

Table 1-4
Sediment Screening Criteria
Consolidated Iron and Metal Superfund Site
Newburgh, New York

Chemical Name	New York State Sediment Screening Criteria for Human Health Bioaccumulation, Freshwater Adjusted for Site TOC of 3.985% (1)	New York State Sediment Screening Criteria for Benthic Aquatic Life, Chronic Toxicity, Freshwater, Adjusted for Site TOC of 3.985%- with NYSDEC LEL for inorganics (1)	New York State Sediment - Aquatic Life - Severe Effect Level (SEL) for Inorganics (1)	MacDonald (2000) Consensus-based Probable Effect Concentration (PEC) (2)	EPA Region IX Criteria: Industrial/ Commercial Soil	Sediment Screening Criteria (SSSDSC) (3)	Site-Specific Background Value - Sediment (4)
VOCs							
1,1,1-Trichloroethane	NL	NL	NL	NL	694,742 nc	694,742	ND
1,1,2,2-Tetrachloroethane	11.955 B	NL	NL	NL	929 ca	11.955	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	NL	NL	NL	1,605 ca	1,605	ND
1,1,2-Trichloroethane	23.91 B	NL	NL	NL	6,874,970 nc	23.91	ND
1,1-Dichloroethane	NL	NL	NL	NL	173,865 nc	173,865	ND
1,1-Dichloroethene	0.797 B	NL	NL	NL	41,333 nc	0.797	ND
1,2,3-Trichlorobenzene	NL	3,626 B,E	NL	NL	NL	3,626	ND
1,2,4-Trichlorobenzene	NL	3,626 B,E	NL	NL	563,757 nc	3,626	ND
1,2-Dibromo-3-chloropropane	NL	NL	NL	NL	654 nc	654	ND
1,2-Dibromoethane	NL	NL	NL	NL	28 ca	28	ND
1,2-Dichlorobenzene	NL	478 B,D	NL	NL	408,423 nc	478	ND
1,2-Dichloroethane	27.895 B	NL	NL	NL	603 ca	27.895	ND
1,2-Dichloropropane	NL	NL	NL	NL	742 ca	742	ND
1,3-Dichlorobenzene	NL	478 B,D	NL	NL	6,273 nc	478	ND
1,4-Dichlorobenzene	NL	478 B,D	NL	NL	7,867 ca	478	ND
2-Butanone	NL	NL	NL	NL	2,710,201 nc	2,710,201	9.7
2-Hexanone	NL	NL	NL	NL	NL	NA	ND
4-Methyl-2-pentanone	NL	NL	NL	NL	283,677 nc	283,677	ND
Acetone	NL	NL	NL	NL	603,596 nc	603,596	49.6
Benzene	23.910 B	NL	NL	NL	1,315 ca	23.910	ND
Bromochloromethane	NL	NL	NL	NL	NL	NA	ND
Bromodichloromethane	NL	NL	NL	NL	1,831 ca	1,831	ND
Bromoform	NL	NL	NL	NL	218,200 ca	218,200	ND
Bromomethane	NL	NL	NL	NL	1,308 nc	1,308	ND
Carbon Disulfide	NL	NL	NL	NL	120,172 nc	120,172	ND
Carbon Tetrachloride	23.910 B	NL	NL	NL	549 ca	23.910	ND
Chlorobenzene	NL	139 B	NL	NL	53,047 nc	139	ND
Chloroethane	NL	NL	NL	NL	6,485 ca	6,485	ND
Chloroform	NL	NL	NL	NL	1,168 nc	1,168	ND
Chloromethane	NL	NL	NL	NL	2,646 ca	2,646	ND
cis -1,2-Dichloroethene	NL	NL	NL	NL	14,630 nc	14,630	ND
cis -1,3-Dichloropropene	NL	NL	NL	NL	NL	NA	ND
Cyclohexane	NL	NL	NL	NL	3,162,454 nc	3,162,454	ND
Dibromochloromethane	NL	NL	NL	NL	2,554 ca	2,554	ND

