

Table 4-3
Surface Water Screening Criteria
Consolidated Iron and Metal Superfund Site
Newburgh, New York

Contaminant	EPA Ambient Water Quality Criteria - Human Health - for Consumption of Organism Only (1,2)			EPA Ambient Water Quality Criteria - Aquatic Life - Chronic - Fresh water - CCC (1)			NY State Standards and Guidance Values for Class B Surface Water - Human (FC) (3)			NY State Standards and Guidance Values for Class B Surface Water - Aquatic Life(C) (3)			Lowest Surface Water Screening Criteria (3)			CRQ Ls for Analytical Method (4)
	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	
VOCs																
1,1,1-Trichloroethane	NL			NL			NL			NL			NA			0.5
1,1,2,2-Tetrachloroethane	4		G	NL			NL			NL			4		G	0.5
1,1,2-Trichloroethane	16		G	NL			NL			NL			16		G	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	NL			NL			NL			NL			NA			0.5
1,1-Dichloroethane	NL			NL			NL			NL			NA			0.5
1,1-Dichloroethene	3.2		G	NL			NL			NL			3.2		G	0.5
1,2,3-Trichlorobenzene	NL			NL			NL			5	D	S	5	D	S	0.5
1,2,4-Trichlorobenzene	NL			NL			NL			5	D	S	5	D	S	0.5
1,2-Dibromo-3-chloropropane	NL			NL			NL			NL			NA			0.5
1,2-Dibromoethane	NL			NL			NL			NL			NA			0.5
1,2-Dichlorobenzene	NL			NL			NL			5	I	S	5	I	S	0.5
1,2-Dichloroethane	37		G	NL			NL			NL			37		G	0.5
1,2-Dichloropropane	15		G	NL			NL			NL			15		G	0.5
1,3-Dichlorobenzene	NL			NL			NL			5	I	S	5	I	S	0.5
1,4-Dichlorobenzene	NL			NL			NL			5	I	S	5	I	S	0.5
2-Butanone	NL			NL			NL			NL			NA			5
2-Hexanone	NL			NL			NL			NL			NA			5
4-Methyl-2-pentanone	NL			NL			NL			NL			NA			5
Acetone	NL			NL			NL			NL			NA			5
Benzene	51		G	NL			10		S	210		G	10		S	0.5
Bromochloromethane	NL			NL			NL			NL			NA			0.5
Bromodichloromethane	NL			NL			NL			NL			NA			0.5
Bromoform	140		G	NL			NL			NL			140		G	0.5
Bromomethane	NL			NL			NL			NL			NA			0.5
Carbon Disulfide	NL			NL			NL			NL			NA			0.5
Carbon Tetrachloride	1.6		G	NL			NL			NL			1.6		G	0.5
Chlorobenzene	21,000		G	NL			400		S	5		S	5		S	0.5
Chloroethane	NL			NL			NL			NL			NA			0.5
Chloroform	470		G	NL			NL			NL			470		G	0.5
Chloromethane	NL			NL			NL			NL			NA			0.5
cis-1,2-Dichloroethene	NL			NL			NL			NL			NA			0.5
cis-1,3-Dichloropropene	1,700		G	NL			NL			NL			1700		G	0.5
Cyclohexane	NL			NL			NL			NL			NA			0.5
Dibromochloromethane	17		G	NL			NL			NL			17		G	0.5
Dichlorodifluoromethane	NL			NL			NL			NL			NA			0.5
Ethylbenzene	29,000		G	NL			NL			17		G	17		G	0.5
Isopropylbenzene	NL			NL			NL			2.6		G	2.6		G	0.5
Methyl Acetate	NL			NL			NL			NL			NA			0.5
Methyl Tert-Butyl Ether	NL			NL			NL			NL			NA			0.5
Methylcyclohexane	NL			NL			NL			NL			NA			0.5
Methylene Chloride	590		G	NL			200		S	NL			200		S	0.5
Styrene	NL			NL			NL			NL			NA			0.5
Tetrachloroethene	3.3		G	NL			1		G	NL			1		G	0.5
Toluene	200,000		G	NL			6,000		S	100		G	100		G	0.5
trans-1,2-Dichloroethene	140,000		G	NL			NL			NL			140000		G	0.5
trans-1,3-Dichloropropene	NL			NL			NL			NL			NA			0.5
Trichloroethene	30		G	NL			40		S	NL			30		G	0.5
Trichlorofluoromethane	NL			NL			NL			NL			NA			0.5
Vinyl Chloride	530		G	NL			NL			NL			530		G	0.5
Xylenes (total)	NL			NL			NL			65		G	65		G	0.5
SVOCs																
1,1'-Biphenyl	NL			NL			NL			NL			NA			5
1,2,4,5-Tetrachlorobenzene	NL			NL			NL			NL			NA			5
2,2'-oxybis(1-Chloropropane)	NL			NL			NL			NL			NA			5
2,4,5-Trichlorophenol	NL			NL			NL			NL			NA			20
2,4,6-Trichlorophenol	NL			NL			NL			NL			NA			5
2,4-Dichlorophenol	NL			NL			NL			NL			NA			5
2,4-Dimethylphenol	NL			NL			1,000		S	NL			1000		S	5

