APPENDIX N
SUPPORTING INFORMATION FOR
THE ECOLOGICAL RISK ASSESSMENT

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Overview of Ravenna Fuse and Booster Quarry Appendix N Level II Screening Tables

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Appendix Table N-1. Summary Statistics for Surface Soil (0-1 ft) at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
MISC													
Chromium, hexavalent	18540299	mg/kg	7/ 8	87.5	6.1	6.1	3.72	1.3	6.8	7.15	6.8		L
Metals													
Aluminum	7429905	mg/kg	60/ 60	100			10900	723	17200	11800	11800	17700	X
Antimony	7440360	mg/kg	15/ 60	25	0.25	4.4	2.04	0.91	74.4	4.11	4.11	0.96	D
Arsenic	7440382	mg/kg	60/ 60	100			11.2	1.1	27.1	12.2	12.2	15.4	X
Barium	7440393	mg/kg	60/ 60	100			86.9	10.7	1070	116	116	88.4	X
Beryllium	7440417	mg/kg	60/ 60	100			0.709	0.21	1.5	0.752	0.752	0.88	X
Cadmium	7440439	mg/kg	31/ 60	51.7	0.017	0.1	0.221	0.1	4	0.339	0.339	0	X
Calcium	7440702	mg/kg	60/ 60	100			2620	108	39800	4120	4120	15800	X
Chromium	7440473	mg/kg	60/ 60	100			17.7	2.7	88.9	20	20	17.4	X
Cobalt	7440484	mg/kg	60/ 60	100			10.5	1.1	36.8	11.5	11.5	10.4	X
Copper	7440508	mg/kg	60/ 60	100			26.1	2.1	559	41.3	41.3	17.7	X
Iron	7439896	mg/kg	60/ 60	100			25900	4250	110000	28700	28700	23100	X
Lead	7439921	mg/kg	60/ 60	100			56.6	5.8	887	82.7	82.7	26.1	X
Magnesium	7439954	mg/kg	60/ 60	100			2390	143	9850	2740	2740	3030	X
Manganese	7439965	mg/kg	60/ 60	100			657	218	2310	738	738	1450	L
Mercury	7439976	mg/kg	12/ 60	20	0.016	0.057	0.0625	0.054	1.2	0.101	0.101	0.036	D
Nickel	7440020	mg/kg	60/ 60	100			18.3	2.9	85.4	20.5	20.5	21.1	X
Potassium	7440097	mg/kg	60/ 60	100			1070	122	2660	1180	1180	927	X
Selenium	7782492	mg/kg	34/ 60	56.7	0.26	4.6	1.19	1.1	7.9	1.43	1.43	1.4	X
Silver	7440224	mg/kg	1/ 60	1.67	0.056	0.64	0.0634	0.26	0.26	0.0763	0.0763	0	D
Sodium	7440235	mg/kg	55/ 60	91.7	24	130	103	60.6	687	121	121	123	X
Vanadium	7440622	mg/kg	60/ 60	100			20.7	3	36	22.2	22.2	31.1	N
Zinc	7440666	mg/kg	60/ 60	100			99.3	15.3	1330	136	136	61.8	X
Organics-Explosives													
1,3,5-Trinitrobenzene	99354	mg/kg	6/ 60	10	0.1	0.1	0.09	0.062	1.7	0.137	0.137		D
2,4,6-Trinitrotoluene	118967	mg/kg	11/ 60	18.3	0.1	0.1	1.85	0.027	99	4.61	4.61		D
2,4-Dinitrotoluene	121142	mg/kg	4/ 60	6.67	0.1	0.1	0.0583	0.038	0.4	0.0685	0.0685		D
2,6-Dinitrotoluene	606202	mg/kg	2/ 60	3.33	0.1	0.1	0.0712	0.07	1.3	0.106	0.106		D
2-Amino-4,6-dinitrotoluene	35572782	mg/kg	9/ 60	15	0.1	0.1	0.303	0.14	12	0.637	0.637		D
4-Amino-2,6-dinitrotoluene	19406510	mg/kg	9/ 60	15	0.1	0.1	0.255	0.11	9.7	0.524	0.524		D
Nitrobenzene	98953	mg/kg	4/ 60	6.67	0.1	0.1	0.0501	0.04	0.083	0.0511	0.0511		D
Nitrocellulose	9004700	mg/kg	6/ 8	75	19	20	56.3	25	150	314	150		L
RDX	121824	mg/kg	1/ 60	1.67	0.2	0.2	0.104	0.33	0.33	0.11	0.11		D
Organics-Pesticide/PCB													
4,4'-DDE	72559	mg/kg	2/ 8	25	0.0019	0.0022	0.00085	0.00018	0.00037	0.00109	0.00037		D
Organics-Semivolatile													
Benz(*a*)anthracene	56553	mg/kg	1/ 8	12.5	0.38	0.43	0.206	0.19	0.19	0.213	0.19		D
Benzo(*a*)pyrene	50328	mg/kg	1/ 8	12.5	0.38	0.43	0.193	0.084	0.084	0.223	0.084		D
Benzo(*b*)fluoranthene	205992	mg/kg	1/ 8	12.5	0.38	0.43	0.215	0.26	0.26	0.228	0.228		D
Benzo(*k*)fluoranthene	207089	mg/kg	1/ 8	12.5	0.38	0.43	0.193	0.085	0.085	0.223	0.085		D

Appendix Table N-1. Summary Statistics for Surface Soil (0-1 ft) at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
Chrysene	218019	mg/kg	1/ 8	12.5	0.38	0.43	0.229	0.37	0.37	0.267	0.267		D
Di-n-butyl phthalate	84742	mg/kg	1/ 5	20	0.38	0.43	0.217	0.24	0.24	0.23	0.23		D
Fluoranthene	206440	mg/kg	2/ 8	25	0.38	0.43	0.271	0.05	0.87	0.437	0.437		D
Pyrene	129000	mg/kg	1/ 8	12.5	0.38	0.43	0.263	0.64	0.64	0.365	0.365		D
Organics-Volatile													
Acetone	67641	mg/kg	1/ 4	25	0.0057	0.013	0.00496	0.0051	0.0051	0.00636	0.0051		D
Carbon disulfide	75150	mg/kg	1/ 8	12.5	0.0057	0.0065	0.0114	0.069	0.069	0.027	0.027		D
Methylene chloride	75092	mg/kg	1/ 4	25	0.0069	0.02	0.00983	0.027	0.027	0.0233	0.0233		D
Trichloroethene	79016	mg/kg	2/ 8	25	0.0057	0.0065	0.00335	0.0032	0.0049	0.00378	0.00378		D

CAS = Chemical Abstract Service
PCB = polychlorinated biphenyl
UCL = Upper confidence limit
Dist = distribution of data, where "D" = fewer than 50% detects or fewer than 8 detects so distribution not determined, "N" = normal distribution, "X" = neither normal nor lognormal, and "L" = lognormal distribution

Appendix Table N-2. Summary Statistics for Subsurface Soil (1-3 ft) at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
MISC													
Chromium, hexavalent	18540299	mg/kg	2/ 5	40	2.9	2.9	3.19	3.7	7.9	5.87	5.87		D
Metals													
Aluminum	7429905	mg/kg	37/ 37	100			14000	556	20900	15200	15200	19500	N
Antimony	7440360	mg/kg	2/ 37	5.41	0.27	0.79	0.295	1.1	1.9	0.383	0.383	0.96	D
Arsenic	7440382	mg/kg	36/ 37	97.3	0.71	0.71	14.5	7.3	24.6	15.9	15.9	19.8	N
Barium	7440393	mg/kg	37/ 37	100			76.2	11	151	84.4	84.4	124	N
Beryllium	7440417	mg/kg	37/ 37	100			0.775	0.2	1.2	0.832	0.832	0.88	N
Cadmium	7440439	mg/kg	10/ 37	27	0.016	0.068	0.0611	0.085	0.72	0.0959	0.0959	0	D
Calcium	7440702	mg/kg	37/ 37	100			5130	90.6	35100	8070	8070	35500	X
Chromium	7440473	mg/kg	37/ 37	100			26.6	3	283	38.7	38.7	27.2	X
Cobalt	7440484	mg/kg	37/ 37	100			11.8	0.97	22.5	12.9	12.9	23.2	N
Copper	7440508	mg/kg	37/ 37	100			19.8	0.85	28.2	21.5	21.5	32.3	X
Iron	7439896	mg/kg	37/ 37	100			27900	13500	40800	29400	29400	35200	N
Lead	7439921	mg/kg	37/ 37	100			17.5	2.2	116	22.2	22.2	19.1	X
Magnesium	7439954	mg/kg	37/ 37	100			3600	95.6	9080	4180	4180	8790	X
Manganese	7439965	mg/kg	37/ 37	100			450	190	978	504	504	3030	L
Mercury	7439976	mg/kg	1/ 37	2.7	0.014	0.038	0.0311	0.76	0.76	0.0653	0.0653	0.044	D
Nickel	7440020	mg/kg	37/ 37	100			22.7	2.3	37.4	24.8	24.8	60.7	N
Potassium	7440097	mg/kg	37/ 37	100			1450	118	3120	1630	1630	3350	N
Selenium	7782492	mg/kg	24/ 37	64.9	0.31	1.1	1.22	1	3.1	1.44	1.44	1.5	X
Sodium	7440235	mg/kg	36/ 37	97.3	20.9	20.9	110	67.5	176	120	120	145	N
Vanadium	7440622	mg/kg	37/ 37	100			24.5	2.7	40.3	26.4	26.4	37.6	N
Zinc	7440666	mg/kg	37/ 37	100			63.4	17.8	156	68.9	68.9	93.3	X
Organics-Explosives													
Nitrobenzene	98953	mg/kg	8/ 37	21.6	0.1	0.1	0.0539	0.039	0.1	0.0576	0.0576		D
Nitrocellulose	9004700	mg/kg	4/ 5	80	18	18	49	26	110	561	110		L
Organics-Volatile													
Carbon disulfide	75150	mg/kg	2/ 5	40	0.0058	0.0062	0.0218	0.013	0.087	0.0568	0.0568		D
Methylene chloride	75092	mg/kg	2/ 3	66.7	0.0084	0.083	0.0255	0.017	0.018	0.262	0.018		L
Trichloroethene	79016	mg/kg	1/ 5	20	0.0058	0.0062	0.00295	0.0028	0.0028	0.00306	0.0028		D

CAS = Chemical Abstract Service

UCL = Upper confidence limit

Dist = distribution of data, where "D" = fewer than 50% detects or fewer than 8 detects so distribution not determined, "N" = normal distribution, "X" = neither normal nor lognormal, and "L" = lognormal distribution

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect
	MISC									
FBQ Drainage	Chromium, hexavalent	18540299	mg/kg	2/ 7	28.6	1.5	11	1.96	1.9	1.9
FBQ Drainage	Total Organic Carbon	N997	mg/kg	7/ 7	100			46000	28000	96000
	Metals									
FBQ Drainage	Aluminum	7429905	mg/kg	7/ 7	100			13300	7580	16900
FBQ Drainage	Antimony	7440360	mg/kg	2/ 7	28.6	0.37	1.1	2.42	3.8	11.5
FBQ Drainage	Arsenic	7440382	mg/kg	7/ 7	100			14.3	8.7	33.3
FBQ Drainage	Barium	7440393	mg/kg	7/ 7	100			192	98	507
FBQ Drainage	Beryllium	7440417	mg/kg	7/ 7	100			0.849	0.62	1.1
FBQ Drainage	Cadmium	7440439	mg/kg	5/ 7	71.4	0.032	0.046	0.568	0.1	2.3
FBQ Drainage	Calcium	7440702	mg/kg	7/ 7	100			2940	1380	7780
FBQ Drainage	Chromium	7440473	mg/kg	7/ 7	100			18.6	15.9	21.4
FBQ Drainage	Cobalt	7440484	mg/kg	7/ 7	100			11.2	7.7	15.8
FBQ Drainage	Copper	7440508	mg/kg	7/ 7	100			32	15.1	63.2
FBQ Drainage	Iron	7439896	mg/kg	7/ 7	100			30500	20000	55200
FBQ Drainage	Lead	7439921	mg/kg	7/ 7	100			39.7	25.2	80
FBQ Drainage	Magnesium	7439954	mg/kg	7/ 7	100			2720	1570	3600
FBQ Drainage	Manganese	7439965	mg/kg	7/ 7	100			1220	209	4100
FBQ Drainage	Mercury	7439976	mg/kg	6/ 7	85.7	0.048	0.048	0.293	0.087	0.8
FBQ Drainage	Nickel	7440020	mg/kg	7/ 7	100			23.1	17.6	30.2
FBQ Drainage	Potassium	7440097	mg/kg	7/ 7	100			1440	1060	1920
FBQ Drainage	Selenium	7782492	mg/kg	1/ 7	14.3	0.78	1.8	0.831	2.3	2.3
FBQ Drainage	Silver	7440224	mg/kg	1/ 7	14.3	0.075	1.2	0.235	0.51	0.51
FBQ Drainage	Sodium	7440235	mg/kg	7/ 7	100			167	117	285
FBQ Drainage	Vanadium	7440622	mg/kg	7/ 7	100			24.3	15.9	30.7
FBQ Drainage	Zinc	7440666	mg/kg	7/ 7	100			220	82.9	544
	Organics-Explosives									
FBQ Drainage	2,4,6-Trinitrotoluene	118967	mg/kg	3/ 7	42.9	0.1	0.1	0.0477	0.033	0.06
FBQ Drainage	3-Nitrotoluene	99081	mg/kg	2/ 7	28.6	0.2	0.2	0.107	0.1	0.15
FBQ Drainage	Nitrobenzene	98953	mg/kg	1/ 7	14.3	0.038	0.1	0.0446	0.071	0.071
FBQ Drainage	Nitrocellulose	9004700	mg/kg	5/ 7	71.4	32	74	58	32	100
	Organics-Pesticide/PCB									
FBQ Drainage	4,4'-DDD	72548	mg/kg	2/ 7	28.6	0.0023	0.0075	0.00339	0.0015	0.013
FBQ Drainage	4,4'-DDE	72559	mg/kg	2/ 7	28.6	0.0023	0.004	0.00142	0.001	0.0015
FBQ Drainage	Methoxychlor	72435	mg/kg	1/ 7	14.3	0.0023	0.004	0.00157	0.0023	0.0023
	Organics-Semivolatile									
FBQ Drainage	2-Methylnaphthalene	91576	mg/kg	2/ 7	28.6	0.46	0.81	0.464	0.19	1.6

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect
FBQ Drainage	Acenaphthylene	208968	mg/kg	1/ 7	14.3	0.46	1.5	0.331	0.11	0.11
FBQ Drainage	Anthracene	120127	mg/kg	1/ 7	14.3	0.46	1.5	0.381	0.46	0.46
FBQ Drainage	Benz(a)anthracene	56553	mg/kg	2/ 7	28.6	0.46	0.81	0.414	0.34	1.1
FBQ Drainage	Benzo(a)pyrene	50328	mg/kg	2/ 7	28.6	0.46	0.81	0.371	0.3	0.84
FBQ Drainage	Benzo(b)fluoranthene	205992	mg/kg	2/ 7	28.6	0.46	0.81	0.402	0.38	0.98
FBQ Drainage	Benzo(ghi)perylene	191242	mg/kg	1/ 7	14.3	0.46	1.5	0.371	0.39	0.39
FBQ Drainage	Benzo(k)fluoranthene	207089	mg/kg	1/ 7	14.3	0.46	1.5	0.351	0.25	0.25
FBQ Drainage	Carbazole	86748	mg/kg	1/ 7	14.3	0.46	1.5	0.348	0.23	0.23
FBQ Drainage	Chrysene	218019	mg/kg	2/ 7	28.6	0.46	0.81	0.381	0.32	0.89
FBQ Drainage	Dibenzofuran	132649	mg/kg	2/ 7	28.6	0.46	0.81	0.285	0.11	0.43
FBQ Drainage	Fluoranthene	206440	mg/kg	2/ 7	28.6	0.46	0.81	0.635	0.59	2.4
FBQ Drainage	Fluorene	86737	mg/kg	1/ 7	14.3	0.46	1.5	0.332	0.12	0.12
FBQ Drainage	Indeno(1,2,3-cd)pyrene	193395	mg/kg	2/ 7	28.6	0.46	0.81	0.286	0.15	0.4
FBQ Drainage	Naphthalene	91203	mg/kg	2/ 7	28.6	0.46	0.81	0.366	0.14	0.97
FBQ Drainage	Phenanthrene	85018	mg/kg	2/ 7	28.6	0.46	0.81	0.588	0.96	1.7
FBQ Drainage	Pyrene	129000	mg/kg	2/ 7	28.6	0.46	0.81	0.489	0.47	1.5
	Organics-Volatile									
FBQ Drainage	2-Butanone	78933	mg/kg	2/ 7	28.6	0.007	0.024	0.0109	0.011	0.026
FBQ Drainage	Carbon disulfide	75150	mg/kg	2/ 7	28.6	0.0069	0.022	0.00461	0.0023	0.0036
FBQ Drainage	Toluene	108883	mg/kg	1/ 7	14.3	0.0069	0.022	0.00516	0.0028	0.0028
FBQ Drainage	Trichloroethene	79016	mg/kg	1/ 7	14.3	0.0069	0.022	0.00484	0.0028	0.0028
	MISC									
FBQ Large Ponds	Chromium, hexavalent	18540299	mg/kg	13/ 17	76.5	1.3	2.5	14.7	7.1	33
FBQ Large Ponds	Total Organic Carbon	N997	mg/kg	15/ 15	100			43400	12000	120000
	Metals									
FBQ Large Ponds	Aluminum	7429905	mg/kg	17/ 17	100			11600	2940	16000
FBQ Large Ponds	Antimony	7440360	mg/kg	14/ 17	82.4	0.58	1.1	17.6	1	128
FBQ Large Ponds	Arsenic	7440382	mg/kg	17/ 17	100			13.8	3.3	32.4
FBQ Large Ponds	Barium	7440393	mg/kg	17/ 17	100			193	27.3	976
FBQ Large Ponds	Beryllium	7440417	mg/kg	16/ 17	94.1	0.16	0.16	0.684	0.21	1.1
FBQ Large Ponds	Cadmium	7440439	mg/kg	14/ 17	82.4	0.015	0.017	2.77	0.085	18.9
FBQ Large Ponds	Calcium	7440702	mg/kg	17/ 17	100			9870	278	55500
FBQ Large Ponds	Chromium	7440473	mg/kg	17/ 17	100			35.6	5.5	108
FBQ Large Ponds	Cobalt	7440484	mg/kg	17/ 17	100			11	3.3	18
FBQ Large Ponds	Copper	7440508	mg/kg	17/ 17	100			126	13	660
FBQ Large Ponds	Iron	7439896	mg/kg	17/ 17	100			40400	7840	138000
FBQ Large Ponds	Lead	7439921	mg/kg	17/ 17	100			385	15.7	1490

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect
FBQ Large Ponds	Magnesium	7439954	mg/kg	17/ 17	100			3210	510	8590
FBQ Large Ponds	Manganese	7439965	mg/kg	17/ 17	100			413	69.6	872
FBQ Large Ponds	Mercury	7439976	mg/kg	17/ 17	100			3.69	0.085	35
FBQ Large Ponds	Nickel	7440020	mg/kg	17/ 17	100			30.6	7.2	80.5
FBQ Large Ponds	Potassium	7440097	mg/kg	17/ 17	100			1230	337	2140
FBQ Large Ponds	Selenium	7782492	mg/kg	12/ 17	70.6	0.66	3.1	2.03	1.1	8.2
FBQ Large Ponds	Silver	7440224	mg/kg	6/ 17	35.3	0.052	0.55	1.33	0.27	12.4
FBQ Large Ponds	Sodium	7440235	mg/kg	15/ 17	88.2	75.7	151	226	60.8	814
FBQ Large Ponds	Vanadium	7440622	mg/kg	17/ 17	100			21.1	5.9	28
FBQ Large Ponds	Zinc	7440666	mg/kg	17/ 17	100			881	60.2	3620
	Organics-Explosives									
FBQ Large Ponds	2,4,6-Trinitrotoluene	118967	mg/kg	2/ 17	11.8	0.1	0.1	0.0676	0.1	0.3
FBQ Large Ponds	2-Amino-4,6-Dinitrotoluene	35572782	mg/kg	1/ 17	5.88	0.1	0.1	0.0514	0.073	0.073
FBQ Large Ponds	4-Amino-2,6-Dinitrotoluene	19406510	mg/kg	3/ 17	17.6	0.1	0.1	0.0782	0.11	0.39
FBQ Large Ponds	HMX	2691410	mg/kg	1/ 17	5.88	0.2	0.2	0.104	0.16	0.16
FBQ Large Ponds	Nitrobenzene	98953	mg/kg	4/ 17	23.5	0.1	0.1	0.0548	0.049	0.11
FBQ Large Ponds	Nitrocellulose	9004700	mg/kg	10/ 17	58.8	20	39	28.3	23	55
FBQ Large Ponds	Nitroglycerin	55630	mg/kg	1/ 15	6.67	10	10	7.93	49	49
	Organics-Pesticide/PCB									
FBQ Large Ponds	4,4'-DDD	72548	mg/kg	2/ 17	11.8	0.0021	0.0043	0.00137	0.00053	0.0027
FBQ Large Ponds	4,4'-DDE	72559	mg/kg	2/ 17	11.8	0.0021	0.0043	0.00127	0.00052	0.00066
FBQ Large Ponds	Dieldrin	60571	mg/kg	2/ 17	11.8	0.0021	0.0043	0.00127	0.00041	0.00088
FBQ Large Ponds	Endrin	72208	mg/kg	1/ 17	5.88	0.0021	0.0043	0.00131	0.00071	0.00071
FBQ Large Ponds	Endrin aldehyde	7421934	mg/kg	1/ 17	5.88	0.0021	0.0043	0.00138	0.0018	0.0018
FBQ Large Ponds	Methoxychlor	72435	mg/kg	2/ 17	11.8	0.0021	0.0043	0.00142	0.0011	0.003
	Organics-Semivolatile									
FBQ Large Ponds	2-Methylnaphthalene	91576	mg/kg	2/ 17	11.8	0.43	0.87	0.244	0.032	0.051
FBQ Large Ponds	Anthracene	120127	mg/kg	1/ 17	5.88	0.43	0.87	0.266	0.23	0.23
FBQ Large Ponds	Benz(a)anthracene	56553	mg/kg	5/ 17	29.4	0.43	0.74	0.342	0.084	2.1
FBQ Large Ponds	Benzo(a)pyrene	50328	mg/kg	5/ 17	29.4	0.43	0.74	0.338	0.086	2
FBQ Large Ponds	Benzo(b)fluoranthene	205992	mg/kg	5/ 17	29.4	0.43	0.74	0.367	0.12	2.3
FBQ Large Ponds	Benzo(ghi)perylene	191242	mg/kg	3/ 17	17.6	0.43	0.74	0.31	0.21	1.2
FBQ Large Ponds	Benzo(k)fluoranthene	207089	mg/kg	2/ 17	11.8	0.43	0.74	0.292	0.16	0.95
FBQ Large Ponds	Bis(2-ethylhexyl)phthalate	117817	mg/kg	2/ 17	11.8	0.1	0.54	0.117	0.077	0.1
FBQ Large Ponds	Carbazole	86748	mg/kg	1/ 17	5.88	0.43	0.87	0.259	0.11	0.11
FBQ Large Ponds	Chrysene	218019	mg/kg	5/ 17	29.4	0.43	0.74	0.292	0.079	1.3
FBQ Large Ponds	Fluoranthene	206440	mg/kg	6/ 17	35.3	0.43	0.74	0.417	0.098	3.2

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect
FBQ Large Ponds	Indeno(1,2,3-cd)pyrene	193395	mg/kg	3/ 17	17.6	0.43	0.74	0.29	0.11	1
FBQ Large Ponds	Naphthalene	91203	mg/kg	1/ 17	5.88	0.43	0.87	0.259	0.12	0.12
FBQ Large Ponds	Phenanthrene	85018	mg/kg	5/ 17	29.4	0.43	0.74	0.262	0.092	0.68
FBQ Large Ponds	Pyrene	129000	mg/kg	5/ 17	29.4	0.43	0.74	0.382	0.1	2.3
	Organics-Volatile									
FBQ Large Ponds	2-Butanone	78933	mg/kg	9/ 17	52.9	0.013	0.039	0.0112	0.0042	0.043
FBQ Large Ponds	Acetone	67641	mg/kg	3/ 17	17.6	0.01	0.18	0.0213	0.016	0.064
FBQ Large Ponds	Carbon disulfide	75150	mg/kg	1/ 17	5.88	0.005	0.02	0.00393	0.0029	0.0029
FBQ Large Ponds	Methylene chloride	75092	mg/kg	6/ 17	35.3	0.01	0.043	0.0126	0.01	0.037
FBQ Large Ponds	Toluene	108883	mg/kg	1/ 17	5.88	0.005	0.02	0.00425	0.0056	0.0056
	MISC									
FBQ Small Basins	Chromium, hexavalent	18540299	mg/kg	8/ 16	50	1.5	4.1	4.75	4.1	18
FBQ Small Basins	Total Organic Carbon	N997	mg/kg	16/ 16	100			43700	19000	80000
	Metals									
FBQ Small Basins	Aluminum	7429905	mg/kg	16/ 16	100			16900	9210	22100
FBQ Small Basins	Arsenic	7440382	mg/kg	16/ 16	100			9.58	3.2	17.5
FBQ Small Basins	Barium	7440393	mg/kg	16/ 16	100			102	53.1	228
FBQ Small Basins	Beryllium	7440417	mg/kg	16/ 16	100			0.846	0.52	1.2
FBQ Small Basins	Cadmium	7440439	mg/kg	13/ 16	81.3	0.019	0.021	0.283	0.081	0.92
FBQ Small Basins	Calcium	7440702	mg/kg	16/ 16	100			1810	816	3700
FBQ Small Basins	Chromium	7440473	mg/kg	16/ 16	100			91.7	12.4	1140
FBQ Small Basins	Cobalt	7440484	mg/kg	16/ 16	100			9.38	5.1	17.8
FBQ Small Basins	Copper	7440508	mg/kg	16/ 16	100			22.5	11.2	41.4
FBQ Small Basins	Iron	7439896	mg/kg	16/ 16	100			24400	12600	47400
FBQ Small Basins	Lead	7439921	mg/kg	16/ 16	100			67.2	15.4	455
FBQ Small Basins	Magnesium	7439954	mg/kg	16/ 16	100			3600	1720	5530
FBQ Small Basins	Manganese	7439965	mg/kg	16/ 16	100			377	94.9	2560
FBQ Small Basins	Mercury	7439976	mg/kg	8/ 16	50	0.031	0.076	0.0755	0.066	0.19
FBQ Small Basins	Nickel	7440020	mg/kg	16/ 16	100			22.3	11.9	33.4
FBQ Small Basins	Potassium	7440097	mg/kg	16/ 16	100			1850	921	3680
FBQ Small Basins	Selenium	7782492	mg/kg	2/ 16	12.5	0.39	3	0.668	1.4	2.2
FBQ Small Basins	Sodium	7440235	mg/kg	15/ 16	93.8	59.5	59.5	120	90.6	191
FBQ Small Basins	Vanadium	7440622	mg/kg	16/ 16	100			28.9	19.4	42
FBQ Small Basins	Zinc	7440666	mg/kg	16/ 16	100			103	59	205
	Organics-Explosives									
FBQ Small Basins	1,3,5-Trinitrobenzene	99354	mg/kg	1/ 16	6.25	0.1	0.1	0.053	0.098	0.098
FBQ Small Basins	1,3-Dinitrobenzene	99650	mg/kg	1/ 16	6.25	0.1	0.1	0.0538	0.11	0.11

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Results >Detection Limit	% Results >Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect
FBQ Small Basins	2,6-Dinitrotoluene	606202	mg/kg	1/ 16	6.25	0.1	0.1	0.0522	0.085	0.085
FBQ Small Basins	3-Nitrotoluene	99081	mg/kg	1/ 16	6.25	0.2	0.2	0.0986	0.078	0.078
FBQ Small Basins	HMX	2691410	mg/kg	1/ 16	6.25	0.2	0.2	0.101	0.11	0.11
FBQ Small Basins	Nitrocellulose	9004700	mg/kg	8/ 16	50	23	41	42.1	39	110
	Organics-Pesticide/PCB									
FBQ Small Basins	4,4'-DDD	72548	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00148	0.00085	0.00085
FBQ Small Basins	4,4'-DDE	72559	mg/kg	2/ 16	12.5	0.0024	0.0044	0.00143	0.00076	0.00079
FBQ Small Basins	4,4'-DDT	50293	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00151	0.0016	0.0016
FBQ Small Basins	Dieldrin	60571	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00146	0.00055	0.00055
FBQ Small Basins	Endosulfan I	959988	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00146	0.00052	0.00052
FBQ Small Basins	Endrin	72208	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00146	0.00055	0.00055
FBQ Small Basins	Heptachlor epoxide	1024573	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00146	0.00057	0.00057
FBQ Small Basins	Lindane	58899	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00148	0.00086	0.00086
FBQ Small Basins	Methoxychlor	72435	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00155	0.0022	0.0022
FBQ Small Basins	beta-BHC	319857	mg/kg	1/ 16	6.25	0.0024	0.0044	0.00147	0.00066	0.00066
	Organics-Semivolatile									
FBQ Small Basins	2-Methylnaphthalene	91576	mg/kg	1/ 16	6.25	0.47	0.88	0.288	0.11	0.11
FBQ Small Basins	4-Methylphenol	106445	mg/kg	2/ 16	12.5	0.47	0.88	0.314	0.26	0.51
FBQ Small Basins	Benz(a)anthracene	56553	mg/kg	5/ 16	31.3	0.47	0.88	0.242	0.074	0.12
FBQ Small Basins	Benzo(a)pyrene	50328	mg/kg	9/ 16	56.3	0.47	0.84	0.176	0.053	0.11
FBQ Small Basins	Benzo(b)fluoranthene	205992	mg/kg	9/ 16	56.3	0.47	0.84	0.199	0.083	0.16
FBQ Small Basins	Bis(2-ethylhexyl)phthalate	117817	mg/kg	2/ 16	12.5	0.11	0.88	0.2	0.061	0.076
FBQ Small Basins	Chrysene	218019	mg/kg	8/ 16	50	0.47	0.84	0.192	0.061	0.11
FBQ Small Basins	Fluoranthene	206440	mg/kg	10/ 16	62.5	0.47	0.84	0.206	0.073	0.19
FBQ Small Basins	Indeno(1,2,3-cd)pyrene	193395	mg/kg	1/ 16	6.25	0.47	0.88	0.285	0.066	0.066
FBQ Small Basins	Naphthalene	91203	mg/kg	1/ 16	6.25	0.47	0.88	0.287	0.083	0.083
FBQ Small Basins	Phenanthrene	85018	mg/kg	4/ 16	25	0.47	0.88	0.257	0.097	0.14
FBQ Small Basins	Pyrene	129000	mg/kg	7/ 16	43.8	0.47	0.84	0.231	0.11	0.2
	Organics-Volatile									
FBQ Small Basins	Acetone	67641	mg/kg	2/ 16	12.5	0.0076	0.026	0.00944	0.02	0.036
FBQ Small Basins	Toluene	108883	mg/kg	4/ 16	25	0.0071	0.013	0.0106	0.002	0.09

CAS = Chemical Abstract Service
PCB = polychlorinated biphenyl
UCL = Upper confidence limit
Dist = distribution of data, where "D" = fewer than 50% detects or fewer than 8 detects so distribution not determined, "N" = normal distribution, "X" = neither normal nor lognormal, and "L" = lognormal distribution