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Dichlorodifluoromethane	NL	NL	NL	NL	30,806 nc	30,806	ND
Ethylbenzene	NL	956 B	NL	NL	19,528 ca	956	ND
Isopropylbenzene	NL	478 B	NL	NL	197,745 nc	478	4
Methyl Acetate	NL	NL	NL	NL	9,153,083 nc	9,153,083	ND
Methyl Tert-Butyl Ether	NL	NL	NL	NL	157,045 ca	157,045	ND
Methylcyclohexane	NL	NL	NL	NL	871,587 nc	871,587	ND
Methylene Chloride	NL	NL	NL	NL	20,527 ca	20,527	ND
Styrene	NL	NL	NL	NL	1,812,211 nc	1,812,211	ND
Tetrachloroethene	31.880 B	NL	NL	NL	3,422 ca	31.880	ND
Toluene	NL	1,953 B	NL	NL	221,257 nc	1,953	ND
trans -1,2-Dichloroethene	NL	NL	NL	NL	23,482 nc	23,482	ND
trans -1,3-Dichloropropene	NL	NL	NL	NL	NL	NA	ND
Trichloroethene	79.7 B	NL	NL	NL	115 ca	79.7	ND
Trichlorofluoromethane	NL	NL	NL	NL	127,607 nc	127,607	ND
Vinyl Chloride	2.7895 B	NL	NL	NL	746 ca	2.7895	ND
Xylenes (total)	NL	3,666 B,F	NL	NL	90,219 nc	3,666	4.0
SVOCs							
1,1'Biphenyl	NL	NL	NL	NL	2,334,051 nc	2,334,051	646.3
1,2,4,5-Tetrachlorobenzene	NL	NL	NL	NL	18,468 nc	18,468	ND
2,2'-oxybis(1-Chloropropane)	NL	NL	NL	NL	7,352 ca	7,352	ND
2,4,5-Trichlorophenol	NL	24 B,G	NL	NL	6,156,063 nc	24	ND
2,4,6-Trichlorophenol	NL	24 B,G	NL	NL	6,156 nc	24	ND
2,4-Dichlorophenol	NL	24 B,G	NL	NL	184,682 nc	24	ND
2,4-Dimethylphenol	NL	20 B,J	NL	NL	1,231,213 nc	20	ND
2,4-Dinitrophenol	NL	20 B,J	NL	NL	123,121 nc	20	ND
2,4-Dinitrotoluene	NL	NL	NL	NL	123,121 nc	123,121	ND
2,6-Dinitrotoluene	NL	NL	NL	NL	61,561 nc	61,561	ND
2-Chloronaphthalene	NL	NL	NL	NL	2,338,273 nc	2,338,273	ND
2-Chlorophenol	NL	24 B,G	NL	NL	23,577 nc	24	ND
2-Methylnaphthalene	NL	1,355 B	NL	NL	NL	1,355	885.8
2-Methylphenol	NL	20 B,J	NL	NL	3,078,031 nc	20	ND
2-Nitroaniline	NL	NL	NL	NL	1,761 nc	1,761	ND
2-Nitrophenol	NL	20 B,J	NL	NL	NL	20	ND
3,3'-Dichlorobenzidine	NL	NL	NL	NL	3,830 ca	3,830	ND
3-Nitroaniline	NL	NL	NL	NL	NL	NA	ND

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4,6-Dinitro-2-methylphenol	NL	20 B,J	NL	NL	NL	20	ND
4-Bromophenyl-phenylether	NL	NL	NL	NL	NL	NA	ND
4-Chloro-3-methylphenol	NL	24 B,G	NL	NL	NL	24	ND
4-Chloroaniline	NL	NL	NL	NL	246,243 nc	246,243	ND
4-Chlorophenyl-phenylether	NL	NL	NL	NL	NL	NA	ND
4-Methylphenol	NL	20 B,J	NL	NL	307,803 nc	20	ND
4-Nitroaniline	NL	NL	NL	NL	NL	NA	ND
4-Nitrophenol	NL	20 B,J	NL	NL	NL	20	ND
Acenaphthene	NL	5,579 B	NL	NL	2,921,933 nc	5,579	17000 J
Acenaphthylene	NL	NL	NL	NL	NL	NA	917.9
Acetophenone	NL	NL	NL	NL	NL	NA	ND
Anthracene	NL	4,264 B	NL	845	23,828,651 nc	845	22000 J
Atrazine	NL	NL	NL	NL	7,764 ca	7,764	ND
Benzaldehyde	NL	NL	NL	NL	6,156,063 nc	6,156,063	ND
Benzo(a)anthracene	51.805 B	478 B	NL	1,050	2,110 ca	51.805	20,000 J
Benzo(a)pyrene	51.805 B	NL	NL	1,450	211 ca	51.805	15,000 J
Benzo(b)fluoranthene	51.805 B	NL	NL	NL	2,110 ca	51.805	16,000 J
Benzo(g,h,i)perylene	NL	NL	NL	NL	NL	NA	6,800 J
Benzo(k)fluoranthene	51.805 B	NL	NL	NL	21,096 ca	51.805	3,471.0
bis(2-Chloroethoxy)methane	NL	NL	NL	NL	NL	NA	ND
bis(2-Chloroethyl)ether	1.1955 B	NL	NL	NL	554 ca	1.1955	ND
bis(2-Ethylhexyl)phthalate	NL	7,950 B	NL	NL	123,121 ca	7,950	46,000 J
Butylbenzylphthalate	NL	NL	NL	NL	12,312,126 nc	12,312,126	340 J
Caprolactam	NL	NL	NL	NL	30,780,315 nc	30,780,315	ND
Carbazole	NL	NL	NL	NL	86,185 ca	86,185	583.8
Chrysene	51.805 B	NL	NL	1,290	210,962 ca	51.805	20,000 J
Dibenz(a,h)anthracene	NL	NL	NL	NL	211 ca	211	1,490.8
Dibenzofuran	NL	NL	NL	NL	312,668 nc	312,668	8,700 J
Diethylphthalate	NL	NL	NL	NL	49,248,503 nc	49,248,503	ND
Dimethylphthalate	NL	NL	NL	NL	615,606,291 nc	615,606,291	ND
Di-n-butylphthalate	NL	NL	NL	NL	6,156,063 nc	6,156,063	150 J
Di-n-octyl phthalate	NL	NL	NL	NL	2,462,425 nc	2,462,425	ND
Fluoranthene	NL	40,647 B	NL	2,230	2,200,035 nc	2,230	42,000 J
Fluorene	NL	319 B	NL	536	2,628,143 nc	319	14,000 J
Hexachlorobenzene	5.9775 B	221,965 B	NL	NL	1,077 ca	5.9775	ND