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	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value
2,4-Dinitrophenol	NL			NL			400		S	NL			400		S	20
2,4-Dinitrotoluene	3.4		G	NL			NL			NL			3.4		G	5
2,6-Dinitrotoluene	NL			NL			NL			NL			NA			5
2-Chloronaphthalene	1,600		G	NL			NL			NL			1600		G	5
2-Chlorophenol	NL			NL			NL			NL			NA			5
2-Methylnaphthalene	NL			NL			4.7		G	NL			4.7		G	5
2-Methylphenol	NL			NL			NL			NL			NA			5
2-Nitroaniline	NL			NL			NL			NL			NA			20
2-Nitrophenol	NL			NL			NL			NL			NA			5
3,3'-Dichlorobenzidine	0.028		G	NL			NL			NL			0.028		G	5
3-Nitroaniline	NL			NL			NL			NL			NA			20
4,6-Dinitro-2-methylphenol	NL			NL			NL			NL			NA			20
4-Bromophenyl-phenylether	NL			NL			NL			NL			NA			5
4-Chloro-3-methylphenol	NL			NL			NL			NL			NA			5
4-Chloroaniline	NL			NL			NL			NL			NA			5
4-Chlorophenyl-phenylether	NL			NL			NL			NL			NA			5
4-Methylphenol	NL			NL			NL			NL			NA			5
4-Nitroaniline	NL			NL			NL			NL			NA			20
4-Nitrophenol	NL			NL			NL			NL			NA			20
Acenaphthene	990		G	NL			NL			5.3		G	5.3		G	5
Acenaphthylene	NL			NL			NL			NL			NA			5
Acetophenone	NL			NL			NL			NL			NA			5
Anthracene	40,000		G	NL			NL			3.8		G	3.8		G	5
Atrazine	NL			NL			NL			NL			NA			5
Benzaldehyde	NL			NL			NL			NL			NA			5
Benzo(a)anthracene	0.018		G	NL			NL			0.03		G	0.018		G	5
Benzo(a)pyrene	0.018		G	NL			0.0012		G	NL			0.0012		G	5
Benzo(b)fluoranthene	0.018		G	NL			NL			NL			0.018		G	5
Benzo(g,h,i)perylene	NL			NL			NL			NL			NA			5
Benzo(k)fluoranthene	0.018		G	NL			NL			NL			0.018		G	5
bis(2-Chloroethoxy)methane	NL			NL			NL			NL			NA			5
bis(2-Chloroethyl)ether	0.53		G	NL			NL			NL			0.53		G	5
bis-(2-Ethylhexyl)phthalate	2.2		G	NL			NL			0.6		S	0.6		S	5
Butylbenzylphthalate	1900		G	NL			NL			NL			1900		G	5
Caprolactam	NL			NL			NL			NL			NA			5
Carbazole	NL			NL			NL			NL			NA			NL
Chrysene	0.018		G	NL			NL			NL			0.018		G	5
Dibenz(a,h)anthracene	0.018		G	NL			NL			NL			0.018		G	5
Dibenzofuran	NL			NL			NL			NL			NA			5
Diethylphthalate	44,000		G	NL			NL			NL			44000		G	5
Dimethylphthalate	1,100,000		G	NL			NL			NL			1100000		G	5
Di-n-butylphthalate	4,500		G	NL			NL			NL			4500		G	5
Di-n-octyl phthalate	NL			NL			NL			NL			NA			5
Fluoranthene	140		G	NL			NL			NL			140		G	5
Fluorene	5,300		G	NL			NL			0.54		G	0.54		G	5
Hexachlorobenzene	0.00029		G	NL			0.00003		S	NL			0.00003		S	5
Hexachlorobutadiene	18		G	NL			0.01		S	1		S	0.01		S	5
Hexachlorocyclopentadiene	17,000		G	NL			NL			0.45		S	0.45		S	5
Hexachloroethane	3.3		G	NL			0.6		S	NL			0.6		S	5
Indeno(1,2,3-cd)pyrene	0.018		G	NL			NL			NL			0.018		G	5
Isophorone	960		G	NL			NL			NL			960		G	5
Naphthalene	NL			NL			NL			13		G	13		G	5
Nitrobenzene	690		G	NL			NL			NL			690		G	5
N-Nitroso-di-n-propylamine	3		G	NL			NL			NL			3		G	5
N-Nitrosodiphenylamine	0.51		G	NL			NL			NL			0.51		G	5
Pentachlorophenol	3		G	0.01	p	G	NL			0.01	P	S	0.00589294	P	S	5
P/PCBs																
Phenanthrene	NL			NL			NL			5		G	5		G	5
Phenol	1,700,000		G	NL			NL			NL			1700000		G	5

