

APPENDIX I

SCREENING LEVELS

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
2-Amino-4,6-Dinitrotoluene	3.9	--	--
4-Amino-2,6-Dinitrotoluene	3.9	--	--
1,1,1,2-Tetrachloroethane	0.57	--	--
1,1,1,2-Tetrafluoroethane	17000	--	--
1,1,1-Trichloroethane	800	200	--
1,1,1-Trifluoroethane	4200	--	--
1,1,2,2-Tetrachloroethane	0.076	2	--
1,1,2-Trichloroethane	0.041	3	--
1,1,2-Trichloropropane	8.8	--	--
1,1,2-Trichlorotrifluoroethane	1000	--	--
1,1-Dichloroethane	2.8	--	--
1,1-Dichloroethene	28	7	--
1,1-Difluoroethane	8300	--	--
1,1-Dimethylhydrazine	0.00042	--	--
1,1'-Sulfonylbis(4-chlorobenzene)	1.1	--	--
1,2,3,4,5-pentabromo-6-chloro-Cyclohexane	2.8	--	--
1,2,3-Trichlorobenzene	0.7	--	--
1,2,3-Trichloropropane	0.00075	--	--
1,2,3-Trichloropropene	0.062	--	--
1,2,3-Trimethylbenzene	5.5	--	--
1,2,4-Tribromobenzene	4.5	--	--
1,2,4-Trichlorobenzene	0.4	70	--
1,2,4-Trimethylbenzene	5.6	--	--
1,2-Dibromo-3-Chloropropane	0.00033	0.2	--
1,2-Dibromoethane	0.0075	0.017	0.017
1,2-Dichlorobenzene	30	600	--
1,2-Dichloroethane	0.17	4	4
1,2-Dichloropropane	0.82	5	--
1,2-Dimethylhydrazine	0.000028	--	--
1,2-Diphenylhydrazine	0.078	0.3	--
1,2-Epoxybutane	4.2	--	--
1,3,5-Trimethylbenzene	6	--	--
1,3-Butadiene	0.018	--	--
1,3-Dibromobenzene	0.53	--	--
1,3-Dichlorobenzene	--	600	--
1,3-Dichloropropane	37	--	--
1,3-Dichloropropene	0.47	2.7	--
1,4-Benzenediamine-2-methyl sulfate	0.6	--	--

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1,4-Dibromobenzene	13	--	--
1,4-Dichloro-2-Butene	0.0013	--	--
1,4-Dichlorobenzene	0.48	75	--
1,4-Dinitrobenzene	0.2	--	--
1,4-Dioxane	0.46	--	--
1,4-Dithiane	20	--	--
1,6-Hexamethylene Diisocyanate	0.0021	--	--
1-Bromo-2-chloroethane	0.0074	--	--
1-bromo-3-fluorobenzene	0.49	--	--
1-bromopropane	21	--	--
1-Chloro-1,1-difluoroethane (HCFC-142b)	10000	--	--
1-Chlorobutane	64	--	--
1-Methylnaphthalene	1.1	--	11
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-153)	0.4	--	--
2,2',4,4',5-Pentabromodiphenyl ether (BDE-99)	0.2	--	--
2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)	0.2	--	--
2,2-difluoropropane	6300	--	--
2,2-oxybis(1-Chloropropane)	71	--	--
2,3,4,6-Tetrachlorophenol	24	--	--
2,3,7,8-TCDD	0.00000012	--	--
2,3-Dichloropropanol	5.9	--	--
2,4,4-Trimethylpentene	6.5	--	--
2,4,5-T	16	70	--
2,4,5-TP (Silvex)	11	50	--
2,4,5-Trichlorophenol	120	300	--
2,4,6-Tribromophenol	12	--	--
2,4,6-Trichloroaniline	0.04	--	--
2,4,6-Trichloroaniline HCl	2.7	--	--
2,4,6-Trichlorophenol	1.2	30	--
2,4,6-Trinitrotoluene	0.98	--	--
2,4/2,6-Dinitrotoluene Mixture	0.11	--	--
2,4-D1	17	70	--
2,4-DB	45	--	--
2,4-Dichlorophenol	4.6	10	--
2,4-Dimethylaniline	0.37	--	--
2,4-Dimethylaniline hydrochloride	0.13	--	--
2,4-Dimethylphenol	36	100	--
2,4-Dinitrophenol	3.9	10	--

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2,4-Dinitrotoluene	0.24	0.49	--
2,6-Dimethylphenol	1.1	--	--
2,6-Dinitrotoluene	0.049	0.5	--
2-Acetylaminofluorene	0.016	--	--
2-amino-Phenol	7.9	--	--
2-Butanol	2400	--	--
2-Butanone	560	--	--
2-Chloro-1,3-Butadiene	0.019	--	--
2-Chloroethanol	40	--	--
2-Chloronaphthalene	75	800	--
2-Chlorophenol	9.1	30	--
2-Chlorotoluene	24	--	--
2-Cyclohexyl-4,6-dinitrophenol	2.3	--	--
2-Ethoxyethanol	34	--	--
2-Ethoxyethanol acetate	12	--	--
2-Hexanone	3.8	--	--
2-Hydroxypropionitrile	0.4	--	--
2-Mercaptobenzothiazole	6.3	--	--
2-Methoxy-5-nitroaniline	1.5	--	--
2-Methoxyethanol Acetate	0.21	--	--
2-Methyl-1,4-benzenediamine dihydrochloride	0.6	--	--
2-Methylaniline Hydrochloride	0.6	--	--
2-Methylbenzene,1-4-diamine monohydrochloride	0.4	--	--
2-Methylbenzene-1,4-diamine sulfate	0.6	--	--
2-Methylnaphthalene	3.6	--	36
2-Methylphenol	93	--	--
2-Naphthylamine	0.039	--	--
2-Nitroaniline	19	--	--
2-Nitropropane	0.0021	--	--
2-Phenylphenol	30	--	--
2-Sec-butyl-4,6-dinitrophenol	1.5	7	--
3,3-Dichlorobenzidine	0.13	0.49	--
3,3-Dimethoxybenzidine	0.047	--	--
3,3-Dimethylbenzidine	0.0065	--	--
3,4-Dimethylphenol	1.8	--	--
3-Methylcholanthrene	0.0011	--	--
3-Methylphenol	93	--	--
4,4-DDD	0.0063	0.0012	--

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4,4-DDE	0.046	0.00018	--
4,4-DDT	0.23	0.0003	--
4,4-Dichlorobenzophenone	7.8	--	--
4,4'-Methylenebis(2-chloroaniline)	0.16	--	--
4,4'-Methylene-bis(N,N-dimethyl) Aniline	0.48	--	--
4,4-Methylenebisbenzeneamine	0.047	--	--
4,6-Dinitro-2-methylphenol	0.15	2	--
4-Aminobiphenyl	0.003	--	--
4-Bromofluorobenzene	0.46	--	--
4-Chloro-2-methylaniline	0.7	--	--
4-Chloro-2-methylaniline hydrochloride	0.17	--	--
4-Chloro-3-Methylphenol	140	500	--
4-Chloroaniline	0.37	--	--
4-Chlorobenzenesulfonic acid	200	--	--
4-Chlorobenzotrifluoride	3.5	--	--
4-Chlorotoluene	25	--	--
4-Dimethylaminoazobenzene	0.005	--	--
4-methyl-2-pentanol	630	--	--
4-Methyl-2-Pentanone	630	--	--
4-methyl-benzoic acid	9	--	--
4-Methylphenol	190	--	--
4-Nitroaniline	3.8	--	--
4-Nitrophenol	--	50	--
4-Nitropyrene	0.019	--	--
5-Nitro-O-Toluidine	8.2	--	--
7,12-Dimethylbenz(a)anthracene	0.0001	--	--
9,10-Anthraquinone	1.4	--	--
a-BHC	0.0072	0.0036	--
Acenaphthene	53	70	70
Acephate	2.4	--	--
Acetaldehyde	1.9	--	--
Acetochlor	35	100	--
Acetone	1400	--	--
Acetonitrile	13	--	--
Acetophenone	190	--	--
Acrolein	0.0042	3	--
Acrylamide	0.05	0.7	--
Acrylic acid	0.21	--	--

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Acrylonitrile	0.052	0.61	--
Alachlor	1.1	2	--
Alar	4.3	--	--
Aldicarb	2	3	--
Aldicarb sulfone	2	2	--
Aldrin	0.00092	0.02	--
Allyl Alcohol	0.021	--	--
Allyl Chloride	0.21	--	--
alpha-Chlordane	--	1	--
alpha-Methylstyrene	78	--	--
Aluminum metaphosphate	97000	--	--
Aluminum phosphide	0.8	--	--
Aluminum, Dissolved	2000	--	--
Aluminum, Total	2000	--	--
Amdro	34	--	--
Ametryn	15	60	--
Amitraz	0.82	--	--
Ammonium Glufosinate	12	40	--
Ammonium Perchlorate	1.4	--	--
Ammonium polyphosphate	97000	--	--
Ammonium sulfamate	400	1000	--
Aniline	13	--	--
Anthracene	180	2100	--
Antimony Pentoxide	0.97	--	--
Antimony Tetroxide	0.78	--	--
Antimony, Dissolved	0.78	6	--
Antimony, Total	0.78	6	--
Apollo	23	--	--
Aramite	1.3	--	--
Aroclor 5460	1.2	--	--
Arsenic, Dissolved	0.052	10	--
Arsenic, Total	0.052	10	--
Arsine	0.007	--	--
Asulam	72	--	--
Atrazine	0.3	3	--
Auramine	0.067	--	--
Avermectin B1	0.8	--	--
Azinphos Methyl	5.6	10	--

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Azobenzene	0.12	--	--
Azodicarbonamide	2000	--	--
Barium, Dissolved	380	1000	--
Barium, Total	380	1000	--
Baygon	7.8	24	--
Bayleton	63	--	--
Baythroid	12	--	--
b-BHC	0.025	0.08	--
Benefin	2.8	--	--
Benomyl	97	--	--
Bentazon	57	210	--
Benzaldehyde	19	--	--
Benzene	0.46	5	5
Benzidine	0.00011	0.0014	--
Benzo(a)anthracene	0.03	0.5	0.5
Benzo(a)pyrene	0.025	0.05	0.05
Benzo(b)fluoranthene	0.25	0.5	0.5
Benzo(j)fluoranthene	0.065	--	--
Benzo(k)fluoranthene	2.5	5	5
Benzoic Acid	7500	--	--
Benzotrichloride	0.003	--	--
Benzyl Alcohol	200	--	--
Benzylchloride	0.089	--	--
Beryllium, Dissolved	2.5	4	--
Beryllium, Total	2.5	4	--
Bidrin	0.06	--	--
Bifenox	10	--	--
Biphenthrin	30	--	--
Biphenyl	0.083	--	--
Bis(2-chloroethoxy)methane	5.9	--	--
Bis(2-chloroethyl)ether	0.014	0.3	--
Bis(2-ethylhexyl)phthalate	5.6	6	--
Bis-chloromethylether	0.000072	0.0015	--
Bisphenol A	77	--	--
Boron Trichloride	4.2	--	--
Boron trifluoride	2.6	--	--
Boron, Dissolved	400	--	--
Boron, Total	400	--	--

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Bromate	0.11	10	--
Bromobenzene	6.2	--	--
Bromochloromethane	8.3	--	--
Bromodichloromethane	0.13	10	--
Bromoform	3.3	80	--
Bromomethane	0.75	10	--
Bromophos	3.5	--	--
Bromoxynil	0.61	3.2	--
Bromoxynil octanoate	0.24	--	--
Butanol	200	--	--
Butanone	0.53	--	--
Butylate	46	300	--
Butylated hydroxyanisole	150	--	--
Butylated hydroxytoluene	3.4	--	--
Butylbenzylphthalate	16	1	--
Butylphthalyl butylglycolate	1300	--	--
C11-C22, Aromatic	--	--	1100
C11-C22, Aromatic, Adjusted	--	--	1100
C11-C22, Aromatic, Unadjusted	--	--	1100
C19-C36, Aliphatic	--	--	1000
C19-C36, Aliphatic, Unadjusted	--	--	1000
C5-C8, Aliphatic	--	--	650
C5-C8, Aliphatic, Adjusted	--	--	650
C5-C8, Aliphatic, Unadjusted	--	--	650
C9-C10, Aromatic	--	--	1100
C9-C10, Aromatic, Adjusted	--	--	1100
C9-C10, Aromatic, Unadjusted	--	--	1100
C9-C12, Aliphatic	--	--	1400
C9-C12, Aliphatic, Adjusted	--	--	1400
C9-C12, Aliphatic, Unadjusted	--	--	1400
C9-C18	--	--	1400
C9-C18, Aliphatic	--	--	1400
C9-C18, Aliphatic, Unadjusted	--	--	1400
Cacodylic acid	40	--	--
Cadmium, Dissolved	0.92	5	--
Cadmium, Total	0.92	5	--
Calcium Cyanide	2	--	--
Calcium pyrophosphate	97000	--	--

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Caprolactam	990	--	--
Captafol	0.4	--	--
Captan	31	--	--
Carbaryl	180	70	--
Carbofuran	9.4	40	--
Carbon Disulfide	81	--	--
Carbon tetrachloride	0.46	3	--
Carbonyl Sulfide	21	--	--
Carbosulfan	5.1	--	--
Carboxin	190	700	--
Chloral hydrate	200	--	--
Chloramben	29	100	--
Chloranil	0.18	--	--
Chlorfenvinphos	1.1	--	--
Chlorimuron-ethyl	180	600	--
Chlorine	0.03	--	--
Chlorine dioxide	0.042	--	--
Chlorite (Sodium Salt)	60	1000	--
Chloroacetaldehyde	0.29	--	--
Chlorobenzene	7.8	100	--
Chlorobenzilate	0.31	--	--
Chlorodifluoromethane	10000	--	--
Chloroethane	2100	--	--
Chloroform	0.22	70	--
Chloromethane	19	600	--
Chloromethyl Methyl Ether	0.0065	--	--
Chloropicrin	0.083	--	--
Chlorothalonil	22	14	--
Chlorozotocin	0.00032	--	--
Chlorpropham	71	--	--
Chlorpyrifos	0.84	2	--
Chlorpyrifos-methyl	12	--	--
Chlorsulfuron	99	100	--
Chlorthiophos	0.28	--	--
Chromium, Dissolved	--	100	--
Chromium, Hexavalent	0.035	--	--
Chromium, Total	--	100	--
Chromium, Trivalent	2200	--	--

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Chrysene	25	50	50
cis-1,2-Dichloroethene	3.6	70	--
cis-1,3-Dichloropropene	--	4	--
cis-1,4-Dichloro-2-butene	0.0013	--	--
Cobalt, Dissolved	0.6	--	--
Cobalt, Total	0.6	--	--
Copper Cyanide	10	--	--
Copper, Dissolved	80	1300	--
Copper, Total	80	1300	--
Crotonaldehyde	0.04	--	--
Cupferron	0.35	--	--
Cyanazine	0.088	10	--
Cyanide, Total	0.15	200	--
Cyanogen	2	--	--
Cyanogen bromide	180	--	--
Cyanogen chloride	100	--	--
Cyclohexane	1300	--	--
Cyclohexanone	140	--	--
Cyclohexene	7	--	--
Cyclohexylamine	380	--	--
Cyhalothrin/Karate	2	--	--
Cyromazine	990	--	--
Dalapon	60	200	--
Danitol	6.4	--	--
DCPA	12	70	--
Decabromodiphenyl ether	14	--	--
Demeton	0.042	0.3	--
Di(2-ethylhexyl)adipate	65	280	--
Diallate	0.54	--	--
Diammonium phosphate	97000	--	--
Diazinon	1	1	--
Dibenzo(a,e)pyrene	0.0065	--	--
Dibenzo(a,h)anthracene	0.025	0.05	0.05
Dibenzofuran	0.79	2E-06	--
Dibenzothiophene	6.5	--	--
Dibrom	4	--	--
Dibromochloromethane	0.87	8	--
Dibromomethane	0.83	--	--

