No	Below risk screening criteria	LL7sb-069	03/10/2010
Benzo(a)pyrene	50-32-8	1/8	0.098	0.098	0.0222	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RFA	Yes	Exceeds screening level	LL7sb-069	03/10/2010
Benzo(b)fluoranthene	205-99-2	1/8	0.14	0.14	0.0274	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RFA	No	Below risk screening criteria	LL7sb-069	03/10/2010
Benzo(ghi)perylene ^e	191-24-2	1/8	0.056	0.056	0.0169	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7sb-069	03/10/2010
Benzo(k)fluoranthene	207-08-9	1/8	0.05	0.05	0.0162	--	Yes	Detected organic	2.21	6.5	47.7	2.21	RFA	No	Below risk screening criteria	LL7sb-069	03/10/2010
Chrysene	218-01-9	1/8	0.13	0.13	0.0262	--	Yes	Detected organic	22.1	65	477	22.1	RFA	No	Below risk screening criteria	LL7sb-069	03/10/2010
Dibenz(a,h)anthracene	53-70-3	1/8	0.018	0.018	0.0122	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RFA	No	Below risk screening criteria	LL7sb-069	03/10/2010
Fluoranthene	206-44-0	1/8	0.35	0.35	0.0537	--	Yes	Detected organic	276	163	5087	163	RFC	No	Below risk screening criteria	LL7sb-069	03/10/2010
Fluorene	86-73-7	1/8	0.021	0.021	0.0125	--	Yes	Detected organic	737	243	11458	243	RFC	No	Below risk screening criteria	LL7sb-069	03/10/2010
Indeno(1,2,3-cd)pyrene	193-39-5	1/8	0.05	0.05	0.0162	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RFA	No	Below risk screening criteria	LL7sb-069	03/10/2010
Naphthalene	91-20-3	2/8	0.011	0.018	0.013	--	Yes	Detected organic	368	122	1541	122	RFC	No	Below risk screening criteria	LL7sb-069	03/10/2010
Phenanthrene ^e	85-01-8	1/8	0.22	0.22	0.0374	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7sb-069	03/10/2010
Pyrene	129-00-0	1/8	0.27	0.27	0.0437	--	Yes	Detected organic	207	122	3815	122	RFC	No	Below risk screening criteria	LL7sb-069	03/10/2010

^aBackground criteria for > 1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

^bFacility-wide Clean-up Goals (FWCUG) for Resident Farmer Adult (RFA), Resident Farmer Child (RFC), and National Guard Trainee (NGT) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^cScreening Level Source:

NGT = FWCUG for National Guard Trainee.
RDA = Concentration associated with recommended daily allowance of essential nutrient.
RFA = FWCUG for Resident Farmer Adult.
RFC = FWCUG for Resident Farmer Child.
RSL = United States Environmental Protection Agency Residential Regional Screening Level.

^dFWCUG is the most conservative (smallest) of the FWCUGs for hexavalent and trivalent chromium.

^eNo reference dose or cancer potency factors are available for these PAHs, therefore, the RSL value for pyrene was used (NDEP 2006).

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COPC = Chemical of Potential Concern.

HQ = Hazard Quotient.

SRC = Site Related Contaminant.

-- = No value available.

Bold = Chemical is a COPC.

Table G-4. SRC and COPC Screening for Subsurface Soil (1-13 ft bgs Discrete Samples) at Load Line 7

Analyte (mg/kg)	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	Background Criteria ^a	SRC? (yes/no)	SRC Justification	Screening FWCUG ^b (HQ=0.1 or Risk=10 ⁻⁶)			Risk Screening Level	Screening Level Source ^c	COPC? (yes/no)	COPC Justification	Station at Max Detect	Date Collected at Max Detect
									RA	RC	NGT						
Metals																	
Aluminum	7429-90-5	19/19	2430	21700	9450	19500	Yes	Exceeds background	52923	7380	3496	3496	NGT	Yes	Exceeds screening level	LL7sb-061	03/09/10
Antimony	7440-36-0	15/19	0.074	0.21	0.152	0.96	No	Below background	13.6	2.82	175	2.82	RC	No	Below background	LL7sb-068	03/10/10
Arsenic	7440-38-2	19/19	3	27	13.3	19.8	Yes	Exceeds background	0.425	0.524	2.78	0.425	RA	Yes	Exceeds screening level	LL7sb-068	03/10/10
Barium	7440-39-3	19/19	15.3	92	50.8	124	No	Below background	8966	1413	351	351	NGT	No	Below background	LL7sb-063	03/11/10
Beryllium	7440-41-7	19/19	0.19	0.89	0.525	0.88	Yes	Exceeds background	--	--	--	16	RSL	No	Below risk screening criteria	LL7sb-062	03/11/10
Cadmium	7440-43-9	13/19	0.023	0.13	0.0513	0	Yes	Exceeds background	22.3	6.41	10.9	6.41	RC	No	Below risk screening criteria	LL7sb-069	03/10/10
Calcium	7440-70-2	19/19	295	37200	5070	35500	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/10
Chromium ^d	7440-47-3	19/19	5.2	22	13.8	27.2	No	Below background	90.4	19.9	1.64	1.64	NGT	No	Below background	LL7sb-062	03/11/10
Cobalt	7440-48-4	19/19	3.4	13.4	8.73	23.2	No	Below background	803	131	7.03	7.03	NGT	No	Below background	LL7sb-060	03/09/10
Copper	7440-50-8	19/19	5.2	22.6	16	32.3	No	Below background	2714	311	25368	311	RC	No	Below background	LL7sb-062	03/11/10
Iron	7439-89-6	19/19	7590	32600	23200	35200	No	Essential nutrient	19010	2313	184370	180000	RDA	No	Essential nutrient	LL7sb-068	03/10/10
Lead	7439-92-1	19/19	6.7	105	17.2	19.1	Yes	Exceeds background	--	--	--	400	RSL	No	Below risk screening criteria	LL7sb-069	03/10/10
Magnesium	7439-95-4	19/19	433	7030	2880	8790	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-063	03/11/10
Manganese	7439-96-5	19/19	59.7	802	354	3030	No	Below background	1482	293	35.1	35.1	NGT	No	Below background	LL7sb-060	03/09/10
Mercury	7439-97-6	10/19	0.017	0.061	0.0432	0.044	Yes	Exceeds background	16.5	2.27	172	2.27	RC	No	Below risk screening criteria	LL7sb-069	03/10/10
Nickel	7440-02-0	19/19	6.3	33	18.7	60.7	No	Below background	1346	155	12639	155	RC	No	Below background	LL7sb-062	03/11/10
Potassium	7440-09-7	19/19	513	1760	939	3350	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-060	03/09/10
Selenium	7782-49-2	19/19	0.64	1.3	0.904	1.5	No	Below background	--	--	--	39	RSL	No	Below background	LL7sb-062	03/11/10
Silver	7440-22-4	9/19	0.0049	0.11	0.0355	0	Yes	Exceeds background	324	38.6	3105	38.6	RC	No	Below risk screening criteria	LL7sb-065	03/10/10
Sodium	7440-23-5	13/19	19.1	159	47.1	145	No	Essential nutrient	--	--	--	1000000	RDA	No	Essential nutrient	LL7sb-064	03/11/10
Thallium	7440-28-0	19/19	0.071	0.26	0.152	0.91	No	Below background	4.76	0.612	47.7	0.612	RC	No	Below background	LL7sb-069	03/10/10
Vanadium	7440-62-2	19/19	5.5	28.7	17.2	37.6	No	Below background	156	44.9	2304	44.9	RC	No	Below background	LL7sb-060	03/09/10
Zinc	7440-66-6	19/19	21	88.3	52	93.3	No	Below background	19659	2321	187269	2321	RC	No	Below background	LL7sb-068	03/10/10
Explosives																	
HMX	2691-41-0	3/19	0.016	0.021	0.106	--	Yes	Detected organic	1909	359	23464	359	RC	No	Below risk screening criteria	LL7sb-069	03/10/10
PETN	78-11-5	2/19	0.032	0.043	0.225	--	Yes	Detected organic	--	--	--	13	RSL	No	Below risk screening criteria	LL7sb-061	03/09/10
RDX	121-82-4	1/19	0.028	0.028	0.118	--	Yes	Detected organic	11.5	8.03	145	8.03	RC	No	Below risk screening criteria	LL7sb-069	03/10/10
Tetryl	479-45-8	2/19	0.02	0.04	0.113	--	Yes	Detected organic	--	--	--	16	RSL	No	Below risk screening criteria	LL7sb-069	03/10/10

Table G-4. SRC and COPC Screening for Subsurface Soil (1-13 ft bgs Discrete Samples) at Load Line 7 (continued)

Analyte (mg/kg)	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	Background Criteria ^a	SRC? (yes/no)	SRC Justification	Screening FWCUG ^b (HQ=0.1 or Risk=10 ⁻⁶)			Risk Screening Level	Screening Level Source ^c	COPC? (yes/no)	COPC Justification	Station at Max Detect	Date Collected at Max Detect
									RA	RC	NGT						
Semi-volatile Organic Compounds																	
Acenaphthene	83-32-9	3/19	0.026	0.79	0.0621	--	Yes	Detected organic	--	--	--	360	RSL	No	Below risk screening criteria	LL7sb-061	03/09/10
Anthracene	120-12-7	3/19	0.057	1.5	0.107	--	Yes	Detected organic	--	--	--	1800	RSL	No	Below risk screening criteria	LL7sb-061	03/09/10
Benz(a)anthracene	56-55-3	3/19	0.13	2.7	0.189	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RA	Yes	Exceeds screening level	LL7sb-061	03/09/10
Benzo(a)pyrene	50-32-8	4/19	0.017	2	0.143	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RA	Yes	Exceeds screening level	LL7sb-061	03/09/10
Benzo(b)fluoranthene	205-99-2	4/19	0.037	2.8	0.198	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RA	Yes	Exceeds screening level	LL7sb-061	03/09/10
Benzo(ghi)perylene ^e	191-24-2	4/19	0.021	0.97	0.0756	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7sb-061	03/09/10
Benzo(k)fluoranthene	207-08-9	4/19	0.015	1.1	0.0824	--	Yes	Detected organic	2.21	6.5	47.7	2.21	RA	No	Below risk screening criteria	LL7sb-061	03/09/10
Chrysene	218-01-9	4/19	0.049	2.7	0.19	--	Yes	Detected organic	22.1	65	477	22.1	RA	No	Below risk screening criteria	LL7sb-061	03/09/10
Dibenz(a,h)anthracene	53-70-3	3/19	0.018	0.32	0.0306	--	Yes	Detected organic	0.022	0.065	0.477	0.022	RA	Yes	Exceeds screening level	LL7sb-061	03/09/10
Fluoranthene	206-44-0	4/19	0.047	6.5	0.452	--	Yes	Detected organic	276	163	5087	163	RC	No	Below risk screening criteria	LL7sb-061	03/09/10
Fluorene	86-73-7	3/19	0.021	0.71	0.055	--	Yes	Detected organic	737	243	11458	243	RC	No	Below risk screening criteria	LL7sb-061	03/09/10
Indeno(1,2,3-cd)pyrene	193-39-5	3/19	0.05	0.86	0.0676	--	Yes	Detected organic	0.221	0.65	4.77	0.221	RA	Yes	Exceeds screening level	LL7sb-061	03/09/10
Naphthalene	91-20-3	4/19	0.011	0.5	0.0457	--	Yes	Detected organic	368	122	1541	122	RC	No	Below risk screening criteria	LL7sb-061	03/09/10
Phenanthrene ^e	85-01-8	4/19	0.041	4.8	0.329	--	Yes	Detected organic	--	--	--	180	RSL	No	Below risk screening criteria	LL7sb-061	03/09/10
Pyrene	129-00-0	4/19	0.041	5.4	0.368	--	Yes	Detected organic	207	122	3815	122	RC	No	Below risk screening criteria	LL7sb-061	03/09/10
Volatile Organic Compounds																	
2-Butanone	78-93-3	1/5	0.0018	0.0018	0.00986	--	Yes	Detected organic	--	--	--	2700	RSL	No	Below risk screening criteria	LL7sb-064	03/11/10

^aBackground criteria for soil > 1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

^bFacility-Wide Cleanup Goals (FWCUGs) for Resident Adult (RA), Resident Child (RC), and National Guard Trainee (NGT) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^cScreening Level Source:

NGT = FWCUG for National Guard Trainee.

RDA = Concentration associated with recommended daily allowance of essential nutrient.

RA = FWCUG for Resident Adult.

RC = FWCUG for Resident Child.

RSL = United States Environmental Protection Agency Residential Regional Screening Level.

^dFWCUG is the most conservative (smallest) of the FWCUGs for hexavalent and trivalent chromium.

^eNo reference dose or cancer potency factors are available for these PAHs, therefore, the RSL value for pyrene was used (NDEP 2006).

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COPC = Chemical of Potential Concern.

HMX = Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine.

HQ = Hazard Quotient.

mg/kg = Milligrams per Kilogram.

PAH = Polycyclic Aromatic Hydrocarbon.

PETN = Pentaerythrite Tetranitrate

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

SRC = Site-related Contaminant.

-- = No value available.

Bold = Chemical is a COPC.

Table G-5. COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child)

Sample ID	Date	COPC		Aluminum	Arsenic ^c	Cadmium	Chromium ^d	Cobalt	Manganese	Silver
		CAS Number		7429-90-5	7440-38-2	7440-43-9	7440-47-3	7440-48-4	7439-96-5	7440-22-4
		Resident (Adult and Child) FWCUG ^a :								
		HQ=1		73798	20.2	64.1	81473	1313	2927	386
		Risk=10 ⁻⁵		--	4.25	12,491	--	8030	--	--
		Background Criteria ^b		17700 (19,500)	15.4 (19.8)	0 (0)	17.4 (27.2)	10.4 (23.2)	1450 (3030)	0 (0)
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	6800 No	13 No	0.94 No	12 No	7.3 No	740 No	<4.3U No
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	7900 No	9.6 No	0.39 No	17 No	6.1 No	580 No	<1U No
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	18000 No	9.1 No	0.13 No	22 No	4.7 No	1600 No	<1U No
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	9300 No	15 No	<0.27U No	19 No	8.8 No	530 No	<1.1U No
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	9500 No	8.2 No	1.4 No	33 No	5.5 No	850 No	<1.1U No
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	6900 No	9.2 No	0.49 No	18 No	6 No	560 No	<1U No
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	5100 No	7.9 No	0.71 No	14 No	3.8 No	380 No	<1.1U No
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	8300 No	13 No	<0.25U No	24 No	7.9 No	540 No	<1U No
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	8000 No	12 No	<0.27U No	21 No	8 No	590 No	<1.1U No
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	11000 No	13 No	0.13 No	22 No	11 No	500 No	<0.97U No
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	11000 No	10 No	0.12 No	17 No	10 No	580 No	<1U No
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	8400 No	9.5 No	0.08 No	19 No	8.6 No	500 No	<1U No
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	6300 No	8.3 No	0.22 No	14 No	6.2 No	300 No	<1U No
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	8900 No	10 No	0.36J No	18 No	8.1 No	490 No	<0.98U No
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	8900 No	9 No	0.2 No	14 No	7.5 No	490 No	0.59 No
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	9400 No	16 No	0.08 No	21 No	9.4 No	660 No	<0.91U No
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	7600 No	10 No	0.19 No	14 No	8.6 No	520 No	<0.94U No
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	15000 No	9.1 No	0.95 No	30 No	5.1 No	1100 No	<1.1U No
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	13000 No	7.9 No	0.4 No	28 No	6.2 No	1200 No	<1.1U No
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	14000 No	14 No	<0.25U No	25 No	7.9 No	370 No	<1U No
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	13000 No	13 No	<0.27U No	25 No	9.1 No	800 No	<1.1U No
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	12000 No	10 No	<0.27U No	21 No	8.2 No	440 No	<1.1U No
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	6900 No	9.8 No	0.22 No	21 No	6.2 No	290 No	<0.96U No
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	12000 No	14 No	0.11 No	19 No	10 No	610 No	<0.98U No
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	13000 No	13 No	<0.27U No	24 No	9.1 No	620 No	<1.1U No
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	12000 No	13 No	<0.24U No	24 No	7.9 No	620 No	1.6 No
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	11000 No	13J No	<0.26U No	19 No	9.6 No	1100 No	<1U No
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	8700 No	11 No	<0.26U No	27 No	7.8 No	360 No	80 No
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	9100 No	9 No	0.47 No	17 No	6.2 No	750 No	<1U No
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	11000 No	12 No	0.18 No	16 No	7 No	390 No	<0.92U No
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	9300 No	14 No	0.19 No	17 No	7.7 No	630 No	<1.1U No
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	14000 No	12 No	0.11 No	25 No	13 No	550 No	<0.94U No
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	9010 No	9.5 No	<1U No	91.6 No	6.6 No	473 No	<2U No
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	8230 No	10.2 No	<1U No	29.6 No	6.3 No	412 No	<2U No
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	7220 No	9 No	<1U No	29 No	7.3 No	406 No	<2U No
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	7250 No	9 No	<1U No	21.5 No	6.9 No	358 No	<2U No
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	8170 No	10.3 No	<1U No	16 No	7.3 No	527 No	<2U No
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	6550 No	9.2 No	<1U No	15.5 No	5.9 No	450 No	<2U No
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	7000 No	11.4 No	<1U No	17 No	6.2 No	355 No	<2U No
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	6190 No	9 No	<1U No	24.8 No	5.3 No	313 No	3.4 No
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	8280 No	12.9 No	<1U No	30.6 No	8 No	707 No	<2U No
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	9750 No	10 No	<1U No	17.9 No	9.5 No	386 No	<2U No
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	8950 No	13 No	<1U No	97.5 No	7.8 No	617 No	<2U No

