


 MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
 ENVIRONMENTAL LABORATORY

 P.O. Box 30270  
 Lansing, MI 48909  
 TEL: (517) 335-9800  
 FAX: (517) 335-9600

Client ID: TMW-10 (6.5'-7.5')

Lab ID: 1510021-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Pesticides</b>									
789-02-6	2,4'-DDT	ND	0.010	ug/L	1	10/08/15	B513014	8081/8082	
72-54-8	4,4'-DDD	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
72-55-9	4,4'-DDE	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
50-29-3	4,4'-DDT	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
319-84-6	a-BHC	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
5103-71-9	a-Chlordane	ND	0.010	ug/L	1	10/08/15	B513014	8081/8082	
309-00-2	Aldrin	ND	0.010	ug/L	1	10/08/15	B513014	8081/8082	
319-85-7	b-BHC	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
319-86-8	d-BHC	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
60-57-1	Dieldrin	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
959-98-8	Endosulfan I	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
33213-65-9	Endosulfan II	ND	0.030	ug/L	1	10/08/15	B513014	8081/8082	
1031-07-8	Endosulfan sulfate	ND	0.050	ug/L	1	10/08/15	B513014	8081/8082	
72-20-8	Endrin	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
7421-93-4	Endrin aldehyde	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	A08
53494-70-5	Endrin ketone	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
3-89-9	g-BHC (Lindane)	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
5103-74-2	g-Chlordane	ND	0.010	ug/L	1	10/08/15	B513014	8081/8082	
76-44-8	Heptachlor	ND	0.010	ug/L	1	10/08/15	B513014	8081/8082	
1024-57-3	Heptachlor epoxide	ND	0.010	ug/L	1	10/08/15	B513014	8081/8082	
87-82-1	Hexabromobenzene	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
72-43-5	Methoxychlor	ND	0.050	ug/L	1	10/08/15	B513014	8081/8082	
2385-85-5	Mirex	ND	0.020	ug/L	1	10/08/15	B513014	8081/8082	
59080-40-9	PBB (BP-6)	ND	0.050	ug/L	1	10/08/15	B513014	8081/8082	
8001-35-2	Toxaphene	ND	0.10	ug/L	1	10/08/15	B513014	8081/8082	
Surrogate: Decachlorobiphenyl			65.6 %	30-150		10/08/15	B513014	8081/8082	
Surrogate: Tetrachloro-m-xylene			34.1 %	30-150		10/08/15	B513014	8081/8082	



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CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-PCBs as Aroclors</b>									
12674-11-2	Aroclor 1016	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11104-28-2	Aroclor 1221	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11141-16-5	Aroclor 1232	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
53469-21-9	Aroclor 1242	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
12672-29-6	Aroclor 1248	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11097-69-1	Aroclor 1254	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11096-82-5	Aroclor 1260	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
37324-23-5	Aroclor 1262	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11100-14-4	Aroclor 1268	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
<i>Surrogate: Decachlorobiphenyl</i>			67.0 %	30-150		10/08/15	B5I3014	8081/8082	
<i>Surrogate: Tetrachloro-m-xylene</i>			34.7 %	30-150		10/08/15	B5I3014	8081/8082	
<b>Inorganics-General Chemistry</b>									
57-12-5	Total Cyanide	ND	0.050	mg/L	10	10/02/15	B5J0209	ASTM D7511-09	I
<b>Inorganics-Metals</b>									
7440-36-0	Antimony	ND	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-38-2	Arsenic	11	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-39-3	Barium	82	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-41-7	Beryllium	ND	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-43-9	Cadmium	ND	0.2	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-47-3	Chromium	ND	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-48-4	Cobalt	ND	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-50-8	Copper	ND	1.0	ug/L	1	10/14/15	B5J0602	6020/200.8	
7439-89-6	Iron	11000	20	ug/L	1	10/16/15	B5J0602	6010/200.7	
7439-92-1	Lead	ND	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7439-96-5	Manganese	440	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7439-97-6	Mercury	ND	0.2	ug/L	1	10/15/15	B5J1405	7470/245.1	
7439-98-7	Molybdenum	ND	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-02-0	Nickel	7.3	2.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7782-49-2	Selenium	ND	1.0	ug/L	1	10/14/15	B5J0602	6020/200.8	
7440-22-4	Silver	ND	0.2	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-28-0	Thallium	ND	2.0	ug/L	1	10/14/15	B5J0602	6020/200.8	
7440-62-2	Vanadium	ND	2.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-66-6	Zinc	ND	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	


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Client ID: TMW-02 (13'-14') DUP

Lab ID: 1510021-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Volatiles</b>									
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
96-18-4	1,2,3-Trichloropropane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
78-93-3	2-Butanone (MEK)	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
591-78-6	2-Hexanone	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
91-57-6	2-Methylnaphthalene	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	X
67-64-1	2-Propanone (acetone)	ND	20	ug/L	1	10/02/15	B5J0207	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
107-13-1	Acrylonitrile	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
71-43-2	Benzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
108-86-1	Bromobenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
74-97-5	Bromochloromethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-27-4	Bromodichloromethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-25-2	Bromoform	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
74-83-9	Bromomethane	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
75-15-0	Carbon disulfide	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
56-23-5	Carbon tetrachloride	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
108-90-7	Chlorobenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-00-3	Chloroethane	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
67-66-3	Chloroform	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
74-87-3	Chloromethane	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
110-82-7	Cyclohexane	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
24-48-1	Dibromochloromethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	


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Lab ID: 1510021-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Volatiles</b>									
74-95-3	Dibromomethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
60-29-7	Diethyl ether	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
108-20-3	Diisopropyl Ether	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
100-41-4	Ethylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
637-92-3	Ethyltertiarybutylether	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
67-72-1	Hexachloroethane	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
98-82-8	Isopropylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
1330-20-7	m & p -Xylene	ND	2.0	ug/L	1	10/02/15	B5J0207	8260	
74-88-4	Methyl iodide	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-09-2	Methylene chloride	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
1634-04-4	Methyltertiarybutylether	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
91-20-3	Naphthalene	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	X
104-51-8	n-Butylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
103-65-1	n-Propylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
95-47-6	o-Xylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
99-87-6	p-Isopropyl toluene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
135-98-8	sec-Butylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
100-42-5	Styrene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
98-06-6	tert-Butylbenzene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-65-0	tertiary Butyl Alcohol	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
994-05-8	tertiary Amyl methylether	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
127-18-4	Tetrachloroethylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
109-99-9	Tetrahydrofuran	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
108-88-3	Toluene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
110-57-6	trans-1,4-Dichloro-2-butene	ND	5.0	ug/L	1	10/02/15	B5J0207	8260	
79-01-6	Trichloroethylene	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
75-01-4	Vinyl chloride	ND	1.0	ug/L	1	10/02/15	B5J0207	8260	
Surrogate: Bromofluorobenzene			100 %	85-115		10/02/15	B5J0207	8260	
Surrogate: Dibromofluoromethane			103 %	82.7-115		10/02/15	B5J0207	8260	
Surrogate: Toluene-d8			99.6 %	85-115		10/02/15	B5J0207	8260	


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<b>Organics-Methane</b>									
74-84-0	Ethane	ND	0.10	mg/L	1	10/05/15	B5J0505	8015	
74-85-1	Ethylene	ND	0.010	mg/L	1	10/05/15	B5J0505	8015	
74-82-8	Methane	0:015	0.010	mg/L	1	10/05/15	B5J0505	8015	
<b>Organics-Semivolatiles</b>									
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
88-06-2	2,4,6-Trichlorophenol	ND	4.0	ug/L	1	10/08/15	B5J0502	8270	
120-83-2	2,4-Dichlorophenol	ND	10	ug/L	1	10/08/15	B5J0502	8270	
105-67-9	2,4-Dimethylphenol	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
51-28-5	2,4-Dinitrophenol	ND	25	ug/L	1	10/08/15	B5J0502	8270	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
95-51-2	2-Chloroaniline	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
91-58-7	2-Chloronaphthalene	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
95-57-8	2-Chlorophenol	ND	10	ug/L	1	10/08/15	B5J0502	8270	
14-52-1	2-Methyl-4,6-dinitrophenol	ND	20	ug/L	1	10/08/15	B5J0502	8270	
51-57-6	2-Methylnaphthalene	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
95-48-7	2-Methylphenol (o-Cresol)	ND	10	ug/L	1	10/08/15	B5J0502	8270	
88-74-4	2-Nitroaniline	ND	20	ug/L	1	10/08/15	B5J0502	8270	
88-75-5	2-Nitrophenol	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
108394,106445	3 & 4-Methylphenol	ND	20	ug/L	1	10/08/15	B5J0502	8270	
99-09-2	3-Nitroaniline	ND	20	ug/L	1	10/08/15	B5J0502	8270	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
59-50-7	4-Chloro-3-methyl-phenol	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
106-47-8	4-Chloroaniline	ND	10	ug/L	1	10/08/15	B5J0502	8270	
7005-72-3	4-Chlorodiphenylether	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
100-01-6	4-Nitroaniline	ND	20	ug/L	1	10/08/15	B5J0502	8270	
100-02-7	4-Nitrophenol	ND	25	ug/L	1	10/08/15	B5J0502	8270	
83-32-9	Acenaphthene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
208-96-8	Acenaphthylene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
62-53-3	Aniline	ND	4.0	ug/L	1	10/08/15	B5J0502	8270	
120-12-7	Anthracene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
103-33-3	Azobenzene	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
56-55-3	Benz[a]anthracene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
50-32-8	Benzo[a]pyrene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
205-99-2	Benzo[b]fluoranthene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
207-08-9	Benzo[k]fluoranthene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
100-51-6	Benzyl Alcohol	ND	50	ug/L	1	10/08/15	B5J0502	8270	
11-91-1	Bis(2-chloroethoxy)methane	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	



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ENVIRONMENTAL LABORATORY

P.O. Box 30270  
Lansing, MI 48909  
TEL: (517) 335-9800  
FAX: (517) 335-9600

Client ID: TMW-02 (13'-14') DUP

Lab ID: 1510021-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Semivolatiles</b>									
111-44-4	Bis(2-chloroethyl)ether	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
108-60-1	Bis(2-chloroisopropyl)ether	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
117-81-7	Bis(2-ethylhexyl)phthalate	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
86-74-8	Carbazole	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
218-01-9	Chrysene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
53-70-3	Dibenz[a,h]anthracene	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
132-64-9	Dibenzofuran	ND	4.0	ug/L	1	10/08/15	B5J0502	8270	
84-66-2	Diethylphthalate	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
131-11-3	Dimethyl phthalate	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
206-44-0	Fluoranthene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
86-73-7	Fluorene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
118-74-1	Hexachlorobenzene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
87-68-3	Hexachlorobutadiene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
77-47-4	Hexachlorocyclopentadiene	ND	10	ug/L	1	10/08/15	B5J0502	8270	
67-72-1	Hexachloroethane	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
78-59-1	Isophorone	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
121-69-7	N,N-dimethylaniline	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
91-20-3	Naphthalene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
98-95-3	Nitrobenzene	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
100-61-8	N-methylaniline	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
67-75-9	N-Nitrosodimethylamine	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
621-64-7	N-Nitrosodi-n-propylamine	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
86-30-6	N-Nitrosodiphenylamine	ND	2.0	ug/L	1	10/08/15	B5J0502	8270	
87-86-5	Pentachlorophenol	ND	20	ug/L	1	10/08/15	B5J0502	8270	
85-01-8	Phenanthrene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
108-95-2	Phenol	ND	5.0	ug/L	1	10/08/15	B5J0502	8270	
129-00-0	Pyrene	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
110-86-1	Pyridine	ND	20	ug/L	1	10/08/15	B5J0502	8270	
632-22-4	Tetramethylurea	ND	1.0	ug/L	1	10/08/15	B5J0502	8270	
Surrogate: 2,4,6-Tribromophenol			71.6 %	33.8-115		10/08/15	B5J0502	8270	
Surrogate: 2-Fluorobiphenyl			41.5 %	24.1-115		10/08/15	B5J0502	8270	
Surrogate: 2-Fluorophenol			18.1 %	10-115		10/08/15	B5J0502	8270	
Surrogate: Nitrobenzene-d5			40.8 %	17.8-115		10/08/15	B5J0502	8270	
Surrogate: Phenol-d6			10.9 %	10-115		10/08/15	B5J0502	8270	
Surrogate: p-Terphenyl-d14			66.1 %	41.8-115		10/08/15	B5J0502	8270	


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Client ID: TMW-02 (13'-14') DUP

Lab ID: 1510021-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
789-02-6	2,4'-DDT	ND	0.010	ug/L	1	10/08/15	B5I3014	8081/8082	
72-54-8	4,4'-DDD	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
72-55-9	4,4'-DDE	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
50-29-3	4,4'-DDT	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
319-84-6	a-BHC	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
5103-71-9	a-Chlordane	ND	0.010	ug/L	1	10/08/15	B5I3014	8081/8082	
309-00-2	Aldrin	ND	0.010	ug/L	1	10/08/15	B5I3014	8081/8082	
319-85-7	b-BHC	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
319-86-8	d-BHC	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
60-57-1	Dieldrin	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
959-98-8	Endosulfan I	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
33213-65-9	Endosulfan II	ND	0.030	ug/L	1	10/08/15	B5I3014	8081/8082	
1031-07-8	Endosulfan sulfate	ND	0.050	ug/L	1	10/08/15	B5I3014	8081/8082	
72-20-8	Endrin	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
7421-93-4	Endrin aldehyde	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	A08
53494-70-5	Endrin ketone	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
88-89-9	g-BHC (Lindane)	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
5103-74-2	g-Chlordane	ND	0.010	ug/L	1	10/08/15	B5I3014	8081/8082	
76-44-8	Heptachlor	ND	0.010	ug/L	1	10/08/15	B5I3014	8081/8082	
1024-57-3	Heptachlor epoxide	ND	0.010	ug/L	1	10/08/15	B5I3014	8081/8082	
87-82-1	Hexabromobenzene	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
72-43-5	Methoxychlor	ND	0.050	ug/L	1	10/08/15	B5I3014	8081/8082	
2385-85-5	Mirex	ND	0.020	ug/L	1	10/08/15	B5I3014	8081/8082	
59080-40-9	PBB (BP-6)	ND	0.050	ug/L	1	10/08/15	B5I3014	8081/8082	
8001-35-2	Toxaphene	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
Surrogate: Decachlorobiphenyl			61.9 %	30-150		10/08/15	B5I3014	8081/8082	
Surrogate: Tetrachloro-m-xylene			48.5 %	30-150		10/08/15	B5I3014	8081/8082	



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Client ID: TMW-02 (13'-14') DUP

Lab ID: 1510021-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-PCBs as Aroclors</b>									
12674-11-2	Aroclor 1016	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11104-28-2	Aroclor 1221	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11141-16-5	Aroclor 1232	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
53469-21-9	Aroclor 1242	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
12672-29-6	Aroclor 1248	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11097-69-1	Aroclor 1254	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11096-82-5	Aroclor 1260	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
37324-23-5	Aroclor 1262	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
11100-14-4	Aroclor 1268	ND	0.10	ug/L	1	10/08/15	B5I3014	8081/8082	
Surrogate: Decachlorobiphenyl			63.2 %	30-150		10/08/15	B5I3014	8081/8082	
Surrogate: Tetrachloro-m-xylene			49.2 %	30-150		10/08/15	B5I3014	8081/8082	
<b>Inorganics-General Chemistry</b>									
57-12-5	Total Cyanide	ND	0.005	mg/L	1	10/02/15	B5J0209	ASTM D7511-09	
<b>Inorganics-Metals</b>									
7440-36-0	Antimony	ND	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-38-2	Arsenic	6.1	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-39-3	Barium	310	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-41-7	Beryllium	ND	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-43-9	Cadmium	ND	0.2	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-47-3	Chromium	2.6	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-48-4	Cobalt	ND	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-50-8	Copper	3.3	1.0	ug/L	1	10/14/15	B5J0602	6020/200.8	
7439-89-6	Iron	7600	20	ug/L	1	10/16/15	B5J0602	6010/200.7	
7439-92-1	Lead	2.0	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7439-96-5	Manganese	230	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7439-97-6	Mercury	ND	0.2	ug/L	1	10/15/15	B5J1405	7470/245.1	
7439-98-7	Molybdenum	ND	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-02-0	Nickel	17	2.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7782-49-2	Selenium	ND	1.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-22-4	Silver	ND	0.2	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-28-0	Thallium	ND	2.0	ug/L	1	10/14/15	B5J0602	6020/200.8	
7440-62-2	Vanadium	5.3	2.0	ug/L	1	10/13/15	B5J0602	6020/200.8	
7440-66-6	Zinc	17	5.0	ug/L	1	10/13/15	B5J0602	6020/200.8	





# Analysis Request Sheet

Lab Work Order Number: **1510021** Project Name: **Tree Farm** Matrix: **WATER**

Site Code/Project Number: **MI300000196** AY: **16** CC Email 1: **DUCSAYT@MI.gov** Project TAT Days:   
 Dept-Division-District: **MDEQ/AND** Index: **44092** CC Email 2:   
 State Project Manager: **Teresa Ducsap** PCA: **30701** CC Email 3:   
 State Project Manager Email: **DUCSAYT@MI.gov** Project: **128** Overflow Lab Choice 1: **Trimatrix**   
 State Project Manager Phone: **517-284-5088** Phase: **19** Overflow Lab Choice 2:   
 Sample Collector: **Teresa Ducsap** Sample Collector Phone: **517-284-5088**   
 Contract Firm:   
 Contract Firm Primary Contact:   
 Primary Contact Phone:   
 Accept Analysis hold time codes:   
 Project Due Date:   
 Contract Firm:

Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments	Field Cond	Field D.O.	Field pH	Field Secchi	Field Temp
1	TMW-02 (13-14')	10-1-15	1325	10						
2	TMW-06 (20-21')	9-30-15	1315	1						
3	TMW-07 (17-18')	10-1-15	1500	1						
4	TMW-08 (19-20')	9-30-15	1345	1						
5	TMW-09 (12-13')	10-1-15	1730	1						
6	TMW-10 (6.5-7.5')	10-1-15	1640	10						
7	TMW-02 (13-14') DUP	10-1-15	1325	10						
8										
9										
10										