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Dibutyltin Compounds	0.6	--	--
Dicalcium phosphate	97000	--	--
Dicamba	57	200	--
Dichloroacetic acid	1.5	--	--
Dichlorodifluoromethane	20	1000	--
Dichlorprop	--	300	--
Dichlorvos	0.26	--	--
Dicyclopentadiene	0.063	--	--
Dieldrin	0.0018	0.02	--
Diethanolamine	4	--	--
Diethyl ether	390	--	--
Diethylene glycol, monobutyl ether	60	--	--
Diethylene glycol, monoethyl ether	120	--	--
Diethylformamide	2	--	--
Diethylphthalate	1500	600	--
Diethylstilbestrol	0.000051	--	--
Difenzoquat	170	--	--
Diflubenzuron	29	--	--
Dihydrosafrole	0.3	--	--
Diisopropyl Ether	150	--	--
Diisopropyl methylphosphonate	160	--	--
Dimagnesium phosphate	97000	--	--
Dimethipin	44	--	--
Dimethoate	4.4	15	--
Dimethyl methylphosphonate	46	--	--
Dimethyl terephthalate	190	--	--
Dimethylvinylchloride	0.33	--	--
Di-n-butylphthalate	90	20	--
Dinitrotoluene	0.1	--	--
Di-n-octylphthalate	20	--	--
Diphenamid	53	200	--
Diphenyl ether	0.083	--	--
Diphenyl sulfone	1.5	--	--
Diphenylamine	130	--	--
Dipotassium phosphate	97000	--	--
Diquat	4.4	20	--
Direct black 38	0.011	--	--
Direct blue 6	0.011	--	--

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Direct brown 95	0.012	--	--
Disodium phosphate	97000	--	--
Disulfoton	0.05	0.3	--
Diuron	3.6	10	--
Dodine	40	--	--
Endosulfan I	--	20	--
Endosulfan II	--	20	--
Endosulfan sulfate	--	20	--
Endosulfan, Total	10	20	--
Endothall	38	100	--
Endrin	0.23	2	--
Endrin aldehyde	--	1	--
EPH Screen	--	--	1000
Epichlorohydrin	0.2	10	--
Ethanol, 2-(2-methoxyethoxy)-	80	--	--
Ethephon	10	--	--
Ethion	0.43	3	--
Ethyl acetate	14	--	--
Ethyl acrylate	1.4	--	--
Ethyl Methacrylate	63	--	--
Ethyl p-nitrophenyl phenylphosphorothioate	0.0089	--	--
Ethylbenzene	1.5	700	700
Ethylene cyanohydrin	140	--	--
Ethylene diamine	180	--	--
Ethylene glycol	4000	--	--
Ethylene glycol, monobutyl ether	200	--	--
Ethylene Oxide	0.00067	--	--
Ethylene thiourea	0.16	--	--
Ethyleneimine	0.00024	--	--
Ethylphthalyl ethyl glycolate	5800	--	--
Express	16	50	--
Fenamiphos	0.44	1.7	--
Fluometuron	24	83	--
Fluoranthene	80	20	20
Fluorene	29	50	50
Fluoride, Total	80	4000	--
Fluoridone	140	--	--
Fluorine (Soluble Fluoride)	120	--	--

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Flurprimidol	69	--	--
Flutolanil	790	--	--
Fluvalinate	20	--	--
Folex	0.06	--	--
Folpet	160	--	--
Fomesafen	4.8	--	--
Fonofos	2.4	10	--
Formaldehyde	0.43	--	--
Formic Acid	0.063	--	--
Fosetyl-al	5000	--	--
Furan	1.9	--	--
Furazolidone	0.02	--	--
Furfural	3.8	--	--
Furium	0.051	--	--
Furmecyclox	1.1	--	--
GAMMA-CHLORDANE	--	1	--
g-BHC (Lindane)	0.042	0.2	--
Gluteraldehyde	200	--	--
Glycidyl	0.17	--	--
Glyphosate	200	700	--
Goal	0.54	--	--
Guanidine	20	--	--
Guanidine Chloride	40	--	--
Guanidinium Nitrate	60	--	--
Harmony	86	290	--
Heptachlor	0.0014	0.08	--
Heptachlor epoxide	0.0014	0.04	--
Heptanal	0.63	--	--
Heptane	0.6	--	--
Hexabromobenzene	4	--	--
Hexachlorobenzene	0.0098	0.2	--
Hexachlorobutadiene	0.14	5	--
Hexachlorocyclohexane	0.025	0.066	--
Hexachlorocyclopentadiene	0.041	50	--
Hexachlorodibenzo-p-dioxin Mixture	0.000013	--	--
Hexachloroethane	0.33	30	--
Hexachlorophene	0.6	--	--
Hexamethylphosphoramide	0.8	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Hexane	150	--	--
Hexanedioic Acid	4000	--	--
Hexazinone	64	300	--
HMX	100	--	--
Hydrazine	0.0011	--	--
Hydrazine Sulfate	0.026	--	--
Hydrogen Chloride	4.2	--	--
Hydrogen cyanide	0.15	--	--
Hydrogen Flouride	2.8	--	--
Hydrogen Sulfide	0.42	--	--
Hydroquinone	1.3	--	--
Imazalil	0.9	5.5	--
Imazaquin	490	--	--
Indeno(1,2,3-cd)pyrene	0.25	0.5	0.5
Iodine	20	--	--
Iprodione	74	--	--
Iron, Dissolved	1400	--	--
Iron, Total	1400	--	--
Isobutyl Alcohol	590	--	--
Isophorone	78	400	--
Isopropalin	4	--	--
Isopropanol	41	--	--
Isopropyl Methyl Phosphonic Acid	200	--	--
Isopropylbenzene	45	--	--
Isoxaben	73	--	--
Kepone	0.0035	--	--
Lactofen	10	--	--
Lanthanum	0.1	--	--
Lead acetate	9.2	--	--
Lead Phosphate	9.1	--	--
Lead subacetate	9.2	--	--
Lead, Dissolved	15	15	--
Lead, Total	15	15	--
Lewisite	0.009	--	--
Linuron	13	--	--
Lithium Perchlorate	1.4	--	--
Lithium, Dissolved	4	--	--
Lithium, Total	4	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
 REMEDIAL INVESTIGATION REPORT
 BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Londax	390	--	--
m,p-Xylene	--	10000	--
Malathion	39	470	--
Maleic Anhydride	190	--	--
Maleic hydrazide	1000	--	--
Malononitrile	0.2	--	--
m-Aminophenol	160	--	--
Mancozeb	54	--	--
Maneb	9.8	--	--
Manganese, Dissolved	43	--	--
Manganese, Total	43	--	--
MCPA	0.75	3	--
MCPB	6.5	--	--
MCPP	1.6	--	--
M-Dinitrobenzene	0.2	--	--
Mephosfolan	0.18	--	--
Mepiquat Chloride	60	--	--
Mercuric Chloride (and other Mercury salts)	0.57	--	--
Mercury, Dissolved	0.063	2	--
Mercury, Total	0.063	2	--
Merphos Oxide	0.028	--	--
Metalaxyl	120	400	--
Methacrylonitrile	0.19	--	--
Methamidophos	0.1	2	--
Methanol	2000	--	--
Methidathion	2.9	--	--
Methomyl	50	170	--
Methoxychlor	3.7	40	--
Methyl Acetate	2000	--	--
Methyl Acrylate	4.2	--	--
Methyl Cellosolve	2.9	--	--
Methyl Haloxfop	0.076	--	--
Methyl Hydrazine	0.0042	--	--
Methyl Isocyanate	0.21	--	--
Methyl Methacrylate	140	--	--
Methyl Methanesulfonate	0.79	--	--
Methyl Parathion	0.45	--	--
Methyl Phosphonic Acid	120	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Methyl Pirimiphos	0.085	--	--
Methyl Styrene (Mixed Isomers)	2.3	--	--
Methyl Thiophanate	6.7	--	--
Methylarsonic acid	20	--	--
Methylene Chloride	11	5	--
Methylmercury	0.2	--	--
Metolachlor	270	1000	--
Metribuzin	49	170	--
Metsulfuron-methyl	490	--	--
Mineral oils	6000	--	--
Mirex	0.00088	1	--
m-Nitrotoluene	0.17	--	--
Molinate	3	--	--
Molybdenum, Dissolved	10	--	--
Molybdenum, Total	10	--	--
Monoaluminum phosphate	97000	--	--
Monoammonium phosphate	97000	--	--
Monocalcium phosphate	97000	--	--
Monochloramine	200	--	--
Monomagnesium phosphate	97000	--	--
Monopotassium phosphate	97000	--	--
Monosodium phosphate	97000	--	--
m-Phenylenediamine	12	--	--
MTBE	14	30	30
m-Xylene	19	10000	--
N,N-Dimethylformamide	6.1	--	--
N,N-Diphenyl-1,4 benzenediamine	0.36	--	--
Naphtha, High Flash Aromatic (HFAN)	15	--	--
Naphthalene	0.17	100	100
Napropamide	200	--	--
n-Butylbenzene	100	--	--
Nickel Acetate	22	--	--
Nickel Carbonate	22	--	--
Nickel Carbonyl	0.0029	--	--
Nickel Hydroxide	20	--	--
Nickel Oxide	20	--	--
Nickel Refinery Dust	22	--	--
Nickel Subsulfide	0.045	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Nickel, Dissolved	39	100	--
Nickel, Total	39	100	--
Nickelocene	22	--	--
Nitrate	3200	--	--
Nitrite	200	--	--
Nitrobenzene	0.14	10	--
Nitrocellulose	6000000	--	--
Nitrofurantoin	140	--	--
Nitrofurazone	0.06	--	--
Nitroglycerin	0.2	--	--
Nitroguanidine	200	--	--
Nitromethane	0.64	--	--
N-Methyl-Aniline	3.8	--	--
N-Methyl-N-nitro-N-nitrosoguanidine	0.0094	--	--
N-N-Dimethylaniline	2.5	--	--
N-Nitrosodiethanolamine	0.028	--	--
N-Nitrosodiethylamine	0.00017	0.008	--
N-Nitrosodimethylamine	0.00011	0.0069	--
N-Nitroso-di-n-Butylamine	0.0027	0.063	--
N-Nitrosodi-n-propylamine	0.011	0.05	--
N-Nitrosodiphenylamine	12	33	--
N-Nitrosomethylethylamine	0.00071	--	--
N-Nitrosomorpholine	0.012	--	--
N-Nitroso-N-ethylurea	0.00092	--	--
N-Nitroso-N-methylurea	0.00021	--	--
N-Nitrosopiperidine	0.0082	--	--
N-Nitrosopyrrolidine	0.037	0.16	--
Nonane	0.53	--	--
Norflurazon	29	--	--
n-Propylbenzene	66	--	--
Nustar	3.1	--	--
o-Chloronitrobenzene	0.24	--	--
Octabromodiphenyl Ether	6	--	--
Octamethylpyrophosphoramidate	4	--	--
O-Dinitrobenzene	0.19	--	--
o-Nitrotoluene	0.31	--	--
o-Phenylenediamine	0.65	--	--
Oryzalin	7.9	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
O-Toluidene	4.7	--	--
Oxadiazon	4.7	--	--
Oxamyl	50	200	--
o-Xylene	19	10000	--
p- a, a, a-Tetrachlorotoluene	0.0013	--	--
Paclobutrazol	23	--	--
p-Aminophenol	40	--	--
Paraquat Dichloride	9	30	--
Parathion	8.6	--	--
PCB-1016	0.14	--	--
PCB-105	0.004	--	--
PCB-114	0.004	--	--
PCB-118	0.004	--	--
PCB-1221	0.0047	--	--
PCB-123	0.004	--	--
PCB-1232	0.0047	--	--
PCB-1242	0.0078	--	--
PCB-1248	0.0078	--	--
PCB-1254	0.0078	--	--
PCB-126	0.0000012	--	--
PCB-1260	0.0078	--	--
PCB-1262	--	--	--
PCB-1268	--	--	--
PCB-156	0.004	--	--
PCB-157	0.004	--	--
PCB-167	0.004	--	--
PCB-169	0.000004	--	--
PCB-189	0.004	--	--
PCB-77	0.006	--	--
PCB-81	0.0004	--	--
p-Chlorobenzoic acid	51	--	--
p-Chloronitrobenzene	1.2	--	--
Pebulate	56	--	--
Pendimethalin	140	--	--
Pentabromodiphenyl Ether	4	--	--
Pentachlorobenzene	0.32	0.1	--
Pentachloroethane	0.65	--	--
Pentachloronitrobenzene	0.12	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Pentachlorophenol	0.041	1	--
Pentaerythritol tetranitrate (PETN)	3.9	--	--
Pentane	210	--	--
Perchlorate and Perchlorate Salts	1.4	--	--
Perfluorobutane Sulfonate (PFBS)	40	--	--
Perfluorobutanesulfonate	40	--	--
Permethrin	100	--	--
Phenacetin	34	--	--
Phenmedipham	380	--	--
Phenol	580	4000	--
Phenothiazine	0.43	--	--
Phenyl Isothiocyanate	0.26	--	--
Phenylmercuric Acetate	0.16	--	--
Phorate	0.3	--	--
Phosgene	0.063	--	--
Phosmet	37	--	--
Phosphine	0.057	--	--
Phosphoric Acid	97000	--	--
Phosphorus, Total	0.04	--	--
Phthalic Anhydride	3900	--	--
Picloram	140	500	--
Picramic Acid (2-Amino-4,6-dinitrophenol)	0.2	--	--
Picric Acid	1.8	--	--
p-Nitrotoluene	4.3	--	--
Polybrominated Biphenyls	0.0026	--	--
Polychlorinated Biphenyls (low risk)	0.044	--	--
Polyphosphoric acid	97000	--	--
Potassium Cyanide	4	--	--
Potassium Perchlorate	1.4	--	--
Potassium Perfluorobutane Sulfonate	40	--	--
Potassium Silver Cyanide	8.2	--	--
Potassium tripolyphosphate	97000	--	--
P-Phenylenediamine	2	--	--
P-Phthalic Acid	1900	--	--
Prochloraz	0.38	--	--
Profluralin	2.6	--	--
Prometon	25	100	--
Prometryn	60	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Pronamide	120	500	--
Propachlor	25	87	--
Propanil	8.2	--	--
Propargite	0.16	--	--
Propargyl alcohol	4	--	--
Propazine	34	100	--
Propene	630	--	--
Propham	35	100	--
Propiconazole	160	700	--
Propionaldehyde	1.7	--	--
Propylene glycol	40000	--	--
Propylene Glycol Monomethyl Ether	320	--	--
Propylene oxide	0.27	--	--
p-Toluidine	2.5	--	--
Pursuit	4700	17000	--
p-Xylene	19	10000	--
Pydrin	50	--	--
Pyrene	12	20	20
Pyridine	2	--	--
Quinalphos	0.51	--	--
Quinoline	0.024	--	--
Quizalofop-ethyl	12	--	--
Rabon	2.8	--	--
RDX	0.97	--	--
Resmethrin	6.7	--	--
Ronnel	41	--	--
Rotenone	6.1	--	--
Safrole	0.096	--	--
Savey	11	--	--
sec-Butylbenzene	200	--	--
Selenious Acid	10	--	--
Selenium Sulfide	10	--	--
Selenium, Dissolved	10	50	--
Selenium, Total	10	50	--
Sethoxydim	160	--	--
S-Ethylidipropylthiocarbamate	75	--	--
Silver Cyanide	180	--	--
Silver, Dissolved	9.4	100	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Silver, Total	9.4	100	--
Simazine	0.61	4	--
Sodium acid pyrophosphate	97000	--	--
Sodium Acifluorfen	26	--	--
Sodium aluminum phosphate (acidic)	97000	--	--
Sodium aluminum phosphate (anhydrous)	97000	--	--
Sodium aluminum phosphate (tetrahydrate)	97000	--	--
Sodium Azide	8	--	--
Sodium Cyanide	2	--	--
Sodium Diethyldithiocarbamate	0.29	--	--
Sodium Fluoride	100	--	--
Sodium Fluoroacetate	0.04	--	--
Sodium hexametaphosphate	97000	--	--
Sodium Metavanadate	2	--	--
Sodium Perchlorate	1.4	--	--
Sodium polyphosphate	97000	--	--
Sodium trimetaphosphate	97000	--	--
Sodium tripolyphosphate	97000	--	--
Sodium Tungstate	1.6	--	--
Sodium Tungstate Dihydrate	1.6	--	--
Strontium	1200	--	--
Strontium, Dissolved	--	4000	--
Strychnine	0.59	--	--
Styrene	120	100	--
Styrene-Acrylonitrile (SAN) Trimer	4.8	--	--
Sulfolane	2	--	--
Sulfotepp	0.71	--	--
Sulfur Trioxide	0.21	--	--
Sym-Trinitrobenzene	59	--	--
Systhane	45	170	--
t-Amyl Alcohol	0.63	--	--
TCMTB	48	--	--
Tebuthiuron	140	500	--
Technical Chlordane	0.02	--	--
Temephos	40	--	--
Terbacil	25	83	--
Terbufos	0.024	0.83	--
Terbutryn	1.3	--	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
tert-Butylbenzene	69	--	--
Tetrachlorobenzenes	0.17	0.03	--
Tetrachloroethene	4.1	5	--
Tetraethyl Lead	0.00013	--	--
Tetrahydrofuran	340	--	--
Tetrapotassium phosphate	97000	--	--
Tetrasodium pyrophosphate	97000	--	--
Tetryl (Trinitrophenylmethylnitramine)	3.9	--	--
Thallic Oxide	0.04	--	--
Thallium (I) Nitrate	0.02	--	--
Thallium Acetate	0.02	--	--
Thallium Carbonate	0.04	--	--
Thallium Chloride	0.02	--	--
Thallium Selenite	0.02	--	--
Thallium Sulfate	0.04	--	--
Thallium, Dissolved	0.02	2	--
Thallium, Total	0.02	2	--
Thiobencarb	16	--	--
Thiocyanates	0.4	--	--
Thiocyanic Acid	0.4	--	--
Thiodiglycol	140	--	--
Thiophenol	1.7	--	--
Thiram	29	--	--
Tin, Dissolved	1200	--	--
Tin, Total	1200	--	--
Titanium Tetrachloride	0.021	--	--
Toluene	110	1000	1000
Toluene-2,4-diisocyanate	0.0017	--	--
Toluene-2,5-diamine	0.4	--	--
Toluene-2,6-diisocyanate	0.0017	--	--
Total Cresols	150	--	--
Total Petroleum Hydrocarbons (Aliphatic High)	6000	--	--
Total Petroleum Hydrocarbons (Aliphatic Low)	130	--	--
Total Petroleum Hydrocarbons (Aliphatic Medium)	10	--	--
Total Petroleum Hydrocarbons (Aromatic High)	80	--	--
Total Petroleum Hydrocarbons (Aromatic Low)	3.3	--	--
Total Petroleum Hydrocarbons (Aromatic Medium)	0.55	--	--
Toxaphene	0.071	0.3	--