Table G-5. COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child) (continued)

Sample ID	Date	COPC		Aluminum	Arsenic ^c	Cadmium	Chromium ^d	Cobalt	Manganese	Silver
		CAS Number		7429-90-5	7440-38-2	7440-43-9	7440-47-3	7440-48-4	7439-96-5	7440-22-4
		Resident (Adult and Child) FWCUG ^a :								
		HQ=1		73798	20.2	64.1	81473	1313	2927	386
		Risk=10 ⁻⁵		--	4.25	12,491	--	8030	--	--
		Background Criteria ^b		17700 (19,500)	15.4 (19.8)	0 (0)	17.4 (27.2)	10.4 (23.2)	1450 (3030)	0 (0)
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	5980 No	10.4 No	1.8 No	19.1 No	5 No	425 No	<2U No
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	6130 No	15.1 No	<1U No	17.4 No	6.2 No	426 No	<2U No
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	10000 No	12.5J No	0.17J No	15.4 No	8.4 No	530 No	0.12J No
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	9030 No	10.6J No	8.5 No	20.8 No	8.3 No	678 No	<0.044UJ No
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	8920 No	10.5J No	0.24 No	25 No	8.6 No	574 No	<0.041UJ No
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	13500 No	12.1J No	0.11J No	26.4 No	8.6 No	495 No	<0.029UJ No
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	9560J No	9.4J No	0.11J No	19.3 No	8.5 No	737 No	0.03J No
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	9820J No	9.2J No	0.13J No	18.8 No	7.6 No	425 No	0.027J No
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	12500 No	9.7J No	0.15J No	23.4 No	8.7 No	756 No	<0.039UJ No
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	11400 No	11J No	0.17J No	21.6 No	9.8 No	893 No	0.34J No
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	12400 No	13.7J No	0.16J No	29 No	9.7 No	870 No	0.13J No
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	11000 No	12.5J No	0.15J No	19.4 No	8.8 No	448 No	<0.034UJ No
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	9240J No	12.1J No	0.15J No	20.5 No	8.1 No	473 No	0.1J No
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	8810J No	10.5J No	0.13J No	24.6 No	8.8 No	563 No	0.026J No
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	9590J No	8.7J No	0.14J No	18.6 No	9.2 No	874 No	0.035J No
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	11500 No	11J No	0.17J No	22.3 No	9.9 No	890 No	<0.035UJ No
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	11200 No	11.4J No	0.18J No	27.9 No	9.5 No	682 No	<0.055UJ No
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	10100 No	13.4J No	0.15J No	23.9 No	9.2 No	717 No	0.075J No
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	7980 No	11.7J No	0.31 No	25.5 No	6.4 No	543 No	0.36J No
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	NR	NR	NR	NR	NR	NR
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	NR	NR	NR	NR	NR	NR
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	NR	NR	NR	NR	NR	NR
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	NR	NR	NR	NR	NR	NR
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	NR	NR	NR	NR	NR	NR
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	NR	NR	NR	NR	NR	NR

Table G-5. COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child) (continued)

Sample ID	Date	COPC		RDX	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
		CAS Number		121-82-4	56-55-3	50-32-8	205-99-2	53-70-3	193-39-5
		Resident Farmer FWCUG ^a :							
		HQ=1		227	--	--	--	--	--
		Risk=10 ⁻⁵		115	2.21	0.221	2.21	0.221	2.21
		Background Criteria ^b		--	--	--	--	--	--
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	<0.2U No	0.55 No	0.48 Yes	0.61 No	0.061 No	0.2 No
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	0.53 No	NR	NR	NR	NR	NR
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	0.08J No	NR	NR	NR	NR	NR
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	0.44 No	NR	NR	NR	NR	NR
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	<0.2U No	3.1 Yes	2.3J Yes	3 Yes	0.42 Yes	0.83 No
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	45 No	NR	NR	NR	NR	NR
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	<0.2U No	0.017J No	0.029J No	0.06 No	<0.033U No	0.011J No
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	<0.2U No	0.08 No	0.094 No	0.12 No	0.014J No	0.048 No
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	<0.25U No	NR	NR	NR	NR	NR
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	<0.24U No	0.47 No	0.39 Yes	0.55 No	<0.33U No	<0.33U No
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	0.27 No	NR	NR	NR	NR	NR
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	<0.25U No	NR	NR	NR	NR	NR
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	<0.24U No	NR	NR	NR	NR	NR

Table G-5. COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child) (continued)

Sample ID	Date	COPC		RDX	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
		CAS Number		121-82-4	56-55-3	50-32-8	205-99-2	53-70-3	193-39-5
		Resident Farmer FWCUG ^a :							
		HQ=1		227	--	--	--	--	--
		Risk=10 ⁻⁵		115	2.21	0.221	2.21	0.221	2.21
		Background Criteria ^b		--	--	--	--	--	--
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	<0.25U No	NR	NR	NR	NR	NR
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	<0.24U No	<0.33U No	<0.33U No	<0.33U No	<0.33U No	<0.33U No
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	<0.25UJ No	0.026 No	0.029 No	0.049 No	0.022 No	0.036 No
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	<0.25U No	0.4 No	0.3 Yes	0.41 No	0.05J No	0.15J No
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	<0.25UJ No	0.55 No	0.4 Yes	0.58 No	0.096 No	0.23 No
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	<0.25UJ No	0.056 No	0.048 No	0.06 No	0.009 No	0.026 No
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	<0.25U No	0.013 No	0.011 No	0.011 No	<0.0068U No	0.0075 No
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	<0.24U No	0.06 No	0.051 No	0.078 No	0.0083 No	0.03 No
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	<0.25U No	0.052 No	0.048J No	0.067 No	0.0086J No	0.032J No
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	<0.25UJ No	0.032 No	0.035 No	0.05 No	<0.0068U No	0.022 No
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	<0.25UJ No	0.031 No	0.035 No	0.048 No	<0.0068U No	0.024 No
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	<0.25U No	0.048 No	0.047 No	0.067 No	0.0081 No	0.029 No
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	<0.24UJ No	0.044 No	0.035 No	0.054 No	<0.0068U No	0.02 No
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	<0.25UJ No	0.019 No	0.017 No	0.023 No	<0.0068U No	0.011 No
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	<0.25UJ No	0.01 No	0.0071 No	<0.0068U No	<0.0068U No	<0.0068U No
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	<0.25UJ No	0.012 No	0.012 No	0.02 No	<0.0068U No	0.008 No
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	<0.25U No	0.14 No	0.12 No	0.19 No	<0.027U No	0.12 No
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	<0.25U No	0.19 No	0.17 No	0.2 No	0.026 No	0.1 No
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	<0.24UJ No	0.27 No	0.21 No	0.33 No	0.1 No	0.17 No
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	1.6 No	1.3 Yes	1.5 No	0.17 No	NR
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	1.8 No	1.4 Yes	1.6 No	0.23 Yes	NR
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	0.58 No	0.47 Yes	0.6 No	0.071 No	NR
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	0.14 No	0.12 No	0.14 No	0.018 No	NR
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	0.072 No	0.059 No	0.083 No	0.0076 No	NR
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	0.33 No	0.28 Yes	0.34 No	0.032 No	NR

All units are milligrams per kilogram (mg/kg).

^aFacility-Wide Cleanup Goal (FWCUG) is the most conservative (smallest) of the FWCUGs for Resident Adult and Resident Child from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

^cSince Resident FWCUG for arsenic is less than the background level, background is used as the cleanup goal for comparison.

^dUsing the lines of evidence presented in Section 7.2.4.1, FWCUGs for trivalent chromium were identified as being appropriate for use at Load Line 7.

Data Qualifiers:

J = indicates that the analyte was positively identified, but the associated numerical value is an approximate concentration of the analyte in the sample.

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

HQ = Hazard Quotient.

ID = Identifier.

ISM = Incremental Sampling Method.

NR = Not Reported.

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

Bold = Concentration in this sample exceeds FWCUG.

-- = No value available.

Table G-6. Sum-of-Ratios for Non-Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child)

Sample ID	Date	COPC		Aluminum		Arsenic		Cadmium		Chromium		Cobalt		Manganese		Silver		RDX		SOR
		CAS Number		7429-90-5		7440-38-2		7440-43-9		7440-47-3		7440-48-4		7439-96-5		7440-22-4		121-82-4		
		Resident FWCUG ^a :																		
		HQ=1		73798		20.2		64.1		81,473		1313		2927		386		227		
		Critical effect or Target Organ		Neurotoxicity in offspring		Skin		Proteinuria		NOAEL		Not specified		CNS		Gastrointestinal		Not specified		
		Background Criteria ^b		17700 (19,500)		15.4 (19.8)		0 (0)		17.4 (27.2)		10.4 (23.2)		1450 (3030)		0 (0)		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	6800	NA	13	NA	0.94	0.01	12	NA	7.3	NA	740	NA	<4.3U	--	<0.2U	--	0.01
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	7900	NA	9.6	NA	0.39	0.006	17	NA	6.1	NA	580	NA	<1U	--	<0.2U	--	<0.1
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	18000	NA	9.1	NA	0.13	0.00	22	NA	4.7	NA	1600	NA	<1U	--	<0.2U	--	<0.1
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	9300	NA	15	NA	<0.27U	--	19	NA	8.8	NA	530	NA	<1.1U	--	<0.2U	--	--
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	9500	NA	8.2	NA	1.4	0.02	33	0.00	5.5	NA	850	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	6900	NA	9.2	NA	0.49	0.008	18	NA	6	NA	560	NA	<1U	--	<0.2U	--	<0.1
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	5100	NA	7.9	NA	0.71	0.01	14	NA	3.8	NA	380	NA	<1.1U	--	<0.2U	--	0.01
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	8300	NA	13	NA	<0.25U	--	24	NA	7.9	NA	540	NA	<1U	--	<0.2U	--	--
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	8000	NA	12	NA	<0.27U	--	21	NA	8	NA	590	NA	<1.1U	--	<0.2U	--	--
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	11000	NA	13	NA	0.13	0.00	22	NA	11	NA	500	NA	<0.97U	--	0.53	<0.01	<0.1
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	11000	NA	10	NA	0.12	0.00	17	NA	10	NA	580	NA	<1U	--	<0.2U	--	<0.1
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	8400	NA	9.5	NA	0.08	0.00	19	NA	8.6	NA	500	NA	<1U	--	0.08	<0.01	<0.1
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	6300	NA	8.3	NA	0.22	0.00	14	NA	6.2	NA	300	NA	<1U	--	0.44	<0.01	<0.1
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	8900	NA	10	NA	0.36	0.006	18	NA	8.1	NA	490	NA	<0.98U	--	<0.2U	--	<0.1
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	8900	NA	9	NA	0.2	0.00	14	NA	7.5	NA	490	NA	0.59	<0.01	45	0.20	0.2
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	9400	NA	16	NA	0.08	0.00	21	NA	9.4	NA	660	NA	<0.91U	--	<0.2U	--	<0.1
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	7600	NA	10	NA	0.19	0.00	14	NA	8.6	NA	520	NA	<0.94U	--	<0.2U	--	<0.1
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	15000	NA	9.1	NA	0.95	0.01	30	0.00	5.1	NA	1100	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	13000	NA	7.9	NA	0.4	0.006	28	0.00	6.2	NA	1200	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	14000	NA	14	NA	<0.25U	--	25	NA	7.9	NA	370	NA	<1U	--	<0.2U	--	--
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	13000	NA	13	NA	<0.27U	--	25	NA	9.1	NA	800	NA	<1.1U	--	<0.2U	--	--
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	12000	NA	10	NA	<0.27U	--	21	NA	8.2	NA	440	NA	<1.1U	--	<0.2U	--	--
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	6900	NA	9.8	NA	0.22	0.00	21	NA	6.2	NA	290	NA	<0.96U	--	<0.2U	--	<0.1
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	12000	NA	14	NA	0.11	0.00	19	NA	10	NA	610	NA	<0.98U	--	<0.2U	--	<0.1
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	13000	NA	13	NA	<0.27U	--	24	NA	9.1	NA	620	NA	<1.1U	--	<0.2U	--	--
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	12000	NA	13	NA	<0.24U	--	24	NA	7.9	NA	620	NA	1.6	<0.01	<0.2U	--	<0.1
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	11000	NA	13	NA	<0.26U	--	19	NA	9.6	NA	1100	NA	<1U	--	<0.2U	--	--
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	8700	NA	11	NA	<0.26U	--	27	NA	7.8	NA	360	NA	80	0.21	<0.2U	--	0.2
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	9100	NA	9	NA	0.47	0.007	17	NA	6.2	NA	750	NA	<1U	--	<0.2U	--	<0.1
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	11000	NA	12	NA	0.18	0.00	16	NA	7	NA	390	NA	<0.92U	--	<0.2U	--	<0.1
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	9300	NA	14	NA	0.19	0.00	17	NA	7.7	NA	630	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	14000	NA	12	NA	0.11	0.00	25	NA	13	NA	550	NA	<0.94U	--	<0.2U	--	<0.1
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	9010	NA	9.5	NA	<1U	--	91.6	0.00	6.6	NA	473	NA	<2U	--	<0.25U	--	<0.1
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	8230	NA	10.2	NA	<1U	--	29.6	0.00	6.3	NA	412	NA	<2U	--	<0.24U	--	<0.1
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	7220	NA	9	NA	<1U	--	29	0.00	7.3	NA	406	NA	<2U	--	<0.24U	--	<0.1
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	7250	NA	9	NA	<1U	--	21.5	NA	6.9	NA	358	NA	<2U	--	0.27	<0.01	<0.1
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	8170	NA	10.3	NA	<1U	--	16	NA	7.3	NA	527	NA	<2U	--	<0.24U	--	--
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	6550	NA	9.2	NA	<1U	--	15.5	NA	5.9	NA	450	NA	<2U	--	<0.24U	--	--
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	7000	NA	11.4	NA	<1U	--	17	NA	6.2	NA	355	NA	<2U	--	<0.24U	--	--
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	6190	NA	9	NA	<1U	--	24.8	NA	5.3	NA	313	NA	3.4	<0.01	<0.25U	--	<0.1

Table G-6. Sum-of-Ratios for Non-Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child) (continued)