ORGANIC CHEMISTRY	MAD - DISSOLVED METALS	MA - TOTAL METALS	GENERAL CHEMISTRY
VOA - Volatile Organic Acids Volatiles - Full List 1 2 3 4 5 6 7 8 9 10 BTEX/MTBE/TMB only 1 2 3 4 5 6 7 8 9 10 Chlorinated only 1 2 3 4 5 6 7 8 9 10 GRO 1 2 3 4 5 6 7 8 9 10 1,4 Dioxane 1 2 3 4 5 6 7 8 9 10 METH - Methane, Ethane, Ethene Methane, Ethane, Ethene 1 2 3 4 5 6 7 8 9 10 ON - Pesticides, PCBs Pesticides & PCBs 1 2 3 4 5 6 7 8 9 10 Pesticides only 1 2 3 4 5 6 7 8 9 10 PCBs only 1 2 3 4 5 6 7 8 9 10 Toxaphene 1 2 3 4 5 6 7 8 9 10 Chlordane 1 2 3 4 5 6 7 8 9 10 BNA - Base Neutral Acids BNAs 1 2 3 4 5 6 7 8 9 10 Benzidines 1 2 3 4 5 6 7 8 9 10 PNAs only 1 2 3 4 5 6 7 8 9 10 BNs only 1 2 3 4 5 6 7 8 9 10 Acids only 1 2 3 4 5 6 7 8 9 10 Organic Specialty Requests Library search - Volatiles 1 2 3 4 5 6 7 8 9 10 Library search - SemiVols 1 2 3 4 5 6 7 8 9 10 Finger Print 1 2 3 4 5 6 7 8 9 10 DRO/ORO 1 2 3 4 5 6 7 8 9 10	Diss - Silver - Ag 1 2 3 4 5 6 7 8 9 10 Diss - Aluminum - Al 1 2 3 4 5 6 7 8 9 10 Diss - Arsenic - As 1 2 3 4 5 6 7 8 9 10 Diss - Boron - B 1 2 3 4 5 6 7 8 9 10 Diss - Barium - Ba 1 2 3 4 5 6 7 8 9 10 Diss - Beryllium - Be 1 2 3 4 5 6 7 8 9 10 Diss - Cadmium - Cd 1 2 3 4 5 6 7 8 9 10 Diss - Cobalt - Co 1 2 3 4 5 6 7 8 9 10 Diss - Chromium - Cr 1 2 3 4 5 6 7 8 9 10 Diss - Copper - Cu 1 2 3 4 5 6 7 8 9 10 Diss - Iron - Fe 1 2 3 4 5 6 7 8 9 10 Diss - Mercury - Hg 1 2 3 4 5 6 7 8 9 10 Diss - Lithium - Li 1 2 3 4 5 6 7 8 9 10 Diss - Manganese - Mn 1 2 3 4 5 6 7 8 9 10 Diss - Molybdenum - Mo 1 2 3 4 5 6 7 8 9 10 Diss - Nickel - Ni 1 2 3 4 5 6 7 8 9 10 Diss - Lead - Pb 1 2 3 4 5 6 7 8 9 10 Diss - Antimony - Sb 1 2 3 4 5 6 7 8 9 10 Diss - Selenium - Se 1 2 3 4 5 6 7 8 9 10 Diss - Strontium - Sr 1 2 3 4 5 6 7 8 9 10 Diss - Titanium - Ti 1 2 3 4 5 6 7 8 9 10 Diss - Thallium - Tl 1 2 3 4 5 6 7 8 9 10 Diss - Uranium - U 1 2 3 4 5 6 7 8 9 10 Diss - Vanadium - V 1 2 3 4 5 6 7 8 9 10 Diss - Zinc - Zn 1 2 3 4 5 6 7 8 9 10 Diss - Calcium - Ca 1 2 3 4 5 6 7 8 9 10 Diss - Potassium - K 1 2 3 4 5 6 7 8 9 10 Diss - Magnesium - Mg 1 2 3 4 5 6 7 8 9 10 Diss - Sodium - Na 1 2 3 4 5 6 7 8 9 10 Diss - Hardness - Ca, Mg 1 2 3 4 5 6 7 8 9 10 MD - Metals Dissolved Lab Filtration 1 2 3 4 5 6 7 8 9 10	Silver - Ag 1 2 3 4 5 6 7 8 9 10 Aluminum - Al 1 2 3 4 5 6 7 8 9 10 Arsenic - As 1 2 3 4 5 6 7 8 9 10 Boron - B 1 2 3 4 5 6 7 8 9 10 Barium - Ba 1 2 3 4 5 6 7 8 9 10 Beryllium - Be 1 2 3 4 5 6 7 8 9 10 Cadmium - Cd 1 2 3 4 5 6 7 8 9 10 Cobalt - Co 1 2 3 4 5 6 7 8 9 10 Chromium - Cr 1 2 3 4 5 6 7 8 9 10 Copper - Cu 1 2 3 4 5 6 7 8 9 10 Iron - Fe 1 2 3 4 5 6 7 8 9 10 Mercury - Hg 1 2 3 4 5 6 7 8 9 10 Lithium - Li 1 2 3 4 5 6 7 8 9 10 Manganese - Mn 1 2 3 4 5 6 7 8 9 10 Molybdenum - Mo 1 2 3 4 5 6 7 8 9 10 Nickel - Ni 1 2 3 4 5 6 7 8 9 10 Lead - Pb 1 2 3 4 5 6 7 8 9 10 Antimony - Sb 1 2 3 4 5 6 7 8 9 10 Selenium - Se 1 2 3 4 5 6 7 8 9 10 Strontium - Sr 1 2 3 4 5 6 7 8 9 10 Titanium - Ti 1 2 3 4 5 6 7 8 9 10 Thallium - Tl 1 2 3 4 5 6 7 8 9 10 Uranium - U 1 2 3 4 5 6 7 8 9 10 Vanadium - V 1 2 3 4 5 6 7 8 9 10 Zinc - Zn 1 2 3 4 5 6 7 8 9 10 Calcium - Ca 1 2 3 4 5 6 7 8 9 10 Potassium - K 1 2 3 4 5 6 7 8 9 10 Magnesium - Mg 1 2 3 4 5 6 7 8 9 10 Sodium - Na 1 2 3 4 5 6 7 8 9 10 Hardness - Ca, Mg 1 2 3 4 5 6 7 8 9 10 LHG - Low Level Mercury Mercury Low Level - Hg 1 2 3 4 5 6 7 8 9 10	GB Total Cyanide - CN 1 2 3 4 5 6 7 8 9 10 GB Amenable Cyanide - CN 1 2 3 4 5 6 7 8 9 10 GCN Available Cyanide - CN 1 2 3 4 5 6 7 8 9 10 CA Chlorophyll 1 2 3 4 5 6 7 8 9 10 GN Ortho Phosphate - OP 1 2 3 4 5 6 7 8 9 10 GN Nitrite - NO <sub>2</sub> 1 2 3 4 5 6 7 8 9 10 GN Nitrate - NO <sub>3</sub> (Calc.) 1 2 3 4 5 6 7 8 9 10 GN Suspended Solids - SS 1 2 3 4 5 6 7 8 9 10 GN Dissolved Solids - TDS 1 2 3 4 5 6 7 8 9 10 MN Diss Solids - TDS (Calc.) 1 2 3 4 5 6 7 8 9 10 GN Turbidity 1 2 3 4 5 6 7 8 9 10 MN Total Alkalinity 1 2 3 4 5 6 7 8 9 10 MN Bicarb/Carb Alkalinity (Includes Total Alkalinity) 1 2 3 4 5 6 7 8 9 10 MN Chloride - Cl 1 2 3 4 5 6 7 8 9 10 MN Fluoride - F 1 2 3 4 5 6 7 8 9 10 MN Sulfate - SO <sub>4</sub> 1 2 3 4 5 6 7 8 9 10 MN Chromium 6 - Cr+6 1 2 3 4 5 6 7 8 9 10 MN Conductivity 1 2 3 4 5 6 7 8 9 10 MN pH 1 2 3 4 5 6 7 8 9 10 GA Chem Oxyg Dem - COD 1 2 3 4 5 6 7 8 9 10 GA Diss Org Carbon - DOC (FF) (Field - Filtered & Preserved) 1 2 3 4 5 6 7 8 9 10 GN Diss Org Carbon - DOC (LF) (Lab - Filtered & Preserved) 1 2 3 4 5 6 7 8 9 10 GA Total Org Carbon - TOC 1 2 3 4 5 6 7 8 9 10 GA Ammonia - NH <sub>3</sub> 1 2 3 4 5 6 7 8 9 10 GA Nitrate+Nitrite - NO <sub>3</sub> +NO <sub>2</sub> 1 2 3 4 5 6 7 8 9 10 GA Kjeldahl Nitrogen - KN 1 2 3 4 5 6 7 8 9 10 GA Total Phosphorus - TP 1 2 3 4 5 6 7 8 9 10

Chain of Custody	Relinquished by	Received By	Date / Time
	Print Name & Org. <b>Teresa Ducsap, MDEQ</b>	<b>Kirby Shaw DEQ</b>	<b>10/2/15 0903</b>
	Signature: <i>Teresa Ducsap</i>	<i>Kirby Shaw</i>	
	Print Name & Org. <b>Teresa Ducsap</b>		
Signature: <i>Teresa Ducsap</i>			
Print Name & Org.			
Signature:			



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14 October 2015

Work Order: 1510022

Price: \$630.00

Teresa Ducsay  
MDEQ-RRD-LANSING  
525 W. Allegan Street  
Lansing, MI 48909  
RE: TREE FARM

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

George Krisztian  
Laboratory Director



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
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MDEQ-RRD-LANSING  
525 W. Allegan Street  
Lansing MI, 48909

Project: TREE FARM  
Site Code: MIB000000196  
Project Manager: Teresa Ducsay

**Reported:**  
10/14/2015

**Analytical Report for Samples**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
SGP-02	1510022-01	Air	10/01/2015	10/02/2015	
TMW-02 (13'-14')	1510022-02	Air	10/01/2015	10/02/2015	
SGP-07	1510022-03	Air	10/01/2015	10/02/2015	
TMW-07 (17'-18')	1510022-04	Air	10/01/2015	10/02/2015	
SGP-09	1510022-05	Air	10/01/2015	10/02/2015	
TMW-09 (12'-13')	1510022-06	Air	10/01/2015	10/02/2015	
SGP-10	1510022-07	Air	10/01/2015	10/02/2015	

**Notes and Definitions**

ND      Indicates compound analyzed for but not detected  
 RL      Reporting Limit  
 NA      Not Applicable



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TEL: (517) 335-9800  
FAX: (517) 335-9600

Client ID: SGP-02

Lab ID: 1510022-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Methane</b>									
74-84-0	Ethane	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-85-1	Ethylene	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-82-8	Methane	150	20	ppmv	1	10/06/15	B5J0613	8015	



DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
ENVIRONMENTAL LABORATORY

P.O. Box 30270  
Lansing, MI 48909  
TEL: (517) 335-9800  
FAX: (517) 335-9600

Client ID: TMW-02 (13'-14')

Lab ID: 1510022-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Methane</b>									
74-84-0	Ethane	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-85-1	Ethylene	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-82-8	Methane	ND	20	ppmv	1	10/06/15	B5J0613	8015	



Client ID: SGP-07

Lab ID: 1510022-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Methane</b>									
74-84-0	Ethane	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-85-1	Ethylene	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-82-8	Methane	ND	20	ppmv	1	10/06/15	B5J0613	8015	



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P.O. Box 30270  
Lansing, MI 48909  
TEL: (517) 335-9800  
FAX: (517) 335-9600

Client ID: TMW-09 (12'-13')

Lab ID: 1510022-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Methane</b>									
74-84-0	Ethane	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-85-1	Ethylene	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-82-8	Methane	7800	20	ppmv	1	10/06/15	B5J0613	8015	



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ENVIRONMENTAL LABORATORY

P.O. Box 30270  
Lansing, MI 48909  
TEL: (517) 335-9800  
FAX: (517) 335-9600

Client ID: SGP-10

Lab ID: 1510022-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
<b>Organics-Methane</b>									
74-84-0	Ethane	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-85-1	Ethylene	ND	20	ppmv	1	10/06/15	B5J0613	8015	
74-82-8	<b>Methane</b>	<b>210000</b>	20	ppmv	1	10/06/15	B5J0613	8015	





### Analysis Request Sheet

Lab Work Order Number <b>1510022</b>		Project Name <b>Tree Farm</b>			Matrix <b>AIR</b>	
Site Code/Project Number <b>MFB000000196</b>	AY <b>16</b>	CC Email 1 <b>DUCSAYT@MI.GOV</b>	Project TAT Days	Sample Collector <b>Teresa Ducsay</b>	Project Due Date	
Dept-Division-District <b>MDEQ/ABD</b>	Index <b>4409Z</b>	CC Email 2		Sample Collector Phone <b>517-284-5088</b>		
State Project Manager <b>Teresa Ducsay</b>	PCA <b>30701</b>	CC Email 3		Contract Firm		
State Project Manager Email <b>DUCSAYT@MI.GOV</b>	Project <b>128</b>	Overflow Lab Choice 1		Contract Firm Primary Contact		
State Project Manager Phone <b>517-284-5088</b>	Phase <b>19</b>	Overflow Lab Choice 2		Primary Contact Phone		
			Accept Analysis hold time codes			

Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments	Regulator ID	Canister/Bottle Vac Number
1	01 SGP-02	10/1/15	1115	1			
2	02 TMW-02 (13'-14')		1145	1	Water Sample		
3	03 SGP-07		0920	1			
4	04 TMW-07 (17'-18')		0940	1			
5	05 SGP-09		1020	1	<del>For Imple...</del>		
6	06 TMW-09 (12'-13')		1040	1	time 1020		
7	07 SGP-10		1010	1			
8							
9							
10							

<p><b>ORGANIC CHEMISTRY</b></p> <p>VOA - Volatile Organic Analysis</p> <p>Bottlevac <del>1 2 3 4 5 6 7</del> 8 9 10</p> <p>Canister - AQD 1 2 3 4 5 6 7 8 9 10</p> <p>Canister - RRD 1 2 3 4 5 6 7 8 9 10</p> <p>Tedlar - Volatiles 1 2 3 4 5 6 7 8 9 10</p> <p>METH - Methane, Ethane, Ethene</p> <p>Methane, Ethane, Ethene <del>1 2 3 4 5 6 7</del> 8 9 10</p>	<p>for Teresa Ducsay (cs)</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------

Chain of Custody	Relinquished by	Received By	Date / Time
	Print Name & Org. Signature: <b>Teresa Ducsay, MDEQ</b> <i>Teresa Ducsay</i>	<b>Malissa Smith</b> <i>MS</i>	<b>10/2/15 9:15</b>
	Print Name & Org. Signature:		
Print Name & Org. Signature:			



**APPENDIX C**

**PART 201 GENERIC CLEANUP CRITERIA  
AND SCREENING LEVELS**



**TABLE 1. GROUNDWATER: RESIDENTIAL AND NON-RESIDENTIAL  
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

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Acenaphthene	83329	1,300	3,800	38	4,200 (S)	4,200 (S)	4,240	ID
Acenaphthylene	208968	52	150	ID	3,900 (S)	3,900 (S)	3,930	ID
Acetaldehyde (I)	75070	950	2,700	130	1.10E+06	2.30E+06	1.00E+09	8.90E+06
Acetate	71501	4,200	12,000	(G)	ID	ID	ID	ID
Acetic acid	64197	4,200	12,000	(G)	NLV	NLV	6.00E+09	1.0E+9 (D)
Acetone (I)	67641	730	2,100	1,700	1.0E+9 (D,S)	1.0E+9 (D,S)	1.00E+09	1.50E+07
Acetonitrile	75058	140	400	NA	2.40E+07	4.50E+07	2.00E+08	2.10E+07
Acetophenone	98862	1,500	4,400	ID	6.1E+6 (S)	6.1E+6 (S)	6.10E+06	ID
Acrolein (I)	107028	120	330	NA	2,100	4,200	2.10E+08	6.70E+06
Acrylamide	79061	0.5 (A)	0.5 (A)	10 (X)	NLV	NLV	2.20E+09	NA
Acrylic acid	79107	3,900	11,000	NA	1.20E+07	2.80E+07	1.00E+09	1.0E+9 (D)
Acrylonitrile (I)	107131	2.6	11	2.0 (M); 1.2	34,000	1.90E+05	7.50E+07	6.40E+06
Alachlor	15972608	2.0 (A)	2.0 (A)	11 (X)	NLV	NLV	1.83E+05	ID
Aldicarb	116063	3.0 (A)	3.0 (A)	NA	NLV	NLV	6.00E+06	ID
Aldicarb sulfone	1646884	2.0 (A)	2.0 (A)	NA	NLV	NLV	7.80E+06	ID
Aldicarb sulfoxide	1646873	4.0 (A)	4.0 (A)	NA	NLV	NLV	2.80E+07	ID
Aldrin	309002	0.098	0.4	0.01 (M); 8.7E-6	180 (S)	180 (S)	180	ID
Aluminum (B)	7429905	50 (V)	50 (V)	NA	NLV	NLV	NA	ID
Ammonia	7664417	10,000 (N)	10,000 (N)	(CC)	3.20E+06	7.10E+06	5.30E+08	ID
t-Amyl methyl ether (TAME)	994058	190 (E)	190 (E)	NA	2.60E+05	5.70E+05	2.64E+06	NA
Aniline	62533	53	220	4	NLV	NLV	3.60E+07	NA
Anthracene	120127	43 (S)	43 (S)	ID	43 (S)	43 (S)	43.4	ID
Antimony	7440360	6.0 (A)	6.0 (A)	130 (X)	NLV	NLV	NA	ID
Arsenic	7440382	10 (A)	10 (A)	10	NLV	NLV	NA	ID
Asbestos (BB)	1332214	7.0E MFL (A)	7.0E MFL (A)	NA	NLV	NLV	NA	NA
Atrazine	1912249	3.0 (A)	3.0 (A)	7.3	NLV	NLV	70,000	ID
Azobenzene	103333	23	94	ID	6,400 (S)	6,400 (S)	6,400	ID
Barium (B)	7440393	2,000 (A)	2,000 (A)	(G)	NLV	NLV	NA	ID