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
	MISC						
FBQ Drainage	Chromium, hexavalent	18540299	mg/kg	3.16	1.9		D
FBQ Drainage	Total Organic Carbon	N997	mg/kg	70900	70900		L
	Metals						
FBQ Drainage	Aluminum	7429905	mg/kg	15600	15600	13900	N
FBQ Drainage	Antimony	7440360	mg/kg	5.51	5.51	0	D
FBQ Drainage	Arsenic	7440382	mg/kg	20.6	20.6	19.5	X
FBQ Drainage	Barium	7440393	mg/kg	353	353	123	L
FBQ Drainage	Beryllium	7440417	mg/kg	0.962	0.962	0.38	N
FBQ Drainage	Cadmium	7440439	mg/kg	161	2.3	0	L
FBQ Drainage	Calcium	7440702	mg/kg	5550	5550	5510	L
FBQ Drainage	Chromium	7440473	mg/kg	20	20	18.1	L
FBQ Drainage	Cobalt	7440484	mg/kg	13.9	13.9	9.1	L
FBQ Drainage	Copper	7440508	mg/kg	59.7	59.7	27.6	L
FBQ Drainage	Iron	7439896	mg/kg	41700	41700	28200	L
FBQ Drainage	Lead	7439921	mg/kg	55.3	55.3	27.4	X
FBQ Drainage	Magnesium	7439954	mg/kg	3210	3210	2760	N
FBQ Drainage	Manganese	7439965	mg/kg	8440	4100	1950	L
FBQ Drainage	Mercury	7439976	mg/kg	4.85	0.8	0.059	L
FBQ Drainage	Nickel	7440020	mg/kg	26.9	26.9	17.7	L
FBQ Drainage	Potassium	7440097	mg/kg	1730	1730	1950	L
FBQ Drainage	Selenium	7782492	mg/kg	1.33	1.33	1.7	D
FBQ Drainage	Silver	7440224	mg/kg	0.415	0.415	0	D
FBQ Drainage	Sodium	7440235	mg/kg	224	224	112	L
FBQ Drainage	Vanadium	7440622	mg/kg	28.1	28.1	26.1	N
FBQ Drainage	Zinc	7440666	mg/kg	590	544	532	L
	Organics-Explosives						
FBQ Drainage	2,4,6-Trinitrotoluene	118967	mg/kg	0.054	0.054		D
FBQ Drainage	3-Nitrotoluene	99081	mg/kg	0.121	0.121		D
FBQ Drainage	Nitrobenzene	98953	mg/kg	0.0579	0.0579		D
FBQ Drainage	Nitrocellulose	9004700	mg/kg	80.8	80.8		N
	Organics-Pesticide/PCB						
FBQ Drainage	4,4'-DDD	72548	mg/kg	0.00657	0.00657		D
FBQ Drainage	4,4'-DDE	72559	mg/kg	0.00167	0.0015		D
FBQ Drainage	Methoxychlor	72435	mg/kg	0.00189	0.00189		D
	Organics-Semivolatile						
FBQ Drainage	2-Methylnaphthalene	91576	mg/kg	0.835	0.835		D

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
FBQ Drainage	Acenaphthylene	208968	mg/kg	0.482	0.11		D
FBQ Drainage	Anthracene	120127	mg/kg	0.516	0.46		D
FBQ Drainage	Benz(a)anthracene	56553	mg/kg	0.64	0.64		D
FBQ Drainage	Benzo(a)pyrene	50328	mg/kg	0.529	0.529		D
FBQ Drainage	Benzo(b)fluoranthene	205992	mg/kg	0.596	0.596		D
FBQ Drainage	Benzo(ghi)perylene	191242	mg/kg	0.504	0.39		D
FBQ Drainage	Benzo(k)fluoranthene	207089	mg/kg	0.488	0.25		D
FBQ Drainage	Carbazole	86748	mg/kg	0.486	0.23		D
FBQ Drainage	Chrysene	218019	mg/kg	0.551	0.551		D
FBQ Drainage	Dibenzofuran	132649	mg/kg	0.366	0.366		D
FBQ Drainage	Fluoranthene	206440	mg/kg	1.21	1.21		D
FBQ Drainage	Fluorene	86737	mg/kg	0.482	0.12		D
FBQ Drainage	Indeno(1,2,3-cd)pyrene	193395	mg/kg	0.355	0.355		D
FBQ Drainage	Naphthalene	91203	mg/kg	0.571	0.571		D
FBQ Drainage	Phenanthrene	85018	mg/kg	0.994	0.994		D
FBQ Drainage	Pyrene	129000	mg/kg	0.823	0.823		D
	Organics-Volatile						
FBQ Drainage	2-Butanone	78933	mg/kg	0.0162	0.0162		D
FBQ Drainage	Carbon disulfide	75150	mg/kg	0.00673	0.0036		D
FBQ Drainage	Toluene	108883	mg/kg	0.0072	0.0028		D
FBQ Drainage	Trichloroethene	79016	mg/kg	0.00689	0.0028		D
	MISC						
FBQ Large Ponds	Chromium, hexavalent	18540299	mg/kg	19.5	19.5		N
FBQ Large Ponds	Total Organic Carbon	N997	mg/kg	67500	67500		L
	Metals						
FBQ Large Ponds	Aluminum	7429905	mg/kg	13000	13000	13900	N
FBQ Large Ponds	Antimony	7440360	mg/kg	170	128	0	L
FBQ Large Ponds	Arsenic	7440382	mg/kg	19.2	19.2	19.5	L
FBQ Large Ponds	Barium	7440393	mg/kg	288	288	123	X
FBQ Large Ponds	Beryllium	7440417	mg/kg	0.803	0.803	0.38	N
FBQ Large Ponds	Cadmium	7440439	mg/kg	207	18.9	0	L
FBQ Large Ponds	Calcium	7440702	mg/kg	39200	39200	5510	L
FBQ Large Ponds	Chromium	7440473	mg/kg	57.1	57.1	18.1	L
FBQ Large Ponds	Cobalt	7440484	mg/kg	12.7	12.7	9.1	N
FBQ Large Ponds	Copper	7440508	mg/kg	202	202	27.6	X
FBQ Large Ponds	Iron	7439896	mg/kg	62100	62100	28200	L
FBQ Large Ponds	Lead	7439921	mg/kg	621	621	27.4	X

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
FBQ Large Ponds	Magnesium	7439954	mg/kg	3960	3960	2760	X
FBQ Large Ponds	Manganese	7439965	mg/kg	658	658	1950	L
FBQ Large Ponds	Mercury	7439976	mg/kg	29.9	29.9	0.059	L
FBQ Large Ponds	Nickel	7440020	mg/kg	42.5	42.5	17.7	L
FBQ Large Ponds	Potassium	7440097	mg/kg	1420	1420	1950	N
FBQ Large Ponds	Selenium	7782492	mg/kg	3.21	3.21	1.7	L
FBQ Large Ponds	Silver	7440224	mg/kg	2.63	2.63	0	D
FBQ Large Ponds	Sodium	7440235	mg/kg	373	373	112	L
FBQ Large Ponds	Vanadium	7440622	mg/kg	23.5	23.5	26.1	X
FBQ Large Ponds	Zinc	7440666	mg/kg	1410	1410	532	X
	Organics-Explosives						
FBQ Large Ponds	2,4,6-Trinitrotoluene	118967	mg/kg	0.0935	0.0935		D
FBQ Large Ponds	2-Amino-4,6-Dinitrotoluene	35572782	mg/kg	0.0537	0.0537		D
FBQ Large Ponds	4-Amino-2,6-Dinitrotoluene	19406510	mg/kg	0.114	0.114		D
FBQ Large Ponds	HMX	2691410	mg/kg	0.11	0.11		D
FBQ Large Ponds	Nitrobenzene	98953	mg/kg	0.061	0.061		D
FBQ Large Ponds	Nitrocellulose	9004700	mg/kg	39.4	39.4		L
FBQ Large Ponds	Nitroglycerin	55630	mg/kg	13.1	13.1		D
	Organics-Pesticide/PCB						
FBQ Large Ponds	4,4'-DDD	72548	mg/kg	0.00157	0.00157		D
FBQ Large Ponds	4,4'-DDE	72559	mg/kg	0.00143	0.00066		D
FBQ Large Ponds	Dieldrin	60571	mg/kg	0.00143	0.00088		D
FBQ Large Ponds	Endrin	72208	mg/kg	0.00145	0.00071		D
FBQ Large Ponds	Endrin aldehyde	7421934	mg/kg	0.00151	0.00151		D
FBQ Large Ponds	Methoxychlor	72435	mg/kg	0.00164	0.00164		D
	Organics-Semivolatile						
FBQ Large Ponds	2-Methylnaphthalene	91576	mg/kg	0.284	0.051		D
FBQ Large Ponds	Anthracene	120127	mg/kg	0.29	0.23		D
FBQ Large Ponds	Benz(a)anthracene	56553	mg/kg	0.536	0.536		D
FBQ Large Ponds	Benzo(a)pyrene	50328	mg/kg	0.522	0.522		D
FBQ Large Ponds	Benzo(b)fluoranthene	205992	mg/kg	0.579	0.579		D
FBQ Large Ponds	Benzo(ghi)perylene	191242	mg/kg	0.409	0.409		D
FBQ Large Ponds	Benzo(k)fluoranthene	207089	mg/kg	0.366	0.366		D
FBQ Large Ponds	Bis(2-ethylhexyl)phthalate	117817	mg/kg	0.149	0.1		D
FBQ Large Ponds	Carbazole	86748	mg/kg	0.288	0.11		D
FBQ Large Ponds	Chrysene	218019	mg/kg	0.406	0.406		D
FBQ Large Ponds	Fluoranthene	206440	mg/kg	0.723	0.723		D

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
FBQ Large Ponds	Indeno(1,2,3-cd)pyrene	193395	mg/kg	0.371	0.371		D
FBQ Large Ponds	Naphthalene	91203	mg/kg	0.288	0.12		D
FBQ Large Ponds	Phenanthrene	85018	mg/kg	0.318	0.318		D
FBQ Large Ponds	Pyrene	129000	mg/kg	0.596	0.596		D
	Organics-Volatile						
FBQ Large Ponds	2-Butanone	78933	mg/kg	0.0152	0.0152		X
FBQ Large Ponds	Acetone	67641	mg/kg	0.0318	0.0318		D
FBQ Large Ponds	Carbon disulfide	75150	mg/kg	0.00462	0.0029		D
FBQ Large Ponds	Methylene chloride	75092	mg/kg	0.0162	0.0162		D
FBQ Large Ponds	Toluene	108883	mg/kg	0.00499	0.00499		D
	MISC						
FBQ Small Basins	Chromium, hexavalent	18540299	mg/kg	11.3	11.3		L
FBQ Small Basins	Total Organic Carbon	N997	mg/kg	50900	50900		N
	Metals						
FBQ Small Basins	Aluminum	7429905	mg/kg	18500	18500	13900	N
FBQ Small Basins	Arsenic	7440382	mg/kg	11.5	11.5	19.5	N
FBQ Small Basins	Barium	7440393	mg/kg	129	129	123	L
FBQ Small Basins	Beryllium	7440417	mg/kg	0.948	0.948	0.38	L
FBQ Small Basins	Cadmium	7440439	mg/kg	0.402	0.402	0	X
FBQ Small Basins	Calcium	7440702	mg/kg	2290	2290	5510	X
FBQ Small Basins	Chromium	7440473	mg/kg	214	214	18.1	X
FBQ Small Basins	Cobalt	7440484	mg/kg	11	11	9.1	L
FBQ Small Basins	Copper	7440508	mg/kg	26.8	26.8	27.6	L
FBQ Small Basins	Iron	7439896	mg/kg	28700	28700	28200	L
FBQ Small Basins	Lead	7439921	mg/kg	114	114	27.4	X
FBQ Small Basins	Magnesium	7439954	mg/kg	4030	4030	2760	N
FBQ Small Basins	Manganese	7439965	mg/kg	646	646	1950	X
FBQ Small Basins	Mercury	7439976	mg/kg	0.139	0.139	0.059	L
FBQ Small Basins	Nickel	7440020	mg/kg	26.1	26.1	17.7	L
FBQ Small Basins	Potassium	7440097	mg/kg	2190	2190	1950	L
FBQ Small Basins	Selenium	7782492	mg/kg	0.907	0.907	1.7	D
FBQ Small Basins	Sodium	7440235	mg/kg	135	135	112	N
FBQ Small Basins	Vanadium	7440622	mg/kg	31.9	31.9	26.1	L
FBQ Small Basins	Zinc	7440666	mg/kg	125	125	532	L
	Organics-Explosives						
FBQ Small Basins	1,3,5-Trinitrobenzene	99354	mg/kg	0.0583	0.0583		D
FBQ Small Basins	1,3-Dinitrobenzene	99650	mg/kg	0.0603	0.0603		D

Appendix Table N-3. Summary Statistics for Sediment at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	95% UCL of Mean	Exposure Concentration	Background Criteria	Dist
FBQ Small Basins	2,6-Dinitrotoluene	606202	mg/kg	0.056	0.056		D
FBQ Small Basins	3-Nitrotoluene	99081	mg/kg	0.101	0.078		D
FBQ Small Basins	HMX	2691410	mg/kg	0.102	0.102		D
FBQ Small Basins	Nitrocellulose	9004700	mg/kg	74.4	74.4		L
	Organics-Pesticide/PCB						
FBQ Small Basins	4,4'-DDD	72548	mg/kg	0.00163	0.00085		D
FBQ Small Basins	4,4'-DDE	72559	mg/kg	0.0016	0.00079		D
FBQ Small Basins	4,4'-DDT	50293	mg/kg	0.00164	0.0016		D
FBQ Small Basins	Dieldrin	60571	mg/kg	0.00163	0.00055		D
FBQ Small Basins	Endosulfan I	959988	mg/kg	0.00163	0.00052		D
FBQ Small Basins	Endrin	72208	mg/kg	0.00163	0.00055		D
FBQ Small Basins	Heptachlor epoxide	1024573	mg/kg	0.00163	0.00057		D
FBQ Small Basins	Lindane	58899	mg/kg	0.00163	0.00086		D
FBQ Small Basins	Methoxychlor	72435	mg/kg	0.0017	0.0017		D
FBQ Small Basins	beta-BHC	319857	mg/kg	0.00163	0.00066		D
	Organics-Semivolatile						
FBQ Small Basins	2-Methylnaphthalene	91576	mg/kg	0.322	0.11		D
FBQ Small Basins	4-Methylphenol	106445	mg/kg	0.349	0.349		D
FBQ Small Basins	Benz(a)anthracene	56553	mg/kg	0.294	0.12		D
FBQ Small Basins	Benzo(a)pyrene	50328	mg/kg	0.284	0.11		L
FBQ Small Basins	Benzo(b)fluoranthene	205992	mg/kg	0.27	0.16		L
FBQ Small Basins	Bis(2-ethylhexyl)phthalate	117817	mg/kg	0.252	0.076		D
FBQ Small Basins	Chrysene	218019	mg/kg	0.244	0.11		X
FBQ Small Basins	Fluoranthene	206440	mg/kg	0.268	0.19		L
FBQ Small Basins	Indeno(1,2,3-cd)pyrene	193395	mg/kg	0.322	0.066		D
FBQ Small Basins	Naphthalene	91203	mg/kg	0.323	0.083		D
FBQ Small Basins	Phenanthrene	85018	mg/kg	0.302	0.14		D
FBQ Small Basins	Pyrene	129000	mg/kg	0.269	0.2		D
	Organics-Volatile						
FBQ Small Basins	Acetone	67641	mg/kg	0.013	0.013		D
FBQ Small Basins	Toluene	108883	mg/kg	0.02	0.02		D

CAS = Chemical Abstract Service
PCB = polychlorinated biphenyl
UCL = Upper confidence limit
Dist = distribution of data, where "D" = fewer than 50% detects or fewer than 8 detects so distribution not determined, "N" = normal distribution, "X" = neither normal nor lognormal, and "L" = lognormal distribution

Appendix Table N-4. Summary Statistics for Surface Water at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Results > Detection Limit	% Results > Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect	95% UCL of Mean
	Metals										
FBQ Drainage	Aluminum	7429905	mg/L	1/ 1	100			2.27	2.27	2.27	
FBQ Drainage	Barium	7440393	mg/L	1/ 1	100			1.03	1.03	1.03	
FBQ Drainage	Calcium	7440702	mg/L	1/ 1	100			37.8	37.8	37.8	
FBQ Drainage	Chromium	7440473	mg/L	1/ 1	100			0.0037	0.0037	0.0037	
FBQ Drainage	Cobalt	7440484	mg/L	1/ 1	100			0.0021	0.0021	0.0021	
FBQ Drainage	Copper	7440508	mg/L	1/ 1	100			0.0042	0.0042	0.0042	
FBQ Drainage	Iron	7439896	mg/L	1/ 1	100			18.6	18.6	18.6	
FBQ Drainage	Magnesium	7439954	mg/L	1/ 1	100			7.29	7.29	7.29	
FBQ Drainage	Manganese	7439965	mg/L	1/ 1	100			11	11	11	
FBQ Drainage	Potassium	7440097	mg/L	1/ 1	100			2.57	2.57	2.57	
FBQ Drainage	Sodium	7440235	mg/L	1/ 1	100			3.66	3.66	3.66	
FBQ Drainage	Vanadium	7440622	mg/L	1/ 1	100			0.0043	0.0043	0.0043	
FBQ Drainage	Zinc	7440666	mg/L	1/ 1	100			0.036	0.036	0.036	
	Organics-Explosives										
FBQ Drainage	Nitrocellulose	9004700	mg/L	1/ 1	100			0.61	0.61	0.61	
	Organics-Semivolatile										
FBQ Drainage	Bis(2-ethylhexyl)phthalate	117817	mg/L	1/ 1	100			0.0017	0.0017	0.0017	
	Organics-Volatile										
FBQ Drainage	Carbon disulfide	75150	mg/L	1/ 1	100			0.0018	0.0018	0.0018	
	Metals										
FBQ Large Ponds	Barium	7440393	mg/L	4/ 4	100			0.0491	0.0308	0.0678	0.0669
FBQ Large Ponds	Calcium	7440702	mg/L	4/ 4	100			21	10.5	44.6	142
FBQ Large Ponds	Copper	7440508	mg/L	2/ 4	50	0.0011	0.0017	0.00323	0.0053	0.0062	1.61
FBQ Large Ponds	Iron	7439896	mg/L	4/ 4	100			0.153	0.107	0.204	0.245
FBQ Large Ponds	Magnesium	7439954	mg/L	4/ 4	100			3.24	2.64	3.9	4.03
FBQ Large Ponds	Manganese	7439965	mg/L	4/ 4	100			0.0138	0.0117	0.0155	0.0167
FBQ Large Ponds	Potassium	7440097	mg/L	4/ 4	100			1.66	1.15	2.49	3.34
FBQ Large Ponds	Sodium	7440235	mg/L	4/ 4	100			2	1.81	2.24	2.24
FBQ Large Ponds	Zinc	7440666	mg/L	2/ 4	50	0.0033	0.0038	0.0131	0.0236	0.0251	0.0284
	Organics-Explosives										
FBQ Large Ponds	Nitrocellulose	9004700	mg/L	4/ 4	100			0.738	0.37	1.1	2.84
	Organics-Semivolatile										
FBQ Large Ponds	Bis(2-ethylhexyl)phthalate	117817	mg/L	1/ 4	25	0.0014	0.011	0.00264	0.0029	0.0029	0.00513
	Organics-Volatile										
FBQ Large Ponds	Methylene chloride	75092	mg/L	2/ 4	50	0.0066	0.0078	0.0041	0.0045	0.0047	0.00484
	MISC										
FBQ Small Basins	Chromium, hexavalent	18540299	mg/L	5/ 10	50	0.01	0.01	0.0175	0.01	0.05	0.0273
FBQ Small Basins	Perchlorate	7601903	mg/L	2/ 7	28.6	0.001	0.001	0.005	0.0075	0.025	0.0118
	Metals										
FBQ Small Basins	Aluminum	7429905	mg/L	10/ 10	100			1.08	0.174	7.01	2.29
FBQ Small Basins	Arsenic	7440382	mg/L	1/ 10	10	0.0048	0.017	0.00599	0.0197	0.0197	0.00902

Appendix Table N-4. Summary Statistics for Surface Water at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Results > Detection Limit	% Results > Detection Limit	Minimum Nondetect	Maximum Nondetect	Average Result	Minimum Detect	Maximum Detect	95% UCL of Mean
FBQ Small Basins	Barium	7440393	mg/L	10/ 10	100			0.0499	0.019	0.0987	0.0775
FBQ Small Basins	Beryllium	7440417	mg/L	1/ 10	10	0.00011	0.00036	0.000185	0.00077	0.00077	0.000307
FBQ Small Basins	Calcium	7440702	mg/L	10/ 10	100			15	6.13	28.4	23.7
FBQ Small Basins	Chromium	7440473	mg/L	3/ 10	30	0.00069	0.0017	0.00201	0.0018	0.0122	0.00412
FBQ Small Basins	Cobalt	7440484	mg/L	8/ 10	80	0.0004	0.0025	0.00688	0.0046	0.0173	0.00965
FBQ Small Basins	Copper	7440508	mg/L	5/ 10	50	0.00081	0.0032	0.00663	0.0036	0.0418	0.0392
FBQ Small Basins	Iron	7439896	mg/L	10/ 10	100			14	3.32	24.5	18.1
FBQ Small Basins	Lead	7439921	mg/L	3/ 10	30	0.0022	0.0056	0.00434	0.0033	0.0249	0.00857
FBQ Small Basins	Magnesium	7439954	mg/L	10/ 10	100			5.36	2.29	9.22	7.45
FBQ Small Basins	Manganese	7439965	mg/L	10/ 10	100			1.36	0.632	4.4	2
FBQ Small Basins	Nickel	7440020	mg/L	1/ 10	10	0.0011	0.0027	0.00334	0.0259	0.0259	0.00793
FBQ Small Basins	Potassium	7440097	mg/L	10/ 10	100			6.97	3.07	13.9	10.7
FBQ Small Basins	Sodium	7440235	mg/L	10/ 10	100			1.87	0.945	4.09	2.9
FBQ Small Basins	Vanadium	7440622	mg/L	4/ 10	40	0.00076	0.0021	0.003	0.002	0.0191	0.00631
FBQ Small Basins	Zinc	7440666	mg/L	5/ 10	50	0.0047	0.0087	0.0184	0.0123	0.107	0.0681
	Organics-Explosives										
FBQ Small Basins	2-Amino-4,6-Dinitrotoluene	35572782	mg/L	1/ 10	10	0.00026	0.00026	0.000185	0.00068	0.00068	0.000286
FBQ Small Basins	4-Amino-2,6-Dinitrotoluene	19406510	mg/L	1/ 10	10	0.00026	0.00026	0.00212	0.02	0.02	0.00576
FBQ Small Basins	Nitrocellulose	9004700	mg/L	7/ 10	70	0.18	0.18	0.301	0.25	0.75	0.624
	Organics-Semivolatile										
FBQ Small Basins	4-Methylphenol	106445	mg/L	4/ 10	40	0.011	0.011	0.0408	0.002	0.17	0.0794
FBQ Small Basins	Bis(2-ethylhexyl)phthalate	117817	mg/L	9/ 10	90	0.0028	0.0028	0.00281	0.0014	0.011	0.00453
FBQ Small Basins	Phenol	108952	mg/L	3/ 10	30	0.011	0.012	0.0239	0.034	0.12	0.0452
	Organics-Volatile										
FBQ Small Basins	2-Butanone	78933	mg/L	3/ 10	30	0.01	0.01	0.00485	0.0034	0.0051	0.00515
FBQ Small Basins	Carbon disulfide	75150	mg/L	2/ 10	20	0.005	0.005	0.00226	0.00094	0.0017	0.00257
FBQ Small Basins	Styrene	100425	mg/L	1/ 10	10	0.005	0.005	0.00236	0.0011	0.0011	0.00262
FBQ Small Basins	Toluene	108883	mg/L	10/ 10	100			0.0103	0.0022	0.02	0.0225

CAS = Chemical Abstract Service
PCB = polychlorinated biphenyl
UCL = Upper confidence limit
Dist = distribution of data, where "D" = fewer than 50% detects or fewer than 8 detects so distribution not determined, "N" = normal distribution, "X" = neither normal nor lognormal, and "L" = lognormal distribution

Appendix Table N-4. Summary Statistics for Surface Water at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Exposure Concentration	Background Criteria	Dist
	Metals					
FBQ Drainage	Aluminum	7429905	mg/L	2.27	3.37	X
FBQ Drainage	Barium	7440393	mg/L	1.03	0.0475	X
FBQ Drainage	Calcium	7440702	mg/L	37.8	41.4	X
FBQ Drainage	Chromium	7440473	mg/L	0.0037	0	X
FBQ Drainage	Cobalt	7440484	mg/L	0.0021	0	X
FBQ Drainage	Copper	7440508	mg/L	0.0042	0.0079	X
FBQ Drainage	Iron	7439896	mg/L	18.6	2.56	X
FBQ Drainage	Magnesium	7439954	mg/L	7.29	10.8	X
FBQ Drainage	Manganese	7439965	mg/L	11	0.391	X
FBQ Drainage	Potassium	7440097	mg/L	2.57	3.17	X
FBQ Drainage	Sodium	7440235	mg/L	3.66	21.3	X
FBQ Drainage	Vanadium	7440622	mg/L	0.0043	0	X
FBQ Drainage	Zinc	7440666	mg/L	0.036	0.042	X
	Organics-Explosives					
FBQ Drainage	Nitrocellulose	9004700	mg/L	0.61		X
	Organics-Semivolatile					
FBQ Drainage	Bis(2-ethylhexyl)phthalate	117817	mg/L	0.0017		X
	Organics-Volatile					
FBQ Drainage	Carbon disulfide	75150	mg/L	0.0018		X
	Metals					
FBQ Large Ponds	Barium	7440393	mg/L	0.0669	0.0475	N
FBQ Large Ponds	Calcium	7440702	mg/L	44.6	41.4	L
FBQ Large Ponds	Copper	7440508	mg/L	0.0062	0.0079	L
FBQ Large Ponds	Iron	7439896	mg/L	0.204	2.56	L
FBQ Large Ponds	Magnesium	7439954	mg/L	3.9	10.8	N
FBQ Large Ponds	Manganese	7439965	mg/L	0.0155	0.391	L
FBQ Large Ponds	Potassium	7440097	mg/L	2.49	3.17	L
FBQ Large Ponds	Sodium	7440235	mg/L	2.24	21.3	N
FBQ Large Ponds	Zinc	7440666	mg/L	0.0251	0.042	X
	Organics-Explosives					
FBQ Large Ponds	Nitrocellulose	9004700	mg/L	1.1		L
	Organics-Semivolatile					
FBQ Large Ponds	Bis(2-ethylhexyl)phthalate	117817	mg/L	0.0029		D
	Organics-Volatile					
FBQ Large Ponds	Methylene chloride	75092	mg/L	0.0047		N
	MISC					
FBQ Small Basins	Chromium, hexavalent	18540299	mg/L	0.0273		X
FBQ Small Basins	Perchlorate	7601903	mg/L	0.0118		D
	Metals					
FBQ Small Basins	Aluminum	7429905	mg/L	2.29	3.37	X
FBQ Small Basins	Arsenic	7440382	mg/L	0.00902	0.0032	D

Appendix Table N-4. Summary Statistics for Surface Water at Fuse and Booster Quarry, Ravenna, Ohio

Location	Chemical	CAS Number	Units	Exposure Concentration	Background Criteria	Dist
FBQ Small Basins	Barium	7440393	mg/L	0.0775	0.0475	L
FBQ Small Basins	Beryllium	7440417	mg/L	0.000307	0	D
FBQ Small Basins	Calcium	7440702	mg/L	23.7	41.4	L
FBQ Small Basins	Chromium	7440473	mg/L	0.00412	0	D
FBQ Small Basins	Cobalt	7440484	mg/L	0.00965	0	N
FBQ Small Basins	Copper	7440508	mg/L	0.0392	0.0079	L
FBQ Small Basins	Iron	7439896	mg/L	18.1	2.56	N
FBQ Small Basins	Lead	7439921	mg/L	0.00857	0	D
FBQ Small Basins	Magnesium	7439954	mg/L	7.45	10.8	L
FBQ Small Basins	Manganese	7439965	mg/L	2	0.391	X
FBQ Small Basins	Nickel	7440020	mg/L	0.00793	0	D
FBQ Small Basins	Potassium	7440097	mg/L	10.7	3.17	L
FBQ Small Basins	Sodium	7440235	mg/L	2.9	21.3	L
FBQ Small Basins	Vanadium	7440622	mg/L	0.00631	0	D
FBQ Small Basins	Zinc	7440666	mg/L	0.0681	0.042	L
	Organics-Explosives					
FBQ Small Basins	2-Amino-4,6-Dinitrotoluene	35572782	mg/L	0.000286		D
FBQ Small Basins	4-Amino-2,6-Dinitrotoluene	19406510	mg/L	0.00576		D
FBQ Small Basins	Nitrocellulose	9004700	mg/L	0.624		L
	Organics-Semivolatile					
FBQ Small Basins	4-Methylphenol	106445	mg/L	0.0794		D
FBQ Small Basins	Bis(2-ethylhexyl)phthalate	117817	mg/L	0.00453		X
FBQ Small Basins	Phenol	108952	mg/L	0.0452		D
	Organics-Volatile					
FBQ Small Basins	2-Butanone	78933	mg/L	0.0051		D
FBQ Small Basins	Carbon disulfide	75150	mg/L	0.0017		D
FBQ Small Basins	Styrene	100425	mg/L	0.0011		D
FBQ Small Basins	Toluene	108883	mg/L	0.02		L

CAS = Chemical Abstract Service
PCB = polychlorinated biphenyl
UCL = Upper confidence limit
Dist = distribution of data, where "D" = fewer than 50% detects or fewer than 8 detects so distribution not determined, "N" = normal distribution, "X" = neither normal nor lognormal, and "L" = lognormal distribution

Appendix Table N-5. Bioaccumulation Factors and Log Octanol-Water Partition Coefficients (Kows) For Analytes at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Registry Number	Log Kowa (L/kg)	Source	BAF MAX	Source
Aluminum		NA	NA	0.075	HAZWRAP (1994)
Ammonia		NA	NA	1	default value
Antimony		NA	NA	0.05	HAZWRAP (1994)
Arsenic		NA	NA	0.1	HAZWRAP (1994)
Barium		NA	NA	0.0075	HAZWRAP (1994)
Beryllium		NA	NA	0.05	HAZWRAP (1994)
Boron		NA	NA	1	default value
Cadmium		NA	NA	11	HAZWRAP (1994)
Calcium		NA	NA	1	default value
Chloride		NA	NA	1	default value
Chromium		NA	NA	0.28	HAZWRAP (1994)
Chromium, hexavalent		NA	NA	0.28	HAZWRAP (1994)
Cobalt		NA	NA	1	HAZWRAP (1994)
Copper		NA	NA	0.5	HAZWRAP (1994)
Cyanide		NA	NA	0	HAZWRAP (1994)
Fluoride		NA	NA	1	default value
Iron		NA	NA	1	default value
Lead		NA	NA	2	HAZWRAP (1994)
Magnesium		NA	NA	1	default value
Manganese		NA	NA	0.02	HAZWRAP (1994)
Mercury		NA	NA	13	HAZWRAP (1994)
Molybdenum		NA	NA	1	default value
Nickel		NA	NA	0.3	HAZWRAP (1994)
Nitrate		NA	NA	1	default value
Phosphorus		NA	NA	1	default value
Potassium		NA	NA	1	default value
Selenium		NA	NA	0.76	HAZWRAP (1994)
Silicon		NA	NA	1	default value
Silver		NA	NA	0.15	HAZWRAP (1994)
Sodium		NA	NA	1	default value
Sulfide		NA	NA	1	default value
Thallium		NA	NA	1	default value
Vanadium		NA	NA	0.13	HAZWRAP (1994)
Zinc		NA	NA	5	HAZWRAP (1994)
1,1,1-Trichloroethane	71-55-6	2.48	EPA 1995a in Jones, et al 1996	NA	NA
1,1,2,2-Tetrachloroethane	79-34-5	2.39	EPA 1995a in Jones, et al 1996	NA	NA
1,1,2,2-Tetrachloroethylene	127-18-4	2.67	EPA 1995e in Sample, et al 1996	NA	NA
1,1,2-Trichloroethane	79-00-5	2.17	EPA 1995	NA	NA
1,1'-Biphenyl	92-52-4	4.09	Schwarzenbach, et al 1993	NA	NA
1,1-Dichloroethane	75-34-3	4.00	EPA 1995a in Jones, et al 1996	NA	NA
1,1-Dichloroethene	75-35-4	2.13	EPA 1995a in Jones, et al 1996	NA	NA
1,1-Dichloroethylene	75-35-4	5.00	EPA 1995e in Sample, et al 1996	NA	NA
1,2,2-Trichloro-1,1,2-trifluoroe	76-13-1	3.16	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1,2,3,4-Tetrachlorobenzene	634-66-2	4.55	Swarzenbch, et al 1993	NA	NA
1,2,3-Trichlorobenzene	87-61-6	4.05	Sangster 1994 in Syracuse 1996	NA	NA
1,2,3-Trichloropropane	96-18-4	1.98	Russom, et al 1996	NA	NA
1,2,4,5-Tetrachlorobenzene	95-94-3	4.64	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1,2,4-Trichlorobenzene	120-82-1	4.02	EPA 1995d	NA	NA
1,2,4-Trimethyl benzene	95-63-6	3.63	Hansch, et al 1995 in Syracuse 1996	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	2.96	Chem Inspect Test Inst. 1992 in Syracuse 1996	NA	NA
Indeno(1,2,3-cd)pyrene	193-39-5	6.92	EPA (1994b)	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluor	76-14-2	2.82	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1,2-Dichlorobenzene	95-50-1	3.38	EPA 1995d	NA	NA
1,2-Dichloroethane	107-06-2	1.47	EPA 1995a in Jones, et al 1996	NA	NA
1,2-Dichloroethene	540-59-0	1.86	EPA 1995a in Jones, et al 1996	NA	NA
1,2-Dichloroethylene	540-59-0	1.86	EPA 1995e in Sample, et al 1996	NA	NA
1,2-Dimethylbenzene	95-47-6	3.12	Schwarzenbach, et al 1993	NA	NA
1,2-Diphenylhydrazine	122-66-7	2.94	Hansch and Leo 1985 in Syracuse 1996	NA	NA