Sample ID	Date	COPC		Aluminum		Arsenic		Cadmium		Chromium		Cobalt		Manganese		Silver		RDX		SOR
		CAS Number		7429-90-5		7440-38-2		7440-43-9		7440-47-3		7440-48-4		7439-96-5		7440-22-4		121-82-4		
		Resident FWCUG ^a :																		
		HQ=1		73798		20.2		64.1		81,473		1313		2927		386		227		
		Critical effect or Target Organ		Neurotoxicity in offspring		Skin		Proteinuria		NOAEL		Not specified		CNS		Gastrointestinal		Not specified		
		Background Criteria ^b		17700 (19,500)		15.4 (19.8)		0 (0)		17.4 (27.2)		10.4 (23.2)		1450 (3030)		0 (0)		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	8280	NA	12.9	NA	<1U	--	30.6	0.00	8	NA	707	NA	<2U	--	<0.24U	--	<0.1
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	9750	NA	10	NA	<1U	--	17.9	NA	9.5	NA	386	NA	<2U	--	<0.24U	--	--
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	8950	NA	13	NA	<1U	--	97.5	0.00	7.8	NA	617	NA	<2U	--	<0.24U	--	<0.1
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	5980	NA	10.4	NA	1.8	0.03	19.1	NA	5	NA	425	NA	<2U	--	<0.25U	--	<0.1
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	6130	NA	15.1	NA	<1U	--	17.4	NA	6.2	NA	426	NA	<2U	--	<0.24U	--	--
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	10000	NA	12.5	NA	0.17	0.00	15.4	NA	8.4	NA	530	NA	0.12	<0.01	<0.25U	--	<0.1
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	9030	NA	10.6	NA	8.5	0.1	20.8	NA	8.3	NA	678	NA	<0.044UJ	--	<0.25U	--	0.1
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	8920	NA	10.5	NA	0.24	0.00	25	NA	8.6	NA	574	NA	<0.041UJ	--	<0.25U	--	<0.1
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	13500	NA	12.1	NA	0.11	0.00	26.4	NA	8.6	NA	495	NA	<0.029UJ	--	<0.25U	--	<0.1
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	9560	NA	9.4	NA	0.11	0.00	19.3	NA	8.5	NA	737	NA	0.03	<0.01	<0.25U	--	<0.1
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	9820	NA	9.2	NA	0.13	0.00	18.8	NA	7.6	NA	425	NA	0.027	<0.01	<0.24U	--	<0.1
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	12500	NA	9.7	NA	0.15	0.00	23.4	NA	8.7	NA	756	NA	<0.039UJ	--	<0.25U	--	<0.1
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	11400	NA	11	NA	0.17	0.00	21.6	NA	9.8	NA	893	NA	0.34	<0.01	<0.25U	--	<0.1
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	12400	NA	13.7	NA	0.16	0.00	29	0.00	9.7	NA	870	NA	0.13	<0.01	<0.25U	--	<0.1
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	11000	NA	12.5	NA	0.15	0.00	19.4	NA	8.8	NA	448	NA	<0.034UJ	--	<0.25U	--	<0.1
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	9240	NA	12.1	NA	0.15	0.00	20.5	NA	8.1	NA	473	NA	0.1	<0.01	<0.24U	--	<0.1
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	8810	NA	10.5	NA	0.13	0.00	24.6	NA	8.8	NA	563	NA	0.026	<0.01	<0.25U	--	<0.1
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	9590	NA	8.7	NA	0.14	0.00	18.6	NA	9.2	NA	874	NA	0.035	<0.01	<0.25U	--	<0.1
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	11500	NA	11	NA	0.17	0.00	22.3	NA	9.9	NA	890	NA	<0.035UJ	--	<0.25U	--	<0.1
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	11200	NA	11.4	NA	0.18	0.00	27.9	0.00	9.5	NA	682	NA	<0.055UJ	--	<0.25U	--	<0.1
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	10100	NA	13.4	NA	0.15	0.00	23.9	NA	9.2	NA	717	NA	0.075	<0.01	<0.25U	--	<0.1
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	7980	NA	11.7	NA	0.31	0.00	25.5	NA	6.4	NA	543	NA	0.36	<0.01	<0.24U	--	<0.1
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--

All units are milligrams per kilogram (mg/kg).

^aFacility-Wide Cleanup Goal (FWCUG) is the most conservative (smallest) of the FWCUGs for Resident Adult and Resident Child from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

Data Qualifiers:

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

CNS = Central Nervous System.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

HQ = Hazard Quotient.

ISM = Incremental Sampling Method.

NA = Not applicable, the result for this sample is not included in the SOR because the reported concentration is less than background.

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

SOR = Sum-of-Ratios.

Bold = SOR greater than 1.

-- = No value available.

Table G-7. Sum-of-Ratios for Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child)

Sample ID	Date	COPC		Cadmium		Cobalt		RDX		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Dibenz(a,h)anthracene		Indeno(1,2,3-cd)pyrene		SOR
		CAS Number		7440-43-9		7440-48-4		121-82-4		56-55-3		50-32-8		205-99-2		53-70-3		193-39-5		
		Resident FWCUG ^a :																		
		Risk=10 ⁻⁵		12491		8030		115		2.21		0.221		2.21		0.221		2.21		
		Background Criteria ^b		0 (0)		10.4 (23.2)		--		--		--		--		--		--		
Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	0.94	<0.01	7.3	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	0.39	<0.01	6.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	0.13	<0.01	4.7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	<0.27U	--	8.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	1.4	<0.01	5.5	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	0.49	<0.01	6	NA	<0.2U	--	0.55	0.25	0.48	2.2	0.61	0.28	0.061	0.28	0.2	0.090	3
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	0.71	<0.01	3.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	<0.25U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	<0.27U	--	8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	0.13	<0.01	11	<0.01	0.53	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	0.12	<0.01	10	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	0.08	<0.01	8.6	NA	0.08	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	0.22	<0.01	6.2	NA	0.44	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	0.36	<0.01	8.1	NA	<0.2U	--	3.1	1.4	2.3	10	3	1.4	0.42	1.9	0.83	0.38	15
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	0.2	<0.01	7.5	NA	45	0.4	NR	--	NR	--	NR	--	NR	--	NR	--	0.4
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	0.08	<0.01	9.4	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	0.19	<0.01	8.6	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	0.95	<0.01	5.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	0.4	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	<0.25U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	<0.27U	--	9.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	<0.27U	--	8.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	0.22	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	0.11	<0.01	10	NA	<0.2U	--	0.017	0.008	0.029	0.13	0.06	0.027	<0.033U	--	0.011	<0.01	0.2
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	<0.27U	--	9.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	<0.24U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	<0.26U	--	9.6	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	<0.26U	--	7.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	0.47	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	0.18	<0.01	7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	0.19	<0.01	7.7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	0.11	<0.01	13	<0.01	<0.2U	--	0.08	0.036	0.094	0.43	0.12	0.054	0.014	0.063	0.048	0.022	0.6
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	<1U	--	6.6	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	<1U	--	6.3	NA	<0.24U	--	0.47	0.21	0.39	1.8	0.55	0.25	<0.33U	--	<0.33U	--	2
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	<1U	--	7.3	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	<1U	--	6.9	NA	0.27	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	<1U	--	7.3	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	<1U	--	5.9	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	<1U	--	6.2	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	<1U	--	5.3	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	<1U	--	8	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	<1U	--	9.5	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	<1U	--	7.8	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--

Table G-7. Sum-of-Ratios for Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child) (continued)

Sample ID	Date	COPC		Cadmium		Cobalt		RDX		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Dibenz(a,h)anthracene		Indeno(1,2,3-cd)pyrene		SOR
		CAS Number		7440-43-9		7440-48-4		121-82-4		56-55-3		50-32-8		205-99-2		53-70-3		193-39-5		
		Resident FWCUG ^a :																		
		Risk=10 ⁻⁵		12491		8030		115		2.21		0.221		2.21		0.221		2.21		
		Background Criteria ^b		0 (0)		10.4 (23.2)		--		--		--		--		--		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	1.8	<0.01	5	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	<1U	--	6.2	NA	<0.24U	--	<0.33U	--	<0.33U	--	<0.33U	--	<0.33U	--	<0.33U	--	--
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	0.17	<0.01	8.4	NA	<0.25UJ	--	0.026	0.012	0.029	0.13	0.049	0.022	0.022	0.10	0.036	0.016	0.3
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	8.5	<0.01	8.3	NA	<0.25U	--	0.4	0.18	0.3	1.4	0.41	0.19	0.05	0.23	0.15	0.068	2
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	0.24	<0.01	8.6	NA	<0.25UJ	--	0.55	0.25	0.4	1.8	0.58	0.26	0.096	0.43	0.23	0.10	3
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	0.11	<0.01	8.6	NA	<0.25UJ	--	0.056	0.025	0.048	0.22	0.06	0.027	0.009	0.041	0.026	0.012	0.3
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	0.11	<0.01	8.5	NA	<0.25U	--	0.013	0.006	0.011	0.05	0.011	<0.01	<0.0068U	--	0.0075	<0.01	<0.1
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	0.13	<0.01	7.6	NA	<0.24U	--	0.06	0.027	0.051	0.23	0.078	0.035	0.0083	0.038	0.03	0.014	0.3
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	0.15	<0.01	8.7	NA	<0.25U	--	0.052	0.024	0.048	0.22	0.067	0.030	0.0086	0.039	0.032	0.014	0.3
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	0.17	<0.01	9.8	NA	<0.25UJ	--	0.032	0.014	0.035	0.16	0.05	0.023	<0.0068U	--	0.022	0.010	0.2
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	0.16	<0.01	9.7	NA	<0.25UJ	--	0.031	0.014	0.035	0.16	0.048	0.022	<0.0068U	--	0.024	0.011	0.2
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	0.15	<0.01	8.8	NA	<0.25U	--	0.048	0.022	0.047	0.21	0.067	0.030	0.0081	0.037	0.029	0.013	0.3
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	0.15	<0.01	8.1	NA	<0.24UJ	--	0.044	0.020	0.035	0.16	0.054	0.024	<0.0068U	--	0.02	0.009	0.2
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	0.13	<0.01	8.8	NA	<0.25UJ	--	0.019	0.009	0.017	0.08	0.023	0.010	<0.0068U	--	0.011	<0.01	0.1
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	0.14	<0.01	9.2	NA	<0.25UJ	--	0.01	<0.01	0.0071	0.03	<0.0068U	--	<0.0068U	--	<0.0068U	--	<0.1
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	0.17	<0.01	9.9	NA	<0.25UJ	--	0.012	0.005	0.012	0.05	0.02	0.009	<0.0068U	--	0.008	<0.01	<0.1
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	0.18	<0.01	9.5	NA	<0.25U	--	0.14	0.063	0.12	0.54	0.19	0.086	<0.027U	--	0.12	0.054	0.7
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	0.15	<0.01	9.2	NA	<0.25U	--	0.19	0.086	0.17	0.77	0.2	0.090	0.026	0.12	0.1	0.045	1
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	0.31	<0.01	6.4	NA	<0.24UJ	--	0.27	0.12	0.21	0.95	0.33	0.15	0.1	0.45	0.17	0.077	2
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	--	NR	--	NR	--	1.6	0.72	1.3	5.9	2	0.68	0.2	0.77	NR	--	8
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	--	NR	--	NR	--	1.8	0.81	1.4	6.3	2	0.72	0.2	1.0	NR	--	9
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	--	NR	--	NR	--	0.58	0.26	0.47	2.1	0.6	0.27	0.07	0.32	NR	--	3
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	--	NR	--	NR	--	0.14	0.063	0.12	0.54	0.1	0.063	0.02	0.081	NR	--	0.8
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	--	NR	--	NR	--	0.072	0.033	0.059	0.27	0.08	0.038	0.008	0.034	NR	--	0.4
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	--	NR	--	NR	--	0.33	0.15	0.28	1.3	0.3	0.15	0.03	0.14	NR	--	2

All units are milligrams per kilogram (mg/kg).

^aFacility-Wide Cleanup Goal (FWCUG) is the most conservative (smallest) of the FWCUGs for Resident Adult and Resident Child from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

Data Qualifiers:

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

ID = Identifier.

ISM = Incremental Sampling Method.

NA = Not applicable, the cobalt result for this sample is not included in the SOR because the reported concentration is less than background.

NR = Not Reported.

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

SOR = Sum-of-Ratios.

Bold = SOR greater than 1.

-- = No value available.

Table G-8. Percent Contribution to Sum-of-Ratios for Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Unrestricted Land Use Receptor: Resident (Adult and Child)

Sample ID	Date	COPC		Cadmium		Cobalt		RDX		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Dibenz(a,h)anthracene		Indeno(1,2,3-cd)pyrene		SOR								
		CAS Number		7440-43-9		7440-48-4		121-82-4		56-55-3		50-32-8		205-99-2		53-70-3		193-39-5										
		Resident FWCUG ^a :																										
		Risk=10 ⁻⁵		12491		Percent Contribution to SOR>1	8030		Percent Contribution to SOR>1	115		Percent Contribution to SOR>1	2.21		Percent Contribution to SOR>1	0.221		Percent Contribution to SOR>1	2.21		Percent Contribution to SOR>1	0.221		Percent Contribution to SOR>1	2.21		Percent Contribution to SOR>1	
		Background Criteria ^b		0 (0)			10.4 (23.2)			--			--			--			--			--			--			
		Depth (ft bgs)	Station	Result	Ratio		Result	Ratio		Result	Ratio		Result	Ratio		Result	Ratio		Result			Ratio	Result		Ratio	Result		Ratio
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	0.49	<0.01	<0.1%	6	NA	--	<0.2U	--	--	0.55	0.25	8%	0.48	2.2	71%	0.61	0.28	9%	0.061	0.28	9%	0.2	0.09	3%	3
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	0.36	<0.01	<0.1%	8.1	NA	--	<0.2U	--	--	3.1	1.4	9%	2.3	10	67%	3	1.4	9%	0.42	1.9	12%	0.83	0.38	2%	15
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	<1U	--		6.3	NA	--	<0.24U	--	--	0.47	0.21	10%	0.39	1.8	79%	0.55	0.25	11%	<0.33U	--	--	<0.33U	--	--	2
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	8.5	<0.01	<0.1%	8.3	NA	--	<0.25U	--	--	0.4	0.18	9%	0.3	1.4	67%	0.41	0.19	9%	0.05	0.23	11%	0.15	0.07	3%	2
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	0.24	<0.01	<0.1%	8.6	NA	--	<0.25UJ	--	--	0.55	0.25	9%	0.4	1.8	63%	0.58	0.26	9%	0.096	0.43	15%	0.23	0.10	4%	3
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	0.31	<0.01	<0.1%	6.4	NA	--	<0.24UJ	--	--	0.27	0.12	7%	0.21	0.95	54%	0.33	0.15	9%	0.1	0.45	26%	0.17	0.08	4%	2
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	--	--	NR	--	--	NR	--	--	1.6	0.72	9%	1.3	5.9	73%	2	0.68	8%	0.2	0.77	10%	NR	--	--	8
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	--	--	NR	--	--	NR	--	--	1.8	0.81	9%	1.4	6.3	71%	2	0.72	8%	0.2	1.0	12%	NR	--	--	9
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	--	--	NR	--	--	NR	--	--	0.58	0.26	9%	0.47	2.1	71%	0.6	0.27	9%	0.07	0.32	11%	NR	--	--	3
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	--	--	NR	--	--	NR	--	--	0.33	0.15	9%	0.28	1.3	74%	0.3	0.15	9%	0.03	0.14	8%	NR	--	--	2

All units are milligrams per kilogram (mg/kg).

^aFacility-Wide Cleanup Goal (FWCUG) is the most conservative (smallest) of the FWCUGs for Resident Adult and Resident Child from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

Data Qualifiers:

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

ID = Identifier.

ISM = Incremental Sampling Method.

NA = Not applicable, the cobalt result for this sample is not included in the SOR because the reported concentration is less than background.

NR = Not Reported.

SOR = Sum-of-Ratios.

Bold = SOR greater than 1.

-- = No value available.