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Benzene (I)	71432	5.0 (A)	5.0 (A)	200 (X)	5,600	35,000	1.75E+06	68,000
Benzdine	92875	0.3 (M); 0.0037	0.3 (M); 0.015	0.3 (M); 0.073	NLV	NLV	5.20E+05	ID
Benzo(a)anthracene (Q)	56553	2.1	8.5	ID	NLV	NLV	9.4	ID
Benzo(b)fluoranthene (Q)	205992	1.5 (S,AA)	1.5 (S,AA)	ID	ID	ID	1.5	ID
Benzo(k)fluoranthene (Q)	207089	1.0 (M); 0.8 (S)	1.0 (M); 0.8 (S)	NA	NLV	NLV	0.8	ID
Benzo(g,h,i)perylene	191242	1.0 (M); 0.26 (S)	1.0 (M); 0.26 (S)	ID	NLV	NLV	0.26	ID
Benzo(a)pyrene (Q)	50328	5.0 (A)	5.0 (A)	ID	NLV	NLV	1.62	ID
Benzoic acid	65850	32,000	92,000	NA	NLV	NLV	3.50E+06	ID
Benzyl alcohol	100516	10,000	29,000	NA	NLV	NLV	4.40E+07	ID
Benzyl chloride	100447	7.7	32	NA	12,000	77,000	4.90E+05	NA
Beryllium	7440417	4.0 (A)	4.0 (A)	(G)	NLV	NLV	NA	ID
bis(2-Chloroethoxy)ethane	112265	ID	ID	ID	NLV	NLV	1.89E+07	ID
bis(2-Chloroethyl)ether (I)	111444	2	8.3	1.0 (M); 0.79	38,000	2.10E+05	1.72E+07	1.7E+7 (S)
bis(2-Ethylhexyl)phthalate	117817	6.0 (A)	6.0 (A)	25	NLV	NLV	340	NA
Boron (B)	7440428	500 (F)	500 (F)	7,200 (X)	NLV	NLV	NA	ID
Bromate	15541454	10 (A)	10 (A)	40 (X)	NLV	NLV	38,000	ID
Bromobenzene (I)	108861	18	50	NA	1.80E+05	3.90E+05	4.13E+05	ID
Bromodichloromethane	75274	80 (A,W)	80 (A,W)	ID	4,800	37,000	6.74E+06	ID
Bromoform	75252	80 (A,W)	80 (A,W)	ID	4.70E+05	3.1E+6 (S)	3.10E+06	ID
Bromomethane	74839	10	29	35	4,000	9,000	1.45E+07	ID
n-Butanol (I)	71363	950	2,700	9,800 (X)	NLV	NLV	7.40E+07	4.70E+07
2-Butanone (MEK) (I)	78933	13,000	38,000	2,200	2.4E+8 (S)	2.4E+8 (S)	2.40E+08	ID
n-Butyl acetate	123864	550	1,600	NA	6.7E+6 (S)	6.7E+6 (S)	6.70E+06	2.50E+06
t-Butyl alcohol	75650	3,900	11,000	NA	1.0E+9 (D,S)	1.0E+9 (D,S)	1.00E+09	6.10E+07
Butyl benzyl phthalate	85687	1,200	2,700 (S)	67 (X)	NLV	NLV	2,690	ID
n-Butylbenzene	104518	80	230	ID	ID	ID	NA	ID
sec-Butylbenzene	135988	80	230	ID	ID	ID	NA	ID
t-Butylbenzene (I)	98066	80	230	ID	ID	ID	NA	ID



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Cadmium (B)	7440439	5.0 (A)	5.0 (A)	(G,X)	NLV	NLV	NA	ID
Camphene (I)	79925	ID	ID	NA	440	1,000	33,400	ID
Caprolactam	105602	5,800	17,000	NA	NLV	NLV	5.25E+09	NA
Carbaryl	63252	700	2,000	NA	ID	ID	1.26E+05	ID
Carbazole	86748	85	350	10 (M); 4.0	NLV	NLV	7,480	ID
Carbofuran	1563662	40 (A)	40 (A)	NA	NLV	NLV	7.00E+05	ID
Carbon disulfide (I,R)	75150	800	2,300	ID	2.50E+05	5.50E+05	1.19E+06	13,000
Carbon tetrachloride	56235	5.0 (A)	5.0 (A)	45 (X)	370	2,400	7.93E+05	ID
Chlordane (J)	57749	2.0 (A)	2.0 (A)	2.0 (M); 0.00025	56 (S)	56 (S)	56	ID
Chloride	16887006	2.5E+5 (E)	2.5E+5 (E)	(FF)	NLV	NLV	NA	ID
Chlorobenzene (I)	108907	100 (A)	100 (A)	25	2.10E+05	4.7E+5 (S)	4.72E+05	1.60E+05
p-Chlorobenzene sulfonic acid	98668	7,300	21,000	ID	ID	ID	NA	ID
1-Chloro-1,1-difluoroethane	75683	15,000	44,000	NA	3.9E+6 (S)	3.9E+6 (S)	3.90E+06	NA
Chloroethane	75003	430	1,700	1,100 (X)	5.7E+6 (S)	5.7E+6 (S)	5.74E+06	1.10E+05
2-Chloroethyl vinyl ether	110758	ID	ID	NA	ID	ID	1.50E+07	ID
Chloroform	67663	80 (A,W)	80 (A,W)	350	28,000	1.80E+05	7.92E+06	ID
Chloromethane (I)	74873	260	1,100	ID	8,600	45,000	6.34E+06	36,000
4-Chloro-3-methylphenol	59507	150	420	7.4	NLV	NLV	3.90E+06	ID
beta-Chloronaphthalene	91587	1,800	5,200	NA	ID	ID	6,740	ID
2-Chlorophenol	95578	45	130	18	4.90E+05	1.10E+06	2.20E+07	ID
o-Chlorotoluene (I)	95498	150	420	ID	2.20E+05	3.7E+5 (S)	3.73E+05	ID
Chlorpyrifos	2921882	22	63	2.0 (M); 0.002	2.9	6.6	1,120	ID
Chromium (III) (B,H)	16065831	100 (A)	100 (A)	(G,X)	NLV	NLV	NA	ID
Chromium (VI)	18540299	100 (A)	100 (A)	11	NLV	NLV	NA	ID
Chrysene (Q)	218019	1.6 (S)	1.6 (S)	ID	ID	ID	1.6	ID
Cobalt	7440484	40	100	100	NLV	NLV	NA	ID
Copper (B)	7440508	1,000 (E)	1,000 (E)	(G)	NLV	NLV	NA	ID
Cyanazine	21725462	2.3	9.4	56 (X)	NLV	NLV	1.70E+05	ID



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Cyanide (P,R)	57125	200 (A)	200 (A)	5.2	NLV	NLV	NA	ID
Cyclohexanone	108941	33,000	94,000	NA	1,500	3,300	2.30E+07	NA
Dacthal	1861321	73	210	NA	NLV	NLV	500	ID
Dalapon	75990	200 (A)	200 (A)	NA	NLV	NLV	5.02E+08	ID
4-4'-DDD	72548	9.1	37	NA	NLV	NLV	90	ID
4-4'-DDE	72559	4.3	15	NA	NLV	NLV	120	ID
4-4'-DDT	50293	3.6	10	0.02 (M); 1.1E-5	NLV	NLV	25	NA
Decabromodiphenyl ether	1163195	30 (S)	30 (S)	NA	30 (S)	30 (S)	30	ID
Di-n-butyl phthalate	84742	880	2,500	9.7	NLV	NLV	11,200	NA
Di(2-ethylhexyl) adipate	103231	400 (A)	400 (A)	ID	NLV	NLV	471	ID
Di-n-octyl phthalate	117840	130	380	ID	NLV	NLV	3,000	ID
Diacetone alcohol (I)	123422	ID	ID	NA	NLV	NLV	1.00E+09	1.0E+9 (S)
Diazinon	333415	1.3	3.8	1.0 (M); 0.004	NLV	NLV	68,800	NA
Dibenzo(a,h)anthracene (Q)	53703	2.0 (M); 0.21	2.0 (M); 0.85	ID	NLV	NLV	2.49	ID
Dibenzofuran	132649	ID	ID	4	10,000 (S)	10,000 (S)	10,000	ID
Dibromochloromethane	124481	80 (A,W)	80 (A,W)	ID	14,000	1.10E+05	2.60E+06	ID
Dibromochloropropane	96128	0.2 (A)	0.2 (A)	ID	220	1,200 (S)	1,230	NA
Dibromomethane	74953	80	230	NA	ID	ID	1.10E+07	ID
Dicamba	1918009	220	630	NA	NLV	NLV	4.50E+06	ID
1,2-Dichlorobenzene	95501	600 (A)	600 (A)	13	1.6E+5 (S)	1.6E+5 (S)	1.56E+05	NA
1,3-Dichlorobenzene	541731	6.6	19	28	18,000	41,000	1.11E+05	ID
1,4-Dichlorobenzene	106467	75 (A)	75 (A)	17	16,000	74,000 (S)	73,800	NA
3,3'-Dichlorobenzidine	91941	1.1	4.3	0.3 (M); 0.2	NLV	NLV	3,110	ID
Dichlorodifluoromethane	75718	1,700	4,800	ID	2.20E+05	3.0E+5 (S)	3.00E+05	ID
1,1-Dichloroethane	75343	880	2,500	740	1.00E+06	2.30E+06	5.06E+06	3.80E+05
1,2-Dichloroethane (I)	107062	5.0 (A)	5.0 (A)	360 (X)	9,600	59,000	8.52E+06	2.50E+06
1,1-Dichloroethylene (I)	75354	7.0 (A)	7.0 (A)	130	200	1,300	2.25E+06	97,000
cis-1,2-Dichloroethylene	156592	70 (A)	70 (A)	620	93,000	2.10E+05	3.50E+06	5.30E+05



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trans-1,2-Dichloroethylene	156605	100 (A)	100 (A)	1,500 (X)	85,000	2.00E+05	6.30E+06	2.30E+05
2,6-Dichloro-4-nitroaniline	99309	2,200	6,300	NA	NLV	NLV	7,000	ID
2,4-Dichlorophenol	120832	73	210	11	NLV	NLV	4.50E+06	ID
2,4-Dichlorophenoxyacetic acid	94757	70 (A)	70 (A)	220	NLV	NLV	6.80E+05	ID
1,2-Dichloropropane (I)	78875	5.0 (A)	5.0 (A)	230 (X)	16,000	36,000	2.80E+06	5.50E+05
1,3-Dichloropropene	542756	8.5	35	9.0 (X)	3,900	26,000	2.80E+06	1.30E+05
Dichlorovos	62737	1.6	6.7	NA	NLV	NLV	1.60E+07	NA
Dicyclohexyl phthalate	84617	ID	ID	NA	ID	ID	4,000	ID
Dieldrin	60571	0.11	0.43	0.02 (M); 6.5E-6	200 (S)	200 (S)	195	ID
Diethyl ether	60297	10 (E)	10 (E)	ID	6.1E+7 (S)	6.1E+7 (S)	6.10E+07	6.50E+05
Diethyl phthalate	84662	5,500	16,000	110	NLV	NLV	1.08E+06	NA
Diethylene glycol monobutyl ether	112345	88	250	NA	NLV	NLV	1.00E+09	ID
Diisopropyl ether	108203	30	86	ID	8,000 (S)	8,000 (S)	8,041	8,000 (S)
Diisopropylamine (I)	108189	5.6	16	NA	2.10E+07	3.7E+7 (S)	3.69E+07	4.60E+06
Dimethyl phthalate	131113	73,000	2.10E+05	NA	NLV	NLV	4.19E+06	NA
N,N-Dimethylacetamide	127195	180	520	4,100 (X)	NLV	NLV	1.00E+09	NA
N,N-Dimethylaniline	121697	16	46	NA	2.40E+05	1.3E+6 (S)	1.27E+06	NA
Dimethylformamide (I)	68122	700	2,000	NA	NLV	NLV	1.00E+09	ID
2,4-Dimethylphenol	105679	370	1,000	380	NLV	NLV	7.87E+06	ID
2,6-Dimethylphenol	576261	4.4	13	NA	NLV	NLV	6.14E+06	ID
3,4-Dimethylphenol	95658	10	29	25	NLV	NLV	4.93E+06	ID
Dimethylsulfoxide	67685	2.20E+05	6.30E+05	1.90E+05	NLV	NLV	1.66E+08	ID
2,4-Dinitrotoluene	121142	7.7	32	NA	NLV	NLV	2.70E+05	ID
Dinoseb	88857	7.0 (A)	7.0 (A)	1.0 (M); 0.48	NLV	NLV	52,000	ID
1,4-Dioxane (I)	123911	85	350	2,800 (X)	NLV	NLV	9.00E+08	1.40E+08
Diquat	85007	20 (A)	20 (A)	20 (M); 6.0	NLV	NLV	7.00E+05	ID
Dissolved oxygen (DO)	NA	ID	ID	(EE)	ID	ID	NA	NA
Diuron	330541	31	90	NA	NLV	NLV	37,300	ID





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Endosulfan (J)	115297	44	130	0.03 (M); 0.029	ID	ID	510	ID
Endothall	145733	100 (A)	100 (A)	NA	NLV	NLV	1.00E+08	ID
Endrin	72208	2.0 (A)	2.0 (A)	ID	NLV	NLV	250	ID
Epichlorohydrin (I)	106898	5.0 (M); 2.0 (A)	5.0 (M); 2.0 (A)	NA	3.20E+05	6.30E+05	6.60E+07	4.70E+07
Ethanol (I)	64175	1.90E+06	3.80E+06	ID	NLV	NLV	1.00E+09	9.70E+07
Ethyl acetate (I)	141786	6,600	19,000	NA	6.4E+7 (S)	6.4E+7 (S)	6.40E+07	4.20E+06
Ethyl-tert-butyl ether (ETBE)	637923	49 (E)	49 (E)	ID	2.90E+06	5.6E+6 (S)	5.63E+06	ID
Ethylbenzene (I)	100414	74 (E)	74 (E)	18	1.10E+05	1.7E+5 (S)	1.69E+05	43,000
Ethylene dibromide	106934	0.05 (A)	0.05 (A)	5.7 (X)	2,400	15,000	4.20E+06	ID
Ethylene glycol	107211	15,000	42,000	1.9E+5 (X)	NLV	NLV	1.00E+09	NA
Ethylene glycol monobutyl ether	111762	3,700	10,000	NA	2.90E+06	6.50E+06	2.24E+08	NA
Fluoranthene	206440	210 (S)	210 (S)	1.6	210 (S)	210 (S)	206	ID
Fluorene	86737	880	2,000 (S)	12	2,000 (S)	2,000 (S)	1,980	ID
Fluorine (soluble fluoride) (B)	7782414	2,000 (E)	2,000 (E)	ID	NLV	NLV	NA	ID
Formaldehyde	50000	1,300	3,800	120	63,000	3.60E+05	5.50E+08	ID
Formic acid (I,U)	64186	10,000	29,000	ID	7.70E+06	1.50E+07	1.00E+09	1.0E+9 (D)
1-Formylpiperidine	2591868	80	230	NA	ID	ID	NA	ID
Gentian violet	548629	15	63	NA	NLV	NLV	1.00E+06	ID
Glyphosate	1071836	700 (A)	700 (A)	NA	NLV	NLV	1.16E+07	ID
Heptachlor	76448	0.4 (A)	0.4 (A)	0.01 (M); 0.0018	180 (S)	180 (S)	180	ID
Heptachlor epoxide	1024573	0.2 (A)	0.2 (A)	ID	NLV	NLV	200	ID
n-Heptane	142825	2,700 (S)	2,700 (S)	NA	2,700 (S)	2,700 (S)	2,690	200
Hexabromobenzene	87821	0.17 (S); 20	0.17 (S); 58	ID	ID	ID	0.17	ID
Hexachlorobenzene (C-66)	118741	1.0 (A)	1.0 (A)	0.2 (M); 0.0003	440	3,000	6,200	ID
Hexachlorobutadiene (C-46)	87683	15	42	0.053	1,600	3,200 (S)	3,230	ID
alpha-Hexachlorocyclohexane	319846	0.43	1.7	ID	2,000 (S)	2,000 (S)	2,000	ID
beta-Hexachlorocyclohexane	319857	0.88	3.6	ID	NLV	NLV	240	ID
Hexachlorocyclopentadiene (C-56)	77474	50 (A)	50 (A)	ID	130	420	1,800	ID



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Hexachloroethane	67721	7.3	21	6.7 (X)	27,000	50,000 (S)	50,000	ID
n-Hexane	110543	3,000	8,600	NA	12,000 (S)	12,000 (S)	12,000	12,000 (S)
2-Hexanone	591786	1,000	2,900	ID	4.20E+06	8.70E+06	1.60E+07	NA
Indeno(1,2,3-cd)pyrene (Q)	193395	2.0 (M); 0.022 (S)	2.0 (M); 0.022 (S)	ID	NLV	NLV	0.022	ID
Iron (B)	7439896	300 (E)	300 (E)	NA	NLV	NLV	NA	ID
Isobutyl alcohol (I)	78831	2,300	6,700	NA	7.6E+7 (S)	7.6E+7 (S)	7.60E+07	ID
Isophorone	78591	770	3,100	1,300 (X)	NLV	NLV	1.20E+07	ID
Isopropyl alcohol (I)	67630	470	1,300	57,000 (X)	NLV	NLV	1.00E+09	6.00E+07
Isopropyl benzene	98828	800	2,300	28	56,000 (S)	56,000 (S)	56,000	29,000
Lead (B)	7439921	4.0 (L)	4.0 (L)	(G,X)	NLV	NLV	NA	ID
Lindane	58899	0.2 (A)	0.2 (A)	0.03 (M); 0.026	ID	ID	6,800	ID
Lithium (B)	7439932	170	350	440	NLV	NLV	NA	ID
Magnesium (B)	7439954	4.00E+05	1.10E+06	NA	NLV	NLV	NA	ID
Manganese (B)	7439965	50 (E)	50 (E)	(G,X)	NLV	NLV	NA	ID
Mercury (Total) (B,Z)	Varies	2.0 (A)	2.0 (A)	0.0013	56 (S)	56 (S)	56	ID
Methane	74828	ID	ID	NA	(K)	(K)	NA	(AA)
Methanol	67561	3,700	10,000	5.9E+5 (X)	2.9E+7 (S)	2.9E+7 (S)	2.90E+07	4.50E+06
Methoxychlor	72435	40 (A)	40 (A)	NA	ID	ID	45	ID
2-Methoxyethanol (I)	109864	7.3	21	NA	NLV	NLV	1.00E+09	ID
2-Methyl-4-chlorophenoxyacetic acid	94746	7.3	21	NA	NLV	NLV	9.24E+05	ID
2-Methyl-4,6-dinitrophenol	534521	20 (M); 2.6	20 (M); 7.3	NA	NLV	NLV	2.00E+05	ID
N-Methyl-morpholine (I)	109024	20	56	NA	NLV	NLV	1.00E+09	ID
Methyl parathion	298000	1.8	5.2	NA	NLV	NLV	50,000	ID
4-Methyl-2-pentanone (MIBK) (I)	108101	1,800	5,200	ID	2.0E+7 (S)	2.0E+7 (S)	2.00E+07	ID
Methyl-tert-butyl ether (MTBE)	1634044	40 (E)	40 (E)	7,100 (X)	4.7E+7 (S)	4.7E+7 (S)	4.68E+07	ID
Methylcyclopentane (I)	96377	ID	ID	NA	22,000	49,000	73,890	ID
4,4'-Methylene-bis-2-chloroaniline	101144	1.1	4.5	NA	NLV	NLV	14,000	ID
Methylene chloride	75092	5.0 (A)	5.0 (A)	1,500 (X)	2.20E+05	1.40E+06	1.70E+07	ID