Appendix Table N-5. Bioaccumulation Factors and Log Octanol-Water Partition Coefficients (Kows) For Analytes at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Registry Number	Log Kowa (L/kg)	Source	BAF MAX	Source
1,3,5-Trinitrobenzene	99-35-4	1.18	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1,3-Butadiene	106-99-0	1.99	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1,3-Dichlorobenzene	541-73-1	3.43	EPA 1995a in Jones, et al 1996	NA	NA
1,3-Dichloropropene	542-75-6	2.00	EPA 1995a in Jones, et al 1996	NA	NA
1,3-Dinitrobenzene	99-65-0	1.49	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1,4-Dichlorobenzene	95-50-1	3.42	EPA 1995a in Jones, et al 1996	NA	NA
1,4-Dinitrobenzene	100-25-4	1.46	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1,4-Dioxane	123-91-1	-0.39	EPA 1995e in Sample, et al 1996	NA	NA
1,4-Naphthoquinone	130-15-4	1.71	Hansch, et al 1995 in Syracuse 1996	NA	NA
1-12'-Dimethybenz(a)anthracene	57-97-6	5.80	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1-Hexanol	111-27-3	2.03	Schwarzenbach, et al 1993	NA	NA
HMX	2691-41-0	--	No Source	NA	NA
1-Methylnapthalene	90-12-0	3.87	Syracuse 1996 in Jones, et al 1996	NA	NA
1-Nitropropane	108-03-2	0.87	Hansch and Leo 1985 in Syracuse 1996	NA	NA
1-Octanol	111-87-5	2.84	Schwarzenbach, et al 1993	NA	NA
1-Pentanol	71-41-0	1.51	Syracuse 1996 in Jones, et al 1996	NA	NA
2,2'-oxybis(1-chloropropane)	108-60-1	2.48	Kawamoto, K and Urano, K 1989 in Syracuse 1996	NA	NA
2,3,4,5-Tetrachlorophenol	4901-51-3	4.21	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2,3,4,6-Tetrachlorophenol	58-90-2	4.45	Russom, et al 1996[i]	NA	NA
2,3,5,6-Tetrachloroaniline	3481-20-7	4.10	Russom, et al 1996	NA	NA
Nitrocellulose	9004-70-0	--	No Source	NA	NA
n-nitrosodiphenylamine	86-30-6	3.13	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2,3,7,8-Tetrachloro-Dibenzodioxin	1746-01-6	6.53	EPA 1995e in Sample, et al 1996[f]	NA	NA
Tetryl	479-45-8	--	No Source	NA	NA
2,4,5-Trichloroaniline	636-30-6	4.01	EPA 1995a in Jones, et al 1996	NA	NA
2,4,5-Trichlorophenoxyacetic acid	93-76-5	3.31	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2,4,6-Trichlorophenol	88-06-2	3.69	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2,4,6-Trinitrotoluene	118-96-7	1.60	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2,4-D	94-75-7	2.81	EPA 1995c[k]	NA	NA
2,4-Dichloroaniline	554-00-7	2.78	Sangster 1994 in Syracuse 1996	NA	NA
2,4-Dichlorophenol	120-83-2	3.06	Russom, et al 1996	NA	NA
2,4-Dimethylphenol	105-67-9	2.35	Swarzenbch, et al 1993	NA	NA
2,4-Dinitrophenol	51-28-5	1.54	Howard 1990	NA	NA
2,4-Dinitrotoluene	121-14-2	1.98	Howard 1990	NA	NA
2,6-Dichlorophenol	87-65-0	2.75	Hansch, et al 1995 in Syracuse 1996	NA	NA
2,6-Dinitrotoluene	606-20-2	1.72	Howard 1990	NA	NA
2-Butanone	79-93-3	0.29	EPA 1995a in Jones et al 1996	NA	NA
2-Chloronaphthalene	91-58-7	3.98	Sangster 1994 in Syracuse 1996	NA	NA
2-Chlorophenol	95-57-8	2.15	Howard 1990.	NA	NA
2-Chloropropane	75-29-6	1.90	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2-Chlorotoluene	95-49-8	3.42	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2-Hexanone	591-78-6	1.38	EPA 1995a in Jones, et al 1996	NA	NA
2-Methylnaphthalene	91-57-6	-1.90	SCDM 1993 in HAZWRAP 1994	NA	NA
2-Methylnapthalene	91-57-6	3.86	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2-Methylphenol	95-48-7	1.99	EPA 1995a in Jones, et al 1996	NA	NA
2-Naphthylamine	91-59-8	2.28	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2-Nitrophenol	88-75-5	1.79	Howard 1990	NA	NA
2-Octanone	111-13-7	2.37	Syracuse 1996 in Jones, et al 1996	NA	NA
2-Picoline	109-06-8	1.11	Russom, et al 1996	NA	NA
2-Propanol	67-63-0	0.05	Hansch and Leo 1985 in Syracuse 1996	NA	NA
2-Propenoic acid	79-10-7	0.35	Hansch, et al 1995 in Syracuse 1996	NA	NA
3,3'-Dichlorobenzidine	91-94-1	3.51	Howard 1990[j]	NA	NA
3,3'-Dimethoxybenzidine	119-90-4	1.81	Debnath, et al 1992 in Syracuse 1996	NA	NA
3,3'-Dimethylbenziding	119-93-7	2.34	Hansch and Leo 1985 in Syracuse 1996	NA	NA
3,4-Dichloroaniline	95-76-1	2.69	Russom, et al 1996	NA	NA
3,4-Dichlorophenol	95-77-2	3.33	Hansch and Leo 1985 in Syracuse 1996	NA	NA
3-Chloroaniline	108-42-9	1.88	Hansch and Leo 1985 in Syracuse 1996	NA	NA

Appendix Table N-5. Bioaccumulation Factors and Log Octanol-Water Partition Coefficients (Kows) For Analytes at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Registry Number	Log Kowa (L/kg)	Source	BAF MAX	Source
3-Chlorophenol	108-43-0	2.50	Howard 1990.	NA	NA
3-Nitroaniline	99-09-2	1.37	Hansch and Leo 1985 in Syracuse 1996	NA	NA
3-Pentanone	96-22-0	0.99	Hansch and Leo 1985 in Syracuse 1996	NA	NA
4,4-Methylenedianiline	101-77-9	1.59	Hansch and Leo 1985 in Syracuse 1996	NA	NA
4,6-Dinitro-2-methylphenol	534-52-1	2.12	Hansch and Leo 1985 in Syracuse 1996	NA	NA
4-Bromoaniline	106-40-1	2.26	Hansch and Leo 1985 in Syracuse 1996	NA	NA
4-Bromophenyl phenyl-ether	101-55-3	5.00	EPA 1995a in Jones et al 1996	NA	NA
4-Chloro-3-methylphenol	35421-08-0	3.10	Russom, et al 1996	NA	NA
4-chloroaniline	106-47-8	1.83	Howard 1990	NA	NA
4-Chlorophenol	106-48-9	2.39	Howard 1990.	NA	NA
4-Chlorophenyl-phenyl ether	7005-72-3	4.08	Sangster 1994 in Syracuse 1996	NA	NA
4-Chlorotoluene	106-43-4	3.33	Hansch and Leo 1985 in Syracuse 1996	NA	NA
4-Methyl 2-Pentanone	108-10-1	1.31	Syracuse 1996 in Jones, et al 1996	NA	NA
4-Methylphenol	106-44-5	1.90	SCDM 1993 in HAZWRAP 1994	NA	NA
4-Nitroaniline	100-01-6	1.39	Hansch and Leo 1985 in Syracuse 1996	NA	NA
4-Nitrophenol	100-02-7	1.91	Howard 1990	NA	NA
4-Nitroquinoline-1-oxide	56-57-5	1.09	Hansch and Leo 1985 in Syracuse 1996	NA	NA
4-Toluidine	106-49-0	1.39	Russom, et al 1996	NA	NA
5-Nitro-o-Toluidine	99-55-8	1.87	Hansch, et al 1995 in Syracuse 1996	NA	NA
Acenaphthene	83-32-9	3.92	EPA 1995a in Jones, et al 1996	NA	NA
Acenaphthylene	208-96-8	4.10	SCDM 1993 in HAZWRAP 1994	NA	NA
Acetone	67-64-1	-0.24	EPA 1995a in Jones, et al 1996	NA	NA
Acetonitrile	75-05-8	0.25	Howard 1990	NA	NA
Acetonitrile	75-05-8	-0.34	Hansch and Leo 1995 in Syracuse 1996	NA	NA
Acrolein	107-02-8	-0.01	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Acrylamide	79-06-1	-0.67	Howard 1990	NA	NA
Aldicarb	116-06-3	1.13	EPA 1995c	NA	NA
Aldrin	309-00-2	6.50	EPA 1995e in Sample, et al 1996	NA	NA
alpha, alpha-Dimethylphenethylamine	122-09-8	1.90	Hansch and Leo 1985 in Syracuse 1996	NA	NA
alpha-BHC	319-84-6	3.80	SCDM 1993 in HAZWRAP 1994	NA	NA
2-Amino-4,6-dinitrotoluene	35572-78-2	1.94	(estimated, Talmage et al. 1999)	NA	NA
4-Amino-2,6-dinitrotoluene	19406-51-0	--	No Source	NA	NA
Aniline	62-53-3	0.90	Howard 1990	NA	NA
Anthracene	120-12-7	4.55	EPA 1995a in Jones, et al 1996	NA	NA
Aroclor 1016	1264-11-2	5.60	ATSDR 1989 in Jones, et al 1996	NA	NA
Aroclor 1221	11104-28-2	4.70	ATSDR 1989 in Jones, et al 1996	NA	NA
Aroclor 1232	11141-16-5	5.10	ATSDR 1989 in Jones, et al 1996	NA	NA
Aroclor 1242	53469-21-9	5.60	ATSDR 1989 in Jones, et al 1996	NA	NA
Aroclor 1248	12672-29-6	6.20	ATSDR 1989 in Jones, et al 1996	NA	NA
PCB-1248	12672-29-6	6.20	ATSDR 1989 in Jones, et al 1996	NA	NA
Aroclor 1254	27323-18-8	6.50	ATSDR 1989 in Jones, et al 1996	NA	NA
Aroclor 1260	11096-82-5	6.80	ATSDR 1989 in Jones, et al 1996	NA	NA
Atrazine	1912-24-9	2.75	EPA 1995c	NA	NA
Azobenzene	103-33-3	3.82	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Benzaldehyde	100-52-7	1.48	Schwarzenbach, et al 1993	NA	NA
Benzene	71-43-2	2.13	EPA 1995a in Jones et al 1996	NA	NA
Benzidine	92-87-5	1.66	EPA 1995a in Jones et al 1996	NA	NA
Benzo(a)anthracene	56-55-3	5.70	EPA 1995a in Jones et al 1996	NA	NA
Benzo(a)pyrene	50-32-8	6.11	EPA 1995a in Jones et al 1996	NA	NA
Benzo(b)fluoranthene	205-99-2	6.10	SCDM 1993 in HAZWRAP 1994	NA	NA
Benzo(e)pyrene	192-97-2	6.44	Devoogt, et al 1990 in Syracuse 1996	NA	NA
Benzo(g,h,i)perylene	191-24-2	6.60	SCDM 1993 in HAZWRAP 1994[e]	NA	NA
Benzo(k)fluoranthene	207-08-9	6.10	SCDM 1993 in HAZWRAP 1994	NA	NA
Benzoic acid	65-85-0	1.87	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Benzyl alcohol	100-51-6	1.11	EPA 1995a in Jones et al 1996	NA	NA
Benzyl chloride	100-44-7	2.30	Hansch and Leo 1985 in Syracuse 1996	NA	NA
beta-BHC	319-85-7	3.81	EPA 1995e in Sample, et al 1996	NA	NA
BHC-mixed isomers	--	5.89	EPA 1995e in Sample, et al 1996	NA	NA

Appendix Table N-5. Bioaccumulation Factors and Log Octanol-Water Partition Coefficients (Kows) For Analytes at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Registry Number	Log Kowa (L/kg)	Source	BAF MAX	Source
Biphenyl	95-52-4	3.96	EPA 1995b in Jones et al 1996	NA	NA
bis(2-chloroethyl)ether	111-44-4	1.29	Howard 1990	NA	NA
Bis(2-ethylhexyl)phthalate	117-81-7	7.60	Syracuse 1996 in Jones, et al 1996[c]	NA	NA
Bromobenzene	108-86-1	2.99	Schwarzenbach, et al 1993	NA	NA
Bromodichloromethane	75-27-4	1.41	Syracuse 1996 in Jones, et al 1996	NA	NA
Butane	106-97-8	2.89	Schwarzenbach, et al 1993	NA	NA
Butylbenzyl phthalate	85-68-7	4.84	EPA 1995a in Jones, et al 1996	NA	NA
Captan	133-06-2	2.35	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Carbaryl	65-25-2	2.36	Schwarzenbach, et al 1993	NA	NA
Carbazole	86-74-8	3.76	Hansch and Leo 1979 in HAZWRAP 1994	NA	NA
Carbofuran	1563-66-2	2.32	EPA 1995c	NA	NA
Carbon Disulfide	75-15-0	2.00	EPA1995a in Jones, et al 1996	NA	NA
Carbon Tetrachloride	56-23-5	2.73	EPA 1995a in Jones, et al 1996	NA	NA
Chloracetamide	79-07-2	-0.53	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Chlordane	57-74-9	6.32	EPA 1995a in Jones, et al 1996	NA	NA
Chlordecone	143-50-0	5.30	EPA 1995e in Sample, et al 1996	NA	NA
Chlorobenzene	108-90-7	2.86	EPA 1995a in Jones, et al 1996	NA	NA
Chlorobenzilate	510-15-6	4.74	Chem Inspect Test Inst. 1992 in Syracuse 1996	NA	NA
Chlorodifluoromethane	75-45-6	1.08	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Chloroethane	75-00-3	1.43	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Chloroform	67-66-3	1.92	EPA 1995e in Sample, et al 1996	NA	NA
Chloromethane	74-87-3	0.91	Schwarzenbach, et al 1993	NA	NA
Chloropropene	107-05-1	2.03	Howard 1990	NA	NA
Chrysene	218-01-9	5.70	SCDM 1993 in HAZWRAP 1994	NA	NA
Cis-1,3-Dichloropropene	10061-02-6	2.06	Tomlin 1994 in Syracuse 1996	NA	NA
Cumene	98-82-8	3.66	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Cyanogen	460-19-5	0.07	Hansch, et al 1995 in Syracuse 1996	NA	NA
Cyclohexanol	108-93-0	1.23	Schwarzenbach, et al 1993	NA	NA
Cyclohexanone	108-94-1	0.81	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Cyclopentane	287-92-3	3.00	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Dalapon	75-99-0	0.78	EPA 1995c	NA	NA
DDT	50-29-3	6.53	EPA 1995a in Jones, et al 1996	NA	NA
4,4'-DDT	50-29-3	6.53	EPA 1995a in Jones, et al 1996	NA	NA
Decane	124-18-5	5.01	EPA 1995a in Jones, et al 1996	NA	NA
delta-BHC	319-86-8	4.10	SCDM 1993 in HAZWRAP 1994	NA	NA
Diallate	2303-16-4	4.49	Ellington and Stancil 1988 in Syracuse 1996	NA	NA
Diazinon	333-41-5	3.70	EPA 1995a in Jones, et al 1996	NA	NA
Dibenzo(a,h)anthracene	53-70-3	6.50	SCDM 1993 in HAZWRAP 1994	NA	NA
Dibenzofuran	132-64-9	4.12	EPA 1995a in Jones, et al 1996	NA	NA
Dibromochloromethane	124-48-1	2.16	Sangster 1994 in Syracuse 1996	NA	NA
Dibromomethane	74-95-3	1.70	Martiska, A, Bekarek, V 1990 in Syracuse 1996	NA	NA
Dichlorodifluromethane	74-71-8	2.53	Swarzenbch, et al1993	NA	NA
Dieldrin	60-57-1	5.37	EPA 1995a in Jones, et al 1996	NA	NA
Dienochlor	2227-17-0	3.50	British Crop Protection Council 1987 in ARS 1999	NA	NA
Diethyl Sulfide	352-93-2	1.95	Schwarzenbach, et al 1993	NA	NA
Diethylphthalate	84-66-2	2.50	EPA 1995a in Jones, et al 1996	NA	NA
Diisobutylphthalate	84-69-5	4.11	Schwarzenbach, et al 1993	NA	NA
Dimethoate	60-51-5	0.78	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Dimethylphthalate	131-11-3	1.53	Schwarzenbach, et al 1993	NA	NA
Di-n-butylphthalate	84-74-2	4.61	EPA 1995a in Jones, et al 1996	NA	NA
Di-n-octylphthalate	117-84-0	8.10	Ellington and Floyd 1996 in Syracuse 1996	NA	NA
Dinoseb	88-85-7	3.56	Hansch, et al 1995 in Syracuse 1996	NA	NA
Dioxin	1746-01-6	6.80	EPA 1995d[d]	NA	NA
Diphenyl ether	101-84-8	4.21	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Diphenylamine	122-39-4	3.50	Russom, et al 1996	NA	NA
Diquat	85-00-7	-3.05	EPA 1995c	NA	NA
Disulfoton	298-04-4	4.02	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Diuron	330-54-1	2.80	Dupon Cortporation Data 1989 in ARS 1999	NA	NA

Appendix Table N-5. Bioaccumulation Factors and Log Octanol-Water Partition Coefficients (Kows) For Analytes at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Registry Number	Log Kowa (L/kg)	Source	BAF MAX	Source
Endosulfan	115-29-7	4.10	EPA 1995a in Jones, et al 1996	NA	NA
Endosulfan sulfate	1031-07-8	3.66	Hansch, et al 1995 in Syracuse 1996	NA	NA
Endosulfan I	959-98-8	3.83	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Endrin	72-20-8	5.06	EPA 1995a in Jones, et al 1996	NA	NA
Endrin Aldehyde	7421-93-4	3.14	Arthur D. Little, Inc. 1981 in HAZWRAP 1994	NA	NA
Epichlorohydrin	106-89-8	0.45	Deneer, et al 1988 in Syracuse 1996	NA	NA
Ethane	74-84-0	1.81	Schwarzenbach, et al 1993	NA	NA
Ethanol	64-17-5	-0.31	EPA 1992b in Sample, et al 1996	NA	NA
Ethyl Acetate	141-78-6	0.69	EPA 1995e in Sample, et al 1996	NA	NA
Ethyl benzene	100-41-4	3.14	EPA 1995a in Jones, et al 1996	NA	NA
Ethyl carbamate	51-79-6	-0.15	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Ethyl ether	60-29-7	0.89	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Ethylene Dibromide	106-93-4	1.96	Hansch, et al 1995 in Syracuse 1996	NA	NA
Ethylene glycol	107-21-1	-1.36	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Famphur	52-85-7	2.23	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Fluometuron	2164-17-2	1.34	Schwarzenbch et al 1993	NA	NA
Fluoranthene	206-44-0	5.12	EPA 1995a in Jones, et al 1996	NA	NA
Fluorene	86-73-7	4.21	EPA 1995a in Jones, et al 1996	NA	NA
Fluorobenzene	462-06-6	2.27	Swarzenbch et al 1993	NA	NA
Formaldehyde	50-00-0	-0.05	EPA 1995e in Sample, et al 1996	NA	NA
Formamide	75-12-7	-1.51	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Formic acid	64-18-6	-0.54	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Furan	110-00-9	1.34	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Furfural	98-01-1	0.41	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Heptachlor	76-44-8	6.10	EPA 1995a in Jones, et al 1996	NA	NA
Heptachlor Epoxide	1024-57-3	5.40	SCDM 1993 in HAZWRAP 1994	NA	NA
Heptane	142-82-5	4.66	Miller, M.M., et al 1985 in Syracuse 1996	NA	NA
Hexachlorobenzene	118-74-1	5.50	Schwarzenbach, et al 1993	NA	NA
Hexachlorobutadiene	87-68-3	4.90	Schwarzenbach, et al 1993	NA	NA
Hexachlorocyclopentadiene	77-47-4	5.04	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Hexachloroethane	67-72-1	4.00	EPA 1995a in Jones, et al 1996	NA	NA
Hexachlorophene	70-30-4	7.54	Hansch, et al 1995 in Syracuse 1996	NA	NA
Imazaquin-ammonium	81335-47-9	0.34	Pesticide Manual, 1994in ARS 1999	NA	NA
Imazilil	35554-44-0	3.82	British Crop Protection Council 1986 in ARS 1999	NA	NA
Isobutyl alcohol	78-83-1	0.76	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Isophorone	78-59-1	1.70	Veith, G.D., et al 1980 in Syracuse 1996	NA	NA
Lindane (gamma-BHC)	58-89-9	3.73	EPA 1995a in Jones, et al 1996	NA	NA
Lindane	58-89-9	3.73	EPA 1995a in Jones, et al 1996	NA	NA
Malathion	121-75-5	2.89	Schwarzenbach, et al 1993	NA	NA
MCPA	94-74-6	2.80	Pionke, H.B., Deangelis, R.J. 1980 in ARS 1999	NA	NA
m-cresol	108-39-4	1.96	Howard 1990.	NA	NA
Methacrylonitril	126-98-7	0.68	Tanii and Hashimoto 1994 in Syracuse 1996	NA	NA
Methanol	67-56-1	-0.71	EPA 1995e in Sample, et al 1996	NA	NA
Methapyrilene	91-80-5	2.87	Sangster 1994 in Syracuse 1996	NA	NA
Methomyl	16752-77-5	0.57	Dupont Corporation Data 1989 In ARS 1999	NA	NA
Methoxychlor	72-43-5	5.08	EPA 1995a in Jones, et al 1996	NA	NA
Methyl bromide	74-83-9	1.19	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Methyl iodide	74-88-4	3.36	EPA 1995a in Jones, et al 1996	NA	NA
Methyl metharcrylate	80-62-6	1.38	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Methylcyclohexane	108-87-2	3.61	Hansch, et al 1995 in Syracuse 1996	NA	NA
Methylene Chloride	75-09-2	1.25	EPA 1995a in Jones, et al 1996	NA	NA
Methylhydrazine	60-34-4	-1.06	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Methylstyrene	98-83-9	3.48	Hansch, et al 1995 in Syracuse 1996	NA	NA
Mirex	2385-85-5	6.89	Veith, et al 1979 in Syracuse 1996	NA	NA
M-nitrosodiphenylamine	86-30-6	3.13	Hansch and Leo 1985 in Syracuse 1996	NA	NA
m-Nitrotoluene	99-08-1	2.45	Russom, et al 1996	NA	NA
3-Nitrotoluene	99-08-1	2.45	Russom, et al 1996	NA	NA
Naphthalene	91-20-3	3.36	EPA 1995a in Jones, et al 1996	NA	NA

Appendix Table N-5. Bioaccumulation Factors and Log Octanol-Water Partition Coefficients (Kows) For Analytes at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Registry Number	Log Kowa (L/kg)	Source	BAF MAX	Source
n-Butyl benzene	104-51-8	4.38	DeBruijn, J, et al 1989 in Syracuse 1996	NA	NA
n-Hexane	110-54-3	4.11	Schwarzenbach, et al 1993	NA	NA
Nitrobenzene	98-95-3	1.83	Schwarzenbch et al 1993	NA	NA
Nitroglycerin	55-63-0	1.62	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Nitromethane	75-52-5	-0.35	Hansch and Leo 1985 in Syracuse 1996	NA	NA
n-Nitrochlorobenzene	100-00-5	2.39	Hansch and Leo 1985 in Syracuse 1996	NA	NA
N-Nitrosodiethylamine	55-18-5	0.48	Hansch and Leo 1985 in Syracuse 1996	NA	NA
N-Nitrosomorpholine	59-89-2	-0.44	Hansch and Leo 1985 in Syracuse 1996	NA	NA
N-Nitrosopiperidine	100-75-4	0.36	Hansch and Leo 1985 in Syracuse 1996	NA	NA
N-Nitrosopyrrolidine	930-55-2	-0.19	Hansch and Leo 1985 in Syracuse 1996	NA	NA
n-Pentane	109-66-0	3.62	Swarzenbch, et al 1993	NA	NA
n-Pentylbenzene	538-68-1	4.90	Schwarzenbach, et al 1993	NA	NA
n-propyl benzene	103-65-1	3.69	Sangster 1994 in Syracuse 1996	NA	NA
o-Cresol	95-48-7	1.99	EPA 1995e in Sample, et al 1996	NA	NA
Octachloronaphthalene	2234-13-1	8.24	Opperhuizen, A 1985 in Syracuse 1996[b]	NA	NA
o-Dichlorobenzene	95-50-1	3.38	EPA 1995d	NA	NA
o-Dinitrobenzene	528-29-0	1.69	Hansch, et al 1995 in Syracuse 1996	NA	NA
o-Nitroaniline	88-74-4	1.85	Hansch and Leo 1985 in Syracuse 1996	NA	NA
o-Nitrophenol	88-75-5	1.79	Howard 1990	NA	NA
o-Nitrotoluene	88-72-2	2.30	Opperhuizen, A 1985 in Syracuse 1996	NA	NA
Oxadiazon	19666-30-9	4.70	Rhone-Poulenc Corporation Data in ARS 1999	NA	NA
p,p'-DDD	72-54-8	6.10	EPA 1995a in Jones, et al 1996	NA	NA
4,4'-DDD	72-54-8	6.10	EPA 1995a in Jones, et al 1996	NA	NA
4,4'-DDE	72-55-9	6.26	EPA 1994b	NA	NA
Parathion	56-38-2	3.81	Schwarzenbach, et al 1993	NA	NA
p-Cresol	106-44-5	1.94	Hansch and Leo 1985 in Syracuse 1996	NA	NA
p-Dichlorobenzene	106-46-7	3.37	EPA 1995d	NA	NA
Pentachloroaniline	527-20-8	4.82	Sangster 1994 in Syracuse 1996	NA	NA
Pentachlorobenzene	608-93-5	5.26	EPA1995a in Jones, et al 1996	NA	NA
Pentachloroethane	76-01-7	3.63	Russom, et al 1996	NA	NA
Pentachloro-nitrobenzene	82-68-8	4.64	EPA 1995e in Sample, et al 1996	NA	NA
Pentachlorophenol	87-86-5	5.09	EPA 1995e in Sample, et al 1996	NA	NA
Phenacetin	62-44-2	1.58	Nakagawa, Y, et al 1992 in Syracuse 1996	NA	NA
Phenanthrene	85-01-8	4.55	EPA1995a in Jones, et al 1996	NA	NA
Phenmediphan	13684-63-4	3.59	Noram Company Data in ARS 1999	NA	NA
Phenol	108-95-2	1.48	EPA1995a in Jones, et al 1996	NA	NA
Phorate	298-02-2	3.56	Hansch, et al 1995 in Syracuse 1996	NA	NA
Phosmet	732-11-6	3.00	Beguhn, M.A. 1989 in ARS 1989	NA	NA
Phthalic acid	100-21-0	2.00	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Phthalic anhydride	85-44-9	1.60	Panoma 1987 in Syracuse 1996	NA	NA
p-Nitrophenol	100-02-07	1.91	Howard 1990	NA	NA
p-Nitrotoluene	99-99-0	2.37	Howard 1990	NA	NA
p-Phenylenediamine	106-50-3	-0.30	Hansch, et al 1995 in Syracuse 1996	NA	NA
Profenofos	41198-08-7	1.70	Ciba-Geigy Corporation Data 1989 in ARS 1999	NA	NA
Pronamide	23950-58-5	0.05	EPA1995a in Jones, et al 1996	NA	NA
Propionitril	107-12-0	0.16	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Pryidine	110-86-1	0.65	Russom, et al 1996	NA	NA
Pyrene	129-00-0	5.13	Schwarzenbach, et al 1993g	NA	NA
Quinoline	91-22-5	2.03	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Quinone	106-51-4	0.20	Hansch and Leo 1985 in Syracuse 1996	NA	NA
RDX	121-82-4	0.87	Schwarzenbach, et al 1993	NA	NA
sec-Butyl benzene	135-98-8	4.57	Sherblom, et al 1988 in Syracuse 1996	NA	NA
Silvex	93-72-1	3.80	Hansch , et al 1995 in Syracuse 1996	NA	NA
Simazine	122-34-9	2.18	EPA 1995c	NA	NA
Strychnine	57-24-9	1.93	Panoma 1987 in Syracuse 1996	NA	NA
Styrene	100-42-5	2.95	Schwarzenbach, et al 1993	NA	NA
Tebuthiuron	34014-18-1	1.79	ARS 1999	NA	NA
Temephos	3383-96-8	4.90	British Crop Protection Council 1994 in ARS 1999[h]	NA	NA

Appendix Table N-5. Bioaccumulation Factors and Log Octanol-Water Partition Coefficients (Kows) For Analytes at Fuse and Booster Quarry, Ravenna, Ohio

Chemical	CAS Registry Number	Log Kowa (L/kg)	Source	BAF MAX	Source
tert-Butyl benzene	98-06-6	4.11	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Tetrachloroethane	25322-20-7	2.39	Schwarzenbach, et al 1993	NA	NA
Tetrachloroethene	127-18-4	2.88	Schwarzenbach, et al 1993	NA	NA
Tetrachloroethylene	127-18-4	3.40	EPA 1995d	NA	NA
Tetrachloromethane	56-23-5	2.73	EPA 1995a in Jones, et al 1996	NA	NA
Tetrahydrofuran	109-99-9	0.46	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Toluene	108-883	2.75	EPA 1995a in Jones, et al 1996	NA	NA
Toxaphene	8001-35-2	5.50	EPA 1995e in Sample, et al 1996	NA	NA
Trans-1,3-Dichloropropene	10061-02-6	2.03	Tomlin 1994 in Syracuse 1996	NA	NA
Tribromomethane	75-25-2	2.35	EPA 1995a in Jones, et al 1996	NA	NA
Tributyl phosphate	126-73-8	4.00	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Trichloroethene	636-30-6	2.71	EPA 1995a in Jones, et al 1996	NA	NA
Trichloroethylene	79-01-6	2.71	EPA 1995e in Sample, et al 1996	NA	NA
Trichlorofluoromethane	75-69-4	2.16	Schwarzenbach, et al 1993	NA	NA
Triethylamine	121-44-8	1.45	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Trifluorobromomethane	75-63-8	1.86	Hansch and Leo 1985 in Syracuse 1996	NA	NA
Vinyl acetate	108-05-4	0.73	EPA 1995a in Jones, et al 1996	NA	NA
Vinyl Chloride	75-01-4	1.50	EPA 1995e in Sample, et al 1996	NA	NA
Xylene	1330-20-7	3.13	EPA 1995a in Jones, et al 1996	NA	NA
Xylene (mixed isomers)	1330-20-7	3.20	EPA 1995e in Sample, et al 1996	NA	NA
Ziram	137-30-4	1.09	British Crop Protection Council 1994 in ARS 1999	NA	NA

[a] Log Octanol-Water partition coefficient.

BAF Max = Bioaccumulation factor maximum (if BAF Max is > 1, the inorganic chemical is likely to bioaccumulate)

-- = no log Kow found

NA = not applicable

[b] Syracuse 1996. Syracuse Research Corporation, Environmental Sciences Center's on-line experimental Log P database conducted June 7, 1996.

[c] Jones, D.S., R N. Hull, G.W. Suter II. 1996. *Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1996 Revision.* Lockheed Martin Energy Systems, Inc. Oak Ridge, TN 37831.-

[d] EPA. 1995d. National Primary Drinking Water Regulations; Contaminated Specific Fact Sheets Volatile Organic Chemicals, Technical Version. USEPA Office of Water. EPA 811-F-95-004-T.