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
TPH as Jet Fuel (JP7)	63	--	--
Tralomethrin	15	--	--
trans-1,2-Dichloroethene	36	100	--
trans-1,3-Dichloropropene	--	2	--
Trans-1,4-Dichloro-2-Butene	0.0013	--	--
Triacetin	160000	--	--
Tri-AL NA tetra decahydrogenooctaoorthophosphate	97000	--	--
Triallate	0.47	4.6	--
Triasulfuron	20	70	--
Tributyl Phosphate	5.2	--	--
Tributyltin Compounds	0.6	--	--
Tributyltin Oxide	0.57	--	--
Tricalcium phosphate	97000	--	--
Trichloroacetic acid	1.1	--	--
Trichloroethene	0.28	5	--
Trichlorofluoromethane	520	2000	--
Tricresyl Phosphate (TCP)	16	--	--
Tridiphane	1.8	--	--
Triethyl amine	1.5	--	--
Triethylene glycol	4000	--	--
Trifluralin	2.6	43	--
Trimagnesium phosphate	97000	--	--
Trimethyl Phosphate	3.9	--	--
Tri-n-butyltin	0.37	--	--
Triphenylphosphine Oxide	36	--	--
Tripotassium phosphate	97000	--	--
Tris(1,3-Dichloro-2-propyl) Phosphate	36	--	--
Tris(1-chloro-2-propyl)phosphate	19	--	--
Tris(2,3-dibromopropyl)phosphate	0.0068	--	--
Tris(2-chloroethyl)phosphate	3.8	--	--
Tris(2-ethylhexyl)phosphate	24	--	--
Trisodium phosphate	97000	--	--
Tungsten	1.6	--	--
Uranium, Dissolved	--	--	--
Uranium, Total	0.4	30	1100
Urethane	0.025	--	1100
Vanadium Pentoxide	15	--	1100
Vanadium, Dissolved	8.6	--	1000

**APPENDIX I-1. GROUNDWATER SCREENING LEVELS
 REMEDIAL INVESTIGATION REPORT
 BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	November 2018 EPA Tapwater RSL (µg/L)	2017 DEQ-7 Groundwater Standard (µg/L)	2018 DEQ RBCA Groundwater RBSL (µg/L)
Vanadium, Total	8.6	--	1000
Vernolate	1.1	--	650
Vinclozolin	2.1	--	650
Vinyl acetate	41	--	650
Vinyl Bromide	0.18	--	1100
Vinyl Chloride	0.019	0.2	1100
Warfarin	0.56	--	1100
Xylenes, Total	19	10000	1400
Zinc Cyanide	100	--	1400
Zinc Phosphide	0.6	--	1400
Zinc, Dissolved	600	2000	1400
Zinc, Total	600	2000	1400
Zineb	99	--	1400
Zirconium	0.16	--	1000

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
1,1,1,2-Tetrachloroethane	0.38	1.7	--	--
1,1,1,2-Tetrafluoroethane	8300	35000	--	--
1,1,1-Trichloroethane	520	2200	--	--
1,1,1-Trifluoroethane	2100	8800	--	--
1,1,2,2-Tetrachloroethane	0.048	0.21	--	--
1,1,2-Trichloroethane	0.021	0.088	--	--
1,1,2-Trichlorotrifluoroethane	520	2200	--	--
1,1-Dichloroethane	1.8	7.7	--	--
1,1-Dichloroethene	21	88	--	--
1,1-Difluoroethane	4200	18000	--	--
1,1-Dimethylhydrazine	0.00021	0.00088	--	--
1,2,3-Trichloropropane	0.031	0.13	--	--
1,2,3-Trichloropropene	0.031	0.13	--	--
1,2,3-Trimethylbenzene	6.3	26	--	--
1,2,4-Trichlorobenzene	0.21	0.88	--	--
1,2,4-Trimethylbenzene	6.3	26	--	--
1,2-Dibromo-3-Chloropropane	0.00017	0.002	--	--
1,2-Dibromoethane	0.0047	0.02	--	--
1,2-Dichlorobenzene	21	88	--	--
1,2-Dichloroethane	0.11	0.47	--	0.23
1,2-Dichloropropane	0.42	1.8	--	--
1,2-Dimethylhydrazine	0.000018	0.000077	--	--
1,2-Diphenylhydrazine	0.013	0.056	--	--
1,2-Epoxybutane	2.1	8.8	--	--
1,3,5-Trimethylbenzene	6.3	26	--	--
1,3-Butadiene	0.094	0.41	--	--
1,3-Dichloropropene	0.7	3.1	--	--
1,4-Dichloro-2-Butene	0.00067	0.0029	--	--
1,4-Dichlorobenzene	0.26	1.1	--	--
1,4-Dioxane	0.56	2.5	--	--
1,6-Hexamethylene Diisocyanate	0.001	0.0044	--	--
1-Bromo-2-chloroethane	0.0047	0.02	--	--
1-bromopropane	10	44	--	--
1-Chloro-1,1-difluoroethane (HCF ₂)	5200	22000	--	--
2,2-difluoropropane	3100	13000	--	--
2,3,7,8-TCDD	0.000000074	0.00000032	--	--
2,4,6-Trichlorophenol	0.91	4	--	--
2,4-Dinitrotoluene	0.032	0.14	--	--
2-Acetylaminofluorene	0.0022	0.0094	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
2-Butanol	3100	13000	--	--
2-Butanone	520	2200	--	--
2-Chloro-1,3-Butadiene	0.0094	0.041	--	--
2-Chloroacetophenone	0.0031	0.013	--	--
2-Ethoxyethanol	21	88	--	--
2-Ethoxyethanol acetate	6.3	26	--	--
2-Hexanone	3.1	13	--	--
2-Methoxy-5-nitroaniline	0.2	0.88	--	--
2-Methoxyethanol Acetate	0.1	0.44	--	--
2-Methylaniline Hydrochloride	0.076	0.33	--	--
2-Methylphenol	63	260	--	--
2-Nitroaniline	0.0052	0.022	--	--
2-Nitropropane	0.001	0.0045	--	--
3,3-Dichlorobenzidine	0.0083	0.036	--	--
3-Methylcholanthrene	0.00016	0.0019	--	--
3-Methylphenol	63	260	--	--
4,4-DDD	0.041	0.18	--	--
4,4-DDE	0.029	0.13	--	--
4,4-DDT	0.029	0.13	--	--
4,4'-Methylenebis(2-chloroaniline)	0.0024	0.029	--	--
4,4'-Methylene-bis(N,N-dimethyl) /	0.22	0.94	--	--
4,4'-Methylenebisbenzeneamine	0.0061	0.027	--	--
4-Aminobiphenyl	0.00047	0.002	--	--
4-Chloro-2-methylaniline	0.036	0.16	--	--
4-Chlorobenzotrifluoride	31	130	--	--
4-Dimethylaminoazobenzene	0.0022	0.0094	--	--
4-methyl-2-pentanol	310	1300	--	--
4-Methyl-2-Pentanone	310	1300	--	--
4-Methylphenol	63	260	--	--
4-Nitroaniline	0.63	2.6	--	--
4-Nitropyrene	0.026	0.11	--	--
7,12-Dimethylbenz(a)anthracene	0.000014	0.00017	--	--
a-BHC	0.0016	0.0068	--	--
Acetaldehyde	0.94	3.9	--	--
Acetone	3200	14000	--	51
Acetone cyanohydrin	0.21	0.88	--	--
Acetonitrile	6.3	26	--	--
Acrolein	0.0021	0.0088	--	--
Acrylamide	0.01	0.12	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
Acrylic acid	0.1	0.44	--	--
Acrylonitrile	0.041	0.18	--	--
Adiponitrile	0.63	2.6	--	--
Alar	0.55	2.4	--	--
Aldrin	0.00057	0.0025	--	--
Allyl Alcohol	0.01	0.044	--	--
Allyl Chloride	0.1	0.44	--	--
alpha-Pinene	--	--	--	4.7
Aluminum, Total	0.52	2.2	--	--
Ammonia	52	220	--	--
Aniline	0.1	0.44	--	--
Antimony Trioxide	0.021	0.088	--	--
Aramite	0.4	1.7	--	--
Arsenic, Total	0.00065	0.0029	--	--
Arsine	0.0052	0.022	--	--
Auramine	0.011	0.049	--	--
Azinphos Methyl	1	4.4	--	--
Azobenzene	0.091	0.4	--	--
Azodicarbonamide	0.00073	0.0031	--	--
Barium, Total	0.052	0.22	--	--
b-BHC	0.0053	0.023	--	--
Benzene	0.36	1.6	--	1.3
Benzidine	0.000015	0.00018	--	--
Benzo(a)anthracene	0.017	0.2	--	--
Benzo(a)pyrene	0.00021	0.00088	--	--
Benzo(b)fluoranthene	0.017	0.2	--	--
Benzo(j)fluoranthene	0.026	0.11	--	--
Benzo(k)fluoranthene	0.17	2	--	--
Benzylchloride	0.057	0.25	--	--
Beryllium, Total	0.0012	0.0051	--	--
Biphenyl	0.042	0.18	--	--
Bis(2-chloroethyl)ether	0.0085	0.037	--	--
Bis(2-ethylhexyl)phthalate	1.2	5.1	--	--
Bis-chloromethylether	0.000045	0.0002	--	--
Boron Trichloride	2.1	8.8	--	--
Boron trifluoride	1.4	5.7	--	--
Boron, Total	2.1	8.8	--	--
Bromobenzene	6.3	26	--	--
Bromochloromethane	4.2	18	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
Bromodichloromethane	0.076	0.33	--	--
Bromoform	2.6	11	--	--
Bromomethane	0.52	2.2	--	--
Butylated hydroxyanisole	49	220	--	--
C5-C8, Aliphatic	--	--	94	--
C5-C8, Aliphatic	--	--	94	--
C5-C8, Aliphatic, Adjusted	--	--	94	94
C5-C8, Aliphatic, Adjusted	--	--	94	94
C5-C8, Aliphatic, Unadjusted	--	--	94	94
C5-C8, Aliphatic, Unadjusted	--	--	94	94
C5-C8, Aliphatic, Unadjusted, Volt	--	--	--	--
C9-C10, Aromatic	--	--	10	--
C9-C10, Aromatic	--	--	10	--
C9-C10, Aromatic, Adjusted	--	--	10	--
C9-C10, Aromatic, Adjusted	--	--	10	--
C9-C10, Aromatic, Unadjusted	--	--	10	--
C9-C10, Aromatic, Unadjusted	--	--	10	--
C9-C12, Aliphatic	--	--	44	--
C9-C12, Aliphatic	--	--	44	--
C9-C12, Aliphatic, Adjusted	--	--	44	44
C9-C12, Aliphatic, Adjusted	--	--	44	44
C9-C12, Aliphatic, Unadjusted	--	--	44	44
C9-C12, Aliphatic, Unadjusted	--	--	44	44
Cadmium, Total	0.001	0.0044	--	--
Caprolactam	0.23	0.96	--	--
Captafol	0.065	0.29	--	--
Captan	4.3	19	--	--
Carbon Disulfide	73	310	--	--
Carbon tetrachloride	0.47	2	--	--
Carbonyl Sulfide	10	44	--	--
Ceric oxide	0.094	0.39	--	--
Chlorine	0.015	0.064	--	--
Chlorine dioxide	0.021	0.088	--	--
Chlorobenzene	5.2	22	--	--
Chlorobenzilate	0.091	0.4	--	--
Chlorodifluoromethane	5200	22000	--	--
Chloroethane	1000	4400	--	--
Chloroform	0.12	0.53	--	--
Chloromethane	9.4	39	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
Chloromethyl Methyl Ether	0.0041	0.018	--	--
Chloropicrin	0.042	0.18	--	--
Chloroethalonil	3.2	14	--	--
Chlorozotocin	0.000041	0.00018	--	--
Chromium, Hexavalent	0.000012	0.00015	--	--
Chrysene	1.7	20	--	--
cis-1,4-Dichloro-2-butene	0.00067	0.0029	--	--
Cobalt, Total	0.00031	0.0014	--	--
Coke Oven Emissions	0.0016	0.02	--	--
Cupferron	0.045	0.19	--	--
Cyanide, Total	0.083	0.35	--	--
Cyclohexane	630	2600	--	--
Cyclohexanone	73	310	--	--
Cyclohexene	100	440	--	--
Dibenzo(a,e)pyrene	0.0026	0.011	--	--
Dibenzo(a,h)anthracene	0.0017	0.02	--	--
Dibromomethane	0.42	1.8	--	--
Dichlorodifluoromethane	10	44	--	2.1
Dichlorvos	0.034	0.15	--	--
Dicyclopentadiene	0.031	0.13	--	--
Dieldrin	0.00061	0.0027	--	--
Diesel Engine Exhaust	0.0094	0.041	--	--
Diethanolamine	0.021	0.088	--	--
Diethylene glycol, monobutyl ether	0.01	0.044	--	--
Diethylene glycol, monoethyl ether	0.031	0.13	--	--
Diethylstilbestrol	0.000028	0.00012	--	--
Dihydrosafrole	0.22	0.94	--	--
Diisopropyl Ether	73	310	--	--
Dimethylvinylchloride	0.22	0.94	--	--
Diphenyl ether	0.042	0.18	--	--
Direct black 38	0.00002	0.000088	--	--
Direct blue 6	0.00002	0.000088	--	--
Direct brown 95	0.00002	0.000088	--	--
d-Limonene	--	--	--	22
Epichlorohydrin	0.1	0.44	--	--
Ethanol	--	--	--	769
Ethyl acetate	7.3	31	--	8.6
Ethyl acrylate	0.83	3.5	--	--
Ethyl Methacrylate	31	130	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
Ethylbenzene	1.1	4.9	--	1.1
Ethylene glycol	42	180	--	--
Ethylene glycol, monobutyl ether	170	700	--	--
Ethylene Oxide	0.00034	0.0041	--	--
Ethylene thiourea	0.22	0.94	--	--
Ethyleneimine	0.00015	0.00065	--	--
Fluoride, Total	1.4	5.7	--	--
Fluorine (Soluble Fluoride)	1.4	5.7	--	--
Formaldehyde	0.22	0.94	--	--
Formic Acid	0.031	0.13	--	--
Furfural	5.2	22	--	--
Furium	0.0065	0.029	--	--
Furmecyclo	0.33	1.4	--	--
g-BHC (Lindane)	0.0091	0.04	--	--
Gluteraldehyde	0.0083	0.035	--	--
Glycidyl	0.1	0.44	--	--
Heptachlor	0.0022	0.0094	--	--
Heptachlor epoxide	0.0011	0.0047	--	--
Heptanal	0.31	1.3	--	--
Heptane	42	180	--	1.6
Hexachlorobenzene	0.0061	0.027	--	--
Hexachlorobutadiene	0.13	0.56	--	--
Hexachlorocyclohexane	0.0055	0.024	--	--
Hexachlorocyclopentadiene	0.021	0.088	--	--
Hexachlorodibenzo-p-dioxin Mixtu	0.0000022	0.0000094	--	--
Hexachloroethane	0.26	1.1	--	--
Hexane	73	310	--	1.9
Hydrazine	0.00057	0.0025	--	--
Hydrazine Sulfate	0.00057	0.0025	--	--
Hydrogen Chloride	2.1	8.8	--	--
Hydrogen cyanide	0.083	0.35	--	--
Hydrogen Flouride	1.5	6.1	--	--
Hydrogen Sulfide	0.21	0.88	--	--
Indeno(1,2,3-cd)pyrene	0.017	0.2	--	--
Isophorone	210	880	--	--
Isopropanol	21	88	--	29
Isopropylbenzene	42	180	--	--
Kepone	0.00061	0.0027	--	--
Lead acetate	0.23	1	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
Lead Phosphate	0.23	1	--	--
Lead subacetate	0.23	1	--	--
Lead, Total	0.15	--	--	--
m,p-Xylene	--	--	--	3.6
Maleic Anhydride	0.073	0.31	--	--
Manganese, Total	0.0052	0.022	--	--
Mercuric Chloride (and other Merc	0.031	0.13	--	--
Mercury, Total	0.031	0.13	--	--
Methacrylonitrile	3.1	13	--	--
Methanol	2100	8800	--	--
Methyl Acrylate	2.1	8.8	--	--
Methyl Cellosolve	2.1	8.8	--	--
Methyl Hydrazine	0.0021	0.0088	--	--
Methyl Isocyanate	0.1	0.44	--	--
Methyl Methacrylate	73	310	--	--
Methyl Methanesulfonate	0.1	0.44	--	--
Methyl Styrene (Mixed Isomers)	4.2	18	--	--
Methylene Chloride	63	260	--	--
Methylenediphenyl Diisocyanate	0.063	0.26	--	--
Mirex	0.00055	0.0024	--	--
MTBE	11	47	--	--
m-Xylene	10	44	--	--
N,N-Dimethylformamide	3.1	13	--	--
Naphtha, High Flash Aromatic (HF	10	44	--	--
Naphthalene	0.083	0.36	--	0.39
Nickel Acetate	0.0015	0.0061	--	--
Nickel Carbonate	0.0015	0.0061	--	--
Nickel Carbonyl	0.0015	0.0061	--	--
Nickel Hydroxide	0.0015	0.0061	--	--
Nickel Oxide	0.0021	0.0088	--	--
Nickel Refinery Dust	0.0015	0.0061	--	--
Nickel Subulfide	0.0015	0.0061	--	--
Nickel, Total	0.0094	0.039	--	--
Nickelocene	0.0015	0.0061	--	--
Nitrobenzene	0.07	0.31	--	--
Nitrofurazone	0.0076	0.033	--	--
Nitromethane	0.32	1.4	--	--
N-Methyl-N-nitro-N-nitrosoguanidiri	0.0012	0.0051	--	--
N-Nitrosodiethanolamine	0.0035	0.015	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
N-Nitrosodiethylamine	0.000024	0.00029	--	--
N-Nitrosodimethylamine	0.000072	0.00088	--	--
N-Nitroso-di-n-Butylamine	0.0018	0.0077	--	--
N-Nitrosodi-n-propylamine	0.0014	0.0061	--	--
N-Nitrosodiphenylamine	1.1	4.7	--	--
N-Nitrosomethylethylamine	0.00045	0.0019	--	--
N-Nitrosomorpholine	0.0015	0.0065	--	--
N-Nitroso-N-ethylurea	0.00013	0.0016	--	--
N-Nitroso-N-methylurea	0.00003	0.00036	--	--
N-Nitrosopiperidine	0.001	0.0045	--	--
N-Nitrosopyrrolidine	0.0046	0.02	--	--
Nonane	2.1	8.8	--	--
n-Propylbenzene	100	440	--	--
o-Chloronitrobenzene	0.001	0.0044	--	--
O-Toluidene	0.055	0.24	--	--
o-Xylene	10	44	--	--
PCB-1016	0.14	0.61	--	--
PCB-105	0.0025	0.011	--	--
PCB-114	0.0025	0.011	--	--
PCB-118	0.0025	0.011	--	--
PCB-1221	0.0049	0.021	--	--
PCB-123	0.0025	0.011	--	--
PCB-1232	0.0049	0.021	--	--
PCB-1242	0.0049	0.021	--	--
PCB-1248	0.0049	0.021	--	--
PCB-1254	0.0049	0.021	--	--
PCB-126	0.0000074	0.0000032	--	--
PCB-1260	0.0049	0.021	--	--
PCB-156	0.0025	0.011	--	--
PCB-157	0.0025	0.011	--	--
PCB-167	0.0025	0.011	--	--
PCB-169	0.0000025	0.000011	--	--
PCB-189	0.0025	0.011	--	--
PCB-77	0.00074	0.0032	--	--
PCB-81	0.00025	0.0011	--	--
p-Chloronitrobenzene	0.21	0.88	--	--
Pentachlorophenol	0.55	2.4	--	--
Pentane	100	440	--	--
Phenacetin	4.5	19	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
Phenol	21	88	--	--
Phosgene	0.031	0.13	--	--
Phosphine	0.031	0.13	--	--
Phosphoric Acid	1	4.4	--	--
Phthalic Anhydride	2.1	8.8	--	--
Polybrominated Biphenyls	0.00033	0.0014	--	--
Polychlorinated Biphenyls (high ris	0.0049	0.021	--	--
Polychlorinated Biphenyls (low ris	0.028	0.12	--	--
Polychlorinated Biphenyls (lowest	0.14	0.61	--	--
Polymeric Methylene Diphenyl Diis	0.063	0.26	--	--
Propene	310	1300	--	6.5
Propionaldehyde	0.83	3.5	--	--
Propylene Glycol Dinitrate	0.028	0.12	--	--
Propylene Glycol Monomethyl Eth	210	880	--	--
Propylene oxide	0.76	3.3	--	--
p-Xylene	10	44	--	--
Refractory Ceramic Fibers	3.1	13	--	--
Safrole	0.016	0.19	--	--
Selenium Sulfide	2.1	8.8	--	--
Selenium, Total	2.1	8.8	--	--
Silica (crystalline, respirable)	0.31	1.3	--	--
Sodium Fluoride	1.4	5.7	--	--
Styrene	100	440	--	--
Sulfolane	0.21	0.88	--	--
Sulfur Trioxide	0.1	0.44	--	--
Sulfuric Acid	0.1	0.44	--	--
t-Amyl Alcohol	0.31	1.3	--	--
Technical Chlordane	0.028	0.12	--	--
Tetrachloroethene	4.2	18	--	0.14
Tetrahydrofuran	210	880	--	--
Titanium Tetrachloride	0.01	0.044	--	--
Toluene	520	2200	--	13
Toluene-2,4-diisocyanate	0.00083	0.0035	--	--
Toluene-2,6-diisocyanate	0.00083	0.0035	--	--
Total Cresols	63	260	--	--
Total Petroleum Hydrocarbons (Al	63	260	--	--
Total Petroleum Hydrocarbons (Al	10	44	--	--
Total Petroleum Hydrocarbons (Ar	3.1	13	--	--
Total Petroleum Hydrocarbons (Ar	0.31	1.3	--	--

