

Table 1-3
Surface and Subsurface Soil Screening Criteria
Consolidated Iron and Metal Superfund Site
Newburgh, New York

Chemical Name	Adjusted EPA Region IX PRGs: Residential Soil (1)		EPA Generic SSLs for Commercial/ Industrial - Ingestion/ Dermal		EPA Generic SSLs for Commercial/ Industrial - Inhalation		NYSDEC RSCO Adjusted for Site TOC of 4.85% (2)		Site-Specific Soil Screening Criteria (SSSSC) (3)	Site-Specific Background Value (4)	
										Surface Soil	Subsurface Soil
VOCs											
1,1,1-Trichloroethane	200,000	nc	NL	c,e	1,200,000	d	3,876	A,E	3,876	ND	ND
1,1,2,2-Tetrachloroethane	410	ca	16,000	c,e	1,000	e	2,907	A,E	410	ND	ND
1,1,2-Trichloroethane	730	ca	56,000	c,e	2,000	e	NL	A	730	ND	ND
1,1,2-Tricholoro-1,2,2-trifluoroethane	NL		NL		NL		13,778	A,E,V	13,778	ND	ND
1,1-Dichloroethane	51,000	nc	110,000,000	b,c	1,700,000	d	969	A,E	969	ND	ND
1,1-Dichloroethene	12,000	nc	5,000	c,e	100	e	1,938	A,E	100	ND	ND
1,2,3-Trichlorobenzene	NL		NL		NL		NL	A	NA	ND	ND
1,2,4-Trichlorobenzene	6,200	nc	6,800,000	b	3,200,000	d	13,778	A,E,V	6,200	ND	ND
1,2-Dibromo-3-chloropropane	210	nc	NL		NL		NL	A	210	ND	ND
1,2-Dibromoethane	32	ca	NL		NL		NL	A	32	ND	ND
1,2-Dichlorobenzene	110,000	nc	62,000,000	b	600,000	d	13,778	A,E,V	13,778	ND	ND
1,2-Dichloroethane	280	ca	35,000	c,e	600	e	484	A,E	280	ND	ND
1,2-Dichloropropane	340	ca	47,000	c,e	21,000	b	NL	A,E	340	ND	ND
1,3-Dichlorobenzene	53,000	nc	NL		NL		7,751	A,E	7,751	ND	ND
1,4-Dichlorobenzene	3,400	ca	80,000	e	NL	g	13,778	A,E,V	3,400	ND	ND
2-Butanone	2,200,000	nc	NL		NL		1,453	A,E	1,453	ND	ND
2-Hexanone	NL		NL		NL		NL	A	NA	ND	ND
4-Methyl-2-pentanone	NL		NL		NL		4,844	A,E	4,844	ND	ND
Acetone	1,400,000	nc	110,000,000	b,c	NL	c	969	A,E	969	5 J	ND
Benzene	640	ca	58,000	c,e	1,000	e	291	A,E	291	ND	ND
Bromochloromethane	NL		NL		NL		NL	A	NA	ND	ND
Bromodichloromethane	820	ca	51,000	c,e	NL	c	NL	A	820	ND	ND
Bromoform	62,000	ca	400,000	c,e	88,000	e	NL	A	62,000	ND	ND
Bromomethane	390	nc	1,600,000	b,c	13,000	b	NL	A	390	ND	ND
Carbon Disulfide	36,000	nc	110,000,000	b,c	720,000	d	13,080	A,E,V	13,080	ND	ND
Carbon Tetrachloride	220	nc	24,000	c,e	600	e	2,907	A,E	220	ND	ND
Chlorobenzene	15,000	nc	23,000,000	b,c	180,000	b	8,236	A,E	8,236	ND	ND
Chloroethane	3,000	ca	NL		NL		9,205	A,E	3,000	ND	ND
Chloroform	220	ca	520,000	c,e	500	e	1,453	A,E	220	ND	ND