[e] HAZWRAP (Hazardous Waste Remedial Action Program). 1994. Loring Air Force Base. Ecological Risk Assessment Methodology.

[f] Sample, B.E., D.M. Opresko, G.W. Suter II. 1996. *Toxicological Benchmarks for Wildlife.* Lockheed Martin Energy Systems, Inc. Oak Ridge, Tn. 37381

[g] Schwarzenbach, R.E., P.M. Gschwend, D.M. Imboden. 1993. Environmental Organic Chemistry. John Wiley & Sons, New York.

[h] United States Department of Agriculture, Agricultural Research Service (ARS) 1999. Remote Sensing and Modeling Lab. 10300 Baltimore Ave. Bldg. 007. Beltsville, MD. 20705.

[i] Russon, C.L., S. Bradbury, S. Broderius. 1996. Environmental Toxicology and Chemistry. V. 16. No. 5, pp.948-967. *Predicting Modes of Toxic Action from chemical* Structure: Acute Toxicity in the Fathead Minnow (*pimephales Promelas*).

[j] Howard, Philip, H. 1990. *Handbook of Environmental Fate and Exposure Data for Organic Chemicals VI.* Lewis Publishers, Chelsea, Michigan.

[k] EPA. 1995c. National Primary Drinking Water Regulations; Contaminant Specific Fact Sheets. USEPA Ofice of Water. EPA 811-F-95-004-T.

U.S. EPA 1994b. Draft Report-Chemical Properties for Soil Screening Levels. Prepared for the OERR. Washington, D.C. July 26.

Appendix Table N-6. Data/Media Evaluation for Frequency of Detection, Background Comparison, and PBT Compound Identification for Surface Soil (0-1 ft bgs) at Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	Site background (mg/kg)	Is maximum detect > background[b]?	COPEC[c]?	Justification
Inorganics										
Aluminum	7429-90-5	60/ 60	100	1.72E+04	--	no	1.77E+04	no	no	Not a COPEC per maximum detect < background and not a PBT compound
Antimony	7440-36-0	15/ 60	25	7.44E+01	--	no	9.60E-01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Arsenic	7440-38-2	60/ 60	100	2.71E+01	--	no	1.54E+01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Barium	7440-39-3	60/ 60	100	1.07E+03	--	no	8.84E+01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Beryllium	7440-41-7	60/ 60	100	1.50E+00	--	no	8.80E-01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Cadmium	7440-43-9	31/ 60	52	4.00E+00	--	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect > 5%, and no background
Calcium	7440-70-2	60/ 60	100	3.98E+04	--	no	1.58E+04	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Chromium	7440-47-3	60/ 60	100	8.89E+01	--	no	1.74E+01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Chromium, hexavalent	18540-29-9	60/ 60	100	6.80E+00	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Cobalt	7440-48-4	60/ 60	100	3.68E+01	--	no	1.04E+01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Copper	7440-50-8	60/ 60	100	5.59E+02	--	no	1.77E+01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Iron	7439-89-6	60/ 60	100	1.10E+05	--	no	2.31E+04	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Lead	7439-92-1	60/ 60	100	8.87E+02	--	yes	2.61E+01	yes	**yes**	background
Magnesium	7439-95-4	60/ 60	100	9.85E+03	--	no	3.03E+03	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Manganese	7439-96-5	60/ 60	100	2.31E+03	--	no	1.45E+03	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Mercury	7487-94-6	12/ 60	20	1.20E+00	--	yes	3.60E-02	yes	**yes**	background
Nickel	7440-02-0	60/ 60	100	8.54E+01	--	no	2.11E+01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Potassium	7440-09-7	60/ 60	100	2.66E+03	--	no	9.27E+02	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Selenium	7782-49-2	34/ 60	57	7.90E+00	--	no	1.40E+00	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Silver	7440-22-4	1/ 60	2	2.60E-01	--	no	no data	yes	no	Not COPEC per freq of detect < 5% and not being a PBT compound
Sodium	7440-23-5	55/ 60	92	6.87E+02	--	no	1.23E+02	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Vanadium	7440-62-2	60/ 60	100	3.60E+01	--	no	3.11E+01	yes	**yes**	COPEC per frequency of detect > 5% and maximum detect > background
Zinc	7440-66-6	60/ 60	100	1.33E+03	--	yes	6.18E+01	yes	**yes**	background
Organics-Explosives										
1,3,5-Trinitrobenzene	99-35-4	6/ 60	10	1.70E+00	1.18E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
2,4,6-Trinitrotoluene	118-96-7	11/ 60	18	9.90E+01	1.60E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
2,4-Dinitrotoluene	121-14-2	4/ 60	7	4.00E-01	1.98E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
2,6-Dinitrotoluene	606-20-2	2/ 60	3	1.30E+00	1.72E+00	no	no data	yes	no	Not a COPEC per freq of detect <= 5% and not a PBT compound
2-Amino-4,6-Dinitrotoluene	35572-78-2	9/ 60	15	1.20E+01	1.94E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
4-Amino-2,6-Dinitrotoluene	19406-51-0	9/ 60	15	9.70E+00	No Kow	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Nitrobenzene	98-95-3	4/ 60	7	8.30E-02	1.83E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Nitrocellulose	9004-70-0	6/ 8	75	1.50E+02	No Kow	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
RDX	121-82-4	1/ 60	2	3.30E-01	8.70E-01	no	no data	yes	no	Not a COPEC per frequency of detect <= 5% and not a PBT compound
Organics-Pesticides/PCBs										
4,4'-DDE	72-55-9	2/ 8	25	3.70E-04	6.26E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Organics-Semivolatiles										
Benzo(a)anthracene	56-55-3	1/ 8	12	1.90E-01	5.70E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Benzo(a)pyrene	50-32-8	1/ 8	12	8.40E-02	6.11E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Benzo(b)fluoranthene	205-99-2	1/ 8	12	2.60E-01	6.10E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Benzo(k)fluoranthene	207-08-9	1/ 8	12	8.50E-02	6.10E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background

Appendix Table N-6. Data/Media Evaluation for Frequency of Detection, Background Comparison, and PBT Compound Identification for Surface Soil (0-1 ft bgs) at Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	Site background (mg/kg)	Is maximum detect > background[b]?	COPEC[c]?	Justification
Chrysene	218-01-9	1/ 8	12	3.70E-01	5.70E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Di-n-butylphthalate	84-74-2	1/ 5	20	2.40E-01	4.61E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Fluoranthene	206-44-0	2/ 8	25	8.70E-01	5.12E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Pyrene	129-00-0	1/ 8	12	6.40E-01	5.13E+00	yes	no data	yes	**yes**	COPEC per PBT compound, frequency of detect >5%, and no background
Organics-Volatiles										
Acetone	67-64-1	1/ 4	25	5.10E-03	-2.40E-01	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Carbon disulfide	75-15-0	1/ 8	12	6.90E-02	2.00E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Methylene chloride	75-09-2	1/ 4	25	2.70E-02	1.25E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Tetrachloroethene	127-48-4	2/ 8	25	4.90E-03	2.88E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background

PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)
bgs = below ground surface
COI = chemical of interest
CAS = Chemical Abstract Service
Log Kow = Log of octanol-water partition coefficient (Kow)
[a] "yes" = COI meets the criterion for being a PBT compound; else "no"
[b] "yes" = maximum detect is > than the background value; else "no"
COPEC = chemical of potential ecological concern
[c] **"yes"** = COI frequency of detection is > 5% and maximum detect exceeds the background value and/or the COI is a PBT; else "no"
"--" = not applicable, Kow applies only to organic compounds
PCBs = polychlorinated biphenyls

Appendix Table N-7. Data/Media Evaluation for Frequency of Detection, Background Comparison, and PBT Identification for Subsurface Soil (1-3 ft bgs) at Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	Site background (mg/kg)	Is maximum detect > background[b]?	COPEC[c]?	Justification
Inorganics										
Aluminum	7429-90-5	37/ 37	100	2.09E+04	--	no	1.95E+04	yes	**yes**	detect > background
Antimony	7440-36-0	2/ 37	5	1.90E+00	--	no	9.60E-01	yes	**yes**	detect > background
Arsenic	7440-38-2	36/ 37	97	2.46E+01	--	no	1.98E+01	yes	**yes**	detect > background
Barium	7440-39-3	37/ 37	100	1.51E+02	--	no	1.24E+02	yes	**yes**	detect > background
Beryllium	7440-41-7	37/ 37	100	1.20E+00	--	no	8.80E-01	yes	**yes**	detect > background
Cadmium	7440-43-9	10/ 37	27	7.20E-01	--	yes	no data	yes	**yes**	and no background data
Calcium	7440-70-2	37/ 37	100	3.51E+04	--	no	3.55E+04	no	no	a PBT compound
Chromium	7440-47-3	37/ 37	100	2.83E+02	--	no	2.72E+01	yes	**yes**	detect > background
Chromium, hexavalent	18540-29-9	37/ 37	100	7.90E+00	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Cobalt	7440-48-4	37/ 37	100	2.25E+01	--	no	2.32E+01	no	no	a PBT compound
Copper	7440-50-8	37/ 37	100	2.82E+01	--	no	3.23E+01	no	no	a PBT compound
Iron	7439-89-6	37/ 37	100	4.08E+04	--	no	3.52E+04	yes	**yes**	detect > background
Lead	7439-92-1	37/ 37	100	1.16E+02	--	yes	1.91E+01	yes	**yes**	maximum detect > background
Magnesium	7439-95-4	37/ 37	100	9.08E+03	--	no	8.79E+03	yes	**yes**	detect > background
Manganese	7439-96-5	37/ 37	100	9.78E+02	--	no	3.03E+03	no	no	a PBT compound
Mercury	7487-94-6	1/ 37	3	7.60E-01	--	yes	4.40E-02	yes	**yes**	background
Nickel	7440-02-0	37/ 37	100	3.74E+01	--	no	6.07E+01	no	no	a PBT compound
Potassium	7440-09-7	37/ 37	100	3.12E+03	--	no	3.35E+03	no	no	a PBT compound
Selenium	7782-49-2	24/ 37	65	3.10E+00	--	no	1.50E+00	yes	**yes**	detect > background
Sodium	7440-23-5	36/ 37	97	1.76E+02	--	no	1.45E+02	yes	**yes**	detect > background
Vanadium	7440-62-2	37/ 37	100	4.03E+01	--	no	3.76E+01	yes	**yes**	detect > background
Zinc	7440-66-6	37/ 37	100	1.56E+02	--	yes	9.33E+01	yes	**yes**	and maximum detect > background
Organics-Explosives										
Nitrobenzene	98-95-3	8/ 37	22	1.00E-01	1.83E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Nitrocellulose	9004-70-0	4/ 5	80	1.10E+02	No Kow	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Organics-Volatiles										
Carbon disulfide	75-15-0	2/ 5	40	8.70E-01	2.00E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Methylene chloride	75-09-2	2/ 3	67	1.80E-01	1.25E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Trichloroethene	79-01-6	1/ 5	20	2.80E-03	2.71E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background

PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)
bgs = below ground surface
COI = chemical of interest
CAS = Chemical Abstract Service
Log Kow = Log of octanol-water partition coefficient (Kow)
[a] "yes" = COI meets the criterion for being a PBT compound; else "no"
[b] "yes" = maximum detect is > than the background value; else "no"
COPEC = chemical of potential ecological concern
[c] **"yes"** = COI frequencey of detection is > 5% and maximum detect exceeds the background value and/or the COI is a PBT; else "no"
"--" = not applicable, Kow applies only to organic compounds

Appendix Table N-8. Data/Media Evaluation for Frequency of Detection, Sediment Reference Values and Background Comparison, and PBT Compound Identification for Sediment at the Large Ponds, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	EOLP SRV (mg/kg)	Is maximum detect > SRVb?	Site background (mg/kg)	Is maximum detect > backgroundc?	COPEC[d]?	Justification
Inorganics												
Aluminum	7429-90-5	17/ 17	100	1.60E+04	--	no	2.90E+04	no	1.39E+04	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Antimony	7440-36-0	14/ 17	82	1.28E+02	--	no	1.30E+00	yes	no data	yes	**yes**	background
Arsenic	7440-38-2	17/ 17	100	3.24E+01	--	no	2.50E+01	yes	1.95E+01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Barium	7440-39-3	17/ 17	100	9.76E+02	--	no	1.90E+02	yes	1.23E+02	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Beryllium	7440-41-7	16/ 17	94	1.10E+00	--	no	8.00E-01	yes	3.80E-01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Cadmium	7440-43-9	14/ 17	100	1.89E+01	--	yes	7.90E-01	yes	no data	yes	**yes**	COPEC per PBT, freq of detect > 5%, also maximum detect is > SRV
Calcium	7440-70-2	17/ 17	100	5.55E+04	--	no	2.10E+04	yes	5.51E+03	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Chromium	7440-47-3	17/ 17	100	1.08E+02	--	no	2.90E+01	yes	1.81E+01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Chromium, hexavalent	18540299	13/ 17	76	3.30E+01	--	no	2.90E+01	yes	1.81E+01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Cobalt	7440-48-4	17/ 17	100	1.80E+01	--	no	1.20E+01	yes	9.10E+00	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Copper	7440-50-8	17/ 17	100	6.60E+02	--	no	3.20E+01	yes	2.76E+01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Iron	7439-89-6	17/ 17	100	1.38E+05	--	no	4.10E+04	yes	2.82E+04	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Lead	7439-92-1	17/ 17	100	1.49E+03	--	yes	4.70E+01	yes	2.74E+01	yes	**yes**	background
Magnesium	7439-95-4	17/ 17	100	8.59E+03	--	no	7.10E+03	yes	2.76E+03	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Manganese	7439-96-5	17/ 17	100	8.72E+02	--	no	1.50E+03	no	1.95E+03	no	no	PBT
Mercury	7487-94-6	17/ 17	100	3.50E+01	--	yes	1.20E-01	yes	5.90E-02	yes	**yes**	background
Nickel	7440-02-0	17/ 17	100	8.05E+01	--	no	3.30E+01	yes	1.77E+01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Potassium	7440-09-7	17/ 17	100	2.14E+03	--	no	6.80E+03	no	1.95E+03	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Selenium	7782-49-2	12/ 17	70	8.20E+00	--	no	1.70E+00	yes	1.70E+00	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Silver	7440-22-4	16/ 17	94	1.24E+01	--	no	4.30E-01	yes	no data	yes	**yes**	background
Sodium	7440-23-5	15/ 17	88	8.14E+02	--	no	No SRV	No SRV	1.12E+02	yes	**yes**	SRV
Vanadium	7440-62-2	17/ 17	100	2.80E+01	--	no	4.00E+01	no	2.61E+01	yes	no	Not a COPEC per maximum detect <SRV and not a PBT
Zinc	7440-66-6	17/ 17	100	3.62E+03	--	yes	1.60E+02	yes	5.32E+02	yes	**yes**	COPEC per PBT and freq of detect >5%
Organics-Explosives												
2,4,6-Trinitrotoluene	118-96-7	2/ 17	12	3.00E-01	1.60E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
2-Amino-4,6-Dinitrotoluene	35572-78-2	1/ 17	6	7.30E-02	1.94E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
4-Amino-2,6-Dinitrotoluene	19406-51-0	3/ 17	18	3.90E-01	No Kow	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
HMX	2691-41-0	1/ 17	6	1.60E-01	No Kow	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
Nitrobenzene	98-95-3	4/ 17	24	1.10E-01	1.83E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
Nitrocellulose	9004-70-0	10/ 17	59	5.50E+01	No Kow	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
Nitroglycerin	55-63-0	1/ 15	7	4.90E+01	1.62E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
Organics-Pesticides/PCBs												
4,4'-DDD	72-54-8	2/ 17	12	2.70E-03	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
4,4'-DDE	72-55-9	2/ 17	12	6.60E-04	6.26E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Dieldrin	60-57-1	2/ 17	12	8.80E-04	5.37E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Endrin	72-20-8	1/ 17	6	7.10E-04	5.06E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Endrin aldehyde	7421-93-4	1/ 17	6	1.80E-03	3.14E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Methoxychlor	72-43-5	2/ 17	12	3.00E-03	5.08E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Organics-Semivolatiles												
2-Methylnaphthalene	91-57-6	2/ 17	12	5.10E-02	-1.90E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect >5% and no SRV or background
Anthracene	120-12-7	1/ 17	6	2.30E-01	4.55E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Benzo(a)anthracene	56-55-3	5/ 17	29	2.10E+00	5.70E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Benzo(a)pyrene	50-32-8	5/ 17	29	2.00E+00	6.11E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Benzo(b)fluoranthene	205-99-2	5/ 17	29	2.30E+00	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Benzo(g,h,i)perylene	191-24-2	3/ 17	18	1.20E+00	6.60E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Benzo(k)fluoranthene	207-08-9	2/ 17	12	9.50E-01	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Bis(2-ethylhexyl)phthalate	117-81-7	2/ 17	12	1.00E-01	7.60E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Carbazole	86-74-8	1/ 17	6	1.10E-01	3.76E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Chrysene	218-01-9	5/ 17	29	1.30E+00	5.70E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Fluoranthene	206-44-0	6/ 17	35	3.20E+00	5.12E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background

Appendix Table N-8. Data/Media Evaluation for Frequency of Detection, Sediment Reference Values and Background Comparison, and PBT Compound Identification for Sediment at the Large Ponds, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	EOLP SRV (mg/kg)	Is maximum detect > SRVb?	Site background (mg/kg)	Is maximum detect > backgroundc?	COPEC[d]?	Justification
Indeno(1,2,3-cd)pyrene	193-39-5	3/ 17	18	1.00E+00	6.92E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Naphthalene	91-20-3	1/ 17	6	1.20E-01	3.36E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Phenanthrene	85-01-8	5/ 17	29	6.80E-01	4.55E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Pyrene	129-00-0	5/ 17	29	2.30E+00	5.13E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Organics-Volatiles												
2-Butanone	78-93-3	9/ 17	53	4.30E-02	2.90E-01	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Acetone	67-64-1	3/ 17	18	6.40E-02	-2.40E-01	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Carbon disulfide	75-15-0	1/ 17	6	2.90E-03	2.00E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Methylene chloride	75-09-2	6/ 17	35	3.70E-02	1.25E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Toluene	108-88-3	1/ 17	6	5.60E-03	2.75E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background

COI = chemical of interest

"--" = not applicable, Kow applies only to organic compounds

CAS = Chemical Abstract Service

Log Kow = Log of octanol-water partition coefficient (Kow)

PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)

EOLP = Erie Ontario Lake Plain ecoregion (Ohio EPA 2003)

SRV = sediment reference value (Ohio EPA 2003)

COPEC = chemical of potential ecological concern

[a] "yes" = COI meets the criterion for being a PBT compound; else "no"

[b] "yes" = COI maximum detect detect exceeds the SRV; else "no"

[c] "yes" = maximum detect detect is > than the background value; else "no"

[d] "yes" = COI frequencey of detection is > 5% and maximum detect detect exceeds the SRV or background value and/or the COI is a PBT; else "no"

Appendix Table N-9. Data/Media Evaluation for Frequency of Detection, Sediment Reference Values and Background Comparison, and PBT Compound Identification for Sediment at the Drainage Ditch, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	EOLP SRV (mg/kg)	maximum detect > SRV[b]?	Site background (mg/kg)	Is maximum detect > background[c]?	COPEC[d]?	Justification
Inorganics												
Aluminum	7429-90-5	7/ 7	100	1.69E+04	--	no	2.90E+04	no	1.39E+04	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Antimony	7440-36-0	2/ 7	29	1.15E+01	--	no	1.30E+00	yes	no data	yes	**yes**	background
Arsenic	7440-38-2	7/ 7	100	3.33E+01	--	no	2.50E+01	yes	1.95E+01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Barium	7440-39-3	7/ 7	100	5.07E+02	--	no	1.90E+02	yes	1.23E+02	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Beryllium	7440-41-7	7/ 7	100	1.10E+00	--	no	8.00E-01	yes	3.80E-01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Cadmium	7440-43-9	5/ 7	71	2.30E+00	--	yes	7.90E-01	yes	no data	yes	**yes**	background
Calcium	7440-70-2	7/ 7	100	7.78E+03	--	no	2.10E+04	no	5.51E+03	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Chromium	7440-47-3	7/ 7	100	2.14E+01	--	no	2.90E+01	no	1.81E+01	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Chromium, hexavalent	18540-29-9	2/ 7	28	1.90E+00	--	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Cobalt	7440-48-4	7/ 7	100	1.58E+01	--	no	1.20E+01	yes	9.10E+00	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Copper	7440-50-8	7/ 7	100	6.32E+01	--	no	3.20E+01	yes	2.76E+01	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Iron	7439-89-6	7/ 7	100	5.52E+04	--	no	4.10E+04	yes	2.82E+04	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Lead	7439-92-1	7/ 7	100	8.00E+01	--	yes	4.70E+01	yes	2.74E+01	yes	**yes**	background
Magnesium	7439-95-4	7/ 7	100	3.60E+03	--	no	7.10E+03	no	2.76E+03	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Manganese	7439-96-5	7/ 7	100	4.10E+03	--	no	1.50E+03	yes	1.95E+03	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Mercury	7487-94-6	6/ 7	86	8.00E-01	--	yes	1.20E-01	yes	5.90E-02	yes	**yes**	background
Nickel	7440-02-0	7/ 7	100	3.02E+01	--	no	3.30E+01	no	1.77E+01	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Potassium	7440-09-7	7/ 7	100	1.92E+03	--	no	6.80E+03	no	1.95E+03	no	no	Not a COPEC per maximum detect < SRV and not a PBT
Selenium	7782492	1/ 7	14	2.30E+00	--	no	1.70E+00	yes	1.70E+00	yes	**yes**	COPEC per freq of detect > 5%, maximum detect > SRV and background
Silver	7440-22-4	1/ 7	14	5.10E-01	--	no	4.30E-01	yes	no data	yes	**yes**	background
Sodium	7440-23-5	7/ 7	100	2.85E+02	--	no	No SRV	No SRV	1.12E+02	yes	**yes**	background
Vanadium	7440-62-2	7/ 7	100	3.07E+01	--	no	4.00E+01	no	2.61E+01	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Zinc	7440-66-6	7/ 7	100	5.44E+02	--	yes	1.60E+02	yes	5.32E+02	yes	**yes**	background
Organics-Explosives												
2,4,6-Trinitrotoluene	118-96-7	3/ 7	43	6.00E-02	1.60E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
3-Nitrotoluene	99-08-1	2/ 7	28	1.50E-01	2.45E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Nitrobenzene	98-95-3	1/ 7	14	7.10E-02	1.83E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Nitrocellulose	9004-70-0	5/ 7	71	1.00E+02	No Kow	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Organics-Pesticides/PCBs												
4,4'-DDD	72-54-8	2/ 7	28	1.30E-02	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
4,4'-DDE	72-55-9	2/ 7	28	1.50E-03	6.26E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Methoxychlor		1/ 7	14	2.30E-03	5.08E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Organics-Semivolatiles												
2-Methylnaphthalene	91-57-6	2/ 7	28	1.60E+00	-1.90E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect >5%, and no SRV or background
Acenaphthylene	208-96-8	1/ 7	14	1.10E-01	4.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Anthracene	120-12-7	1/ 7	14	4.60E-01	4.55E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Benzo(a)anthracene	56-55-3	2/ 7	28	1.10E+00	5.70E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Benzo(a)pyrene	50-32-8	2/ 7	28	8.40E-01	6.11E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Benzo(b)fluoranthene	205-99-2	2/ 7	28	9.80E-01	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Benzo(g,h,i)perylene	191-24-2	1/ 7	14	3.90E-01	6.60E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Benzo(k)fluoranthene	207-08-9	1/ 7	14	2.50E-01	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Carbazole	86-74-8	1/ 7	14	2.30E-01	3.76E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Chrysene	218-01-9	2/ 7	28	8.90E-01	5.70E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Dibenzofuran	132-64-9	2/ 7	28	4.30E-01	4.12E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Fluoranthene	206-44-0	2/ 7	28	2.40E+00	5.12E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Fluorene	86-73-7	1/ 7	14	1.20E-01	4.21E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background

Appendix Table N-9. Data/Media Evaluation for Frequency of Detection, Sediment Reference Values and Background Comparison, and PBT Compound Identification for Sediment at the Drainage Ditch, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	EOLP SRV (mg/kg)	maximum detect > SRV[b]?	Site background (mg/kg)	Is maximum detect > background[c]?	COPEC[d]?	Justification
Indeno(1,2,3-cd)pyrene	193-39-5	2/ 7	28	4.00E-01	6.92E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Naphthalene	91-20-3	2/ 7	28	9.70E-01	3.36E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Phenanthrene	85-01-8	2/ 7	28	1.70E+00	4.55E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Pyrene	129-00-0	2/ 7	28	1.50E+00	5.13E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT and freq of detect >5%, and no SRV or background
Organics-Volatiles												
2-Butanone	78-93-3	2/ 7	28	2.60E-02	2.90E-01	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Carbon disulfide	75-15-0	2/ 7	28	3.60E-03	2.00E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Toluene	108-88-3	1/ 7	14	2.80E-03	2.75E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Trichloroethene	79-01-6	1/ 7	14	2.80E-03	2.71E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background

COI = chemical of interest
CAS = Chemical Abstract Service
Log Kow = Log of octanol-water partition coefficient (Kow)
PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)
EOLP = Erie Ontario Lake Plain ecoregion (Ohio EPA 2003)
SRV = sediment reference value (Ohio EPA 2003)
COPEC = chemical of potential ecological concern
[a] "yes" = COI meets the criterion for being a PBT compound; else "no"
[b] "yes" = COI maximum detect exceeds the SRV; else "no"
[c] "yes" = maximum detect is > than the background value; else "no"
[d] **"yes"** = COI frequencey of detection is > 5% and maximum detect exceeds the SRV or background value and/or the COI is a PBT; else "no"
"--" = not applicable, Kow applies only to organic compounds
PCBs = polychlorinated biphenyls

Appendix Table N-10. Data/Media Evaluation for Frequency of Detection, Sediment Reference Values and Background Comparison, and PBT Compound Identification for Sediment at the Small Basins, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	EOLP SRV (mg/kg)	Is maximum detect > SRVb?	Site background (mg/kg)	Is maximum detect > backgroundc?	COPEC[d]?	Justification
Inorganics												
Aluminum	7429-90-5	16/ 16	100	2.21E+04	--	no	2.90E+04	no	1.39E+04	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Arsenic	7440-38-2	16/ 16	100	1.75E+01	--	no	2.50E+01	no	1.95E+01	no	no	Not a COPEC per maximum detect < SRV and not a PBT
Barium	7440-39-3	16/ 16	100	2.28E+02	--	no	1.90E+02	yes	1.23E+02	yes	**yes**	background
Beryllium	7440-41-7	16/ 16	100	1.20E+00	--	no	8.00E-01	yes	3.80E-01	yes	**yes**	background
Cadmium	7440-43-9	13/ 16	81	9.20E-01	--	yes	7.90E-01	yes	no data	yes	**yes**	and no background
Calcium	7440-70-2	16/ 16	100	3.70E+03	--	no	2.10E+04	no	5.51E+03	no	no	Not a COPEC per maximum detect < SRV and not a PBT
Chromium	7440-47-3	16/ 16	100	1.14E+03	--	no	2.90E+01	yes	1.81E+01	yes	**yes**	background
Chromium, hexavalent	18540-29-9	8/ 16	50	1.80E+01	--	no	2.90E+01	no	no data	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Cobalt	7440-48-4	16/ 16	100	1.78E+01	--	no	1.20E+01	yes	9.10E+00	yes	**yes**	background
Copper	7440-50-8	16/ 16	100	4.14E+01	--	no	3.20E+01	yes	2.76E+01	yes	**yes**	background
Iron	7439-89-6	16/ 16	100	4.74E+04	--	no	4.10E+04	yes	2.82E+04	yes	**yes**	background
Lead	7439-92-1	16/ 16	100	4.55E+02	--	yes	4.70E+01	yes	2.74E+01	yes	**yes**	background
Magnesium	7439-95-4	16/ 16	100	5.53E+03	--	no	7.10E+03	no	2.76E+03	yes	no	Not a COPEC per maximum detect < SRV and not a PBT
Manganese	7439-96-5	16/ 16	100	2.56E+03	--	no	1.50E+03	yes	1.95E+03	yes	**yes**	background
Mercury	7487-94-6	8/ 16	50	1.90E-01	--	yes	1.20E-01	yes	5.90E-02	yes	**yes**	background
Nickel	7440-02-0	16/ 16	100	3.34E+01	--	no	3.30E+01	yes	1.77E+01	yes	**yes**	background
Potassium	7440-09-7	16/ 16	100	3.68E+03	--	no	6.80E+03	no	no data	yes	no	PBT
Selenium	7782-49-2	2/ 16	12	2.20E+00	--	no	1.70E+00	yes	1.70E+00	yes	**yes**	background
Sodium	7440-23-5	15/ 16	94	1.91E+02	--	no	No SRV	No SRV	1.12E+02	yes	**yes**	SRV
Vanadium	7440-62-2	16/ 16	100	4.20E+01	--	no	4.00E+01	yes	2.61E+01	yes	**yes**	background
Zinc	7440-66-6	16/ 16	100	2.05E+02	--	yes	1.60E+02	yes	5.32E+02	no	**yes**	COPEC per PBT and freq of detect >5%, and maximum detect > SRV
Organics-Explosives												
1,3,5-Trinitrobenzene	99-35-4	1/ 16	6	9.80E-02	1.18E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
1,3-Dinitrobenzene	99-65-0	1/ 16	6	1.10E-01	1.49E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
2,6-Dinitrotoluene	606-20-2	1/ 16	6	8.50E-02	1.72E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
3-Nitrotoluene	99-08-1	1/ 16	6	7.80E-02	2.45E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
HMX	2691-41-0	1/ 16	6	1.10E-01	No Kow	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
Nitrocellulose	9004-70-0	8/ 16	50	1.10E+02	No Kow	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5%, and no SRV or background
Organics-Pesticides/PCBs												
4,4'-DDD	72-54-8	1/ 16	6	8.50E-04	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
4,4'-DDE	72-55-9	2/ 16	12	7.90E-04	6.26E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
4,4'-DDT	50-29-3	1/ 16	6	1.60E-03	6.53E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Dieldrin	60-57-1	1/ 16	6	5.50E-04	5.37E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Endosulfan I	959-98-8	1/ 16	6	5.20E-04	3.83E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect >5%, and no SRV or background
Endrin	72-20-8	1/ 16	6	5.50E-04	5.06E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Heptachlor epoxide	1024-57-3	1/ 16	6	5.70E-04	5.40E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Lindane	58-89-9	1/ 16	6	8.60E-04	3.73E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Methoxychlor	72-43-5	1/ 16	6	2.20E-03	5.08E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
beta-BHC	319-85-7	1/ 16	6	6.60E-04	3.81E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Organics-Semivolatiles												
2-Methylnaphthalene	91-57-6	1/ 16	6	1.10E-01	-1.90E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect >5% and no SRV or background
4-Methylphenol	106-44-5	2/ 16	12	5.10E-01	1.90E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect >5%, and no SRV or background
Benzo(a)anthracene	56-55-3	5/ 16	31	1.20E-01	5.70E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Benzo(a)pyrene	50-32-8	9/ 16	56	1.10E-01	6.11E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background

Appendix Table N-10. Data/Media Evaluation for Frequency of Detection, Sediment Reference Values and Background Comparison, and PBT Compound Identification for Sediment at the Small Basins, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	maximum detect (mg/kg)	Log Kow	Is the COI a PBT[a]?	EOLP SRV (mg/kg)	Is maximum detect > SRVb?	Site background (mg/kg)	Is maximum detect > backgroundc?	COPEC[d]?	Justification
Benzo(b)fluoranthene	205-99-2	9/ 16	56	1.60E-01	6.10E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Bis(2-ethylhexyl)phthalate	117-81-7	2/ 16	12	7.60E-02	7.60E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Chrysene	218-01-9	8/ 16	50	1.10E-01	5.70E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Fluoranthene	206-44-0	10/ 16	62	1.90E-01	5.12E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Indeno(1,2,3-cd)pyrene	193-39-5	1/ 16	6	6.60E-02	6.92E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Naphthalene	91-20-3	1/ 16	6	8.30E-02	3.36E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Phenanthrene	85-01-8	4/ 16	25	1.40E-01	4.55E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Pyrene	129-00-0	7/ 16	44	2.00E-01	5.13E+00	yes	No SRV	No SRV	no data	yes	**yes**	COPEC per PBT, freq of detect >5%, and no SRV or background
Organics-Volatiles												
Acetone	67-64-1	2/ 16	12	3.60E-02	-2.40E-01	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background
Toluene	108-88-3	4/ 16	25	9.00E-02	2.75E+00	no	No SRV	No SRV	no data	yes	**yes**	COPEC per freq of detect > 5% and no SRV or background