Table G-9. COC Screening for Subsurface Soil (1-13 ft bgs Discrete Samples) at Load Line 7: Former Production Area Unrestricted Land Use Receptor: Resident (Adult and Child)

COPC	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	UCL 95	Dist.	EPC	Resident FWCUG ^a		Background Criteria ^b	EPC Exceeds FWCUG?
									HQ=1	Risk=10 ⁻⁵		
Metals												
Aluminum	7429-90-5	19/19	2430	21700	9450	11300	N	11300	73798	--	19500	No
Arsenic ^c	7440-38-2	19/19	3	27	13.3	15.5	N	15.5	20.2	4.25	19.8	No
Semi-volatile Organic Compounds												
Benz(a)anthracene	56-55-3	3/19	0.13	2.7	0.189	0.436	D	0.436	--	2.21	--	No
Benzo(a)pyrene	50-32-8	4/19	0.017	2	0.143	0.326	D	0.326	--	0.221	--	Yes
Benzo(b)fluoranthene	205-99-2	4/19	0.037	2.8	0.198	0.455	D	0.455	--	2.21	--	No
Dibenz(a,h)anthracene	53-70-3	3/19	0.018	0.32	0.0306	0.059	D	0.059	--	0.221	--	No
Indeno(1,2,3-cd)pyrene	193-39-5	3/19	0.05	0.86	0.0676	0.146	D	0.146	--	2.21	--	No

All units are milligrams per kilogram (mg/kg).
^aFacility-Wide Cleanup Goal (FWCUG) is the most conservative (smallest) of the FWCUGs for Resident Adult and Resident Child from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).
^bBackground criteria for soil >1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
^cSince Resident FWCUG for arsenic is less than the background level, background is used as the cleanup goal for comparison.
Dist.: N=normal distribution, t statistic used for UCL 95 calculation.
L=lognormal distribution, Land statistic used for UCL 95 calculation.
D=fewer than 5 or 50% detects, t statistic used for UCL 95 calculation.
X=distribution neither normal nor lognormal, t statistic used for UCL 95 calculation.
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
UCL 95 = 95% Upper Confidence Limit of the mean.
Bold = EPC exceeds FWCUG..
-- = No value available

Table G-10. Sum-of-Ratios for Carcinogens: COC Screening for Subsurface Soil (1-13 ft bgs Discrete Samples) at Load Line 7: Former Production Area Unrestricted Land Use Receptor: Resident (Adult and Child)

COPC	CAS Number	EPC	Resident Farmer FWCUG ^a : Risk=10 ⁻⁵	Background Criteria ^b	Ratio	Percent Contribution to SOR
Benz(a)anthracene	56-55-3	0.436	2.21	--	0.2	9%
Benzo(a)pyrene	50-32-8	0.326	0.221	--	1	67%
Benzo(b)fluoranthene	205-99-2	0.455	2.21	--	0.2	9%
Dibenz(a,h)anthracene	53-70-3	0.059	0.221	--	0.3	12%
Indeno(1,2,3-cd)pyrene	193-39-5	0.146	2.21	--	0.07	3%
Sum-of-Ratios					2	

All units are milligrams per kilogram (mg/kg).
^aFacility-Wide Cleanup Goal (FWCUG) is the most conservative (smallest) of the FWCUGs for Resident Adult and Resident Child from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).
^bBackground criteria for soil >1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
SOR = Sum-of-Ratios.
-- = No value available.
Bold = SOR greater than 1.

Table G-11. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor

Sample ID	Date	COPC		Aluminum	Arsenic	Cadmium	Chromium ^c	Cobalt	Manganese	Silver
		CAS Number		7429-90-5	7440-38-2	7440-43-9	7440-47-3	7440-48-4	7439-96-5	7440-22-4
		Industrial RSL ^a :								
		HQ=1		1100000	480	980	1800000	350	26000	5800
		Risk=10 ⁻⁵		--	30	93,000	--	19000	--	--
		Background Screening Value ^b		17700 (19,500)	15.4 (19.8)	0 (0)	17.4 (27.2)	10.4 (23.2)	1450 (3030)	0 (0)
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	6800 No	13 No	0.94 No	12 No	7.3 No	740 No	<4.3U No
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	7900 No	9.6 No	0.39 No	17 No	6.1 No	580 No	<1U No
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	18000 No	9.1 No	0.13 No	22 No	4.7 No	1600 No	<1U No
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	9300 No	15 No	<0.27U No	19 No	8.8 No	530 No	<1.1U No
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	9500 No	8.2 No	1.4 No	33 No	5.5 No	850 No	<1.1U No
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	6900 No	9.2 No	0.49 No	18 No	6 No	560 No	<1U No
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	5100 No	7.9 No	0.71 No	14 No	3.8 No	380 No	<1.1U No
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	8300 No	13 No	<0.25U No	24 No	7.9 No	540 No	<1U No
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	8000 No	12 No	<0.27U No	21 No	8 No	590 No	<1.1U No
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	11000 No	13 No	0.13 No	22 No	11 No	500 No	<0.97U No
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	11000 No	10 No	0.12 No	17 No	10 No	580 No	<1U No
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	8400 No	9.5 No	0.08 No	19 No	8.6 No	500 No	<1U No
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	6300 No	8.3 No	0.22 No	14 No	6.2 No	300 No	<1U No
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	8900 No	10 No	0.36J No	18 No	8.1 No	490 No	<0.98U No
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	8900 No	9 No	0.2 No	14 No	7.5 No	490 No	0.59 No
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	9400 No	16 No	0.08 No	21 No	9.4 No	660 No	<0.91U No
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	7600 No	10 No	0.19 No	14 No	8.6 No	520 No	<0.94U No
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	15000 No	9.1 No	0.95 No	30 No	5.1 No	1100 No	<1.1U No
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	13000 No	7.9 No	0.4 No	28 No	6.2 No	1200 No	<1.1U No
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	14000 No	14 No	<0.25U No	25 No	7.9 No	370 No	<1U No
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	13000 No	13 No	<0.27U No	25 No	9.1 No	800 No	<1.1U No
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	12000 No	10 No	<0.27U No	21 No	8.2 No	440 No	<1.1U No
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	6900 No	9.8 No	0.22 No	21 No	6.2 No	290 No	<0.96U No
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	12000 No	14 No	0.11 No	19 No	10 No	610 No	<0.98U No
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	13000 No	13 No	<0.27U No	24 No	9.1 No	620 No	<1.1U No
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	12000 No	13 No	<0.24U No	24 No	7.9 No	620 No	1.6 No
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	11000 No	13J No	<0.26U No	19 No	9.6 No	1100 No	<1U No
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	8700 No	11 No	<0.26U No	27 No	7.8 No	360 No	80 No
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	9100 No	9 No	0.47 No	17 No	6.2 No	750 No	<1U No
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	11000 No	12 No	0.18 No	16 No	7 No	390 No	<0.92U No
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	9300 No	14 No	0.19 No	17 No	7.7 No	630 No	<1.1U No
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	14000 No	12 No	0.11 No	25 No	13 No	550 No	<0.94U No
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	9010 No	9.5 No	<1U No	91.6 No	6.6 No	473 No	<2U No
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	8230 No	10.2 No	<1U No	29.6 No	6.3 No	412 No	<2U No
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	7220 No	9 No	<1U No	29 No	7.3 No	406 No	<2U No
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	7250 No	9 No	<1U No	21.5 No	6.9 No	358 No	<2U No
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	8170 No	10.3 No	<1U No	16 No	7.3 No	527 No	<2U No
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	6550 No	9.2 No	<1U No	15.5 No	5.9 No	450 No	<2U No
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	7000 No	11.4 No	<1U No	17 No	6.2 No	355 No	<2U No
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	6190 No	9 No	<1U No	24.8 No	5.3 No	313 No	3.4 No
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	8280 No	12.9 No	<1U No	30.6 No	8 No	707 No	<2U No
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	9750 No	10 No	<1U No	17.9 No	9.5 No	386 No	<2U No

Table G-11. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor (continued)

Sample ID	Date	COPC		Aluminum	Arsenic	Cadmium	Chromium ^c	Cobalt	Manganese	Silver
		CAS Number		7429-90-5	7440-38-2	7440-43-9	7440-47-3	7440-48-4	7439-96-5	7440-22-4
		Industrial RSL ^a :								
		HQ=1		1100000	480	980	1800000	350	26000	5800
		Risk=10 ⁻⁵		--	30	93,000	--	19000	--	--
		Background Criteria ^b		17700 (19,500)	15.4 (19.8)	0 (0)	17.4 (27.2)	10.4 (23.2)	1450 (3030)	0 (0)
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	8950 No	13 No	<1U No	97.5 No	7.8 No	617 No	<2U No
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	5980 No	10.4 No	1.8 No	19.1 No	5 No	425 No	<2U No
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	6130 No	15.1 No	<1U No	17.4 No	6.2 No	426 No	<2U No
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	10000 No	12.5J No	0.17J No	15.4 No	8.4 No	530 No	0.12J No
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	9030 No	10.6J No	8.5 No	20.8 No	8.3 No	678 No	<0.044UJ No
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	8920 No	10.5J No	0.24 No	25 No	8.6 No	574 No	<0.041UJ No
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	13500 No	12.1J No	0.11J No	26.4 No	8.6 No	495 No	<0.029UJ No
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	9560J No	9.4J No	0.11J No	19.3 No	8.5 No	737 No	0.03J No
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	9820J No	9.2J No	0.13J No	18.8 No	7.6 No	425 No	0.027J No
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	12500 No	9.7J No	0.15J No	23.4 No	8.7 No	756 No	<0.039UJ No
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	11400 No	11J No	0.17J No	21.6 No	9.8 No	893 No	0.34J No
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	12400 No	13.7J No	0.16J No	29 No	9.7 No	870 No	0.13J No
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	11000 No	12.5J No	0.15J No	19.4 No	8.8 No	448 No	<0.034UJ No
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	9240J No	12.1J No	0.15J No	20.5 No	8.1 No	473 No	0.1J No
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	8810J No	10.5J No	0.13J No	24.6 No	8.8 No	563 No	0.026J No
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	9590J No	8.7J No	0.14J No	18.6 No	9.2 No	874 No	0.035J No
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	11500 No	11J No	0.17J No	22.3 No	9.9 No	890 No	<0.035UJ No
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	11200 No	11.4J No	0.18J No	27.9 No	9.5 No	682 No	<0.055UJ No
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	10100 No	13.4J No	0.15J No	23.9 No	9.2 No	717 No	0.075J No
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	7980 No	11.7J No	0.31 No	25.5 No	6.4 No	543 No	0.36J No
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	NR	NR	NR	NR	NR	NR
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	NR	NR	NR	NR	NR	NR
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	NR	NR	NR	NR	NR	NR
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	NR	NR	NR	NR	NR	NR
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	NR	NR	NR	NR	NR	NR
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	NR	NR	NR	NR	NR	NR

Table G-11. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor (continued)

Sample ID	Date	COPC		RDX	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
		CAS Number		121-82-4	56-55-3	50-32-8	205-99-2	53-70-3	193-39-5
		Industrial RSL ^a :							
		HQ=1		3300	--	--	--	--	--
		Risk=10 ⁻⁵		280	29	2.9	29	2.9	29
		Background Criteria ^b		--	--	--	--	--	--
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	<0.2U No	0.55 No	0.48 No	0.61 No	0.061 No	0.2 No
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	0.53 No	NR	NR	NR	NR	NR
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	0.08J No	NR	NR	NR	NR	NR
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	0.44 No	NR	NR	NR	NR	NR
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	<0.2U No	3.1 No	2.3J No	3 No	0.42 No	0.83 No
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	45 No	NR	NR	NR	NR	NR
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	<0.2U No	0.017J No	0.029J No	0.06 No	<0.033U No	0.011J No
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	<0.2U No	0.08 No	0.094 No	0.12 No	0.014J No	0.048 No
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	<0.25U No	NR	NR	NR	NR	NR
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	<0.24U No	0.47 No	0.39 No	0.55 No	<0.33U No	<0.33U No
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	0.27 No	NR	NR	NR	NR	NR
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	<0.25U No	NR	NR	NR	NR	NR
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	<0.24U No	NR	NR	NR	NR	NR

Table G-11. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor (continued)

Sample ID	Date	COPC		RDX	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
		CAS Number		121-82-4	56-55-3	50-32-8	205-99-2	53-70-3	193-39-5
		Industrial RSL ^a :							
		HQ=1		3300	--	--	--	--	--
		Risk=10 ⁻⁵		280	29	2.9	29	2.9	29
		Background Criteria ^b		--	--	--	--	--	--
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	<0.25U No	NR	NR	NR	NR	NR
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	<0.24U No	<0.33U No	<0.33U No	<0.33U No	<0.33U No	<0.33U No
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	<0.25UJ No	0.026 No	0.029 No	0.049 No	0.022 No	0.036 No
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	<0.25U No	0.4 No	0.3 No	0.41 No	0.05J No	0.15J No
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	<0.25UJ No	0.55 No	0.4 No	0.58 No	0.096 No	0.23 No
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	<0.25UJ No	0.056 No	0.048 No	0.06 No	0.009 No	0.026 No
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	<0.25U No	0.013 No	0.011 No	0.011 No	<0.0068U No	0.0075 No
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	<0.24U No	0.06 No	0.051 No	0.078 No	0.0083 No	0.03 No
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	<0.25U No	0.052 No	0.048J No	0.067 No	0.0086J No	0.032J No
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	<0.25UJ No	0.032 No	0.035 No	0.05 No	<0.0068U No	0.022 No
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	<0.25UJ No	0.031 No	0.035 No	0.048 No	<0.0068U No	0.024 No
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	<0.25U No	0.048 No	0.047 No	0.067 No	0.0081 No	0.029 No
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	<0.24UJ No	0.044 No	0.035 No	0.054 No	<0.0068U No	0.02 No
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	<0.25UJ No	0.019 No	0.017 No	0.023 No	<0.0068U No	0.011 No
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	<0.25UJ No	0.01 No	0.0071 No	<0.0068U No	<0.0068U No	<0.0068U No
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	<0.25UJ No	0.012 No	0.012 No	0.02 No	<0.0068U No	0.008 No
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	<0.25U No	0.14 No	0.12 No	0.19 No	<0.027U No	0.12 No
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	<0.25U No	0.19 No	0.17 No	0.2 No	0.026 No	0.1 No
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	<0.24UJ No	0.27 No	0.21 No	0.33 No	0.1 No	0.17 No
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	1.6 No	1.3 No	1.5 No	0.17 No	NR
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	1.8 No	1.4 No	1.6 No	0.23 No	NR
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	0.58 No	0.47 No	0.6 No	0.071 No	NR
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	0.14 No	0.12 No	0.14 No	0.018 No	NR
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	0.072 No	0.059 No	0.083 No	0.0076 No	NR
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	0.33 No	0.28 No	0.34 No	0.032 No	NR

All units are milligrams per kilogram (mg/kg).

^aUSEPA Regional Screening Values for Industrial/Commercial Worker (June 2015).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

^cUsing the lines of evidence presented in Section 7.2.4.1, FWCUGs for trivalent chromium were identified as being appropriate for use at Load Line 7.

Data Qualifiers:

J = indicates that the analyte was positively identified, but the associated numerical value is an approximate concentration of the analyte in the sample.

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

ID = Identifier.

EPC = Exposure Point Concentration.

HQ = Hazard Quotient.

ISM = Incremental Sampling Method.

NR = Not Reported.

RSL = United States Environmental Protection Agency Residential Regional Screening Level.

Bold = Concentration in this sample exceeds FWCUG.

-- = No value available.

