TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

Category	Analyte	CASRN	Surface Water Chronic Screening Values (µg/L)					
			NRWQC Chronic [a]		GLWQI Tier II SCV [b]		ORNL LCVs and EC20s [b]	
			Value	Notes	Value	Notes	LCV (all organisms)	Notes
Metals EPA Method 6020	Aluminum	7429-90-5	87	[n]	--		460	
	Antimony	7440-36-0	--		30		610	
	Arsenic	7440-38-2	150	[o,p]	3.1	[ai]	48	[ai]
	Barium	7440-39-3	--		4		--	
	Beryllium	7440-41-7	--		0.66		5.3	
	Cadmium	7440-43-9	0.13002742	[m,p]	--		0.15	
	Calcium	7440-70-2	--		--		116000	
	Chromium III	16065-83-1	35	[m,p]	--		44	<
	Chromium VI	1333-82-0	11	[p]	--		2	
	Chromium, total	7440-47-3	--		--		--	
	Cobalt	7440-48-4	--		23		5.1	
	Copper	7440-50-8	1.6	[r,s]	--		0.23	
	Iron	7439-89-6	1000		--		158	
	Lead	7439-92-1	0.92	[m,p]	--		12.26	
	Magnesium	7439-95-4	--		--		82000	
	Manganese	7439-96-5	--		120		1100	<
	Mercury, total	7439-97-6	0.77	[p,ac]	1.3		0.23	<
	Mercury, methyl	22967-92-6	--		0.0028		0.04	<
	Nickel	7440-02-0	24	[m,p]	--		5	<
	Potassium	7440-09-7	--		--		53000	
	Selenium	7782-49-2	5	[t]	--		88.32	
	Silver	7440-22-4	0.067	[l]	0.36		0.12	
	Sodium	7440-23-5	--		--		680000	
	Thallium	7440-28-0	--		12		57	
	Vanadium	7440-62-2	--		20		80	
	Zinc	7440-66-6	54	[m,p]	--		30	
Pesticides (EPA Method 8081B)[il]	4,4´-DDD (Dichlorodiphenyldichloroethane)	72-54-8	--		0.011		1.69	*
	4,4´-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	--		--		--	
	4,4´-DDT (Dichlorodiphenyltrichloroethane)	50-29-3	0.001	[x,af]	0.013		0.3	
	Aldrin	309-00-2	0.3	[l]	--		--	
	alpha-BHC (alpha-Hexachlorocyclohexane or alpha-HCH)	319-84-6	--		2.2	[ah]	95	[ah]
	beta-BHC (beta-Hexachlorocyclohexane or beta-HCH)	319-85-7	--		2.2	[ah]	95	[ah]
	Chlordane	57-74-9	0.0043	[x]	--		1.09	
	Chlorobenzilate	510-15-6	--		--		--	
	cis-Chlordane	5103-71-9	0.0043	[x,z]	--		1.09	[z]
	gamma-BHC (Lindane)	58-89-9	0.095	[l]	--		3.3	
	delta-BHC (delta-Hexachlorocyclohexane or delta-HCH)	319-86-8	--		2.2	[ah]	95	[ah]
	Diallate	2303-16-4	--		--		--	
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	--		--		--	
	Dieldrin	60-57-1	0.056	[aa]	--		--	
	Endosulfan I	959-98-8	0.056	[x,y]	0.051	[ag]	--	
	Endosulfan II	33213-65-9	0.056	[x,y]	0.051	[ag]	--	
	Endosulfan sulfate	1031-07-8	0.056	[x,y]	0.051	[ag]	--	
	Endrin	72-20-8	0.036	[aa]	--		--	
	Endrin aldehyde	7421-93-4	0.036	[aa,ae]	--		--	
	Endrin ketone	53494-70-5	0.036	[aa,ae]	--		--	
	Heptachlor	76-44-8	0.0038	[x]	0.0069		1.26	
	Heptachlor epoxide	1024-57-3	0.0038	[x,ab]	0.0069	[ak]	1.26	[ak]
	Isodrin	465-73-6	--		--		--	
	Methoxychlor	72-43-5	0.03		0.019		--	
	Toxaphene	8001-35-2	0.0002		--		--	
	trans-Chlordane	5103-74-2	0.0043	[x,z]	--		1.09	[z]

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TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

Polychlorinated Biphenyls (PCBs) (EPA Method 8082)[d]	Aroclor 1016	12674-11-2	--		--		--	
	Aroclor 1221	11104-28-2	--		0.28		60	*
	Aroclor 1232	11141-16-5	--		0.58		124	*
	Aroclor 1242	53469-21-9	--		0.053		4.9	
	Aroclor 1248	12672-29-6	--		0.081		--	
	Aroclor 1254	11097-69-1	--		0.033		0.1	
	Aroclor 1260	11096-82-5	--		94		2.3	
	PCBs/Total PCBs	1336-36-3	0.014	[al]	0.14		0.1	
Volatile Organic Compounds (VOCs) (EPA Method 8260)	1,1,1,2-Tetrachloroethane	630-20-6	--		--		--	
	1,1,1-Trichloroethane	71-55-6	--		11		3493	*
	1,1,2,2-Tetrachloroethane	79-34-5	--		610		2400	
	1,1,2-Trichloroethane	79-00-5	--		1200		9400	
	1,1-Dichloroethane	75-34-3	--		47		14680	*
	1,1-Dichloroethene	75-35-4	--		25		2800	>
	1,1-Dichloropropene	563-58-6	--		--		--	
	1,2,3-Trichlorobenzene	87-61-6	--		--		--	
	1,2,3-Trichloropropane	96-18-4	--		--		--	
	1,2,3,4-Diepoxybutene	1464-53-5	--		--		--	
	1,2,4-Trichlorobenzene[e]	120-82-1	--		110		--	
	1,2,4-Trimethylbenzene	95-63-6	--		--		--	
	1,2-Dibromo-3-chloropropane	96-12-8	--		--		--	
	1,2-Dibromoethane	106-93-4	--		--		--	
	1,2-Dichlorobenzene[e]	95-50-1	--		14		--	
	1,2-Dichloroethane	107-06-2	--		910		15200	
	1,2-Dichloroethene (total)	540-59-0	--		590		9538	*
	1,2-Dichloropropane	78-87-5	--		--		--	
	1,3,5-Trimethylbenzene	108-67-8	--		--		--	
	1,3-Dichloro-2-propanol	96-23-1	--		--		--	
	1,3-Dichlorobenzene[e]	541-73-1	--		71		--	
	1,3-Dichloropropane	142-28-9	--		--		--	
	1,4-Dichlorobenzene[e]	106-46-7	--		15		--	
	1,4-Dioxane	123-91-1	--		--		--	
	1-Chlorobutane	109-69-3	--		--		--	
	1-Chlorohexane	544-10-5	--		--		--	
	1-Propanol	71-23-8	--		--		--	
	2,2-Dichloropropane	594-20-7	--		--		--	
	2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	--		14000		282170	*
	2-Chloroethanol	107-07-3	--		--		--	
	2-Chloroethyl vinyl ether	110-75-8	--		--		--	
	2-Chlorotoluene	95-49-8	--		--		--	
	2-Hexanone	591-78-6	--		99		32783	*
	2-Hydroxypropionitrile	78-97-7	--		--		--	
	2-Nitropropane	79-46-9	--		--		--	
	2-Pentanone	107-87-9	--		--		--	
	2-Picoline	109-06-8	--		--		--	
	2-Propanol	67-63-0	--		7.5		590	*
	3-Chloropropionitrile	542-76-7	--		--		--	
	4-Chlorotoluene	106-43-4	--		--		--	
	4-Methyl-2-pentanone (MIBK)	108-10-1	--		170		77400	
	Acetone	67-64-1	--		1500		507640	*
	Acetonitrile	75-05-8	--		--		--	
	Acrolein (Propenal)	107-02-8	3		--		--	

TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

Volatile Organic Compounds (VOCs) (EPA Method 8260)	Acrylonitrile	107-13-1	--		--		--	
	Allyl Alcohol	107-18-6	--		--		--	
	Allyl chloride	107-05-1	--		--		--	
	Benzene	71-43-2	--		130		525000	
	Benzyl chloride	100-44-7	--		--		--	
	beta-Propiolactone	57-57-8	--		--		--	
	Bis(2-chloroethyl)sulfide	505-60-2	--		--		--	
	Bromoacetone	598-31-2	--		--		--	
	Bromobenzene	108-86-1	--		--		--	
	Bromochloromethane	74-97-5	--		--		--	
	Bromodichloromethane	75-27-4	--		--		--	
	Bromoform	75-25-2	--		320		--	
	Bromomethane	74-83-9	--		--		--	
	Carbon disulfide	75-15-0	--		0.92		244	*
	Carbon tetrachloride	56-23-5	--		9.8		1970	*
	Chloral hydrate	302-17-0	--		--		--	
	Chloroacetonitrile	107-14-2	--		--		--	
	Chlorobenzene	108-90-7	--		64		1203	*
	Chloroethane	75-00-3	--		--		--	
	Chloroform	67-66-3	--		28		1240	
	Chloromethane	74-87-3	--		--		--	
	Chloroprene	126-99-8	--		--		--	
	Crotonaldehyde	4170-30-3	--		--		--	
	cis-1,2-Dichloroethene	156-59-2	--		590		--	
	cis-1,3-Dichloropropene	10061-01-5	--		0.055		--	
	cis-1,4-Dichloro-2-butene	1476-11-5	--		--		--	
	Dibromochloromethane (Chlorodibromomethane)	124-48-1	--		--		--	
	Dibromofluoromethane	1868-53-7	--		--		--	
	Dibromomethane	74-95-3	--		--		--	
	Dichlorodifluoromethane	75-71-8	--		--		--	
	Diethyl ether	60-29-7	--		--		--	
	Epichlorohydrin	106-89-8	--		--		--	
	Ethanol	64-17-5	--		--		--	
	Ethyl acetate	14178-6	--		--		--	
	Ethylbenzene	100-41-4	--		7.3		440	>
	Ethylene oxide	75-21-8	--		--		--	
	Ethyl methacrylate	97-63-2	--		--		--	
	Hexachloroethane	67-72-1	--		12		--	
	Iodomethane	74-88-4	--		--		--	
	Isobutyl alcohol	78-83-1	--		--		--	
	Isopropylbenzene	98-82-8	--		--		--	
	Malononitrile	109-77-3	--		--		--	
	Methacrylonitrile	126-98-7	--		--		--	
	Methanol	67-56-1	--		--		--	
	Methyl acetate	79-20-9	--		--		--	
	Methyl methacrylate	80-62-6	--		--		--	
	Methyl tert-butyl ether (MTBE)	1634-04-4	--		--		--	
	Methylene chloride	75-09-2	--		2200		42667	*
	n-Butanol	71-36-3	--		--		--	
	n-Butylbenzene	104-51-8	--		--		--	
	N-Nitroso-di-n-butylamine	924-16-3	--		--		--	

TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

Volatile Organic Compounds (VOCs) (EPA Method 8260)	n-Propylamine	107-10-8	--		--		--	
	n-Propylbenzene	103-65-1	--		--		--	
	p-Isopropyltoluene	99-87-6	--		--		--	
	Paraldehyde	123-63-7	--		--		--	
	Pentachloroethane	76-01-7	--		--		--	
	Pentafluorobenzene	363-72-4	--		--		--	
	Propargyl alcohol	107-19-7	--		--		--	
	Propionitrile (ethyl cyanide)	107-12-0	--		--		--	
	o-Toluidine	95-53-4	--		--		--	
	sec-Butylbenzene	135-98-8	--		--		--	
	Styrene	100-42-5	--		--		--	
	tert-Butylbenzene	98-06-6	--		--		--	
	Tetrachloroethene	127-18-4	--		98		750	
	Toluene	108-88-3	--		9.8		1269	*
	trans-1,2-Dichloroethene	156-60-5	--		590		--	
	trans-1,3-Dichloropropene	10061-02-6	--		0.055		--	
	trans-1,4-Dichloro-2-butene	110-57-6	--		--		--	
	Trichloroethene	79-01-6	--		47		7257	*
	Trichlorofluoromethane	75-69-4	--		--		--	
	Vinyl acetate	108-05-4	--		16		810	*
	Vinyl chloride	75-01-4	--		--		--	
	Xylene, m-	108-38-3	--		1.8	[aj]	--	
	Xylenes, m+p-	179601-23-1	--		1.8		--	
	Xylene, o-	95-47-6	--		13		--	
	Xylene, p-	106-42-3	--		1.8	[aj]	--	
	Xylenes, Total	1330-20-7	--		--		62308	*
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA Method 8310)[g]	***LOW MOLECULAR WEIGHT***							
	2-Methylnaphthalene	91-57-6	--		--		--	
	Acenaphthene	83-32-9	--		--		74	
	Acenaphthylene	208-96-8	--		--		--	
	Anthracene	120-12-7	--		0.73		0.09	*
	Fluoranthene	206-44-0	--		--		15	
	Fluorene	86-73-7	--		3.9		--	
	Naphthalene[h]	91-20-3	--		12		620	
	Phenanthrene	85-01-8	--		--		200	
	HIGH MOLECULAR WEIGHT							
	Benzo(a)anthracene	56-55-3	--		0.027		0.65	*
	Benzo(g,h,i)perylene	191-24-2	--		--		--	
	Benzo(a)pyrene	50-32-8	--		0.014		0.3	*
	Benzo(b)fluoranthene	205-99-2	--		--		--	
	Benzo(k)fluoranthene	207-08-9	--		--		--	
	Chrysene	218-01-9	--		--		--	
	Indeno(1,2,3-cd)pyrene	193-39-5	--		--		--	
	Pyrene	129-00-0	--		--		--	

TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

Semi-volatile Organic Chemicals (SVOCs) (EPA Method 8270)	2,2'-oxybis (1-chloropropane)	108-60-1	--		--		--	
	2,4,5-Trichlorophenol	95-95-4	--		--		--	
	2,4,6-Trichlorophenol	88-06-2	--		--		--	
	2,4-Dichlorophenol	120-83-2	--		--		--	
	2,4-Dimethylphenol	105-67-9	--		--		--	
	2,4-Dinitrophenol	51-28-5	--		--		--	
	2,4-Dinitrotoluene	121-14-2	--		--		--	
	2,6-Dinitrotoluene	606-20-2	--		--		--	
	2-Chloronaphthalene	91-58-7	--		--		--	
	2-Chlorophenol	95-57-8	--		--		--	
	2-Methylphenol	95-48-7	--		13		489	*
	2-Nitroaniline	88-74-4	--		--		--	
	2-Nitrophenol[k]	88-75-5	--		300		481	*
	3,3´-Dichlorobenzidine	91-94-1	--		--		--	
	3-Nitroaniline	99-09-2	--		--		--	
	4,6-Dinitro-2-methylphenol	534-52-1	--		--		--	
	4-Bromophenyl phenyl ether	101-55-3	--		1.5		--	
	4-Chloro-3-methylphenol	59-50-7	--		--		--	
	4-Chloroaniline	106-47-8	--		--		--	
	4-Chlorophenyl phenyl ether	7005-72-3	--		--		--	
	4-Methylphenol	106-44-5	--		--		--	
	4-Nitroaniline	100-01-6	--		--		--	
	4-Nitrophenol	100-02-7	--		300		481	*
	bis(-2-chloroethoxy)Methane	111-91-1	--		--		--	
	bis(-2-chloroethyl)Ether	111-44-4	--		--		--	
	bis(2-ethylhexyl)Phthalate	117-81-7	--		3		912	
	Butylbenzylphthalate	85-68-7	--		19		--	
	Carbazole	86-74-8	--		--		--	
	Dibenzo(a,h)anthracene	53-70-3	--		--		--	
	Dibenzofuran	132-64-9	--		3.7		1003	*
	Di-n-butylphthalate (butyl phthalate)	84-74-2	--		35		697	
	Di-n-octyl phthalate	117-84-0	--		--		708	
	Diethylphthalate	84-66-2	--		210		85600	
	Dimethylphthalate	131-11-3	--		--		--	
	Hexachlorobenzene[f]	118-74-1	--		--		--	
	Hexachlorobutadiene[i]	87-68-3	--		--		--	
	Hexachlorocyclopentadiene[f]	77-47-4	--		--		--	
	Hexachloroethane	67-72-1	--		12		--	
	Isophorone	78-59-1	--		--		--	
	N-Nitrosodi-n-propylamine	621-64-7	--		--		--	
	N-Nitrosodiphenylamine	86-30-6	--		210		332	*
	Nitrobenzene[i]	98-95-3	--		--		--	
	Pentachlorophenol	87-86-5	15	[ad]	--		--	
	Phenol	108-95-2	--		--		200	<
	Pyridine[i]	110-86-1	--		--		--	
Chlorinated Herbicides (EPA Method 8151)	2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	--		--		--	
	4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB)	94-82-6	--		--		--	
	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93-76-5	--		--		--	
	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP) [Silvex]	93-72-1	--		--		--	
	Dalapon	75-99-0	--		--		--	
	Dicamba	1918-00-9	--		--		--	
	Dichlorprop	120-36-5	--		--		--	
	Dinoseb	88-85-7	--		--		--	
	Methylchlorophenoxypropionic acid (MCPP)	93-65-2	--		--		--	
	2-Methyl-4-chlorophenoxyacetic acid (MCPA)	94-74-6	--		--		--	
Anions	Cyanide (Methods 9010B/9013/9014)	57-12-5	5.2	[q]	--		7.8	

TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

-- = indicates that no ESV is available from the designated source
no ESV = since no ESV is available, the chemical should be retained as a COPEC in the SLERA for further evaluation unless it is an essential nutrient or electrolyte (calcium, magnesium, potassium, or sodium). Essential nutrients and electrolytes are not retained as COPECs.
< = indicates that the value presented is an upper bound, the true effect level may be lower (see Suter & Tsao 1996)
> = indicates that the value presented is a lower bound, the true effect level may be higher (see Suter & Tsao 1996)
* = indicates an estimated value derived from the LC50 (see Suter & Tsao 1996 for specific method of estimation).

(1) The lowest available ESV from approved sources should be selected as the SLERA ESL to select COPECs and be protective of all receptors.
(2) Acute and chronic ESVs are selected based on the hierarchy described in Section 2.1.2. Where appropriate, species-specific ESVs may be obtained from toxicity literature or other additional sources with prior approval.
Use of additional lines of evidence, including comparison to background conditions where available, is warranted in a BERA, especially when ESVs are unavailable to support the calculation of HQs as one line of evidence.

Notes:
[a] EPA, 2015. National Recommended Water Quality Criteria: http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm
[b] Suter & Tsao, 1996. GLWQI Tier II SAV/SCVs and ORNL LCVs provided in Table 1. ORNL Population EC20s provided in Table 2.
[c] CCME, 2015. Water Quality Guidelines: http://st-ts.ccme.ca/
[d] Nineteen individual congeners also may be analyzed by this laboratory method.
[e] This compound also may be analyzed by EPA Method 8270 but is presented once in this table.
[f] These compounds also may be analyzed by EPA Method 8081B but are presented once in this table.
[g] Each of these compounds also may be analyzed by EPA Method 8270 but are presented once in this table.
[h] This compound also may be analyzed by EPA Method 8260 and 8270 but is presented once in this table.
[i] This compound also may be analyzed by EPA Method 8260 but is presented once in this table.
[j] Additional compounds may be analyzed by this laboratory method but are not listed here since they have not been as extensively validated by EPA.
[k] ESV for 4-Nitophenol used as a surrogate for this chemical.
[l] Only acute NRWQC available; chronic NRWQC is equal to acute/10.
[m] Metal toxicity is hardness-dependent; values shown are calculated based on a hardness of 40 mg/L.
[n] Aluminum NRWQC is based on total recoverable fraction and applies to waters with pH of 6.5 - 9.0.
[o] NRWQC derived from data for arsenic (III), but is applied here as total arsenic.
[p] NRWQC expressed in terms of the dissolved fraction.
[q] Expressed in terms of free cyanide.
[r] EPA recommends use of the Biotic Ligand Model (BLM) to assess copper toxicity (EPA 2007). See: http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/copper/2007_index.cfm
[s] Chronic NRWQC presented in this table is based on minimum value presented in Appendix G of EPA (2007); pH = 6.5, Hardness = 40 mg/L $CaCO_3$, DOC = 2 mg/L.
[t] EPA is in the process of updating this criterion to reflect the latest scientific information. As a result, this criterion might change substantially in the near future and will be based on fish tissue burden.
[u] Value is variable depending upon pH; if pH < 6.5, WQG is 5 µg/L; if pH ≥ 6.5, WQG is 100 µg/L.
[v] CCME WQG value is no longer recommended and the value is withdrawn.
[w] Use hardness-dependant equations to calculate site-specific ESVs.
[x] This Criterion is based on 304(a) aquatic life criterion issued in 1980. The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines.
[y] NRWQC derived from endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
[z] ESV for chlordane used as a surrogate for this chemical.
[aa] The derivation of the CCC for endrin did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.
[ab] NRWQC derived from data for heptachlor; insufficient data available to estimate the relative toxicities of heptachlor and heptachlor epoxide.
[ac] NRWQC derived from data for inorganic mercury (II), but is applied here to total mercury.
[ad] Freshwater aquatic life values expressed as a function of pH and correspond to a pH of 7.8.
[ae] ESV for endrin used as a surrogate for this chemical.
[af] NRWQC applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).
[ag] ESV for endosulfan used as a surrogate for this chemical.
[ah] ESV for BHC other used as a surrogate for this chemical.
[ai] ESV for arsenic (V) used as a surrogate for this chemical.
[aj] ESV for xylenes, m+p- used as a surrogate for this chemical.
[ak] ESV for heptachlor used as a surrogate for this chemical.
[al] EPA Office of Pesticide Program (OPP). *Aquatic Life Benchmarks for Pesticide Registration.*

µg/L = micrograms per liter
BERA = baseline ecological risk assessment
BLM = Biotic Ligand Model
$CaCO_3$ = calcium carbonate
CASRN = Chemical Abstracts Service Registry Number
CCC = Criterion Continuous Concentration
CCME = Canadian Council of Ministers of the Environment
CMC = Criteria Maximum Concentration
COPEC = chemical of potential ecological concern
DOC = dissolved organic carbon
EC20 = effect concentration for 20% of exposed organisms
EPA = Environmental Protection Agency
ESL = ecological screening level
ESV = ecological screening value
GLWQI = Great Lakes Water Quality Initiative
HQ = hazard quotient
LC50 = concentration lethal to 50% of the test population
LCV = Lowest Chronic Value
mg/L = milligrams per liter
NRWQC = National Recommended Water Quality Criteria
ORNL = Oak Ridge National Laboratory
PCB = polychlorinated biphenyl
SAV/SCV = Secondary Acute/Chronic Value
SLERA = screening level ecological risk assessment
VOC = volatile organic compound
WQG = Water Quality Guidelines

TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

summary of the values expected for the sources included in
DEQ-7 values should also be used. Also, note that the
below, but this summary is a reduction of a greater list of
s that are not being presented. The comprehensive list of
that are not relevant to this presentation.

TABLE 1a
SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

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SURFACE WATER ECOLOGICAL SCREENING VALUES FOR AQUATIC RECEPTORS (FRESHWATER)

NRWQC for Metals that are Hardness-Dependent

40 = Hardness (mg/L)

Analyte	CAS #	Hardness-Dependent Parameters *where: NRWQCtot = exp(a * ln(H) + b)*				NRWQC based on Total Recoverable (µg/L)		otal/Dissolved Conversion Facto *where: NRWQCdiss = NRWQCtot * [m-*				NRWQC based on Dissolved (µg/L)		
		Acute		Chronic				Acute		Chronic				
		a	b	a	b	Acute	Chronic	m	n	m	n	Acute	Chronic	
Cadmium	7440439	1.0166	-3.924	0.7409	-4.7190	0.84	0.14	1.1367	0.0418	1.1017	0.0418	0.83	0.13	
Chromium III	7440473	0.819	3.7256	0.8190	0.6848	851	41	0.3160	0.0000	0.8600	0.0000	269	35	
Chromium VI		*Not Hardness Dependent*				16	11	0.9820	0.0000	0.9620	0.0000	16	11	
Lead	7439921	1.273	-1.46	1.2730	-4.7050	25	1.0	1.4620	0.1457	1.4620	0.1457	24	0.9	
Mercury	7439976	*Not Hardness Dependent*				1.40	0.77	0.8500	0.0000	0.8500	0.0000	1.19	0.65	
Manganese	7440020	0.3331	6.4676	0.3331	5.8743	2200	1216	1.0000	0.0000	1.0000	0.0000	2200	1216	based on CDPHE Reg. 31
Nickel	7440020	0.846	2.255	0.8460	0.0584	216.1	24.0	0.9980	0.0000	0.9970	0.0000	216	24	
Silver	7440224	1.72	-6.59	--	--	0.78	0.078	0.8500	0.0000	--	--	0.67	0.067	
Zinc	7440666	0.8473	0.884	0.8473	0.8840	55.1	55.1	0.9780	0.0000	0.9860	0.0000	53.9	54.4	

-- = not available

NRWQCs are presented based on a hardness of 40 mg/L $CaCO_3$

Source: EPA, 2013. National Recommended Water Quality Criteria:
http://water.epa.gov/scitech/swguidance/standards/current/index.cfm#altable

Notes:

Silver chronic NRWQC is not available; chronic NRWQC is equal to the acute criterion / 10.

µg/L = micrograms per liter
$CaCO_3$ = calcium carbonate
diss = dissolved
H = hardness
ln = natural log
NRWQC = National Recommended Water Quality Criteria
tot = total

[Date]

TABLE 3
SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

Category	Analyte	CASRN	Sediment Threshold Effects Based Screening Values				Sediment Probable Effects Based Screening Values	
			MacDonald Consensus-Based TEC (mg/kg dw) (1)	Ingersoll ARCS TEL (mg/kg) (2)	EqP Value (mg/kg) (3)	ESGs for PAHs (mg/kg) (4)	MacDonald Consensus-Based PEC (mg/kg dw) (1)	Ingersoll ARCS PEL (mg/kg) (2)
Metals EPA Method 6020	Aluminum[a]	7429-90-5	--	--	--	--	--	--
	Antimony	7440-36-0	--	--	--	--	--	--
	Arsenic	7440-38-2	9.79	10.8	--	--	33	48
	Barium	7440-39-3	--	--	--	--	--	--
	Beryllium	7440-41-7	--	--	--	--	--	--
	Cadmium	7440-43-9	0.99	0.583	--	--	4.98	3.25
	Calcium	7440-70-2	--	--	--	--	--	--
	Chromium III	16065-83-1	--	--	--	--	--	--
	Chromium VI	1333-82-0	--	--	--	--	--	--
	Chromium	7440-47-3	43.4	36.2	--	--	111	119
	Cobalt	7440-48-4	--	--	--	--	--	--
	Copper	7440-50-8	31.6	28	--	--	149	101
	Iron	7439-89-6	--	188,400	--	--	--	247,600
	Lead	7439-92-1	35.8	37.2	--	--	128	81.7
	Magnesium	7439-95-4	--	--	--	--	--	--
	Manganese	7439-96-5	--	631	--	--	--	1185
	Mercury	7439-97-6	0.18	--	--	--	1.06	--
	Nickel	7440-02-0	22.7	19.5	--	--	48.6	32.8
	Potassium	7440-09-7	--	--	--	--	--	--
	Selenium	7782-49-2	--	--	--	--	--	--
	Silver	7440-22-4	--	--	--	--	--	--
	Sodium	7440-23-5	--	--	--	--	--	--
	Thallium	7440-28-0	--	--	--	--	--	--
	Vanadium	7440-62-2	--	--	--	--	--	--
	Zinc	7440-66-6	121	98	--	--	459	543
Pesticides (EPA Method 8081B)[c]	4,4´-DDD (Dichlorodiphenyldichloroethane)[b]	72-54-8	0.00488	--	--	--	0.028	--
	4,4´-DDE (Dichlorodiphenyldichloroethylene)[b]	72-55-9	0.00316	--	--	--	0.0313	--
	4,4´-DDT (Dichlorodiphenyltrichloroethane)[b]	50-29-3	0.00416	--	--	--	0.0629	--
	Aldrin	309-00-2	--	--	7.4	--	--	--
	alpha-BHC (alpha-Hexachlorocyclohexane or alpha-HCH)	319-84-6	--	--	0.03	--	--	--
	beta-BHC (beta-Hexachlorocyclohexane or beta-HCH)	319-85-7	--	--	0.03	--	--	--
	Chlordane	57-74-9	0.00324	--	--	--	0.0176	--
	Chlorobenzilate	510-15-6	--	--	--	--	--	--
	cis-Chlordane	5103-71-9	--	--	--	--	--	--
	gamma-BHC (Lindane)	58-89-9	0.00237	--	--	--	0.00499	--
	delta-BHC (delta-Hexachlorocyclohexane or delta-HCH)	319-86-8	--	--	0.14	--	--	--
	Diallate	2303-16-4	--	--	--	--	--	--
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	--	--	--	--	--	--
	Dieldrin	60-57-1	0.0019	--	--	--	0.0618	--
	Endosulfan I	959-98-8	--	--	0.0000064	--	--	--
	Endosulfan II	33213-65-9	--	--	0.0000064	--	--	--
	Endosulfan sulfate	1031-07-8	--	--	0.0000064	--	--	--
	Endrin	72-20-8	0.0022	--	--	--	0.207	--
	Endrin aldehyde	7421-93-4	--	--	0.0044	--	--	--
	Endrin ketone	53494-70-5	--	--	--	--	--	--
	Heptachlor	76-44-8	--	--	0.05	--	--	--
	Heptachlor epoxide	1024-57-3	0.00247	--	--	--	0.016	--
	Isodrin	465-73-6	--	--	--	--	--	--
	Methoxychlor	72-43-5	--	--	0.02	--	--	--
	Toxaphene	8001-35-2	--	--	0.00051	--	--	--
	trans-Chlordane	5103-74-2	--	--	--	--	--	--

Note: This is an example summary of the values expec
included in this workbook. The comprehensive list of
that are not relevant to this presentation.