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										Surface Soil	Subsurface Soil
Chloromethane	4,700	nc	NL		NL		NL	A	4,700	ND	ND
cis-1,2-Dichloroethene	4,300	nc	11,000,000	b,c	NL	c	NL	A	4,300	7	3 J
cis-1,3-Dichloropropene	780	ca	NL		NL		NL	A	780	ND	ND
Cyclohexane	140,000	sat	NL		NL		NL	A	140,000	ND	ND
Dibromochloromethane	1,100	ca	38,000	c,e	NL	c	NL	A	1,100	ND	ND
Dichlorodifluoromethane	9,400	nc	NL		NL		NL	A	9,400	ND	ND
Ethylbenzene	190,000	nc	110,000,000	b,c	400,000	d	13,778	A,E,V	13,778	ND	ND
Isopropylbenzene	57,000	nc	NL		NL		NL	A	57,000	ND	ND
Methyl Acetate	2,200,000	nc	NL		NL		NL	A	2,200,000	ND	ND
Methyl Tert-Butyl Ether	17,000	ca	NL		NL		NL	A	17,000	ND	ND
Methylcyclohexane	260,000	nc	NL		NL		NL	A	260,000	ND	ND
Methylene Chloride	9,100	ca	420,000	c,e	22,000	e	484	A,E	484	7	ND
Styrene	440,000	nc	230,000,000	b,c	1,500,000	d	NL	A	440,000	ND	ND
Tetrachloroethene	480	ca	61,000	c,e	18,000	e	6,782	A,E	480	7 J	2 J
Toluene	66,000	nc	230,000,000	b,c	650,000	d	7,267	A,E	7,267	ND	ND
trans-1,2-Dichloroethene	6,900	nc	23,000,000	b,c	NL	c	1,453	A,E	1,453	ND	ND
trans-1,3-Dichloropropene	780	ca	NL		NL		NL	A	780	ND	ND
Trichloroethene	53	ca	290,000	c,e	8,000	e	3,391	A,E	53	8 J	2 J
Trichlorofluoromethane	39,000	nc	NL		NL		NL	A	39,000	ND	ND
Vinyl Chloride	79	ca	4,000	c,e	1,000	e	969	A,E	79	ND	ND
Xylenes (Total)	27,000	nc	1,000,000,000	b,c	NL	c	5,813	A,E	5,813	ND	ND
SVOCs											
1,1-Biphenyl	300,000	nc	NL		NL		NL	D	300,000	ND	110 J
1,2,4,5-Tetrachlorobenzene	1,800	nc	NL		NL		NL	D	1,800	ND	ND
2,2'-oxybis(1-Chloropropane)	NL		NL		NL		NL	D	NA	ND	ND
2,4,5-Trichlorophenol	610,000	nc	68,000,000	b	NL	c	484	D,E	484	ND	ND
2,4,6-Trichlorophenol	610	nc	170,000	e	340,000	e	NL	D	610	ND	ND
2,4-Dichlorophenol	18,000	nc	2,100,000	b	NL	c	1,938	D,E	1,938	ND	ND
2,4-Dimethylphenol	120,000	nc	14,000,000	b	NL	c	NL	D	120,000	ND	ND
2,4-Dinitrophenol	12,000	nc	1,400,000	b	NL	c	969	D,E	969	ND	ND