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	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value
Pyrene	4,000		G	NL			NL			4.6		G	4.6		G	5
4,4'-DDD	0.00031		G	NL			0.00008		S	NL			0.00008		S	0.02
4,4'-DDE	0.00022		G	NL			0.000007		S	NL			0.000007		S	0.02
4,4'-DDT	0.00022		G	0.001		G	0.00001		S	NL			0.00001		S	0.02
Aldrin	0.00005		G	NL			0.001	A	S	NL			0.00005		G	0.01
alpha-BHC	0.0049		G	NL			0.002		S	NL			0.002		S	0.01
alpha-Chlordane	0.00081	F	G	0.0043	F	G	0.00002	F	S	NL			0.00002	F	S	0.01
Aroclor-1016	0.000064	C	G	0.014	C	G	NL			NL			0.000064	C	G	0.2
Aroclor-1221	0.000064	C	G	0.014	C	G	NL			NL			0.000064	C	G	0.4
Aroclor-1232	0.000064	C	G	0.014	C	G	NL			NL			0.000064	C	G	0.2
Aroclor-1242	0.000064	C	G	0.014	C	G	NL			NL			0.000064	C	G	0.2
Aroclor-1248	0.000064	C	G	0.014	C	G	NL			NL			0.000064	C	G	0.2
Aroclor-1254	0.000064	C	G	0.014	C	G	NL			NL			0.000064	C	G	0.2
Aroclor-1260	0.000064	C	G	0.014	C	G	NL			NL			0.000064	C	G	0.2
beta-BHC	0.017		G	NL			0.007		S	NL			0.007		S	0.01
delta-BHC	NL			NL			0.008		S	NL			0.008		S	0.01
Dieldrin	0.000054		G	0.056		G	0.0000006		S	0.056		S	0.0000006		S	0.02
Endosulfan I	89		G	0.056		G	NL			NL			0.056		G	0.01
Endosulfan II	89		G	0.056		G	NL			NL			0.056		G	0.02
Endosulfan sulfate	89		G	NL			NL			NL			89		G	0.02
Endrin	0.81		G	0.036		G	0.002		S	0.036		S	0.002		S	0.02
Endrin aldehyde	0.3		G	NL			NL			NL			0.3		G	0.02
Endrin ketone	NL			NL			NL			NL			NA			0.02
gamma-BHC (Lindane)	0.063		G	NL			0.008		S	NL			0.008		S	0.01
gamma-Chlordane	0.00081	F	G	0.0043	F	G	0.00002	F	S	NL			0.00002	F	S	0.01
Heptachlor	0.000079		G	0.0038		G	0.0002		S	NL			0.000079		G	0.01
Heptachlor epoxide	0.000039		G	0.0038		G	0.0003		S	NL			0.000039		G	0.01
Methoxychlor	NL			0.03		G	NL			0.03		S	0.03		S	0.1
Toxaphene	0.00028		G	0.0002		G	0.000006		S	0.005		S	0.000006		S	1
Inorganics																
Aluminum	NL			87		G	NL			100		S	87		G	30
Arsenic	0.14		G	150		G	NL			150		S	0.14		G	1
Barium	NL			NL			NL			NL			NA			10
Beryllium	NL			NL			NL			11	B	S	11	B	S	1
Cadmium	NL			2.5	H,K	G	NL			2.4	H	S	2.4	H	S	1
Calcium	NL			NL			NL			NL			NA			--
Chromium	NL			84.9	H,K	G	NL			84.9	H	S	84.9	H	S	2
Chromium (hexavalent)	NL			10.6	K	G	NL			11		S	10.6	K	G	NL
Cobalt	NL			NL			NL			5		S	5		S	0.5
Copper	NL			10.3	H,K	G	NL			10.3	H	S	10.3	H	S	2
Cyanide	220,000		G	5.2		G	9,000		S	5.2		S	5.2		S	--
Iron	NL			1,000		G	NL			300		S	300		S	--
Lead	NL			3.0	H,K	G	NL			4.5	H	S	3.0	H,K	G	1
Magnesium	NL			NL			NL			NL			NA			--
Manganese	100		G	NL			NL			300			100		G	0.5
Mercury	NL			0.655		G	0.0007		S	0.77		S	0.0007		S	--
Nickel	4,600		G	59.8	H,K	G	NL			59.8	H	S	59.8	H	S	1
Potassium	NL			NL			NL			NL			NA			--
Selenium	4,200		G	5		G	NL			4.6		S	4.6		S	5
Silver	NL			NL			NL			0.1		S	0.1		S	1
Sodium	NL			NL			NL			NL			NA			--
Thallium	6.3		G	NL			NL			8		S	6.3		G	1
Vanadium	NL			NL			NL			14		S	14		S	1
Zinc	26,000		G	135.9	H,K	G	NL			95.1	H	S	95.1	H	S	1