Table G-12. Sum-of-Ratios for Non-Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor

Sample ID	Date	COPC		Aluminum		Arsenic		Cadmium		Chromium		Cobalt		Manganese		Silver		RDX		SOR
		CAS Number		7429-90-5		7440-38-2		7440-43-9		7440-47-3		7440-48-4		7439-96-5		7440-22-4		121-82-4		
		Industrial RSL ^a :																		
		HQ=1		1100000		480		980		1,800,000		350		26000		5800		3300		
		Critical effect or Target Organ		Neurotoxicity in offspring		Skin		Proteinuria		NOAEL		Not specified		CNS		Gastrointestinal		Not specified		
		Background Criteria ^b		17700 (19,500)		15.4 (19.8)		0 (0)		17.4 (27.2)		10.4 (23.2)		1450 (3030)		0 (0)		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	6800	NA	13	NA	0.94	<0.01	12	NA	7.3	NA	740	NA	<4.3U	--	<0.2U	--	<0.1
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	7900	NA	9.6	NA	0.39	<0.01	17	NA	6.1	NA	580	NA	<1U	--	<0.2U	--	<0.1
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	18000	NA	9.1	NA	0.13	<0.01	22	NA	4.7	NA	1600	NA	<1U	--	<0.2U	--	<0.1
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	9300	NA	15	NA	<0.27U	--	19	NA	8.8	NA	530	NA	<1.1U	--	<0.2U	--	--
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	9500	NA	8.2	NA	1.4	<0.01	33	<0.01	5.5	NA	850	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	6900	NA	9.2	NA	0.49	<0.01	18	NA	6	NA	560	NA	<1U	--	<0.2U	--	<0.1
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	5100	NA	7.9	NA	0.71	<0.01	14	NA	3.8	NA	380	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	8300	NA	13	NA	<0.25U	--	24	NA	7.9	NA	540	NA	<1U	--	<0.2U	--	--
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	8000	NA	12	NA	<0.27U	--	21	NA	8	NA	590	NA	<1.1U	--	<0.2U	--	--
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	11000	NA	13	NA	0.13	<0.01	22	NA	11	NA	500	NA	<0.97U	--	0.53	<0.01	<0.1
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	11000	NA	10	NA	0.12	<0.01	17	NA	10	NA	580	NA	<1U	--	<0.2U	--	<0.1
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	8400	NA	9.5	NA	0.08	<0.01	19	NA	8.6	NA	500	NA	<1U	--	0.08	<0.01	<0.1
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	6300	NA	8.3	NA	0.22	<0.01	14	NA	6.2	NA	300	NA	<1U	--	0.44	<0.01	<0.1
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	8900	NA	10	NA	0.36	<0.01	18	NA	8.1	NA	490	NA	<0.98U	--	<0.2U	--	<0.1
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	8900	NA	9	NA	0.2	<0.01	14	NA	7.5	NA	490	NA	0.59	<0.01	45	0.01	<0.1
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	9400	NA	16	NA	0.08	<0.01	21	NA	9.4	NA	660	NA	<0.91U	--	<0.2U	--	<0.1
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	7600	NA	10	NA	0.19	<0.01	14	NA	8.6	NA	520	NA	<0.94U	--	<0.2U	--	<0.1
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	15000	NA	9.1	NA	0.95	<0.01	30	<0.01	5.1	NA	1100	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	13000	NA	7.9	NA	0.4	<0.01	28	<0.01	6.2	NA	1200	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	14000	NA	14	NA	<0.25U	--	25	NA	7.9	NA	370	NA	<1U	--	<0.2U	--	--
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	13000	NA	13	NA	<0.27U	--	25	NA	9.1	NA	800	NA	<1.1U	--	<0.2U	--	--
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	12000	NA	10	NA	<0.27U	--	21	NA	8.2	NA	440	NA	<1.1U	--	<0.2U	--	--
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	6900	NA	9.8	NA	0.22	<0.01	21	NA	6.2	NA	290	NA	<0.96U	--	<0.2U	--	<0.1
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	12000	NA	14	NA	0.11	<0.01	19	NA	10	NA	610	NA	<0.98U	--	<0.2U	--	<0.1
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	13000	NA	13	NA	<0.27U	--	24	NA	9.1	NA	620	NA	<1.1U	--	<0.2U	--	--
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	12000	NA	13	NA	<0.24U	--	24	NA	7.9	NA	620	NA	1.6	<0.01	<0.2U	--	<0.1
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	11000	NA	13	NA	<0.26U	--	19	NA	9.6	NA	1100	NA	<1U	--	<0.2U	--	--
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	8700	NA	11	NA	<0.26U	--	27	NA	7.8	NA	360	NA	80	0.01	<0.2U	--	<0.1
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	9100	NA	9	NA	0.47	<0.01	17	NA	6.2	NA	750	NA	<1U	--	<0.2U	--	<0.1
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	11000	NA	12	NA	0.18	<0.01	16	NA	7	NA	390	NA	<0.92U	--	<0.2U	--	<0.1
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	9300	NA	14	NA	0.19	<0.01	17	NA	7.7	NA	630	NA	<1.1U	--	<0.2U	--	<0.1
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	14000	NA	12	NA	0.11	<0.01	25	NA	13	NA	550	NA	<0.94U	--	<0.2U	--	<0.1
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	9010	NA	9.5	NA	<1U	--	91.6	<0.01	6.6	NA	473	NA	<2U	--	<0.25U	--	<0.1
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	8230	NA	10.2	NA	<1U	--	29.6	<0.01	6.3	NA	412	NA	<2U	--	<0.24U	--	<0.1
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	7220	NA	9	NA	<1U	--	29	<0.01	7.3	NA	406	NA	<2U	--	<0.24U	--	<0.1
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	7250	NA	9	NA	<1U	--	21.5	NA	6.9	NA	358	NA	<2U	--	0.27	<0.01	<0.1
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	8170	NA	10.3	NA	<1U	--	16	NA	7.3	NA	527	NA	<2U	--	<0.24U	--	--
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	6550	NA	9.2	NA	<1U	--	15.5	NA	5.9	NA	450	NA	<2U	--	<0.24U	--	--
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	7000	NA	11.4	NA	<1U	--	17	NA	6.2	NA	355	NA	<2U	--	<0.24U	--	--
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	6190	NA	9	NA	<1U	--	24.8	NA	5.3	NA	313	NA	3.4	<0.01	<0.25U	--	<0.1
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	8280	NA	12.9	NA	<1U	--	30.6	<0.01	8	NA	707	NA	<2U	--	<0.24U	--	<0.1
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	9750	NA	10	NA	<1U	--	17.9	NA	9.5	NA	386	NA	<2U	--	<0.24U	--	--
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	8950	NA	13	NA	<1U	--	97.5	<0.01	7.8	NA	617	NA	<2U	--	<0.24U	--	<0.1

Table G-12. Sum-of-Ratios for Non-Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor (continued)

Sample ID	Date	COPC		Aluminum		Arsenic		Cadmium		Chromium		Cobalt		Manganese		Silver		RDX		SOR
		CAS Number		7429-90-5		7440-38-2		7440-43-9		7440-47-3		7440-48-4		7439-96-5		7440-22-4		121-82-4		
		Industrial RSL ^a :																		
		HQ=1		1100000		480		980		1,800,000		350		26000		5800		3300		
		Critical effect or Target Organ		Neurotoxicity in offspring		Skin		Proteinuria		NOAEL		Not specified		CNS		Gastrointestinal		Not specified		
		Background Criteria ^b		17700 (19,500)		15.4 (19.8)		0 (0)		17.4 (27.2)		10.4 (23.2)		1450 (3030)		0 (0)		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	5980	NA	10.4	NA	1.8	<0.01	19.1	NA	5	NA	425	NA	<2U	--	<0.25U	--	<0.1
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	6130	NA	15.1	NA	<1U	--	17.4	NA	6.2	NA	426	NA	<2U	--	<0.24U	--	--
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	10000	NA	12.5	NA	0.17	<0.01	15.4	NA	8.4	NA	530	NA	0.12	<0.01	<0.25U	--	<0.1
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	9030	NA	10.6	NA	8.5	<0.01	20.8	NA	8.3	NA	678	NA	<0.044UJ	--	<0.25U	--	<0.1
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	8920	NA	10.5	NA	0.24	<0.01	25	NA	8.6	NA	574	NA	<0.041UJ	--	<0.25U	--	<0.1
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	13500	NA	12.1	NA	0.11	<0.01	26.4	NA	8.6	NA	495	NA	<0.029UJ	--	<0.25U	--	<0.1
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	9560	NA	9.4	NA	0.11	<0.01	19.3	NA	8.5	NA	737	NA	0.03	<0.01	<0.25U	--	<0.1
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	9820	NA	9.2	NA	0.13	<0.01	18.8	NA	7.6	NA	425	NA	0.027	<0.01	<0.24U	--	<0.1
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	12500	NA	9.7	NA	0.15	<0.01	23.4	NA	8.7	NA	756	NA	<0.039UJ	--	<0.25U	--	<0.1
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	11400	NA	11	NA	0.17	<0.01	21.6	NA	9.8	NA	893	NA	0.34	<0.01	<0.25U	--	<0.1
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	12400	NA	13.7	NA	0.16	<0.01	29	<0.01	9.7	NA	870	NA	0.13	<0.01	<0.25U	--	<0.1
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	11000	NA	12.5	NA	0.15	<0.01	19.4	NA	8.8	NA	448	NA	<0.034UJ	--	<0.25U	--	<0.1
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	9240	NA	12.1	NA	0.15	<0.01	20.5	NA	8.1	NA	473	NA	0.1	<0.01	<0.24U	--	<0.1
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	8810	NA	10.5	NA	0.13	<0.01	24.6	NA	8.8	NA	563	NA	0.026	<0.01	<0.25U	--	<0.1
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	9590	NA	8.7	NA	0.14	<0.01	18.6	NA	9.2	NA	874	NA	0.035	<0.01	<0.25U	--	<0.1
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	11500	NA	11	NA	0.17	<0.01	22.3	NA	9.9	NA	890	NA	<0.035UJ	--	<0.25U	--	<0.1
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	11200	NA	11.4	NA	0.18	<0.01	27.9	<0.01	9.5	NA	682	NA	<0.055UJ	--	<0.25U	--	<0.1
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	10100	NA	13.4	NA	0.15	<0.01	23.9	NA	9.2	NA	717	NA	0.075	<0.01	<0.25U	--	<0.1
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	7980	NA	11.7	NA	0.31	<0.01	25.5	NA	6.4	NA	543	NA	0.36	<0.01	<0.24U	--	<0.1
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--

All units are milligrams per kilogram (mg/kg).

^aUSEPA Regional Screening Values for Industrial/Commercial Worker (June 2015).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

Data Qualifiers:

U = not detected

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

CNS = Central Nervous System.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

HQ = Hazard Quotient.

ID = Identifier.

ISM = Incremental Sampling Method.

NA = Not applicable, the result for this sample is not included in the SOR because the reported concentration is less than background.

NOAEL = No-Observable-Adverse-Effect Level

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

SOR = Sum-of-Ratios.

Bold = SOR greater than 1.

-- = No value available.

Table G-13. Sum-of-Ratios for Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor

Sample ID	Date	COPC		Cadmium		Cobalt		RDX		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Dibenz(a,h)anthracene		Indeno(1,2,3-cd)pyrene		SOR
		CAS Number		7440-43-9		7440-48-4		121-82-4		56-55-3		50-32-8		205-99-2		53-70-3		193-39-5		
		Industrial RSL ^a :																		
		Risk=10 ⁻⁵		93000		19000		280		29		2.9		29		2.9		29		
		Background Criteria ^b		0 (0)		10.4 (23.2)		--		--		--		--		--		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	0.94	<0.01	7.3	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	0.39	<0.01	6.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	0.13	<0.01	4.7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	<0.27U	--	8.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	1.4	<0.01	5.5	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	0.49	<0.01	6	NA	<0.2U	--	0.55	0.02	0.48	0.2	0.61	0.02	0.061	0.02	0.2	<0.01	0.2
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	0.71	<0.01	3.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	<0.25U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	<0.27U	--	8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	0.13	<0.01	11	<0.01	0.53	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	0.12	<0.01	10	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	0.08	<0.01	8.6	NA	0.08	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	0.22	<0.01	6.2	NA	0.44	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	0.36	<0.01	8.1	NA	<0.2U	--	3.1	0.1	2.3	0.8	3	0.1	0.42	0.1	0.83	0.03	1
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	0.2	<0.01	7.5	NA	45	0.2	NR	--	NR	--	NR	--	NR	--	NR	--	0.2
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	0.08	<0.01	9.4	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	0.19	<0.01	8.6	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	0.95	<0.01	5.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	0.4	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	<0.25U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	<0.27U	--	9.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	<0.27U	--	8.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	0.22	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	0.11	<0.01	10	NA	<0.2U	--	0.017	<0.01	0.029	0.01	0.06	<0.01	<0.033U	--	0.011	<0.01	<0.1
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	<0.27U	--	9.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	<0.24U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	<0.26U	--	9.6	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	<0.26U	--	7.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	0.47	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	0.18	<0.01	7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	0.19	<0.01	7.7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	0.11	<0.01	13	<0.01	<0.2U	--	0.08	<0.01	0.094	0.03	0.12	<0.01	0.014	<0.01	0.048	<0.01	<0.1
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	<1U	--	6.6	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	<1U	--	6.3	NA	<0.24U	--	0.47	0.02	0.39	0.1	0.55	0.02	<0.33U	--	<0.33U	--	0.2
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	<1U	--	7.3	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	<1U	--	6.9	NA	0.27	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	<1U	--	7.3	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	<1U	--	5.9	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--

Table G-13. Sum-of-Ratios for Carcinogens: COC Screening for Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Industrial/Commercial Land Use Receptor: Industrial Receptor (continued)

Sample ID	Date	COPC		Cadmium		Cobalt		RDX		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Dibenz(a,h)anthracene		Indeno(1,2,3-cd)pyrene		SOR
		CAS Number		7440-43-9		7440-48-4		121-82-4		56-55-3		50-32-8		205-99-2		53-70-3		193-39-5		
		Industrial RSL ^a :																		
		Risk=10 ⁻⁵		93000		19000		280		29		2.9		29		2.9		29		
		Background Criteria ^b		0 (0)		10.4 (23.2)		--		--		--		--		--		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	<1U	--	6.2	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	<1U	--	5.3	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	<1U	--	8	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	<1U	--	9.5	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	<1U	--	7.8	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	1.8	<0.01	5	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	<1U	--	6.2	NA	<0.24U	--	<0.33U	--	<0.33U	--	<0.33U	--	<0.33U	--	<0.33U	--	--
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	0.17	<0.01	8.4	NA	<0.25UJ	--	0.026	<0.01	0.029	0.01	0.049	<0.01	0.022	0.008	0.036	<0.01	<0.1
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	8.5	<0.01	8.3	NA	<0.25U	--	0.4	0.01	0.3	0.1	0.41	0.01	0.05	0.02	0.15	<0.01	0.2
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	0.24	<0.01	8.6	NA	<0.25UJ	--	0.55	0.02	0.4	0.1	0.58	0.02	0.096	0.03	0.23	<0.01	0.2
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	0.11	<0.01	8.6	NA	<0.25UJ	--	0.056	<0.01	0.048	0.02	0.06	<0.01	0.009	<0.01	0.026	<0.01	<0.1
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	0.11	<0.01	8.5	NA	<0.25U	--	0.013	<0.01	0.011	<0.01	0.011	<0.01	<0.0068U	--	0.0075	<0.01	<0.1
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	0.13	<0.01	7.6	NA	<0.24U	--	0.06	<0.01	0.051	0.02	0.078	<0.01	0.0083	<0.01	0.03	<0.01	<0.1
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	0.15	<0.01	8.7	NA	<0.25U	--	0.052	<0.01	0.048	0.02	0.067	<0.01	0.0086	<0.01	0.032	<0.01	<0.1
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	0.17	<0.01	9.8	NA	<0.25UJ	--	0.032	<0.01	0.035	0.01	0.05	<0.01	<0.0068U	--	0.022	<0.01	<0.1
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	0.16	<0.01	9.7	NA	<0.25UJ	--	0.031	<0.01	0.035	0.01	0.048	<0.01	<0.0068U	--	0.024	<0.01	<0.1
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	0.15	<0.01	8.8	NA	<0.25U	--	0.048	<0.01	0.047	0.02	0.067	<0.01	0.0081	<0.01	0.029	<0.01	<0.1
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	0.15	<0.01	8.1	NA	<0.24UJ	--	0.044	<0.01	0.035	0.01	0.054	<0.01	<0.0068U	--	0.02	<0.01	<0.1
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	0.13	<0.01	8.8	NA	<0.25UJ	--	0.019	<0.01	0.017	<0.01	0.023	<0.01	<0.0068U	--	0.011	<0.01	<0.1
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	0.14	<0.01	9.2	NA	<0.25UJ	--	0.01	<0.01	0.0071	<0.01	<0.0068U	--	<0.0068U	--	<0.0068U	--	<0.1
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	0.17	<0.01	9.9	NA	<0.25UJ	--	0.012	<0.01	0.012	<0.01	0.02	<0.01	<0.0068U	--	0.008	<0.01	<0.1
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	0.18	<0.01	9.5	NA	<0.25U	--	0.14	<0.01	0.12	0.04	0.19	0.007	<0.027U	--	0.12	<0.01	<0.1
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	0.15	<0.01	9.2	NA	<0.25U	--	0.19	<0.01	0.17	0.06	0.2	0.007	0.026	0.009	0.1	<0.01	<0.1
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	0.31	<0.01	6.4	NA	<0.24UJ	--	0.27	<0.01	0.21	0.07	0.33	0.01	0.1	0.03	0.17	<0.01	0.1
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	--	NR	--	NR	--	1.6	0.06	1.3	0.4	2	0.05	0.17	0.06	NR	--	0.6
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	--	NR	--	NR	--	1.8	0.06	1.4	0.5	2	0.06	0.23	0.08	NR	--	0.7
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	--	NR	--	NR	--	0.58	0.02	0.47	0.2	0.6	0.02	0.07	0.02	NR	--	0.2
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	--	NR	--	NR	--	0.14	<0.01	0.12	0.04	0.1	<0.01	0.02	0.006	NR	--	<0.1
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	--	NR	--	NR	--	0.072	<0.01	0.059	0.02	0.08	<0.01	0.008	<0.01	NR	--	<0.1
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	--	NR	--	NR	--	0.33	0.01	0.28	0.1	0.3	0.01	0.03	0.01	NR	--	0.1

All units are milligrams per kilogram (mg/kg).