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										Surface Soil	Subsurface Soil
2,4-Dinitrotoluene	12,000	nc	3,000	e	NL	c	NL	D	3,000	ND	ND
2,6-Dinitrotoluene	6,100	nc	3,000	e	NL	c	4,844	D,E	3,000	ND	ND
2-Chloronaphthalene	490,000	nc	NL		NL		NL	D	490,000	ND	ND
2-Chlorophenol	6,300	nc	3,400,000	b	NL	c	3,876	D,E	3,876	ND	ND
2-Methylnaphthalene	NL		NL		NL		68,892	D,E,S	68,892	ND	450
2-Methylphenol	310,000	nc	34,000,000	b	NL	c	484	D,E	484	ND	ND
2-Nitroaniline	18,000	nc	NL		NL		2,083	D,E	2,083	ND	ND
2-Nitrophenol	NL		NL		NL		1,599	D,E	1,599	ND	ND
3,3'-Dichlorobenzidine	1,100	ca	4,000	e	NL	c	NL	D	1,100	ND	ND
3-Nitroaniline	1,800	nc	NL		NL		2,422	D,E	1,800	ND	ND
4,6-Dinitro-2-methylphenol	NL		NL		NL		NL	D	NA	ND	ND
4-Bromophenyl-phenylether	NL		NL		NL		NL	D	NA	ND	ND
4-Chloro-3-methylphenol	NL		NL		NL		1,163	D,E	1,163	ND	ND
4-Chloroaniline	24,000	nc	2,700,000	bb	NL	c	1,066	D,E	1,066	ND	ND
4-Chlorophenyl-phenylether	NL		NL		NL		NL	D	NA	ND	ND
4-Methylphenol	31,000	nc	NL		NL		4,360	D,E	4,360	ND	ND
4-Nitroaniline	18,000	nc	NL		NL		NL	D	NA	ND	ND
4-Nitrophenol	NL		NL		NL		484	D,E	484	ND	ND
Acenaphthene	370,000	nc	37,000,000	b	NL	c	68,892	D,E,S	68,892	190 J	1,100
Acenaphthylene	NL		NL		NL		68,892	D,E,S	68,892	771	744
Acetophenone	NL		NL		NL		NL	D	NA	ND	ND
Anthracene	2,200,000	nc	180,000,000	b	NL	c	68,892	D,E,S	68,892	527	790
Atrazine	2,200	ca	NL		NL		NL	D	2,200	ND	ND
Benzaldehyde	610,000	nc	NL		NL		NL	D	610,000	ND	ND
Benzo(a)anthracene	620	ca	2,000	e	NL	c	1,085	D,E	620	2,230	4,854
Benzo(a)pyrene	62	ca	200	e	NL	c	296	D,E	62	1,715	2,180
Benzo(b)fluoranthene	620	ca	2,000	e	NL	c	5,329	D,E	620	2,651	4,268
Benzo(g,h,i)perylene	NL		NL		NL		68,892	D,E,S	68,892	410 J	535
Benzo(k)fluoranthene	6,200	ca	23,000	e	NL	c	5,329	D,E	5,329	2,416	3,620
bis(2-Chloroethoxy)methane	NL		NL		NL		NL	D	NA	ND	ND

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										Surface Soil	Subsurface Soil
bis(2-Chloroethyl)ether	220	ca	2,000	e	400	e	NL	D	220	ND	ND
bis-(2-Ethylhexyl)phthalate	35,000	ca	140,000	e	NL	c	68,892	D,E,S	35,000	2,930	270 J
Butylbenzylphthalate	1,200,000	nc	140,000,000	b	NL	c	68,892	D,E,S	68,892	88 J	43 J
Caprolactam	3,100,000	nc	NL		NL		NL	D	3,100,000	ND	ND
Carbazole	24,000	ca	96,000	e	NL	c	NL	D	24,000	150 J	1,200
Chrysene	62,000	ca	230,000	e	NL	c	1,938	D,E	1,938	2,460	5,071
Dibenzo(a,h)anthracene	62	ca	200	e	NL	c	68	D,E	62	957	993
Dibenzofuran	15,000	nc	NL		NL		30,036	D,E	15,000	74 J	890
Diethylphthalate	4,900,000	nc	550,000,000	b	NL	c	34,396	D,E	34,396	ND	ND
Dimethylphthalate	61,000,000	nc	NL		NL		9,689	D,E	9,689	ND	ND
Di-n-butylphthalate	610,000	nc	68,000,000	b	NL	c	39,240	D,E	39,240	ND	ND
Di-n-octylphthalate	240,000	nc	14,000,000	b	NL	c	68,892	D,E,S	68,892	ND	ND
Fluoranthene	230,000	nc	24,000,000	b	NL	c	68,892	D,E,S	68,892	2,882	8,579
Fluorene	160,000	sat	24,000,000	b	NL	c	68,892	D,E,S	68,892	110 J	1,469
Hexachlorobenzene	300	ca	1,000	e	2,000	e	1,986	D,E	1,986	ND	ND
Hexachlorobutadiene	1,800	nc	25,000	e	13,000	e	NL	D	1,800	ND	ND
Hexachlorocyclopentadiene	37,000	nc	4,800,000	b	14,000	b	NL	D	14,000	ND	ND
Hexachloroethane	6,100	nc	140,000	e	92,000	e	NL	D	6,100	ND	ND
Indeno(1,2,3-cd)pyrene	620	ca	2,000	e	NL	c	15,502	D,E	620	1,321	2,258
Isophorone	510,000	ca	2,000,000	e	NL	c	21,316	D,E	21,316	ND	ND
Naphthalene	5,600	nc	12,000,000	b	240,000	b	62,978	D,E,S	5,600	ND	540
Nitrobenzene	2,000	nc	340,000	b	130,000	b	969	D,E	969	ND	ND
N-Nitroso-di-n-propylamine	69	ca	300	e	NL	c	NL	D	69	ND	ND
N-Nitrosodiphenylamine	99,000	ca	390,000	e	NL	c	NL	D	99,000	ND	ND
Pentachlorophenol	3,000	ca	10,000	e	NL	c	4,844	D,E	3,000	ND	ND
Phenanthrene	NL		NL		NL		68,892	D,E,S	68,892	1,000	5,860
Phenol	1,800,000	nc	410,000,000	b	NL	c	145	D,E	145	ND	ND
Pyrene	230,000	nc	18,000,000	b	NL	c	68,892	D,E,S	68,892	3,448	7,819
P/PCBs											
4,4'-DDD	2,400	ca	13,000	c,e	NL	c	2,813	E,F,P	2,400	52 J	ND