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Hexachlorobutadiene	11.955 B	219 B	NL	NL	18,468 nc	11.955	ND
Hexachlorocyclopentadiene	NL	175 B	NL	NL	365,872 nc	175	ND
Hexachloroethane	NL	NL	NL	NL	61,561 nc	61,561	ND
Indeno(1,2,3-cd)pyrene	51.805 B	NL	NL	NL	2,110 ca	51.805	7,400 J
Isophorone	NL	NL	NL	NL	1,814,419 ca	1,814,419	ND
Naphthalene	NL	1,196 B	NL	561	18,769 nc	1,196	2,674.7
Nitrobenzene	NL	NL	NL	NL	10,293 nc	10,293	ND
N-Nitroso-di-n-propylamine	NL	NL	NL	NL	246 ca	246	ND
N-Nitrosodiphenylamine	NL	NL	NL	NL	351,775 ca	351,775	ND
Pentachlorophenol	NL	1,594 B	NL	NL	8,998 ca	1,594	ND
Phenanthrene	NL	4,782 B	NL	1,170	NL	1,170	57,000 J
Phenol	NL	20 B,J	NL	NL	36,936,377 nc	20	ND
Pyrene	NL	38,296 B	NL	1,520	2,912,620 nc	1,520	42,000 J
P/PCBs							
4,4'-DDD	0.3985 B	40 B	NL	28	9,951 ca	0.3985	4.7
4,4'-DDE	0.3985 B	NL	NL	31.3	7,025 ca	0.3985	6.9
4,4'-DDT	0.3985 B	NL	NL	62.9	7,025 ca	0.3985	ND
Aldrin	3.985 B,K	NL	NL	NL	101 ca	3.985	ND
Alpha-BHC	2.391 B,L	2.391 B,L	NL	NL	359 ca	2.391	ND
alpha-Chlordane	0.03985 B,C	1.196 B,C	NL	17.6 C	6,468 ca	0.03985	ND
Aroclor-1016	0.03188 B,H	769 B,H	NL	676 H	3,718 nc	0.03188	ND
Aroclor-1221	0.03188 B,H	769 B,H	NL	676 H	744 ca	0.03188	ND
Aroclor-1232	0.03188 B,H	769 B,H	NL	676 H	744 ca	0.03188	ND
Aroclor-1242	0.03188 B,H	769 B,H	NL	676 H	744 ca	0.03188	ND
Aroclor-1248	0.03188 B,H	769 B,H	NL	676 H	744 ca	0.03188	300 J
Aroclor-1254	0.03188 B,H	769 B,H	NL	676 H	744 ca	0.03188	ND
Aroclor-1260	0.03188 B,H	769 B,H	NL	676 H	744 ca	0.03188	ND
Beta-BHC	2.391 B,L	2.391 B,L	NL	NL	1,258 ca	2.391	ND
Delta-BHC	2.391 B,L	2.391 B,L	NL	NL		2.391	ND
Dieldrin	3.985 B,K	NL	NL	61.8	108 ca	3.985	ND
Endosulfan I	NL	1.196 B	NL	NL	NL	1.196	ND
Endosulfan II	NL	1.196 B	NL	NL	NL	1.196	ND
Endosulfan sulfate	NL	NL	NL	NL	NL	NA	ND
Endrin	31.88 B	159 B	NL	207	18,468 nc	31.88	ND
Endrin aldehyde	NL	NL	NL	NL	NL	NA	ND