COI = chemical of interest

"--" = not applicable, Kow applies only to organic compounds

CAS = Chemical Abstract Service

Log Kow = Log of octanol-water partition coefficient (Kow)

PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)

EOLP = Erie Ontario Lake Plain ecoregion (Ohio EPA 2003)

SRV = sediment reference value (Ohio EPA 2003)

COPEC = chemical of potential ecological concern

[a] "yes" = COI meets the criterion for being a PBT compound; else "no"

[b] "yes" = COI maximum detect detect exceeds the SRV; else "no"

[c] "yes" = maximum detect detect is > than the background value; else "no"

[d] "yes" = COI frequencey of detection is > 5% and maximum detect detect exceeds the SRV or background value and/or the COI is a PBT; else "no"

Appendix Table N-11. Data/Media Evaluation for Frequency of Detection, Background Comparison, and PBT Compound Identification for Surface Water at the Large Ponds, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/L)	Log Kow	Is the COI a PBT[a]?	Site background (mg/L)	Is maximum detect > background[b]?	COPEC[c]?	Justification
Inorganics										
Barium	7440-39-3	4/ 4	100	6.78E-02	--	no	4.75E-02	yes	**yes**	background
Calcium	7440-70-2	4/ 4	100	4.46E+01	--	no	4.14E+01	yes	**yes**	background
Copper	7440-50-8	2/ 4	50	6.20E-03	--	no	7.90E-03	no	no	Not a COPEC per maximum detect < background and not a PBT
Iron	7439-89-6	4/ 4	100	2.04E-01	--	no	2.56E+00	no	no	Not a COPEC per maximum detect < background and not a PBT
Magnesium	7439-95-4	4/ 4	100	3.90E+00	--	no	1.08E+01	no	no	Not a COPEC per maximum detect < background and not a PBT
Manganese	7439-96-5	4/ 4	100	1.55E-02	--	no	3.91E-01	no	no	Not a COPEC per maximum detect < background and not a PBT
Potassium	7440-09-7	4/ 4	100	2.49E+00	--	no	3.17E+00	no	no	Not a COPEC per maximum detect < background and not a PBT
Sodium	7440-23-5	4/ 4	100	2.24E+00	--	no	2.13E+01	no	no	Not a COPEC per maximum detect < background and not a PBT
Zinc	7440-66-6	2/ 4	50	2.51E-02	--	yes	4.20E-02	no	**yes**	background
Organics-Explosives										
Nitrocellulose	9004-70-0	4/ 4	100	1.10E+00	No Kow	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no Kow or background
Organics-Semivolatiles										
Bis(2-ethylhexyl)phthalate	117-81-7	1/ 4	25	2.90E-03	7.60E+00	yes	no data	yes	**yes**	COPEC per PBT, frequency of detect >5%, and no background
Organics-Volatiles										
Methylene chloride	75-09-2	2/ 4	50	4.70E-03	1.25E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background

COI = chemical of interest
CAS = Chemical Abstract Service
Log Kow = Log of octanol-water partition coefficient (Kow)
PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)
COPEC = chemical of potential ecological concern
[a] "yes" = COI meets the criterion for being a PBT compound; else "no"
[b] "yes" = maximum detect is > than the background value; else "no"
[c] "**yes**" = COI frequencey of detection is > 5% and maximum detect exceeds the background value and/or the COI is a PBT; else "no"
"--" = not applicable, Kow applies only to organic compounds

Appendix Table N-12. Data/Media Evaluation for Frequency of Detection, Background Comparison, and PBT Compound Identification for Surface Water at the Drainage Ditch, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/L)	Log Kow	Is the COI a PBT[a]?	Site background (mg/L)	Is maximum detect > background[b]?	COPEC[c]?	Justification
Inorganics										
Aluminum	7429-90-5	1/ 1	100	2.27E+00	--	no	3.37E+00	no	no	Not a COPEC per maximum detect < background and not a PBT
Barium	7440-39-3	1/ 1	100	1.03E+00	--	no	4.75E-02	yes	**yes**	background
Calcium	7440-70-2	1/ 1	100	3.78E+01	--	no	4.14E+01	no	no	Not a COPEC per maximum detect < background and not a PBT
Chromium	7440-47-3	1/ 1	100	3.70E-03	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Cobalt	7440-48-4	1/ 1	100	2.10E-03	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Copper	7440-50-8	1/ 1	100	4.20E-03	--	no	7.90E-03	no	no	Not a COPEC per maximum detect < background and not a PBT
Iron	7439-89-6	1/ 1	100	1.86E+01	--	no	2.56E+00	yes	**yes**	background
Magnesium	7439-95-4	1/ 1	100	7.29E+00	--	no	1.08E+01	no	no	Not a COPEC per maximum detect < background and not a PBT
Manganese	7439-96-5	1/ 1	100	1.10E+01	--	no	3.91E-01	yes	**yes**	background
Potassium	7440-09-7	1/ 1	100	2.57E+00	--	no	3.17E+00	no	no	Not a COPEC per maximum detect < background and not a PBT
Sodium	7440-23-5	1/ 1	100	3.66E+00	--	no	2.13E+01	no	no	Not a COPEC per maximum detect < background and not a PBT
Vanadium	7440-62-2	1/ 1	100	4.30E-03	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Zinc	7440-66-6	1/ 1	100	3.60E-01	--	yes	4.20E-02	yes	**yes**	background
Organics-Explosives										
Nitrocellulose	9004-70-0	1/ 1	100	6.10E-01	No Kow	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no Kow or background
Organics-Semivolatiles										
Bis(2-ethylhexyl)phthalate	117-81-7	1/ 1	100	1.70E-03	7.60E+00	yes	no data	yes	**yes**	COPEC per PBT, frequency of detect >5%, and no background
Organics-Volatiles										
Carbon disulfide	75-15-0	1/ 1	100	1.80E-03	2.00E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background

COI = chemical of interest
CAS = Chemical Abstract Service
Log Kow = Log of octanol-water partition coefficient (Kow)
PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)
COPEC = chemical of potential ecological concern

[a] "yes" = COI meets the criterion for being a PBT compound; else "no"

[b] "yes" = maximum detect is > than the background value; else "no"

[c] "**yes**" = COI frequencey of detection is > 5% and maximum detect exceeds the background value and/or the COI is a PBT; else "no"

"**--**" = not applicable, Kow applies only to organic compounds

Appendix Table N-13. Data/Media Evaluation for Frequency of Detection, Background Comparison, and PBT Compound Identification for Surface Water at the Small Basins, Fuse and Booster Quarry, Ravenna

Detected COI	CAS Registry Number	Frequency of detect	% results > detect limit	Maximum detect (mg/L)	Log Kow	Is the COI a PBT[a]?	Site background (mg/L)	Is maximum detect > background[b]?	COPEC[c]?	Justification
Inorganics										
Aluminum	7429-90-5	10/ 10	100	7.01E+00	--	no	3.37E+00	yes	**yes**	background
Arsenic	7440-38-2	1/ 10	10	1.97E-02	--	no	3.20E-03	yes	**yes**	background
Barium	7440-39-3	10/ 10	100	9.87E-02	--	no	4.75E-02	yes	**yes**	background
Beryllium	7440-41-7	1/ 10	10	7.70E-04	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Calcium	7440-70-2	10/ 10	100	2.84E+01	--	no	4.11E+01	no	no	compound
Chromium	7440-47-3	3/ 10	30	1.22E-02	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Chromium, hexavalent	18540-29-9	5/ 10	50	5.00E-02	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Cobalt	7440-48-4	8/ 10	80	1.73E-02	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Copper	7440-50-8	5/ 10	50	4.18E-02	--	no	7.90E-03	yes	**yes**	background
Iron	7439-89-6	10/ 10	100	2.45E+01	--	no	2.56E+00	yes	**yes**	background
Lead	7439-92-1	3/ 10	30	2.49E-02	--	yes	no data	yes	**yes**	compound
Magnesium	7439-95-4	10/ 10	100	9.22E+00	--	no	1.08E+01	no	no	compound
Manganese	7439-96-5	10/ 10	100	4.40E+00	--	no	3.91E-01	yes	**yes**	background
Nickel	7440-02-0	1/ 10	10	2.59E-02	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Potassium	7440-09-2	10/ 10	100	1.39E+01	--	no	3.17E+00	yes	**yes**	background
Sodium	7440-23-5	10/ 10	100	4.09E+00	--	no	2.13E+01	no	no	compound
Vanadium	7440-62-2	4/ 10	40	1.91E-02	--	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Zinc	7440-66-6	5/ 10	50	1.07E-01	--	yes	4.20E-02	yes	**yes**	and a PBT compound
Anions-Miscellaneous										
Perchlorate	7601-90-3	2/ 7	28	2.50E-02	--	no	no data	yes	**yes**	COPEC per frequency of detect >5% and no Log Kow or background
Organics-Explosives										
2-Amino-4,6-Dinitrotoluene	35572-78-2	1/ 10	10	6.80E-04	1.94E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
4-Amino-2,6-Dinitrotoluene	19406-51-0	1/ 10	10	2.00E-02	No Kow	no	no data	yes	**yes**	COPEC per frequency of detect >5% and no Log Kow or background
Nitrocellulose	9004-70-0	7/ 10	70	7.50E-01	No Kow	no	no data	yes	**yes**	COPEC per frequency of detect >5% and no Log Kow or background
Organics-Semivolatiles										
4-Methylphenol	106-44-5	4/ 10	40	1.70E-01	1.90E+00	no	no data	yes	**yes**	COPEC per frequency of detect >5% and no background
Bis(2-ethylhexyl)phthalate	117-81-7	9/ 10	90	1.10E-02	7.60E+00	yes	no data	yes	**yes**	COPEC per PBT, frequency of detect >5%, and no background
Phenol	108-95-2	3/ 10	30	1.20E-01	1.48E+00	no	no data	yes	**yes**	COPEC per frequency of detect >5% and no background
Organics-Volatiles										
2-Butanone	78-93-3	3/ 10	30	5.10E-03	2.90E-01	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Carbon disulfide	75-15-0	2/ 10	20	1.70E-03	2.00E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Styrene	100-42-5	1/ 10	10	1.10E-03	2.95E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background
Toluene	108-88-3	10/ 10	100	2.00E-02	2.75E+00	no	no data	yes	**yes**	COPEC per frequency of detect > 5% and no background

COI = chemical of interest

CAS = Chemical Abstract Service

Log Kow = Log of octanol-water partition coefficient (Kow)

PBT = persistent, bioaccumulative, and toxic compound (inorganics include cadmium, lead, mercury, and zinc; organics include Log Kow of at least 3.0)

COPEC = chemical of potential ecological concern

[a] "yes" = COI meets the criterion for being a PBT compound; else "no"

[b] "yes" = maximum detect is > than the background value; else "no"

[c] "**yes**" = COI frequencey of detection is > 5% and maximum detect exceeds the background value and/or the COI is a PBT; else "no"

"--" = not applicable, Kow applies only to organic compounds

Appendix Table N-14. Soil Ecological Screening Values For Level II Screen For Fuse and Booster Quarry at Ravenna, Ohio

Chemicals	CAS Registry Number	Soil Screening Values: Efroymson et al. (1997a) Preliminary Remediation Goals for Ecological Endpoints[a] Number (mg/kg)	Source	Screening Value for Earthworms and Soil Microorganisms (Efroymson et al. 1997b)[b]: Benchmarks for Earthworm Number (mg/kg)	Source	Benchmarks for soil microorganism Number (mg/kg)	Source	Soil Screening values for Plants (Efroymson et al. 1997c)[c] Number mg/kg	Source (Soil) (Solution) mg/L	Ecological Screening Level (ESL)[d] Number (mg/kg)	Source	Preferred Ecological Screening Value (ESV)[e] Number (mg/kg)	Source
Inorganics													
(Target Analyte List)													
Aluminum	7429-90-5	--		--		600	LOEC	50	Soil, LOEC	--		6.00E+02	LOEC
Antimony	7440-36-0	5	PRGs	--		--		5	Soil, LOEC	0.1423	ESL EPA Region 5 (2003)	5.00E+00	PRGs
Arsenic	7440-38-2	9.9	PRGs	60	LOEC	100	LOEC	10	Soil, NOEC	5.7	ESL EPA Region 5 (2003)	9.90E+00	PRGs
Barium	7440-39-3	283	PRGs	--		3000	LOEC	500	Soil, LOEC	1.04	ESL EPA Region 5 (2003)	2.83E+02	PRGs
Beryllium		10	PRGs							1.06	ESL EPA Region 5 (2003)	1.00E+01	PRGs
Bismuth	7440-69-9	--		--		--		20	No Soil, only Solution, LOEC	--		2.00E+01	No Soil, only Solution, LOEC
Boron	7440-42-8	0.5	PRGs	--		20	LOEC	0.5	Soil, LOEC	--		5.00E-01	PRGs
Bromine	7726-95-6	10	PRGs	--		--		10	Soil, LOEC	--		1.00E+01	PRGs
Cadmium	7440-43-9	4	PRGs	20	LOEC	20	LOEC	4	Soil, LOEC	0.00222	ESL EPA Region 5 (2003)	4.00E+00	PRGs
Calcium	7440-70-2	--		--		--		--		--		No ESV	No Source
Chromium	16065-83-1	0.4	PRGs	0.4	LOEC	10	NOEC	1	Soil, LOEC	0.4	ESL EPA Region 5 (2003)	4.00E-01	PRGs
Chromium, hexavalent	18540-29-9	0.4	PRGs	0.4	LOEC	10	NOEC	1	Soil, LOEC	--		4.00E-01	PRGs
Cobalt	7440-48-4	20	PRGs	--		1000	LOEC	20	Soil, LOEC	0.14033	ESL EPA Region 5 (2003)	2.00E+01	PRGs
Copper	7440-50-8	60	PRGs	60	LOEC	100	LOEC	100	Soil ,NOEC	5.4	ESL EPA Region 5 (2003)	1.39E+01	PPL (SAIC 2002)
Cyanide	57-12-5	--		--		--		--		1.33	ESL EPA Region 5 (2003)	1.08E+00	PPL (SAIC 2002)
Fluorine	7782-41-4	200	PRGs	--		30	LOEC	200	Soil, LOEC	--		2.00E+02	PRGs
Iodine	7553-56-2	4	PRGs	--		--		4	Soil, LOEC	--		4.00E+00	PRGs
Iron	7439-89-6	--		--		200	NOEC	10	No Soil, only Solution, LOEC	--		2.00E+02	NOEC
Lanthanum	7439-91-0	--		--		50	LOEC	--		--		5.00E+01	LOEC
Lead	7439-92-1	40.5	PRGs	500	NOEC	900	NOEC	50	Soil ,NOEC	0.05373	ESL EPA Region 5 (2003)	4.05E+01	PRGs
Lithium	7439-93-2	2	PRGs	--		10	LOEC	2	Soil, LOEC	--		2.00E+00	PRGs
Magnesium	7439-95-4	--		--		--		--		--		No ESV	No Source
Manganese	7439-96-5	--		--		100	LOEC	500	Soil, LOEC	--		1.00E+02	LOEC
Mercury	7439-97-6	0.00051	PRGs	0.1	LOEC	30	NOEC	0.3	Soil, LOEC	0.1	ESL EPA Region 5 (2003)	5.10E-04	PRGs
Molybdenum	7439-98-7	2	PRGs	--		200	LOEC	2	Soil, LOEC	--		2.00E+00	PRGs
Nickel	7440-02-0	30	PRGs	200	NOEC	90	LOEC	30	Soil ,NOEC	13.6	ESL EPA Region 5 (2003)	3.00E+01	PRGs
Nitrate/nitrite		--		--		--		--		--		No ESV	No Source
Potassium	7440-09-7	--		--		--		--		--		No ESV	No Source
Selenium	7782-49-2	0.21	PRGs	70	LOEC	100	LOEC	1	Soil, LOEC	0.02765	ESL EPA Region 5 (2003)	2.10E-01	PRGs
Silver	7440-22-4	2	PRGs	--		50	NOEC	2	Soil, LOEC	4.04	ESL EPA Region 5 (2003)	2.00E+00	PRGs
Sodium	7440-23-5	--		--		--		--		--		No ESV	No Source
Sulfide	18496-25-8	--		--		--		--		0.00358	ESL EPA Region 5 (2003)	3.58E-03	ESL EPA Region 5 (2003)
Technetium	7440-26-8	0.2	PRGs	--		--		0.2	Soil ,NOEC	--		2.00E-01	PRGs
Tellurium	13494-80-9	--		--		--		2	No Soil, only Solution, LOEC	--		2.00E+00	No Soil, only Solution, LOEC
Thallium	7440-28-0	1	PRGs	--		--		1	Soil, LOEC	0.05692	ESL EPA Region 5 (2003)	1.00E+00	PRGs
Tin	7440-31-5	50	PRGs	--		2000	LOEC	50	Soil, LOEC	7.62	ESL EPA Region 5 (2003)	5.00E+01	PRGs
Titanium	7440-32-6	--		--		1000	LOEC	0.06	No Soil, only Solution, LOEC	--		1.00E+03	LOEC
Tungsten	7440-33-7	--		--		400	NOEC	--		--		4.00E+02	NOEC
Uranium	7440-61-1	5	PRGs	--		--		5	Soil, NOEC	--		5.00E+00	PRGs
Vanadium	7440-62-2	2	PRGs	--		20	LOEC	2	Soil, LOEC	1.59	ESL EPA Region 5 (2003)	2.00E+00	PRGs
Zinc	7440-66-6	8.5	PRGs	200	LOEC	100	NOEC	50	Soil, NOEC	6.62	ESL EPA Region 5 (2003)	8.50E+00	PRGs
Organic Compounds													No Source
Acenaphthene	83-32-9	20	PRGs	--		--		20	Soil, LOEC	682		2.00E+01	PRGs
Acenaphthylene	208-96-8	--		--		--		--		682		6.82E+02	No Source
Acetone	67-64-1	--		--		--		--		2.5	ESL EPA Region 5 (2003)	2.50E+00	ESL EPA Region 5 (2003)
Acrylonitrile	107-13-1	--		--		1000	LOEC	--		1.37		1.00E+03	LOEC

Appendix Table N-14. Soil Ecological Screening Values For Level II Screen For Fuse and Booster Quarry at Ravenna, Ohio

Chemicals	CAS Registry Number	Soil Screening Values: Efroymson et al. (1997a) Preliminary Remediation Goals for Ecological Endpoints[a] Number (mg/kg)	Source	Screening Value for Earthworms and Soil Microorganisms (Efroymson et al. 1997b)[b]: Benchmarks for Earthworm Number (mg/kg)	Source	Benchmarks for soil microorganism Number (mg/kg)	Source	Soil Screening values for Plants (Efroymson et al. 1997c)[c] Number mg/kg (Soil) mg/L (Solution)	Source	Ecological Screening Level (ESL)[d] Number (mg/kg)	Source	Preferred Ecological Screening Value (ESV)[e] Number (mg/kg)	Source
Aldrin	309-00-2	--		--		--		--		0.00332		3.32E-03	No Source
4-Aminobiphenyl	92-67-1	--		--		--		--		0.00305	ESL EPA Region 5 (2003)	3.05E-03	ESL EPA Region 5 (2003)
2-Amino-4,6-dinitrotoluene	35572-78-2	--		--		--		--		--		No ESV	No Source
4-Amino-2,6-dinitrotoluene	19406-51-0	--		--		--		--		--		No ESV	No Source
Aniline	62-53-3	--		--		--		200	No Soil, only Solution, LOEC	0.05678	ESL EPA Region 5 (2003)	2.00E+02	No Soil, only Solution, LOEC
Anthracene	120-12-7	--		--		--		--		1480	ESL EPA Region 5 (2003)	1.48E+03	ESL EPA Region 5 (2003)
PCB-1016	12674-11-2	--		--		--		--		--		No ESV	No Source
Arochlor-1221	11104-28-2	--		--		--		--		--		No ESV	No Source
Arochlor-1232	11141-16-5	--		--		--		--		--		No ESV	No Source
Arochlor-1242	53469-21-9	--		--		--		--		--		No ESV	No Source
Arochlor-1248	12672-29-6	--		--		--		--		--		No ESV	No Source
PCB-1254	11097-69-1	--		--		--		--		--		No ESV	No Source
Arochlor-1260	11096-82-5	--		--		--		--		--		No ESV	No Source
Benzene	71-43-2	--		--		--		--		0.25462	ESL EPA Region 5 (2003)	2.55E-01	ESL EPA Region 5 (2003)
Benzo(a)anthracene	56-55-3	--		--		--		--		5.21	ESL EPA Region 5 (2003)	5.21E+00	ESL EPA Region 5 (2003)
Benzo(a)pyrene	50-32-8	--		--		--		--		1.52	ESL EPA Region 5 (2003)	1.52E+00	ESL EPA Region 5 (2003)
Benzo(b)fluoranthene	205-99-2	--		--		--		--		59.8	ESL EPA Region 5 (2003)	5.98E+01	ESL EPA Region 5 (2003)
Benzo(g,h,i)perylene	191-24-2	--		--		--		--		119	ESL EPA Region 5 (2003)	1.19E+02	ESL EPA Region 5 (2003)
Benzo(k)fluoranthene	207-08-9	--		--		--		--		148	ESL EPA Region 5 (2003)	1.48E+02	ESL EPA Region 5 (2003)
BHC	608-73-1	--		--		--		--		--		No ESV	No Source
BHC, alpha	319-84-6	--		--		--		--		0.09939	ESL EPA Region 5 (2003)	9.94E-02	ESL EPA Region 5 (2003)
beta-BHC	319-85-7	--		--		--		--		0.00398	ESL EPA Region 5 (2003)	3.98E-03	ESL EPA Region 5 (2003)
BHC, delta	319-86-8	--		--		--		--		9.94	ESL EPA Region 5 (2003)	9.94E+00	ESL EPA Region 5 (2003)
BHC, gamma	58-89-9	--		--		--		--		0.005	ESL EPA Region 5 (2003)	5.00E-03	ESL EPA Region 5 (2003)
Biphenyl	92-52-4	60	PRGs	--		--		60	Soil, LOEC	--		6.00E+01	PRGs
bis(2-chloroethoxy) methane	111-91-1	--		--		--		--		0.302	ESL EPA Region 5 (2003)	3.02E-01	ESL EPA Region 5 (2003)
bis(2-Chloroethyl) ether	111-44-4	--		--		--		--		23.7	ESL EPA Region 5 (2003)	2.37E+01	ESL EPA Region 5 (2003)
bis(2-Ethylhexyl)phthalate	117-81-7	--		--		--		--		0.92594	ESL EPA Region 5 (2003)	9.26E-01	ESL EPA Region 5 (2003)
4-Bromoaniline	106-40-1	--		--		--		100	No Soil, only Solution, LOEC	--		1.00E+02	No Soil, only Solution, LOEC
Bromodichloromethane	75-27-4	--		--		--		--		0.54	ESL EPA Region 5 (2003)	5.40E-01	ESL EPA Region 5 (2003)
Bromoform	75-25-2	--		--		--		--		15.9	ESL EPA Region 5 (2003)	1.59E+01	ESL EPA Region 5 (2003)
Bromomethane	74-83-9	--		--		--		--		--		No ESV	No Source
4-bromophenyl-phenylether	101-55-3	--		--		--		--		--		No ESV	No Source
2-Butanone	78-93-3	--		--		--		--		89.6	ESL EPA Region 5 (2003)	8.96E+01	ESL EPA Region 5 (2003)
Butylbenzyl phthalate	85-68-7	--		--		--		--		0.239	ESL EPA Region 5 (2003)	2.39E-01	ESL EPA Region 5 (2003)
N-Nitrosodi-n-Butylamine	924-16-3	--		--		--		--		0.26707	ESL EPA Region 5 (2003)	2.67E-01	ESL EPA Region 5 (2003)
Carbazole	86-74-8	--		--		--		--		--		No ESV	No Source
Carbon disulfide	75-15-0	--		--		--		--		0.09412	ESL EPA Region 5 (2003)	9.41E-02	ESL EPA Region 5 (2003)
Carbon tetrachloride	56-23-5	--		--		1000	LOEC	--		2.98	ESL EPA Region 5 (2003)	1.00E+03	LOEC
Chloroacetamide	79-07-2	2	PRGs	2	LOEC	--		--		--		2.00E+00	PRGs
p-chloroaniline	106-47-8	--		--		--		--		1.1	ESL EPA Region 5 (2003)	1.10E+00	ESL EPA Region 5 (2003)
3-Chloroaniline	108-42-9	20	PRGs	30	LOEC	--		20	Soil, LOEC	--		2.00E+01	PRGs
4-chloroaniline	106-47-8	--		--		--		--		1.1	ESL EPA Region 5 (2003)	1.10E+00	ESL EPA Region 5 (2003)
Chlorobenzene	108-90-7	40	PRGs	40	LOEC	--		--		13.1	ESL EPA Region 5 (2003)	4.00E+01	PRGs
Chlorobenzilate	510-15-6	--		--		--		--		5.05	ESL EPA Region 5 (2003)	5.05E+00	ESL EPA Region 5 (2003)
Chlordane	12789-03-6	--		--		--		--		0.224	ESL EPA Region 5 (2003)	2.24E-01	ESL EPA Region 5 (2003)
alpha-Chlordane	12789-03-6	--		--		--		--		0.224	ESL EPA Region 5 (2003)	2.24E-01	ESL EPA Region 5 (2003)
gamma-Chlordane	12789-03-6	--		--		--		--		0.224	ESL EPA Region 5 (2003)	2.24E-01	ESL EPA Region 5 (2003)

Appendix Table N-14. Soil Ecological Screening Values For Level II Screen For Fuse and Booster Quarry at Ravenna, Ohio

Chemicals	CAS Registry Number	Soil Screening Values: Efroymson et al. (1997a) Preliminary Remediation Goals for Ecological Endpoints[a] Number (mg/kg)	Source	Screening Value for Earthworms and Soil Microorganisms (Efroymson et al. 1997b)[b]: Benchmarks for Earthworm Number (mg/kg)	Source	Benchmarks for soil microorganism Number (mg/kg)	Source	Soil Screening values for Plants (Efroymson et al. 1997c)[c] Number mg/kg (Soil) mg/L (Solution)	Source	Ecological Screening Level (ESL)[d] Number (mg/kg)	Source	Preferred Ecological Screening Value (ESV)[e] Number (mg/kg)	Source
Chloroethane	75-00-3	--		--		--		--		--		No ESV	No Source
Chloroform	67-66-3	--		--		--		--		1.19	ESL EPA Region 5 (2003)	1.19E+00	ESL EPA Region 5 (2003)
Chloromethane	74-87-3	--		--		--		--		--		No ESV	No Source
2-Chloronaphthalene	91-58-7	--		--		--		--		0.0122	ESL EPA Region 5 (2003)	1.22E-02	ESL EPA Region 5 (2003)
2-Chlorophenol	95-57-8	--		--		--		60	No Soil, only Solution, LOEC	0.243	ESL EPA Region 5 (2003)	6.00E+01	No Soil, only Solution, LOEC
3-Chlorophenol	108-43-0	7	PRGs	10	LOEC	--		7	Soil, LOEC	--		7.00E+00	PRGs
4-Chlorophenol	106-48-9	--		--		--		50	No Soil, only Solution, LOEC	--		5.00E+01	No Soil, only Solution, LOEC
4-Chlorophenyl-phenyl ether	7005-72-3	--		--		--		--		--		No ESV	No Source
4-chloro-3-methylphenol	59-50-7	--		--		--		--		--		No ESV	No Source
Chloropropene	107-05-1	--		--		--		--		0.0029	ESL EPA Region 5 (2003)	2.90E-03	ESL EPA Region 5 (2003)
Chrysene	218-01-9	--		--		--		--		4.73	ESL EPA Region 5 (2003)	4.73E+00	ESL EPA Region 5 (2003)
4,6-dinitro-o-Cresol	534-52-1	--		--		--		--		0.144	ESL EPA Region 5 (2003)	1.44E-01	ESL EPA Region 5 (2003)
m-Cresol	108-39-4	--		--		--		--		3.49	ESL EPA Region 5 (2003)	3.49E+00	ESL EPA Region 5 (2003)
o-Cresol	95-48-7	--		--		--		--		40.4	ESL EPA Region 5 (2003)	4.04E+01	ESL EPA Region 5 (2003)
2-Cresol	95-48-7	--		--		--		--		40.4	ESL EPA Region 5 (2003)	4.04E+01	ESL EPA Region 5 (2003)
p-chloro-m-Cresol	59-50-7	--		--		--		--		7.95	ESL EPA Region 5 (2003)	7.95E+00	ESL EPA Region 5 (2003)
p-Cresol	106-44-5	--		--		--		--		163	ESL EPA Region 5 (2003)	1.63E+02	ESL EPA Region 5 (2003)
Diallate	2303-16-4	--		--		--		--		0.452	ESL EPA Region 5 (2003)	4.52E-01	ESL EPA Region 5 (2003)
2,4-D	94-75-7	--		--		--		--		0.0272	ESL EPA Region 5 (2003)	2.72E-02	ESL EPA Region 5 (2003)
4,4'-DDD	72-54-8	--		--		--		--		0.758	ESL EPA Region 5 (2003)	7.58E-01	ESL EPA Region 5 (2003)
4,4'-DDE	72-55-9	--		--		--		--		0.596	ESL EPA Region 5 (2003)	5.96E-01	ESL EPA Region 5 (2003)
4,4'-DDT	50-29-3	--		--		--		--		0.0035	ESL EPA Region 5 (2003)	3.50E-03	ESL EPA Region 5 (2003)
Diazinon	333-41-5	--		--		--		--		--		No ESV	No Source
Dibenzo(a,h)anthracene	53-70-3	--		--		--		--		18.4	ESL EPA Region 5 (2003)	1.84E+01	ESL EPA Region 5 (2003)
Dibenzofuran	132-64-9	--		--		--		--		--		No ESV	No Source
1,2-Dibromo-3-Chloropropane	96-12-8	--		--		--		--		0.0352	ESL EPA Region 5 (2003)	3.52E-02	ESL EPA Region 5 (2003)
Dibromochloromethane	124-48-1	--		--		--		--		2.05	ESL EPA Region 5 (2003)	2.05E+00	ESL EPA Region 5 (2003)
Dibromoethane	106-93-4	--		--		--		--		1.23	ESL EPA Region 5 (2003)	1.23E+00	ESL EPA Region 5 (2003)
2,4-Dichloroaniline	554-00-7	100	PRGs	100	NOEC	--		--		--		1.00E+02	PRGs
3,4-Dichloroaniline	95-76-1	20	PRGs	20	LOEC	--		10	No Soil, only Solution, LOEC	--		2.00E+01	PRGs
o-Dichlorobenzene	95-50-1	--		--		--		--		2.96	ESL EPA Region 5 (2003)	2.96E+00	ESL EPA Region 5 (2003)
p-Dichlorobenzene	106-46-7	20	PRGs	20	LOEC	--		--		0.546	ESL EPA Region 5 (2003)	2.00E+01	PRGs
1,2-Dichlorobenzene	95-50-1	--		--		--		--		2.96	ESL EPA Region 5 (2003)	2.96E+00	ESL EPA Region 5 (2003)
1,3-Dichlorobenzene	541-73-1	--		--		--		--		37.7	ESL EPA Region 5 (2003)	3.77E+01	ESL EPA Region 5 (2003)
1,4-Dichlorobenzene	106-46-7	20	PRGs	20	LOEC	--		--		0.546	ESL EPA Region 5 (2003)	2.00E+01	PRGs
3,3'-Dichlorobenzidine	91-94-1	--		--		--		--		0.646	ESL EPA Region 5 (2003)	6.46E-01	ESL EPA Region 5 (2003)
Cis-1,4-dichloro-2-butene	1476-11-5	--		--		1000	LOEC	--		--		1.00E+03	LOEC
Trans-1,4-dichloro-2-butene	110-57-6	--		--		1000	LOEC	--		--		1.00E+03	LOEC
1,1-Dichloroethane	75-34-3	--		--		--		--		20.1	ESL EPA Region 5 (2003)	2.01E+01	ESL EPA Region 5 (2003)
1,2-Dichloroethane	107-06-2	--		--		--		--		21.2	ESL EPA Region 5 (2003)	2.12E+01	ESL EPA Region 5 (2003)
1,1-Dichloroethene	75-35-4	--		--		--		--		8.28	ESL EPA Region 5 (2003)	8.28E+00	ESL EPA Region 5 (2003)
1,2-Dichloroethene	540-59-0	--		--		--		--		--		No ESV	No Source
Dichlorodifluromethane	75-71-8	--		--		--		--		39.5	ESL EPA Region 5 (2003)	3.95E+01	ESL EPA Region 5 (2003)
2,4-Dichlorophenol	120-83-2	--		--		--		20	No Soil, only Solution, LOEC	87.5	ESL EPA Region 5 (2003)	2.00E+01	No Soil, only Solution, LOEC
2,6-Dichlorophenol	87-65-0	--		--		--		--		1.17	ESL EPA Region 5 (2003)	1.17E+00	ESL EPA Region 5 (2003)
3,4-Dichlorophenol	95-77-2	20	PRGs	20	LOEC	--		20	Soil, LOEC	--		2.00E+01	PRGs
1,2-Dichloropropane	78-87-5	700	PRGs	700	LOEC	--		--		32.7	ESL EPA Region 5 (2003)	7.00E+02	PRGs
cis-1,3-Dichloropropene	10061-01-5	--		--		--		--		0.398	ESL EPA Region 5 (2003)	3.98E-01	ESL EPA Region 5 (2003)