TABLE 3
SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

Polychlorinated Biphenyls (PCBs) (EPA Method 8082)[d]	Aroclor 1016	12674-11-2	--	--	--	--	--	--
	Aroclor 1221	11104-28-2	--	--	--	--	--	--
	Aroclor 1232	11141-16-5	--	--	--	--	--	--
	Aroclor 1242	53469-21-9	--	--	--	--	--	--
	Aroclor 1248	12672-29-6	--	--	--	--	--	--
	Aroclor 1254	11097-69-1	--	--	--	--	--	--
	Aroclor 1260	11096-82-5	--	--	--	--	--	--
	PCBs/Total PCBs	1336-36-3	0.0598	0.032	--	--	0.676	0.245
Volatile Organic Compounds (VOCs) (EPA Method 8260)	1,1,1,2-Tetrachloroethane	630-20-6	--	--	--	--	--	--
	1,1,1-Trichloroethane	71-55-6	--	--	0.01	--	--	--
	1,1,2,2-Tetrachloroethane	79-34-5	--	--	0.57	--	--	--
	1,1,2-Trichloroethane	79-00-5	--	--	0.60	--	--	--
	1,1-Dichloroethane	75-34-3	--	--	0.01	--	--	--
	1,1-Dichloroethene	75-35-4	--	--	0.01	--	--	--
	1,1-Dichloropropene	563-58-6	--	--	--	--	--	--
	1,2,3-Trichlorobenzene	87-61-6	--	--	0.14	--	--	--
	1,2,3-Trichloropropane	96-18-4	--	--	--	--	--	--
	1,2,3,4-Diepoxybutene	1464-53-5	--	--	--	--	--	--
	1,2,4-Trichlorobenzene[e]	120-82-1	--	--	0.43	--	--	--
	1,2,4-Trimethylbenzene	95-63-6	--	--	--	--	--	--
	1,2-Dibromo-3-chloropropane	96-12-8	--	--	--	--	--	--
	1,2-Dibromoethane	106-93-4	--	--	--	--	--	--
	1,2-Dichlorobenzene[e]	95-50-1	--	--	0.0043	--	--	--
	1,2-Dichloroethane	107-06-2	--	--	0.02	--	--	--
	1,2-Dichloroethene (total)	540-59-0	--	--	0.21	--	--	--
	1,2-Dichloropropane	78-87-5	--	--	--	--	--	--
	1,3,5-Trimethylbenzene	108-67-8	--	--	--	--	--	--
	1,3-Dichloro-2-propanol	96-23-1	--	--	--	--	--	--
	1,3-Dichlorobenzene[e]	541-73-1	--	--	0.44	--	--	--
	1,3-Dichloropropane	142-28-9	--	--	--	--	--	--
	1,4-Dichlorobenzene[e]	106-46-7	--	--	0.09	--	--	--
	1,4-Dioxane	123-91-1	--	--	--	--	--	--
	1-Chlorobutane	109-69-3	--	--	--	--	--	--
	1-Chlorohexane	544-10-5	--	--	--	--	--	--
	1-Propanol	71-23-8	--	--	--	--	--	--
	2,2-Dichloropropane	594-20-7	--	--	--	--	--	--
	2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	--	--	0.92	--	--	--
	2-Chloroethanol	107-07-3	--	--	--	--	--	--
	2-Chloroethyl vinyl ether	110-75-8	--	--	--	--	--	--
	2-Chlorotoluene	95-49-8	--	--	--	--	--	--
	2-Hexanone	591-78-6	--	--	0.01	--	--	--
	2-Hydroxypropionitrile	78-97-7	--	--	--	--	--	--
	2-Nitropropane	79-46-9	--	--	--	--	--	--
	2-Pentanone	107-87-9	--	--	--	--	--	--
	2-Picoline	109-06-8	--	--	--	--	--	--
	2-Propanol	67-63-0	--	--	--	--	--	--
	3-Chloropropionitrile	542-76-7	--	--	--	--	--	--
	4-Chlorotoluene	106-43-4	--	--	--	--	--	--
	4-Methyl-2-pentanone (MIBK)	108-10-1	--	--	0.03	--	--	--
	Acetone	67-64-1	--	--	0.27	--	--	--
	Acetonitrile	75-05-8	--	--	--	--	--	--
	Acrolein (Propenal)	107-02-8	--	--	0.00015	--	--	--

TABLE 3
SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

Volatile Organic Compounds (VOCs) (EPA Method 8260)	Acrylonitrile	107-13-1	--	--	--	--	--	--	
	Allyl Alcohol	107-18-6	--	--	--	--	--	--	
	Allyl chloride	107-05-1	--	--	--	--	--	--	
	Benzene	71-43-2	--	--	0.08	--	--	--	
	Benzyl chloride	100-44-7	--	--	--	--	--	--	320
	beta-Propiolactone	57-57-8	--	--	--	--	--	--	0.32
	Bis(2-chloroethyl)sulfide	505-60-2	--	--	--	--	--	--	
	Bromoacetone	598-31-2	--	--	--	--	--	--	
	Bromobenzene	108-86-1	--	--	--	--	--	--	
	Bromochloromethane	74-97-5	--	--	--	--	--	--	
	Bromodichloromethane	75-27-4	--	--	--	--	--	--	
	Bromoform	75-25-2	--	--	0.28	--	--	--	
	Bromomethane	74-83-9	--	--	--	--	--	--	
	Carbon disulfide	75-15-0	--	--	0.00042	--	--	--	
	Carbon tetrachloride	56-23-5	--	--	0.02	--	--	--	
	Chloral hydrate	302-17-0	--	--	--	--	--	--	
	Chloroacetonitrile	107-14-2	--	--	--	--	--	--	
	Chlorobenzene	108-90-7	--	--	0.0028	--	--	--	
	Chloroethane	75-00-3	--	--	--	--	--	--	
	Chloroform	67-66-3	--	--	0.00072	--	--	--	
	Chloromethane	74-87-3	--	--	--	--	--	--	
	Chloroprene	126-99-8	--	--	--	--	--	--	
	Crotonaldehyde	4170-30-3	--	--	--	--	--	--	
	cis-1,2-Dichloroethene	156-59-2	--	--	--	--	--	--	
	cis-1,3-Dichloropropene	10061-01-5	--	--	0.000025	--	--	--	
	cis-1,4-Dichloro-2-butene	1476-11-5	--	--	--	--	--	--	
	Dibromochloromethane (Chlorodibromomethane)	124-48-1	--	--	--	--	--	--	
	Dibromofluoromethane	1868-53-7	--	--	--	--	--	--	
	Dibromomethane	74-95-3	--	--	--	--	--	--	
	Dichlorodifluoromethane	75-71-8	--	--	--	--	--	--	
	Diethyl ether	60-29-7	--	--	--	--	--	--	
	Epichlorohydrin	106-89-8	--	--	--	--	--	--	
	Ethanol	64-17-5	--	--	--	--	--	--	
	Ethyl acetate	14178-6	--	--	--	--	--	--	
	Ethylbenzene	100-41-4	--	--	0.026	--	--	--	
	Ethylene oxide	75-21-8	--	--	--	--	--	--	
	Ethyl methacrylate	97-63-2	--	--	--	--	--	--	
	Hexachloroethane	67-72-1	--	--	0.21	--	--	--	
	Iodomethane	74-88-4	--	--	--	--	--	--	
	Isobutyl alcohol	78-83-1	--	--	--	--	--	--	
	Isopropylbenzene	98-82-8	--	--	--	--	--	--	
	Malononitrile	109-77-3	--	--	--	--	--	--	
	Methacrylonitrile	126-98-7	--	--	--	--	--	--	
	Methanol	67-56-1	--	--	--	--	--	--	
	Methyl acetate	79-20-9	--	--	--	--	--	--	
	Methyl methacrylate	80-62-6	--	--	--	--	--	--	
	Methyl tert-butyl ether (MTBE)	1634-04-4	--	--	--	--	--	--	
	Methylene chloride	75-09-2	--	--	0.011	--	--	--	
	n-Butanol	71-36-3	--	--	--	--	--	--	
	n-Butylbenzene	104-51-8	--	--	--	--	--	--	
	N-Nitroso-di-n-butylamine	924-16-3	--	--	--	--	--	--	

TABLE 3
SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

Volatile Organic Compounds (VOCs) (EPA Method 8260)	n-Propylamine	107-10-8	--	--	--	--	--	--
	n-Propylbenzene	103-65-1	--	--	--	--	--	--
	p-Isopropyltoluene	99-87-6	--	--	--	--	--	--
	Paraldehyde	123-63-7	--	--	--	--	--	--
	Pentachloroethane	76-01-7	--	--	--	--	--	--
	Pentafluorobenzene	363-72-4	--	--	--	--	--	--
	Propargyl alcohol	107-19-7	--	--	--	--	--	--
	Propionitrile (ethyl cyanide)	107-12-0	--	--	--	--	--	--
	o-Toluidine	95-53-4	--	--	--	--	--	--
	sec-Butylbenzene	135-98-8	--	--	--	--	--	--
	Styrene	100-42-5	--	--	0.56	--	--	--
	tert-Butylbenzene	98-06-6	--	--	--	--	--	--
	Tetrachloroethene	127-18-4	--	--	0.078	--	--	--
	Toluene	108-88-3	--	--	0.0036	--	--	--
	trans-1,2-Dichloroethene	156-60-5	--	--	0.31	--	--	--
	trans-1,3-Dichloropropene	10061-02-6	--	--	0.000025	--	--	--
	trans-1,4-Dichloro-2-butene	110-57-6	--	--	--	--	--	--
	Trichloroethene	79-01-6	--	--	0.035	--	--	--
	Trichlorofluoromethane	75-69-4	--	--	--	--	--	--
	Vinyl acetate	108-05-4	--	--	0.00084	--	--	--
	Vinyl chloride	75-01-4	--	--	--	--	--	--
	Xylene, m-	108-38-3	--	--	--	--	--	--
	Xylenes, m+p-	179601-23-1	--	--	0.0070	--	--	--
	Xylene, o-	95-47-6	--	--	0.047	--	--	--
	Xylene, p-	106-42-3	--	--	--	--	--	--
	Xylenes, Total	1330-20-7	--	--	226	--	--	--
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA Method 8310)[g]	*LOW MOLECULAR WEIGHT*							
	2-Methylnaphthalene	91-57-6	--	--	--	4.47	--	--
	Acenaphthene	83-32-9	--	--	--	4.91	--	--
	Acenaphthylene	208-96-8	--	--	--	4.52	--	--
	Anthracene	120-12-7	0.0572	0.010	--	5.94	0.845	0.167
	Fluoranthene	206-44-0	0.423	0.031	--	7.07	2.23	0.319
	Fluorene	86-73-7	0.0774	0.010	--	5.38	0.536	0.149
	Naphthalene[h]	91-20-3	0.176	0.014	--	3.85	0.561	0.139
	Phenanthrene	85-01-8	0.204	0.019	--	5.96	1.17	0.41
	Total LMW PAHs	--	--	0.076	--	--	--	1.18
	HIGH MOLECULAR WEIGHT							
	Benzo(a)anthracene	56-55-3	0.108	0.015	--	8.41	1.05	0.285
	Benzo(g,h,i)perylene	191-24-2	--	0.016	--	10.95	--	0.252
	Benzo(a)pyrene	50-32-8	0.15	0.032	--	9.65	1.45	0.32
	Benzo(b)fluoranthene	205-99-2	--	--	--	9.79	--	--
	Benzo(k)fluoranthene	207-08-9	--	--	--	9.81	--	--
	Chrysene	218-01-9	0.166	0.026	--	8.44	1.29	0.406
	Indeno(1,2,3-cd)pyrene	193-39-5	--	0.017	--	11.15	--	0.24
	Pyrene	129-00-0	0.195	0.044	--	6.97	1.52	0.493
	Total HMW PAHs	--	--	0.193	--	--	--	2.34