^aUSEPA Regional Screening Values for Industrial/Commercial Worker (June 2015).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

Data Qualifiers:

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

ID = Identifier.

ISM = Incremental Sampling Method.

NA = Not applicable, the cobalt result for this sample is not included in the SOR because the reported concentration is less than background.

NR = Not Reported.

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

RSL = United States Environmental Protection Agency Residential Regional Screening Level.

SOR = Sum-of-Ratios.

Bold = SOR greater than 1.

-- = **No value available**

Table G-14. COC Screening for Subsurface Soil (1-13 ft bgs Discrete Samples) at Load Line 7: Former Production Area Industrial/Commercial Land Use Receptor: Industrial Receptor

COPC	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	UCL 95	Dist.	EPC	Industrial RSL ^a		Background Criteria ^b	EPC Exceeds FWCUG?
									HQ=1	Risk=10 ⁻⁵		
Metals												
Aluminum	7429-90-5	19/19	2430	21700	9450	11300	N	11300	1100000	--	19500	No
Arsenic	7440-38-2	19/19	3	27	13.3	15.5	N	15.5	480	30	19.8	No
Semi-volatile Organic Compounds												
Benz(a)anthracene	56-55-3	3/19	0.13	2.7	0.189	0.436	D	0.436	--	29	--	No
Benzo(a)pyrene	50-32-8	4/19	0.017	2	0.143	0.326	D	0.326	--	2.9	--	No
Benzo(b)fluoranthene	205-99-2	4/19	0.037	2.8	0.198	0.455	D	0.455	--	29	--	No
Dibenz(a,h)anthracene	53-70-3	3/19	0.018	0.32	0.0306	0.059	D	0.059	--	2.9	--	No
Indeno(1,2,3-cd)pyrene	193-39-5	3/19	0.05	0.86	0.0676	0.146	D	0.146	--	29	--	No

All units are milligrams per kilogram (mg/kg).
^aUSEPA Regional Screening Values for Industrial/Commercial Worker (June 2015).
^bBackground criteria for soil >1 ft bgs from final facility-wide background values for RVAAP, published in the Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio (USACE 2001).
Dist.: N=normal distribution, t statistic used for UCL 95 calculation.
D=fewer than 5 or 50% detects, t statistic used for UCL 95 calculation.
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
FWCUG = Facility-wide Cleanup Goals.
HQ = Hazard Quotient.
UCL 95 = 95% Upper Confidence Limit of the mean.
Bold = EPC exceeds FWCUG.
-- = No value available.

Table G-15. COC Screening for Subsurface Soil (1-13 ft bgs Discrete Samples) at Load Line 7: Former Production Area Industrial/Commercial Land Use Receptor: Industrial Receptor

COPC	CAS Number	EPC	Industrial RSL ^a HQ=1	Critical Effect or Target Organ	Background Criteria ^b	Ratio
Metals						
Aluminum	7429-90-5	11300	1100000	Neurological	19500	0.01
Arsenic	7440-38-2	15.5	480	Skin	19.8	0.03
Sum-of-Ratios						0.04

All units are milligrams per kilogram (mg/kg).
^aUSEPA Regional Screening Values for Industrial/Commercial Worker (June 2015).
^bBackground criteria for soil >1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration
HQ = Hazard Quotient.
RSL = United States Environmental Protection Agency Residential Regional Screening Level.
UCL 95 = 95% Upper Confidence Limit of the mean.
Bold = EPC exceeds FWCUG.

Table G-16. Sum-of-Ratios for Carcinogens: COC Screening for Subsurface Soil (1-13 ft bgs Discrete Samples) at Load Line 7: Former Production Area Industrial/Commercial Land Use Receptor: Industrial Receptor

COPC	CAS Number	EPC	Industrial RSL ^a Risk=10 ⁻⁵	Background Criteria ^b	Ratio
Benz(a)anthracene	56-55-3	0.436	29	--	0.02
Benzo(a)pyrene	50-32-8	0.326	2.9	--	0.1
Benzo(b)fluoranthene	205-99-2	0.455	29	--	0.02
Dibenz(a,h)anthracene	53-70-3	0.059	2.9	--	0.02
Indeno(1,2,3-cd)pyrene	193-39-5	0.146	29	--	0.01
Sum-of-Ratios					0.2

All units are milligrams per kilogram (mg/kg).
^aUSEPA Regional Screening Values for Industrial/Commercial Worker (June 2015).
^bBackground criteria for soil >1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
RSL = United States Environmental Protection Agency Residential Regional Screening Level.
-- = No value available.
Bold = SOR greater than 1.

Table G-17. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee

Sample ID	Date	COPC		Aluminum	Arsenic	Cadmium	Chromium ^d	Cobalt	Manganese ^e	Silver
		CAS Number		7429-90-5	7440-38-2	7440-43-9	7440-47-3	7440-48-4	7439-96-5	7440-22-4
		National Guard Trainee FWCUG ^a :								
		HQ=1		34960	1140	3292	1,000,000	140	351	31049
		Risk=10 ⁻⁵		--	27.8	109	--	70.3	--	--
		Background Criteria ^b		17700 (19,500)	15.4 (19.8)	0 (0)	17.4 (27.2)	10.4 (23.2)	1450 (3030)	0 (0)
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	6800 No	13 No	0.94 No	12 No	7.3 No	740 No	<4.3U No
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	7900 No	9.6 No	0.39 No	17 No	6.1 No	580 No	<1U No
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	18000 No	9.1 No	0.13 No	22 No	4.7 No	1600 No	<1U No
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	9300 No	15 No	<0.27U No	19 No	8.8 No	530 No	<1.1U No
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	9500 No	8.2 No	1.4 No	33 No	5.5 No	850 No	<1.1U No
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	6900 No	9.2 No	0.49 No	18 No	6 No	560 No	<1U No
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	5100 No	7.9 No	0.71 No	14 No	3.8 No	380 No	<1.1U No
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	8300 No	13 No	<0.25U No	24 No	7.9 No	540 No	<1U No
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	8000 No	12 No	<0.27U No	21 No	8 No	590 No	<1.1U No
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	11000 No	13 No	0.13 No	22 No	11 No	500 No	<0.97U No
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	11000 No	10 No	0.12 No	17 No	10 No	580 No	<1U No
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	8400 No	9.5 No	0.08 No	19 No	8.6 No	500 No	<1U No
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	6300 No	8.3 No	0.22 No	14 No	6.2 No	300 No	<1U No
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	8900 No	10 No	0.36J No	18 No	8.1 No	490 No	<0.98U No
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	8900 No	9 No	0.2 No	14 No	7.5 No	490 No	0.59 No
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	9400 No	16 No	0.08 No	21 No	9.4 No	660 No	<0.91U No
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	7600 No	10 No	0.19 No	14 No	8.6 No	520 No	<0.94U No
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	15000 No	9.1 No	0.95 No	30 No	5.1 No	1100 No	<1.1U No
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	13000 No	7.9 No	0.4 No	28 No	6.2 No	1200 No	<1.1U No
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	14000 No	14 No	<0.25U No	25 No	7.9 No	370 No	<1U No
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	13000 No	13 No	<0.27U No	25 No	9.1 No	800 No	<1.1U No
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	12000 No	10 No	<0.27U No	21 No	8.2 No	440 No	<1.1U No
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	6900 No	9.8 No	0.22 No	21 No	6.2 No	290 No	<0.96U No
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	12000 No	14 No	0.11 No	19 No	10 No	610 No	<0.98U No
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	13000 No	13 No	<0.27U No	24 No	9.1 No	620 No	<1.1U No
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	12000 No	13 No	<0.24U No	24 No	7.9 No	620 No	1.6 No
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	11000 No	13J No	<0.26U No	19 No	9.6 No	1100 No	<1U No
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	8700 No	11 No	<0.26U No	27 No	7.8 No	360 No	80 No
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	9100 No	9 No	0.47 No	17 No	6.2 No	750 No	<1U No
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	11000 No	12 No	0.18 No	16 No	7 No	390 No	<0.92U No
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	9300 No	14 No	0.19 No	17 No	7.7 No	630 No	<1.1U No
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	14000 No	12 No	0.11 No	25 No	13 No	550 No	<0.94U No
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	9010 No	9.5 No	<1U No	91.6 No	6.6 No	473 No	<2U No
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	8230 No	10.2 No	<1U No	29.6 No	6.3 No	412 No	<2U No
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	7220 No	9 No	<1U No	29 No	7.3 No	406 No	<2U No
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	7250 No	9 No	<1U No	21.5 No	6.9 No	358 No	<2U No
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	8170 No	10.3 No	<1U No	16 No	7.3 No	527 No	<2U No
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	6550 No	9.2 No	<1U No	15.5 No	5.9 No	450 No	<2U No
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	7000 No	11.4 No	<1U No	17 No	6.2 No	355 No	<2U No
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	6190 No	9 No	<1U No	24.8 No	5.3 No	313 No	3.4 No
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	8280 No	12.9 No	<1U No	30.6 No	8 No	707 No	<2U No
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	9750 No	10 No	<1U No	17.9 No	9.5 No	386 No	<2U No
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	8950 No	13 No	<1U No	97.5 No	7.8 No	617 No	<2U No

Table G-17. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee (continued)

Sample ID	Date	COPC		Aluminum	Arsenic	Cadmium	Chromium ^d	Cobalt	Manganese ^e	Silver
		CAS Number		7429-90-5	7440-38-2	7440-43-9	7440-47-3	7440-48-4	7439-96-5	7440-22-4
		National Guard Trainee FWCUG ^a :								
		HQ=1		34960	1140	3292	1,000,000	140	351	31049
		Risk=10 ⁻⁵		--	27.8	109	--	70.3	--	--
		Background Criteria ^b		17700 (19,500)	15.4 (19.8)	0 (0)	17.4 (27.2)	10.4 (23.2)	1450 (3030)	0 (0)
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	5980 No	10.4 No	1.8 No	19.1 No	5 No	425 No	<2U No
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	6130 No	15.1 No	<1U No	17.4 No	6.2 No	426 No	<2U No
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	10000 No	12.5J No	0.17J No	15.4 No	8.4 No	530 No	0.12J No
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	9030 No	10.6J No	8.5 No	20.8 No	8.3 No	678 No	<0.044UJ No
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	8920 No	10.5J No	0.24 No	25 No	8.6 No	574 No	<0.041UJ No
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	13500 No	12.1J No	0.11J No	26.4 No	8.6 No	495 No	<0.029UJ No
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	9560J No	9.4J No	0.11J No	19.3 No	8.5 No	737 No	0.03J No
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	9820J No	9.2J No	0.13J No	18.8 No	7.6 No	425 No	0.027J No
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	12500 No	9.7J No	0.15J No	23.4 No	8.7 No	756 No	<0.039UJ No
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	11400 No	11J No	0.17J No	21.6 No	9.8 No	893 No	0.34J No
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	12400 No	13.7J No	0.16J No	29 No	9.7 No	870 No	0.13J No
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	11000 No	12.5J No	0.15J No	19.4 No	8.8 No	448 No	<0.034UJ No
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	9240J No	12.1J No	0.15J No	20.5 No	8.1 No	473 No	0.1J No
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	8810J No	10.5J No	0.13J No	24.6 No	8.8 No	563 No	0.026J No
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	9590J No	8.7J No	0.14J No	18.6 No	9.2 No	874 No	0.035J No
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	11500 No	11J No	0.17J No	22.3 No	9.9 No	890 No	<0.035UJ No
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	11200 No	11.4J No	0.18J No	27.9 No	9.5 No	682 No	<0.055UJ No
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	10100 No	13.4J No	0.15J No	23.9 No	9.2 No	717 No	0.075J No
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	7980 No	11.7J No	0.31 No	25.5 No	6.4 No	543 No	0.36J No
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	NR	NR	NR	NR	NR	NR
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	NR	NR	NR	NR	NR	NR
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	NR	NR	NR	NR	NR	NR
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	NR	NR	NR	NR	NR	NR
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	NR	NR	NR	NR	NR	NR
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	NR	NR	NR	NR	NR	NR

Table G-17. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee (continued)

Sample ID	Date	Analyte (mg/kg)		RDX	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
		CAS Number		121-82-4	56-55-3	50-32-8	205-99-2	53-70-3	193-39-5
		National Guard Trainee FWCUG ^a :							
		HQ=1		17113	--	--	--	--	--
		Risk=10 ⁻⁵		1452	47.7	4.77	47.7	4.77	47.7
		Background Criteria ^b		--	--	--	--	--	--
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	<0.2U No	0.55 No	0.48 No	0.61 No	0.061 No	0.2 No
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	0.53 No	NR	NR	NR	NR	NR
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	0.08J No	NR	NR	NR	NR	NR
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	0.44 No	NR	NR	NR	NR	NR
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	<0.2U No	3.1 No	2.3J No	3 No	0.42 No	0.83 No
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	45 No	NR	NR	NR	NR	NR
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	<0.2U No	0.017J No	0.029J No	0.06 No	<0.033U No	0.011J No
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	<0.2U No	NR	NR	NR	NR	NR
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	<0.2U No	0.08 No	0.094 No	0.12 No	0.014J No	0.048 No
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	<0.25U No	NR	NR	NR	NR	NR
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	<0.24U No	0.47 No	0.39 No	0.55 No	<0.33U No	<0.33U No
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	0.27 No	NR	NR	NR	NR	NR
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	<0.25U No	NR	NR	NR	NR	NR
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	<0.24U No	NR	NR	NR	NR	NR
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	<0.24U No	NR	NR	NR	NR	NR

Table G-17. COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee (continued)

Sample ID	Date	Analyte (mg/kg)		RDX	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
		CAS Number		121-82-4	56-55-3	50-32-8	205-99-2	53-70-3	193-39-5
		National Guard Trainee FWCUG ^a :							
		HQ=1		17113	--	--	--	--	--
		Risk=10 ⁻⁵		1452	47.7	4.77	47.7	4.77	47.7
		Background Criteria ^b		--	--	--	--	--	--
		Depth (ft bgs)	Station	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?	Result Exceeds FWCUG?
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	<0.25U No	NR	NR	NR	NR	NR
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	<0.24U No	<0.33U No	<0.33U No	<0.33U No	<0.33U No	<0.33U No
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	<0.25UJ No	0.026 No	0.029 No	0.049 No	0.022 No	0.036 No
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	<0.25U No	0.4 No	0.3 No	0.41 No	0.05J No	0.15J No
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	<0.25UJ No	0.55 No	0.4 No	0.58 No	0.096 No	0.23 No
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	<0.25UJ No	0.056 No	0.048 No	0.06 No	0.009 No	0.026 No
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	<0.25U No	0.013 No	0.011 No	0.011 No	<0.0068U No	0.0075 No
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	<0.24U No	0.06 No	0.051 No	0.078 No	0.0083 No	0.03 No
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	<0.25U No	0.052 No	0.048J No	0.067 No	0.0086J No	0.032J No
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	<0.25UJ No	0.032 No	0.035 No	0.05 No	<0.0068U No	0.022 No
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	<0.25UJ No	0.031 No	0.035 No	0.048 No	<0.0068U No	0.024 No
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	<0.25U No	0.048 No	0.047 No	0.067 No	0.0081 No	0.029 No
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	<0.24UJ No	0.044 No	0.035 No	0.054 No	<0.0068U No	0.02 No
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	<0.25UJ No	0.019 No	0.017 No	0.023 No	<0.0068U No	0.011 No
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	<0.25UJ No	0.01 No	0.0071 No	<0.0068U No	<0.0068U No	<0.0068U No
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	<0.25UJ No	0.012 No	0.012 No	0.02 No	<0.0068U No	0.008 No
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	<0.25U No	0.14 No	0.12 No	0.19 No	<0.027U No	0.12 No
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	<0.25U No	0.19 No	0.17 No	0.2 No	0.026 No	0.1 No
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	<0.24UJ No	0.27 No	0.21 No	0.33 No	0.1 No	0.17 No
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	1.6 No	1.3 No	1.5 No	0.17 No	NR
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	1.8 No	1.4 No	1.6 No	0.23 No	NR
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	0.58 No	0.47 No	0.6 No	0.071 No	NR
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	0.14 No	0.12 No	0.14 No	0.018 No	NR
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	0.072 No	0.059 No	0.083 No	0.0076 No	NR
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	0.33 No	0.28 No	0.34 No	0.032 No	NR

All units are milligrams per kilogram (mg/kg).