**APPENDIX I-2. AIR SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	2018 November EPA Residential Air RSLs HQ 0.1 (ug/m ³)	2018 November EPA Industrial Air RSLs HQ 0.1 (ug/m ³)	MT DEQ Generic APH Fraction (ug/m ³)	MT DEQ Typical Indoor Air Concentrations (ug/m ³)
Toxaphene	0.0088	0.038	--	--
TPH as Jet Fuel (JP7)	31	130	--	--
Trans-1,4-Dichloro-2-Butene	0.00067	0.0029	--	--
Trichloroethene	0.21	0.88	--	--
Trichlorofluoromethane	--	--	--	1.3
Triethyl amine	0.73	3.1	--	--
Tris(2,3-dibromopropyl)phosphate	0.0043	0.019	--	--
Uranium, Total	0.0042	0.018	--	--
Urethane	0.0035	0.042	--	--
Vanadium Pentoxide	0.00034	0.0015	--	--
Vanadium, Total	0.01	0.044	--	--
Vinyl acetate	21	88	--	--
Vinyl Bromide	0.088	0.38	--	--
Vinyl Chloride	0.17	2.8	--	--
Xylenes, Total	10	44	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
2-Amino-4,6-Dinitrotoluene	--	3.9	--	--	--	--
4-Amino-2,6-Dinitrotoluene	--	3.9	--	--	--	--
1,1,1,2-Tetrachloroethane	--	0.57	--	--	--	--
1,1,1,2-Tetrafluoroethane	--	17000	--	--	--	--
1,1,1-Trichloroethane	0.0302	800	200	--	--	--
1,1,1-Trifluoroethane	--	4200	--	--	--	--
1,1,2,2-Tetrachloroethane	1.36	0.076	2	--	--	--
1,1,2-Trichloroethane	1.24	0.041	5	--	--	--
1,1,2-Trichloropropane	--	8.8	--	--	--	--
1,1,2-Trichlorotrifluoroethane	--	1000	--	--	--	--
1,1-Dichloroethane	--	2.8	--	47	--	--
1,1-Dichloroethene	0.031	28	7	--	--	--
1,1-Difluoroethane	--	8300	--	--	--	--
1,1-Dimethylhydrazine	--	0.00042	--	--	--	--
1,1'-Sulfonylbis(4-chlorobenzene)	--	1.1	--	--	--	--
1,2,3,4,5-pentabromo-6-chloro-Cyclohexane	--	2.8	--	--	--	--
1,2,3,4-Tetrachlorobenzene	0.702	--	--	--	--	--
1,2,3-Trichlorobenzene	0.858	0.7	--	8	--	--
1,2,3-Trichloropropane	--	0.00075	--	--	--	--
1,2,3-Trichloropropene	--	0.062	--	--	--	--
1,2,3-Trimethylbenzene	--	5.5	--	--	--	--
1,2,4-Tribromobenzene	--	4.5	--	--	--	--
1,2,4-Trichlorobenzene	2.1	0.4	0.071	--	--	--
1,2,4-Trimethylbenzene	--	5.6	--	33	--	--
1,2-Dibromo-3-Chloropropane	--	0.00033	0.2	--	--	--
1,2-Dibromoethane	--	0.0075	0.017	--	--	--
1,2-Dichlorobenzene	0.0165	30	600	--	--	--
1,2-Dichloroethane	--	0.17	5	--	--	--
1,2-Dichloropropane	--	0.82	5	--	--	--
1,2-Dimethylhydrazine	--	0.000028	--	--	--	--
1,2-Diphenylhydrazine	--	0.078	0.3	--	--	--
1,2-Epoxybutane	--	4.2	--	--	--	--
1,3,5-Trimethylbenzene	--	6	--	71	--	--
1,3-Butadiene	--	0.018	--	--	--	--
1,3-Dibromobenzene	--	0.53	--	--	--	--
1,3-Dichlorobenzene	4.43	--	7	--	--	--
1,3-Dichlorobenzene	--	--	7	--	--	--
1,3-Dichloropropane	--	37	--	--	--	--
1,3-Dichloropropene	5.09E-05	0.47	2.7	--	--	--
1,4-Benzenediamine-2-methyl sulfate	--	0.6	--	--	--	--
1,4-Dibromobenzene	--	13	--	--	--	--
1,4-Dichloro-2-Butene	--	0.0013	--	--	--	--
1,4-Dichlorobenzene	0.599	0.48	75	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
1,4-Dichlorobenzene	--	0.48	75	--	--	--
1,4-Dinitrobenzene	--	0.2	--	--	--	--
1,4-Dioxane	--	0.46	--	--	--	--
1,4-Dithiane	--	20	--	--	--	--
1,6-Hexamethylene Diisocyanate	--	0.0021	--	--	--	--
1-Bromo-2-chloroethane	--	0.0074	--	--	--	--
1-bromo-3-fluorobenzene	--	0.49	--	--	--	--
1-bromopropane	--	21	--	--	--	--
1-Chloro-1,1-difluoroethane (HCFC-142b)	--	10000	--	--	--	--
1-Chlorobutane	--	64	--	--	--	--
1-Methylnaphthalene	--	1.1	--	2.1	--	--
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-1	--	0.4	--	--	--	--
2,2',4,4',5-Pentabromodiphenyl ether (BDE-99	--	0.2	--	--	--	--
2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)	--	0.2	--	--	--	--
2,2-difluoropropane	--	6300	--	--	--	--
2,2-oxybis(1-Chloropropane)	--	71	--	--	--	--
2,3,4,6-Tetrachlorophenol	0.284	24	--	--	--	--
2,3,7,8-TCDD	8.5E-07	1.2E-07	--	--	--	--
2,3-Dichloropropanol	--	5.9	--	--	--	--
2,4,4-Trimethylpentene	--	6.5	--	--	--	--
2,4,5-T	12.3	16	70	--	--	--
2,4,5-TP (Silvex)	0.675	11	50	--	--	--
2,4,5-Trichlorophenol	--	120	300	--	--	--
2,4,6-Tribromophenol	--	12	--	--	--	--
2,4,6-Trichloroaniline	--	0.04	--	--	--	--
2,4,6-Trichloroaniline HCl	--	2.7	--	--	--	--
2,4,6-Trichlorophenol	0.213	1.2	15	--	--	--
2,4,6-Trinitrotoluene	0.092	0.98	--	--	--	--
2,4/2,6-Dinitrotoluene Mixture	--	0.11	--	--	--	--
2,4-D1	--	17	70	--	--	--
2,4-DB	--	45	--	--	--	--
2,4-Dichlorophenol	0.117	4.6	10	--	--	--
2,4-Dimethylaniline	--	0.37	--	--	--	--
2,4-Dimethylaniline hydrochloride	--	0.13	--	--	--	--
2,4-Dimethylphenol	0.029	36	100	--	--	--
2,4-Dinitrophenol	--	3.9	10	--	--	--
2,4-Dinitrotoluene	0.0416	0.24	0.49	--	--	--
2,4-Dinitrotoluene	--	0.24	0.49	--	--	--
2,6-Dimethylphenol	--	1.1	--	--	--	--
2,6-Dinitrotoluene	--	0.049	0.5	--	--	--
2-Acetylamino fluorene	--	0.016	--	--	--	--
2-amino-Phenol	--	7.9	--	--	--	--
2-Butanol	--	2400	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
2-Butanone	--	560	--	14000	--	--
2-Chloro-1,3-Butadiene	--	0.019	--	--	--	--
2-Chloroethanol	--	40	--	--	--	--
2-Chloronaphthalene	--	75	800	--	--	--
2-Chlorophenol	0.0312	9.1	30	--	--	--
2-Chlorophenol	--	9.1	30	--	--	--
2-Chlorotoluene	--	24	--	--	--	--
2-Cyclohexyl-4,6-dinitrophenol	--	2.3	--	--	--	--
2-Ethoxyethanol	--	34	--	--	--	--
2-Ethoxyethanol acetate	--	12	--	--	--	--
2-Hexanone	--	3.8	--	99	--	--
2-Hydroxypropionitrile	--	0.4	--	--	--	--
2-Mercaptobenzothiazole	--	6.3	--	--	--	--
2-Methoxy-5-nitroaniline	--	1.5	--	--	--	--
2-Methoxyethanol Acetate	--	0.21	--	--	--	--
2-Methyl-1,4-benzenediamine dihydrochloride	--	0.6	--	--	--	--
2-Methylaniline Hydrochloride	--	0.6	--	--	--	--
2-Methylbenzene,1-4-diamine monohydrochlori	--	0.4	--	--	--	--
2-Methylbenzene-1,4-diamine sulfate	--	0.6	--	--	--	--
2-Methylnaphthalene	0.0202	3.6	--	4.7	--	--
2-Methylphenol	--	93	--	13	--	--
2-Naphthylamine	--	0.039	--	--	--	--
2-Nitroaniline	--	19	--	--	--	--
2-Nitrophenol	--	--	--	1920	--	--
2-Nitropropane	--	0.0021	--	--	--	--
2-Phenylphenol	--	30	--	--	--	--
2-Sec-butyl-4,6-dinitrophenol	0.000611	1.5	7	--	--	--
2-Sec-butyl-4,6-dinitrophenol	--	1.5	7	--	--	--
3,3-Dichlorobenzidine	0.127	0.13	0.49	--	--	--
3,3-Dichlorobenzidine	--	0.13	0.49	--	--	--
3,3-Dimethoxybenzidine	--	0.047	--	--	--	--
3,3-Dimethylbenzidine	--	0.0065	--	--	--	--
3,4-Dimethylphenol	--	1.8	--	--	--	--
3,4-Methylphenol	--	--	--	13	--	--
3-Methylcholanthrene	--	0.0011	--	--	--	--
3-Methylphenol	--	93	--	--	--	--
4,4-DDD	0.00488	0.0063	0.0012	--	--	--
4,4-DDD	--	0.0063	0.0012	--	--	--
4,4-DDE	0.00316	0.046	0.00018	--	--	--
4,4-DDE	--	0.046	0.00018	--	--	--
4,4-DDT	--	0.23	0.0003	--	1.1	0.001
4,4-Dichlorobenzophenone	--	7.8	--	--	--	--
4,4'-Methylenebis(2-chloroaniline)	--	0.16	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
4,4'-Methylene-bis(N,N-dimethyl) Aniline	--	0.48	--	--	--	--
4,4-Methylenebisbenzeneamine	--	0.047	--	--	--	--
4,6-Dinitro-2-methylphenol	--	0.15	2	--	--	--
4-Aminobiphenyl	--	0.003	--	--	--	--
4-Bromofluorobenzene	--	0.46	--	--	--	--
4-Bromophenyl-phenylether	1.23	--	--	1.5	--	--
4-Chloro-2-methylaniline	--	0.7	--	--	--	--
4-Chloro-2-methylaniline hydrochloride	--	0.17	--	--	--	--
4-Chloro-3-Methylphenol	--	140	500	--	--	--
4-Chloroaniline	--	0.37	--	--	--	--
4-Chlorobenzenesulfonic acid	--	200	--	--	--	--
4-Chlorobenzotrifluoride	--	3.5	--	--	--	--
4-Chlorotoluene	--	25	--	--	--	--
4-Dimethylaminoazobenzene	--	0.005	--	--	--	--
4-methyl-2-pentanol	--	630	--	--	--	--
4-Methyl-2-Pentanone	--	630	--	170	--	--
4-methyl-benzoic acid	--	9	--	--	--	--
4-Methylphenol	0.67	190	--	--	--	--
4-Nitroaniline	--	3.8	--	--	--	--
4-Nitrophenol	--	--	50	--	--	--
4-Nitropyrene	--	0.019	--	--	--	--
5-Nitro-O-Toluidine	--	8.2	--	--	--	--
7,12-Dimethylbenz(a)anthracene	--	0.0001	--	--	--	--
9,10-Anthraquinone	--	1.4	--	--	--	--
a-BHC	0.006	0.0072	0.0036	--	--	--
a-BHC	--	0.0072	0.0036	--	--	--
Acenaphthene	0.0067	53	70	--	--	--
Acenaphthene	--	53	70	--	--	--
Acenaphthylene	0.0059	--	--	--	--	--
Acephate	--	2.4	--	--	--	--
Acetaldehyde	--	1.9	--	--	--	--
Acetochlor	--	35	100	--	--	--
Acetone	--	1400	--	1500	--	--
Acetonitrile	--	13	--	12000	--	--
Acetophenone	--	190	--	--	--	--
Acrolein	--	0.0042	3	--	3	3
Acrylamide	--	0.05	0.7	--	--	--
Acrylic acid	--	0.21	--	--	--	--
Acrylonitrile	--	0.052	0.61	--	--	--
Alachlor	--	1.1	2	--	--	--
Alar	--	4.3	--	--	--	--
Aldicarb	--	2	3	--	--	--
Aldicarb sulfone	--	2	2	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Aldrin	0.002	0.00092	0.0000077	--	3	--
Aldrin	--	0.00092	0.0000077	--	3	--
Allyl Alcohol	--	0.021	--	--	--	--
Allyl Chloride	--	0.21	--	--	--	--
alpha-Chlordane	--	--	0.008	--	--	--
alpha-Methylstyrene	--	78	--	--	--	--
Aluminum metaphosphate	--	97000	--	--	--	--
Aluminum phosphide	--	0.8	--	--	--	--
Aluminum, Dissolved	--	2000	--	--	--	--
Aluminum, Total	--	2000	--	87	750	87
Amdro	--	34	--	--	--	--
Ametryn	--	15	60	--	--	--
Amitraz	--	0.82	--	--	--	--
Ammonium Glufosinate	--	12	40	--	--	--
Ammonium Perchlorate	--	1.4	--	--	--	--
Ammonium polyphosphate	--	97000	--	--	--	--
Ammonium sulfamate	--	400	1000	--	--	--
Aniline	--	13	--	--	--	--
Anthracene	0.0572	180	300	--	--	--
Anthracene	--	180	300	--	--	--
Antimony Pentoxide	--	0.97	--	--	--	--
Antimony Tetroxide	--	0.78	--	--	--	--
Antimony, Dissolved	--	0.78	--	--	--	--
Antimony, Total	2	0.78	5.6	--	--	--
Antimony, Total	--	0.78	5.6	--	--	--
Apollo	--	23	--	--	--	--
Aramite	--	1.3	--	--	--	--
Aroclor 5460	--	1.2	--	--	--	--
Arsenic, Dissolved	--	0.052	--	--	--	--
Arsenic, Total	9.8	0.052	10	--	340	150
Arsenic, Total	--	0.052	10	--	340	150
Arsine	--	0.007	--	--	--	--
Asulam	--	72	--	--	--	--
Atrazine	0.00662	0.3	3	--	--	--
Auramine	--	0.067	--	--	--	--
Avermectin B1	--	0.8	--	--	--	--
Azinphos Methyl	0.0000505	5.6	10	--	--	--
Azobenzene	--	0.12	--	--	--	--
Azodicarbonamide	--	2000	--	--	--	--
Barium, Dissolved	--	380	--	--	--	--
Barium, Total	--	380	1000	--	--	--
Baygon	--	7.8	24	--	--	--
Bayleton	--	63	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Baythroid	--	12	--	--	--	--
b-BHC	0.005	0.025	0.08	--	--	--
b-BHC	--	0.025	0.08	--	--	--
Benefin	--	2.8	--	--	--	--
Benomyl	--	97	--	--	--	--
Bentazon	--	57	210	--	--	--
Benzaldehyde	--	19	--	--	--	--
Benzene	--	0.46	5	--	--	--
Benzidine	--	0.00011	0.0014	--	--	--
Benzo(a)anthracene	0.108	0.03	0.012	--	--	--
Benzo(a)anthracene	--	0.03	0.012	--	--	--
Benzo(a)pyrene	0.15	0.025	0.0012	--	--	--
Benzo(a)pyrene	--	0.025	0.0012	--	--	--
Benzo(b)fluoranthene	--	0.25	0.012	--	--	--
Benzo(b,k)fluoranthene	0.0272	--	--	--	--	--
Benzo(g,h,i)perylene	0.17	--	--	--	--	--
Benzo(j)fluoranthene	--	0.065	--	--	--	--
Benzo(k)fluoranthene	0.24	2.5	0.12	--	--	--
Benzo(k)fluoranthene	--	2.5	0.12	--	--	--
Benzoic Acid	0.65	7500	--	--	--	--
Benzotrichloride	--	0.003	--	--	--	--
Benzyl Alcohol	--	200	--	--	--	--
Benzylchloride	--	0.089	--	--	--	--
Beryllium, Dissolved	--	2.5	--	--	--	--
Beryllium, Total	--	2.5	4	--	--	--
Bidrin	--	0.06	--	--	--	--
Bifenox	--	10	--	--	--	--
Biphenthrin	--	30	--	--	--	--
Biphenyl	1.22	0.083	--	--	--	--
Bis(2-chloroethoxy)methane	--	5.9	--	--	--	--
Bis(2-chloroethyl)ether	--	0.014	0.3	--	--	--
Bis(2-chloroisopropyl)ether	--	--	200	--	--	--
Bis(2-ethylhexyl)phthalate	0.18	5.6	3.2	--	--	--
Bis(2-ethylhexyl)phthalate	--	5.6	3.2	--	--	--
Bis-chloromethylether	--	0.000072	0.0015	--	--	--
Bisphenol A	--	77	--	--	--	--
Boron Trichloride	--	4.2	--	--	--	--
Boron trifluoride	--	2.6	--	--	--	--
Boron, Dissolved	--	400	--	--	--	--
Boron, Total	--	400	--	1.6	--	--
Bromate	--	0.11	10	--	--	--
Bromobenzene	--	6.2	--	--	--	--
Bromochloromethane	--	8.3	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Bromodichloromethane	--	0.13	9.5	--	--	--
Bromoform	0.654	3.3	70	--	--	--
Bromoform	--	3.3	70	--	--	--
Bromomethane	--	0.75	100	--	--	--
Bromophos	--	3.5	--	--	--	--
Bromoxynil	--	0.61	3.2	--	--	--
Bromoxynil octanoate	--	0.24	--	--	--	--
Butanol	--	200	--	--	--	--
Butanone	--	0.53	--	--	--	--
Butylate	--	46	300	--	--	--
Butylated hydroxyanisole	--	150	--	--	--	--
Butylated hydroxytoluene	--	3.4	--	--	--	--
Butylbenzylphthalate	10.9	16	1	--	--	--
Butylbenzylphthalate	--	16	1	--	--	--
Butylphthalyl butylglycolate	--	1300	--	--	--	--
Cacodylic acid	--	40	--	--	--	--
Cadmium, Dissolved	--	0.92	--	--	--	--
Cadmium, Total	0.99	0.92	5	--	3.8	1.4
Cadmium, Total	--	0.92	5	--	3.8	1.4
Calcium Cyanide	--	2	--	--	--	--
Calcium pyrophosphate	--	97000	--	--	--	--
Calcium, Total	--	--	--	116000	--	--
Caprolactam	--	990	--	--	--	--
Captafol	--	0.4	--	--	--	--
Captan	--	31	--	--	--	--
Carbaryl	0.000418	180	70	--	2.1	2.1
Carbofuran	0.00344	9.4	40	--	--	--
Carbon Disulfide	0.000851	81	--	0.92	--	--
Carbon tetrachloride	0.0642	0.46	4	--	--	--
Carbon tetrachloride	--	0.46	4	--	--	--
Carbonyl Sulfide	--	21	--	--	--	--
Carbosulfan	--	5.1	--	--	--	--
Carboxin	--	190	700	--	--	--
Chloral hydrate	--	200	--	--	--	--
Chloramben	--	29	100	--	--	--
Chloranil	--	0.18	--	--	--	--
Chlordane	0.00324	--	0.0031	--	2.4	0.0043
Chlorfenvinphos	--	1.1	--	--	--	--
Chloride	--	--	--	--	860000	230000
Chlorimuron-ethyl	--	180	600	--	--	--
Chlorine	--	0.03	--	--	19	11
Chlorine dioxide	--	0.042	--	--	--	--
Chlorite (Sodium Salt)	--	60	1000	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Chloroacetaldehyde	--	0.29	--	--	--	--
Chlorobenzene	0.00842	7.8	100	--	--	--
Chlorobenzene	--	7.8	100	--	--	--
Chlorobenzilate	1.45	0.31	--	--	--	--
Chlorodifluoromethane	--	10000	--	--	--	--
Chloroethane	--	2100	--	--	--	--
Chloroform	--	0.22	60	--	--	--
Chloromethane	--	19	600	--	--	--
Chloromethyl Methyl Ether	--	0.0065	--	--	--	--
Chloropicrin	--	0.083	--	--	--	--
Chlorothalonil	--	22	14	--	--	--
Chlorozotocin	--	0.00032	--	--	--	--
Chlorpropham	--	71	--	--	--	--
Chlorpyrifos	0.00519	0.84	2	--	0.083	0.041
Chlorpyrifos-methyl	--	12	--	--	--	--
Chlorsulfuron	--	99	100	--	--	--
Chlorthiophos	--	0.28	--	--	--	--
Chromium, Hexavalent	--	0.035	--	--	--	--
Chromium, Total	43.4	--	100	--	--	--
Chromium, Total	--	--	100	--	--	--
Chromium, Trivalent	--	2200	--	--	--	--
Chrysene	0.166	25	1.2	--	--	--
Chrysene	--	25	1.2	--	--	--
cis-1,2-Dichloroethene	--	3.6	70	--	--	--
cis-1,3-Dichloropropene	--	--	3.4	--	--	--
cis-1,4-Dichloro-2-butene	--	0.0013	--	--	--	--
Cobalt, Dissolved	--	0.6	--	--	--	--
Cobalt, Total	50	0.6	--	23	--	--
Copper Cyanide	--	10	--	--	--	--
Copper, Dissolved	--	80	--	--	--	--
Copper, Total	31.6	80	1300	--	--	--
Copper, Total	--	80	1300	--	--	--
Crotonaldehyde	--	0.04	--	--	--	--
Cupferron	--	0.35	--	--	--	--
Cyanazine	--	0.088	10	--	--	--
Cyanide, Free	0.1	--	--	--	--	--
Cyanide, Total	--	0.15	4	--	22	5.2
Cyanogen	--	2	--	--	--	--
Cyanogen bromide	--	180	--	--	--	--
Cyanogen chloride	--	100	--	--	--	--
Cyclohexane	--	1300	--	--	--	--
Cyclohexanone	--	140	--	--	--	--
Cyclohexene	--	7	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Cyclohexylamine	--	380	--	--	--	--
Cyhalothrin/Karate	--	2	--	--	--	--
Cyromazine	--	990	--	--	--	--
Dalapon	--	60	200	--	--	--
Danitol	--	6.4	--	--	--	--
d-BHC	6.4	--	--	141	--	--
DCPA	--	12	70	--	--	--
DDT, TOTAL	0.00416	--	--	--	--	--
Decabromodiphenyl ether	--	14	--	--	--	--
Demeton	--	0.042	0.3	--	--	0.1
Di(2-ethylhexyl)adipate	--	65	280	--	--	--
Diallate	--	0.54	--	--	--	--
Diammonium phosphate	--	97000	--	--	--	--
Diazinon	0.00239	1	1	--	0.17	0.17
Dibenzo(a,e)pyrene	--	0.0065	--	--	--	--
Dibenzo(a,h)anthracene	0.033	0.025	0.0012	--	--	--
Dibenzo(a,h)anthracene	--	0.025	0.0012	--	--	--
Dibenzofuran	0.415	0.79	5E-08	--	--	--
Dibenzothiophene	--	6.5	--	--	--	--
Dibrom	--	4	--	--	--	--
Dibromochloromethane	--	0.87	8	--	--	--
Dibromomethane	--	0.83	--	--	--	--
Dibutyltin Compounds	--	0.6	--	--	--	--
Dicalcium phosphate	--	97000	--	--	--	--
Dicamba	--	57	200	--	--	--
Dichloroacetic acid	--	1.5	--	--	--	--
Dichlorodifluoromethane	--	20	1000	--	--	--
Dichlorprop	--	--	300	--	--	--
Dichlorvos	--	0.26	--	--	--	--
Dicyclopentadiene	--	0.063	--	--	--	--
Dieldrin	0.0019	0.0018	0.000012	--	0.24	0.056
Dieldrin	--	0.0018	0.000012	--	0.24	0.056
Diethanolamine	--	4	--	--	--	--
Diethyl ether	--	390	--	--	--	--
Diethylene glycol, monobutyl ether	--	60	--	--	--	--
Diethylene glycol, monoethyl ether	--	120	--	--	--	--
Diethylformamide	--	2	--	--	--	--
Diethylphthalate	0.603	1500	600	--	--	--
Diethylphthalate	--	1500	600	--	--	--
Diethylstilbestrol	--	0.000051	--	--	--	--
Difenzoquat	--	170	--	--	--	--
Diflubenzuron	--	29	--	--	--	--
Dihydrosafrole	--	0.3	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Diisopropyl Ether	--	150	--	--	--	--
Diisopropyl methylphosphonate	--	160	--	--	--	--
Dimagnesium phosphate	--	97000	--	--	--	--
Dimethipin	--	44	--	--	--	--
Dimethoate	--	4.4	15	--	--	--
Dimethyl methylphosphonate	--	46	--	--	--	--
Dimethyl terephthalate	--	190	--	--	--	--
Dimethylphthalate	--	--	2000	--	--	--
Dimethylvinylchloride	--	0.33	--	--	--	--
Di-n-butylphthalate	6.47	90	20	--	--	--
Di-n-butylphthalate	--	90	20	--	--	--
Dinitrotoluene	--	0.1	--	--	--	--
Di-n-octylphthalate	--	20	--	22	--	--
Diphenamid	--	53	200	--	--	--
Diphenyl ether	--	0.083	--	--	--	--
Diphenyl sulfone	--	1.5	--	--	--	--
Diphenylamine	--	130	--	--	--	--
Dipotassium phosphate	--	97000	--	--	--	--
Diquat	--	4.4	20	--	--	--
Direct black 38	--	0.011	--	--	--	--
Direct blue 6	--	0.011	--	--	--	--
Direct brown 95	--	0.012	--	--	--	--
Disodium phosphate	--	97000	--	--	--	--
Disulfoton	--	0.05	0.3	--	--	--
Diuron	--	3.6	10	--	--	--
Dodine	--	40	--	--	--	--
Endosulfan I	0.0029	--	20	--	--	--
Endosulfan I	--	--	20	--	--	--
Endosulfan II	0.014	--	20	--	--	--
Endosulfan II	--	--	20	--	--	--
Endosulfan sulfate	0.0054	--	20	--	--	--
Endosulfan sulfate	--	--	20	--	--	--
Endosulfan, Total	0.00214	10	20	--	--	0.056
Endothall	--	38	100	--	--	--
Endrin	0.00222	0.23	0.03	--	0.086	0.036
Endrin	--	0.23	0.03	--	0.086	0.036
Endrin aldehyde	--	--	1	--	--	--
Epichlorohydrin	--	0.2	10	--	--	--
Ethanol, 2-(2-methoxyethoxy)-	--	80	--	--	--	--
Ethephon	--	10	--	--	--	--
Ethion	--	0.43	3	--	--	--
Ethyl acetate	--	14	--	--	--	--
Ethyl acrylate	--	1.4	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Ethyl Methacrylate	--	63	--	--	--	--
Ethyl p-nitrophenyl phenylphosphorothioate	--	0.0089	--	--	--	--
Ethylbenzene	1.1	1.5	68	--	--	--
Ethylbenzene	--	1.5	68	--	--	--
Ethylene cyanohydrin	--	140	--	--	--	--
Ethylene diamine	--	180	--	--	--	--
Ethylene glycol	--	4000	--	--	--	--
Ethylene glycol, monobutyl ether	--	200	--	--	--	--
Ethylene Oxide	--	0.00067	--	--	--	--
Ethylene thiourea	--	0.16	--	--	--	--
Ethyleneimine	--	0.00024	--	--	--	--
Ethylphthalyl ethyl glycolate	--	5800	--	--	--	--
Express	--	16	50	--	--	--
Fenamiphos	--	0.44	1.7	--	--	--
Fluometuron	--	24	83	--	--	--
Fluoranthene	0.423	80	20	--	--	--
Fluoranthene	--	80	20	--	--	--
Fluorene	0.0774	29	50	--	--	--
Fluorene	--	29	50	--	--	--
Fluoride, Total	--	80	4000	--	--	--
Fluoridone	--	140	--	--	--	--
Fluorine (Soluble Fluoride)	--	120	--	--	--	--
Flurprimidol	--	69	--	--	--	--
Flutolanil	--	790	--	--	--	--
Fluvalinate	--	20	--	--	--	--
Folex	--	0.06	--	--	--	--
Folpet	--	160	--	--	--	--
Fomesafen	--	4.8	--	--	--	--
Fonofos	--	2.4	10	--	--	--
Formaldehyde	--	0.43	--	--	--	--
Formic Acid	--	0.063	--	--	--	--
Fosetyl-al	--	5000	--	--	--	--
Furan	--	1.9	--	--	--	--
Furazolidone	--	0.02	--	--	--	--
Furfural	--	3.8	--	--	--	--
Furium	--	0.051	--	--	--	--
Furmecyclox	--	1.1	--	--	--	--
GAMMA-CHLORDANE	--	--	0.008	--	--	--
g-BHC (Lindane)	0.00237	0.042	0.2	--	--	--
g-BHC (Lindane)	--	0.042	0.2	--	--	--
Gluteraldehyde	--	200	--	--	--	--
Glycidyl	--	0.17	--	--	--	--
Glyphosate	--	200	700	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Goal	--	0.54	--	--	--	--
Guanidine	--	20	--	--	--	--
Guanidine Chloride	--	40	--	--	--	--
Guanidinium Nitrate	--	60	--	--	--	--
Harmony	--	86	290	--	--	--
Heptachlor	0.068	0.0014	5.9E-05	--	0.52	0.0038
Heptachlor	--	0.0014	5.9E-05	--	0.52	0.0038
Heptachlor epoxide	0.00247	0.0014	0.00032	--	0.52	0.0038
Heptachlor epoxide	--	0.0014	0.00032	--	0.52	0.0038
Heptanal	--	0.63	--	--	--	--
Heptane	--	0.6	--	--	--	--
Hexabromobenzene	--	4	--	--	--	--
Hexachlorobenzene	0.02	0.0098	0.00079	--	--	--
Hexachlorobenzene	--	0.0098	0.00079	--	--	--
Hexachlorobutadiene	--	0.14	0.1	--	--	--
Hexachlorocyclohexane	0.003	0.025	0.066	--	--	--
Hexachlorocyclopentadiene	--	0.041	4	--	--	--
Hexachlorodibenzo-p-dioxin Mixture	--	0.000013	--	--	--	--
Hexachloroethane	1.027	0.33	1	--	--	--
Hexachloroethane	--	0.33	1	--	--	--
Hexachlorophene	--	0.6	--	--	--	--
Hexamethylphosphoramide	--	0.8	--	--	--	--
Hexane	0.0396	150	--	--	--	--
Hexanedioic Acid	--	4000	--	--	--	--
Hexazinone	--	64	300	--	--	--
HMX	--	100	--	--	--	--
Hydrazine	--	0.0011	--	--	--	--
Hydrazine Sulfate	--	0.026	--	--	--	--
Hydrogen Chloride	--	4.2	--	--	--	--
Hydrogen cyanide	--	0.15	--	--	--	--
Hydrogen Flouride	--	2.8	--	--	--	--
Hydrogen Sulfide	--	0.42	--	--	--	2
Hydroquinone	--	1.3	--	--	--	--
Imazalil	--	0.9	5.5	--	--	--
Imazaquin	--	490	--	--	--	--
Indeno(1,2,3-cd)pyrene	0.017	0.25	0.012	--	--	--
Indeno(1,2,3-cd)pyrene	--	0.25	0.012	--	--	--
Iodine	--	20	--	--	--	--
Iprodione	--	74	--	--	--	--
Iron, Dissolved	--	1400	--	--	--	--
Iron, Total	20000	1400	--	300	--	1000
Isobutyl Alcohol	--	590	--	--	--	--
Isophorone	--	78	340	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Isopropanol	--	4	--	--	--	--
Isopropanol	--	41	--	7.5	--	--
Isopropyl Methyl Phosphonic Acid	--	200	--	--	--	--
Isopropylbenzene	0.086	45	--	2.6	--	--
Isoxaben	--	73	--	--	--	--
Kepone	--	0.0035	--	--	--	--
Lactofen	--	10	--	--	--	--
Lanthanum	--	0.1	--	--	--	--
Lead acetate	--	9.2	--	--	--	--
Lead Phosphate	--	9.1	--	--	--	--
Lead subacetate	--	9.2	--	--	--	--
Lead, Dissolved	--	15	--	--	--	--
Lead, Total	35.8	15	15	--	201.1	7.8
Lead, Total	--	15	15	--	201.1	7.8
Lewisite	--	0.009	--	--	--	--
Linuron	--	13	--	--	--	--
Lithium Perchlorate	--	1.4	--	--	--	--
Lithium, Dissolved	--	4	--	--	--	--
Lithium, Total	--	4	--	--	--	--
Londax	--	390	--	--	--	--
m,p-Xylene	--	--	--	--	--	--
Magnesium, Total	--	--	--	82000	--	--
Malathion	0.000203	39	470	--	--	0.1
Maleic Anhydride	--	190	--	--	--	--
Maleic hydrazide	--	1000	--	--	--	--
Malononitrile	--	0.2	--	--	--	--
m-Aminophenol	--	160	--	--	--	--
Mancozeb	--	54	--	--	--	--
Maneb	--	9.8	--	--	--	--
Manganese, Dissolved	--	43	--	--	--	--
Manganese, Total	460	43	--	120	--	--
MCPA	--	0.75	3	--	--	--
MCPB	--	6.5	--	--	--	--
M CPP	--	1.6	--	--	--	--
M-Dinitrobenzene	--	0.2	--	--	--	--
Mephosfolan	--	0.18	--	--	--	--
Mepiquat Chloride	--	60	--	--	--	--
Mercuric Chloride (and other Mercury salts)	--	0.57	--	--	--	--
Mercury, Dissolved	--	0.063	--	--	--	--
Mercury, Total	0.18	0.063	0.05	--	1.4	0.77
Mercury, Total	--	0.063	0.05	--	1.4	0.77
Merphos Oxide	--	0.028	--	--	--	--
Metalaxyl	--	120	400	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Methacrylonitrile	--	0.19	--	--	--	--
Methamidophos	--	0.1	2	--	--	--
Methanol	--	2000	--	--	--	--
Methidathion	--	2.9	--	--	--	--
Methomyl	--	50	170	--	--	--
Methoxychlor	0.0187	3.7	0.02	--	--	0.03
Methoxychlor	--	3.7	0.02	--	--	0.03
Methyl Acetate	--	2000	--	--	--	--
Methyl Acrylate	--	4.2	--	--	--	--
Methyl Cellosolve	--	2.9	--	--	--	--
Methyl Haloxypop	--	0.076	--	--	--	--
Methyl Hydrazine	--	0.0042	--	--	--	--
Methyl Isocyanate	--	0.21	--	--	--	--
Methyl Methacrylate	--	140	--	--	--	--
Methyl Methanesulfonate	--	0.79	--	--	--	--
Methyl Parathion	--	0.45	--	--	--	--
Methyl Phosphonic Acid	--	120	--	--	--	--
Methyl Pirimiphos	--	0.085	--	--	--	--
Methyl Styrene (Mixed Isomers)	--	2.3	--	--	--	--
Methyl Thiophanate	--	6.7	--	--	--	--
Methylarsonic acid	--	20	--	--	--	--
Methylene Chloride	--	11	5	--	--	--
Methylmercury	--	0.2	--	--	--	--
Metolachlor	--	270	1000	--	--	--
Metribuzin	--	49	170	--	--	--
Metsulfuron-methyl	--	490	--	--	--	--
Mineral oils	--	6000	--	--	--	--
Mirex	0.007	0.00088	1	--	--	0.001
m-Nitrotoluene	--	0.17	--	--	--	--
Molinate	--	3	--	--	--	--
Molybdenum, Dissolved	--	10	--	--	--	--
Molybdenum, Total	--	10	--	--	--	--
Monoaluminum phosphate	--	97000	--	--	--	--
Monoammonium phosphate	--	97000	--	--	--	--
Monocalcium phosphate	--	97000	--	--	--	--
Monochloramine	--	200	--	--	--	--
Monomagnesium phosphate	--	97000	--	--	--	--
Monopotassium phosphate	--	97000	--	--	--	--
Monosodium phosphate	--	97000	--	--	--	--
m-Phenylenediamine	--	12	--	--	--	--
MTBE	--	14	30	--	--	--
m-Xylene	0.0252	19	10000	--	--	--
N,N-Dimethylformamide	--	6.1	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
N,N-Diphenyl-1,4 benzenediamine	--	0.36	--	--	--	--
Naphtha, High Flash Aromatic (HFAN)	--	15	--	--	--	--
Naphthalene	0.176	0.17	100	--	--	--
Naphthalene	--	0.17	100	--	--	--
Napropamide	--	200	--	--	--	--
n-Butylbenzene	--	100	--	--	--	--
Nickel Acetate	--	22	--	--	--	--
Nickel Carbonate	--	22	--	--	--	--
Nickel Carbonyl	--	0.0029	--	--	--	--
Nickel Hydroxide	--	20	--	--	--	--
Nickel Oxide	--	20	--	--	--	--
Nickel Refinery Dust	--	22	--	--	--	--
Nickel Subsulfide	--	0.045	--	--	--	--
Nickel, Dissolved	--	39	--	--	--	--
Nickel, Total	22.7	39	100	--	854	95
Nickel, Total	--	39	100	--	854	95
Nickelocene	--	22	--	--	--	--
Nitrate	--	3200	--	--	--	--
Nitrite	--	200	--	--	--	--
Nitrobenzene	--	0.14	10	--	--	--
Nitrocellulose	--	6000000	--	--	--	--
Nitrofurantoin	--	140	--	--	--	--
Nitrofurazone	--	0.06	--	--	--	--
Nitroglycerin	--	0.2	--	--	--	--
Nitroguanidine	--	200	--	--	--	--
Nitromethane	--	0.64	--	--	--	--
N-Methyl-Aniline	--	3.8	--	--	--	--
N-Methyl-N-nitro-N-nitrosoguanidine	--	0.0094	--	--	--	--
N-N-Dimethylaniline	--	2.5	--	--	--	--
N-Nitrosodiethanolamine	--	0.028	--	--	--	--
N-Nitrosodiethylamine	--	0.00017	0.008	--	--	--
N-Nitrosodimethylamine	--	0.00011	0.0069	--	--	--
N-Nitroso-di-n-Butylamine	--	0.0027	0.063	--	--	--
N-Nitrosodi-n-propylamine	--	0.011	0.05	--	--	--
N-Nitrosodiphenylamine	2.68	12	33	--	--	--
N-Nitrosodiphenylamine	--	12	33	--	--	--
N-Nitrosomethylethylamine	--	0.00071	--	--	--	--
N-Nitrosomorpholine	--	0.012	--	--	--	--
N-Nitroso-N-ethylurea	--	0.00092	--	--	--	--
N-Nitroso-N-methylurea	--	0.00021	--	--	--	--
N-Nitrosopiperidine	--	0.0082	--	--	--	--
N-Nitrosopyrrolidine	--	0.037	0.16	--	--	--
Nonane	--	0.53	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Nonylphenol	--	--	--	--	28	6.6
Norflurazon	--	29	--	--	--	--
n-Propylbenzene	--	66	--	128	--	--
Nustar	--	3.1	--	--	--	--
o-Chloronitrobenzene	--	0.24	--	--	--	--
Octabromodiphenyl Ether	--	6	--	--	--	--
Octamethylpyrophosphoramidate	--	4	--	--	--	--
O-Dinitrobenzene	--	0.19	--	--	--	--
o-Nitrotoluene	--	0.31	--	--	--	--
o-Phenylenediamine	--	0.65	--	--	--	--
Oryzalin	--	7.9	--	--	--	--
O-Toluidene	--	4.7	--	--	--	--
Oxadiazon	--	4.7	--	--	--	--
Oxamyl	--	50	200	--	--	--
o-Xylene	--	19	10000	--	--	--
p- a, a, a-Tetrachlorotoluene	--	0.0013	--	--	--	--
Paclobutrazol	--	23	--	--	--	--
PAHs, High Molecular Weight	0.19	--	--	--	--	--
PAHs, Low Molecular Weight	0.076	--	--	--	--	--
p-Aminophenol	--	40	--	--	--	--
Paraquat Dichloride	--	9	30	--	--	--
Parathion	0.000757	8.6	--	--	0.065	0.013
PCB-1016	--	0.14	--	--	--	--
PCB-105	--	0.004	--	--	--	--
PCB-114	--	0.004	--	--	--	--
PCB-118	--	0.004	--	--	--	--
PCB-1221	--	0.0047	--	--	--	--
PCB-123	--	0.004	--	--	--	--
PCB-1232	--	0.0047	--	--	--	--
PCB-1242	--	0.0078	--	--	--	--
PCB-1248	--	0.0078	--	--	--	--
PCB-1254	--	0.0078	--	--	--	--
PCB-126	--	0.0000012	--	--	--	--
PCB-1260	--	0.0078	--	--	--	--
PCB-1262	--	--	--	--	--	--
PCB-1268	--	--	--	--	--	--
PCB-156	--	0.004	--	--	--	--
PCB-157	--	0.004	--	--	--	--
PCB-167	--	0.004	--	--	--	--
PCB-169	--	0.000004	--	--	--	--
PCB-189	--	0.004	--	--	--	--
PCB-77	--	0.006	--	--	--	--
PCB-81	--	0.0004	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
PCBs, Total	0.0598	--	0.00064	--	--	--
p-Chlorobenzoic acid	--	51	--	--	--	--
p-Chloronitrobenzene	--	1.2	--	--	--	--
Pebulate	--	56	--	--	--	--
Pendimethalin	--	140	--	--	--	--
Pentabromodiphenyl Ether	--	4	--	--	--	--
Pentachlorobenzene	8.89	0.32	0.1	--	--	--
Pentachloroethane	0.826	0.65	--	--	--	--
Pentachloronitrobenzene	--	0.12	--	--	--	--
Pentachlorophenol	0.504	0.041	0.3	--	19	15
Pentachlorophenol	--	0.041	0.3	--	19	15
Pentaerythritol tetranitrate (PETN)	--	3.9	--	--	--	--
Pentane	--	210	--	--	--	--
Perchlorate and Perchlorate Salts	--	1.4	--	--	--	--
Perfluorobutane Sulfonate (PFBS)	--	40	--	--	--	--
Perfluorobutanesulfonate	--	40	--	--	--	--
Permethrin	--	100	--	--	--	--
Phenacetin	--	34	--	--	--	--
Phenanthrene	0.204	--	--	0.4	--	--
Phenmedipham	--	380	--	--	--	--
Phenol	0.42	580	4000	--	--	--
Phenol	--	580	4000	--	--	--
Phenothiazine	--	0.43	--	--	--	--
Phenyl Isothiocyanate	--	0.26	--	--	--	--
Phenylmercuric Acetate	--	0.16	--	--	--	--
Phorate	0.201	0.3	--	--	--	--
Phosgene	--	0.063	--	--	--	--
Phosmet	--	37	--	--	--	--
Phosphine	--	0.057	--	--	--	--
Phosphoric Acid	--	97000	--	--	--	--
Phosphorus, Total	--	0.04	--	--	--	--
Phthalic Anhydride	--	3900	--	--	--	--
Picloram	--	140	500	--	--	--
Picramic Acid (2-Amino-4,6-dinitrophenol)	--	0.2	--	--	--	--
Picric Acid	--	1.8	--	--	--	--
p-Isopropyltoluene	--	--	--	85	--	--
p-Nitrotoluene	4.06	4.3	--	--	--	--
Polybrominated Biphenyls	--	0.0026	--	--	--	--
Polychlorinated Biphenyls (high risk)	--	--	--	--	--	0.014
Polychlorinated Biphenyls (low risk)	--	0.044	--	--	--	--
POLYCYCLIC AROMATIC HYDROCARBONS	1.61	--	--	--	--	--
Polyphosphoric acid	--	97000	--	--	--	--
Potassium Cyanide	--	4	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Potassium Perchlorate	--	1.4	--	--	--	--
Potassium Perfluorobutane Sulfonate	--	40	--	--	--	--
Potassium Silver Cyanide	--	8.2	--	--	--	--
Potassium tripolyphosphate	--	97000	--	--	--	--
Potassium, Total	--	--	--	53000	--	--
P-Phenylenediamine	--	2	--	--	--	--
P-Phthalic Acid	--	1900	--	--	--	--
Prochloraz	--	0.38	--	--	--	--
Profluralin	--	2.6	--	--	--	--
Prometon	--	25	100	--	--	--
Prometryn	--	60	--	--	--	--
Pronamide	--	120	500	--	--	--
Propachlor	--	25	87	--	--	--
Propanil	--	8.2	--	--	--	--
Propargite	--	0.16	--	--	--	--
Propargyl alcohol	--	4	--	--	--	--
Propazine	--	34	100	--	--	--
Propene	--	630	--	--	--	--
Propham	--	35	100	--	--	--
Propiconazole	--	160	700	--	--	--
Propionaldehyde	--	1.7	--	--	--	--
Propylene glycol	--	40000	--	--	--	--
Propylene Glycol Monomethyl Ether	--	320	--	--	--	--
Propylene oxide	--	0.27	--	--	--	--
p-Toluidine	--	2.5	--	--	--	--
Pursuit	--	4700	17000	--	--	--
p-Xylene	--	19	10000	--	--	--
Pydrin	--	50	--	--	--	--
Pyrene	0.195	12	20	--	--	--
Pyrene	--	12	20	--	--	--
Pyridine	--	2	--	2380	--	--
Quinalphos	--	0.51	--	--	--	--
Quinoline	--	0.024	--	--	--	--
Quizalofop-ethyl	--	12	--	--	--	--
Rabon	--	2.8	--	--	--	--
RDX	0.013	0.97	--	--	--	--
Resmethrin	--	6.7	--	--	--	--
Ronnel	--	41	--	--	--	--
Rotenone	--	6.1	--	--	--	--
Safrole	--	0.096	--	--	--	--
Savey	--	11	--	--	--	--
sec-Butylbenzene	--	200	--	--	--	--
Selenious Acid	--	10	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
 REMEDIAL INVESTIGATION REPORT
 BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Selenium Sulfide	--	10	--	--	--	--
Selenium, Dissolved	--	10	--	--	--	--
Selenium, Total	2	10	50	--	20	5
Selenium, Total	--	10	50	--	20	5
Sethoxydim	--	160	--	--	--	--
S-Ethylidipropylthiocarbamate	--	75	--	--	--	--
Silver Cyanide	--	180	--	--	--	--
Silver, Dissolved	--	9.4	--	--	--	--
Silver, Total	1	9.4	100	--	12.8	--
Silver, Total	--	9.4	100	--	12.8	--
Simazine	--	0.61	4	--	--	--
Sodium acid pyrophosphate	--	97000	--	--	--	--
Sodium Acifluorfen	--	26	--	--	--	--
Sodium aluminum phosphate (acidic)	--	97000	--	--	--	--
Sodium aluminum phosphate (anhydrous)	--	97000	--	--	--	--
Sodium aluminum phosphate (tetrahydrate)	--	97000	--	--	--	--
Sodium Azide	--	8	--	--	--	--
Sodium Cyanide	--	2	--	--	--	--
Sodium Diethyldithiocarbamate	--	0.29	--	--	--	--
Sodium Fluoride	--	100	--	--	--	--
Sodium Fluoroacetate	--	0.04	--	--	--	--
Sodium hexametaphosphate	--	97000	--	--	--	--
Sodium Metavanadate	--	2	--	--	--	--
Sodium Perchlorate	--	1.4	--	--	--	--
Sodium polyphosphate	--	97000	--	--	--	--
Sodium trimetaphosphate	--	97000	--	--	--	--
Sodium tripolyphosphate	--	97000	--	--	--	--
Sodium Tungstate	--	1.6	--	--	--	--
Sodium Tungstate Dihydrate	--	1.6	--	--	--	--
Sodium, Total	--	--	--	680000	--	--
Strontium	--	1200	--	--	--	--
Strychnine	--	0.59	--	--	--	--
Styrene	0.559	120	100	--	--	--
Styrene	--	120	100	--	--	--
Styrene-Acrylonitrile (SAN) Trimer	--	4.8	--	--	--	--
Sulfide, Total	130	--	--	--	--	--
Sulfolane	--	2	--	--	--	--
Sulfotepp	--	0.71	--	--	--	--
Sulfur Trioxide	--	0.21	--	--	--	--
Sym-Trinitrobenzene	--	59	--	--	--	--
Systhane	--	45	170	--	--	--
t-Amyl Alcohol	--	0.63	--	--	--	--
TCMTB	--	48	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Tebuthiuron	--	140	500	--	--	--
Technical Chlordane	--	0.02	--	--	--	--
Temephos	--	40	--	--	--	--
Terbacil	--	25	83	--	--	--
Terbufos	--	0.024	0.83	--	--	--
Terbutryn	--	1.3	--	--	--	--
tert-Butylbenzene	--	69	--	--	--	--
Tetrachlorobenzenes	1.09	0.17	0.03	--	--	--
Tetrachloroethene	0.468	4.1	5	--	--	--
Tetrachloroethene	--	4.1	5	--	--	--
Tetraethyl Lead	--	0.00013	--	--	--	--
Tetrahydrofuran	--	340	--	--	--	--
Tetrapotassium phosphate	--	97000	--	--	--	--
Tetrasodium pyrophosphate	--	97000	--	--	--	--
Tetryl (Trinitrophenylmethyl nitramine)	--	3.9	--	--	--	--
Thallic Oxide	--	0.04	--	--	--	--
Thallium (I) Nitrate	--	0.02	--	--	--	--
Thallium Acetate	--	0.02	--	--	--	--
Thallium Carbonate	--	0.04	--	--	--	--
Thallium Chloride	--	0.02	--	--	--	--
Thallium Selenite	--	0.02	--	--	--	--
Thallium Sulfate	--	0.04	--	--	--	--
Thallium, Dissolved	--	0.02	--	--	--	--
Thallium, Total	--	0.02	0.24	--	--	--
Thiobencarb	--	16	--	--	--	--
Thiocyanates	--	0.4	--	--	--	--
Thiocyanic Acid	--	0.4	--	--	--	--
Thiodiglycol	--	140	--	--	--	--
Thiophenol	--	1.7	--	--	--	--
Thiram	--	29	--	--	--	--
Tin, Dissolved	--	1200	--	--	--	--
Tin, Total	--	1200	--	--	--	--
Titanium Tetrachloride	--	0.021	--	--	--	--
Toluene	--	110	57	--	--	--
Toluene-2,4-diisocyanate	--	0.0017	--	--	--	--
Toluene-2,5-diamine	--	0.4	--	--	--	--
Toluene-2,6-diisocyanate	--	0.0017	--	--	--	--
Total Cresols	--	150	--	--	--	--
Total DDT, DDE, DDD	0.00528	--	--	--	--	--
Total Extractable Hydrocarbons	--	--	--	--	--	--
Total Petroleum Hydrocarbons (Aliphatic High)	--	6000	--	--	--	--
Total Petroleum Hydrocarbons (Aliphatic Low)	--	130	--	--	--	--
Total Petroleum Hydrocarbons (Aliphatic Medi	--	10	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Total Petroleum Hydrocarbons (Aromatic High)	--	80	--	--	--	--
Total Petroleum Hydrocarbons (Aromatic Low)	--	3.3	--	--	--	--
Total Petroleum Hydrocarbons (Aromatic Med)	--	0.55	--	--	--	--
Toxaphene	0.0001	0.071	0.007	--	0.73	0.0002
Toxaphene	--	0.071	0.007	--	0.73	0.0002
TPH as Jet Fuel (JP7)	--	63	--	--	--	--
Tralomethrin	--	15	--	--	--	--
trans-1,2-Dichloroethene	1.05	36	100	--	--	--
trans-1,2-Dichloroethene	--	36	100	--	--	--
trans-1,3-Dichloropropene	--	--	2	--	--	--
Trans-1,4-Dichloro-2-Butene	--	0.0013	--	--	--	--
Triacetin	--	160000	--	--	--	--
Tri-AL NA tetra decahydrogenoctaorthospho	--	97000	--	--	--	--
Triallate	--	0.47	4.6	--	--	--
Triasulfuron	--	20	70	--	--	--
Tributyl Phosphate	--	5.2	--	--	--	--
Tributyltin Compounds	--	0.6	--	--	0.46	0.072
Tributyltin Oxide	--	0.57	--	--	--	--
Tricalcium phosphate	--	97000	--	--	--	--
Trichloroacetic acid	--	1.1	--	--	--	--
Trichloroethene	0.0969	0.28	5	--	--	--
Trichloroethene	--	0.28	5	--	--	--
Trichlorofluoromethane	--	520	2000	--	--	--
Tricresyl Phosphate (TCP)	--	16	--	--	--	--
Tridiphane	--	1.8	--	--	--	--
Triethyl amine	--	1.5	--	--	--	--
Triethylene glycol	--	4000	--	--	--	--
Trifluralin	0.355	2.6	43	--	--	--
Trimagnesium phosphate	--	97000	--	--	--	--
Trimethyl Phosphate	--	3.9	--	--	--	--
Tri-n-butyltin	--	0.37	--	--	--	--
Triphenylphosphine Oxide	--	36	--	--	--	--
Tripotassium phosphate	--	97000	--	--	--	--
Tris(1,3-Dichloro-2-propyl) Phosphate	--	36	--	--	--	--
Tris(1-chloro-2-propyl)phosphate	--	19	--	--	--	--
Tris(2,3-dibromopropyl)phosphate	--	0.0068	--	--	--	--
Tris(2-chloroethyl)phosphate	--	3.8	--	--	--	--
Tris(2-ethylhexyl)phosphate	--	24	--	--	--	--
Trisodium phosphate	--	97000	--	--	--	--
Tungsten	--	1.6	--	--	--	--
Uranium, Total	--	0.4	30	--	--	--
Urethane	--	0.025	--	--	--	--
Vanadium Pentoxide	--	15	--	--	--	--