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2-Methylnaphthalene	91576	260	750	19	25,000 (S)	25,000 (S)	24,600	ID
Methylphenols (J)	1319773	370	1,000	30 (M); 25	NLV	NLV	2.80E+07	NA
Metolachlor	51218452	240	990	15	NLV	NLV	5.30E+05	ID
Metribuzin	21087649	180	520	NA	ID	ID	1.20E+06	ID
Mirex	2385855	0.02 (M); 6.8E-6 (S)	0.02 (M); 6.8E-6 (S)	0.02 (M); 6.8E-6 (S)	ID	ID	6.80E-06	NA
Molybdenum (B)	7439987	73	210	3,200 (X)	NLV	NLV	NA	ID
Naphthalene	91203	520	1,500	11	31,000 (S)	31,000 (S)	31,000	NA
Nickel (B)	7440020	100 (A)	100 (A)	(G)	NLV	NLV	NA	ID
Nitrate (B,N)	14797558	10,000 (A,N)	10,000 (A,N)	ID	NLV	NLV	NA	ID
Nitrite (B,N)	14797650	1,000 (A,N)	1,000 (A,N)	NA	NLV	NLV	NA	ID
Nitrobenzene (I)	98953	3.4	9.6	180 (X)	2.80E+05	5.50E+05	2.09E+06	NA
2-Nitrophenol	88755	20	58	ID	NLV	NLV	2.50E+06	ID
n-Nitroso-di-n-propylamine	621647	5.0 (M); 0.19	5.0 (M); 0.77	NA	NLV	NLV	9.89E+06	ID
N-Nitrosodiphenylamine	86306	270	1,100	NA	NLV	NLV	35,100	ID
Oxamyl	23135220	200 (A)	200 (A)	NA	NLV	NLV	2.80E+08	ID
Oxo-hexyl acetate	88230357	73	210	NA	ID	ID	NA	ID
Pendimethalin	40487421	280 (S)	280 (S)	NA	NLV	NLV	275	ID
Pentachlorobenzene	608935	6.1	17	5.0 (M); 0.019	ID	ID	650	ID
Pentachloronitrobenzene	82688	32 (S)	32 (S)	NA	32 (S)	32 (S)	32	ID
Pentachlorophenol	87865	1.0 (A)	1.0 (A)	(G,X)	NLV	NLV	1.85E+06	ID
Pentane	109660	ID	ID	NA	38,000 (S)	38,000 (S)	38,200	340
2-Pentene (I)	109682	ID	ID	NA	ID	ID	2.03E+05	ID
pH	NA	6.5 to 8.5 (E)	6.5 to 8.5 (E)	6.5 to 9.0	ID	ID	NA	NA
Phenanthrene	85018	52	150	2.0 (M); 1.4	1,000 (S)	1,000 (S)	1,000	ID
Phenol	108952	4,400	13,000	450	NLV	NLV	8.28E+07	NA
Phenytoin	57410	17	68	89 (X)	NLV	NLV	32,000	ID
Phosphorus (Total)	7723140	63,000	2.40E+05	(EE)	NLV	NLV	NA	ID
Phthalic acid	88993	14,000	40,000	NA	NLV	NLV	1.42E+07	ID



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Phthalic anhydride	85449	15,000	44,000	NA	NLV	NLV	6.20E+06	NA
Picloram	1918021	500 (A)	500 (A)	46	NLV	NLV	4.30E+05	ID
Piperidine	110894	3.2	9.2	NA	NLV	NLV	1.00E+09	ID
Polybrominated biphenyls (J)	67774327	0.03	0.09	ID	NLV	NLV	1.66E+07	ID
Polychlorinated biphenyls (PCBs) (J,T)	1336363	0.5 (A)	0.5 (A)	0.2 (M); 2.6E-5	45 (S)	45 (S)	44.7	ID
Prometon	1610180	160	460	NA	NLV	NLV	7.50E+05	ID
Propachlor	1918167	95	270	NA	NLV	NLV	6.55E+05	ID
Propazine	139402	200	560	NA	NLV	NLV	8,600	ID
Propionic acid	79094	12,000	35,000	ID	NLV	NLV	1.00E+09	1.0E+9 (D)
Propyl alcohol (I)	71238	1,400	4,000	NA	NLV	NLV	1.00E+09	7.10E+07
n-Propylbenzene (I)	103651	80	230	ID	ID	ID	NA	ID
Propylene glycol	57556	1.50E+05	4.20E+05	2.90E+05	NLV	NLV	1.00E+09	ID
Pyrene	129000	140 (S)	140 (S)	ID	140 (S)	140 (S)	135	ID
Pyridine (I)	110861	20 (M); 7.3	21	NA	5,500	12,000	3.00E+05	81,000
Selenium (B)	7782492	50 (A)	50 (A)	5	NLV	NLV	NA	ID
Silver (B)	7440224	34	98	0.2 (M); 0.06	NLV	NLV	NA	ID
Silvex (2,4,5-TP)	93721	50 (A)	50 (A)	30	NLV	NLV	1.40E+05	ID
Simazine	122349	4.0 (A)	4.0 (A)	17	NLV	NLV	4,470	ID
Sodium	17341252	2.3E+S(HH)	3.50E+05	NA	NLV	NLV	NA	ID
Sodium azide	26628228	88	250	50 (M); 7.3	ID	ID	NA	ID
Strontium (B)	7440246	4,600	13,000	21,000	NLV	NLV	NA	ID
Styrene	100425	100 (A)	100 (A)	80 (X)	1.70E+05	3.1E+5 (S)	3.10E+05	1.40E+05
Sulfate	14808798	2.5E+5 (E)	2.5E+5 (E)	NA	NLV	NLV	NA	ID
Tebuthiuron	34014181	510	1,500	NA	NLV	NLV	2.50E+06	ID
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	(O)	(O)	(O)	NLV	NLV	0.00996	ID
1,2,4,5-Tetrachlorobenzene	95943	1,300 (S)	1,300 (S)	2.9 (X)	1,300 (S)	1,300 (S)	1,300	ID
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	3.0E-5 (A)	3.0E-5 (A)	1.0E-5 (M); 3.1E-9	NLV	NLV	0.019	ID
1,1,1,2-Tetrachloroethane	630206	77	320	ID	15,000	96,000	1.10E+06	ID



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1,1,2,2-Tetrachloroethane	79345	8.5	35	78 (X)	12,000	77,000	2.97E+06	ID
Tetrachloroethylene	127184	5.0 (A)	5.0 (A)	60 (X)	25,000	1.70E+05	2.00E+05	ID
Tetrahydrofuran	109999	95	270	11,000 (X)	6.90E+06	1.60E+07	1.00E+09	60,000
Tetranitromethane	509148	ID	ID	NA	580	3,200	85,000	ID
Thallium (B)	7440280	2.0 (A)	2.0 (A)	3.7 (X)	NLV	NLV	NA	ID
Toluene (I)	108883	790 (E)	790 (E)	270	5.3E+5 (S)	5.3E+5 (S)	5.26E+05	61,000
p-Toluidine	106490	15	62	NA	NLV	NLV	7.60E+06	NA
Total dissolved solids (TDS)	NA	5.0E+5 (E)	5.0E+5 (E)	(EE)	ID	ID	NA	NA
Toxaphene	8001352	3.0 (A)	3.0 (A)	1.0 (M); 6.8E-5	NLV	NLV	740	ID
Triallate	2303175	95	270	NA	ID	ID	4,000	ID
Tributylamine	102829	10	29	ID	14,000	32,000	75,400	ID
1,2,4-Trichlorobenzene	120821	70 (A)	70 (A)	99 (X)	3.0E+5 (S)	3.0E+5 (S)	3.00E+05	NA
1,1,1-Trichloroethane	71556	200 (A)	200 (A)	89	6.60E+05	1.3E+6 (S)	1.33E+06	ID
1,1,2-Trichloroethane	79005	5.0 (A)	5.0 (A)	330 (X)	17,000	1.10E+05	4.42E+06	NA
Trichloroethylene	79016	5.0 (A)	5.0 (A)	200 (X)	2,200	4,900	1.10E+06	ID
Trichlorofluoromethane	75694	2,600	7,300	NA	1.1E+6 (S)	1.1E+6 (S)	1.10E+06	ID
2,4,5-Trichlorophenol	95954	730	2,100	NA	NLV	NLV	1.20E+06	ID
2,4,6-Trichlorophenol	88062	120	470	5	NLV	NLV	8.00E+05	ID
1,2,3-Trichloropropane	96184	42	120	NA	8,300	18,000	1.90E+06	NA
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	1.7E+5 (S)	1.7E+5 (S)	32	1.7E+5 (S)	1.7E+5 (S)	1.70E+05	ID
Triethanolamine	102716	3,700	10,000	NA	NLV	NLV	1.00E+09	ID
Triethylene glycol	112276	4,300	12,000	NA	NLV	NLV	1.00E+06	ID
3-Trifluoromethyl-4-nitrophenol	88302	4,500	13,000	NA	NLV	NLV	5.00E+06	ID
Trifluralin	1582098	37	110	NA	ID	ID	8,100	ID
2,2,4-Trimethyl pentane	540841	ID	ID	NA	2,300 (S)	2,300 (S)	2,330	160
2,4,4-Trimethyl-2-pentene (I)	107404	ID	ID	NA	ID	ID	11,900	ID
1,2,4-Trimethylbenzene (I)	95636	63 (E)	63 (E)	17	56,000 (S)	56,000 (S)	55,890	56,000 (S)
1,3,5-Trimethylbenzene (I)	108678	72 (E)	72 (E)	45	61,000 (S)	61,000 (S)	61,150	ID



**TABLE 1. GROUNDWATER: RESIDENTIAL AND NON-RESIDENTIAL  
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per liter (ug/L). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (§324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based or solubility value, whichever is lower.

Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Nonresidential Groundwater Volatilization to Indoor Air Inhalation Criteria	Water Solubility	Flammability and Explosivity Screening Level
Triphenyl phosphate	115866	1,200	1,400 (S)	NA	NLV	NLV	1,430	ID
tris(2,3-Dibromopropyl)phosphate	126727	10 (M); 0.71	10 (M); 2.9	ID	4,700 (S)	4,700 (S)	4,700	ID
Urea	57136	ID	ID	NA	NLV	NLV	NA	ID
Vanadium	7440622	4.5	62	27	NLV	NLV	NA	ID
Vinyl acetate (I)	108054	640	1,800	NA	4.10E+06	8.90E+06	2.00E+07	1.80E+06
Vinyl chloride	75014	2.0 (A)	2.0 (A)	13 (X)	1,100	13,000	2.76E+06	33,000
White phosphorus (R)	12185103	0.11	0.31	NA	NLV	NLV	NA	ID
Xylenes (I)	1330207	280 (E)	280 (E)	41	1.9E+5 (S)	1.9E+5 (S)	1.86E+05	70,000
Zinc (B)	7440666	2,400	5,000 (E)	(G)	NLV	NLV	NA	ID



**TABLE 2. SOIL: RESIDENTIAL  
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (ug/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (§324.20120a(10)). In these cases, 2-numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based value.

Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Groundwater Protection		Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Acenaphthene	83329	NA	3.00E+05	8,700	1.90E+08	8.10E+07	8.10E+07	8.10E+07	1.40E+10	4.10E+07	NA
Acenaphthylene	208968	NA	5,900	ID	1.60E+06	2.20E+06	2.20E+06	2.20E+06	2.30E+09	1.60E+06	NA
Acetaldehyde (I)	75070	NA	19,000	2,600	2.20E+05	1.70E+05	1.70E+05	2.80E+05	6.00E+08	2.90E+07	1.10E+08
Acetate	71501	NA	ID	(G)	ID	ID	ID	ID	ID	ID	ID
Acetic acid	64197	NA	84,000	(G)	NLV	NLV	NLV	NLV	1.70E+10	1.30E+08	6.50E+08
Acetone (I)	67641	NA	15,000	34,000	2.9E+8 (C)	1.30E+08	1.30E+08	1.90E+08	3.90E+11	2.30E+07	1.10E+08
Acetonitrile	75058	NA	2,800	NA	4.80E+06	1.60E+06	1.60E+06	2.10E+06	4.00E+09	4.30E+06	2.20E+07
Acetophenone	98862	NA	30,000	ID	1.2E+8 (C)	4.40E+07	4.40E+07	4.40E+07	3.30E+10	4.7E+7 (C)	1.10E+06
Acrolein (I)	107028	NA	2,400	NA	410	310	310	610	1.30E+06	3.60E+06	2.30E+07
Acrylamide	79061	NA	10	200 (X)	NLV	NLV	NLV	NLV	2.40E+06	1,900	NA
Acrylic acid	79107	NA	78,000	NA	2.40E+06	1.90E+05	2.30E+05	2.30E+05	6.70E+07	3.5E+7 (DD)	1.10E+08
Acrylonitrile (I)	107131	NA	100 (M); 52	100 (M); 40	6,600	5,000	5,100	10,000	4.60E+07	16,000	8.30E+06
Alachlor	15972608	NA	52	290 (X)	NLV	NLV	NLV	NLV	ID	93,000	NA
Aldicarb	116063	NA	60	NA	NLV	NLV	NLV	NLV	ID	2.30E+05	NA
Aldicarb sulfone	1646884	NA	200 (M); 40	NA	NLV	NLV	NLV	NLV	ID	2.50E+05	NA
Aldicarb sulfoxide	1646873	NA	200(M); 80	NA	NLV	NLV	NLV	NLV	ID	2.90E+05	NA
Aldrin	309002	NA	NLL	NLL	1.30E+06	58,000	58,000	58,000	6.40E+05	1,000	NA
Aluminum (B)	7429905	6.90E+06	1,000	NA	NLV	NLV	NLV	NLV	ID	5.0E+7 (DD)	NA
Ammonia	7664417	NA	ID	(CC)	ID	ID	ID	ID	6.70E+09	ID	1.00E+07
t-Amyl methyl ether (TAME)	994058	NA	3,900	NA	58,000	3.40E+05	7.60E+05	1.80E+06	4.10E+09	2.9E+7 (C)	4.40E+05
Aniline	62533	NA	1,100	330 (M); 80	NLV	NLV	NLV	NLV	6.70E+07	3.30E+05	4.50E+06
Anthracene	120127	NA	41,000	ID	1.0E+9 (D)	1.40E+09	1.40E+09	1.40E+09	6.70E+10	2.30E+08	NA
Antimony	7440360	NA	4,300	94,000 (X)	NLV	NLV	NLV	NLV	1.30E+07	1.80E+05	NA
Arsenic	7440382	5,800	4,600	4,600	NLV	NLV	NLV	NLV	7.20E+05	7,600	NA
Asbestos (BB)	1332214	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.0E+7 (M); 68,000	ID	NA
Atrazine	1912249	NA	60	150	NLV	NLV	NLV	NLV	ID	71,000 (DD)	NA
Azobenzene	103333	NA	4,200	ID	6.10E+06	6.30E+05	6.30E+05	6.30E+05	1.00E+08	1.40E+05	NA



**TABLE 2. SOIL: RESIDENTIAL  
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (ug/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (§324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based value.

Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Groundwater Protection		Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Barium (B)	7440393	75,000	1.30E+06	(G)	NLV	NLV	NLV	NLV	3.30E+08	3.70E+07	NA
Benzene (I)	71432	NA	100	4,000 (X)	1,600	13,000	34,000	79,000	3.80E+08	1.80E+05	4.00E+05
Benzidine	92875	NA	1,000 (M); 6.0	1,000 (M); 6.0	NLV	NLV	NLV	NLV	46,000	1,000 (M); 23	NA
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	ID	ID	ID	ID	ID	20,000	NA
Benzo(k)fluoranthene (Q)	207089	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	2.00E+05	NA
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLV	NLV	NLV	NLV	8.00E+08	2.50E+06	NA
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.50E+06	2,000	NA
Benzoic acid	65850	NA	6.40E+05	NA	NLV	NLV	NLV	NLV	ID	9.90E+08	NA
Benzyl alcohol	100516	NA	2.00E+05	NA	NLV	NLV	NLV	NLV	3.30E+11	3.2E+8 (C)	5.80E+06
Benzyl chloride	100447	NA	150	NA	6,300	14,000	14,000	17,000	6.20E+07	48,000	2.30E+05
Beryllium	7440417	NA	51,000	(G)	NLV	NLV	NLV	NLV	1.30E+06	4.10E+05	NA
bis(2-Chloroethoxy)ethane	112265	NA	ID	ID	NLV	NLV	NLV	NLV	ID	ID	2.70E+06
bis(2-Chloroethyl)ether (I)	111444	NA	100	100 (M); 20	8,300	3,800	3,800	3,800	9.40E+06	13,000	2.20E+06
bis(2-Ethylhexyl)phthalate	117817	NA	NLL	NLL	NLV	NLV	NLV	NLV	7.00E+08	2.80E+06	1.00E+07
Boron (B)	7440428	NA	10,000	1.4E+5 (X)	NLV	NLV	NLV	NLV	ID	4.8E+7 (DD)	NA
Bromate	15541454	NA	200	800 (X)	NLV	NLV	NLV	NLV	ID	17,000	NA
Bromobenzene (I)	108861	NA	550	NA	3.10E+05	4.50E+05	4.50E+05	4.50E+05	5.30E+08	5.40E+05	7.60E+05
Bromodichloromethane	75274	NA	1,600 (W)	ID	1,200	9,100	9,700	19,000	8.40E+07	1.10E+05	1.50E+06
Bromoform	75252	NA	1,600 (W)	ID	1.50E+05	9.00E+05	9.00E+05	9.00E+05	2.80E+09	8.20E+05	8.70E+05
Bromomethane	74839	NA	200	700	860	11,000	57,000	1.40E+05	3.30E+08	3.20E+05	2.20E+06
n-Butanol (I)	71363	NA	19,000	2.00E+05	NLV	NLV	NLV	NLV	2.30E+10	2.9E+7 (C)	8.70E+06
2-Butanone (MEK) (I)	78933	NA	2.60E+05	44,000	5.4E+7 (C)	2.90E+07	2.90E+07	3.50E+07	6.70E+10	1.2E+8 (C, DD)	2.70E+07
n-Butyl acetate	123864	NA	11,000	NA	5.6E+7 (C)	1.10E+08	2.60E+08	3.20E+08	4.70E+11	1.7E+7 (C)	1.10E+06
t-Butyl alcohol	75650	NA	78,000	NA	3.1E+8 (C)	9.70E+07	2.00E+08	2.00E+08	1.30E+11	1.2E+8 (C)	1.10E+08
Butyl benzyl phthalate	85687	NA	2.2E+6 (C)	1.2E+5 (X)	NLV	NLV	NLV	NLV	4.70E+10	3.6E+7 (C)	3.10E+05
n-Butylbenzene	104518	NA	1,600	ID	ID	ID	ID	ID	2.00E+09	2.50E+06	1.00E+07





**TABLE 2. SOIL: RESIDENTIAL**  
**PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (ug/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (§324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based value.

Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Groundwater Protection		Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
sec-Butylbenzene	135988	NA	1,600	ID	ID	ID	ID	ID	4.00E+08	2.50E+06	1.00E+07
t-Butylbenzene (I)	98066	NA	1,600	ID	ID	ID	ID	ID	6.70E+08	2.50E+06	1.00E+07
Cadmium (B)	7440439	1,200	6,000	(G,X)	NLV	NLV	NLV	NLV	1.70E+06	5.50E+05	NA
Camphene (I)	79925	NA	ID	NA	3,700	1.50E+05	9.10E+05	2.20E+06	5.30E+09	ID	NA
Caprolactam	105602	NA	1.20E+05	NA	NLV	NLV	NLV	NLV	6.70E+08	5.3E+7 (DD)	NA
Carbaryl	63252	NA	14,000	NA	ID	ID	ID	ID	ID	2.20E+07	NA
Carbazole	86748	NA	9,400	1,100	NLV	NLV	NLV	NLV	6.20E+07	5.30E+05	NA
Carbofuran	1563662	NA	800	NA	NLV	NLV	NLV	NLV	ID	1.10E+06	NA
Carbon disulfide (I,R)	75150	NA	16,000	ID	76,000	1.30E+06	7.90E+06	1.90E+07	4.70E+10	7.2E+6 (C, DD)	2.80E+05
Carbon tetrachloride	56235	NA	100	900 (X)	190	3,500	12,000	28,000	1.30E+08	96,000	3.90E+05
Chlordane (J)	57749	NA	NLL	NLL	1.10E+07	1.20E+06	1.20E+06	1.20E+06	3.10E+07	31,000	NA
Chloride	16887006	NA	5.00E+06	(X)	NLV	NLV	NLV	NLV	ID	5.0E+5 (F)	NA
Chlorobenzene (I)	108907	NA	2,000	500	1.20E+05	7.70E+05	9.90E+05	2.10E+06	4.70E+09	4.3E+6 (C)	2.60E+05
p-Chlorobenzene sulfonic acid	98668	NA	1.50E+05	ID	ID	ID	ID	ID	ID	2.30E+08	ID
1-Chloro-1,1-difluoroethane	75683	NA	3.00E+05	NA	2.9E+6 (C)	7.90E+07	5.60E+08	1.40E+09	3.30E+12	4.7E+8 (C)	9.60E+05
Chloroethane	75003	NA	8,600	22,000 (X)	2.9E+6 (C)	3.00E+07	1.20E+08	2.80E+08	6.70E+11	2.6E+6 (C)	9.50E+05
2-Chloroethyl vinyl ether	110758	NA	ID	NA	ID	ID	ID	ID	ID	ID	1.90E+06
Chloroform	67663	NA	1,600 (W)	7,000	7,200	45,000	1.20E+05	2.70E+05	1.30E+09	1.20E+06	1.50E+06
Chloromethane (I)	74873	NA	5,200	ID	2,300	40,000	4.10E+05	1.00E+06	4.90E+09	1.6E+6 (C)	1.10E+06
4-Chloro-3-methylphenol	59507	NA	5,800	280	NLV	NLV	NLV	NLV	ID	4.50E+06	NA
beta-Chloronaphthalene	91587	NA	6.20E+05	NA	ID	ID	ID	ID	ID	5.60E+07	NA
2-Chlorophenol	95578	NA	900	360	4.30E+05	9.60E+05	9.80E+05	9.60E+05	1.20E+09	1.40E+06	1.90E+07
o-Chlorotoluene (I)	95498	NA	3,300	ID	2.70E+05	1.20E+06	2.90E+06	6.30E+06	4.70E+09	4.5E+6 (C)	5.00E+05
Chlorpyrifos	2921882	NA	17,000	1,500	130	4,600	23,000	55,000	1.30E+08	1.10E+07	NA
Chromium (III) (B,H)	16065831	18,000 (total)	1.0E+9 (D)	(G,X)	NLV	NLV	NLV	NLV	3.30E+08	7.90E+08	NA
Chromium (VI)	18540299	NA	30,000	3,300	NLV	NLV	NLV	NLV	2.60E+05	2.50E+06	NA
Chrysene (Q)	218019	NA	NLL	NLL	ID	ID	ID	ID	ID	2.00E+06	NA



**TABLE 2. SOIL: RESIDENTIAL**  
**PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (ug/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (§324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based value.

Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Groundwater Protection		Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Cobalt	7440484	6,800	800	2,000	NLV	NLV	NLV	NLV	1.30E+07	2.60E+06	NA
Copper (B)	7440508	32,000	5.80E+06	(G)	NLV	NLV	NLV	NLV	1.30E+08	2.00E+07	NA
Cyanazine	21725462	NA	200	1,100 (X)	NLV	NLV	NLV	NLV	ID	14,000	NA
Cyanide (P,R)	57125	390 (total)	4,000	100	NLV	NLV	NLV	NLV	2.50E+05	12,000	NA
Cyclohexanone	108941	NA	5.20E+06	NA	17,000	1.00E+06	1.10E+07	2.70E+07	6.70E+10	1.0E+9 (C,D)	2.20E+08
Dacthal	1861321	NA	50,000	NA	NLV	NLV	NLV	NLV	ID	2.30E+06	NA
Dalapon	75990	NA	4,000	NA	NLV	NLV	NLV	NLV	ID	1.90E+07	5.90E+07
4,4'-DDD	72548	NA	NLL	NLL	NLV	NLV	NLV	NLV	4.40E+07	95,000	NA
4,4'-DDE	72559	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.20E+07	45,000	NA
4,4'-DDT	50293	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.20E+07	57,000	NA
Decabromodiphenyl ether	1163195	NA	1.40E+05	NA	1.0E+9 (D)	8.60E+07	8.60E+07	8.60E+07	2.30E+09	3.80E+06	NA
Di-n-butyl phthalate	84742	NA	9.6E+5 (C)	11,000	NLV	NLV	NLV	NLV	3.30E+09	2.7E+7 (C)	7.60E+05
Di(2-ethylhexyl) adipate	103231	NA	1.3E+7 (C)	ID	NLV	NLV	NLV	NLV	9.20E+09	1.5E+7 (C, DD)	9.60E+05
Di-n-octyl phthalate	117840	NA	1.00E+08	ID	NLV	NLV	NLV	NLV	3.10E+10	6.90E+06	1.40E+08
Diacetone alcohol (I)	123422	NA	ID	NA	NLV	NLV	NLV	NLV	1.60E+11	ID	1.10E+08
Diazinon	333415	NA	95	72	NLV	NLV	NLV	NLV	ID	12,000 (DD)	3.10E+05
Dibenzo(a,h)anthracene (Q)	53703	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA
Dibenzofuran	132649	NA	ID	1,700	2.00E+06	1.30E+05	1.30E+05	1.30E+05	6.70E+06	ID	NA
Dibromochloromethane	124481	NA	1,600 (W)	ID	3,900	24,000	24,000	33,000	1.30E+08	1.10E+05	6.10E+05
Dibromochloropropane	96128	NA	10 (M); 4.0	ID	220	260	260	260	5.60E+05	4,400 (C)	1,200
Dibromomethane	74953	NA	1,600	NA	ID	ID	ID	ID	ID	2.5E+6 (C)	2.00E+06
Dicamba	1918009	NA	4,400	NA	NA	NLV	NLV	NLV	ID	3.40E+06	NA
1,2-Dichlorobenzene	95501	NA	14,000	280	1.1E+7 (C)	3.90E+07	3.90E+07	5.20E+07	1.00E+11	1.9E+7 (C)	2.10E+05
1,3-Dichlorobenzene	541731	NA	170	680	26,000	79,000	79,000	1.10E+05	2.00E+08	2.0E+5 (C)	1.70E+05
1,4-Dichlorobenzene	106467	NA	1,700	360	19,000	77,000	77,000	1.10E+05	4.50E+08	4.00E+05	NA
3,3'-Dichlorobenzidine	91941	NA	2,000 (M); 28	2,000 (M); 7.4	NLV	NLV	NLV	NLV	6.50E+06	6,600	NA
Dichlorodifluoromethane	75718	NA	95,000	ID	9.00E+05	5.30E+07	5.50E+08	1.40E+09	3.30E+12	5.2E+7 (C)	1.00E+06



**TABLE 2. SOIL: RESIDENTIAL**  
**PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

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			Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
1,1-Dichloroethane	75343	NA	18,000	15,000	2.30E+05	2.10E+06	5.90E+06	1.40E+07	3.30E+10	2.7E+7 (C)	8.90E+05
1,2-Dichloroethane (I)	107062	NA	100	7,200 (X)	2,100	6,200	11,000	26,000	1.20E+08	91,000	1.20E+06
1,1-Dichloroethylene (I)	75354	NA	140	2,600	62	1,100	5,300	13,000	6.20E+07	2.00E+05	5.70E+05
cis-1,2-Dichloroethylene	156592	NA	1,400	12,000	22,000	1.80E+05	4.20E+05	9.90E+05	2.30E+09	2.5E+6 (C)	6.40E+05
trans-1,2-Dichloroethylene	156605	NA	2,000	30,000 (X)	23,000	2.80E+05	8.30E+05	2.00E+06	4.70E+09	3.8E+6 (C)	1.40E+06
2,6-Dichloro-4-nitroaniline	99309	NA	44,000	NA	NLV	NLV	NLV	NLV	ID	6.80E+07	NA
2,4-Dichlorophenol	120832	NA	1,500	330 (M); 220	NLV	NLV	NLV	NLV	5.10E+09	6.6E+5 (DD)	1.80E+06
2,4-Dichlorophenoxy acetic acid	94757	NA	1,400	4,400	NLV	NLV	NLV	NLV	6.70E+09	2.50E+06	NA
1,2-Dichloropropane (I)	78875	NA	100	4,600 (X)	4,000	25,000	50,000	1.10E+05	2.70E+08	1.40E+05	5.50E+05
1,3-Dichloropropene	542756	NA	170	180 (X)	1,000	18,000	68,000	1.60E+05	7.80E+08	10,000	6.20E+05
Dichlorovos	62737	NA	50 (M); 32	NA	NLV	NLV	NLV	NLV	3.30E+07	10,000	2.20E+06
Dicyclohexyl phthalate	84617	NA	ID	NA	ID	ID	ID	ID	ID	ID	NA
Dieldrin	60571	NA	NLL	NLL	1.40E+05	19,000	19,000	19,000	6.80E+05	1,100	NA
Diethyl ether	60297	NA	200	ID	2.8E+7 (C)	8.50E+07	1.50E+08	3.40E+08	8.00E+11	1.1E+8 (C)	7.40E+06
Diethyl phthalate	84662	NA	1.10E+05	2,200	NLV	NLV	NLV	NLV	3.30E+09	1.7E+8 (C)	7.40E+05
Diethylene glycol monobutyl ether	112345	NA	1,800	NA	NLV	NLV	NLV	NLV	1.30E+09	2.70E+06	1.10E+08
Diisopropyl ether	108203	NA	600	ID	6.7E+5 (C)	3.40E+05	7.60E+05	1.80E+06	4.10E+09	9.2E+5 (C)	1,300
Diisopropylamine (I)	108189	NA	110	NA	5.50E+06	6.20E+06	6.20E+06	7.30E+06	1.30E+10	1.70E+05	6.70E+06
Dimethyl phthalate	131113	NA	1.5E+6 (C)	NA	NLV	NLV	NLV	NLV	3.30E+09	1.0E+9 (C,D)	7.90E+05
N,N-Dimethylacetamide	127195	NA	3,600	82,000 (X)	NLV	NLV	NLV	NLV	ID	5.60E+06	1.10E+08
N,N-Dimethylaniline	121697	NA	320	NA	1.70E+05	1.50E+05	1.50E+05	1.50E+05	2.60E+08	5.00E+05	8.00E+05
Dimethylformamide (I)	68122	NA	14,000	NA	NLV	NLV	NLV	NLV	2.00E+09	2.20E+07	1.10E+08
2,4-Dimethylphenol	105679	NA	7,400	7,600	NLV	NLV	NLV	NLV	4.70E+09	1.10E+07	NA
2,6-Dimethylphenol	576261	NA	330 (M); 88	NA	NLV	NLV	NLV	NLV	1.30E+08	1.40E+05	NA
3,4-Dimethylphenol	95658	NA	330 (M); 200	500	NLV	NLV	NLV	NLV	2.30E+08	3.20E+05	NA
Dimethylsulfoxide	67685	NA	4.40E+06	3.80E+06	NLV	NLV	NLV	NLV	1.30E+09	1.0E+9 (C,D)	1.80E+07
2,4-Dinitrotoluene	121142	NA	430	NA	NLV	NLV	NLV	NLV	1.60E+07	48,000	NA



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Dinoseb	88857	NA	300	200 (M); 43	NLV	NLV	NLV	NLV	2.70E+08	66,000 (DD)	1.40E+05
1,4-Dioxane (I)	123911	NA	1,700	56,000 (X)	NLV	NLV	NLV	NLV	5.70E+08	5.30E+05	9.70E+07
Diquat	85007	NA	400	400	NLV	NLV	NLV	NLV	ID	5.00E+05	NA
Diuron	330541	NA	620	NA	NLV	NLV	NLV	NLV	4.70E+08	9.70E+05	NA
Endosulfan (J)	115297	NA	NLL	NLL	ID	ID	ID	ID	ID	1.40E+06	NA
Endothall	145733	NA	NLL	NLL	NLV	NLV	NLV	NLV	2.30E+09	3.80E+06	NA
Endrin	72208	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	65,000	NA
Epichlorohydrin (I)	106898	NA	100	NA	64,000	31,000	31,000	35,000	6.70E+07	8,900	7.30E+06
Ethanol (I)	64175	NA	3.80E+07	ID	NLV	NLV	NLV	NLV	1.30E+12	1.0E+9 (C, D, DD)	1.10E+08
Ethyl acetate (I)	141786	NA	1.30E+05	NA	3.8E+7 (C)	4.90E+07	4.90E+07	9.80E+07	2.10E+11	2.0E+8 (C)	7.50E+06
Ethyl-tert-butyl ether (ETBE)	637923	NA	980	ID	5.40E+05	1.90E+06	4.50E+06	1.10E+07	2.50E+10	ID	6.50E+05
Ethylbenzene (I)	100414	NA	1,500	360	87,000	7.20E+05	1.00E+06	2.20E+06	1.00E+10	2.2E+7 (C)	1.40E+05
Ethylene dibromide	106934	NA	20 (M); 1.0	110 (X)	670	1,700	1,700	3,300	1.40E+07	92	8.90E+05
Ethylene glycol	107211	NA	3.00E+05	3.8E+6 (X)	NLV	NLV	NLV	NLV	6.70E+10	4.5E+8 (C)	1.10E+08
Ethylene glycol monobutyl ether	111762	NA	74,000	NA	7.40E+05	1.80E+07	1.50E+08	3.60E+08	8.70E+11	1.1E+8 (C)	4.10E+07
Fluoranthene	206440	NA	7.30E+05	5,500	1.0E+9 (D)	7.40E+08	7.40E+08	7.40E+08	9.30E+09	4.60E+07	NA
Fluorene	86737	NA	3.90E+05	5,300	5.80E+08	1.30E+08	1.30E+08	1.30E+08	9.30E+09	2.70E+07	NA
Fluorine (soluble fluoride) (B)	7782414	NA	40,000	ID	NLV	NLV	NLV	NLV	ID	9.0E+6 (DD)	NA
Formaldehyde	50000	NA	26,000	2,400	12,000	13,000	23,000	52,000	2.40E+08	4.10E+07	6.00E+07
Formic acid (I,U)	64186	NA	2.00E+05	ID	1.50E+06	2.10E+05	1.40E+05	1.40E+05	1.30E+08	3.2E+8 (C)	1.10E+08
1-Formylpiperidine	2591868	NA	1,600	NA	ID	ID	ID	ID	ID	2.50E+06	1.00E+07
Genian violet	548629	NA	300	NA	NLV	NLV	NLV	NLV	ID	96,000	NA
Glyphosate	1071836	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.1E+7 (DD)	NA
Heptachlor	76448	NA	NLL	NLL	3.50E+05	62,000	62,000	62,000	2.40E+06	5,600	NA
Heptachlor epoxide	1024573	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.20E+06	3,100	NA
n-Heptane	142825	NA	4.6E+7 (C)	NA	1.5E+6 (C)	2.10E+07	4.40E+07	1.00E+08	2.30E+11	9.9E+8 (C)	2.40E+05
Hexabromobenzene	87821	NA	5,400	ID	ID	ID	ID	ID	ID	1.10E+06	NA