^aFacility-Wide Cleanup Goals (FWCUGs) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

^cSince National Guard Trainee FWCUG for manganese is less than the background level, background is used as the cleanup goal for comparison.

^dUsing the lines of evidence presented in Section 7.2.4.1, FWCUGs for trivalent chromium were identified as being appropriate for use at Load Line 7.

^eSince National Guard Trainee FWCUG for manganese is less than the background level, background is used as the cleanup goal for comparison.

Data Qualifiers:

J = indicates that the analyte was positively identified, but the associated numerical value is an approximate concentration of the analyte in the sample.

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

HQ = Hazard Quotient.

ISM = Incremental Sampling Method.

NR = Not Reported.

-- = No value available.

Bold = EPC exceeds FWCUG.

Table G-18. Sum-of-Ratios for Non-Carcinogens: COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee

Sample ID	Date	COPC		Aluminum		Arsenic		Cadmium		Chromium		Cobalt		Manganese		Silver		RDX		SOR
		CAS Number		7429-90-5		7440-38-2		7440-43-9		7440-47-3		7440-48-4		7439-96-5		7440-22-4		121-82-4		
		National Guard Trainee FWCUG ^a :																		
		HQ=1		34960		1140		3292		1,000,000		140		351		31049		17113		
		Critical effect or Target Organ		Neurotoxicity in offspring		Skin		Proteinuria		NOAEL		Not specified		CNS		Gastrointestinal		Not specified		
		Background Criteria ^b		17700 (19,500)		15.4 (19.8)		0 (0)		17.4 (27.2)		10.4 (23.2)		1450 (3030)		0 (0)		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	6800	NA	13	NA	0.94	3E-04	12	NA	7.3	NA	740	NA	<4.3U	--	<0.2U	--	3E-04
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	7900	NA	9.6	NA	0.39	1E-04	17	NA	6.1	NA	580	NA	<1U	--	<0.2U	--	1E-04
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	18000	NA	9.1	NA	0.13	4E-05	22	NA	4.7	NA	1600	NA	<1U	--	<0.2U	--	4E-05
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	9300	NA	15	NA	<0.27U	--	19	NA	8.8	NA	530	NA	<1.1U	--	<0.2U	--	--
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	9500	NA	8.2	NA	1.4	4E-04	33	3E-05	5.5	NA	850	NA	<1.1U	--	<0.2U	--	5E-04
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	6900	NA	9.2	NA	0.49	1E-04	18	NA	6	NA	560	NA	<1U	--	<0.2U	--	1E-04
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	5100	NA	7.9	NA	0.71	2E-04	14	NA	3.8	NA	380	NA	<1.1U	--	<0.2U	--	2E-04
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	8300	NA	13	NA	<0.25U	--	24	NA	7.9	NA	540	NA	<1U	--	<0.2U	--	--
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	8000	NA	12	NA	<0.27U	--	21	NA	8	NA	590	NA	<1.1U	--	<0.2U	--	--
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	11000	NA	13	NA	0.13	4E-05	22	NA	11	NA	500	NA	<0.97U	--	0.53	3E-05	7E-05
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	11000	NA	10	NA	0.12	4E-05	17	NA	10	NA	580	NA	<1U	--	<0.2U	--	4E-05
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	8400	NA	9.5	NA	0.08	2E-05	19	NA	8.6	NA	500	NA	<1U	--	0.08	5E-06	3E-05
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	6300	NA	8.3	NA	0.22	7E-05	14	NA	6.2	NA	300	NA	<1U	--	0.44	3E-05	9E-05
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	8900	NA	10	NA	0.36	1E-04	18	NA	8.1	NA	490	NA	<0.98U	--	<0.2U	--	1E-04
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	8900	NA	9	NA	0.2	6E-05	14	NA	7.5	NA	490	NA	0.59	2E-05	45	3E-03	3E-03
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	9400	NA	16	NA	0.08	2E-05	21	NA	9.4	NA	660	NA	<0.91U	--	<0.2U	--	2E-05
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	7600	NA	10	NA	0.19	6E-05	14	NA	8.6	NA	520	NA	<0.94U	--	<0.2U	--	6E-05
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	15000	NA	9.1	NA	0.95	3E-04	30	3E-05	5.1	NA	1100	NA	<1.1U	--	<0.2U	--	3E-04
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	13000	NA	7.9	NA	0.4	1E-04	28	3E-05	6.2	NA	1200	NA	<1.1U	--	<0.2U	--	1E-04
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	14000	NA	14	NA	<0.25U	--	25	NA	7.9	NA	370	NA	<1U	--	<0.2U	--	--
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	13000	NA	13	NA	<0.27U	--	25	NA	9.1	NA	800	NA	<1.1U	--	<0.2U	--	--
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	12000	NA	10	NA	<0.27U	--	21	NA	8.2	NA	440	NA	<1.1U	--	<0.2U	--	--
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	6900	NA	9.8	NA	0.22	7E-05	21	NA	6.2	NA	290	NA	<0.96U	--	<0.2U	--	7E-05
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	12000	NA	14	NA	0.11	3E-05	19	NA	10	NA	610	NA	<0.98U	--	<0.2U	--	3E-05
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	13000	NA	13	NA	<0.27U	--	24	NA	9.1	NA	620	NA	<1.1U	--	<0.2U	--	--
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	12000	NA	13	NA	<0.24U	--	24	NA	7.9	NA	620	NA	1.6	5E-05	<0.2U	--	5E-05
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	11000	NA	13	NA	<0.26U	--	19	NA	9.6	NA	1100	NA	<1U	--	<0.2U	--	--
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	8700	NA	11	NA	<0.26U	--	27	NA	7.8	NA	360	NA	80	3E-03	<0.2U	--	3E-03
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	9100	NA	9	NA	0.47	1E-04	17	NA	6.2	NA	750	NA	<1U	--	<0.2U	--	1E-04
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	11000	NA	12	NA	0.18	5E-05	16	NA	7	NA	390	NA	<0.92U	--	<0.2U	--	5E-05
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	9300	NA	14	NA	0.19	6E-05	17	NA	7.7	NA	630	NA	<1.1U	--	<0.2U	--	6E-05
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	14000	NA	12	NA	0.11	3E-05	25	NA	13	NA	550	NA	<0.94U	--	<0.2U	--	3E-05
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	9010	NA	9.5	NA	<1U	--	91.6	9E-05	6.6	NA	473	NA	<2U	--	<0.25U	--	9E-05
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	8230	NA	10.2	NA	<1U	--	29.6	3E-05	6.3	NA	412	NA	<2U	--	<0.24U	--	3E-05
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	7220	NA	9	NA	<1U	--	29	3E-05	7.3	NA	406	NA	<2U	--	<0.24U	--	3E-05
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	7250	NA	9	NA	<1U	--	21.5	NA	6.9	NA	358	NA	<2U	--	0.27	2E-05	2E-05
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	8170	NA	10.3	NA	<1U	--	16	NA	7.3	NA	527	NA	<2U	--	<0.24U	--	--
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	6550	NA	9.2	NA	<1U	--	15.5	NA	5.9	NA	450	NA	<2U	--	<0.24U	--	--
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	7000	NA	11.4	NA	<1U	--	17	NA	6.2	NA	355	NA	<2U	--	<0.24U	--	--
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	6190	NA	9	NA	<1U	--	24.8	NA	5.3	NA	313	NA	3.4	1E-04	<0.25U	--	1E-04
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	8280	NA	12.9	NA	<1U	--	30.6	3E-05	8	NA	707	NA	<2U	--	<0.24U	--	3E-05

Table G-18. Sum-of-Ratios for Non-Carcinogens: COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee (continued)

Sample ID	Date	COPC		Aluminum		Arsenic		Cadmium		Chromium		Cobalt		Manganese		Silver		RDX		SOR
		CAS Number		7429-90-5		7440-38-2		7440-43-9		7440-47-3		7440-48-4		7439-96-5		7440-22-4		121-82-4		
		National Guard Trainee FWCUG ^a :																		
		HQ=1		34960		1140		3292		1,000,000		140		351		31049		17113		
		Critical effect or Target Organ		Neurotoxicity in offspring		Skin		Proteinuria		NOAEL		Not specified		CNS		Gastrointestinal		Not specified		
		Background Criteria ^b		17700 (19,500)		15.4 (19.8)		0 (0)		17.4 (27.2)		10.4 (23.2)		1450 (3030)		0 (0)		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	9750	NA	10	NA	<1U	--	17.9	NA	9.5	NA	386	NA	<2U	--	<0.24U	--	--
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	8950	NA	13	NA	<1U	--	97.5	1E-04	7.8	NA	617	NA	<2U	--	<0.24U	--	1E-04
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	5980	NA	10.4	NA	1.8	5E-04	19.1	NA	5	NA	425	NA	<2U	--	<0.25U	--	5E-04
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	6130	NA	15.1	NA	<1U	--	17.4	NA	6.2	NA	426	NA	<2U	--	<0.24U	--	--
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	10000	NA	12.5	NA	0.17	5E-05	15.4	NA	8.4	NA	530	NA	0.12	4E-06	<0.25U	--	6E-05
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	9030	NA	10.6	NA	8.5	3E-03	20.8	NA	8.3	NA	678	NA	<0.044UJ	--	<0.25U	--	3E-03
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	8920	NA	10.5	NA	0.24	7E-05	25	NA	8.6	NA	574	NA	<0.041UJ	--	<0.25U	--	7E-05
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	13500	NA	12.1	NA	0.11	3E-05	26.4	NA	8.6	NA	495	NA	<0.029UJ	--	<0.25U	--	3E-05
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	9560	NA	9.4	NA	0.11	3E-05	19.3	NA	8.5	NA	737	NA	0.03	1E-06	<0.25U	--	3E-05
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	9820	NA	9.2	NA	0.13	4E-05	18.8	NA	7.6	NA	425	NA	0.027	9E-07	<0.24U	--	4E-05
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	12500	NA	9.7	NA	0.15	5E-05	23.4	NA	8.7	NA	756	NA	<0.039UJ	--	<0.25U	--	5E-05
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	11400	NA	11	NA	0.17	5E-05	21.6	NA	9.8	NA	893	NA	0.34	1E-05	<0.25U	--	6E-05
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	12400	NA	13.7	NA	0.16	5E-05	29	3E-05	9.7	NA	870	NA	0.13	4E-06	<0.25U	--	8E-05
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	11000	NA	12.5	NA	0.15	5E-05	19.4	NA	8.8	NA	448	NA	<0.034UJ	--	<0.25U	--	5E-05
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	9240	NA	12.1	NA	0.15	5E-05	20.5	NA	8.1	NA	473	NA	0.1	3E-06	<0.24U	--	5E-05
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	8810	NA	10.5	NA	0.13	4E-05	24.6	NA	8.8	NA	563	NA	0.026	8E-07	<0.25U	--	4E-05
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	9590	NA	8.7	NA	0.14	4E-05	18.6	NA	9.2	NA	874	NA	0.035	1E-06	<0.25U	--	4E-05
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	11500	NA	11	NA	0.17	5E-05	22.3	NA	9.9	NA	890	NA	<0.035UJ	--	<0.25U	--	5E-05
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	11200	NA	11.4	NA	0.18	5E-05	27.9	3E-05	9.5	NA	682	NA	<0.055UJ	--	<0.25U	--	8E-05
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	10100	NA	13.4	NA	0.15	5E-05	23.9	NA	9.2	NA	717	NA	0.075	2E-06	<0.25U	--	5E-05
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	7980	NA	11.7	NA	0.31	9E-05	25.5	NA	6.4	NA	543	NA	0.36	1E-05	<0.24U	--	1E-04
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	NR	--	--

All units are milligrams per kilogram (mg/kg).

^aFacility-Wide Cleanup Goals (FWCUGs) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

Data Qualifiers:

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

HQ = Hazard Quotient.

ID = Identifier.

ISM = Incremental Sampling Method.

NA = Not applicable, the result for this sample is not included in the SOR because the reported concentration is less than background.

NR = Not Reported.

SOR = Sum-of-Ratios.

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

Bold = SOR greater than 1.

-- = No value available

Table G-19. Sum-of-Ratios for Carcinogens: COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee

Sample ID	Date	COPC		Cadmium		Cobalt		RDX		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Dibenz(a,h)anthracene		Indeno(1,2,3-cd)pyrene		SOR
		CAS Number		7440-43-9		7440-48-4		121-82-4		56-55-3		50-32-8		205-99-2		53-70-3		193-39-5		
		National Guard Trainee FWCUG ^a :																		
		Risk=10 ⁻⁵		109		70.3		1452		47.7		4.77		47.7		4.77		47.7		
		Background Criteria ^b		0 (0)		10.4 (23.2)		--		--		--		--		--		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7sd-029M-SD	11/9/2004	0.0-0.5	LL7sd-029M	0.94	<0.01	7.3	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-001M-SO	11/8/2004	0.0-0.5	LL7ss-001M	0.39	<0.01	6.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-002M-SO	11/8/2004	0.0-0.5	LL7ss-002M	0.13	<0.01	4.7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-003M-SO	11/8/2004	0.0-0.5	LL7ss-003M	<0.27U	--	8.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-004M-SO	11/8/2004	0.0-0.5	LL7ss-004M	1.4	0.01	5.5	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-005M-SO	11/8/2004	0.0-0.5	LL7ss-005M	0.49	<0.01	6	NA	<0.2U	--	0.55	0.01	0.48	0.1	0.61	0.01	0.061	0.01	0.2	<0.01	0.1
LL7ss-006M-SO	11/9/2004	0.0-0.5	LL7ss-006M	0.71	<0.01	3.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-007M-SO	11/8/2004	0.0-1.0	LL7ss-007M	<0.25U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-008M-SO	11/8/2004	0.0-1.0	LL7ss-008M	<0.27U	--	8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-009M-SO	11/8/2004	0.0-1.0	LL7ss-009M	0.13	<0.01	11	0.2	0.53	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	0.2
LL7ss-010M-SO	11/9/2004	0.0-1.0	LL7ss-010M	0.12	<0.01	10	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-011M-SO	11/9/2004	0.0-1.0	LL7ss-011M	0.08	<0.01	8.6	NA	0.08	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-012M-SO	11/9/2004	0.0-1.0	LL7ss-012M	0.22	<0.01	6.2	NA	0.44	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-013M-SO	11/9/2004	0.0-1.0	LL7ss-013M	0.36	<0.01	8.1	NA	<0.2U	--	3.1	0.06	2.3	0.5	3	0.06	0.42	0.09	0.83	0.02	0.7
LL7ss-014M-SO	11/9/2004	0.0-1.0	LL7ss-014M	0.2	<0.01	7.5	NA	45	0.03	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-015M-SO	11/8/2004	0.0-1.0	LL7ss-015M	0.08	<0.01	9.4	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-016M-SO	11/9/2004	0.0-1.0	LL7ss-016M	0.19	<0.01	8.6	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-017M-SO	11/10/2004	0.0-0.5	LL7ss-017M	0.95	<0.01	5.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-018M-SO	11/10/2004	0.0-1.0	LL7ss-018M	0.4	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-019M-SO	11/10/2004	0.0-1.0	LL7ss-019M	<0.25U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-020M-SO	11/10/2004	0.0-1.0	LL7ss-020M	<0.27U	--	9.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-021M-SO	11/10/2004	0.0-1.0	LL7ss-021M	<0.27U	--	8.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-022M-SO	11/10/2004	0.0-1.0	LL7ss-022M	0.22	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-023M-SO	11/9/2004	0.0-1.0	LL7ss-023M	0.11	<0.01	10	NA	<0.2U	--	0.017	<0.01	0.029	<0.01	0.06	<0.01	<0.033U	--	0.011	<0.01	<0.1
LL7ss-024M-SO	11/10/2004	0.0-1.0	LL7ss-024M	<0.27U	--	9.1	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-025M-SO	11/10/2004	0.0-1.0	LL7ss-025M	<0.24U	--	7.9	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-026M-SO	11/10/2004	0.0-1.0	LL7ss-026M	<0.26U	--	9.6	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-027M-SO	11/10/2004	0.0-1.0	LL7ss-027M	<0.26U	--	7.8	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-028M-SO	11/9/2004	0.0-1.0	LL7ss-028M	0.47	<0.01	6.2	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-030M-SO	11/9/2004	0.0-1.0	LL7ss-030M	0.18	<0.01	7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-031M-SO	11/9/2004	0.0-1.0	LL7ss-031M	0.19	<0.01	7.7	NA	<0.2U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-032M-SO	11/10/2004	0.0-1.0	LL7ss-032M	0.11	<0.01	13	0.2	<0.2U	--	0.08	<0.01	0.094	0.02	0.12	<0.01	0.014	<0.01	0.048	<0.01	0.2
LL7ss-042MU-SO	8/13/2007	0.0-1.0	LL7ss-042MU	<1U	--	6.6	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-043M-SO	8/13/2007	0.0-1.0	LL7ss-043M	<1U	--	6.3	NA	<0.24U	--	0.47	0.01	0.39	0.08	0.55	0.01	<0.33U	--	<0.33U	--	0.1
LL7ss-044M-SO	8/13/2007	0.0-1.0	LL7ss-044M	<1U	--	7.3	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-045M-SO	8/13/2007	0.0-1.0	LL7ss-045M	<1U	--	6.9	NA	0.27	<0.01	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-046M-SO	8/13/2007	0.0-1.0	LL7ss-046M	<1U	--	7.3	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-047M-SO	8/13/2007	0.0-1.0	LL7ss-047M	<1U	--	5.9	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-048M-SO	8/13/2007	0.0-1.0	LL7ss-048M	<1U	--	6.2	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--