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, P/PCB and Inorganic values are in micrograms per liter (ug/L)

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	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value	Note	S/G	Value

CCC = Criterion Continuous Concentration

FC = food chain

NA = not available

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

ND = non-detect value

SSSWSC = site-specific surface water screening criteria

- (1) Source: EPA. November 2002. National Recommended Water Quality Criteria: 2002. EPA 822-R-02-047. November.
- (2) The Hudson River is a Class B fresh surface water. NY state regulations (6 NYCRR Part 701) define the best usage of class B waters as: primary and secondary contact recreation and fishing; suitable for fish propagation and survival. Class B waters are not used as a source of water supply for drinking, therefore the water quality criteria for ingestion of "organism only" apply.
- (3) Source: NYSDEC. June 1998. TOGS 1.1.1. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. Includes April 2000 Addendum values. H(FC) is for human (fish consumption) and A(C) is for aquatic life (chronic).
- (4) Screening criteria is the lowest of listed EPA and NYSDEC screening values.
- (5) The site-specific background value for surface water is the lower of the calculated 95% UCL and the maximum detected sample result, as shown on Table 4-9. Background provided for comparison purposes only.

A - Value applies to the sum of Aldrin and Dieldrin

B - 11 ug/L when the hardness is less than or equal to 75 ppm; 1,100 ug/L when hardness is greater than 75 ppm

C - Value applies to the sum of the PCB compounds

D - Value applies to the sum of 1,2,3-, 1,2,4- and 1,3,5-trichlorobenzene

F - Value applies to the sum of alpha- and gamma-Chlordane

G - Guidance Value

I - Value applies to the sum of 1,2-, 1,3-, and 1,4-dichlorobenzene

J - Value applies to the sum of cis- and trans-1,3-dichloropropene

K - Value applies to the dissolved form of the metal (not Total)

p - pH-dependent : pH value used is mean of 14 surface water samples

S - Standard

p - pH-dependent

Surface water (CCC)

8.12 : pH assumed, based on site average pH in surface water (pH range: 7.715 to 8.23)

H - Hardness-dependent : Hardness (mg/L) value used for calculations is mean value of 21 samples

118 (range: 100 to 140 mg/L)

Cadmium (ness)-2.715)

Chromium (ness)+0.6848)

Copper (ness)-1.702)

Lead (ness)-4.297)

Nickel (ness)+0.0584)

Pentachlorophenol (ness)+0.5)

Zinc (ness)+5*(pH)-5.134)

Calculations for Aquatic Life, Chronic, Fresh water (CCC)

Cadmium (ness)-2.715)

Chromium (ness)+0.6848)

Copper (ness)-1.702)

Lead (ness)-4.705)

Nickel (ness)+0.0584)