TABLE 3
SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

Semi-Volatile Organic Compounds (SVOCs) (EPA Method 8270)	2,2'-oxybis (1-chloropropane)	108-60-1	--	--	--	--	--	--
	2,4,5-Trichlorophenol	95-95-4	--	--	0.29	--	--	--
	2,4,6-Trichlorophenol	88-06-2	--	--	--	--	--	--
	2,4-Dichlorophenol	120-83-2	--	--	--	--	--	--
	2,4-Dimethylphenol	105-67-9	--	--	--	--	--	--
	2,4-Dinitrophenol	51-28-5	--	--	--	--	--	--
	2,4-Dinitrotoluene	121-14-2	--	--	--	--	--	--
	2,6-Dinitrotoluene	606-20-2	--	--	--	--	--	--
	2-Chloronaphthalene	91-58-7	--	--	--	--	--	--
	2-Chlorophenol	95-57-8	--	--	0.027	--	--	--
	2-Methylphenol	95-48-7	--	--	0.012	--	--	--
	2-Nitroaniline	88-74-4	--	--	--	--	--	--
	2-Nitrophenol	88-75-5	--	--	--	--	--	--
	3,3´-Dichlorobenzidine	91-94-1	--	--	--	--	--	--
	3-Nitroaniline	99-09-2	--	--	--	--	--	--
	4,6-Dinitro-2-methylphenol	534-52-1	--	--	--	--	--	--
	4-Bromophenyl phenyl ether	101-55-3	--	--	0.26	--	--	--
	4-Chloro-3-methylphenol	59-50-7	--	--	--	--	--	--
	4-Chloroaniline	106-47-8	--	--	--	--	--	--
	4-Chlorophenyl phenyl ether	7005-72-3	--	--	--	--	--	--
	4-Methylphenol	106-44-5	--	--	--	--	--	--
	4-Nitroaniline	100-01-6	--	--	--	--	--	--
	4-Nitrophenol	100-02-7	--	--	--	--	--	--
	bis(-2-chloroethoxy)Methane	111-91-1	--	--	--	--	--	--
	bis(-2-chloroethyl)Ether	111-44-4	--	--	--	--	--	--
	bis(2-ethylhexyl)Phthalate	117-81-7	--	--	453	--	--	--
	Butylbenzylphthalate	85-68-7	--	--	11	--	--	--
	Carbazole	86-74-8	--	--	--	--	--	--
	Dibenzo(a,h)anthracene	53-70-3	0.033	--	--	11.23	--	--
	Dibenzofuran	132-64-9	--	--	0.30	--	--	--
	Di-n-butylphthalate (butyl phthalate)	84-74-2	--	--	1.2	--	--	--
	Di-n-octyl phthalate	117-84-0	--	--	17	--	--	--
	Diethylphthalate	84-66-2	--	--	0.60	--	--	--
	Dimethylphthalate	131-11-3	--	--	--	--	--	--
	Hexachlorobenzene[f]	118-74-1	--	--	--	--	--	--
	Hexachlorobutadiene[i]	87-68-3	--	--	0.70	--	--	--
	Hexachlorocyclopentadiene[f]	77-47-4	--	--	--	--	--	--
	Hexachloroethane	67-72-1	--	--	0.21	--	--	--
	Isophorone	78-59-1	--	--	--	--	--	--
	N-Nitrosodi-n-propylamine	621-64-7	--	--	--	--	--	--
	N-Nitrosodiphenylamine	86-30-6	--	--	0.52	--	--	--
	Nitrobenzene[i]	98-95-3	--	--	--	--	--	--
	Pentachlorophenol	87-86-5	--	--	--	--	--	--
	Phenol	108-95-2	--	--	0.0012	--	--	--
	Pyridine[i]	110-86-1	--	--	--	--	--	--
Chlorinated Herbicides (EPA Method 8151)	2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	--	--	1.0	--	--	--
	4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB)	94-82-6	--	--	--	--	--	--
	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93-76-5	--	--	--	--	--	--
	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP) (Silvex)	93-72-1	--	--	--	--	--	--
	Dalapon	75-99-0	--	--	--	--	--	--
	Dicamba	1918-00-9	--	--	2.7	--	--	--
	Dichlorprop	120-36-5	--	--	--	--	--	--
	Dinoseb	88-85-7	--	--	1.6	--	--	--
	Methylchlorophenoxypropionic acid (MCPP)	93-65-2	--	--	--	--	--	--
	2-Methyl-4-chlorophenoxyacetic acid (MCPA)	94-74-6	--	--	0.77	--	--	--

TABLE 3
SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

Anions	Cyanide (amenable) (Methods 9010B/9013/9014)	57-12-5-A	--	--	--	--	--	--
	Cyanide (total) (Methods 9010B/9013/9014)	57-12-5	--	--	--	--	--	--

-- indicates that no ESV is available from the designated source
no ESV = since no ESV is available, the chemical should be retained as a COPEC in the SLERA for further evaluation unless it is an essential nutrient or electrolyte (calcium, magnesium, potassium, or sodium). Essential nutrients and electrolytes are not retained as COPECs.

[a] Aluminum is identified as a COPEC only when sediment pH is below 5.5
[b] TECs and PECs (MacDonald et al. 2000) for Sum DDD, Sum DDE, and Sum DDT used as ESVs
[c] Additional compounds may be analyzed by this laboratory method but are not listed here since they have not been as extensively validated by EPA
[d] Nineteen individual congeners also may be analyzed by this laboratory method
[e] This compound also may be analyzed by EPA Method 8270 but is presented once in this table
[f] These componds also may be analyzed by EPA Method 8081B but are presented once in this table
[g] Each of these compounds also may be analyzed by EPA Method 8270 but are presented once in this table
[h] This compound also may be analyzed by EPA Method 8260 and 8270 but is presented once in this table
[i] This compound also may be analyzed by EPA Method 8260 but is presented once in this table

Sources Hierarchy:
1 MacDonald et al. (2000); consensus-based threshold effect concentration (TEC) and probable effect concentration (PEC).
2 Ingersoll, et al. (1996); Threshold Effect Level (TEL) and Probable Effect Level (PEL) for total extraction of sediment (BT) samples from *Hyalella azteca* 28-day (HA28) tests.
3 Derived based on the equilibrium partitioning (EqP) approach normalized to 1% TOC.
surrogates: Koc for cis-1,2-dichloroethene used for 1,2-dichloroethene
Koc for 1,2,4-Trichlorobenzene used for 1,2,3-Trichlorobenzene
Koc for 1,2-dichlorobenzene and 1,4-dichlorobenzene used for 1,3-dichlorobenzene
Koc for 1,3-dichloropropene used for cis-1,3-dichloropropene
Koc for endosulfan used for endosulfan I, endosulfan II, and endosulfan sulfate
Koc for endrin used for endrin aldehyde
Koc for 1,3-dichloropropene used for trans-1,3-dichloropropene
4 From Table 3-4 in EPA (2003); column titled "Coc, PAH_i, FCV_i (µg/goc)" normalized to 1% TOC and adjusted to ppm.
5 The lowest available ESV from approved sources should be selected as the SLERA ESL to select COPECs and be protective of all receptors (see Section 2.3.2).
6 ESVs for each receptor group are selected based on the hierarchy described in Section 2.3.2.

ARCS = Assessment and Remediation of Contaminated Sediments
CASRN = Chemical Abstracts Service Registry Number
COPEC = chemical of potential ecological concern
dw = dry weight
EqP = equilibrium partitioning
ESG = ecological sediment guideline
ESV = ecological screening value
mg/kg = milligrams per kilogram
NOAA = National Oceanic and Atmospheric Administration
PEC = probable effect concentration
PEL = probable effect level
SLERA = screening level ecological risk assessment
TEC = threshold effect concentration
TEL = threshold effect level
TOC = total organic carbon

TABLE 3
SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

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SEDIMENT ECOLOGICAL SCREENING VALUES FOR AQUATIC INVERTEBRATES (FRESHWATER)

Estimated Sediment Benchmarks Using the Equilibrium Partitioning Approach
For Use in Freshwater Environments

Screening-level Site TOC (1%) = 0.01

Analyte	CASRN w/o dash	CASRN	Freshwater Cwater[1] (mg/L)	pKa[2]	Environ. form at pH 6-8	logKow[3]	Koc[4] (L/kg)	Freshwater Csed[5] (mg/kg)	VLOOKUP Csed (mg/kg)	
1,1,1,2-Tetrachloroethane	630206	630-20-6	no benchmark	--	--	--	--	NB	--	
1,1,1-Trichloroethane	71556	71-55-6	1.1E-02	--	NONIONIC	2.49	1.1E+02	1.2E-02	0.0121	
1,1,2,2-Tetrachloroethane	79345	79-34-5	6.1E-01	--	NONIONIC	2.39	9.3E+01	5.7E-01	0.56913	
1,1,2-Trichloroethane	79005	79-00-5	1.2E+00	--	NONIONIC	2.05	5.0E+01	6.0E-01	0.6012	
1,1-Dichloroethane	75343	75-34-3	4.7E-02	--	NONIONIC	1.79	1.7E+01	8.2E-03	0.008178	
1,1-Dichloroethene	75354	75-35-4	2.5E-02	--	NONIONIC	2.13	5.9E+01	1.5E-02	0.014725	
1,2,3-Trichlorobenzene	87616	87-61-6	8.0E-03	--	NONIONIC	4.05	1.8E+03	1.4E-01	0.1424	
1,2,3-Trichloropropane	96184	96-18-4	no benchmark	--	--	--	--	NB	--	
1,2,4-Trichlorobenzene	120821	120-82-1	2.4E-02	--	NONIONIC	3.98	1.8E+03	4.3E-01	0.4272	
1,2-Dibromo-3-chloropropane (DBCP)	96128	96-12-8	no benchmark	--	--	--	--	NB	--	
1,2-Dichlorobenzene	95501	95-50-1	7.0E-04	--	NONIONIC	3.38	6.2E+02	4.3E-03	0.004319	
1,2-Dichloroethane	107062	107-06-2	1.0E-01	--	NONIONIC	1.48	1.7E+01	1.7E-02	0.0174	
1,2-Dichloroethene	540590	540-59-0	5.9E-01	--	NONIONIC	1.86	3.6E+01	2.1E-01	0.20945	
1,2-Dichloropropane	78875	78-87-5	no benchmark	--	NONIONIC	2	4.4E+01	NB	--	
1,3-Dichlorobenzene	541731	541-73-1	7.1E-02	--	NONIONIC	3.6	6.2E+02	4.4E-01	0.43807	
1,4-Dichlorobenzene	106467	106-46-7	1.5E-02	--	NONIONIC	3.52	6.2E+02	9.3E-02	0.09255	
1,4-Dioxane	123911	123-91-1	no benchmark	--	--	--	--	NB	--	
2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP) [S	93721	93-72-1	no benchmark	--	--	--	--	NB	--	
2,2'-oxybis(1-Chloropropane)	108601	108-60-1	no benchmark	--	--	--	--	NB	--	
2,4,5-Trichlorophenol	95954	95-95-4	1.8E-02	--	NONIONIC	--	1.6E+03	2.9E-01	0.288	
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93765	93-76-5	no benchmark	--	--	--	--	NB	--	
2,4,6-Trichlorophenol	88062	88-06-2	1.8E-02	5.99	IONIC	3.69	3.8E+02	NC	--	
2,4-Dichlorophenol	120832	120-83-2	2.0E-04	7.6	IONIC	2.92	1.5E+02	NC	--	
2,4-Dichlorophenoxyacetic acid (2,4-D)	94757	94-75-7	4.0E+00	2.73	NONIONIC	2.81	2.6E+01	1.0E+00	1.048	
2,4-Dimethylphenol	105679	105-67-9	no benchmark	10.61	NONIONIC	2.3	2.1E+02	NB	--	
2,4-Dinitrophenol	51285	51-28-5	no benchmark	4.09	IONIC	1.54	(ion)	NC	--	
2,4-Dinitrotoluene	121142	121-14-2	no benchmark	--	NONIONIC	1.98	9.6E+01	NB	--	
2,6-Dinitrotoluene	606202	606-20-2	no benchmark	--	--	--	--	NB	--	
2-Chloro-1,3-butadiene (Chloroprene)	126998	126-99-8	no benchmark	--	--	--	--	NB	--	
2-Chloroethyl vinyl ether	110758	110-75-8	no benchmark	--	NONIONIC	--	**8.1E+00**	NB	--	
2-Chloronaphthalene	91587	91-58-7	no benchmark	--	--	--	--	NB	--	
2-Chlorophenol	95578	95-57-8	7.0E-03	8.56	NONIONIC	2.15	3.9E+02	2.7E-02	0.02716	
2-Hexanone	591786	591-78-6	9.9E-02	--	NONIONIC	1.38	**1.3E+01**	1.3E-02	0.0128898	no Koc
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	94746	94-74-6	2.6E+00	3.13	NONIONIC	3.25	**3.0E+01**	7.7E-01	0.77038	
2-Methylphenol (o-Cresol)	95487	95-48-7	1.3E-02	10.28	NONIONIC	1.95	9.1E+01	1.2E-02	0.011856	
2-Nitroaniline	88744	88-74-4	no benchmark	--	--	--	--	NB	--	
2-Nitrophenol	88755	88-75-5	6.0E-02	7.23	IONIC	1.79	1.1E+02	NC	--	
3,3'-Dichlorobenzidine	91941	91-94-1	no benchmark	--	--	--	--	NB	--	
3-Chloropropene (Allyl Chloride)	107051	107-05-1	no benchmark	--	--	--	--	NB	--	
3-Nitroaniline	99092	99-09-2	no benchmark	--	--	--	--	NB	--	
4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB)	94826	94-82-6	no benchmark	--	--	--	--	NB	--	
4,6-Dinitro-o-cresol	534521	534-52-1	no benchmark	4.31	IONIC	2.12	2.6E+02	NC	--	
4-Bromophenyl-phenylether	101553	101-55-3	1.5E-03	--	NONIONIC	5.243	**1.7E+04**	2.6E-01	0.255	no Koc
4-Chloro-3-Methylphenol	59507	59-50-7	no benchmark	--	NONIONIC	--	**7.2E+02**	NB	--	
4-Chloroaniline	106478	106-47-8	no benchmark	--	--	--	--	NB	--	
4-Chlorophenyl-phenylether	7005723	7005-72-3	no benchmark	--	--	--	--	NB	--	
4-Methylphenol (p-Cresol)	106445	106-44-5	no benchmark	--	--	--	--	NB	--	
4-Nitroaniline	100016	100-01-6	no benchmark	--	--	--	--	NB	--	
4-Nitrophenol	100027	100-02-7	6.0E-02	7.08	IONIC	1.91	2.4E+02	NC	--	
Acetone	67641	67-64-1	1.5E+00	20	NONIONIC	-0.24	1.8E+01	2.7E-01	0.27	
Acetonitrile	75058	75-05-8	no benchmark	--	--	--	--	NB	--	
Acetophenone	98862	98-86-2	no benchmark	--	--	--	--	NB	--	
Acrolein	107028	107-02-8	3.0E-03	--	NONIONIC	-0.01	**5.0E+00**	1.5E-04	0.00015	no Koc
Acrylonitrile	107131	107-13-1	no benchmark	--	NONIONIC	0.25	9.0E+00	NB	--	
Aldrin	309002	309-00-2	3.0E-04	--	NONIONIC	5.52	2.5E+06	7.4E+00	7.35	
alpha-BHC	319846	319-84-6	2.2E-03	--	NONIONIC	3.8	1.2E+03	2.7E-02	0.02706	
Aniline	62533	62-53-3	no benchmark	4.6	NONIONIC	0.9	5.4E+01	NB	--	
Benzene	71432	71-43-2	1.3E-01	--	NONIONIC	2.13	5.9E+01	7.7E-02	0.07657	
Benzyl alcohol	100516	100-51-6	no benchmark	15.4	NONIONIC	1.1	5.0E+00	NB	--	
beta-BHC	319857	319-85-7	2.2E-03	--	NONIONIC	3.78	1.3E+03	2.8E-02	0.02772	
Biphenyl	92524	92-52-4	no benchmark	--	NONIONIC	4.09	1.4E+03	NB	--	
bis(2-Chloroethoxy)methane	111911	111-91-1	no benchmark	--	--	--	--	NB	--	
bis-(2-Chloroethyl)ether	111444	111-44-4	no benchmark	--	NONIONIC	1.29	7.9E+01	NB	--	
bis(2-Chloroisopropyl)ether	108601	108-60-1	no benchmark	--	--	--	--	NB	--	
bis(2-Ethylhexyl)phthalate	117817	117-81-7	3.0E-03	--	NONIONIC	5.11	1.5E+07	4.5E+02	453	
bis(n-octyl)phthalate	117840	117-84-0	7.1E-01	--	NONIONIC	5.22	2.4E+03	1.7E+01	16.8858	
Bromodichloromethane	75274	75-27-4	no benchmark	--	--	--	--	NB	--	
Bromoform	75252	75-25-2	3.2E-01	--	NONIONIC	2.37	8.7E+01	2.8E-01	0.27872	
Bromomethane (Methyl bromide)	74839	74-83-9	no benchmark	--	NONIONIC	1.19	9.8E+00	NB	--	
Butylbenzylphthalate	85687	85-68-7	1.9E-02	--	NONIONIC	4.91	5.8E+04	1.1E+01	10.925	
Carbon Disulfide	75150	75-15-0	9.2E-04	--	NONIONIC	2.24	4.6E+01	4.2E-04	0.00042044	
Carbon Tetrachloride	56235	56-23-5	9.8E-03	--	NONIONIC	2.83	1.7E+02	1.7E-02	0.017052	
Chlorobenzene	108907	108-90-7	1.3E-03	--	NONIONIC	2.84	2.2E+02	2.8E-03	0.002847	
Chlorodibromomethane	124481	124-48-1	no benchmark	--	--	--	--	NB	--	
Chloroethane (Ethyl chloride)	75003	75-00-3	no benchmark	--	--	--	--	NB	--	
Chloroform	67663	67-66-3	1.8E-03	--	NONIONIC	1.97	4.0E+01	7.2E-04	0.0007164	
Chloromethane (Methyl chloride)	74873	74-87-3	no benchmark	--	NONIONIC	0.91	7.4E+01	NB	--	
cis-1,3-Dichloropropene	10061015	10061-01-5	5.5E-05	--	NONIONIC	--	4.6E+01	2.5E-05	0.000025135	
Dalapon	75990	75-99-0	no benchmark	--	--	--	--	NB	--	
delta-BHC	319868	319-86-8	2.2E-03	--	NONIONIC	--	**6.3E+03**	1.4E-01	0.138810616	no Koc
Dibenzofuran	132649	132-64-9	3.7E-03	--	NONIONIC	4.12	**8.1E+03**	3.0E-01	0.300736	no Koc
Dibromomethane	74953	74-95-3	no benchmark	--	--	--	--	NB	--	
Dibutylphthalate	84742	84-74-2	1.9E-02	--	NONIONIC	4.72	6.3E+03	1.2E+00	1.1989	
Dicamba	1918009	1918-00-9	1.0E+01	1.97	NONIONIC	2.21	**2.7E+01**	2.7E+00	2.717	
Dichlorodifluoromethane	75718	75-71-8	no benchmark	--	--	--	--	NB	--	
Dichloromethane	75092	75-09-2	9.8E-02	--	NONIONIC	1.25	1.2E+01	1.1E-02	0.0114777	
Dichlorprop	120365	120-36-5	no benchmark	--	--	--	--	NB	--	
Diethylphthalate	84662	84-66-2	2.1E-01	--	NONIONIC	2.47	2.9E+02	6.0E-01	0.6048	
Dimethylphthalate	131113	131-11-3	no benchmark	--	NONIONIC	1.56	4.0E+01	NB	--	
Dinoseb	88857	88-85-7	5.0E-02	4.62	NONIONIC	3.67	**3.2E+03**	1.6E+00	1.5785	
Endosulfan I	959988	959-98-8	3.0E-06	--	NONIONIC	3.83	2.1E+02	6.4E-06	0.00000642	