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										Surface Soil	Subsurface Soil
4,4'-DDE	1,700	ca	9,000	c,e	NL	c	2,037	E,F,P	1,700	590	85
4,4'-DDT	1,700	ca	8,000	e	NL	g	2,037	E,F,P	1,700	103	57
Aldrin	29	ca	200	c,e	6,000	e	39.7	E,F	29	ND	ND
alpha-BHC	90	ca	500	c,e	1,000	e	106.7	E,F	90	ND	2
alpha-Chlordane	NL		7,000	e,H	120,000	e,H	523.8	E,F	523.8	2.5 J	ND
Aroclor-1016	390	nc	NL		NL		970	G	390	ND	ND
Aroclor-1221	NL		NL		NL		970	G	970	ND	ND
Aroclor-1232	NL		NL		NL		970	G	970	ND	ND
Aroclor-1242	NL		NL		NL		970	G	970	ND	ND
Aroclor-1248	NL		NL		NL		970	G	970	ND	100
Aroclor-1254	110	nc	NL		NL		970	G	110	102	110
Aroclor-1260	NL		NL		NL		970	G	970	62	62
beta-BHC	320	ca	2,000	c,e	NL	g	194	E,F	194	2	3
delta-BHC	NL		NL		NL		291	E,F	291	ND	ND
Dieldrin	30	ca	200	c,e	2,000	e	42.7	E,F	30	12	6.5 JN
Endosulfan I	NL		6,800,000	b,c	NL	c	873	E,F	873	2	ND
Endosulfan II	NL		6,800,000	b,c	NL	c	873	E,F	873	ND	ND
Endosulfan Sulfate	NL		NL		NL		970	E,F	970	6	6
Endrin	1,800	nc	340,000	b,c	NL	c	97	E,F	97	ND	ND
Endrin aldehyde	NL		NL		NL		NL	F	NA	4	14
Endrin ketone	NL		NL		NL		NL	F	NA	39 J	70 J
gamma-BHC (Lindane)	440	ca	2,000	e	NL	c	58.2	E,F	58.2	ND	ND
gamma-Chlordane	NL		7,000	e,H	120,000	e,H	523.8	E,F	523.8	16	16
Heptachlor	110	ca	700	c,e	7,000	e	97	E,F	110	ND	1
Heptachlor epoxide	53	ca	300	c,e	8,000	e	97	E,F	53	7.6 J	ND
Methoxychlor	31,000	nc	5,700,000	b,c	NL	c	NL	F	31,000	ND	ND
Toxaphene	440	ca	3,000	c,e	150,000	e	NL	F	440	ND	ND
Inorganics											
Aluminum	7,600	nc	NL		NL		NL	B	7,600	9,058	9,436
Antimony	3.10	nc	450	b,c	NL	c	NL	B	3.10	1.4 J	0.96 J