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Chemicals	CAS Registry Number	Soil Screening Values: Efroymson et al. (1997a) Preliminary Remediation Goals for Ecological Endpoints[a] Number (mg/kg)	Source	Screening Value for Earthworms and Soil Microorganisms (Efroymson et al. 1997b)[b]: Benchmarks for Earthworm Number (mg/kg)	Source	Benchmarks for soil microorganism Number (mg/kg)	Source	Soil Screening values for Plants (Efroymson et al. 1997c)[c] Number mg/kg (Soil) mg/L (Solution)	Source	Ecological Screening Level (ESL)[d] Number (mg/kg)	Source	Preferred Ecological Screening Value (ESV)[e] Number (mg/kg)	Source
trans-1,3-Dichloropropene	10061-02-6	--		--		--		--		0.398	ESL EPA Region 5 (2003)	3.98E-01	ESL EPA Region 5 (2003)
Dieldrin	60-57-1	--		--		--		--		0.00238	ESL EPA Region 5 (2003)	2.38E-03	ESL EPA Region 5 (2003)
Diethylphthalate	84-66-2	100	PRGs	--		--		100	Soil, LOEC	24.8	ESL EPA Region 5 (2003)	1.00E+02	PRGs
3,3'-Dimethylbenzidine	119-93-7	--		--		--		--		0.104	ESL EPA Region 5 (2003)	1.04E-01	ESL EPA Region 5 (2003)
Dimethoate	60-51-5	--		--		--		--		0.218	ESL EPA Region 5 (2003)	2.18E-01	ESL EPA Region 5 (2003)
7,12'-Dimethylbenz(a)anthracene	57-97-6	--		--		--		--		16.3	ESL EPA Region 5 (2003)	1.63E+01	ESL EPA Region 5 (2003)
Dimethylphthalate	131-11-3	200	PRGs	200	LOEC	--		--		734	ESL EPA Region 5 (2003)	2.00E+02	PRGs
alpha,alpha-Dimethylphenethylamine	122-09-8	--		--		--		--		0.3	ESL EPA Region 5 (2003)	3.00E-01	ESL EPA Region 5 (2003)
2,4-Dimethylphenol	105-67-9	--		--		--		--		0.01	ESL EPA Region 5 (2003)	1.00E-02	ESL EPA Region 5 (2003)
Di-n-butylphthalate	84-74-2	200	PRGs	--		--		200	Soil, NOEC	0.15	ESL EPA Region 5 (2003)	2.00E+02	PRGs
Di-n-octylphthalate	117-84-0	--		--		--		--		709	ESL EPA Region 5 (2003)	7.09E+02	ESL EPA Region 5 (2003)
m-Dinitrobenzene	99-65-0	--		--		--		--		0.655	ESL EPA Region 5 (2003)	6.55E-01	ESL EPA Region 5 (2003)
1,3-Dinitrobenzene	99-65-0	--		--		--		--		0.655	ESL EPA Region 5 (2003)	6.55E-01	ESL EPA Region 5 (2003)
2,4-Dinitrophenol	51-28-5	20	PRGs	--		--		20	Soil, NOEC	0.0609	ESL EPA Region 5 (2003)	2.00E+01	PRGs
2,4-Dinitrotoluene	121-14-2	--		--		--		--		1.28	ESL EPA Region 5 (2003)	1.28E+00	ESL EPA Region 5 (2003)
2,6-Dinitrotoluene	606-20-2	--		--		--		--		0.0328	ESL EPA Region 5 (2003)	3.28E-02	ESL EPA Region 5 (2003)
4,6-Dinitro-2-methylphenol	534-52-1	--		--		--		--		--		No ESV	No Source
Dinoseb	88-85-7	--		--		--		--		0.0218	ESL EPA Region 5 (2003)	2.18E-02	ESL EPA Region 5 (2003)
1,4-Dioxane	123-91-1	--		--		--		--		2.05	ESL EPA Region 5 (2003)	2.05E+00	ESL EPA Region 5 (2003)
Diphenylamine	122-39-4	--		--		--		--		1.01	ESL EPA Region 5 (2003)	1.01E+00	ESL EPA Region 5 (2003)
Disulfoton	298-04-4	--		--		--		--		0.0199	ESL EPA Region 5 (2003)	1.99E-02	ESL EPA Region 5 (2003)
Endosulfan, alpha	959-98-8	--		--		--		--		0.119	ESL EPA Region 5 (2003)	1.19E-01	ESL EPA Region 5 (2003)
Endosulfan, beta	33213-65-9	--		--		--		--		0.119	ESL EPA Region 5 (2003)	1.19E-01	ESL EPA Region 5 (2003)
Endosulfan, mixed isomers		--		--		--		--		--		No ESV	No Source
Endosulfan sulfate	1031-07-8	--		--		--		--		0.0358	ESL EPA Region 5 (2003)	3.58E-02	ESL EPA Region 5 (2003)
Endrin	72-20-8	--		--		--		--		0.0101	ESL EPA Region 5 (2003)	1.01E-02	ESL EPA Region 5 (2003)
Endrin aldehyde	7421-93-4	--		--		--		--		0.0105	ESL EPA Region 5 (2003)	1.05E-02	ESL EPA Region 5 (2003)
Ethyl metharcrylate	97-63-2	--		--		--		--		30	ESL EPA Region 5 (2003)	3.00E+01	ESL EPA Region 5 (2003)
Ethylbenzene	100-41-4	--		--		--		--		5.16	ESL EPA Region 5 (2003)	5.16E+00	ESL EPA Region 5 (2003)
Famphur	52-85-7	--		--		--		--		0.0497	ESL EPA Region 5 (2003)	4.97E-02	ESL EPA Region 5 (2003)
Fluoranthene	206-44-0	--		--		--		--		122	ESL EPA Region 5 (2003)	1.22E+02	ESL EPA Region 5 (2003)
Fluorene	86-73-7	30	PRGs	30	LOEC	--		--		122	ESL EPA Region 5 (2003)	3.00E+01	PRGs
Furan	110-00-9	600	PRGs	--		--		600	Soil, LOEC	--		6.00E+02	PRGs
gamma-BHC (lindane)	58-89-9	--		--		--		--		0.005	ESL EPA Region 5 (2003)	5.00E-03	ESL EPA Region 5 (2003)
Heptane	142-82-5	--		--		--		1	No Soil, only Solution, LOEC	--		1.00E+00	No Soil, only Solution, LOEC
Heptachlor	76-44-8	--		--		--		--		0.00598	ESL EPA Region 5 (2003)	5.98E-03	ESL EPA Region 5 (2003)
Heptachlor Epoxide	1024-57-3	--		--		--		--		0.152	ESL EPA Region 5 (2003)	1.52E-01	ESL EPA Region 5 (2003)
Hexachlorobenzene	118-74-1	--		--		1000	LOEC	--		0.199	ESL EPA Region 5 (2003)	1.00E+03	LOEC
Hexachlorobutadiene	87-68-3	--		--		--		--		0.0398	ESL EPA Region 5 (2003)	3.98E-02	ESL EPA Region 5 (2003)
Hexachlorocyclopentadiene	77-47-4	10	PRGs	--		--		10	Soil, LOEC	0.755	ESL EPA Region 5 (2003)	1.00E+01	PRGs
Hexachloroethane	67-72-1	--		--		--		--		0.596	ESL EPA Region 5 (2003)	5.96E-01	ESL EPA Region 5 (2003)
Hexachorophene	70-30-4	--		--		--		--		0.199	ESL EPA Region 5 (2003)	1.99E-01	ESL EPA Region 5 (2003)
2-Hexanone	591-78-6	--		--		--		--		12.6	ESL EPA Region 5 (2003)	1.26E+01	ESL EPA Region 5 (2003)
HMX	2691-41-0	--		--		--		--		--		No ESV	No Source
Indeno(1,2,3-cd)pyrene	193-39-5	--		--		--		--		109	ESL EPA Region 5 (2003)	1.09E+02	ESL EPA Region 5 (2003)
Isobutyl alcohol	78-83-1	--		--		--		--		20.8	ESL EPA Region 5 (2003)	2.08E+01	ESL EPA Region 5 (2003)
Isodrin	465-73-6	--		--		--		--		0.00332	ESL EPA Region 5 (2003)	3.32E-03	ESL EPA Region 5 (2003)
Isophorone	78-59-1	--		--		--		--		139	ESL EPA Region 5 (2003)	1.39E+02	ESL EPA Region 5 (2003)

Appendix Table N-14. Soil Ecological Screening Values For Level II Screen For Fuse and Booster Quarry at Ravenna, Ohio

Chemicals	CAS Registry Number	Soil Screening Values: Efroymson et al. (1997a) Preliminary Remediation Goals for Ecological Endpoints[a] Number (mg/kg)	Source	Screening Value for Earthworms and Soil Microorganisms (Efroymson et al. 1997b)[b]: Benchmarks for Earthworm Number (mg/kg)	Source	Benchmarks for soil microorganism Number (mg/kg)	Source	Soil Screening values for Plants (Efroymson et al. 1997c)[c] Number mg/kg (Soil) mg/L (Solution)	Source	Ecological Screening Level (ESL)[d] Number (mg/kg)	Source	Preferred Ecological Screening Value (ESV)[e] Number (mg/kg)	Source
Isosafrole	120-58-1	--		--		--		--		9.94	ESL EPA Region 5 (2003)	9.94E+00	ESL EPA Region 5 (2003)
Kepone	143-50-0	--		--		--		--		0.0327	ESL EPA Region 5 (2003)	3.27E-02	ESL EPA Region 5 (2003)
Malathion	121-75-5	--		--		--		--		--		No ESV	No Source
Methacrylonitrile	126-98-7	--		--		--		--		0.057	ESL EPA Region 5 (2003)	5.70E-02	ESL EPA Region 5 (2003)
Methapyrilene	91-80-5	--		--		--		--		2.78	ESL EPA Region 5 (2003)	2.78E+00	ESL EPA Region 5 (2003)
Methoxychlor	72-43-5	--		--		--		--		0.0199	ESL EPA Region 5 (2003)	1.99E-02	ESL EPA Region 5 (2003)
Methyl bromide	74-83-9	--		--		--		--		0.235	ESL EPA Region 5 (2003)	2.35E-01	ESL EPA Region 5 (2003)
Methyl chloride	74-87-3	--		--		--		--		10.4	ESL EPA Region 5 (2003)	1.04E+01	ESL EPA Region 5 (2003)
Methyl iodide	74-88-4	--		--		--		--		1.23	ESL EPA Region 5 (2003)	1.23E+00	ESL EPA Region 5 (2003)
Methylene chloride	75-09-2	--		--		--		--		1.05	ESL EPA Region 5 (2003)	1.05E+00	ESL EPA Region 5 (2003)
2-Methylnaphthalene	91-57-6	--		--		--		--		3.24	ESL EPA Region 5 (2003)	3.24E+00	ESL EPA Region 5 (2003)
2-Methylphenol	95-48-7	--		--		--		--		--		No ESV	No Source
4-Methylphenol	106-44-5	--		--		--		--		--		No ESV	No Source
4-Methyl-2-pentanone	108-10-1	--		--		--		--		443	ESL EPA Region 5 (2003)	4.43E+02	ESL EPA Region 5 (2003)
Mirex	2385-85-5	--		--		--		--		--		No ESV	No Source
Naphthalene	91-20-3	--		--		--		10	No Soil, only Solution, LOEC	0.0994	ESL EPA Region 5 (2003)	1.00E+01	No Soil, only Solution, LOEC
1-Naphthylamine	134-32-7	--		--		--		--		9.34	ESL EPA Region 5 (2003)	9.34E+00	ESL EPA Region 5 (2003)
2-Naphthylamine	91-59-8	--		--		--		--		3.03	ESL EPA Region 5 (2003)	3.03E+00	ESL EPA Region 5 (2003)
1,4-Naphthoquinone	130-15-4	--		--		--		--		1.67	ESL EPA Region 5 (2003)	1.67E+00	ESL EPA Region 5 (2003)
m-Nitroaniline	99-09-2	--		--		--		--		3.16	ESL EPA Region 5 (2003)	3.16E+00	ESL EPA Region 5 (2003)
o-Nitroaniline	88-74-4	--		--		--		--		74.1	ESL EPA Region 5 (2003)	7.41E+01	ESL EPA Region 5 (2003)
p-Nitroaniline	100-01-6	--		--		--		--		21.9	ESL EPA Region 5 (2003)	2.19E+01	ESL EPA Region 5 (2003)
2-Nitroaniline	88-74-4	--		--		--		--		74.1	ESL EPA Region 5 (2003)	7.41E+01	ESL EPA Region 5 (2003)
3-Nitroaniline	99-09-2	--		--		--		--		3.16	ESL EPA Region 5 (2003)	3.16E+00	ESL EPA Region 5 (2003)
4-Nitroaniline	100-01-6	--		--		--		--		21.9	ESL EPA Region 5 (2003)	2.19E+01	ESL EPA Region 5 (2003)
Nitrobenzene	99-95-3	40	PRGs	40	LOEC	1000	LOEC	8	No Soil, only Solution, LOEC	1.31	ESL EPA Region 5 (2003)	4.00E+01	PRGs
Nitrocellulose	9004-70-0	--		--		--		--		--		No ESV	No Source
Nitroglycerin	55-63-0	--		--		--		--		--		No ESV	No Source
Nitroquanidine		--		--		--		--		--		No ESV	No Source
o-Nitrophenol	88-75-5	--		--		--		--		1.6	ESL EPA Region 5 (2003)	1.60E+00	ESL EPA Region 5 (2003)
p-Nitrophenol	100-02-7	--		--		--		--		5.12	ESL EPA Region 5 (2003)	5.12E+00	ESL EPA Region 5 (2003)
2-Nitrophenol	88-75-5	--		--		--		--		1.6	ESL EPA Region 5 (2003)	1.60E+00	ESL EPA Region 5 (2003)
4-Nitrophenol	100-02-7	--		--		--		--		5.12	ESL EPA Region 5 (2003)	5.12E+00	ESL EPA Region 5 (2003)
4-Nitroquinoline-1-oxide	56-57-5	--		--		--		--		0.122	ESL EPA Region 5 (2003)	1.22E-01	ESL EPA Region 5 (2003)
3-Nitrotoluene	99-08-1	--		--		--		--		--		No ESV	No Source
N-Nitrosodiethylamine	55-18-5	--		--		--		--		0.0693	ESL EPA Region 5 (2003)	6.93E-02	ESL EPA Region 5 (2003)
N-Nitrosodimethylamine	62-75-9	--		--		--		--		3.2E-05	ESL EPA Region 5 (2003)	3.21E-05	ESL EPA Region 5 (2003)
N-Nitrosomethylamine	10595-95-6	--		--		--		--		0.00166	ESL EPA Region 5 (2003)	1.66E-03	ESL EPA Region 5 (2003)
N-Nitrosomorpholine	59-89-2	--		--		--		--		0.0706	ESL EPA Region 5 (2003)	7.06E-02	ESL EPA Region 5 (2003)
N-Nitrosopiperidine	100-75-4	--		--		--		--		0.00665	ESL EPA Region 5 (2003)	6.65E-03	ESL EPA Region 5 (2003)
N-Nitrosopyrrolidine	930-55-2	--		--		--		--		0.0126	ESL EPA Region 5 (2003)	1.26E-02	ESL EPA Region 5 (2003)
N-nitroso-di-n-dipropylamine	621-64-7	--		--		--		--		--		No ESV	No Source
N-nitrosodiphenylamine	86-30-6	20	PRGs	20	LOEC	--		--		0.545	ESL EPA Region 5 (2003)	2.00E+01	PRGs
2-Nitrotoluene	88-72-2	--		--		--		--		--		No ESV	No Source
5-nitro-o-Toluidine	99-55-8	--		--		--		--		8.73	ESL EPA Region 5 (2003)	8.73E+00	ESL EPA Region 5 (2003)
2,2'- oxybis(1-Chloropropane)	108-60-1	--		--		--		--		--		No ESV	No Source
Parathion	56-38-2	--		--		--		--		#######	ESL EPA Region 5 (2003)	3.40E-04	ESL EPA Region 5 (2003)
PCDD-S		--		--		--		--		#######	ESL EPA Region 5 (2003)	1.99E-07	ESL EPA Region 5 (2003)

Appendix Table N-14. Soil Ecological Screening Values For Level II Screen For Fuse and Booster Quarry at Ravenna, Ohio

Chemicals	CAS Registry Number	Soil Screening Values: Efroymson et al. (1997a) Preliminary Remediation Goals for Ecological Endpoints[a] Number (mg/kg)	Source	Screening Value for Earthworms and Soil Microorganisms (Efroymson et al. 1997b)[b]: Benchmarks for Earthworm Number (mg/kg)	Source	Benchmarks for soil microorganism Number (mg/kg)	Source	Soil Screening values for Plants (Efroymson et al. 1997c)[c] Number mg/kg (Soil) mg/L (Solution)	Source	Ecological Screening Level (ESL)[d] Number (mg/kg)	Source	Preferred Ecological Screening Value (ESV)[e] Number (mg/kg)	Source
Pentachlorophenol	87-86-5	3	PRGs	6	NOEC	400	LOEC	3	Soil, LOEC	0.119	ESL EPA Region 5 (2003)	3.00E+00	PRGs
Pentachloroaniline	527-20-8	100	PRGs	100	LOEC	--		--		--		1.00E+02	PRGs
Pentachlorobenzene	608-93-5	20	PRGs	20	LOEC	--		--		0.497	ESL EPA Region 5 (2003)	2.00E+01	PRGs
Pentachloroethane	76-01-7	--		--		--		--		10.7	ESL EPA Region 5 (2003)	1.07E+01	ESL EPA Region 5 (2003)
Pentachloronitrobenzene	82-68-8	--		--		--		--		7.09	ESL EPA Region 5 (2003)	7.09E+00	ESL EPA Region 5 (2003)
Phenacetin	62-44-2	--		--		--		--		11.7	ESL EPA Region 5 (2003)	1.17E+01	ESL EPA Region 5 (2003)
Phenanthrene	85-01-8	--		--		--		--		45.7	ESL EPA Region 5 (2003)	4.57E+01	ESL EPA Region 5 (2003)
Phenol	108-95-2	30	PRGs	30	LOEC	100	LOEC	70	Soil, LOEC	120	ESL EPA Region 5 (2003)	3.00E+01	PRGs
p-Phenylenediamine	106-50-3	--		--		--		--		6.16	ESL EPA Region 5 (2003)	6.16E+00	ESL EPA Region 5 (2003)
phorate	298-02-2	--		--		--		--		#######	ESL EPA Region 5 (2003)	4.96E-04	ESL EPA Region 5 (2003)
2-Picoline	109-06-8	--		--		--		--		9.9	ESL EPA Region 5 (2003)	9.90E+00	ESL EPA Region 5 (2003)
Polynuclear aromatic hydrocarbons		--		--		--		--		--		No ESV	No Source
Polychlorinated biphenyls	1336-36-3	0.371	PRGs	--		--		40	Soil, NOEC	#######	ESL EPA Region 5 (2003)	3.71E-01	PRGs
Polychlorinated dibenzofurans	51207-31-9	--		--		--		--		#######	ESL EPA Region 5 (2003)	3.86E-05	ESL EPA Region 5 (2003)
Pronamide	23950-58-5	--		--		--		--		0.0136	ESL EPA Region 5 (2003)	1.36E-02	ESL EPA Region 5 (2003)
Propionitrile	107-12-0	--		--		--		--		0.0498	ESL EPA Region 5 (2003)	4.98E-02	ESL EPA Region 5 (2003)
4-Nitrotoluene	99-99-0	--		--		--		--		--		No ESV	No Source
Pyrene	129-00-0	--		--		--		--		78.5	ESL EPA Region 5 (2003)	7.85E+01	ESL EPA Region 5 (2003)
Pryidine	110-86-1	--		--		--		--		1.03	ESL EPA Region 5 (2003)	1.03E+00	ESL EPA Region 5 (2003)
RDX (cyclonite) Hexahydro-1,3,5-trinitro-1,3,5-triazine	121-82-4	--		--		--		--		--		No ESV	No Source
RDX	121-82-4	--		--		--		--		--		No ESV	No Source
Safrole	94-59-7	--		--		--		--		0.404	ESL EPA Region 5 (2003)	4.04E-01	ESL EPA Region 5 (2003)
2,4,5-TP (Silvex)	93-72-1	--		--		--		--		0.109	ESL EPA Region 5 (2003)	1.09E-01	ESL EPA Region 5 (2003)
Styrene	100-42-5	300	PRGs	--		--		300	Soil	4.69	ESL EPA Region 5 (2003)	3.00E+02	PRGs
TCDD	1746-1-6	3.15E-06	PRGs							#######	ESL EPA Region 5 (2003)	3.15E-06	PRGs
TCDF		8.40E-04	PRGs							--		8.40E-04	PRGs
2,3,5,6-Tetrachloroaniline	3481-20-7	20	PRGs	20	LOEC	--		20	Soil, LOEC	--		2.00E+01	PRGs
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	--		--		--		--		#######	ESL EPA Region 5 (2003)	1.99E-07	ESL EPA Region 5 (2003)
1,2,4,5-Tetrachlorobenzene	95-94-3	--		--		--		--		2.02	ESL EPA Region 5 (2003)	2.02E+00	ESL EPA Region 5 (2003)
1,2,3,4-Tetrachlorobenzene	634-66-2	10	PRGs	10	LOEC	--		--		--		1.00E+01	PRGs
Tetrachloroethene	127-18-4	--		--		--		10	No Soil, only Solution	9.92	ESL EPA Region 5 (2003)	1.00E+01	No Soil, only Solution
Tetrachloroethylene	127-18-4	--		--		--		--		9.92	ESL EPA Region 5 (2003)	9.92E+00	ESL EPA Region 5 (2003)
1,1,1,2-Tetrachloroethane	630-20-6	--		--		--		--		225	ESL EPA Region 5 (2003)	2.25E+02	ESL EPA Region 5 (2003)
1,1,2,2-Tetrachloroethane	79-34-5	--		--		--		--		0.127	ESL EPA Region 5 (2003)	1.27E-01	ESL EPA Region 5 (2003)
Tetrachloromethane	56-23-5	--		--		--		--		--		No ESV	No Source
2,3,4,5-Tetrachlorophenol	4901-51-3	20	PRGs	20	LOEC	--		--		--		2.00E+01	PRGs
2,3,4,6-Tetrachlorophenol	58-90-2	--		--		--		--		0.199	ESL EPA Region 5 (2003)	1.99E-01	ESL EPA Region 5 (2003)
Tetraethyl dithiopyrophosphate	3689-24-5	--		--		--		--		0.596	ESL EPA Region 5 (2003)	5.96E-01	ESL EPA Region 5 (2003)
Tetryl	479-45-8	--		--		--		--		--		No ESV	No Source
Toluene	108-88-3	200	PRGs	--		--		200	Soil, NOEC	5.45	ESL EPA Region 5 (2003)	2.00E+02	PRGs
o-Toluidine	95-53-4	--		--		--		--		2.97	ESL EPA Region 5 (2003)	2.97E+00	ESL EPA Region 5 (2003)
4-Toluidine	106-49-0	--		--		--		100	No Soil, only Solution, LOEC	--		1.00E+02	No Soil, only Solution, LOEC
Toxaphene	8001-35-2	--		--		--		--		0.119	ESL EPA Region 5 (2003)	1.19E-01	ESL EPA Region 5 (2003)
Tribromomethane	75-25-2	--		--		--		--		--		No ESV	No Source
2,4,5-Trichloroaniline	636-30-6	20	PRGs	20	LOEC	--		20	Soil, LOEC	--		2.00E+01	PRGs
Trichloroethene	79-01-6	--		--		--		100	No Soil, only Solution	12.4	ESL EPA Region 5 (2003)	1.00E+02	No Soil, only Solution
1,2,3-Trichlorobenzene	87-61-6	20	PRGs	20	LOEC	--		--		--		2.00E+01	PRGs
1,2,4-Trichlorobenzene	120-82-1	20	PRGs	20	LOEC	--		--		11.1	ESL EPA Region 5 (2003)	2.00E+01	PRGs

Appendix Table N-14. Soil Ecological Screening Values For Level II Screen For Fuse and Booster Quarry at Ravenna, Ohio

Chemicals	CAS Registry Number	Soil Screening Values											
		Efroymson et al. (1997a) Preliminary Remediation Goals for Ecological Endpoints[a]		Screening Value for Earthworms and Soil Microorganisms (Efroymson et al. 1997b)[b] Benchmarks for Earthworm		Benchmarks for soil microorganism		Soil Screening values for Plants (Efroymson et al. 1997c)[c]		Ecological Screening Level (ESL)[d]		Preferred Ecological Screening Value (ESV)[e]	
		Number (mg/kg)	Source	Number (mg/kg)	Source	Number (mg/kg)	Source	Number mg/kg (Soil) mg/L (Solution)	Source	Number (mg/kg)	Source	Number (mg/kg)	Source
1,1,1-Trichloroethane	71-55-6	--		--		--		--		29.8	ESL EPA Region 5 (2003)	2.98E+01	ESL EPA Region 5 (2003)
1,1,2-Trichloroethane	79-00-5	--		--		--		--		28.6	ESL EPA Region 5 (2003)	2.86E+01	ESL EPA Region 5 (2003)
Trichloroethylene	79-01-6	--		--		--		--		12.4	ESL EPA Region 5 (2003)	1.24E+01	ESL EPA Region 5 (2003)
Trichlorofluoromethane	75-69-4	--		--		--		--		16.4	ESL EPA Region 5 (2003)	1.64E+01	ESL EPA Region 5 (2003)
2,4,5-Trichlorophenol	95-95-4	9	PRGs	9	LOEC	--		4	Soil, LOEC	14.1	ESL EPA Region 5 (2003)	9.00E+00	PRGs
2,4,6-Trichlorophenol	88-06-2	4	PRGs	10	LOEC	--		10	No Soil, only Solution, LOEC	9.94	ESL EPA Region 5 (2003)	4.00E+00	PRGs
1,2,3-Trichloropropane	96-18-4	--		--		--		--		3.36	ESL EPA Region 5 (2003)	3.36E+00	ESL EPA Region 5 (2003)
2,4,5-Trichlorophenoxyacetic acid	93-76-5	--		--		--		--		0.596	ESL EPA Region 5 (2003)	5.96E-01	ESL EPA Region 5 (2003)
1,3,5-Trinitrobenzene	99-35-4	--		--		--		--		0.376	ESL EPA Region 5 (2003)	8.60E-01	PPL (SAIC 2002)
2,4,6-Trinitrotoluene	118-96-7	--		--		--		--		--		7.10E+01	PPL (SAIC 2002)
Vinyl acetate	108-05-4	--		--		--		--		12.7	ESL EPA Region 5 (2003)	1.27E+01	ESL EPA Region 5 (2003)
Vinyl chloride	75-01-4	--		--		--		--		0.646	ESL EPA Region 5 (2003)	6.46E-01	ESL EPA Region 5 (2003)
Xylenes (total)	1330-20-7	--		--		--		100	No Soil, only Solution, LOEC	10	ESL EPA Region 5 (2003)	1.00E+02	No Soil, only Solution, LOEC

[a] Efrroymson, R.A, G.W Suter, II, B.E. Sample, and D.S. Jones. (1997a). Preliminary Remediation Goals for Ecological Endpoints. ES/ER/TM-162/R2.

[b] Efroymson, R.A, M.E Will., and G.W Suter, 1997b Toxicological Benchmarks for Potential Contaminants of Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process

Martin Marietta Energy Systems, INC. ES/ER/TM-126/R1 Oak Ridge National Laboratory, Oak Ridge, TN

[c] Efroymson,R. A., M.E. Will, G.W. Suter , and A.C. Wooten, 1997c. Toxicological Benchmarks for Screening Contaminants of Concern for Effects on Terrestrial Plants: 1997 Revision

Lockheed Martin Energy Systems, INC. ES/ER/TM-85/R3 Oak Ridge National Laboratory, Oak Ridge, TN

[d]Ecological Screening Levels (ESL), U.S. EPA Region 5, Updated per website: http://www.epa.gov/reg5rcra/ca/edql.htm, August 2003

[e]The Prefered Soil Value heirarcy is as follows: Efroymson et al. (1997a), followed by Efroymson et al. (1997b), followed by Efroymson et al. (1997c), followed by ESLs. Note that plant protection levels (PPLs) (SAIC 2002) that were developed for Winklepeck Burning Grounds are used for copper, cyanide, 1,3,5-trinitrobenzene, and 2,4,6-trinitrotoluene.