**APPENDIX I-3. SEDIMENT AND SURFACE WATER SCREENING LEVELS
 REMEDIAL INVESTIGATION REPORT
 BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	EPA Region 3 BTAG Freshwater Sediment (mg/kg)	2018 November EPA Tapwater RSLs HQ 0.1 (ug/L)	MDEQ 7 Surface Water (ug/L)	Region III BTAG Surface Water (ug/L)	Aquatic Life Criteria – Acute (ug/L)	Aquatic Life Criteria – Chronic (ug/L)
Vanadium, Dissolved	--	8.6	--	--	--	--
Vanadium, Total	--	8.6	--	20	--	--
Vernolate	--	1.1	--	--	--	--
Vinclozolin	--	2.1	--	--	--	--
Vinyl acetate	--	41	--	16	--	--
Vinyl Bromide	--	0.18	--	--	--	--
Vinyl Chloride	--	0.019	0.22	--	--	--
Warfarin	--	0.56	--	--	--	--
Xylenes, Total	--	19	10000	--	--	--
Zinc Cyanide	--	100	--	--	--	--
Zinc Phosphide	--	0.6	--	--	--	--
Zinc, Dissolved	--	600	--	--	--	--
Zinc, Total	121	600	7400	--	218.3	218.3
Zinc, Total	--	600	7400	--	218.3	218.3
Zineb	--	99	--	--	--	--
Zirconium	--	0.16	--	--	--	--