Table G-19. Sum-of-Ratios for Carcinogens: COC Screening for Shallow Surface Soil (0-1 ft bgs ISM Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee (continued)

Sample ID	Date	COPC		Cadmium		Cobalt		RDX		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene		Dibenz(a,h)anthracene		Indeno(1,2,3-cd)pyrene		SOR
		CAS Number		7440-43-9		7440-48-4		121-82-4		56-55-3		50-32-8		205-99-2		53-70-3		193-39-5		
		National Guard Trainee FWCUG ^a :																		
		Risk=10 ⁻⁵		109		70.3		1452		47.7		4.77		47.7		4.77		47.7		
		Background Criteria ^b		0 (0)		10.4 (23.2)		--		--		--		--		--		--		
		Depth (ft bgs)	Station	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	Result	Ratio	
LL7ss-049M-SO	8/13/2007	0.0-1.0	LL7ss-049M	<1U	--	5.3	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-050M-SO	8/13/2007	0.0-1.0	LL7ss-050M	<1U	--	8	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-051M-SO	8/13/2007	0.0-1.0	LL7ss-051M	<1U	--	9.5	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-052M-SO	8/13/2007	0.0-1.0	LL7ss-052M	<1U	--	7.8	NA	<0.24U	--	NR	--	NR	--	NR	--	NR	--	NR	--	--
LL7ss-053M-SO	8/13/2007	0.0-1.0	LL7ss-053M	1.8	0.02	5	NA	<0.25U	--	NR	--	NR	--	NR	--	NR	--	NR	--	<0.1
LL7ss-054M-SO	8/13/2007	0.0-1.0	LL7ss-054M	<1U	--	6.2	NA	<0.24U	--	<0.33U	--	<0.33U	--	<0.33U	--	<0.33U	--	<0.33U	--	--
LL7ss-072M-5063-SO	3/15/2010	0.0-1.0	LL7ss-072M	0.17	<0.01	8.4	NA	<0.25UJ	--	0.026	<0.01	0.029	<0.01	0.049	<0.01	0.022	<0.01	0.036	<0.01	<0.1
LL7ss-073M-5064-SO	3/15/2010	0.0-1.0	LL7ss-073M	8.5	0.08	8.3	NA	<0.25U	--	0.4	<0.01	0.3	0.06	0.41	<0.01	0.05	0.01	0.15	<0.01	0.2
LL7ss-074M-5065-SO	3/15/2010	0.0-1.0	LL7ss-074M	0.24	<0.01	8.6	NA	<0.25UJ	--	0.55	0.01	0.4	0.08	0.58	0.01	0.096	0.02	0.23	<0.01	0.1
LL7ss-075M-5066-SO	3/15/2010	0.0-1.0	LL7ss-075M	0.11	<0.01	8.6	NA	<0.25UJ	--	0.056	<0.01	0.048	0.01	0.06	<0.01	0.009	<0.01	0.026	<0.01	<0.1
LL7ss-076M-5067-SO	3/11/2010	0.0-1.0	LL7ss-076M	0.11	<0.01	8.5	NA	<0.25U	--	0.013	<0.01	0.011	<0.01	0.011	<0.01	<0.0068U	--	0.0075	<0.01	<0.1
LL7ss-077M-5068-SO	3/11/2010	0.0-1.0	LL7ss-077M	0.13	<0.01	7.6	NA	<0.24U	--	0.06	<0.01	0.051	0.01	0.078	<0.01	0.0083	<0.01	0.03	<0.01	<0.1
LL7ss-078M-5069-SO	3/15/2010	0.0-1.0	LL7ss-078M	0.15	<0.01	8.7	NA	<0.25U	--	0.052	<0.01	0.048	0.01	0.067	<0.01	0.0086	<0.01	0.032	<0.01	<0.1
LL7ss-079M-5070-SO	3/15/2010	0.0-1.0	LL7ss-079M	0.17	<0.01	9.8	NA	<0.25UJ	--	0.032	<0.01	0.035	<0.01	0.05	<0.01	<0.0068U	--	0.022	<0.01	<0.1
LL7ss-080M-5071-SO	3/15/2010	0.0-1.0	LL7ss-080M	0.16	<0.01	9.7	NA	<0.25UJ	--	0.031	<0.01	0.035	<0.01	0.048	<0.01	<0.0068U	--	0.024	<0.01	<0.1
LL7ss-081M-5072-SO	3/15/2010	0.0-1.0	LL7ss-081M	0.15	<0.01	8.8	NA	<0.25U	--	0.048	<0.01	0.047	0.01	0.067	<0.01	0.0081	<0.01	0.029	<0.01	<0.1
LL7ss-082M-5073-SO	3/11/2010	0.0-1.0	LL7ss-082M	0.15	<0.01	8.1	NA	<0.24UJ	--	0.044	<0.01	0.035	<0.01	0.054	<0.01	<0.0068U	--	0.02	<0.01	<0.1
LL7ss-083M-5074-SO	3/11/2010	0.0-1.0	LL7ss-083M	0.13	<0.01	8.8	NA	<0.25UJ	--	0.019	<0.01	0.017	<0.01	0.023	<0.01	<0.0068U	--	0.011	<0.01	<0.1
LL7ss-084M-5075-SO	3/11/2010	0.0-1.0	LL7ss-084M	0.14	<0.01	9.2	NA	<0.25UJ	--	0.01	<0.01	0.0071	<0.01	<0.0068U	--	<0.0068U	--	<0.0068U	--	<0.1
LL7ss-085M-5076-SO	3/15/2010	0.0-1.0	LL7ss-085M	0.17	<0.01	9.9	NA	<0.25UJ	--	0.012	<0.01	0.012	<0.01	0.02	<0.01	<0.0068U	--	0.008	<0.01	<0.1
LL7ss-086M-5077-SO	3/15/2010	0.0-1.0	LL7ss-086M	0.18	<0.01	9.5	NA	<0.25U	--	0.14	<0.01	0.12	0.03	0.19	<0.01	<0.027U	--	0.12	<0.01	<0.1
LL7ss-087M-5078-SO	3/15/2010	0.0-1.0	LL7ss-087M	0.15	<0.01	9.2	NA	<0.25U	--	0.19	<0.01	0.17	0.04	0.2	<0.01	0.026	<0.01	0.1	<0.01	<0.1
LL7ss-088M-5079-SO	3/15/2010	0.0-1.0	LL7ss-088M	0.31	<0.01	6.4	NA	<0.24UJ	--	0.27	<0.01	0.21	0.04	0.33	<0.01	0.1	0.02	0.17	<0.01	<0.1
LL7ss-096M-5829-SO	04/22/11	0.0-1.0	LL7ss-096M	NR	--	NR	--	NR	--	1.6	0.03	1.3	0.3	2	0.03	0.17	0.04	NR	--	0.4
LL7ss-097M-5830-SO	04/22/11	0.0-1.0	LL7ss-097M	NR	--	NR	--	NR	--	1.8	0.04	1.4	0.3	2	0.03	0.23	0.05	NR	--	0.4
LL7ss-098M-5831-SO	04/22/11	0.0-1.0	LL7ss-098M	NR	--	NR	--	NR	--	0.58	0.01	0.47	0.1	0.6	0.01	0.07	0.01	NR	--	0.1
LL7ss-099M-5832-SO	04/22/11	0.0-1.0	LL7ss-099M	NR	--	NR	--	NR	--	0.14	<0.01	0.12	0.03	0.1	<0.01	0.02	<0.01	NR	--	<0.1
LL7ss-100M-5833-SO	04/22/11	0.0-1.0	LL7ss-100M	NR	--	NR	--	NR	--	0.072	<0.01	0.059	0.01	0.08	<0.01	0.008	<0.01	NR	--	<0.1
LL7ss-101M-5834-SO	04/22/11	0.0-1.0	LL7ss-101M	NR	--	NR	--	NR	--	0.33	<0.01	0.28	0.06	0.3	<0.01	0.03	<0.01	NR	--	<0.1

All units are milligrams per kilogram (mg/kg).

^aFacility-Wide Cleanup Goals (FWCUGs) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).

^bBackground criteria for soil 0-1 ft bgs and (>1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).

Data Qualifiers:

U = not detected.

UJ = not detected and reporting limit estimated.

bgs = Below Ground Surface.

CAS = Chemical Abstract Service.

COC = Chemical of Concern.

COPC = Chemical of Potential Concern.

ft = Feet.

ID = Identifier.

ISM = Incremental Sampling Method.

NA = Not applicable, the cobalt result for this sample is not included in the SOR because the reported concentration is less than background.

NR = Not Reported.

RDX = Hexahydro-1,3,5-trinitro-1,3,5-triazine.

SOR = Sum-of-Ratios.

Bold = SOR greater than 1.

-- = No value available.

Table G-20. COC Screening for Deep Surface Soil (1-4 ft bgs Discrete Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee

COPC	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	UCL 95	Dist.	EPC	National Guard Trainee FWCUG ^a		Background Criteria ^b	EPC Exceeds FWCUG?
									HQ=1	Risk=10 ⁻⁵		
Metals												
Aluminum	7429-90-5	9/ 9	7630	21700	11300	14000	X	14000	34960	--	19500	No
Arsenic	7440-38-2	9/ 9	8.7	27	15.4	20	L	20	1140	27.8	19.8	No
Semi-volatile Organic Compounds												
Benz(a)anthracene	56-55-3	2/ 9	0.56	2.7	0.371	0.924	D	0.924	--	47.7	--	No
Benzo(a)pyrene	50-32-8	2/ 9	0.41	2	0.277	0.686	D	0.686	--	4.77	--	No
Benzo(b)fluoranthene	205-99-2	2/ 9	0.6	2.8	0.387	0.961	D	0.961	--	47.7	--	No
Dibenz(a,h)anthracene	53-70-3	2/ 9	0.049	0.32	0.0501	0.114	D	0.114	--	4.77	--	No
Indeno(1,2,3-cd)pyrene	193-39-5	2/ 9	0.18	0.86	0.125	0.299	D	0.299	--	47.7	--	No

All units are milligrams per kilogram (mg/kg).
^aFacility-Wide Cleanup Goals (FWCUGs) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).
^bBackground criteria for soil >1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
Dist.: N=normal distribution, t statistic used for UCL 95 calculation.
L=lognormal distribution, Land statistic used for UCL 95 calculation.
D=fewer than 5 or 50% detects, t statistic used for UCL 95 calculation.
X=distribution neither normal nor lognormal, t statistic used for UCL 95 calculation
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
UCL 95 = 95% Upper Confidence Limit of the mean.
Bold = EPC exceeds FWCUG.
-- = No value available.

Table G-21. Sum-of-Ratios for Non-Carcinogens: COC Screening for Deep Surface Soil (1-4 ft bgs Discrete Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee

COPC	CAS Number	EPC	National Guard Trainee FWCUG HQ=1	Critical Effect or Target Organ	Background Criteria ^b	Ratio
Aluminum	7429-90-5	14000	34960	Neurological	19500	0.4
Arsenic	7440-38-2	20	1140	Skin	19.8	0.02
Sum-of-Ratios						0.4

All units are milligrams per kilogram (mg/kg).
^aFacility-Wide Cleanup Goals (FWCUGs) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).
^bBackground criteria for surface soil (0-1 ft bgs) from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.

Table G-22. Sum-of-Ratios for Carcinogens: COC Screening for Deep Surface Soil (1-4 ft bgs Discrete Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee

COPC	CAS Number	EPC	National Guard Trainee FWCUG ^a : Risk=10 ⁻⁵	Background Criteria ^b	Ratio
Arsenic	7440-38-2	20	27.8	19.8	0.7
Benz(a)anthracene	56-55-3	0.924	47.7	--	0.02
Benzo(a)pyrene	50-32-8	0.686	4.77	--	0.1
Benzo(b)fluoranthene	205-99-2	0.961	47.7	--	0.02
Dibenz(a,h)anthracene	53-70-3	0.114	4.77	--	0.02
Indeno(1,2,3-cd)pyrene	193-39-5	0.299	47.7	--	0.006
Sum-of-Ratios					0.9

All units are milligrams per kilogram (mg/kg).
^aFacility-Wide Cleanup Goals (FWCUGs) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).
^bBackground criteria for soil >1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
-- = No value available.

Table G-23. COC Screening for Subsurface Soil (4-7 ft bgs Discrete Samples) at Load Line 7 Military Training Land Use Receptor: National Guard Trainee

COPC	CAS Number	Freq of Detect	Minimum Detect	Maximum Detect	Average Result	UCL 95	Dist.	EPC	National Guard Trainee FWCUG ^a		Background Criteria ^b	EPC Exceeds FWCUG?
									HQ=1	Risk=10 ⁻⁵		
Benzo(a)pyrene	50-32-8	1/ 8	0.098	0.098	0.0222	0.0442	D	0.0442	--	4.77	--	No

All units are milligrams per kilogram (mg/kg).
^aFacility-wide Clean-up Goals (FWCUG) from *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant* (USACE 2010).
^bBackground criteria for >1 ft bgs from final facility-wide background values for RVAAP, published in the *Final Phase II Remedial Investigation Report for Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2001).
Dist.: N=normal distribution, t statistic used for UCL 95 calculation.
D=fewer than 5 or 50% detects, t statistic used for UCL 95 calculation.
bgs = Below Ground Surface.
CAS = Chemical Abstract Service.
COC = Chemical of Concern.
COPC = Chemical of Potential Concern.
EPC = Exposure Point Concentration.
HQ = Hazard Quotient.
UCL 95 = 95% Upper Confidence Limit of the mean.
Bold = EPC exceeds FWCUG.
-- = No value available.

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