Endosulfan II	33213659	33213-65-9	3.0E-06	--	NONIONIC	3.83	2.1E+02	6.4E-06	0.00000642	
Endosulfan Sulfate	1031078	1031-07-8	3.0E-06	--	NONIONIC	--	2.1E+02	6.4E-06	0.00000642	
Endrin Aldehyde	7421934	7421-93-4	3.6E-05	--	NONIONIC	--	1.2E+04	4.4E-03	0.004428	
Ethyl Methacrylate	97632	97-63-2	no benchmark	--	--	--	--	NB	--	
Ethylbenzene	100414	100-41-4	7.3E-03	--	NONIONIC	3.15	3.6E+02	2.6E-02	0.026499	
Ethylene dibromide (EDB)	106934	106-93-4	no benchmark	--	--	--	--	NB	--	
Heptachlor	76448	76-44-8	3.8E-06	--	NONIONIC	4.27	1.4E+06	5.4E-02	0.05358	
Hexachlorobenzene	118741	118-74-1	no benchmark	--	--	--	--	NB	--	
Hexachlorobutadiene	87683	87-68-3	1.3E-03	--	NONIONIC	4.78	5.4E+04	7.0E-01	0.6981	
Hexachlorocyclopentadiene	77474	77-47-4	no benchmark	--	NONIONIC	5.04	2.0E+05	NB	--	
Hexachloroethane	67721	67-72-1	1.2E-02	--	NONIONIC	3.93	1.8E+03	2.1E-01	0.2136	
Hexane	110543	110-54-3	no benchmark	--	NONIONIC	--	**1.5E+02**	NB	--	
Iodomethane	74884	74-88-4	no benchmark	--	--	--	--	NB	--	
Isobutyl Alcohol	78831	78-83-1	no benchmark	--	--	--	--	NB	--	
Isodrin	465736	465-73-6	no benchmark	--	--	--	--	NB	--	
Isophorone	78591	78-59-1	no benchmark	--	NONIONIC	1.67	2.5E+01	NB	--	
Kepone	143500	143-50-0	no benchmark	--	--	--	--	NB	--	
Methacrylonitrile	126987	126-98-7	no benchmark	--	--	--	--	NB	--	
Methoxychlor	72435	72-43-5	1.9E-05	--	NONIONIC	4.83	9.8E+04	1.9E-02	0.01856376	
Methyl ethyl ketone (MEK)	78933	78-93-3	1.8E+01	14.7	NONIONIC	0.29	**5.2E+00**	9.2E-01	0.924716	no Koc
Methyl isobutyl ketone (MIBK)	108101	108-10-1	1.7E-01	--	NONIONIC	1.19	**1.9E+01**	3.2E-02	0.0323	no Koc
Methyl Metharcylate	80626	80-62-6	no benchmark	--	--	--	--	NB	--	
Methylchlorophenoxypropionic acid (MCPP)	93652	93-65-2	no benchmark	--	--	--	--	NB	--	
Nitrobenzene	98953	98-95-3	no benchmark	--	NONIONIC	1.85	2.3E+02	NB	--	
N-Nitrosodiphenylamine	86306	86-30-6	4.0E-02	--	NONIONIC	3.13	1.3E+03	5.2E-01	0.516	
n-Nitrosodipropylamine	621647	621-64-7	no benchmark	--	--	--	--	NB	--	
Pentachlorophenol (PCP)	87865	87-86-5	5.0E-04	4.7	IONIC	5.12	5.9E+02	NC	--	
Phenol	108952	108-95-2	4.0E-03	9.994	NONIONIC	1.46	2.9E+01	1.2E-03	0.001152	
Styrene	100425	100-42-5	7.2E-02	--	NONIONIC	2.95	7.8E+02	5.6E-01	0.55872	
Tetrachloroethene	127184	127-18-4	5.0E-02	--	NONIONIC	3.4	1.6E+02	7.8E-02	0.0775	
Toluene	108883	108-88-3	2.0E-03	--	NONIONIC	2.73	1.8E+02	3.6E-03	0.00364	
Toxaphene	8001352	8001-35-2	2.0E-07	--	NONIONIC	4.82	2.6E+05	5.1E-04	0.000514	
trans-1,2-Dichloroethene	156605	156-60-5	5.9E-01	--	NONIONIC	--	5.3E+01	3.1E-01	0.30975	
trans-1,3-Dichloropropene	10061026	10061-02-6	5.5E-05	--	NONIONIC	--	4.6E+01	2.5E-05	0.000025135	
trans-1,4-Dichloro-2-Butene	110576	110-57-6	no benchmark	--	--	--	--	NB	--	
Trichloroethene	79016	79-01-6	2.1E-02	--	NONIONIC	2.42	1.7E+02	3.5E-02	0.03486	
Trichlorofluoromethane	75694	75-69-4	no benchmark	--	--	--	--	NB	--	
Vinyl Acetate	108054	108-05-4	1.6E-02	--	NONIONIC	0.73	5.3E+00	8.4E-04	0.00084	
Vinyl Chloride	75014	75-01-4	no benchmark	--	--	--	--	NB	--	
Xylenes (Total)	1330207	1330-20-7	6.2E+01	--	NONIONIC	3.12	3.6E+02	2.3E+02	226.17804	
Xylenes-o	95476	95-47-6	1.3E-02	--	NONIONIC	3.12	3.6E+02	4.7E-02	0.04719	
Xylenes-p,m	179601231	179601-23-1	1.8E-03	--	NONIONIC	3.15	3.9E+02	7.0E-03	0.007002	

NB = No surface water benchmark; sediment benchmark not calculated
NC = Not calculated
(ion) = Koc not calculated due to ionization
Koc values in **boldface type** were estimated using Pckocwin v1.66 EPI Suite estimation software (http://www.epa.gov/oppt/exposure/pubs/episuite.htm).

All pKa and Kow values are the SRC recommended values in FatePointer database (http://esc.syrres.com/fatepointer/search.asp)
1 Cwater based on selected freshwater surface water SLERA ESV for selection of COPECs (see Table 1-1a).
2 PKA-Log Acid Dissociation Constant
3 LOGP-Log Octanol/Water Part. Coeff.
4 Koc (organic carbon partition coefficient) from Exhibit C-1 of EPA (2002b)
5 Csed estimated based on Equilibrium Partitioning Approach:
Csed = Cwater * Koc * 0.01 [adjusted to a TOC of 1%]

Cell: H135
Comment: Lynn Woodbury:
O XYLENE

Cell: H137
Comment: Lynn Woodbury:
P XYLENE

TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

Category	Analyte	CASRN	Screening Values for Terrestrial Plants and Soil Invertebrates						
			Terrestrial Plants (mg/kg)				Soil Invertebrates (mg/kg)		
			Eco-SSL Plants	ORNL Plants	LANL Plant ESL	EPA Region 5 ESLs[(1)]	Eco-SSL Invertebrate	ORNL Invertebrate	ORNL Microorganisms (mg/kg dw)
Metals EPA Method 6020	Aluminum	7429-90-5	[a]	50	--	--	[a]	--	600
	Antimony	7440-36-0	--	5	11	--	78	--	
	Arsenic	7440-38-2	18	10	18	--	--	60	100
	Barium	7440-39-3	--	500	110	--	330	--	3000
	Beryllium	7440-41-7	--	10	2.5	--	40	--	
	Cadmium	7440-43-9	32	4	32	--	140	20	20
	Calcium	7440-70-2	--	--	--	--	--	--	
	Chromium (total)	7440-47-3	--	1[m]	0.35[n]	--	--	0.4[n]	10
	Cobalt	7440-48-4	13	20	13	--	--	--	1000
	Copper	7440-50-8	70	100	70	--	80	50	100
	Iron	7439-89-6	[b]	--	--	--	[b]	--	200
	Lead	7439-92-1	120	50	120	--	1700	500	900
	Magnesium	7439-95-4	--	--	--	--	--	--	
	Manganese	7439-96-5	220	500	220	--	450	--	100
	Mercury	7439-97-6	--	0.3	34	--	--	0.1	30
	Mercury, methyl	22967-92-6	--	--	--	--	--	--	
	Nickel	7440-02-0	38	30	38	--	280	200	90
	Potassium	7440-09-7	--	--	--	--	--	--	
	Selenium	7782-49-2	0.52	1	0.52	--	4.1	70	100
	Silver	7440-22-4	560	2	560	--	--	--	50
	Sodium	7440-23-5	--	--	--	--	--	--	
	Thallium	7440-28-0	--	1	0.05	--	--	--	
	Vanadium	7440-62-2	--	2	60	--	--	--	20
	Zinc	7440-66-6	160	50	160	--	120	200	100
Pesticides (EPA Method 8081B)[c]	4,4´-DDD (Dichlorodiphenyldichloroethane)	72-54-8	--	--	--	--	--	--	
	4,4´-DDE (Dichlorodiphenyldichloroethylene)	72-55-9	--	--	--	--	--	--	
	4,4´-DDT (Dichlorodiphenyltrichloroethane)	50-29-3	--	--	4.1	--	--	--	
	Aldrin	309-00-2	--	--	--	0.00332	--	--	
	alpha-BHC (alpha-Hexachlorocyclohexane or alpha-HCH)	319-84-6	--	--	--	--	--	--	
	beta-BHC (beta-Hexachlorocyclohexane or beta-HCH)	319-85-7	--	--	--	0.00398	--	--	
	Chlordane	57-74-9	--	--	--	0.224	--	--	
	Chlorobenzilate	510-15-6	--	--	--	--	--	--	
	cis-Chlordane	5103-71-9	--	--	2.2	--	--	--	
	gamma-BHC (Lindane)	58-89-9	--	--	0.1	0.005	--	--	
	delta-BHC (delta-Hexachlorocyclohexane or delta-HCH)	319-86-8	--	--	--	--	--	--	
	Diallate	2303-16-4	--	--	--	--	--	--	
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	--	--	--	--	--	--	
	Dieldrin	60-57-1	--	--	10	--	--	--	
	Endosulfan I	959-98-8	--	--	--	--	--	--	
	Endosulfan II	33213-65-9	--	--	--	--	--	--	
	Endosulfan sulfate	1031-07-8	--	--	--	--	--	--	
	Endrin	72-20-8	--	--	0.0034	--	--	--	
	Endrin aldehyde	7421-93-4	--	--	--	--	--	--	
	Endrin ketone	53494-70-5	--	--	--	--	--	--	
	Heptachlor	76-44-8	--	--	0.4	--	--	--	
	Heptachlor epoxide	1024-57-3	--	--	--	--	--	--	
	Isodrin	465-73-6	--	--	--	0.00332	--	--	
	Methoxychlor	72-43-5	--	--	--	--	--	--	
	Toxaphene	8001-35-2	--	--	--	--	--	--	
	trans-Chlordane	5103-74-2	--	--	2.2	--	--	--	

TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

Polychlorinated Biphenyls (PCBs) (EPA Method 8082)[d]	Aroclor 1016	12674-11-2	--	--	--	--	--	--	
	Aroclor 1221	11104-28-2	--	--	--	--	--	--	
	Aroclor 1232	11141-16-5	--	--	--	--	--	--	
	Aroclor 1242	53469-21-9	--	--	--	--	--	--	
	Aroclor 1248	12672-29-6	--	--	--	--	--	--	
	Aroclor 1254	11097-69-1	--	--	160	--	--	--	
	Aroclor 1260	11096-82-5	--	--	--	--	--	--	
	PCBs/Total PCBs	1336-36-3	--	40	--	--	--	--	
Volatile Organic Compounds (VOCs) (EPA Method 8260)	1,1,1,2-Tetrachloroethane	630-20-6	--	--	--	--	--	--	
	1,1,1-Trichloroethane	71-55-6	--	--	--	--	--	--	
	1,1,2,2-Tetrachloroethane	79-34-5	--	--	--	--	--	--	
	1,1,2-Trichloroethane	79-00-5	--	--	--	--	--	--	
	1,1-Dichloroethane	75-34-3	--	--	--	--	--	--	
	1,1-Dichloroethene	75-35-4	--	--	--	--	--	--	
	1,1-Dichloropropene	563-58-6	--	--	--	--	--	--	
	1,2,3-Trichlorobenzene	87-61-6	--	--	--	--	--	20	
	1,2,3-Trichloropropane	96-18-4	--	--	--	--	--	--	
	1,2,3,4-Diepoxybutene	1464-53-5	--	--	--	--	--	--	
	1,2,4-Trichlorobenzene[e]	120-82-1	--	--	--	--	--	20	
	1,2,4-Trimethylbenzene	95-63-6	--	--	--	--	--	--	
	1,2-Dibromo-3-chloropropane	96-12-8	--	--	--	--	--	--	
	1,2-Dibromoethane	106-93-4	--	--	--	--	--	--	
	1,2-Dichlorobenzene[e],[j]	95-50-1	--	--	--	--	--	20	
	1,2-Dichloroethane	107-06-2	--	--	--	--	--	--	
	1,2-Dichloroethene (total)	540-59-0	--	--	--	--	--	--	
	1,2-Dichloropropane	78-87-5	--	--	--	--	--	700	
	1,3,5-Trimethylbenzene	108-67-8	--	--	--	--	--	--	
	1,3-Dichloro-2-propanol	96-23-1	--	--	--	--	--	--	
	1,3-Dichlorobenzene[e],[j]	541-73-1	--	--	--	--	--	20	
	1,3-Dichloropropane	142-28-9	--	--	--	--	--	--	
	1,4-Dichlorobenzene[e]	106-46-7	--	--	--	--	--	20	
	1,4-Dioxane	123-91-1	--	--	--	--	--	--	
	1-Chlorobutane	109-69-3	--	--	--	--	--	--	
	1-Chlorohexane	544-10-5	--	--	--	--	--	--	
	1-Propanol	71-23-8	--	--	--	--	--	--	
	2,2-Dichloropropane	594-20-7	--	--	--	--	--	--	
	2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	--	--	--	--	--	--	
	2-Chloroethanol	107-07-3	--	--	--	--	--	--	
	2-Chloroethyl vinyl ether	110-75-8	--	--	--	--	--	--	
	2-Chlorotoluene	95-49-8	--	--	--	--	--	--	
	2-Hexanone	591-78-6	--	--	--	--	--	--	
	2-Hydroxypropionitrile	78-97-7	--	--	--	--	--	--	
	2-Nitropropane	79-46-9	--	--	--	--	--	--	
	2-Pentanone	107-87-9	--	--	--	--	--	--	
	2-Picoline	109-06-8	--	--	--	--	--	--	
	2-Propanol	67-63-0	--	--	--	--	--	--	
	3-Chloropropionitrile	542-76-7	--	--	--	--	--	--	
	4-Chlorotoluene	106-43-4	--	--	--	--	--	--	
	4-Methyl-2-pentanone (MIBK)	108-10-1	--	--	--	--	--	--	
	Acetone	67-64-1	--	--	--	--	--	--	
	Acetonitrile	75-05-8	--	--	--	--	--	--	
	Acrolein (Propenal)	107-02-8	--	--	--	--	--	--	

TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

Volatile Organic Compounds (VOCs) (EPA Method 8260)	Acrylonitrile	107-13-1	--	--	--	--	--	--	
	Allyl Alcohol	107-18-6	--	--	--	--	--	--	
	Allyl chloride	107-05-1	--	--	--	--	--	--	
	Benzene	71-43-2	--	--	--	--	--	--	
	Benzyl chloride	100-44-7	--	--	--	--	--	--	
	beta-Propiolactone	57-57-8	--	--	--	--	--	--	
	Bis(2-chloroethyl)sulfide	505-60-2	--	--	--	--	--	--	
	Bromoacetone	598-31-2	--	--	--	--	--	--	
	Bromobenzene	108-86-1	--	--	--	--	--	--	
	Bromochloromethane	74-97-5	--	--	--	--	--	--	
	Bromodichloromethane	75-27-4	--	--	--	--	--	--	
	Bromoform	75-25-2	--	--	--	--	--	--	
	Bromomethane	74-83-9	--	--	--	--	--	--	
	Carbon disulfide	75-15-0	--	--	--	--	--	--	
	Carbon tetrachloride	56-23-5	--	--	--	--	--	--	1000
	Chloral hydrate	302-17-0	--	--	--	--	--	--	
	Chloroacetonitrile	107-14-2	--	--	--	--	--	--	
	Chlorobenzene	108-90-7	--	--	--	--	--	40	
	Chloroethane	75-00-3	--	--	--	--	--	--	
	Chloroform	67-66-3	--	--	--	--	--	--	
	Chloromethane	74-87-3	--	--	--	--	--	--	
	Chloroprene	126-99-8	--	--	--	--	--	--	
	Crotonaldehyde	4170-30-3	--	--	--	--	--	--	
	cis-1,2-Dichloroethene	156-59-2	--	--	--	--	--	--	
	cis-1,3-Dichloropropene	10061-01-5	--	--	--	--	--	--	
	cis-1,4-Dichloro-2-butene	1476-11-5	--	--	--	--	--	--	
	Dibromochloromethane (Chlorodibromomethane)	124-48-1	--	--	--	--	--	--	
	Dibromofluoromethane	1868-53-7	--	--	--	--	--	--	
	Dibromomethane	74-95-3	--	--	--	--	--	--	
	Dichlorodifluoromethane	75-71-8	--	--	--	--	--	--	
	Diethyl ether	60-29-7	--	--	--	--	--	--	
	Epichlorohydrin	106-89-8	--	--	--	--	--	--	
	Ethanol	64-17-5	--	--	--	--	--	--	
	Ethyl acetate	14178-6	--	--	--	--	--	--	
	Ethylbenzene	100-41-4	--	--	--	--	--	--	
	Ethylene oxide	75-21-8	--	--	--	--	--	--	
	Ethyl methacrylate	97-63-2	--	--	--	--	--	--	
	Hexachloroethane	67-72-1	--	--	--	--	--	--	
	Iodomethane	74-88-4	--	--	--	--	--	--	
	Isobutyl alcohol	78-83-1	--	--	--	--	--	--	
	Isopropylbenzene	98-82-8	--	--	--	--	--	--	
	Malononitrile	109-77-3	--	--	--	--	--	--	
	Methacrylonitrile	126-98-7	--	--	--	--	--	--	
	Methanol	67-56-1	--	--	--	--	--	--	
	Methyl acetate	79-20-9	--	--	--	--	--	--	
	Methyl methacrylate	80-62-6	--	--	--	--	--	--	
	Methyl tert-butyl ether (MTBE)	1634-04-4	--	--	--	--	--	--	
	Methylene chloride	75-09-2	--	--	1600	--	--	--	
	n-Butanol	71-36-3	--	--	--	--	--	--	
	n-Butylbenzene	104-51-8	--	--	--	--	--	--	
	N-Nitroso-di-n-butylamine	924-16-3	--	--	--	--	--	--	

TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

Volatile Organic Compounds (VOCs) (EPA Method 8260)	n-Propylamine	107-10-8	--	--	--	--	--	--	
	n-Propylbenzene	103-65-1	--	--	--	--	--	--	
	p-Isopropyltoluene	99-87-6	--	--	--	--	--	--	
	Paraldehyde	123-63-7	--	--	--	--	--	--	
	Pentachloroethane	76-01-7	--	--	--	--	--	--	
	Pentafluorobenzene	363-72-4	--	--	--	--	--	--	
	Propargyl alcohol	107-19-7	--	--	--	--	--	--	
	Propionitrile (ethyl cyanide)	107-12-0	--	--	--	--	--	--	
	o-Toluidine	95-53-4	--	--	--	--	--	--	
	sec-Butylbenzene	135-98-8	--	--	--	--	--	--	
	Styrene	100-42-5	--	300	3.2	--	--	--	
	tert-Butylbenzene	98-06-6	--	--	--	--	--	--	
	Tetrachloroethene	127-18-4	--	--	10	--	--	--	
	Toluene	108-88-3	--	200	200	--	--	--	
	trans-1,2-Dichloroethene	156-60-5	--	--	--	--	--	--	
	trans-1,3-Dichloropropene	10061-02-6	--	--	--	--	--	--	
	trans-1,4-Dichloro-2-butene	110-57-6	--	--	--	--	--	--	
	Trichloroethene	79-01-6	--	--	--	--	--	--	
	Trichlorofluoromethane	75-69-4	--	--	--	--	--	--	
	Vinyl acetate	108-05-4	--	--	--	--	--	--	
	Vinyl chloride	75-01-4	--	--	--	--	--	--	
	Xylene, m-	108-38-3	--	--	--	--	--	--	
	Xylenes, m+p-	108-38-3+p	--	--	--	--	--	--	
	Xylene, o-	95-47-6	--	--	--	--	--	--	
	Xylene, p-	106-42-3	--	--	--	--	--	--	
	Xylenes, Total	1330-20-7	--	--	100	10	--	--	
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA Method 8310)[g]	*LOW MOLECULAR WEIGHT*								
	2-Methylnaphthalene	91-57-6	--	--	--	--	--	--	
	Acenaphthene	83-32-9	--	20	0.25	--	--	--	
	Acenaphthylene	208-96-8	--	--	--	--	--	--	
	Anthracene	120-12-7	--	--	6.8	--	--	--	
	Fluoranthene	206-44-0	--	--	--	--	--	--	
	Fluorene	86-73-7	--	--	--	--	--	30	
	Naphthalene[h]	91-20-3	--	--	1	--	--	--	
	Phenanthrene	85-01-8	--	--	--	--	--	--	
	Total LMW PAHs	--	--	--	--	--	29	--	
	HIGH MOLECULAR WEIGHT								
	Benzo(a)anthracene	56-55-3	--	--	18	--	--	--	
	Benzo(g,h,i)perylene	191-24-2	--	--	--	--	--	--	
	Benzo(a)pyrene	50-32-8	--	--	--	--	--	--	
	Benzo(b)fluoranthene	205-99-2	--	--	18	--	--	--	
	Benzo(k)fluoranthene	207-08-9	--	--	--	--	--	--	
	Chrysene	218-01-9	--	--	--	--	--	--	
	Indeno(1,2,3-cd)pyrene	193-39-5	--	--	--	--	--	--	
	Pyrene	129-00-0	--	--	--	--	--	--	
	Total HMW PAHs	--	--	--	--	--	18	--	

TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

Semi-Volatile Organic Compounds (SVOCs) (EPA Method 8270)	2,2'-oxybis (1-chloropropane)	108-60-1	--	--	--	--	--	--	
	2,4,5-Trichlorophenol	95-95-4	--	4	--	--	--	9	
	2,4,6-Trichlorophenol	88-06-2	--	--	--	--	--	10	
	2,4-Dichlorophenol	120-83-2	--	--	--	--	--	--	
	2,4-Dimethylphenol	105-67-9	--	--	--	0.01	--	--	
	2,4-Dinitrophenol	51-28-5	--	20	--	--	--	--	
	2,4-Dinitrotoluene	121-14-2	--	--	6	--	--	--	
	2,6-Dinitrotoluene	606-20-2	--	--	--	--	--	--	
	2-Chloronaphthalene	91-58-7	--	--	--	--	--	--	
	2-Chlorophenol	95-57-8	--	--	--	--	--	--	
	2-Methylphenol	95-48-7	--	--	0.67	--	--	--	
	2-Nitroaniline	88-74-4	--	--	--	--	--	--	
	2-Nitrophenol[k]	88-75-5	--	--	--	--	--	7	
	3,3´-Dichlorobenzidine	91-94-1	--	--	--	--	--	--	
	3-Nitroaniline	99-09-2	--	--	--	--	--	--	
	4,6-Dinitro-2-methylphenol	534-52-1	--	--	--	--	--	--	
	4-Bromophenyl phenyl ether	101-55-3	--	--	--	--	--	--	
	4-Chloro-3-methylphenol	59-50-7	--	--	--	--	--	--	
	4-Chloroaniline	106-47-8	--	--	1	--	--	--	
	4-Chlorophenyl phenyl ether	7005-72-3	--	--	--	--	--	--	
	4-Methylphenol	106-44-5	--	--	--	--	--	--	
	4-Nitroaniline	100-01-6	--	--	--	--	--	--	
	4-Nitrophenol	100-02-7	--	--	--	--	--	7	
	bis(-2-chloroethoxy)Methane	111-91-1	--	--	--	--	--	--	
	bis(-2-chloroethyl)Ether	111-44-4	--	--	--	--	--	--	
	bis(2-ethylhexyl)Phthalate	117-81-7	--	--	--	--	--	--	
	Butylbenzylphthalate	85-68-7	--	--	--	--	--	--	
	Carbazole	86-74-8	--	--	--	--	--	--	
	Dibenzo(a,h)anthracene	53-70-3	--	--	--	--	--	--	
	Dibenzofuran	132-64-9	--	--	6.1	--	--	--	
	Di-n-butylphthalate (butyl phthalate)	84-74-2	--	200	160	--	--	--	
	Di-n-octyl phthalate	117-84-0	--	--	--	--	--	--	
	Diethylphthalate	84-66-2	--	100	100	--	--	--	
	Dimethylphthalate	131-11-3	--	--	--	--	--	200	
	Hexachlorobenzene[f]	118-74-1	--	--	10	--	--	--	1000
	Hexachlorobutadiene[i]	87-68-3	--	--	--	--	--	--	
	Hexachlorocyclopentadiene[f]	77-47-4	--	10	--	--	--	--	
	Hexachloroethane	67-72-1	--	--	--	--	--	--	
	Isophorone	78-59-1	--	--	--	--	--	--	
	N-Nitrosodi-n-propylamine	621-64-7	--	--	--	--	--	--	
	N-Nitrosodiphenylamine	86-30-6	--	--	--	--	--	20	
	Nitrobenzene[i]	98-95-3	--	--	--	--	--	40	1000
	Pentachlorophenol	87-86-5	5	3	5	--	31	6	400
	Phenol	108-95-2	--	70	0.79	--	--	30	100
	Pyridine[i]	110-86-1	--	--	--	--	--	--	
Chlorinated Herbicides (EPA Method 8151)	2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	--	--	--	--	--	--	
	4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB)	94-82-6	--	--	--	--	--	--	
	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93-76-5	--	--	--	--	--	--	
	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP) (Silvex)	93-72-1	--	--	--	0.109	--	--	
	Dalapon	75-99-0	--	--	--	--	--	--	
	Dicamba	1918-00-9	--	--	--	--	--	--	
	Dichlorprop	120-36-5	--	--	--	--	--	--	
	Dinoseb	88-85-7	--	--	--	--	--	--	
	Methylchlorophenoxypropionic acid (MCPP)	93-65-2	--	--	--	--	--	--	
	2-Methyl-4-chlorophenoxyacetic acid (MCPA)	94-74-6	--	--	--	--	--	--	

TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

Anions	Cyanide (amenable) (Methods 9010B/9013/9014)	57-12-5-A	--	--	--	--	--	--	
	Cyanide (total) (Methods 9010B/9013/9014)	57-12-5	--	--	--	--	--	--	

--- indicates that no ESV is available from the designated source
no ESV = since no ESV is available, the chemical should be retained as a COPEC in the SLERA for further evaluation unless it is an essential nutrient or electrolyte (calcium, magnesium, potassion, or sodium). Essential nurtients and electrolytes are not retained as COPECs.

(1) Limited to ESLs based on exposure to plants; only for use in SLERA COPEC selection
(2) Limited to ESLs based on exposure to soil invertebrates (e.g., earthworms); only for use in SLERA COPEC selection
(3) The lowest available ESV from approved sources should be selected as the SLERA ESL to select COPECs and be protective of all receptors
(4) ESVs for each receptor group are selected based on the hierarchy described in Section 3.1.2.

Notes:
[a] The Eco-SSL for aluminum consists of a narrative statement. Aluminum is only considered to be a contaminant of potential ecological concern under conditions where soil pH is less than 5.5. See http://www.epa.gov/ecotox/ecossl/pdf/eco-ssl_aluminum.pdf
[b] A numeric Eco-SSL for iron was not derived. Potential toxicity of iron in soils is dependant on soil pH and Eh. See http://www.epa.gov/ecotox/ecossl/pdf/eco-ssl_iron.pdf
[c] Additional compounds may be analyzed by this laboratory method but are not listed here since they have not been as extensively validated by EPA
[d] Nineteen individual congeners also may be analyzed by this laboratory method
[e] This compound also may be analyzed by EPA Method 8270 but is presented once in this table
[f] These componds also may be analyzed by EPA Method 8081B but are presented once in this table
[g] Each of these compounds also may be analyzed by EPA Method 8270 but are presented once in this table
[h] This compound also may be analyzed by EPA Method 8260 and 8270 but is presented once in this table
[i] This compound also may be analyzed by EPA Method 8260 but is presented once in this table
[j] ESV for 1,4-Dichlorobenzene used as a surrogate for this compound
[k] ESV for 4-Nitophenol used as a surrogate for this compound
[l] Region 5 ESL cannot be used as a source for use in a refined SLERA (see Section 3.1.1).
[m] Underlying toxicity data are for chromium VI, but is applied here to total.
[n] Underlying toxicity data are for chromium III, but is applied here to total.

CASRN = Chemical Abstracts Service Registry Number
COPEC = chemical of potential concern
Eco-SSL = Ecological Soil Screening Level
ESL = ecological screening level
ESV = ecological screening value
LANL = Los Alamos National Laboratory
mg/kg = milligrams per kilogram (dry weight)
ORNL = Oak Rdge National Laboratory
SLERA = screening level ecological risk assessment

TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

LANL Invertebrate ESL	EPA Region 5 ESLs[2]
--	--
78	--
6.8	--
330	--
40	--
140	--
--	--
0.34[1]	0.4
--	--
80	--
--	--
1700	--
--	--
450	--
0.05	0.1
2.5	--
280	--
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4.1	--
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120	6.62
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Note: This is an example summary of the values expected for the sources included in this workbook. The comprehensive list of notes may include items that are not relevant to this presentation.

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TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

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TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

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TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

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TABLE 5
SOIL ECOLOGICAL SCREENING VALUES FOR PLANTS AND SOIL INVERTEBRATES

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TABLE 6
SOIL ECOLOGICAL SCREENING VALUES FOR BIRDS AND MAMMALS

Category	Analyte	CASRN	Eco-SSL[a] (mg/kg dw)		LANL NOAEL-based ESL[b] (mg/kg dw)			Food-Based NOAEL Screening Values[c] (mg/kg dw)	
			Mammals	Birds	Mammals	Birds	Notes	Mammals	Birds
Metals EPA Method 6020	Aluminum	7429-90-5	[f]	[f]	--	--		--	--
	Antimony	7440-36-0	0.27	--	2.4	--		0.248	--
	Arsenic	7440-38-2	46	43	15	18		0.25	3
	Barium	7440-39-3	2000	--	1300	820		20	17.2
	Beryllium	7440-41-7	21	--	18	--		2.42	--
	Cadmium	7440-43-9	0.36	0.77	0.27	0.29		3.533	1.2
	Calcium	7440-70-2	--	--	--	--		--	--
	Chromium III	16065-83-1	34	26	--	--		10026	0.83
	Chromium VI	1333-82-0	130	--	280	190		7.21	--
	Chromium (total)	7440-47-3	--	--	45	28		--	--
	Cobalt	7440-48-4	230	120	160	96		--	--
	Copper	7440-50-8	49	28	38	15		55.7	38.9
	Iron	7439-89-6	[g]	[g]	--	--		--	--
	Lead	7439-92-1	56	11	72	14		29.3	0.94
	Magnesium	7439-95-4	--	--	--	--		--	--
	Manganese	7439-96-5	4000	4300	1400	1400		322	825
	Mercury, total	7439-97-6	--	--	1.7	0.013		4.76	0.37
	Mercury, methyl	22967-92-6	--	--	0.0031	0.00035		0.079	0.005
	Nickel	7440-02-0	130	210	9.7	21		146.52	64.08
	Potassium	7440-09-7	--	--	--	--		--	--
	Selenium	7782-49-2	0.63	1.2	0.66	0.75		0.733	0.331
	Silver	7440-22-4	14	4.2	14	2.6		--	--
	Sodium	7440-23-5	--	--	--	--		--	--
	Thallium	7440-28-0	--	--	0.22	6.3		0.027	--
	Vanadium	7440-62-2	280	7.8	140	6.7		0.714	9.439
	Zinc	7440-66-6	79	46	98	48		586.1	12
Pesticides (EPA Method 8081B)[j]	4,4´-DDD (Dichlorodiphenyldichloroethane)	72-54-8	0.021	0.093	4.1	0.0063		--	--
	4,4´-DDE(Dichlorodiphenyldichloroethylene)	72-55-9	0.021	0.093	3.7	0.11		--	--
	4,4´-DDT(Dichlorodiphenyltrichloroethane)	50-29-3	0.021	0.093	0.044	0.36		--	--
	Aldrin	309-00-2	--	--	0.037	--		0.733	--
	alpha-BHC	319-84-6	--	--	58	--		0.1	0.46
	beta-BHC	319-85-7	--	--	0.27	14		1.47	0.46
	Chlordane	57-74-9	--	--	0.27	0.28	[h]	9.1	1.8
	Chlorobenzilate	510-15-6	--	--	--	--		--	--
	alpha-Chlordane	5103-71-9	--	--	0.27	0.28		--	--
	gamma-BHC (Lindane)	58-89-9	--	--	0.0094	0.21		29.3	1.66
	delta-BHC	319-86-8	--	--	--	--		0.1	0.46
	Diallate	2303-16-4	--	--	--	--		--	--
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	--	--	--	--		--	--
	Dieldrin	60-57-1	0.0049	0.022	0.0045	0.012		0.073	0.064
	Endosulfan I	959-98-8	--	--	0.64	15	[i]	--	--
	Endosulfan II	33213-65-9	--	--	0.64	15	[i]	--	--
	Endosulfan sulfate	1031-07-8	--	--	0.64	15	[i]	--	--
	Endrin	72-20-8	--	--	0.023	0.0014		0.182	0.008
	Endrin aldehyde	7421-93-4	--	--	--	--		--	--
	Endrin ketone	53494-70-5	--	--	--	--		--	--
	Heptachlor	76-44-8	--	--	0.059	0.3		0.476	--
	Heptachlor epoxide	1024-57-3	--	--	--	--		--	--
	Isodrin	465-73-6	--	--	--	--		--	--
	Methoxychlor	72-43-5	--	--	5	18		14.7	--
	Toxaphene	8001-35-2	--	--	5.9	4.1		29.3	--
	trans-Chlordane	5103-74-2	--	--	2.2	2.3		--	--

Note: This is an example summary of the values expected for the sources included in this workbook. The comprehensive list of notes may include items that are not relevant to this presentation.

TABLE 6
SOIL ECOLOGICAL SCREENING VALUES FOR BIRDS AND MAMMALS

Polychlorinated Biphenyls (PCBs) (EPA Method 8082)[k]	Aroclor 1016	12674-11-2	--	--	1	--		6.52	--
	Aroclor 1221	11104-28-2	--	--	--	--		--	--
	Aroclor 1232	11141-16-5	--	--	--	--		--	--
	Aroclor 1242	53469-21-9	--	--	0.38	0.041		0.329	0.339
	Aroclor 1248	12672-29-6	--	--	0.0072	0.041		0.071	
	Aroclor 1254	11097-69-1	--	--	0.44	0.041		0.111	0.149
	Aroclor 1260	11096-82-5	--	--	10	0.88		--	--
	PCBs/Total PCBs	1336-36-3	--	--	--	--		--	--
Volatile Organic Compounds (VOCs) (EPA Method 8260)	1,1,1,2-Tetrachloroethane	630-20-6	--	--	--	--		--	--
	1,1,1-Trichloroethane	71-55-6	--	--	260	--		2060	--
	1,1,2,2-Tetrachloroethane	79-34-5	--	--	--	--		--	--
	1,1,2-Trichloroethane	79-00-5	--	--	--	--		--	--
	1,1-Dichloroethane	75-34-3	--	--	210	--		--	--
	1,1-Dichloroethene	75-35-4	--	--	11	--		--	--
	1,1-Dichloropropene	563-58-6	--	--	--	--		--	--
	1,2,3-Trichlorobenzene	87-61-6	--	--	--	--		--	--
	1,2,3-Trichloropropane	96-18-4	--	--	--	--		--	--
	1,2,3,4-Diepoxybutene	1464-53-5	--	--	--	--		--	--
	1,2,4-Trichlorobenzene[l]	120-82-1	--	--	0.27	--		--	--
	1,2,4-Trimethylbenzene	95-63-6	--	--	--	--		--	--
	1,2-Dibromo-3-chloropropane	96-12-8	--	--	--	--		--	--
	1,2-Dibromoethane	106-93-4	--	--	--	--		--	--
	1,2-Dichlorobenzene[l]	95-50-1	--	--	0.92	--		--	--
	1,2-Dichloroethane	107-06-2	--	--	27	0.85		14.2	14.2
	1,2-Dichloroethene	540-59-0	--	--	23	--		--	--
	1,2-Dichloropropane	78-87-5	--	--	--	--		--	--
	1,3,5-Trimethylbenzene	108-67-8	--	--	--	--		--	--
	1,3-Dichloro-2-propanol	96-23-1	--	--	--	--		--	--
	1,3-Dichlorobenzene[l]	541-73-1	--	--	0.73	--		--	--
	1,3-Dichloropropane	142-28-9	--	--	--	--		--	--
	1,4-Dichlorobenzene[l]	106-46-7	--	--	0.88	--		--	--
	1,4-Dioxane	123-91-1	--	--	--	--		1.83	--
	1-Chlorobutane	109-69-3	--	--	--	--		--	--
	1-Chlorohexane	544-10-5	--	--	--	--		--	--
	1-Propanol	71-23-8	--	--	--	--		--	--
	2,2-Dichloropropane	594-20-7	--	--	--	--		--	--
	2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	--	--	360	--		--	--
	2-Chloroethanol	107-07-3	--	--	--	--		--	--
	2-Chloroethyl vinyl ether	110-75-8	--	--	--	--		--	--
	2-Chlorotoluene	95-49-8	--	--	--	--		--	--
	2-Hexanone	591-78-6	--	--	5.4	0.36			--
	2-Hydroxypropionitrile	78-97-7	--	--	--	--		--	--
	2-Nitropropane	79-46-9	--	--	--	--		--	--
	2-Pentanone	107-87-9	--	--	--	--		--	--
	2-Picoline	109-06-8	--	--	--	--		--	--
	2-Propanol	67-63-0	--	--	--	--		--	--
	3-Chloropropionitrile	542-76-7	--	--	--	--		--	--
	4-Chlorotoluene	106-43-4	--	--	--	--		--	--
	4-Methyl-2-pentanone (MIBK)	108-10-1	--	--	9.8	--		--	--
	Acetone	67-64-1	--	--	1.2	7.5		36.6	--
	Acetonitrile	75-05-8	--	--	--	--		--	--
	Acrolein (Propenal)	107-02-8	--	--	--	--		--	--