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										Surface Soil	Subsurface Soil
Arsenic	0.39	ca	2	e	1,400	e	7.5	**	0.39	7	6
Barium	540	nc	79,000	b,c	1,000,000	b	300	**	300	94	85
Beryllium	15	nc	2,300	c,e	2,600	e	0.16	**	0.16	0	0
Cadmium	3.70	nc	900	b,h	3,400	e	1	**	1.00	2	1
Calcium	NL		NL		NL		NL	B	NA	11,810	22,749
Chromium	210	ca	3,400	b,c	510	e	10	**	10	26	21
Chromium (hexavalent)	22	nc	3,400	b,c	510	e	NL		22	NA	NA
Cobalt	140	nc	NL		NL		30	**	30	10	11
Copper	310	nc	NL		NL		25	**	25	154	184
Cyanide	120	nc	23,000	b,c	NL	c	NL	C	120	ND	0.17 J
Iron	2,300	nc	NL		NL		2,000	**	2,000	25,962	24,031
Lead	400	nc	750	j	NL	j	NL	B	400	365	206
Magnesium	NL		NL		NL		NL	B	NA	4,936	6,918
Manganese	180	nc	NL		NL		NL	B	180	635	667
Mercury	2.3		340	b,c	14	b	0.1		0.10	1	0
Nickel	160	nc	23,000	b,c	26,000	e	13	**	13	22.9 J	21 J
Potassium	NL		NL		NL		NL	B	NA	764	810
Selenium	39	nc	5,700	b,c	NL	c	2	**	2.76	ND	ND
Silver	39	nc	5,700	b,c	NL	c	NL	B	39	1	0
Sodium	NL		NL		NL		NL	B	NA	135	154
Thallium	0.52	nc	91	b,c	NL	c	NL	B	1	ND	ND
Vanadium	7.80	nc	7,900	b,c	NL	c	150	**	8	23	19
Zinc	2,300	nc	340,000	b,c	NL	c	20	**	20	152	147

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)

EPA = Environmental Protection Agency

NA =not available

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						Surface Soil	Subsurface Soil

ND = non detect

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

NYSDEC = New York State Department of Environmental Conservation

P/PCB = pesticide and polychlorinated biphenyls

PRG = preliminary remedial goal

RSCO = recommended soil cleanup objectives

SSSSC = site-specific soil screening criteria

SSL = soil screening level

SVOC = semi-volatile organic compound

VOC = volatile organic compound

TOC = total organic carbon

(1) EPA Region 9 PRGs adjusted to a cancer risk of 1×10^{-6} and a non-cancer hazard index of 0.1.

(2) NY State Recommended Soil Cleanup Objectives (TAGM #4046, January 1994). Organic values are adjusted to site TOC content.

Inorganic values are not subject to this adjustment. See note E.

(3) SSSSC values are the lowest of the listed EPA and NYSDEC screening values.

(4) Site-specific background concentrations for surface and subsurface soil are the lower of the calculated 95% UCL and the maximum detected sample result, as shown on Table 4-6 (surface soil) and Table 4-7 (subsurface soil). Background values are provided for comparison purposes only.

A Total VOCs <10,000 ug/kg

B Use site background

C Must be calculated on a site specific basis dependent upon the site specific form of cyanide

D Total SVOCs <500,000 ug/kg, individual SVOCs <50,000 ug/kg

E Values are calculated using the site average organic carbon content: 4.85 % OC 48.5 g OC/kg soil

F Total Pesticides <10,000 ug/kg

G NYSDEC RSCO for PCBs is based on a soil organic carbon content of 5%

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

I No SSL or RSCO available. Value is the EPA Region 9 Preliminary Remediation Goal for Residential Soil.

P Value capped at the NYSDEC limit on total pesticides (10 mg/kg)

S Value capped at the NYSDEC limit on individual SVOCs (50,000 mg/kg)

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						Surface Soil	Subsurface Soil

V Value capped at the NYSDEC limit on total VOCs (10,000 mg/kg)

** Use this value or site background

b Value corresponds to a noncancer hazard quotient of 1.

c Ingestion-Dermal pathway: calculated based on ingestion data only. Inhalation pathway: no toxicity criteria available.

ca Value from EPA Region IX human health criteria; based on cancer risk of 1E-06.

d Soil saturation limit

e Calculated values correspond to a cancer risk of 1 in 1,000,000

h SSL is based on dietary RfD

j EPA set a screening level of 750 mg/kg for lead based on conservative inputs to the Adult Pb model

nc Value from EPA Region IX human health criteria; based on noncancer hazard index of 0.1.