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Endrin ketone	NL	NL	NL	NL	NL	NA	8.5
gamma-BHC (Lindane)	2.391 B,L	2.391 B,L	NL	4.99	1,741 ca	2.391	ND
gamma-Chlordane	0.03985 B,C	0.03985 B,C	NL	17.6 C	6,468 ca	0.03985	ND
Heptachlor	0.03188 B	4 B	NL	NL	383 ca	0.03188	ND
Heptachlor epoxide	0.03188 B	4 B	NL	16	189 ca	0.03188	ND
Methoxychlor	NL	24 B	NL	NL	307,803 nc	24	ND
Toxaphene	0.797 B	0.3985 B	NL	NL	1,567 ca	0.3985	ND
Inorganics							
Aluminum	NL	NL	NL	NL	92,107,250 nc	92,107,250	15,093.1
Antimony	NL	2	25	NL	40,880 nc	2	13.8
Arsenic	NL	6	33	33	1,590 ca	6	6.4
Barium	NL	NL	NL	NL	6,657,735 nc	6,657,735	157.5
Beryllium	NL	NL	NL	NL	194,069 nc	194,069	ND
Cadmium	NL	0.6	9	4.98	45,141 nc	0.6	1.1
Calcium	NL	NL	NL	NL	NL	NA	5,792.3
Chromium	NL	26	110	111	64,045 ca	26	61.2
Chromium (hexavalent)	NL	NL	NL	NL	64,045 ca	64,045	ND
Cobalt	NL	NL	NL	NL	1,333,100 nc	1,333,100	16.4
Copper	NL	16	110	149	4,087,666 nc	16	92.7
Cyanide	NL	NL	NL	NL	1,231,310 nc	1,231,310	1.4 J
Iron	NL	20,000	40,000	NL	30,641,211 nc	20,000	33,594.2
Lead	NL	31	110	128	NL ca	31	85.3
Magnesium	NL	NL	NL	NL	NL	NA	6,712.9
Manganese	NL	460	1110	NL	1,945,811 nc	460	1,949.9
Mercury	NL	0.15	1.3	1.06	57,574,427 nc	0.15	0.46 J
Nickel	NL	16	50	48.6	2,043,916 nc	16	35.0
Potassium	NL	NL	NL	NL	NL	NA	2,018.3
Selenium	NL	NL	NL	NL	510,995 nc	510,995	7.9
Silver	NL	1	2.2	NL	510,995 nc	1	ND
Sodium	NL	NL	NL	NL	NL	NA	792.6
Thallium	NL	NL	NL	NL	6,745 nc	6,745	5.7
Vanadium	NL	NL	NL	14 S	NL	14	27.9
Zinc	NL	120	270	459	30,641,211 nc	120	195.5

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Notes:

Site-specific screening criteria was approved by EPA during the March 18, 2005 conference call. Please see Section 4.1.1 for a discussion of the screening criteria selection process.

All VOC, SVOC, and P/PCB values are in micrograms per kilogram (ug/kg); inorganic values are in milligrams per kilogram (mg/kg)

LEL = lower effect level

NL = chemical name not listed or screening value of this type not listed for the chemical

OC = organic carbon

PEC = probable effect concentration

SEL = severe effect level

SSSDSC = Site specific sediment screening criteria

TOC = total organic carbon

µg/kg = microgram per kilogram

NA = not available

ND = non-detect value

(1) Technical Guidance for Screening Contaminated Sediments, Division of Fish, Wildlife and Marine Resources, Jan. 25, 1999

(2) MacDonald DD, Ingersoll CG, Berger T. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. *Arch Environ Contam Toxicol* 39:20-31.

(3) SSSDSC values are the lowest of the listed EPA, NYSDEC, and MacDonald screening values

(4) The site-specific background value for sediment is the lower of the calculated 95% UCL and the maximum detected sample result, as shown on Table 4-8. Background values are provided for comparison purposes only.

B Values are calculated based on a site average organic carbon content:

3.985

% OC

39.85 g OC/kg sediment

C Value applies to total Chlordane

D Value applies to total Dichlorobenzenes

E Value applies to total Trichlorobenzenes

F Value applies to total Xylenes

G Value applies to total chlorinated Phenols

H Value applies to total PCBs

J Value applies to total unchlorinated phenols

K Value applies to sum of Aldrin and Dieldrin

L Value applies to total BHCs (hexachlorocyclohexanes)

Total number of samples: 20