**APPENDIX I-4. SOIL SCREENING LEVELS
REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	Soil Direct Contact Screening Level Based on DEQ Soil Screening Flowchart (mg/kg)	Soil Leaching to Groundwater Screening Level Based on DEQ Soil Screening Flowchart (mg/kg)	November 2018 EPA MCL-based Protection of GW SSL, HQ 1 (mg/kg)	November 2018 EPA Protection of GW RBSSL, HQ 1 (mg/kg)	November 2018 EPA Industrial Soil RSLs HQ 1 (mg/kg)	November 2018 EPA Residential Soil RSLs HQ 1 (mg/kg)	2017 DEQ-7 Groundwater Standard (ug/L)	2018 DEQ RBCA Residential Direct Contact RBSLs (mg/kg)	2018 DEQ RBCA Leaching to GW RBSLs (mg/kg)	DEQ MT Inorganic Background Threshold Values (mg/kg)
1,1,1,2-Tetrachloroethane	2	0.002	--	0.00022	8.8	2	--	--	--	--
1,1,1-Trichloroethane	810	0.700	0.07	2.8	36000	8100	200	--	--	--
1,1,2,2-Tetrachloroethane	0.6	0.008	--	0.00003	2.7	0.6	2	--	--	--
1,1,2-Trichloroethane	1.1	0.010	0.0016	0.000089	5	1.1	3	--	--	--
1,1,2-Trichlorotrifluoroethane	670	260	--	26	28000	6700	--	--	--	--
1,1-Dichloroethane	3.6	0.008	--	0.00078	16	3.6	--	--	--	--
1,1-Dichloroethene	23	0.025	0.0025	0.1	1000	230	7	--	--	--
1,2,3-Trichlorobenzene	6.3	0.210	--	0.021	930	63	--	--	--	--
1,2,3-Trichloropropane	0.0051	0.000003	--	0.00000032	0.11	0.0051	--	--	--	--
1,2,4-Trichlorobenzene	24	2	0.2	0.0034	110	24	70	--	--	--
1,2,4-Trimethylbenzene	30	0.81	--	0.081	1800	300	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.0053	0.001	0.000086	0.00000014	0.064	0.0053	0.2	--	--	--
1,2-Dibromoethane	0.04	0.000086	0.000014	0.0000021	0.16	0.036	0.004	0.04	0.000086	--
1,2-Dichlorobenzene	180	5.8	0.58	0.3	9300	1800	600	--	--	--
1,2-Dichloroethane	0.52	0.019	0.0014	0.000048	2	0.46	4	0.52	0.019	--
1,2-Dichloropropane	2.5	0.017	0.0017	0.00028	11	2.5	5	--	--	--
1,2-Diphenylhydrazine	0.68	0.003	--	0.00025	2.9	0.68	--	--	--	--
1,3,5-Trimethylbenzene	27	0.87	--	0.087	1500	270	--	--	--	--
1,3-Dichloropropane	160	1.3	--	0.13	23000	1600	--	--	--	--
1,4-Dichlorobenzene	2.6	0.72	0.072	0.00046	11	2.6	75	--	--	--
1-Methylnaphthalene	20	2.1	--	0.006	73	18	--	20	2.1	--
2,2-oxybis(1-Chloropropane)	310	2.6	--	0.26	47000	3100	--	--	--	--
2,4,5-Trichlorophenol	630	40	--	4	82000	6300	--	--	--	--
2,4,6-Trichlorophenol	49	0.04	--	0.004	210	49	--	--	--	--
2,4-Dichlorophenol	19	0.23	--	0.023	2500	190	--	--	--	--
2,4-Dimethylphenol	130	4.2	--	0.42	16000	1300	--	--	--	--
2,4-Dinitrophenol	13	0.44	--	0.044	1600	130	--	--	--	--
2,4-Dinitrotoluene	1.7	0.003	--	0.00032	7.4	1.7	--	--	--	--
2,6-Dinitrotoluene	0.36	0.00067	--	0.000067	1.5	0.36	--	--	--	--
2-Butanone	2700	12	--	1.2	190000	27000	--	--	--	--
2-Chloronaphthalene	480	39	--	3.9	60000	4800	--	--	--	--
2-Chlorophenol	39	0.89	--	0.089	5800	390	--	--	--	--
2-Chlorotoluene	160	2.3	--	0.23	23000	1600	--	--	--	--
2-Methylnaphthalene	30	6.9	--	0.19	3000	240	--	30	6.9	--