TABLE 6
SOIL ECOLOGICAL SCREENING VALUES FOR BIRDS AND MAMMALS

Volatile Organic Compounds (VOCs) (EPA Method 8260)	Acrylonitrile	107-13-1	--	--	--	--		--	--
	Allyl Alcohol	107-18-6	--	--	--	--		--	--
	Allyl chloride	107-05-1	--	--	--	--		--	--
	Benzene	71-43-2	--	--	24	--		52	--
	Benzyl chloride	100-44-7	--	--	--	--		--	--
	beta-Propiolactone	57-57-8	--	--	--	--		--	--
	Bis(2-chloroethyl)sulfide	505-60-2	--	--	--	--		--	--
	Bromoacetone	598-31-2	--	--	--	--		--	--
	Bromobenzene	108-86-1	--	--	--	--		--	--
	Bromochloromethane	74-97-5	--	--	--	--		--	--
	Bromodichloromethane	75-27-4	--	--	--	--		--	--
	Bromoform	75-25-2	--	--	--	--		--	--
	Bromomethane	74-83-9	--	--	--	--		--	--
	Carbon disulfide	75-15-0	--	--	0.82	--			--
	Carbon tetrachloride	56-23-5	--	--	--	--		58.6	--
	Chloral hydrate	302-17-0	--	--	--	--		--	--
	Chloroacetonitrile	107-14-2	--	--	--	--		--	--
	Chlorobenzene	108-90-7	--	--	43	--		--	--
	Chloroethane	75-00-3	--	--	--	--		--	--
	Chloroform	67-66-3	--	--	8	--		55	--
	Chloromethane	74-87-3	--	--	--	--			--
	Chloroprene	126-99-8	--	--	--	--		--	--
	Crotonaldehyde	4170-30-3	--	--	--	--		--	--
	cis-1,2-Dichloroethene	156-59-2	--	--	--	--		89.6	--
	cis-1,3-Dichloropropene	10061-01-5	--	--	--	--		--	--
	cis-1,4-Dichloro-2-butene	1476-11-5	--	--	--	--		--	--
	Dibromochloromethane	124-48-1	--	--	--	--		--	--
	Dibromofluoromethane	1868-53-7	--	--	--	--		--	--
	Dibromomethane	74-95-3	--	--	--	--		--	--
	Dichlorodifluoromethane	75-71-8	--	--	--	--		--	--
	Diethyl ether	60-29-7	--	--	--	--		--	--
	Epichlorohydrin	106-89-8	--	--	--	--		--	--
	Ethanol	64-17-5	--	--	--	--		--	--
	Ethyl acetate	14178-6	--	--	--	--		--	--
	Ethylbenzene	100-41-4	--	--	--	--			--
	Ethylene oxide	75-21-8	--	--	--	--		--	--
	Ethyl methacrylate	97-63-2	--	--	--	--		--	--
	Hexachloroethane	67-72-1	--	--	--	--		--	--
	Iodomethane	74-88-4	--	--	--	0.038		--	--
	Isobutyl alcohol	78-83-1	--	--	--	--		--	--
	Isopropylbenzene	98-82-8	--	--	--	--		--	--
	Malononitrile	109-77-3	--	--	--	--		--	--
	Methacrylonitrile	126-98-7	--	--	--	--		--	--
	Methanol	67-56-1	--	--	--	--		--	--
	Methyl acetate	79-20-9	--	--	--	--		--	--
	Methyl methacrylate	80-62-6	--	--	--	--		--	--
	Methyl tert-butyl ether (MTBE)	1634-04-4	--	--	--	--		--	--
	Methylene chloride	75-09-2	--	--	2.6	--		21.4	--
	n-Butanol	71-36-3	--	--	--	--		--	--
	n-Butylbenzene	104-51-8	--	--	--	--		--	--
	N-Nitroso-di-n-butylamine	924-16-3	--	--	--	--		--	--

TABLE 6
SOIL ECOLOGICAL SCREENING VALUES FOR BIRDS AND MAMMALS

Volatile Organic Compounds (VOCs) (EPA Method 8260)	n-Propylamine	107-10-8	--	--	--	--		--	--
	n-Propylbenzene	103-65-1	--	--	--	--		--	--
	p-Isopropyltoluene	99-87-6	--	--	--	--		--	--
	Paraldehyde	123-63-7	--	--	--	--		--	--
	Pentachloroethane	76-01-7	--	--	--	--		--	--
	Pentafluorobenzene	363-72-4	--	--	--	--		--	--
	Propargyl alcohol	107-19-7	--	--	--	--		--	--
	Propionitrile (ethyl cyanide)	107-12-0	--	--	--	--		--	--
	o-Toluidine	95-53-4	--	--	--	--		--	--
	sec-Butylbenzene	135-98-8	--	--	--	--		--	--
	Styrene	100-42-5	--	--	--	--		--	--
	tert-Butylbenzene	98-06-6	--	--	--	--		--	--
	Tetrachloroethene	127-18-4	--	--	0.18	--		--	--
	Toluene	108-88-3	--	--	23	--		51.5	--
	trans-1,2-Dichloroethene	156-60-5	--	--	--	--		89.6	--
	trans-1,3-Dichloropropene	10061-02-6	--	--	--	--		--	--
	trans-1,4-Dichloro-2-butene	110-57-6	--	--	--	--		--	--
	Trichloroethene	79-01-6	--	--	42	--		1.387	--
	Trichlorofluoromethane	75-69-4	--	--	52	--		--	--
	Vinyl acetate	108-05-4	--	--	--	--		--	--
	Vinyl chloride	75-01-4	--	--	0.12	--		0.623	--
	Xylene, m-	108-38-3	--	--	--	--		--	--
	Xylenes, m+p-	108-38-3+p	--	--	--	--		--	--
	Xylene, o-	95-47-6	--	--	--	--		--	--
	Xylene, p-	106-42-3	--	--	--	--		--	--
	Xylenes, Total	1330-20-7	--	--	1.4	41		4.16	--
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA Method 8310)[n]	*LOW MOLECULAR WEIGHT*								
	2-Methylnaphthalene	91-57-6	--	--	16	--		--	--
	Acenaphthene	83-32-9	--	--	120	--		--	--
	Acenaphthylene	208-96-8	--	--	120	--		--	--
	Anthracene	120-12-7	--	--	210	--		--	--
	Fluoranthene	206-44-0	--	--	22	--		--	--
	Fluorene	86-73-7	--	--	250	--		--	--
	Naphthalene[m]	91-20-3	--	--	9.7	3.4		--	--
	Phenanthrene	85-01-8	--	--	10	--		--	--
	Total LMW PAHs	--	100	--	--	--		--	--
	HIGH MOLECULAR WEIGHT								
	Benzo(a)anthracene	56-55-3	--	--	3	0.8		--	--
	Benzo(g,h,i)perylene	191-24-2	--	--	24	--		1.98	--
	Benzo(a)pyrene	50-32-8	--	--	53	--		--	--
	Benzo(b)fluoranthene	205-99-2	--	--	38	--		--	--
	Benzo(k)fluoranthene	207-08-9	--	--	62	--		--	--
	Chrysene	218-01-9	--	--	2.4	--		--	--
	Indeno(1,2,3-cd)pyrene	193-39-5	--	--	62	--		--	--
	Pyrene	129-00-0	--	--	22	34		--	--
	Total HMW PAHs	--	1.1	--	--	--		--	--

TABLE 6
SOIL ECOLOGICAL SCREENING VALUES FOR BIRDS AND MAMMALS

Semi-Volatile Organic Compounds (SVOCs) (EPA Method 8270)	2,2'-oxybis (1-chloropropane)	108-60-1	--	--	--	--		--	--
	2,4,5-Trichlorophenol	95-95-4	--	--	--	--		--	--
	2,4,6-Trichlorophenol	88-06-2	--	--	--	--		--	--
	2,4-Dichlorophenol	120-83-2	--	--	--	--		--	--
	2,4-Dimethylphenol	105-67-9	--	--	--	--		--	--
	2,4-Dinitrophenol	51-28-5	--	--	--	--		--	--
	2,4-Dinitrotoluene	121-14-2	--	--	13	--		--	--
	2,6-Dinitrotoluene	606-20-2	--	--	4.1	52		--	--
	2-Chloronaphthalene	91-58-7	--	--	--	--		--	--
	2-Chlorophenol	95-57-8	--	--	0.54	0.39		--	--
	2-Methylphenol	95-48-7	--	--	590	--		--	--
	2-Nitroaniline	88-74-4	--	--	5.4	--		--	--
	2-Nitrophenol	88-75-5	--	--	--	--		--	--
	3,3´-Dichlorobenzidine	91-94-1	--	--	--	--		--	--
	3-Nitroaniline	99-09-2	--	--	--	--		--	--
	4,6-Dinitro-2-methylphenol	534-52-1	--	--	--	--		--	--
	4-Bromophenyl phenyl ether	101-55-3	--	--	--	--		--	--
	4-Chloro-3-methylphenol	59-50-7	--	--	--	--		--	--
	4-Chloroaniline	106-47-8	--	--	--	--		--	--
	4-Chlorophenyl phenyl ether	7005-72-3	--	--	--	--		--	--
	4-Methylphenol	106-44-5	--	--	--	--		--	--
	4-Nitroaniline	100-01-6	--	--	--	--		--	--
	4-Nitrophenol	100-02-7	--	--	--	--		--	--
	bis(-2-chloroethoxy)Methane	111-91-1	--	--	--	--		--	--
	bis(-2-chloroethyl)Ether	111-44-4	--	--	--	--		--	--
	bis(2-ethylhexyl)Phthalate	117-81-7	--	--	0.59	0.02		36	0.91
	Butylbenzylphthalate	85-68-7	--	--	90	--		--	--
	Carbazole	86-74-8	--	--	80	--		--	--
	Dibenzo(a,h)anthracene	53-70-3	--	--	12	--		--	--
	Dibenzofuran	132-64-9	--	--	--	--		--	--
	Di-n-butyl phthalate	84-74-2	--	--	180	0.011		1090	0.09
	Di-n-octyl phthalate	117-84-0	--	--	0.91	--		--	--
	Diethyl phthalate	84-66-2	--	--	3600	--		9084	--
	Dimethyl phthalate	131-11-3	--	--	38	--		--	--
	Hexachlorobenzene[o]	118-74-1	--	--	0.2	0.079		--	--
	Hexachlorobutadiene[p]	87-68-3	--	--	--	--		--	--
	Hexachlorocyclopentadiene[o]	77-47-4	--	--	--	--		--	--
	Hexachloroethane	67-72-1	--	--	--	--		--	--
	Isophorone	78-59-1	--	--	--	--		--	--
	n-Nitroso-di-n-propylamine	621-64-7	--	--	--	--		--	--
	N-Nitrosodiphenylamine	86-30-6	--	--	--	--		--	--
	Nitrobenzene[p]	98-95-3	--	--	4.9	--		--	--
	Pentachlorophenol	87-86-5	2.8	2.1	0.81	0.36		0.879	--
	Phenol	108-95-2	--	--	38	--		--	--
	Pyridine[p]	110-86-1	--	--	--	--		--	--
Chlorinated Herbicides (EPA Method 8151)	2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	--	--	--	--		--	--
	4-(2,4-Dichlorophenoxy)butyric acid (2,4-DB)	94-82-6	--	--	--	--		--	--
	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	93-76-5	--	--	--	--		--	--
	2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP) (Silvex)	93-72-1	--	--	--	--		--	--
	Dalapon	75-99-0	--	--	--	--		--	--
	Dicamba	1918-00-9	--	--	--	--		--	--
	Dichlorprop	120-36-5	--	--	--	--		--	--
	Dinoseb	88-85-7	--	--	--	--		--	--
	Methylchlorophenoxypropionic acid (MCPP)	93-65-2	--	--	--	--		--	--
	2-Methyl-4-chlorophenoxyacetic acid (MCPA)	94-74-6	--	--	--	--		--	--

TABLE 6
SOIL ECOLOGICAL SCREENING VALUES FOR BIRDS AND MAMMALS

Anions	Cyanide (amenable) (Methods 9010B/9013/9014)	57-12-5-A	--	--	--	--		--	--
	Cyanide (total) (Methods 9010B/9013/9014)	57-12-5	--	--	310	0.1		--	--

-- indicates that no ESV is available from the designated source
no ESV = since no ESV is available, the chemical should be retained as a COPEC in the SLERA for further evaluation unless it is an essential nutrient or electrolyte (calcium, magnesium, potassion, or sodium). Essential nurtients and electrolytes are not retained as COPECs.

Notes:
[a]Ecological Soil Screening Level (http://www.epa.gov/ecotox/ecossl/) Minimum across species of birds and mammals evaluated in source.
[b]Los Alamos National Laboratory (LANL) (2012) Minimum across species of birds and mammals evaluated in source.
[c]Minimum across species of birds and mammals presented in Sample et al. (1996), Appendix D.
[d]Lowest ESV across all approved sources
[e]Selection hierarchy:
1 -- EcoSSL
2 -- LANL ECORISK Database
3 -- Sample et al. (1996) food-based value
[f]Aluminum is identified as a COPEC only when soil pH is below 5.5
[g]Iron is an essential nutrient for wildlife, and is not expected to be a primary contaminant of concern at most sites.
[h]ESV for alpha-chlordane used as a surrogate for this chemical.
[i]ESV for endosulfan used as a surrogate for this chemical.
[j]Additional compounds may be analyzed by this laboratory method but are not listed here since they have not been as extensively validated by EPA
[k]Nineteen individual congeners also may be analyzed by this laboratory method
[l]This compound also may be analyzed by EPA Method 8270 but is presented once in this table
[m] This compound also may be analyzed by EPA Method 8260 and 8270 but is presented once in this table
[n] Each of these compounds also may be analyzed by EPA Method 8270 but are presented once in this table
[o] These componds also may be analyzed by EPA Method 8081B but are presented once in this table
[p] This compound also may be analyzed by EPA Method 8260 but is presented once in this table

Eco-SSL = Ecological Soil Screening Level
ORNL = Oak Rdge National Laboratory
mg/kg = milligrams per kilogram
dw = dry weight
ESV = ecological screening value
ESL = ecological screening level
SLERA = screening level ecological risk assessment
CASRN = Chemical Abstracts Service Registry Number