NOEC = No Observed Effect Concentration

LOEC = Lowest Observed Effect Concentration

Diss = Dissolved Analyte

-- = no value

PRGs = Preliminary Remediation Goals

Appendix Table N-15. Derivation of Sediment Ecological Screening Values for Fuse and Booster Quarry, Ravenna, Ohio

Chemicals of Interest	CAS Registry Number	Sediment Screening Values					
		Consensus-Based Sediment Quality Guidelines[a]		Ecological Screening Level (ESL)[b]		Preferred Ecological Screening Value (ESV)[c]	
		Number	Source	Number	Source	Number	Source
Inorganics (Target Analyte List)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	7429-90-5					No ESV	No Source
Antimony	7440-36-0					No ESV	No Source
Arsenic	7440-38-2	9.79	MacDonald et al. (2000)	9.79	ESL EPA Region 5 (2003)	9.79E+00	MacDonald et al. (2000)
Barium	7440-39-3					No ESV	No Source
Beryllium	7440-41-7					No ESV	No Source
Cadmium	7440-43-9	0.99	MacDonald et al. (2000)	0.99	ESL EPA Region 5 (2003)	9.90E-01	MacDonald et al. (2000)
Calcium	7440-70-2					No ESV	No Source
Chromium	7440-47-3	43.4	MacDonald et al. (2000)	43.4	ESL EPA Region 5 (2003)	4.34E+01	MacDonald et al. (2000)
Chromium, hexavalent	7440-47-3	43.4	MacDonald et al. (2000)	43.4	ESL EPA Region 5 (2003)	4.34E+01	MacDonald et al. (2000)
Cobalt	7440-48-4			50	ESL EPA Region 5 (2003)	5.00E+01	ESL EPA Region 5 (2003)
Copper	7440-50-8	31.6	MacDonald et al. (2000)	31.6	ESL EPA Region 5 (2003)	3.16E+01	MacDonald et al. (2000)
Cyanide	57-12-5			0.0001	ESL EPA Region 5 (2003)	1.00E-04	ESL EPA Region 5 (2003)
Iron	7439-89-6					No ESV	No Source
Lead	7439-92-1	35.8	MacDonald et al. (2000)	35.8	ESL EPA Region 5 (2003)	3.58E+01	MacDonald et al. (2000)
Magnesium	7439-95-4					No ESV	No Source
Manganese	7439-96-5					No ESV	No Source
Mercury	7439-97-6	0.18	MacDonald et al. (2000)	0.174	ESL EPA Region 5 (2003)	1.80E-01	MacDonald et al. (2000)
Nickel	7440-02-0	22.7	MacDonald et al. (2000)	22.7	ESL EPA Region 5 (2003)	2.27E+01	MacDonald et al. (2000)
Nitrate/Nitrite						No ESV	No Source
Potassium	7440-07-7					No ESV	No Source
Selenium	7782-49-2					No ESV	No Source
Silver	7440-22-4			0.5	ESL EPA Region 5 (2003)	5.00E-01	ESL EPA Region 5 (2003)
Sodium	7440-23-5					No ESV	No Source
Sulfide	18496-25-8					No ESV	No Source
Thallium	7440-28-0					No ESV	No Source
Vanadium	7440-62-2					No ESV	No Source
Zinc	7440-66-6	121	MacDonald et al. (2000)	121	ESL EPA Region 5 (2003)	1.21E+02	MacDonald et al. (2000)
Organic Compounds		(mg/kg)		(mg/kg)			
Acenaphthene	83-32-9			0.00671	ESL EPA Region 5 (2003)	6.71E-03	ESL EPA Region 5 (2003)
Acenaphthylene	208-96-8			0.00587	ESL EPA Region 5 (2003)	5.87E-03	ESL EPA Region 5 (2003)
Acetone	67-64-1			0.0099	ESL EPA Region 5 (2003)	9.90E-03	ESL EPA Region 5 (2003)
Aldrin	309-00-2			0.002	ESL EPA Region 5 (2003)	2.00E-03	ESL EPA Region 5 (2003)
Anthracene	120-12-7	0.0572	MacDonald et al. (2000)	0.0572	ESL EPA Region 5 (2003)	5.72E-02	MacDonald et al. (2000)
Arochlor-1016	12674-11-2			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
Arochlor-1221	11104-28-2			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)

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Chemicals of Interest	CAS Registry Number	Sediment Screening Values					
		Consensus-Based Sediment Quality Guidelines[a]		Ecological Screening Level (ESL)[b]		Preferred Ecological Screening Value (ESV)[c]	
		Number	Source	Number	Source	Number	Source
Arochlor-1232	11141-16-5			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
Arochlor-1242	53469-21-9			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
Arochlor-1248	12672-29-6			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
PCB-1248	12672-29-6			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
PCB-1254	11097-69-1			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
Arochlor-1260	11096-82-5			5.98E-02	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
Benzene	71-43-2			0.142	ESL EPA Region 5 (2003)	1.42E-01	ESL EPA Region 5 (2003)
Benzenemethanol						No ESV	No Source
Benzo(a)anthracene	56-55-3	0.108	MacDonald et al. (2000)	0.108	ESL EPA Region 5 (2003)	1.08E-01	MacDonald et al. (2000)
Benzo(a)pyrene	50-32-8	0.15	MacDonald et al. (2000)	0.15	ESL EPA Region 5 (2003)	1.50E-01	MacDonald et al. (2000)
Benzo(b)fluoranthene	205-99-2			10.4	ESL EPA Region 5 (2003)	1.04E+01	ESL EPA Region 5 (2003)
Benzo(g,h,i)perylene	191-24-2			0.17	ESL EPA Region 5 (2003)	1.70E-01	ESL EPA Region 5 (2003)
Benzo(k)fluoranthene	207-08-9			0.24	ESL EPA Region 5 (2003)	2.40E-01	ESL EPA Region 5 (2003)
Benzoic acid						No ESV	No Source
BHC	608-73-1					No ESV	No Source
BHC, alpha	319-84-6			0.006	ESL EPA Region 5 (2003)	6.00E-03	ESL EPA Region 5 (2003)
Beta-BHC	319-85-7			0.005	ESL EPA Region 5 (2003)	5.00E-03	ESL EPA Region 5 (2003)
Biphenyl	92-52-4					No ESV	No Source
bis(2-chloroethoxy) methane	111-91-1					No ESV	No Source
bis(2-Chloroethyl) ether	111-44-4			3.52	ESL EPA Region 5 (2003)	3.52E+00	ESL EPA Region 5 (2003)
Bis(2-chloroisopropyl) ether	108-60-1					No ESV	No Source
bis(2-Ethylhexyl)phthalate	117-81-7			0.182	ESL EPA Region 5 (2003)	1.82E-01	ESL EPA Region 5 (2003)
Bromodichloromethane	74-97-5					No ESV	No Source
Bromochloromethane	74-97-5					No ESV	No Source
Bromoform	75-25-2			0.492	ESL EPA Region 5 (2003)	4.92E-01	ESL EPA Region 5 (2003)
Bromomethane	74-83-9					No ESV	No Source
4-bromophenyl-phenylether	101-55-3			1.55	ESL EPA Region 5 (2003)	1.55E+00	ESL EPA Region 5 (2003)
2-Butanone	78-93-3			0.0424	ESL EPA Region 5 (2003)	4.24E-02	ESL EPA Region 5 (2003)
Butylbenzylphthalate	85-68-7			1.97	ESL EPA Region 5 (2003)	1.97E+00	ESL EPA Region 5 (2003)
Carbazole	86-74-8					No ESV	No Source
Carbon disulfide	75-15-0			0.0239	ESL EPA Region 5 (2003)	2.39E-02	ESL EPA Region 5 (2003)
Carbon tetrachloride	56-23-5			1.45	ESL EPA Region 5 (2003)	1.45E+00	ESL EPA Region 5 (2003)
4-Chloroaniline	106-47-8			0.146	ESL EPA Region 5 (2003)	1.46E-01	ESL EPA Region 5 (2003)
Chlorobenzene	108-90-7			0.291	ESL EPA Region 5 (2003)	2.91E-01	ESL EPA Region 5 (2003)
alpha-Chlordane	5103-71-9	0.00324	MacDonald et al. (2000)	0.00324	ESL EPA Region 5 (2003)	3.24E-03	MacDonald et al. (2000)
gamma-Chlordane	5103-74-2	0.00324	MacDonald et al. (2000)	0.00324	ESL EPA Region 5 (2003)	3.24E-03	MacDonald et al. (2000)
Chloroethane	75-00-3					No ESV	No Source

Appendix Table N-15. Derivation of Sediment Ecological Screening Values for Fuse and Booster Quarry, Ravenna, Ohio

Chemicals of Interest	CAS Registry Number	Sediment Screening Values					
		Consensus-Based Sediment Quality Guidelines[a]		Ecological Screening Level (ESL)[b]		Preferred Ecological Screening Value (ESV)[c]	
		Number	Source	Number	Source	Number	Source
Chloroform	67-66-3			0.121	ESL EPA Region 5 (2003)	1.21E-01	ESL EPA Region 5 (2003)
Chloromethane	74-87-3					No ESV	No Source
2-Chloronaphthalene	91-58-7			0.417	ESL EPA Region 5 (2003)	4.17E-01	ESL EPA Region 5 (2003)
2-Chlorophenol	95-57-8			0.0319	ESL EPA Region 5 (2003)	3.19E-02	ESL EPA Region 5 (2003)
4-Chlorobenzenamine	106-47-8			0.146	ESL EPA Region 5 (2003)	1.46E-01	ESL EPA Region 5 (2003)
4-Chlorophenyl-phenyl ether	7005-72-3					No ESV	No Source
4-chloro-3-methylphenol	59-50-7					No ESV	No Source
Chrysene	218-01-9	0.166	MacDonald et al. (2000)	0.166	ESL EPA Region 5 (2003)	1.66E-01	MacDonald et al. (2000)
4,4'-DDD	72-54-8	0.00488	MacDonald et al. (2000)	0.00488	ESL EPA Region 5 (2003)	4.88E-03	MacDonald et al. (2000)
4,4'-DDE	72-55-9	0.00316	MacDonald et al. (2000)	0.00316	ESL EPA Region 5 (2003)	3.16E-03	MacDonald et al. (2000)
4,4'-DDT	50-29-3	0.00416	MacDonald et al. (2000)	0.00416	ESL EPA Region 5 (2003)	4.16E-03	MacDonald et al. (2000)
Diazinon	333-41-5					No ESV	No Source
Dibenzo(a,h)anthracene	53-70-3	0.033	MacDonald et al. (2000)	0.033	ESL EPA Region 5 (2003)	3.30E-02	MacDonald et al. (2000)
Dibenzofuran	132-64-9			0.449	ESL EPA Region 5 (2003)	4.49E-01	ESL EPA Region 5 (2003)
Dibromochloromethane	124-48-1					No ESV	No Source
1,2-Dibromoethane	106-93-4					No ESV	No Source
1,2-Dichlorobenzene	95-50-1			0.294	ESL EPA Region 5 (2003)	2.94E-01	ESL EPA Region 5 (2003)
1,3-Dichlorobenzene	541-73-1			1.315	ESL EPA Region 5 (2003)	1.32E+00	ESL EPA Region 5 (2003)
1,4-Dichlorobenzene	106-46-7			0.318	ESL EPA Region 5 (2003)	3.18E-01	ESL EPA Region 5 (2003)
3,3'-Dichlorobenzidine	91-94-1			0.127	ESL EPA Region 5 (2003)	1.27E-01	ESL EPA Region 5 (2003)
1,1-Dichloroethane	75-34-3			0.00058	ESL EPA Region 5 (2003)	5.75E-04	ESL EPA Region 5 (2003)
1,2-Dichloroethane	107-06-2			0.26	ESL EPA Region 5 (2003)	2.60E-01	ESL EPA Region 5 (2003)
1,1-Dichloroethene	75-35-4			0.0194	ESL EPA Region 5 (2003)	1.94E-02	ESL EPA Region 5 (2003)
1,2-Dichloroethene	540-59-0					No ESV	No Source
2,4-Dichlorophenol	120-83-2			0.0817	ESL EPA Region 5 (2003)	8.17E-02	ESL EPA Region 5 (2003)
1,2-Dichloropropane	78-87-5			0.333	ESL EPA Region 5 (2003)	3.33E-01	ESL EPA Region 5 (2003)
cis-1,3-Dichloropropene	10061-02-6					No ESV	No Source
trans-1,3-Dichloropropene	10061-02-6					No ESV	No Source
Dieldrin	60-57-1	0.0019	MacDonald et al. (2000)	0.0019	ESL EPA Region 5 (2003)	1.90E-03	MacDonald et al. (2000)
Diethylphthalate	84-66-2			0.295	ESL EPA Region 5 (2003)	2.95E-01	ESL EPA Region 5 (2003)
Dimethylbenzene	1330-20-7					No ESV	No Source
Dimethylphthalate	131-11-3					No ESV	No Source
2,4-Dimethylphenol	105-67-9			0.304	ESL EPA Region 5 (2003)	3.04E-01	ESL EPA Region 5 (2003)
Di-n-butylphthalate	84-74-2			1.114	ESL EPA Region 5 (2003)	1.11E+00	ESL EPA Region 5 (2003)
Di-n-octylphthalate	117-84-0			40.6	ESL EPA Region 5 (2003)	4.06E+01	ESL EPA Region 5 (2003)
1,3-Dinitrobenzene	99-65-0			0.00861	ESL EPA Region 5 (2003)	8.61E-03	ESL EPA Region 5 (2003)
2,4-Dinitrophenol	51-28-5			0.00621	ESL EPA Region 5 (2003)	6.21E-03	ESL EPA Region 5 (2003)

Appendix Table N-15. Derivation of Sediment Ecological Screening Values for Fuse and Booster Quarry, Ravenna, Ohio

Chemicals of Interest	CAS Registry Number	Sediment Screening Values					
		Consensus-Based Sediment Quality Guidelines[a]		Ecological Screening Level (ESL)[b]		Preferred Ecological Screening Value (ESV)[c]	
		Number	Source	Number	Source	Number	Source
2,4-Dinitrotoluene	121-14-2			0.0144	ESL EPA Region 5 (2003)	1.44E-02	ESL EPA Region 5 (2003)
2,6-Dinitrotoluene	606-20-2			0.0398	ESL EPA Region 5 (2003)	3.98E-02	ESL EPA Region 5 (2003)
2-Amino-4,6-Dinitrotoluene	35572-78-					No ESV	No Source
4-Amino-2,6-Dinitrotoluene	19406-51-					No ESV	No Source
2-Methyl-4,6-dinitrophenol	534-52-1					No ESV	No Source
4,6-Dinitro-2-methylphenol	534-52-1					No ESV	No Source
Endosulfan, alpha	959-98-8			0.0026	ESL EPA Region 5 (2003)	2.60E-03	ESL EPA Region 5 (2003)
Endosulfan I	959-98-8			0.0026	ESL EPA Region 5 (2003)	2.60E-03	ESL EPA Region 5 (2003)
Endosulfan, beta	33213-65-9			0.00194	ESL EPA Region 5 (2003)	1.94E-03	ESL EPA Region 5 (2003)
Endosulfan, mixed isomers	--					No ESV	No Source
Endosulfan sulfate	1031-07-8			0.0346	ESL EPA Region 5 (2003)	3.46E-02	ESL EPA Region 5 (2003)
Endrin	72-20-8	0.00222	MacDonald et al. (2000)	0.00222	ESL EPA Region 5 (2003)	2.22E-03	MacDonald et al. (2000)
Endrin aldehyde	7421-93-4			0.48	ESL EPA Region 5 (2003)	4.80E-01	ESL EPA Region 5 (2003)
Endrin ketone	53494-70-					No ESV	No Source
Ethylbenzene	100-41-4			0.175	ESL EPA Region 5 (2003)	1.75E-01	ESL EPA Region 5 (2003)
Fluoranthene	206-44-0	0.423	MacDonald et al. (2000)	0.423	ESL EPA Region 5 (2003)	4.23E-01	MacDonald et al. (2000)
Fluorene	86-73-7	0.0774	MacDonald et al. (2000)	0.0774	ESL EPA Region 5 (2003)	7.74E-02	MacDonald et al. (2000)
gamma-BHC (lindane)	58-89-9	0.00237	MacDonald et al. (2000)	0.00237	ESL EPA Region 5 (2003)	2.37E-03	MacDonald et al. (2000)
Lindane	58-89-9	0.00237	MacDonald et al. (2000)	0.00237	ESL EPA Region 5 (2003)	2.37E-03	MacDonald et al. (2000)
Heptachlor	76-44-8			0.0006	ESL EPA Region 5 (2003)	6.00E-04	ESL EPA Region 5 (2003)
Heptachlor Epoxide	1024-57-3	0.00247	MacDonald et al. (2000)	0.00247	ESL EPA Region 5 (2003)	2.47E-03	MacDonald et al. (2000)
Hexachlorobenzene	118-74-1			0.02	ESL EPA Region 5 (2003)	2.00E-02	ESL EPA Region 5 (2003)
Hexachlorobutadiene	87-68-3			0.00265	ESL EPA Region 5 (2003)	2.65E-03	ESL EPA Region 5 (2003)
Hexachlorocyclopentadiene	77-47-4			0.901	ESL EPA Region 5 (2003)	9.01E-01	ESL EPA Region 5 (2003)
Hexachloroethane	67-72-1			0.584	ESL EPA Region 5 (2003)	5.84E-01	ESL EPA Region 5 (2003)
2-Hexanone	591-78-6			0.0582	ESL EPA Region 5 (2003)	5.82E-02	ESL EPA Region 5 (2003)
HMX Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	2691-41-0					No ESV	No Source
HMX	2691-41-0					No ESV	No Source
Indeno(1,2,3-cd)pyrene	193-39-5			0.2	ESL EPA Region 5 (2003)	2.00E-01	ESL EPA Region 5 (2003)
Isophorone	78-59-1			0.4232	ESL EPA Region 5 (2003)	4.23E-01	ESL EPA Region 5 (2003)
Malathion	121-75-5					No ESV	No Source
Methoxychlor	72-43-5			0.0136	ESL EPA Region 5 (2003)	1.36E-02	ESL EPA Region 5 (2003)
Methylene chloride	75-09-2			0.159	ESL EPA Region 5 (2003)	1.59E-01	ESL EPA Region 5 (2003)
Methyl chloride	74-87-3					No ESV	No Source
2-Methylnaphthalene	91-57-6			0.0202	ESL EPA Region 5 (2003)	2.02E-02	ESL EPA Region 5 (2003)
2-Methylphenol	95-48-7					No ESV	No Source
4-Methylphenol	106-44-5					No ESV	No Source

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Chemicals of Interest	CAS Registry Number	Sediment Screening Values					
		Consensus-Based Sediment Quality Guidelines[a]		Ecological Screening Level (ESL)[b]		Preferred Ecological Screening Value (ESV)[c]	
		Number	Source	Number	Source	Number	Source
4-Methyl-2-pentanone	108-10-1			0.0251	ESL EPA Region 5 (2003)	2.51E-02	ESL EPA Region 5 (2003)
Mirex	2385-85-5					No ESV	No Source
Naphthalene	91-20-3	0.176	MacDonald et al. (2000)	0.176	ESL EPA Region 5 (2003)	1.76E-01	MacDonald et al. (2000)
2-Nitroaniline	88-74-4					No ESV	No Source
3-Nitroaniline	99-09-2					No ESV	No Source
4-Nitroaniline	100-01-6					No ESV	No Source
2-Nitrobenzenamine	88-74-4					No ESV	No Source
3-Nitrobenzenamine	99-09-2					No ESV	No Source
Nitrobenzene	99-95-3			0.145	ESL EPA Region 5 (2003)	1.45E-01	ESL EPA Region 5 (2003)
4-Nitrobenzenamine	100-01-6					No ESV	No Source
Nitrocellulose	9004-70-0					No ESV	No Source
Nitroglycerin	55-63-0					No ESV	No Source
Nitroquanidine	--					No ESV	No Source
2-Nitrophenol	88-75-5					No ESV	No Source
4-Nitrophenol	100-02-7			0.0133	ESL EPA Region 5 (2003)	1.33E-02	ESL EPA Region 5 (2003)
m-Nitrotoluene	99-08-1					No ESV	No Source
3-Nitrotoluene	99-08-1					No ESV	No Source
N-nitroso-di-n-dipropylamine	621-64-7					No ESV	No Source
N-nitrosodiphenylamine	86-30-6					No ESV	No Source
N-Nitroso-di-n-propylamine	621-64-7					No ESV	No Source
o-Nitrotoluene	88-72-2					No ESV	No Source
2,2'- oxybis(1-Chloropropane)	108-60-1					No ESV	No Source
Pentachlorophenol	87-86-5			23	ESL EPA Region 5 (2003)	2.30E+01	ESL EPA Region 5 (2003)
Pentachlorobenzene	608-93-5			0.024	ESL EPA Region 5 (2003)	2.40E-02	ESL EPA Region 5 (2003)
Phenanthrene	85-01-8	0.204	MacDonald et al. (2000)	0.204	ESL EPA Region 5 (2003)	2.04E-01	MacDonald et al. (2000)
Phenol	108-95-2			0.0491	ESL EPA Region 5 (2003)	4.91E-02	ESL EPA Region 5 (2003)
Polynuclear aromatic hydrocarbons						No ESV	No Source
Polychorinated biphenyls	1336-36-3			0.0598	ESL EPA Region 5 (2003)	5.98E-02	ESL EPA Region 5 (2003)
p-Nitrotoluene	99-99-0					No ESV	No Source
Pyrene	129-00-0	0.195	MacDonald et al. (2000)	0.195	ESL EPA Region 5 (2003)	1.95E-01	MacDonald et al. (2000)
RDX (cyclonite) Hexahydro-1,3,5-trinitro-1,3,5-triazine	121-82-4					No ESV	No Source
Styrene	100-42-5			0.254	ESL EPA Region 5 (2003)	2.54E-01	ESL EPA Region 5 (2003)
Tetrachloroethene	127-18-4			0.99	ESL EPA Region 5 (2003)	9.90E-01	ESL EPA Region 5 (2003)
Tetrachloroethylene	127-18-4			0.99	ESL EPA Region 5 (2003)	9.90E-01	ESL EPA Region 5 (2003)
1,1,2,2-Tetrachloroethane	79-34-5			0.85	ESL EPA Region 5 (2003)	8.50E-01	ESL EPA Region 5 (2003)
Tetrachloromethane	56-23-5			1.45	ESL EPA Region 5 (2003)	1.45E+00	ESL EPA Region 5 (2003)
Tetryl	479-45-8					No ESV	No Source

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		Consensus-Based Sediment Quality Guidelines[a]		Ecological Screening Level (ESL)[b]		Preferred Ecological Screening Value (ESV)[c]	
		Number	Source	Number	Source	Number	Source
Toluene	108-88-3			1.22	ESL EPA Region 5 (2003)	1.22E+00	ESL EPA Region 5 (2003)
Total Organic Carbon						No ESV	No Source
Toxaphene	8001-35-2			7.70E-05	ESL EPA Region 5 (2003)	7.70E-05	ESL EPA Region 5 (2003)
Tribromomethane	75-25-2			0.492	ESL EPA Region 5 (2003)	4.92E-01	ESL EPA Region 5 (2003)
Trichloroethene	79-01-6			0.112	ESL EPA Region 5 (2003)	1.12E-01	ESL EPA Region 5 (2003)
1,2,4-Trichlorobenzene	120-82-1			5.062	ESL EPA Region 5 (2003)	5.06E+00	ESL EPA Region 5 (2003)
1,1,1-Trichloroethane	71-55-6			0.213	ESL EPA Region 5 (2003)	2.13E-01	ESL EPA Region 5 (2003)
1,1,2-Trichloroethane	79-00-5			0.518	ESL EPA Region 5 (2003)	5.18E-01	ESL EPA Region 5 (2003)
Trichloroethylene	79-01-6			0.112	ESL EPA Region 5 (2003)	1.12E-01	ESL EPA Region 5 (2003)
2,4,5-Trichlorophenol	95-95-4					No ESV	No Source
2,4,6-Trichlorophenol	88-06-2			0.208	ESL EPA Region 5 (2003)	2.08E-01	ESL EPA Region 5 (2003)
1,3,5-Trinitrobenzene	99-35-4					No ESV	No Source
2,4,6-Trinitrotoluene	118-96-7					No ESV	No Source
Vinyl chloride	75-01-4			0.202	ESL EPA Region 5 (2003)	2.02E-01	ESL EPA Region 5 (2003)
Xylenes (total)	1330-20-7			0.433	ESL EPA Region 5 (2003)	4.33E-01	ESL EPA Region 5 (2003)

[a]D.D. MacDonald, C.G. Ingersoll, T.A. Berger. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems.

[b] ESL = Ecological Screening Level. U.S. Environmental Protection Agency (2003), Region 5 RCRA Ecological Screening Levels. Http://www.epa.gov/RCRIS-Region-5/ca/ESL.pdf

[c]The Prefered Sediment Ecological Screening Value is MacDonald et al. (2000) value (first choice if it is available) else the ESL.

Appendix Table N-16. Ohio Administrative Code Water Quality Criteria for Chemical Constituents in Surface Water at Fuse and Booster Quarry, Ravenna, Ohio

Chemicals of Interest	CAS Registry Number	Surface Water: Ohio EPA OMZA (Outside Mixing Zone Average)[a] Number (ug/L)	Surface Water: Ohio EPA OMZA (Outside Mixing Zone Average)[a] Source
Inorganics (Target Analyte List)			
Aluminum	7429-90-5	--	no source
Antimony	7440-36-0	190	Ohio Administrative Code
Arsenic	7440-38-2	150	Ohio Administrative Code
Arsenic III (Diss)	7440-38-2	150	Ohio Administrative Code
Arsenic (TR)	7440-38-2	150	Ohio Administrative Code
Arsenic V (Diss)	7440-38-2	--	No source
Barium	7440-39-3	220	Ohio Administrative Code
Beryllium	7440-41-7	11	Ohio Administrative Code
Beryllium[b] (TR)	7440-41-7	11	Ohio Administrative Code
Cadmium	7440-43-9	2.5	Ohio Administrative Code
Cadmium[b] (Diss)	7440-43-9	2.2	Ohio Administrative Code
Cadmium[b] (TR)	7440-43-9	2.5	Ohio Administrative Code
Calcium	7440-70-2	--	no source
Chromium	7440-47-3	86	Ohio Administrative Code
Chromium[b] (diss)	7440-47-3	74	Ohio Administrative Code
Chromium, hexavalent	18540-29-9	11	Ohio Administrative Code
Cobalt	7440-48-4	24	Ohio Administrative Code
Copper	7440-50-8	9.3	Ohio Administrative Code
Copper[b] (Diss)	7440-50-8	9	Ohio Administrative Code
Copper[b] (TR)	7440-50-8	9.3	Ohio Administrative Code
Cyanide	57-12-5	5.2	Ohio Administrative Code
Iron	7439-89-6	--	no source
Lead[b] (Diss)	7439-92-1	5.1	Ohio Administrative Code
Lead	7439-92-1	6.4	Ohio Administrative Code
Magnesium	7439-95-4	--	no source
Manganese	7439-96-5	--	no source
Mercury	7439-97-6	0.91	Ohio Administrative Code
Mercury (CVAA) (Diss)	7439-97-6	0.77	Ohio Administrative Code
Mercury (TR)	7439-97-6	0.91	Ohio Administrative Code
Nickel	7440-02-0	52	Ohio Administrative Code
Nickel[b] (Diss)	7440-02-0	52	Ohio Administrative Code
Nickel[b] (TR)	7440-02-1	52	Ohio Administrative Code
Nitrate/nitrite		--	no source
Potassium	7440-09-7	--	no source
Selenium (Diss)	7782-49-2	4.6	no source
Selenium	7782-49-2	5	Ohio Administrative Code
Sodium	7440-23-5	--	no source
Sulfate	14808-79-8	--	no source
Sulfide	18496-25-8	--	no source
Thallium	7440-28-0	17	Ohio Administrative Code
Vanadium	7440-62-2	44	Ohio Administrative Code
Zinc	7440-66-6	120	Ohio Administrative Code
Zinc[b] (Diss)	7440-66-6	120	Ohio Administrative Code
Zinc[b] (TR)	7440-66-6	120	Ohio Administrative Code

Appendix Table N-16. Ohio Administrative Code Water Quality Criteria for Chemical Constituents in Surface Water at Fuse and Booster Quarry, Ravenna, Ohio

Chemicals of Interest	CAS Registry Number	Surface Water	
		Ohio EPA OMZA (Outside Mixing Zone Average)[a]	
		Number (ug/L)	Source
Organic Compounds			
Acetone	67-64-1	--	no source
Aldrin	309-00-2	--	no source
bis(2-Ethylhexyl)phthalate	117-81-7	8.4	Ohio Administrative Code
2-Butanone	78-93-3	22000	Ohio Administrative Code
Carbon disulfide	75-15-0	15	Ohio Administrative Code
Chloride	16887-00-6	--	no source
Chloroform	67-66-3	140	Ohio Administrative Code
Chloromethane	74-87-3	--	no source
Chrysene	218-01-9		no source
2-Amino-4,6-dinitrotoluene	35572-78-2	18	Ohio Administrative Code
4-Amino-2,6-dinitrotoluene	19406-51-0	11	Ohio Administrative Code
4,4'-DDT	50-29-3	--	no source
4,4'-DDD	72-54-8	--	no source
1,3-Dinitrobenzene	99-65-0	22	Ohio Administrative Code
2,4-Dinitrotoluene	121-14-2	390	Ohio Administrative Code
2,6-Dinitrotoluene	606-20-2	730	Ohio Administrative Code
Fluoranthene	206-44-0	2.3	Ohio Administrative Code
Methylene chloride	75-09-2	1900	Ohio Administrative Code
4-Methylphenol	106-44-5	53	Ohio Administrative Code
Nitrocellulose	9004-70-0	ID	Ohio Administrative Code
2-Nitrotoluene	88-72-2	71	Ohio Administrative Code
3-Nitrotoluene	99-08-1	42	Ohio Administrative Code
4-Nitrotoluene	99-99-0	46	Ohio Administrative Code
n-Nitrosodiphenylamine	86-30-6	--	no source
Phenol	108-95-2	400	Ohio Administrative Code
2,4,6-Trinitrotoluene	118-96-7	13	Ohio Administrative Code
HMX	2691-41-0	220	Ohio Administrative Code
Perchlorate	7601-90-3	--	no source
Pyrene	129-00-0	42	Ohio Administrative Code
RDX	121-82-4	79	Ohio Administrative Code
Styrene	100-42-5	32	Ohio Administrative Code
Tetrachloroethene	127-18-4	53	Ohio Administrative Code
Tetryl	479-45-8	ID	Ohio Administrative Code
Toluene	108-88-3	62	Ohio Administrative Code

[a] Ohio EPA, Division of Surface Water. 2002. Aquatic Life Tier I Criteria and Tier II Screening Values pursuant to OAC Chapters 3745-1 and 3745-2. December 30.