**TABLE 2. SOIL: RESIDENTIAL**  
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Hexachlorobenzene (C-66)	118741	NA	1,800	350	41,000	17,000	17,000	17,000	6.80E+06	8,900	NA
Hexachlorobutadiene (C-46)	87683	NA	26,000	91	1.30E+05	1.30E+05	1.30E+05	1.30E+05	1.40E+08	1.00E+05	3.50E+05
alpha-Hexachlorocyclohexane	319846	NA	18	ID	30,000	12,000	22,000	25,000	1.70E+06	2,600	NA
beta-Hexachlorocyclohexane	319857	NA	37	ID	NLV	NLV	NLV	NLV	5.90E+06	5,400	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	3.20E+05	ID	30,000	50,000	50,000	50,000	1.30E+07	2.3E+6 (C)	7.20E+05
Hexachloroethane	67721	NA	430	1,800 (X)	40,000	5.50E+05	9.30E+05	9.30E+05	2.30E+08	2.30E+05	NA
n-Hexane	110543	NA	1.8E+5 (C)	NA	5.1E+5 (C)	3.00E+06	3.20E+06	6.20E+06	1.30E+10	9.2E+7 (C)	44,000
2-Hexanone	591786	NA	20,000	ID	9.90E+05	1.10E+06	1.10E+06	1.40E+06	2.70E+09	3.2E+7 (C)	2.50E+06
Indeno(1,2,3-cd) pyrene (Q)	193395	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
Iron (B)	7439896	1.20E+07	6,000	NA	NLV	NLV	NLV	NLV	ID	1.60E+08	NA
Isobutyl alcohol (I)	78831	NA	46,000	NA	2.3E+8 (C)	7.90E+07	7.90E+07	7.90E+07	1.00E+11	7.2E+7 (C)	8.90E+06
Isophorone	78591	NA	15,000	26,000 (X)	NLV	NLV	NLV	NLV	1.20E+10	4.8E+6 (C)	2.40E+06
Isopropyl alcohol (I)	67630	NA	9,400	1.1E+6 (X)	NLV	NLV	NLV	NLV	1.50E+10	1.40E+07	1.10E+08
Isopropyl benzene	98828	NA	91,000	3,200	4.0E+5 (C)	1.70E+06	1.70E+06	2.80E+06	5.80E+09	2.5E+7 (C)	3.90E+05
Lead (B)	7439921	21,000	7.00E+05	(G,X)	NLV	NLV	NLV	NLV	1.00E+08	4.00E+05	NA
Lindane	58899	NA	20 (M); 7.0	20 (M); 1.1	ID	ID	ID	ID	ID	8,300	NA
Lithium (B)	7439932	9,800	3,400	8,800	NLV	NLV	NLV	NLV	2.30E+09	4.2E+6 (DD)	NA
Magnesium (B)	7439954	NA	8.00E+06	NA	NLV	NLV	NLV	NLV	6.70E+09	1.0E+9 (D)	NA
Manganese (B)	7439965	4.40E+05	1,000	(G,X)	NLV	NLV	NLV	NLV	3.30E+06	2.50E+07	NA
Mercury (Total) (B,Z)	Varies	130	1,700	50 (M); 1.2	48,000	52,000	52,000	52,000	2.00E+07	1.60E+05	NA
Methane	74828	NA	ID	NA	8.4E+6 ug/m3 (GG)	ID	ID	ID	ID	ID	ID
Methanol	67561	NA	74,000	1.2E+7 (C)	3.7E+7 (C)	3.10E+07	4.40E+07	9.60E+07	2.20E+11	1.1E+8 (C)	3.10E+06
Methoxychlor	72435	NA	16,000	NA	ID	ID	ID	ID	ID	1.90E+06	NA
2-Methoxyethanol (I)	109864	NA	150	NA	NLV	NLV	NLV	NLV	1.30E+09	2.30E+05	1.10E+08
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	390	NA	NLV	NLV	NLV	NLV	ID	2.30E+05	NA
2-Methyl-4,6-dinitrophenol	534521	NA	830 (M); 400	NA	NLV	NLV	NLV	NLV	1.30E+08	79,000	NA
N-Methyl-morpholine (I)	109024	NA	400	NA	NLV	NLV	NLV	NLV	ID	6.10E+05	1.10E+08



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Methyl parathion	298000	NA	46	NA	NLV	NLV	NLV	NLV	ID	56,000	NA
4-Methyl-2-pentanone (MIBK) (I)	108101	NA	36,000	ID	3.7E+7 (C)	4.50E+07	4.50E+07	6.70E+07	1.40E+11	5.6E+7 (C)	2.70E+06
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	1.4E+5 (X)	9.9E+6 (C)	2.50E+07	3.90E+07	8.70E+07	2.00E+11	1.50E+06	5.90E+06
Methylcyclopentane (I)	96377	NA	ID	NA	92,000	2.30E+06	8.20E+06	2.00E+07	4.70E+10	ID	3.50E+05
4,4'-Methylene-bis-2-chloroaniline (MBOCA)	101144	NA	NLL	NLL	NLV	NLV	NLV	NLV	8.40E+07	6,800	NA
Methylene chloride	75092	NA	100	30,000 (X)	45,000	2.10E+05	5.90E+05	1.40E+06	6.60E+09	1.30E+06	2.30E+06
2-Methylnaphthalene	91576	NA	57,000	4,200	2.70E+06	1.50E+06	1.50E+06	1.50E+06	6.70E+08	8.10E+06	NA
Methylphenols (J)	1319773	NA	7,400	1,000 (M); 600	NLV	NLV	NLV	NLV	6.70E+09	1.10E+07	NA
Metolachlor	51218452	NA	4,800	300	NLV	NLV	NLV	NLV	ID	1.5E+6 (C, DD)	4.40E+05
Metribuzin	21087649	NA	3,600	NA	ID	ID	ID	ID	ID	9.60E+06	NA
Mirex	2385855	NA	NLL	NLL	ID	ID	ID	ID	ID	9,600	NA
Molybdenum (B)	7439987	NA	1,500	64,000 (X)	NLV	NLV	NLV	NLV	ID	2.60E+06	NA
Naphthalene	91203	NA	35,000	730	2.50E+05	3.00E+05	3.00E+05	3.00E+05	2.00E+08	1.60E+07	NA
Nickel (B)	7440020	20,000	1.00E+05	(G)	NLV	NLV	NLV	NLV	1.30E+07	4.00E+07	NA
Nitrate (B,N)	14797558	NA	2.0E+5 (N)	ID	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrite (B,N)	14797650	NA	20,000 (N)	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrobenzene (I)	98953	NA	330 (M); 68	3,600 (X)	91,000	54,000	54,000	54,000	4.70E+07	1.00E+05	4.90E+05
2-Nitrophenol	88755	NA	400	ID	NLV	NLV	NLV	NLV	ID	6.30E+05	NA
n-Nitroso-di-n-propylamine	621647	NA	330 (M); 100	NA	NLV	NLV	NLV	NLV	1.60E+06	1,200	1.50E+06
N-Nitrosodiphenylamine	86306	NA	5,400	NA	NLV	NLV	NLV	NLV	2.20E+09	1.70E+06	NA
Oxamyl	23135220	NA	4,000	NA	NLV	NLV	NLV	NLV	ID	8.60E+06	NA
Oxo-hexyl acetate	88230357	NA	1,500	NA	ID	ID	ID	ID	5.40E+09	2.30E+06	1.00E+07
Pendimethalin	40487421	NA	1.10E+06	NA	NLV	NLV	NLV	NLV	ID	4.60E+07	NA
Pentachlorobenzene	608935	NA	29,000	9,500	ID	ID	ID	ID	ID	3.2E+5 (C)	1.90E+05
Pentachloronitrobenzene	82688	NA	37,000	NA	1.20E+05	2.30E+05	2.30E+05	2.30E+05	3.30E+08	1.70E+06	NA
Pentachlorophenol	87865	NA	22	(G,X)	NLV	NLV	NLV	NLV	1.00E+08	90,000	NA
Pentane	109660	NA	ID	NA	9.7E+5 (C)	3.70E+07	3.10E+08	5.80E+08	1.20E+12	ID	2.40E+05



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			Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	
2-Pentene (I)	109682	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	2.20E+05
Phenanthrene	85018	NA	56,000	2,100	2.80E+06	1.60E+05	1.60E+05	1.60E+05	6.70E+06	1.60E+06	NA	NA
Phenol	108952	NA	88,000	9,000	NLV	NLV	NLV	NLV	4.00E+10	4.0E+7 (C, DD)	1.20E+07	1.20E+07
Phenytoin	57410	NA	830	4300 (X)	NLV	NLV	NLV	NLV	2.20E+08	1.00E+05	NA	NA
Phosphorus (Total)	7723140	NA	1.30E+06	(EE)	NLV	NLV	NLV	NLV	6.70E+07	1.0E+9 (D)	NA	NA
Phthalic acid	88993	NA	2.80E+05	NA	NLV	NLV	NLV	NLV	ID	4.3E+8 (C)	1.70E+06	1.70E+06
Phthalic anhydride	85449	NA	3.00E+05	NA	NLV	NLV	NLV	NLV	ID	4.7E+8 (C)	1.10E+06	1.10E+06
Picloram	1918021	NA	10,000	920	NLV	NLV	NLV	NLV	ID	1.60E+07	NA	NA
Piperidine	110894	NA	64	NA	NLV	NLV	NLV	NLV	9.30E+09	99,000	1.20E+08	1.20E+08
Polybrominated biphenyls (J)	67774327	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	1,200	NA	NA
Polychlorinated biphenyls (PCBs) (J,T)	1336363	NA	NLL	NLL	3.00E+06	2.40E+05	7.90E+06	7.90E+06	5.20E+06	(T)	NA	NA
Prometon	1610180	NA	4,900	NA	NLV	NLV	NLV	NLV	ID	5.00E+06	NA	NA
Propachlor	1918167	NA	1,900	NA	NLV	NLV	NLV	NLV	ID	2.90E+06	NA	NA
Propazine	139402	NA	4,000	NA	NLV	NLV	NLV	NLV	ID	6.10E+06	NA	NA
Propionic acid	79094	NA	2.40E+05	ID	NLV	NLV	NLV	NLV	2.00E+10	3.8E+8 (C)	1.10E+08	1.10E+08
Propyl alcohol (I)	71238	NA	28,000	NA	NLV	NLV	NLV	NLV	4.90E+10	1.3E+7 (DD)	1.10E+08	1.10E+08
n-Propylbenzene (I)	103651	NA	1,600	ID	ID	ID	ID	ID	1.30E+09	2.50E+06	1.00E+07	1.00E+07
Propylene glycol	57556	NA	3.00E+06	5.80E+06	NLV	NLV	NLV	NLV	4.00E+11	1.0E+9 (C,D)	1.10E+08	1.10E+08
Pyrene	129000	NA	4.80E+05	ID	1.0E+9 (D)	6.50E+08	6.50E+08	6.50E+08	6.70E+09	2.90E+07	NA	NA
Pyridine (I)	110861	NA	400	NA	1,100	8,200	40,000	97,000	2.30E+08	2.3E+5 (C)	37,000	37,000
Selenium (B)	7782492	410	4,000	400	NLV	NLV	NLV	NLV	1.30E+08	2.60E+06	NA	NA
Silver (B)	7440224	1,000	4,500	100 (M); 27	NLV	NLV	NLV	NLV	6.70E+06	2.50E+06	NA	NA
Silvex (2,4,5-TP)	93721	NA	3,600	2,200	NLV	NLV	NLV	NLV	ID	1.70E+06	NA	NA
Simazine	122349	NA	80	340	NLV	NLV	NLV	NLV	ID	1.20E+06	NA	NA
Sodium	17341252	NA	4.60E+06	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA	NA
Sodium azide	26628228	NA	1,800	1,000	ID	ID	ID	ID	ID	2.70E+06	NA	NA
Strontium (B)	7440246	NA	92,000	4.20E+05	NLV	NLV	NLV	NLV	ID	3.30E+08	NA	NA



**TABLE 2. SOIL: RESIDENTIAL  
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Styrene	100425	NA	2,700	2,100 (X)	2.50E+05	9.70E+05	9.70E+05	1.40E+06	5.50E+09	4.00E+05	5.20E+05
Sulfate	14808798	NA	5.00E+06	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Tebuthiuron	34014181	NA	10,000	NA	NLV	NLV	NLV	NLV	ID	4.6E+6 (DD)	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	NLL	NLL	NLV	NLV	NLV	NLV	(O)	(O)	NA
1,2,4,5-Tetrachlorobenzene	95943	NA	1.50E+06	3,400 (X)	5.80E+05	2.30E+05	2.30E+05	2.30E+05	6.70E+07	7.70E+07	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	NA	NLL	NLL	NLV	NLV	NLV	NLV	71 (O)	0.09 (O)	NA
1,1,1,2-Tetrachloroethane	630206	NA	1,500	ID	6,200	36,000	54,000	1.00E+05	4.20E+08	4.8E+5 (C)	4.40E+05
1,1,2,2-Tetrachloroethane	79345	NA	170	1,600 (X)	4,300	10,000	10,000	14,000	5.40E+07	53,000	8.70E+05
Tetrachloroethylene	127184	NA	100	1,200 (X)	11,000	1.70E+05	4.80E+05	1.10E+06	2.70E+09	2.0E+5 (C)	88,000
Tetrahydrofuran	109999	NA	1,900	2.2E+5 (X)	1.30E+06	1.30E+07	6.70E+07	1.60E+08	3.90E+11	2.90E+06	1.20E+08
Tetranitromethane	509148	NA	ID	NA	500(M); 110	500 (M); 51	ID	ID	2.10E+05	ID	ID
Thallium (B)	7440280	NA	2,300	4,200 (X)	NLV	NLV	NLV	NLV	1.30E+07	35,000	NA
Toluene (I)	108883	NA	16,000	5,400	3.3E+5 (C)	2.80E+06	5.10E+06	1.20E+07	2.70E+10	5.0E+7 (C)	2.50E+05
p-Toluidine	106490	NA	660 (M); 300	NA	NLV	NLV	NLV	NLV	1.00E+08	94,000	1.20E+06
Toxaphene	8001352	NA	24,000	8,200	NLV	NLV	NLV	NLV	9.70E+06	20,000	NA
Triallate	2303175	NA	95,000	NA	ID	ID	ID	ID	ID	2.9E+6 (C)	2.50E+05
Tributylamine	102829	NA	7,800	ID	5.80E+05	6.00E+05	6.00E+05	6.00E+05	4.70E+08	7.90E+05	3.70E+06
1,2,4-Trichlorobenzene	120821	NA	4,200	5,900 (X)	9.6E+6 (C)	2.80E+07	2.80E+07	2.80E+07	2.50E+10	9.9E+5 (DD)	1.10E+06
1,1,1-Trichloroethane	71556	NA	4,000	1,800	2.50E+05	3.80E+06	1.20E+07	2.80E+07	6.70E+10	5.0E+8 (C)	4.60E+05
1,1,2-Trichloroethane	79005	NA	100	6,600 (X)	4,600	17,000	21,000	44,000	1.90E+08	1.80E+05	9.20E+05
Trichloroethylene	79016	NA	100	4,000 (X)	1,000	11,000	25,000	57,000	1.30E+08	1.1E+5 (DD)	5.00E+05
Trichlorofluoromethane	75694	NA	52,000	NA	2.8E+6 (C)	9.20E+07	6.30E+08	1.50E+09	3.80E+12	7.9E+7 (C)	5.60E+05
2,4,5-Trichlorophenol	95954	NA	39,000	NA	NLV	NLV	NLV	NLV	2.30E+10	2.30E+07	NA
2,4,6-Trichlorophenol	88062	NA	2,400	330 (M); 100	NLV	NLV	NLV	NLV	1.00E+09	7.10E+05	NA
1,2,3-Trichloropropane	96184	NA	840	NA	4,000	9,200	9,200	11,000	2.00E+07	1.3E+6 (C)	8.30E+05
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	9.0E+6 (C)	1,700	5.1E+6 (C)	1.80E+08	8.80E+08	2.10E+09	5.10E+12	1.0E+9 (C,D)	5.50E+05
Triethanolamine	102716	NA	74,000	NA	NLV	NLV	NLV	NLV	3.30E+09	1.10E+08	1.10E+08





**TABLE 2. SOIL: RESIDENTIAL  
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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Groundwater Protection		Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Triethylene glycol	112276	NA	86,000	NA	NLV	NLV	NLV	NLV	ID	3.9E+7 (C,DD)	1.10E+05
3-Trifluoromethyl-4-nitrophenol	88302	NA	1.10E+05	NA	NLV	NLV	NLV	NLV	ID	4.1E+7 (DD)	NA
Trifluralin	1582098	NA	1.90E+05	NA	ID	ID	ID	ID	ID	2.00E+06	NA
2,2,4-Trimethyl pentane	540841	NA	ID	NA	1.1E+5 (C)	5.20E+06	3.90E+07	9.60E+07	2.30E+11	ID	19,000
2,4,4-Trimethyl-2-pentene (I)	107404	NA	ID	NA	ID	ID	ID	ID	ID	ID	56,000
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	570	4.3E+6 (C)	2.10E+07	5.00E+08	5.00E+08	8.20E+10	3.2E+7 (C)	1.10E+05
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,100	2.6E+6 (C)	1.60E+07	3.80E+08	3.80E+08	8.20E+10	3.2E+7 (C)	94,000
Triphenyl phosphate	115866	NA	1.5E+6 (C)	NA	NLV	NLV	NLV	NLV	ID	3.6E+7 (C)	1.10E+05
Tris(2,3-Dibromopropyl)phosphate	126727	NA	930	ID	82,000 (C)	18,000	18,000	18,000	5.90E+06	4,400	27,000
Urea	57136	NA	ID	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Vanadium	7440622	NA	72,000	4.30E+05	NLV	NLV	NLV	NLV	ID	7.5E+5 (DD)	NA
Vinyl acetate (I)	108054	NA	13,000	NA	7.90E+05	1.70E+06	2.60E+06	5.80E+06	1.30E+10	5.8E+6 (C,DD)	2.40E+06
Vinyl chloride	75014	NA	40	260 (X)	270	4,200	30,000	73,000	3.50E+08	3,800	4.90E+05
White phosphorus (R)	12185103	NA	2.2	NA	NLV	NLV	NLV	NLV	ID	2,300 (DD)	NA
Xylenes (I)	1330207	NA	5,600	820	6.3E+6 (C)	4.60E+07	6.10E+07	1.30E+08	2.90E+11	4.1E+8 (C)	1.50E+05
Zinc (B)	7440666	47,000	2.40E+06	(G)	NLV	NLV	NLV	NLV	ID	1.70E+08	NA