Zinc (ness)+0.884)

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Site-Specific Background Value	Site-Specific Surface Water Screening Criteria (SSWSC) (4)	Site-Specific Background Value - Surface Water (5)
Value	Value	Value
NL	NA	ND
NL	4	ND
NL	16	ND
NL	NA	ND
NL	NA	ND
NL	3.2	ND
NL	5	ND
NL	5	ND
NL	NA	ND
NL	NA	ND
NL	5	ND
NL	37	ND
NL	15	ND
NL	5	ND
NL	5	6.0
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	10	ND
NL	NA	ND
NL	NA	ND
NL	140	ND
NL	NA	ND
NL	NA	ND
NL	1.6	ND
NL	5	ND
NL	NA	ND
NL	470	ND
NL	NA	ND
NL	NA	ND
NL	1,700	ND
NL	NA	ND
NL	17	ND
NL	NA	ND
NL	17	ND
NL	2.6	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	200	ND
NL	NA	ND
NL	1	ND
NL	100	ND
NL	140,000	ND
NL	NA	ND
NL	30	ND
NL	NA	ND
NL	530	ND
NL	65	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	1,000	ND

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Site-Specific Background Value	Site-Specific Surface Water Screening Criteria (SSWSC) (4)	Site-Specific Background Value - Surface Water (5)
Value	Value	Value
NL	400	ND
NL	3.4	ND
NL	NA	ND
NL	1,600	ND
NL	NA	ND
NL	4.7	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	0.028	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	NA	ND
NL	5.3	ND
NL	NA	ND
NL	NA	ND
NL	3.8	ND
NL	NA	ND
NL	NA	ND
NL	0.018	ND
NL	0.018	ND
NL	0.018	ND
NL	NA	ND
NL	0.018	ND
NL	NA	ND
NL	0.53	ND
NL	0.6	1
NL	1,900	ND
NL	NA	ND
NL	NA	ND
NL	0.018	ND
NL	0.018	ND
NL	NA	ND
NL	44,000	ND
NL	1,100,000	ND
NL	4,500	ND
NL	NA	ND
NL	140	ND
NL	0.54	ND
NL	0.00003	ND
NL	0.01	ND
NL	0.45	ND
NL	0.6	ND
NL	0.018	ND
NL	960	ND
NL	13	ND
NL	690	ND
NL	3	ND
NL	0.51	ND
NL	0.01	ND
NL	5	ND
NL	1,700,000	ND

Table 4-3
Surface Water Screening Criteria
Consolidated Iron and Metal Superfund Site
Newburgh, New York

Site-Specific Background Value	Site-Specific Surface Water Screening Criteria (SSWSC) (4)	Site-Specific Background Value - Surface Water (5)
Value	Value	Value
NL	4.6	ND
NL	0.00008	ND
NL	0.000007	ND
NL	0.00001	ND
NL	0.00005	ND
NL	0.002	ND
NL	0.00002	ND
NL	0.000064	ND
NL	0.000064	ND
NL	0.000064	ND
NL	0.000064	ND
NL	0.000064	ND
NL	0.000064	ND
NL	0.000064	ND
NL	0.007	ND
NL	0.008	ND
NL	0.0000006	ND
NL	0.056	ND
NL	0.056	ND
NL	89	ND
NL	0.002	ND
NL	0.3	ND
NL	NA	ND
NL	0.008	ND
NL	0.00002	ND
NL	0.000079	ND
NL	0.000039	ND
NL	0.03	ND
NL	0.000006	ND
NL	87	356.5
NL	0.14	ND
NL	NA	ND
NL	11	ND
NL	2.4	ND
NL	NA	28,300.0
NL	84.9	ND
NL	10.6	ND
NL	5	ND
NL	10.3	ND
NL	5.2	6.6
NL	300	412.1
NL	3	8.3
NL	NA	5,461.6
NL	100	42.5
NL	0.0007	ND
NL	59.8	ND
NL	NA	ND
NL	4.6	ND
NL	0.1	ND
NL	NA	650000.0
NL	6.3	ND
NL	14	ND
NL	95.1	ND

Table 4-3
Surface Water Screening Criteria
Consolidated Iron and Metal Superfund Site
Newburgh, New York

Site-Specific Background and Value	Site-Specific Surface Water Screening Criteria (SSWSC) (4)	Site-Specific Background Value - Surface Water (5)
Value	Value	Value

values are