[b] Hardness adjusted to 100 mg/L $CaCO_3$

[c] free cyanide

-- = no value

ID = Insufficient data available to calculate criterion

Appendix Table N-17. Fuse and Booster Quarry Media Screening Table for Surface Soil (0-1 ft bgs) at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Surface Soil Maximum Concentrations (mg/kg)	Preferred Ecological Screening Value (mg/kg)	Reference	Is Maximum above or below the Preferred Ecological Screening Value?	PBT compound?[a]	COPEC retained[b]?
Inorganics							
Antimony	7440-36-0	7.44E+01	5.00E+00	PRGs	above	no	**yes**
Arsenic	7440-38-2	2.71E+01	9.90E+00	PRGs	above	no	**yes**
Barium	7440-39-3	1.07E+03	2.83E+02	PRGs	above	no	**yes**
Beryllium	7440-41-7	1.50E+00	1.00E+01	PRGs	below	no	no
Cadmium	7440-43-9	4.00E+00	4.00E+00	PRGs	below	yes	**yes**
Calcium	7440-70-2	3.98E+04	No ESV	No Source	no screening value	no	**yes**
Chromium	7440-47-3	8.89E+01	4.00E-01	PRGs	above	no	**yes**
Chromium, hexavalent	18540-29-9	6.80E+00	4.00E-01	PRGs	above	no	**yes**
Cobalt	7440-48-4	3.68E+01	2.00E+01	PRGs	above	no	**yes**
Copper	7440-50-8	5.59E+02	1.39E+01	PPL (SAIC 2002)	above	no	**yes**
Iron	7439-89-6	1.10E+05	2.00E+02	NOEC	above	no	**yes**
Lead	7439-92-1	8.87E+02	4.05E+01	PRGs	above	yes	**yes**
Magnesium	7439-95-4	9.85E+03	No ESV	No Source	no screening value	no	**yes**
Manganese	7439-96-5	2.31E+03	1.00E+02	LOEC	above	no	**yes**
Mercury	7439-97-6	1.20E+00	5.10E-04	PRGs	above	yes	**yes**
Nickel	7440-02-0	8.54E+01	3.00E+01	PRGs	above	no	**yes**
Potassium	7440-09-7	2.66E+03	No ESV	No Source	no screening value	no	**yes**
Selenium	7782-49-2	7.90E+00	2.10E-01	PRGs	above	no	**yes**
Sodium	7440-23-5	6.87E+02	No ESV	No Source	no screening value	no	**yes**
Vanadium	7440-62-2	3.60E+01	2.00E+00	PRGs	above	no	**yes**
Zinc	7440-66-6	1.33E+03	8.50E+00	PRGs	above	yes	**yes**
Organics-Explosives							
1,3,5-Trinitrobenzene	99-35-4	1.70E+00	8.60E-01	PPL (SAIC 2002)	above	no	**yes**
2,4,6-Trinitrotoluene	118-96-7	9.90E+01	7.10E+01	PPL (SAIC 2002)	above	no	**yes**
2,4-Dinitrotoluene	121-14-2	4.00E-01	1.28E+00	ESL EPA Region 5 (2003)	below	no	no
2-Amino-4,6-Dinitrotoluene	35572-78-2	1.20E+01	No ESV	No Source	no screening value	no	**yes**
4-Amino-2,6-Dinitrotoluene	19406-51-0	9.70E+00	No ESV	No Source	no screening value	No Kow	**yes**
Nitrobenzene	98-95-3	8.30E-02	4.00E+01	PRGs	below	no	no
Nitrocellulose	9004-70-0	1.50E+02	No ESV	No Source	no screening value	No Kow	**yes**
Organics-Pesticides/PCBs							
4,4'-DDE	72-55-9	3.70E-04	5.96E-01	ESL EPA Region 5 (2003)	below	yes	**yes**
Organics-Semivolatiles							
Benzo(a)anthracene	56-55-3	1.90E-01	5.21E+00	ESL EPA Region 5 (2003)	below	yes	**yes**
Benzo(a)pyrene	50-32-8	8.40E-02	1.52E+00	ESL EPA Region 5 (2003)	below	yes	**yes**
Benzo(b)fluoranthene	205-99-2	2.60E-01	5.98E+01	ESL EPA Region 5 (2003)	below	yes	**yes**
Benzo(k)fluoranthene	207-08-9	8.50E-02	1.48E+02	ESL EPA Region 5 (2003)	below	yes	**yes**
Chrysene	218-01-9	3.70E-01	4.73E+00	ESL EPA Region 5 (2003)	below	yes	**yes**
Di-n-butylphthalate	84-74-2	2.40E-01	2.00E+02	PRGs	below	yes	**yes**
Fluoranthene	206-44-0	8.70E-01	1.22E+02	ESL EPA Region 5 (2003)	below	yes	**yes**
Pyrene	129-00-0	6.40E-01	7.85E+01	ESL EPA Region 5 (2003)	below	yes	**yes**
Organics-Volatiles							
Acetone	67-64-1	5.10E-03	2.50E+00	ESL EPA Region 5 (2003)	below	no	no
Carbon disulfide	75-15-0	6.90E-02	9.41E-02	ESL EPA Region 5 (2003)	below	no	no
Methylene chloride	75-09-2	2.70E-02	1.05E+00	ESL EPA Region 5 (2003)	below	no	no
Tetrachloroethene	127-48-4	4.90E-03	1.00E+01	No Soil, only Solution	below	no	no

bgs = below ground surface
COPECs = chemicals of potential ecological concern
CAS = Chemical Abstract Service
PBT = Persistent, bioaccumulative, and toxic pollutants
[a]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs; or log Kow is 3 or greater for organics; else, no
Kow = octanol-water partition coefficient
[b]**Yes** = Maximum detect > preferred ecological screening value or no ecological screening value, and/or PBT compound;
no = Maximum detect < preferred ecological screening value
LOEC = lowest observed effect concentration
PRG = preliminary remediation goal
PPL = plant protection level
NOEC = no observed effect concentration
ESL = ecological screening level
EPA = Environmental Protection Agency

Appendix Table N-18. Fuse and Booster Quarry Media Screening Table for Subsurface Soil (1-3 ft bgs) at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Subsurface Soil Maximum Concentrations (mg/kg)	Preferred Ecological Screening Value (mg/kg)	Reference	Is Maximum above or below the Preferred Ecological Screening Value?	PBT compound?[a]	COPEC retained[b]?
Inorganics							
Aluminum	7429-90-5	2.09E+04	6.00E+02	LOEC	above	no	**yes**
Antimony	7440-36-0	1.90E+00	5.00E+00	PRGs	below	no	no
Arsenic	7440-38-2	2.46E+01	9.90E+00	PRGs	above	no	**yes**
Barium	7440-39-3	1.51E+02	2.83E+02	PRGs	below	no	no
Beryllium	7440-41-7	1.20E+00	1.00E+01	PRGs	below	no	no
Cadmium	7440-43-9	7.20E-01	4.00E+00	PRGs	below	yes	**yes**
Chromium	7440-47-3	2.83E+02	4.00E-01	PRGs	above	no	**yes**
Chromium, hexavalent	18540-29-9	7.90E+00	4.00E-01	PRGs	above	no	**yes**
Iron	7439-89-6	4.08E+04	2.00E+02	NOEC	above	no	**yes**
Lead	7439-92-1	1.16E+02	4.05E+01	PRGs	above	yes	**yes**
Magnesium	7439-95-4	9.08E+03	No ESV	No Source	no screening value	no	**yes**
Mercury	7439-97-6	7.60E-01	5.10E-04	PRGs	above	yes	**yes**
Selenium	7782-49-2	3.10E+00	2.10E-01	PRGs	above	no	**yes**
Sodium	7440-23-5	1.76E+02	No ESV	No Source	no screening value	no	**yes**
Vanadium	7440-62-2	4.03E+01	2.00E+00	PRGs	above	no	**yes**
Zinc	7440-66-6	1.56E+02	8.50E+00	PRGs	above	yes	**yes**
Organics-Explosives							
Nitrobenzene	98-95-3	1.00E-01	4.00E+01	PRGs	below	no	no
Nitrocellulose	9004-70-0	1.10E+02	No ESV	No Source	no screening value	No Kow	**yes**
Organics-Volatiles							
Carbon disulfide	75-15-0	8.70E-01	9.41E-02	ESL EPA Region 5 (2003)	above	no	**yes**
Methylene chloride	75-09-2	1.80E-01	1.05E+00	ESL EPA Region 5 (2003)	below	no	no
Trichloroethene	79-01-6	2.80E-03	1.00E+02	No Soil, only Solution	below	no	no

bgs = below ground surface

COPECs = chemicals of potential ecological concern

CAS = Chemical Abstract Service

PBT = Persistent, bioaccumulative, and toxic pollutants

[a]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs; or log Kow is 3 or greater for organics; else, no

Kow = octanol-water partition coefficient

[b]**Yes** = Maximum detect > preferred ecological screening value or no ecological screening value, and/or PBT compound;
no = Maximum detect < preferred ecological screening value

LOEC = lowest observed effect concentration

PRG = preliminary remediation goal

ESL = ecological screening level

EPA = Environmental Protection Agency

Appendix Table N-19. Fuse and Booster Quarry Large Ponds Media Screening Table for Sediment at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Sediment Maximum Concentrations (mg/kg)	Preferred Ecological Screening Value (mg/kg)	Reference	Is Maximum above or below the Preferred Ecological Screening Value?	PBT compound?[a]	COPEC retained[b]?
Inorganics							
Antimony	7440-36-0	1.28E+02	No ESV	No Source	no screening value	no	**yes**
Arsenic	7440-38-2	3.24E+01	9.79E+00	MacDonald et al. (2000)	above	no	**yes**
Barium	7440-39-3	9.76E+02	No ESV	No Source	no screening value	no	**yes**
Beryllium	7440-41-7	1.10E+00	No ESV	No Source	no screening value	no	**yes**
Cadmium	7440-43-9	1.89E+01	9.90E-01	MacDonald et al. (2000)	above	yes	**yes**
Calcium	7440-70-2	5.55E+04	No ESV	No Source	no screening value	no	**yes**
Chromium	7440-47-3	1.08E+02	4.34E+01	MacDonald et al. (2000)	above	no	**yes**
Chromium, hexavalent	18540-29-9	3.30E+01	4.34E+01	MacDonald et al. (2000)	below	no	no
Cobalt	7440-48-4	1.80E+01	5.00E+01	ESL EPA Region 5 (2003)	below	no	no
Copper	7440-50-8	6.60E+02	3.16E+01	MacDonald et al. (2000)	above	no	**yes**
Iron	7439-89-6	1.38E+05	No ESV	No Source	no screening value	no	**yes**
Lead	7439-92-1	1.49E+03	3.58E+01	MacDonald et al. (2000)	above	yes	**yes**
Magnesium	7439-95-4	8.59E+03	No ESV	No Source	no screening value	no	**yes**
Mercury	7439-97-6	3.50E+01	1.80E-01	MacDonald et al. (2000)	above	yes	**yes**
Nickel	7440-02-0	8.05E+01	2.27E+01	MacDonald et al. (2000)	above	no	**yes**
Selenium	7782-49-2	8.20E+00	No ESV	No Source	no screening value	no	**yes**
Silver	7440-22-4	1.24E+01	5.00E-01	ESL EPA Region 5 (2003)	above	no	**yes**
Sodium	7440-23-5	8.14E+02	No ESV	No Source	no screening value	no	**yes**
Zinc	7440-66-6	3.62E+03	1.21E+02	MacDonald et al. (2000)	above	yes	**yes**
Organics-Explosives							
2,4,6-Trinitrotoluene	118-96-7	3.00E-01	No ESV	No Source	no screening value	no	**yes**
2-Amino-4,6-Dinitrotoluene	35572-78-2	7.30E-02	No ESV	No Source	no screening value	no	**yes**
4-Amino-2,6-Dinitrotoluene	19406-51-0	3.90E-01	No ESV	No Source	no screening value	No Kow	**yes**
HMX	2691-41-0	1.60E-01	No ESV	No Source	no screening value	No Kow	**yes**
Nitrobenzene	98-95-3	1.10E-01	1.45E-01	ESL EPA Region 5 (2003)	below	no	no
Nitrocellulose	9004-70-4	5.50E-01	No ESV	No Source	no screening value	No Kow	**yes**
Nitroglycerin	55-63-0	4.90E+01	No ESV	No Source	no screening value	no	**yes**
Organics-Pesticide/PCBs							
4,4'-DDD	72-45-8	2.70E-03	4.88E-03	MacDonald et al. (2000)	below	yes	**yes**
4,4'-DDE	72-55-9	6.60E-04	3.16E-03	MacDonald et al. (2000)	below	yes	**yes**
Dieldrin	60-57-1	8.80E-04	1.90E-03	MacDonald et al. (2000)	below	yes	**yes**
Endrin	72-20-8	7.10E-04	2.22E-03	MacDonald et al. (2000)	below	yes	**yes**
Endrin aldehyde	7421-93-4	1.80E-03	4.80E-01	ESL EPA Region 5 (2003)	below	yes	**yes**
Methoxychlor	72-43-5	3.00E-03	1.36E-02	ESL EPA Region 5 (2003)	below	yes	**yes**
Organics-Semivolatiles							
2-Methylnaphthalene	91-57-6	5.10E-02	2.02E-02	ESL EPA Region 5 (2003)	above	no	**yes**
Anthracene	120-12-7	2.30E-01	5.72E-02	MacDonald et al. (2000)	above	yes	**yes**
Benzo(a)anthracene	56-55-3	2.10E+00	1.08E-01	MacDonald et al. (2000)	above	yes	**yes**
Benzo(a)pyrene	50-32-8	2.00E+00	1.50E-01	MacDonald et al. (2000)	above	yes	**yes**
Benzo(b)fluoranthene	205-99-2	2.30E+00	1.04E+01	ESL EPA Region 5 (2003)	below	yes	**yes**
Benzo(g,h,i)perylene	191-24-2	1.20E+00	1.70E-01	ESL EPA Region 5 (2003)	above	yes	**yes**
Benzo(k)fluoranthene	207-08-9	9.50E-01	2.40E-01	ESL EPA Region 5 (2003)	above	yes	**yes**
Bis(2-ethylhexyl)phthalate	117-81-7	1.00E-01	1.82E-01	ESL EPA Region 5 (2003)	below	yes	**yes**
Carbazole	86-74-8	1.10E-01	No ESV	No Source	no screening value	yes	**yes**
Chrysene	218-01-9	1.30E+00	1.66E-01	MacDonald et al. (2000)	above	yes	**yes**
Fluoranthene	206-44-0	3.20E+00	4.23E-01	MacDonald et al. (2000)	above	yes	**yes**
Indeno(1,2,3-cd)pyrene	193-39-5	1.00E+00	2.00E-01	ESL EPA Region 5 (2003)	above	yes	**yes**
Naphthalene	91-20-3	1.20E-01	1.76E-01	MacDonald et al. (2000)	below	yes	**yes**
Phenanthrene	85-01-8	6.80E-01	2.04E-01	MacDonald et al. (2000)	above	yes	**yes**
Pyrene	129-00-0	2.30E+00	1.95E-01	MacDonald et al. (2000)	above	yes	**yes**
Organics-Volatiles							
2-Butanone	78-93-3	4.30E-02	4.24E-02	ESL EPA Region 5 (2003)	above	no	**yes**
Acetone	67-64-1	6.40E-02	9.90E-03	ESL EPA Region 5 (2003)	above	no	**yes**
Carbon disulfide	78-93-3	2.90E-03	2.39E-02	ESL EPA Region 5 (2003)	below	no	no
Methylene chloride	75-09-2	3.70E-02	1.59E-01	ESL EPA Region 5 (2003)	below	no	no
Toluene	108-88-3	5.60E-03	1.22E+00	ESL EPA Region 5 (2003)	below	no	no

COPECs = chemicals of potential ecological concern

CAS = Chemical Abstract Service

ESV = Preferred Ecological Screening Value

PBT = Persistent, bioaccumulative, and toxic pollutants

[a]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs (OEPA 2003); or log Kow is 3 or greater for organics (OEPA 2003); else, no

[b]**Yes** = Maximum detect > preferred ecological screening value or no ecological screening value, and/or PBT compound;
no = Maximum detect < preferred ecological screening value

ESL = ecological screening level

EPA = Environmental Protection Agency

Appendix Table N-20. Fuse and Booster Quarry Drainage Ditch Media Screening Table for Sediment at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Sediment Maximum Concentrations (mg/kg)	Preferred Ecological Screening Value (mg/kg)	Reference	Is Maximum above or below the Preferred Ecological Screening Value?	PBT compound?[a]	COPEC retained[b]?
Inorganics							
Antimony	7440-36-0	1.15E+01	No ESV	No Source	no screening value	no	**yes**
Arsenic	7440-38-2	3.33E+01	9.79E+00	MacDonald et al. (2000)	above	no	**yes**
Barium	7440-39-3	5.07E+02	No ESV	No Source	no screening value	no	**yes**
Beryllium	7440-41-7	1.10E+00	No ESV	No Source	no screening value	no	**yes**
Cadmium	7440-43-9	2.30E+00	9.90E-01	MacDonald et al. (2000)	above	yes	**yes**
Chromium, hexavalent	18540-29-9	1.90E+00	4.34E+01	MacDonald et al. (2000)	below	no	no
Cobalt	7440-48-4	1.58E+01	5.00E+01	ESL EPA Region 5 (2003)	below	no	no
Copper	7440-50-8	6.32E+01	3.16E+01	MacDonald et al. (2000)	above	no	**yes**
Iron	7439-89-6	5.52E+04	No ESV	No Source	no screening value	no	**yes**
Lead	7439-92-1	8.00E+01	3.58E+01	MacDonald et al. (2000)	above	yes	**yes**
Manganese	7439-96-5	4.10E+03	No ESV	No Source	no screening value	no	**yes**
Mercury	7439-97-6	8.00E-01	1.80E-01	MacDonald et al. (2000)	above	yes	**yes**
Selenium	7782-49-2	2.30E+00	No ESV	No Source	no screening value	no	**yes**
Silver	7440-22-4	5.10E-01	5.00E-01	ESL EPA Region 5 (2003)	above	no	**yes**
Sodium	7440-23-5	2.85E+02	No ESV	No Source	no screening value	no	**yes**
Zinc	7440-66-6	5.44E+02	1.21E+02	MacDonald et al. (2000)	above	yes	**yes**
Organics-Explosives							
2,4,6-Trinitrotoluene	118-96-7	6.00E-02	No ESV	No Source	no screening value	no	**yes**
3-Nitrotoluene	99-08-1	1.50E-01	No ESV	No Source	no screening value	no	**yes**
Nitrobenzene	98-95-3	7.10E-02	1.45E-01	ESL EPA Region 5 (2003)	below	no	no
Nitrocellulose	9004-70-4	1.00E+02	No ESV	No Source	no screening value	No Kow	**yes**
Organics-Pesticide/PCBs							
4,4'-DDD	72-45-8	1.30E-02	4.88E-03	MacDonald et al. (2000)	above	yes	**yes**
4,4'-DDE	72-55-9	1.50E-03	3.16E-03	MacDonald et al. (2000)	below	yes	**yes**
Methoxychlor	72-43-5	2.30E-03	1.36E-02	ESL EPA Region 5 (2003)	below	yes	**yes**
Organics-Semivolatiles							
2-Methylnaphthalene	91-57-6	1.60E+00	2.02E-02	ESL EPA Region 5 (2003)	above	no	**yes**
Acenaphthylene	208-96-8	1.10E-01	5.87E-03	ESL EPA Region 5 (2003)	above	yes	**yes**
Anthracene	120-12-7	4.60E-01	5.72E-02	MacDonald et al. (2000)	above	yes	**yes**
Benzo(a)anthracene	56-55-3	1.10E+00	1.08E-01	MacDonald et al. (2000)	above	yes	**yes**
Benzo(a)pyrene	50-32-8	8.40E-01	1.50E-01	MacDonald et al. (2000)	above	yes	**yes**
Benzo(b)fluoranthene	205-99-2	9.80E-01	1.04E+01	ESL EPA Region 5 (2003)	below	yes	**yes**
Benzo(g,h,i)perylene	191-24-2	3.90E-01	1.70E-01	ESL EPA Region 5 (2003)	above	yes	**yes**
Benzo(k)fluoranthene	207-08-9	2.50E-01	2.40E-01	ESL EPA Region 5 (2003)	above	yes	**yes**
Carbazole	86-74-8	2.30E-01	No ESV	No Source	no screening value	yes	**yes**
Chrysene	218-01-9	8.90E-01	1.66E-01	MacDonald et al. (2000)	above	yes	**yes**
Dibenzofuran	132-64-9	4.30E-01	4.49E-01	ESL EPA Region 5 (2003)	below	yes	**yes**
Fluoranthene	206-44-0	2.40E+00	4.23E-01	MacDonald et al. (2000)	above	yes	**yes**
Fluorene	86-73-7	1.20E-01	7.74E-02	MacDonald et al. (2000)	above	yes	**yes**
Indeno(1,2,3-cd)pyrene	193-39-5	4.00E-01	2.00E-01	ESL EPA Region 5 (2003)	above	yes	**yes**
Naphthalene	91-20-3	9.70E-01	1.76E-01	MacDonald et al. (2000)	above	yes	**yes**
Phenanthrene	85-01-8	1.70E+00	2.04E-01	MacDonald et al. (2000)	above	yes	**yes**
Pyrene	129-00-0	1.50E+00	1.95E-01	MacDonald et al. (2000)	above	yes	**yes**
Organics-Volatiles							
2-Butanone	78-93-3	2.60E-02	4.24E-02	ESL EPA Region 5 (2003)	below	no	no
Carbon disulfide	75-15-0	3.60E-03	2.39E-02	ESL EPA Region 5 (2003)	below	no	no
Toluene	108-88-3	2.80E-03	1.22E+00	ESL EPA Region 5 (2003)	below	no	no
Trichloroethene	79-01-6	2.80E-03	1.12E-01	ESL EPA Region 5 (2003)	below	no	no

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PBT = Persistent, bioaccumulative, and toxic pollutants
ESL = ecological screening level
EPA = Environmental Protection Agency

[a]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs (OEPA 2003); or log Kow is 3 or greater for organics (OEPA 2003); else, no

[b]**Yes** = Maximum detect > preferred ecological screening value or no ecological screening value, and/or PBT compound;
no = Maximum detect < preferred ecological screening value

Appendix Table N-21. Fuse and Booster Quarry Small Basins Media Screening Table for Sediment at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Sediment Maximum Concentrations (mg/kg)	Preferred Ecological Screening Value (mg/kg)	Reference	Is Maximum above or below the Preferred Ecological Screening Value?	PBT compound?[a]	COPEC retained[b]?
Inorganics							
Barium	7440-39-3	2.28E+02	No ESV	No Source	no screening value	no	**yes**
Beryllium	7440-41-7	1.20E+00	No ESV	No Source	no screening value	no	**yes**
Cadmium	7440-43-9	9.20E-01	9.90E-01	MacDonald et al. (2000)	below	yes	**yes**
Chromium	7440-47-3	1.14E+03	4.34E+01	MacDonald et al. (2000)	above	no	**yes**
Cobalt	7440-48-4	1.78E+01	5.00E+01	ESL EPA Region 5 (2003)	below	no	no
Copper	7440-50-8	4.14E+01	3.16E+01	MacDonald et al. (2000)	above	no	**yes**
Iron	7439-89-6	4.74E+04	No ESV	No Source	no screening value	no	**yes**
Lead	7439-92-1	4.55E+02	3.58E+01	MacDonald et al. (2000)	above	yes	**yes**
Manganese	7439-96-5	2.56E+03	No ESV	No Source	no screening value	no	**yes**
Mercury	7439-97-6	1.90E-01	1.80E-01	MacDonald et al. (2000)	above	yes	**yes**
Nickel	7440-02-0	3.34E+01	2.27E+01	MacDonald et al. (2000)	above	no	**yes**
Selenium	7782-49-2	2.20E+00	No ESV	No Source	no screening value	no	**yes**
Sodium	7440-23-5	1.91E+02	No ESV	No Source	no screening value	no	**yes**
Vanadium	7440-62-2	4.20E+01	No ESV	No Source	no screening value	no	**yes**
Zinc	7440-66-6	2.05E+02	1.21E+02	MacDonald et al. (2000)	above	yes	**yes**
Organics-Explosives							
1,3,5-Trinitrobenzene	99-35-4	9.80E-02	No ESV	No Source	no screening value	no	**yes**
1,3-Dinitrobenzene	99-65-3	1.10E-01	8.61E-03	ESL EPA Region 5 (2003)	above	no	**yes**
2,6-Dinitrotoluene	606-20-2	8.50E-02	3.98E-02	ESL EPA Region 5 (2003)	above	no	**yes**
3-Nitrotoluene	99-08-1	7.80E-02	No ESV	No Source	no screening value	no	**yes**
HMX	2691-41-0	1.10E-01	No ESV	No Source	no screening value	No Kow	**yes**
Nitrocellulose	9004-70-4	1.10E+02	No ESV	No Source	no screening value	No Kow	**yes**
Organics-Pesticide/PCBs							
4,4'-DDD	72-45-8	8.50E-04	4.88E-03	MacDonald et al. (2000)	below	yes	**yes**
4,4'-DDE	72-55-9	7.90E-04	3.16E-03	MacDonald et al. (2000)	below	yes	**yes**
4,4'-DDT	50-29-3	1.60E-03	4.16E-03	MacDonald et al. (2000)	below	yes	**yes**
Dieldrin	60-57-1	5.50E-04	1.90E-03	MacDonald et al. (2000)	below	yes	**yes**
Endosulfan I	959-98-9	5.20E-04	2.60E-03	ESL EPA Region 5 (2003)	below	yes	**yes**
Endrin	72-20-8	5.50E-04	2.22E-03	MacDonald et al. (2000)	below	yes	**yes**
Heptachlor epoxide	1024-57-3	5.70E-04	2.47E-03	MacDonald et al. (2000)	below	yes	**yes**
Lindane	58-89-9	8.60E-04	2.37E-03	MacDonald et al. (2000)	below	yes	**yes**
Methoxychlor	72-43-5	2.20E-03	1.36E-02	ESL EPA Region 5 (2003)	below	yes	**yes**
beta-BHC	319-85-7	6.60E-04	5.00E-03	ESL EPA Region 5 (2003)	below	yes	**yes**
Organics-Semivolatiles							
2-Methylnaphthalene	91-57-6	1.10E-01	2.02E-02	ESL EPA Region 5 (2003)	above	no	**yes**
4-Methylphenol	106-44-5	5.10E-01	No ESV	No Source	no screening value	no	**yes**
Benzo(a)anthracene	56-55-3	1.20E-01	1.08E-01	MacDonald et al. (2000)	above	yes	**yes**
Benzo(a)pyrene	50-32-8	1.10E-01	1.50E-01	MacDonald et al. (2000)	below	yes	**yes**
Benzo(b)fluoranthene	205-99-2	1.60E-01	1.04E+01	ESL EPA Region 5 (2003)	below	yes	**yes**
Bis(2-ethylhexyl)phthalate	117-81-7	7.60E-02	1.82E-01	ESL EPA Region 5 (2003)	below	yes	**yes**
Chrysene	218-01-9	1.10E-01	1.66E-01	MacDonald et al. (2000)	below	yes	**yes**
Fluoranthene	206-44-0	1.90E-01	4.23E-01	MacDonald et al. (2000)	below	yes	**yes**
Indeno(1,2,3-cd)pyrene	193-39-5	6.60E-02	2.00E-01	ESL EPA Region 5 (2003)	below	yes	**yes**
Naphthalene	91-20-3	8.30E-02	1.76E-01	MacDonald et al. (2000)	below	yes	**yes**
Phenanthrene	85-01-8	1.40E-01	2.04E-01	MacDonald et al. (2000)	below	yes	**yes**
Pyrene	129-00-0	2.00E-01	1.95E-01	MacDonald et al. (2000)	above	yes	**yes**
Organics-Volatiles							
Acetone	67-64-1	3.60E-02	9.90E-03	ESL EPA Region 5 (2003)	above	no	**yes**
Toluene	108-88-3	9.00E-02	1.22E+00	ESL EPA Region 5 (2003)	below	no	no

COPECs = chemicals of potential ecological concern
CAS = Chemical Abstract Service
ESV = Preferred Ecological Screening Value
PBT = Persistent, bioaccumulative, and toxic pollutants
ESL = ecological screening level
EPA = Environmental Protection Agency

[a]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs (OEPA 2003); or log Kow is 3 or greater for organics (OEPA 2003); else, no

[b]**Yes** = Maximum detect > preferred ecological screening value or no ecological screening value, and/or PBT compound;
no = Maximum detect < preferred ecological screening value

Appendix Table N-22. Fuse and Booster Quarry Large Ponds Media Screening Table for Surface Water at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Surface Water Average Concentrations (µg/L)	OAC WQC[a] (µg/L)	Reference	Is Average above or below the OAC WQC?	PBT compound?[b]	COPEC retained[c]?
Inorganics							
Barium	7440-39-3	4.91E+01	2.20E+02	Ohio Administrative Code	below	no	no
Calcium	7440-70-2	2.10E+04	No WQC	no source	no screening value	no	**yes**
Zinc	7440-66-6	1.31E+01	1.20E+02	Ohio Administrative Code	below	yes	**yes**
Organics-Explosives							
Nitrocellulose	9004-70-0	7.38E+02	ID	Ohio Administrative Code	no screening value	No Kow	**yes**
Organics-Semivolatiles							
Bis(2-ethylhexyl)phthalate	117-81-7	2.60E+00	8.40E+00	Ohio Administrative Code	below	yes	**yes**
Organics-Volatiles							
Methylene chloride	75-09-2	4.10E+00	1.90E+03	Ohio Administrative Code	below	no	no

COPECs = chemicals of potential ecological concern

CAS = Chemical Abstract Service

[a]OAC = Ohio Administrative Code [For Lake Erie Basin in Chapters 3745-1 and 3745-2, Ohio EPA, Division of Surface Water]
WQC = water quality criteria (Outside Mixing Zone Average because multiple water measurements are available)

ID = insufficient data available to calculate a criterion by Ohio EPA

PBT = Persistent, bioaccumulative, and toxic pollutants (If PBT, analyte is retained even if concentration is below ESV)

[b]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs; or log Kow is 3 or greater for organics; else, no

[c]**Yes** = Average concentration detect > WQC or no WQC, and/or PBT compound;
no = Average concentration detect < WQC

WQC for zinc is hardness-dependent and based on hardness of 100 mg/L as $CaCO_3$

Kow = octanol-water partition coefficient

Appendix Table N-23. Fuse and Booster Quarry Drainage Ditch Media Screening Table for Surface Water at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Surface Water Maximum Concentrations (µg/L)	OAC WQC[a] (µg/L)	Reference	Is Maximum above or below the OAC WQC?	PBT compound?[b]	COPEC retained[c]?
Inorganics							
Barium	7440-39-3	1.03E+03	2.00E+03	Ohio Administrative Code	below	no	no
Chromium	7440-47-3	3.70E+00	5.70E+02	Ohio Administrative Code	below	no	no
Cobalt	7440-48-4	2.10E+00	2.20E+02	Ohio Administrative Code	below	no	no
Iron	7439-89-6	1.86E+04	No WQC	no source	no screening value	no	**yes**
Manganese	7439-96-5	1.10E+04	No WQC	no source	no screening value	no	**yes**
Vanadium	7440-62-2	4.30E+00	1.50E+02	Ohio Administrative Code	below	no	no
Zinc	7440-66-6	3.60E+01	1.20E+02	Ohio Administrative Code	below	yes	**yes**
Organics-Explosives							
Nitrocellulose	9004-70-0	6.10E+02	ID	Ohio Administrative Code	no screening value	No Kow	**yes**
Organics-Semivolatiles							
Bis(2-ethylhexyl)phthalate	117-81-7	1.70E+00	1.10E+03	Ohio Administrative Code	below	yes	**yes**
Organics-Volatiles							
Carbon disulfide	75-15-0	1.80E+00	1.30E+02	Ohio Administrative Code	below	no	no

COPECs = chemicals of potential ecological concern

CAS = Chemical Abstract Service

[a]OAC = Ohio Administrative Code [For Lake Erie Basin in Chapters 3745-1 and 3745-2, Ohio EPA, Division of Surface Water]
WQC = water quality criteria (Outside Mixing Zone Maximum because only a single water measurement)

ID = insufficient data available to calculate a criterion by Ohio EPA

PBT = Persistent, bioaccumulative, and toxic pollutants (If PBT, analyte is retained even if concentration is below ESV)

[b]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs; or log Kow is 3 or greater for organics; else, no

[c]**Yes** = Maximum concentration detect > WQC or no WQC, and/or PBT compound;
no = Maximum concentration detect < WQC

WQC for chromium and zinc are hardness-dependent and based on hardness of 100 mg/L as $CaCO_3$

Kow = octanol-water partition coefficient

Appendix Table N-24. Fuse and Booster Quarry Small Basins Media Screening Table for Surface Water at Ravenna, Ohio

COPECs from Data/Media Evaluation	CAS Registry Number	Surface Water Average Concentrations (µg/L)	OAC WQC[a] (µg/L)	Reference	Is Average above or below the OAC WQC?	PBT compound?[b]	COPEC retained[c]?
Inorganics							
Aluminum	7429-90-5	1.08E+03	No WQC	no source	no screening value	no	**yes**
Arsenic	7440-38-2	5.99E+00	1.50E+02	Ohio Administrative Code	below	no	no
Barium	7440-39-3	4.99E+01	2.20E+02	Ohio Administrative Code	below	no	no
Beryllium	7440-41-7	1.85E-01	1.10E+01	Ohio Administrative Code	below	no	no
Chromium	7440-47-3	2.01E+00	8.60E+01	Ohio Administrative Code	below	no	no
Chromium, hexavalent	18540-29-9	1.75E+01	1.10E+01	Ohio Administrative Code	above	no	**yes**
Cobalt	7440-48-4	6.88E+00	2.40E+01	Ohio Administrative Code	below	no	no
Copper	7440-50-8	6.63E+00	9.30E+00	Ohio Administrative Code	below	no	no
Iron	7439-89-6	1.40E+04	No WQC	no source	no screening value	no	**yes**
Lead	7439-92-1	4.34E+00	6.40E+00	Ohio Administrative Code	below	yes	**yes**
Manganese	7439-96-5	1.36E+03	No WQC	no source	no screening value	no	**yes**
Nickel	7440-02-0	3.34E+00	5.20E+01	Ohio Administrative Code	below	no	no
Potassium	7440-09-7	6.97E+03	No WQC	no source	no screening value	no	**yes**
Vanadium	7440-62-2	3.00E+00	4.40E+01	Ohio Administrative Code	below	no	no
Zinc	7440-66-6	1.84E+01	1.20E+02	Ohio Administrative Code	below	yes	**yes**
Anions-Miscellaneous							
Perchlorate	7601-90-3	5.00E+00	No WQC	no source	no screening value	no	**yes**
Organics-Explosives							
2-Amino-4,6-Dinitrotoluene	35572-78-2	1.85E-01	1.80E+01	Ohio Administrative Code	below	no	no
4-Amino-2,6-Dinitrotoluene	19406-51-0	2.12E+00	1.10E+01	Ohio Administrative Code	below	No Kow	no
Nitrocellulose	9004-70-0	3.01E+02	ID	Ohio Administrative Code	no screening value	No Kow	**yes**
Organics-Semivolatiles							
4-Methylphenol	106-44-5	4.08E+01	5.30E+01	Ohio Administrative Code	below	no	no
Bis(2-ethylhexyl)phthalate	117-81-7	2.81E+00	8.40E+00	Ohio Administrative Code	below	yes	**yes**
Phenol	108-95-2	2.39E+01	4.00E+02	Ohio Administrative Code	below	no	no
Organics-Volatiles							
2-Butanone	78-93-3	4.85E+00	2.20E+04	Ohio Administrative Code	below	no	no
Carbon disulfide	75-15-0	2.26E+00	1.50E+01	Ohio Administrative Code	below	no	no
Styrene	100-42-5	2.36E+00	3.20E+01	Ohio Administrative Code	below	no	no
Toluene	108-88-3	1.03E+01	6.20E+01	Ohio Administrative Code	below	no	no

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[a]OAC = Ohio Administrative Code [For Lake Erie Basin in Chapters 3745-1 and 3745-2, Ohio EPA, Division of Surface Water]
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ID = insufficient data available to calculate a criterion by Ohio EPA

PBT = Persistent, bioaccumulative, and toxic pollutants (If PBT, analyte is retained even if concentration is below ESV)

[b]Yes = cadmium, mercury, lead, and zinc are inorganic PBTs; or log Kow is 3 or greater for organics; else, no

[c]**Yes** = Average concentration detect > WQC or no WQC, and/or PBT compound;
no = Average concentration detect < WQC

WQC for chromium, copper, lead, nickel, and zinc are hardness-dependent and based on hardness of 100 mg/L as $CaCO_3$

Kow = octanol-water partition coefficient

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