**TABLE 3. SOIL: NONRESIDENTIAL**  
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			Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Acenaphthene	83329	NA	3.00E+05	8.80E+05	8,700	3.50E+08	9.70E+07	9.70E+07	9.70E+07	6.20E+09	1.30E+08	NA
Acenaphthylene	208968	NA	5,900	17,000	ID	3.00E+06	2.70E+06	2.70E+06	2.70E+06	1.00E+09	5.20E+06	NA
Acetaldehyde (I)	75070	NA	19,000	54,000	2,600	4.00E+05	2.10E+05	2.10E+05	2.90E+05	2.60E+08	9.50E+07	1.10E+08
Acetate	71501	NA	ID	ID	(G)	ID	ID	ID	ID	ID	ID	ID
Acetic acid	64197	NA	84,000	2.40E+05	(G)	NLV	NLV	NLV	NLV	7.40E+09	4.20E+08	6.50E+08
Acetone (I)	67641	NA	15,000	42,000	34,000	5.4E+8 (C)	1.60E+08	1.60E+08	2.00E+08	1.70E+11	7.30E+07	1.10E+08
Acetonitrile	75058	NA	2,800	8,000	NA	8.80E+06	1.90E+06	1.90E+06	2.20E+06	1.80E+09	1.40E+07	2.20E+07
Acetophenone	98862	NA	30,000	88,000	ID	2.1E+8 (C)	5.20E+07	5.20E+07	5.20E+07	1.40E+10	1.5E+8 (C)	1.10E+06
Acrolein (I)	107028	NA	2,400	6,600	NA	760	370	370	630	5.90E+05	1.20E+07	2.30E+07
Acrylamide	79061	NA	10	10	200 (X)	NLV	NLV	NLV	NLV	3.00E+06	8,700	NA
Acrylic acid	79107	NA	78,000	2.20E+05	NA	5.50E+06	2.20E+05	2.70E+05	2.70E+05	2.90E+07	2.1E+8 (C,DD)	1.10E+08
Acrylonitrile (I)	107131	NA	100 (M); 52	220	100 (M); 40	35,000	17,000	17,000	31,000	5.80E+07	74,000	8.30E+06
Alachlor	15972608	NA	52	52	290 (X)	NLV	NLV	NLV	NLV	ID	3.90E+05	NA
Aldicarb	116063	NA	60	60	NA	NLV	NLV	NLV	NLV	ID	7.30E+05	NA
Aldicarb sulfone	1646884	NA	200 (M); 40	200 (M); 40	NA	NLV	NLV	NLV	NLV	ID	8.00E+05	NA
Aldicarb sulfoxide	1646873	NA	200(M); 80	200 (M); 80	NA	NLV	NLV	NLV	NLV	ID	9.50E+05	NA
Aldrin	309002	NA	NLL	NLL	NLL	7.10E+06	2.00E+05	2.00E+05	2.00E+05	8.00E+05	4,300	NA
Aluminum (B)	7429905	6.90E+06	1,000	1,000	NA	NLV	NLV	NLV	NLV	ID	3.7E+8 (DD)	NA
Ammonia	7664417	NA	ID	ID	(CC)	ID	ID	ID	ID	2.90E+09	ID	1.00E+07
t-Amyl methyl ether (TAME)	994058	NA	3,900	3,900	NA	1.10E+05	4.00E+05	7.80E+05	1.80E+06	1.80E+09	9.5E+7 (C)	4.40E+05
Aniline	62533	NA	1,100	4,400	330 (M); 80	NLV	NLV	NLV	NLV	2.90E+07	1.50E+06	4.50E+06
Anthracene	120127	NA	41,000	41,000	ID	1.0E+9 (D)	1.60E+09	1.60E+09	1.60E+09	2.90E+10	7.30E+08	NA
Antimony	7440360	NA	4,300	4,300	94,000 (X)	NLV	NLV	NLV	NLV	5.90E+06	6.70E+05	NA
Arsenic	7440382	5,800	4,600	4,600	4,600	NLV	NLV	NLV	NLV	9.10E+05	37,000	NA
Asbestos (BB)	1332214	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.0E+7 (M); 85,000	ID	NA
Atrazine	1912249	NA	60	60	150	NLV	NLV	NLV	NLV	ID	3.3E+5 (DD)	NA
Azobenzene	103333	NA	4,200	17,000	ID	3.20E+07	2.10E+06	2.10E+06	2.10E+06	1.30E+08	6.60E+05	NA



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Barium (B)	7440393	75,000	1.30E+06	1.30E+06	(G)	NLV	NLV	NLV	NLV	1.50E+08	1.30E+08	NA
Benzene (I)	71432	NA	100	100	4,000 (X)	8,400	45,000	99,000	2.30E+05	4.70E+08	8.4E+5 (C)	4.00E+05
Benzidine	92875	NA	1,000 (M); 6.0	1,000 (M); 6.0	1,000 (M); 6.0	NLV	NLV	NLV	NLV	59,000	1,000 (M); 110	NA
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000	NA
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	80,000	NA
Benzo(k)fluoranthene (Q)	207089	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.00E+05	NA
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	3.50E+08	7.00E+06	NA
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.90E+06	8,000	NA
Benzoic acid	65850	NA	6.40E+05	1.80E+06	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA
Benzyl alcohol	100516	NA	2.00E+05	5.80E+05	NA	NLV	NLV	NLV	NLV	1.50E+11	1.0E+9 (C,D)	5.80E+06
Benzyl chloride	100447	NA	150	640	NA	33,000	48,000	48,000	52,000	7.80E+07	2.20E+05	2.30E+05
Beryllium	7440417	NA	51,000	51,000	(G)	NLV	NLV	NLV	NLV	5.90E+05	1.60E+06	NA
bis(2-Chloroethoxy)ethane	112265	NA	ID	ID	ID	NLV	NLV	NLV	NLV	ID	ID	2.70E+06
bis(2-Chloroethyl)ether (I)	111444	NA	100	170	100 (M); 20	44,000	13,000	13,000	13,000	1.20E+07	58,000	2.20E+06
bis(2-Ethylhexyl)phthalate	117817	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	8.90E+08	1.2E+7 (C)	1.00E+07
Boron (B)	7440428	NA	10,000	10,000	1.4E+5 (X)	NLV	NLV	NLV	NLV	ID	3.5E+8 (DD)	NA
Bromate	15541454	NA	200	200	800 (X)	NLV	NLV	NLV	NLV	ID	91,000	NA
Bromobenzene (I)	108861	NA	550	1,500	NA	5.80E+05	5.40E+05	5.40E+05	5.40E+05	2.40E+08	1.7E+6 (C)	7.60E+05
Bromodichloromethane	75274	NA	1,600 (W)	1,600 (W)	ID	6,400	31,000	31,000	57,000	1.10E+08	4.90E+05	1.50E+06
Bromoform	75252	NA	1,600 (W)	1,600 (W)	ID	7.70E+05	3.10E+06	3.10E+06	3.10E+06	3.60E+09	3.8E+6 (C)	8.70E+05
Bromomethane	74839	NA	200	580	700	1,600	13,000	57,000	1.40E+05	1.50E+08	1.00E+06	2.20E+06
n-Butanol (I)	71363	NA	19,000	54,000	2.00E+05	NLV	NLV	NLV	NLV	1.00E+10	9.5E+7 (C)	8.70E+06
2-Butanone (MEK) (I)	78933	NA	2.80E+05	7.60E+05	44,000	9.9E+7 (C)	3.50E+07	3.50E+07	3.60E+07	2.90E+10	7.0E+8 (C,DD)	2.70E+07
n-Butyl acetate	123864	NA	11,000	32,000	NA	1.0E+8 (C)	1.40E+08	3.10E+08	3.50E+08	2.10E+11	5.5E+7 (C)	1.10E+06
t-Butyl alcohol	75650	NA	78,000	2.20E+05	NA	5.8E+8 (C)	1.20E+08	2.40E+08	2.40E+08	5.60E+10	3.9E+8 (C)	1.10E+08
Butyl benzyl phthalate	85687	NA	2.2E+6 (C)	5.0E+6 (C)	1.2E+5 (X)	NLV	NLV	NLV	NLV	2.10E+10	1.2E+8 (C)	3.10E+05
n-Butylbenzene	104518	NA	1,600	4,600	ID	ID	ID	ID	ID	8.80E+08	8.00E+06	1.00E+07



**TABLE 3. SOIL: NONRESIDENTIAL**  
**PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
sec-Butylbenzene	135988	NA	1,600	4,600	ID	ID	ID	ID	ID	1.80E+08	8.00E+06	1.00E+07
t-Butylbenzene (I)	98066	NA	1,600	4,600	ID	ID	ID	ID	ID	2.90E+08	8.00E+06	1.00E+07
Cadmium (B)	7440439	1,200	6,000	6,000	(G,X)	NLV	NLV	NLV	NLV	2.20E+06	2.10E+06	NA
Camphene (I)	79925	NA	ID	ID	NA	6,700	1.80E+05	9.10E+05	2.20E+06	2.40E+09	ID	NA
Caprolactam	105602	NA	1.20E+05	3.40E+05	NA	NLV	NLV	NLV	NLV	2.90E+08	3.1E+8 (DD)	NA
Carbaryl	63252	NA	14,000	40,000	NA	ID	ID	ID	ID	ID	7.00E+07	NA
Carbazole	86748	NA	9,400	39,000	1,100	NLV	NLV	NLV	NLV	7.80E+07	2.40E+06	NA
Carbofuran	1563662	NA	800	800	NA	NLV	NLV	NLV	NLV	ID	3.60E+06	NA
Carbon disulfide (I,R)	75150	NA	16,000	46,000	ID	1.40E+05	1.60E+06	8.00E+06	1.90E+07	2.10E+10	4.3E+7 (C,DD)	2.80E+05
Carbon tetrachloride	56235	NA	100	100	900 (X)	990	12,000	34,000	79,000	1.70E+08	4.4E+5 (C)	3.90E+05
Chlordane (J)	57749	NA	NLL	NLL	NLL	5.90E+07	4.20E+06	4.20E+06	4.20E+06	2.10E+07	1.50E+05	NA
Chloride	16887006	NA	5.00E+06	5.00E+06	(X)	NLV	NLV	NLV	NLV	ID	5.0E+5 (F)	NA
Chlorobenzene (I)	108907	NA	2,000	2,000	500	2.20E+05	9.20E+05	1.10E+06	2.10E+06	2.10E+09	1.4E+7 (C)	2.60E+05
p-Chlorobenzene sulfonic acid	98668	NA	1.50E+05	4.20E+05	ID	ID	ID	ID	ID	ID	7.30E+08	ID
1-Chloro-1,1-difluoroethane	75683	NA	3.00E+05	8.80E+05	NA	5.4E+6 (C)	9.40E+07	5.70E+08	1.40E+09	1.50E+12	1.0E+9 (C,D)	9.60E+05
Chloroethane	75003	NA	8,600	34,000	22,000 (X)	5.3E+6 (C)	3.60E+07	1.20E+08	2.80E+08	2.90E+11	1.2E+7 (C)	9.50E+05
2-Chloroethyl vinyl ether	110758	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	1.90E+06
Chloroform	67663	NA	1,600 (W)	1,600 (W)	7,000	38,000	1.50E+05	3.40E+05	7.90E+05	1.60E+09	5.5E+6 (C)	1.50E+06
Chloromethane (I)	74873	NA	5,200	22,000	ID	10,000	1.20E+05	1.00E+06	2.50E+06	2.60E+09	7.4E+6 (C)	1.10E+06
4-Chloro-3-methylphenol	59507	NA	5,800	16,000	280	NLV	NLV	NLV	NLV	ID	1.50E+07	NA
beta-Chloronaphthalene	91587	NA	6.20E+05	1.80E+06	NA	ID	ID	ID	ID	ID	1.80E+08	NA
2-Chlorophenol	95578	NA	900	2,600	360	8.00E+05	1.10E+06	1.10E+06	1.10E+06	5.30E+08	4.50E+06	1.90E+07
o-Chlorotoluene (I)	95498	NA	3,300	9,300	ID	5.00E+05	1.50E+06	3.10E+06	6.40E+06	2.10E+09	1.5E+7 (C)	5.00E+05
Chlorpyrifos	2921882	NA	17,000	48,000	1,500	240	5,500	23,000	56,000	5.90E+07	3.40E+07	NA
Chromium (III) (B,H)	16065831	18,000 (total)	1.0E+9 (D)	1.0E+9 (D)	(G,X)	NLV	NLV	NLV	NLV	1.50E+08	1.0E+9 (D)	NA
Chromium (VI)	18540299	NA	30,000	30,000	3,300	NLV	NLV	NLV	NLV	2.40E+05	9.20E+06	NA
Chrysene (Q)	218019	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	8.00E+06	NA



**TABLE 3. SOIL: NONRESIDENTIAL  
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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Cobalt	7440484	6,800	800	2,000	2,000	NLV	NLV	NLV	NLV	5.90E+06	9.00E+06	NA
Copper (B)	7440508	32,000	5.80E+06	5.80E+06	(G)	NLV	NLV	NLV	NLV	5.90E+07	7.30E+07	NA
Cyanazine	21725462	NA	200	200	1,100 (X)	NLV	NLV	NLV	NLV	ID	66,000	NA
Cyanide (P,R)	57125	390 (total)	4,000	4,000	100	NLV	NLV	NLV	NLV	2.50E+05	2.50E+05	NA
Cyclohexanone	108941	NA	5.20E+06	1.50E+07	NA	32,000	1.30E+06	1.10E+07	2.70E+07	2.90E+10	1.0E+9 (C,D)	2.20E+08
Dacthal	1861321	NA	50,000	1.40E+05	NA	NLV	NLV	NLV	NLV	ID	7.30E+06	NA
Dalapon	75990	NA	4,000	4,000	NA	NLV	NLV	NLV	NLV	ID	6.2E+7 (C)	5.90E+07
4-4'-DDD	72548	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	5.60E+07	4.00E+05	NA
4-4'-DDE	72559	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	4.00E+07	1.90E+05	NA
4-4'-DDT	50293	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	4.00E+07	2.80E+05	NA
Decabromodiphenyl ether	1163195	NA	1.40E+05	1.40E+05	NA	1.0E+9 (D)	1.00E+08	1.00E+08	1.00E+08	1.00E+09	1.10E+07	NA
Di-n-butyl phthalate	84742	NA	9.6E+5 (C)	2.7E+6 (C)	11,000	NLV	NLV	NLV	NLV	1.50E+09	8.7E+7 (C)	7.60E+05
Di(2-ethylhexyl) adipate	103231	NA	1.3E+7 (C)	1.3E+7 (C)	ID	NLV	NLV	NLV	NLV	1.20E+10	6.3E+7 (C,DD)	9.60E+05
Di-n-octyl phthalate	117840	NA	1.00E+08	2.9E+8 (C)	ID	NLV	NLV	NLV	NLV	1.40E+10	2.00E+07	1.40E+08
Diacetone alcohol (I)	123422	NA	ID	ID	NA	NLV	NLV	NLV	NLV	7.10E+10	ID	1.10E+08
Diazinon	333415	NA	95	280	72	NLV	NLV	NLV	NLV	ID	70,000 (DD)	3.10E+05
Dibenzo(a,h)anthracene (Q)	53703	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000	NA
Dibenzofuran	132649	NA	ID	ID	1,700	3.60E+06	1.60E+05	1.60E+05	1.60E+05	2.90E+06	ID	NA
Dibromochloromethane	124481	NA	1,600 (W)	1,600 (W)	ID	21,000	80,000	80,000	98,000	1.60E+08	5.00E+05	6.10E+05
Dibromochloropropane	96128	NA	10 (M); 4.0	10 (M); 4.0	ID	1,200	900	900	900	7.00E+05	20,000 (C)	1,200
Dibromomethane	74953	NA	1,600	4,600	NA	ID	ID	ID	ID	ID	8.0E+6 (C)	2.00E+06
Dicamba	1918009	NA	4,400	13,000	NA	NLV	NLV	NLV	NLV	ID	1.70E+07	NA
1,2-Dichlorobenzene	95501	NA	14,000	14,000	280	2.0E+7 (C)	4.60E+07	4.60E+07	5.50E+07	4.40E+10	6.3E+7 (C)	2.10E+05
1,3-Dichlorobenzene	541731	NA	170	480	680	48,000	94,000	94,000	1.10E+05	8.80E+07	6.6E+5 (C)	1.70E+05
1,4-Dichlorobenzene	106467	NA	1,700	1,700	360	1.00E+05	2.60E+05	2.60E+05	3.40E+05	5.70E+08	1.90E+06	NA
3,3'-Dichlorobenzidine	91941	NA	2,000 (M); 28	2,000 (M); 110	2,000 (M); 7.4	NLV	NLV	NLV	NLV	8.20E+06	30,000	NA
Dichlorodifluoromethane	75718	NA	95,000	2.70E+05	ID	1.70E+06	6.30E+07	5.50E+08	1.40E+09	1.50E+12	1.7E+8 (C)	1.00E+06