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REMEDIAL INVESTIGATION REPORT
BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	Soil Direct Contact Screening Level Based on DEQ Soil Screening Flowchart (mg/kg)	Soil Leaching to Groundwater Screening Level Based on DEQ Soil Screening Flowchart (mg/kg)	November 2018 EPA MCL-based Protection of GW SSL, HQ 1 (mg/kg)	November 2018 EPA Protection of GW RBSSL, HQ 1 (mg/kg)	November 2018 EPA Industrial Soil RSLs HQ 1 (mg/kg)	November 2018 EPA Residential Soil RSLs HQ 1 (mg/kg)	2017 DEQ-7 Groundwater Standard (ug/L)	2018 DEQ RBCA Residential Direct Contact RBSLs (mg/kg)	2018 DEQ RBCA Leaching to GW RBSLs (mg/kg)	DEQ MT Inorganic Background Threshold Values (mg/kg)
2-Methylphenol	320	7.5	--	0.75	41000	3200	--	--	--	--
2-Nitroaniline	63	0.8	--	0.08	8000	630	--	--	--	--
3,3-Dichlorobenzidine	1.2	0.008	--	0.00082	5.1	1.2	--	--	--	--
4,6-Dinitro-2-methylphenol	0.51	0.026	--	0.0026	66	5.1	--	--	--	--
4-Chloro-3-Methylphenol	630	17	--	1.7	82000	6300	--	--	--	--
4-Chloroaniline	2.7	0.002	--	0.00016	11	2.7	--	--	--	--
4-Chlorotoluene	160	2.4	--	0.24	23000	1600	--	--	--	--
4-Methyl-2-Pentanone	3300	14	--	1.4	140000	33000	--	--	--	--
4-Nitroaniline	27	0.016	--	0.0016	110	27	--	--	--	--
Acenaphthene	450	27	--	5.5	45000	3600	670	450	27	--
Acetone	6100	29	--	2.9	670000	61000	--	--	--	--
Allyl Chloride	0.72	0.002	--	0.00023	3.2	0.72	--	--	--	--
Aluminum, Total	25941	300000	--	30000	1100000	77000	--	--	--	25941
Anthracene	2200	2600	--	58	230000	18000	2100	2200	2600	--
Antimony, Total	3.1	2.7	0.27	0.35	470	31	6	--	--	0.4
Arsenic, Total	22.5	22.5	0.29	0.0015	3	0.68	10	--	--	22.5
Barium, Total	1500	429	82	160	220000	15000	1000	--	--	429
Benzene	1.3	0.07	0.0026	0.00023	5.1	1.2	5	1.3	0.07	--
Benzo(a)anthracene	1.3	6.8	--	0.011	21	1.1	0.5	1.3	6.8	--
Benzo(a)pyrene	0.13	2.3	0.24	0.029	2.1	0.11	0.05	0.13	2.3	--
Benzo(b)fluoranthene	1.3	23	--	0.3	21	1.1	0.5	1.3	23	--
Benzo(k)fluoranthene	13	230	--	2.9	210	11	0.5	13	230	--
Beryllium, Total	16	32	3.2	19	2300	160	4	--	--	1.1
Bis(2-chloroethoxy)methane	19	0.13	--	0.013	2500	190	--	--	--	--
Bis(2-chloroethyl)ether	0.23	0.000036	--	0.0000036	1	0.23	--	--	--	--
Bis(2-ethylhexyl)phthalate	39	13	1.4	1.3	160	39	--	--	--	--
Bromobenzene	29	0.42	--	0.042	1800	290	--	--	--	--
Bromochloromethane	15	0.21	--	0.021	630	150	--	--	--	--
Bromodichloromethane	0.29	0.028	0.022	0.000036	1.3	0.29	10	--	--	--
Bromoform	19	0.21	0.021	0.00087	86	19	80	--	--	--
Bromomethane	0.68	0.025	--	0.0019	30	6.8	10	--	--	--
Butylbenzylphthalate	290	2.4	--	0.24	1200	290	--	--	--	--
C11-C22, Aromatic, Unadjusted	490	370	--	--	--	--	--	--	--	--
C19-C36, Aliphatic, Unadjusted	24000	--	--	--	--	--	--	--	--	--

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BILLINGS PCE GROUNDWATER FACILITY, BILLINGS, MONTANA**

Analyte	Soil Direct Contact Screening Level Based on DEQ Soil Screening Flowchart (mg/kg)	Soil Leaching to Groundwater Screening Level Based on DEQ Soil Screening Flowchart (mg/kg)	November 2018 EPA MCL-based Protection of GW SSL, HQ 1 (mg/kg)	November 2018 EPA Protection of GW RBSSL, HQ 1 (mg/kg)	November 2018 EPA Industrial Soil RSLs HQ 1 (mg/kg)	November 2018 EPA Residential Soil RSLs HQ 1 (mg/kg)	2017 DEQ-7 Groundwater Standard (ug/L)	2018 DEQ RBCA Residential Direct Contact RBSLs (mg/kg)	2018 DEQ RBCA Leaching to GW RBSLs (mg/kg)	DEQ MT Inorganic Background Threshold Values (mg/kg)
C5-C8, Aliphatic, Adjusted	52	220	--	--	--	--	--	--	--	--
C5-C8, Aliphatic, Unadjusted	52	220	--	--	--	--	--	--	--	--
C9-C10, Aromatic, Unadjusted	130	130	--	--	--	--	--	--	--	--
C9-C12, Aliphatic, Adjusted	77	11000	--	--	--	--	--	--	--	--
C9-C12, Aliphatic, Unadjusted	77	11000	--	--	--	--	--	--	--	--
C9-C18, Aliphatic, Unadjusted	110	53000	--	--	--	--	--	--	--	--
Cadmium, Total	7.1	3.8	0.38	0.69	980	71	5	--	--	0.7
Carbon tetrachloride	0.65	0.012	0.0019	0.00018	2.9	0.65	3	--	--	--
Chlorobenzene	28	0.68	0.068	0.053	1300	280	100	--	--	--
Chloroethane	1400	59	--	5.9	57000	14000	--	--	--	--
Chloroform	0.32	0.194	0.022	0.000061	1.4	0.32	70	--	--	--
Chloromethane	11	0.077	--	0.049	460	110	30	--	--	--
Chromium, Total	120000	1800000	180000	--	--	--	100	--	--	41.7
Chrysene	130	690	--	9	2100	110	50	130	690	--
cis-1,2-Dichloroethene	16	0.21	0.021	0.011	2300	160	70	--	--	--
Cobalt, Total	10	10	--	0.27	350	23	--	--	--	10
Copper, Total	310	460	46	28	47000	3100	1300	--	--	165
Dibenzo(a,h)anthracene	0.13	7.5	--	0.096	2.1	0.11	0.05	0.13	7.5	--
Dibenzofuran	7.3	1.5	--	0.15	1000	73	--	--	--	--
Dibromochloromethane	8.3	0.011	0.021	0.00023	39	8.3	4	--	--	--
Dibromomethane	2.4	0.021	--	0.0021	99	24	--	--	--	--
Dichlorodifluoromethane	8.7	15	--	0.3	370	87	1000	--	--	--
Diethyl ether	1600	8.8	--	0.88	230000	16000	--	--	--	--
Diethylphthalate	5100	61	--	6.1	660000	51000	--	--	--	--
Di-n-butylphthalate	630	23	--	2.3	82000	6300	--	--	--	--
Di-n-octylphthalate	63	570	--	57	8200	630	--	--	--	--
Ethylbenzene	6.4	26	0.78	0.0017	25	5.8	700	6.4	26	--
Fluoranthene	300	85	--	89	30000	2400	130	300	85	--
Fluorene	300	35	--	5.4	30000	2400	1100	300	35	--
Hexachlorobenzene	0.21	0.001	0.013	0.00012	0.96	0.21	--	--	--	--
Hexachlorobutadiene	1.2	0.096	--	0.00027	5.3	1.2	5	--	--	--
Hexachloroethane	1.8	0.002	--	0.0002	8	1.8	--	--	--	--
Indeno(1,2,3-cd)pyrene	1.3	77	--	0.98	21	1.1	0.5	1.3	77	--
Iron, Total	24400	24400	--	350	820000	55000	--	--	--	24400

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Isophorone	570	0.26	--	0.026	2400	570	--	--	--	--
Isopropylbenzene	190	7.4	--	0.74	9900	1900	--	--	--	--
Lead, Total	154	140	14	--	800	400	15	--	--	29.8
Manganese, Total	1800	880	--	28	26000	1800	--	--	--	880
Mercury, Total	1.1	1	0.1	0.033	46	11	2	--	--	--
Methylene Chloride	57	0.013	0.0013	0.0029	1000	57	5	--	--	--
MTBE	52	0.078	--	0.0032	210	47	30	52	0.078	--
Naphthalene	4.3	12	--	0.00054	17	3.8	100	4.3	12	--
n-Butylbenzene	390	32	--	3.2	58000	3900	--	--	--	--
Nickel, Total	150	66.7	--	26	22000	1500	100	--	--	31.4
Nitrobenzene	5.1	0.00092	--	0.000092	22	5.1	--	--	--	--
N-Nitrosodimethylamine	0.002	0.00000027	--	0.000000027	0.034	0.002	--	--	--	--
N-Nitrosodi-n-propylamine	0.078	0.000081	--	0.0000081	0.33	0.078	--	--	--	--
N-Nitrosodiphenylamine	110	0.67	--	0.067	470	110	--	--	--	--
n-Propylbenzene	380	12	--	1.2	24000	3800	--	--	--	--
o-Xylene	65	100	--	0.19	2800	650	10000	--	--	--
Pentachlorophenol	1	0.014	0.0014	0.000057	4	1	1	--	--	--
Phenol	1900	33	--	3.3	250000	19000	--	--	--	--
Pyrene	220	83	--	13	23000	1800	830	220	83	--
sec-Butylbenzene	780	59	--	5.9	120000	7800	--	--	--	--
Selenium, Total	39	2.6	0.26	0.52	5800	390	50	--	--	0.7
Silver, Total	39	8.51	--	0.8	5800	390	100	--	--	0.3
Styrene	600	1.1	0.11	1.3	35000	6000	100	--	--	--
tert-Butylbenzene	780	16	--	1.6	120000	7800	--	--	--	--
Tetrachloroethene	24	0.023	0.0023	0.0051	100	24	5	--	--	--
Tetrahydrofuran	1800	7.5	--	0.75	94000	18000	--	--	--	--
Thallium, Total	0.41	1.4	0.14	0.014	12	0.78	2	--	--	0.41
Toluene	610	21	0.69	0.76	47000	4900	1000	610	21	--
trans-1,2-Dichloroethene	160	0.31	0.031	0.11	23000	1600	100	--	--	--
Trichloroethene	0.94	0.018	0.0018	0.00018	6	0.94	5	--	--	--
Trichlorofluoromethane	2300	63.5	--	3.3	350000	23000	10000	--	--	--

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Vanadium, Total	52.6	860	--	86	5800	390	--	--	--	52.6
Vinyl Chloride	0.059	0.00068	0.00069	0.0000065	1.7	0.059	0.2	--	--	--
Xylenes, Total	72	320	9.9	0.19	2500	580	10000	72	320	--
Zinc, Total	2300	1230	--	370	350000	23000	2000	--	--	118

Notes:

Calculated using Pages 1 & 2 of the DEQ's soil screening flow chart, November 2018 EPA RSLs HQ 1, 2017 DEQ-7 Standards, MT inorganic background levels, and 2018 DEQ RBCA RBSLs

HQ - hazard quotient

SSL - soil screening level

MCL - maximum contaminant level

RBSSL - risk-based soil screening level

Lead direct contact screening level based on DEQ's Lead in Soil Guidance (DEQ 2018)