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1,1-Dichloroethane	75343	NA	18,000	50,000	15,000	4.30E+05	2.50E+06	6.00E+06	1.40E+07	1.50E+10	8.7E+7 (C)	8.90E+05
1,2-Dichloroethane (l)	107062	NA	100	100	7,200 (X)	11,000	21,000	33,000	74,000	1.50E+08	4.20E+05	1.20E+06
1,1-Dichloroethylene (l)	75354	NA	140	140	2,600	330	3,700	15,000	37,000	7.80E+07	6.6E+5 (C)	5.70E+05
cis-1,2-Dichloroethylene	156592	NA	1,400	1,400	12,000	41,000	2.10E+05	4.30E+05	1.00E+06	1.00E+09	8.0E+6 (C)	6.40E+05
trans-1,2-Dichloroethylene	156605	NA	2,000	2,000	30,000 (X)	43,000	3.30E+05	8.40E+05	2.00E+06	2.10E+09	1.2E+7 (C)	1.40E+06
2,6-Dichloro-4-nitroaniline	99309	NA	44,000	1.30E+05	NA	NLV	NLV	NLV	NLV	ID	2.20E+08	NA
2,4-Dichlorophenol	120832	NA	1,500	4,200	330 (M); 220	NLV	NLV	NLV	NLV	2.30E+09	3.9E+6 (C,DD)	1.80E+06
2,4-Dichlorophenoxyacetic acid	94757	NA	1,400	1,400	4,400	NLV	NLV	NLV	NLV	2.90E+09	8.60E+06	NA
1,2-Dichloropropane (l)	78875	NA	100	100	4,600 (X)	7,400	30,000	51,000	1.20E+05	1.20E+08	6.6E+5 (C)	5.50E+05
1,3-Dichloropropene	542756	NA	170	700	180 (X)	5,400	60,000	2.00E+05	4.70E+05	5.90E+08	2.40E+05	6.20E+05
Dichlorovos	62737	NA	50 (M); 32	130	NA	NLV	NLV	NLV	NLV	1.50E+07	47,000	2.20E+06
Dicyclohexyl phthalate	84617	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	NA
Dieldrin	60571	NA	NLL	NLL	NLL	7.20E+05	64,000	64,000	64,000	8.50E+05	4,700	NA
Diethyl ether	60297	NA	200	200	ID	5.2E+7 (C)	1.00E+08	1.60E+08	3.50E+08	3.50E+11	3.6E+8 (C)	7.40E+06
Diethyl phthalate	84662	NA	1.10E+05	3.20E+05	2,200	NLV	NLV	NLV	NLV	1.50E+09	5.5E+8 (C)	7.40E+05
Diethylene glycol monobutyl ether	112345	NA	1,800	5,000	NA	NLV	NLV	NLV	NLV	5.90E+08	8.70E+06	1.10E+08
Diisopropyl ether	108203	NA	600	1,700 (C)	ID	1.2E+6 (C)	3.20E+06	4.80E+06	1.00E+07	1.10E+10	3.0E+6 (C)	1,300
Diisopropylamine (l)	108189	NA	110	320	NA	1.0E+7 (C)	7.40E+06	7.40E+06	7.70E+06	5.90E+09	5.60E+05	6.70E+06
Dimethyl phthalate	131113	NA	1.5E+6 (C)	4.2E+6 (C)	NA	NLV	NLV	NLV	NLV	1.50E+09	1.0E+9 (C,D)	7.90E+05
N,N-Dimethylacetamide	127195	NA	3,600	10,000	82,000 (X)	NLV	NLV	NLV	NLV	ID	1.80E+07	1.10E+08
N,N-Dimethylaniline	121697	NA	320	920	NA	8.9E+5 (C)	5.20E+05	5.20E+05	5.20E+05	3.30E+08	1.6E+6 (C)	8.00E+05
Dimethylformamide (l)	68122	NA	14,000	40,000	NA	NLV	NLV	NLV	NLV	8.80E+08	7.00E+07	1.10E+08
2,4-Dimethylphenol	105679	NA	7,400	20,000	7,600	NLV	NLV	NLV	NLV	2.10E+09	3.60E+07	NA
2,6-Dimethylphenol	576261	NA	330 (M); 88	330 (M); 260	NA	NLV	NLV	NLV	NLV	5.90E+07	4.40E+05	NA
3,4-Dimethylphenol	95658	NA	330 (M); 200	580	500	NLV	NLV	NLV	NLV	1.00E+08	1.00E+06	NA
Dimethylsulfoxide	67665	NA	4.40E+06	1.30E+07	3.80E+06	NLV	NLV	NLV	NLV	5.90E+08	1.0E+9 (C,D)	1.80E+07
2,4-Dinitrotoluene	121142	NA	430	640	NA	NLV	NLV	NLV	NLV	2.00E+07	2.20E+05	NA



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Dinoseb	88857	NA	300	300	200 (M); 43	NLV	NLV	NLV	NLV	1.20E+08	3.9E+5 (C,DD)	1.40E+05
1,4-Dioxane (I)	123911	NA	1,700	7,000	56,000 (X)	NLV	NLV	NLV	NLV	7.10E+08	2.40E+06	9.70E+07
Diquat	85007	NA	400	400	400	NLV	NLV	NLV	NLV	ID	1.60E+06	NA
Diuron	330541	NA	620	1,800	NA	NLV	NLV	NLV	NLV	2.10E+08	3.10E+06	NA
Endosulfan (J)	115297	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	4.40E+06	NA
Endothall	145733	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.00E+09	1.20E+07	NA
Endrin	72208	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.90E+05	NA
Epichlorohydrin (I)	106898	NA	100	100	NA	1.20E+05	37,000	37,000	37,000	2.90E+07	41,000	7.30E+06
Ethanol (I)	64175	NA	3.80E+07	7.60E+07	ID	NLV	NLV	NLV	NLV	5.60E+11	1.0E+9 (C,D,DDD)	1.10E+08
Ethyl acetate (I)	141786	NA	1.30E+05	3.80E+05	NA	7.0E+7 (C)	5.90E+07	5.90E+07	1.00E+08	9.40E+10	6.6E+8 (C)	7.50E+06
Ethyl-tert-butyl ether (ETBE)	637923	NA	980	980	ID	1.7E+6 (C)	2.30E+06	4.60E+06	1.10E+07	1.10E+10	ID	6.50E+05
Ethylbenzene (I)	100414	NA	1,500	1,500	360	4.6E+5 (C)	2.40E+06	3.10E+06	6.50E+06	1.30E+10	7.1E+7 (C)	1.40E+05
Ethylene dibromide	106934	NA	20 (M); 1.0	20 (M); 1.0	110 (X)	3,600	5,800	5,800	9,800	1.80E+07	430	8.90E+05
Ethylene glycol	107211	NA	3.00E+05	8.40E+05	3.8E+6 (X)	NLV	NLV	NLV	NLV	2.90E+10	1.0E+9 (C,D)	1.10E+08
Ethylene glycol monobutyl ether	111762	NA	74,000	2.00E+05	NA	1.40E+06	2.10E+07	1.50E+08	3.60E+08	3.80E+11	3.6E+8 (C)	4.10E+07
Fluoranthene	206440	NA	7.30E+05	7.30E+05	5,500	1.0E+9 (D)	8.90E+08	8.80E+08	8.80E+08	4.10E+09	1.30E+08	NA
Fluorene	86737	NA	3.90E+05	8.90E+05	5,300	1.0E+9 (D)	1.50E+08	1.50E+08	1.50E+08	4.10E+09	8.70E+07	NA
Fluorine (soluble fluoride) (B)	7782414	NA	40,000	40,000	ID	NLV	NLV	NLV	NLV	ID	6.7E+7 (DD)	NA
Formaldehyde	50000	NA	26,000	76,000	2,400	65,000	43,000	69,000	1.50E+05	2.60E+08	1.3E+8 (C)	6.00E+07
Formic acid (I,U)	64186	NA	2.00E+05	5.80E+05	ID	2.80E+06	2.60E+05	1.60E+05	1.60E+05	5.90E+07	1.0E+9 (C,D)	1.10E+08
1-Formylpiperidine	2591868	NA	1,600	4,600	NA	ID	ID	ID	ID	ID	8.00E+06	1.00E+07
Gentian violet	548629	NA	300	1,300	NA	NLV	NLV	NLV	NLV	ID	4.40E+05	NA
Glyphosate	1071836	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	5.7E+7 (DD)	NA
Heptachlor	76448	NA	NLL	NLL	NLL	1.90E+06	2.10E+05	2.10E+05	2.10E+05	3.00E+06	23,000	NA
Heptachlor epoxide	1024573	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.50E+06	9,500	NA
n-Heptane	142825	NA	4.6E+7 (C)	1.3E+8 (C)	NA	2.7E+6 (C)	2.50E+07	4.50E+07	1.00E+08	1.00E+11	1.0E+9 (C,D)	2.40E+05



**TABLE 3. SOIL: NONRESIDENTIAL**  
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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Hexabromobenzene	87821	NA	5,400	5,400	ID	ID	ID	ID	ID	ID	3.10E+06	NA
Hexachlorobenzene (C-66)	118741	NA	1,800	1,800	350	2.20E+05	56,000	56,000	56,000	8.50E+06	37,000	NA
Hexachlorobutadiene (C-46)	87683	NA	26,000	72,000	91	7.1E+5 (C)	4.60E+05	4.60E+05	4.60E+05	1.80E+08	4.7E+5 (C)	3.50E+05
alpha-Hexachlorocyclohexane	319846	NA	18	71	ID	1.60E+05	41,000	86,000	86,000	2.10E+06	12,000	NA
beta-Hexachlorocyclohexane	319857	NA	37	150	ID	NLV	NLV	NLV	NLV	7.40E+06	25,000	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	3.20E+05	3.20E+05	ID	56,000	60,000	60,000	60,000	5.90E+06	6.7E+6 (C)	7.20E+05
Hexachloroethane	67721	NA	430	1,200	1,800 (X)	79,000	6.60E+05	1.40E+06	1.40E+06	1.00E+08	7.30E+05	NA
n-Hexane	110543	NA	1.8E+5 (C)	5.1E+5 (C)	NA	9.5E+5 (C)	3.50E+06	3.50E+06	6.40E+06	5.90E+09	3.0E+8 (C)	44,000
2-Hexanone	591786	NA	20,000	58,000	ID	1.80E+06	1.30E+06	1.30E+06	1.50E+06	1.20E+09	1.0E+8 (C)	2.50E+06
Indeno(1,2,3-cd)pyrene (Q)	193395	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000	NA
Iron (B)	7439896	1.20E+07	6,000	6,000	NA	NLV	NLV	NLV	NLV	ID	5.80E+08	NA
Isobutyl alcohol (I)	78831	NA	46,000	1.30E+05	NA	4.3E+8 (C)	9.50E+07	9.50E+07	9.50E+07	4.40E+10	2.3E+8 (C)	8.90E+06
Isophorone	78591	NA	15,000	62,000	26,000 (X)	NLV	NLV	NLV	NLV	8.20E+09	2.2E+7 (C)	2.40E+06
Isopropyl alcohol (I)	67630	NA	9,400	26,000	1.1E+6 (X)	NLV	NLV	NLV	NLV	6.50E+09	4.70E+07	1.10E+08
Isopropyl benzene	98828	NA	91,000	2.60E+05	3,200	7.3E+5 (C)	2.00E+06	2.00E+06	3.00E+06	2.60E+09	8.0E+7 (C)	3.90E+05
Lead (B)	7439921	21,000	7.00E+05	7.00E+05	(G,X)	NLV	NLV	NLV	NLV	4.40E+07	9.0E+5 (DD)	NA
Lindane	58899	NA	20 (M); 7.0	20 (M); 7.0	20 (M); 1.1	ID	ID	ID	ID	ID	42,000	NA
Lithium (B)	7439932	9,800	3,400	7,000	8,800	NLV	NLV	NLV	NLV	1.00E+09	3.1E+7 (DD)	NA
Magnesium (B)	7439954	NA	8.00E+06	2.20E+07	NA	NLV	NLV	NLV	NLV	2.90E+09	1.0E+9 (D)	NA
Manganese (B)	7439965	4.40E+05	1,000	1,000	(G,X)	NLV	NLV	NLV	NLV	1.50E+06	9.00E+07	NA
Mercury (Total) (B,Z)	Varies	130	1,700	1,700	50 (M); 1.2	89,000	62,000	62,000	62,000	8.80E+06	5.80E+05	NA
Methane	74828	NA	ID	ID	NA	8.4E+6 ug/m <sup>3</sup> (GG)	ID	ID	ID	ID	ID	ID
Methanol	67561	NA	74,000	2.00E+05	1.2E+7 (C)	6.7E+7 (C)	3.70E+07	4.60E+07	9.70E+07	9.60E+10	3.6E+8 (C)	3.10E+06
Methoxychlor	72435	NA	16,000	16,000	NA	ID	ID	ID	ID	ID	5.60E+06	NA
2-Methoxyethanol (I)	109864	NA	150	420	NA	NLV	NLV	NLV	NLV	5.90E+08	7.30E+05	1.10E+08
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	390	1,100	NA	NLV	NLV	NLV	NLV	ID	7.30E+05	NA
2-Methyl-4,6-dinitrophenol	534521	NA	830 (M); 400	830 (M); 400	NA	NLV	NLV	NLV	NLV	5.90E+07	2.60E+05	NA





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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
N-Methyl-morpholine (I)	109024	NA	400	1,100	NA	NLV	NLV	NLV	NLV	ID	2.00E+06	1.10E+08
Methyl parathion	298000	NA	46	130	NA	NLV	NLV	NLV	NLV	ID	1.80E+05	NA
4-Methyl-2-pentanone (MBK) (I)	108101	NA	36,000	1.00E+05	ID	6.9E+7 (C)	5.30E+07	5.30E+07	7.00E+07	6.00E+10	1.8E+8 (C)	2.70E+06
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	800	1.4E+5 (X)	1.8E+7 (C)	3.00E+07	4.10E+07	8.90E+07	8.80E+10	7.1E+6 (C)	5.90E+06
Methylcyclopentane (I)	96377	NA	ID	ID	NA	1.70E+05	2.80E+06	8.30E+06	2.00E+07	2.10E+10	ID	3.50E+05
4,4'-Methylene-bis-2-chloroaniline	101144	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.10E+08	32,000	NA
Methylene chloride	75092	NA	100	100	30,000 (X)	2.40E+05	7.00E+05	1.70E+06	4.00E+06	8.30E+09	5.8E+6 (C)	2.30E+06
2-Methylnaphthalene	91576	NA	57,000	1.70E+05	4,200	4.80E+06	1.80E+06	1.80E+06	1.80E+06	2.90E+08	2.60E+07	NA
Methylphenols (J)	1319773	NA	7,400	20,000	1,000 (M); 600	NLV	NLV	NLV	NLV	2.90E+09	3.60E+07	NA
Metolachlor	51218452	NA	4,800	20,000	300	NLV	NLV	NLV	NLV	ID	6.9E+6 (C,DD)	4.40E+05
Metribuzin	21087649	NA	3,600	10,000	NA	ID	ID	ID	ID	ID	2.80E+07	NA
Mirex	2385855	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	40,000	NA
Molybdenum (B)	7439987	NA	1,500	4,200	64,000 (X)	NLV	NLV	NLV	NLV	ID	9.60E+06	NA
Naphthalene	91203	NA	35,000	1.00E+05	730	4.70E+05	3.50E+05	3.50E+05	3.50E+05	8.80E+07	5.20E+07	NA
Nickel (B)	7440020	20,000	1.00E+05	1.00E+05	(G)	NLV	NLV	NLV	NLV	1.60E+07	1.50E+08	NA
Nitrate (B,N)	14797558	NA	2.0E+5 (N)	2.0E+5 (N)	ID	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrite (B,N)	14797650	NA	20,000 (N)	20,000 (N)	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrobenzene (I)	98953	NA	330 (M); 68	330 (M); 190	3,600 (X)	1.70E+05	64,000	64,000	64,000	2.10E+07	3.40E+05	4.90E+05
2-Nitrophenol	88755	NA	400	1,200	ID	NLV	NLV	NLV	NLV	ID	2.00E+06	NA
n-Nitroso-di-n-propylamine	621647	NA	330 (M); 100	330 (M); 100	NA	NLV	NLV	NLV	NLV	2.00E+06	5,400	1.50E+06
N-Nitrosodiphenylamine	86306	NA	5,400	22,000	NA	NLV	NLV	NLV	NLV	2.80E+09	7.80E+06	NA
Oxamyl	23135220	NA	4,000	4,000	NA	NLV	NLV	NLV	NLV	ID	2.80E+07	NA
Oxo-hexyl acetate	88230357	NA	1,500	4,200	NA	ID	ID	ID	ID	2.40E+09	7.30E+06	1.00E+07
Pendimethalin	40487421	NA	1.10E+06	1.10E+06	NA	NLV	NLV	NLV	NLV	ID	1.30E+08	NA
Pentachlorobenzene	608935	NA	29,000	81,000	9,500	ID	ID	ID	ID	ID	9.3E+5 (C)	1.90E+05
Pentachloronitrobenzene	82688	NA	37,000	37,000	NA	2.20E+05	2.80E+05	2.80E+05	2.80E+05	1.50E+08	5.50E+06	NA



**TABLE 3. SOIL: NONRESIDENTIAL  
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			Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Pentachlorophenol	87865	NA	22	22	(G,X)	NLV	NLV	NLV	NLV	1.30E+08	3.20E+05	NA
Pentane	109660	NA	ID	ID	NA	1.80E+05	4.40E+07	3.40E+08	6.00E+08	5.30E+11	ID	2.40E+05
2-Pentene (I)	109682	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	2.20E+05
Phenanthrene	85018	NA	56,000	1.60E+05	2,100	5.10E+06	1.90E+05	1.90E+05	1.90E+05	2.90E+06	5.20E+06	NA
Phenol	108952	NA	88,000	2.60E+05	9,000	NLV	NLV	NLV	NLV	1.80E+10	2.3E+8 (C,DD)	1.20E+07
Phenytoin	57410	NA	830	3300	4300 (X)	NLV	NLV	NLV	NLV	2.80E+08	4.80E+05	NA
Phosphorus (Total)	7723140	NA	1.30E+06	4.80E+06	(EE)	NLV	NLV	NLV	NLV	2.90E+07	1.0E+9 (D)	NA
Phthalic acid	88993	NA	2.80E+05	8.00E+05	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (C,D)	1.70E+06
Phthalic anhydride	85449	NA	3.00E+05	8.80E+05	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (C,D)	1.10E+06
Picloram	1918021	NA	10,000	10,000	920	NLV	NLV	NLV	NLV	ID	5.10E+07	NA
Piperidine	110894	NA	64	180	NA	NLV	NLV	NLV	NLV	4.10E+08	3.20E+05	1.20E+08
Polybrominated biphenyls (J)	67774327	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	4,800	NA
Polychlorinated biphenyls (PCBs) (J,T)	1336363	NA	NLL	NLL	NLL	1.60E+07	8.10E+05	2.80E+07	2.80E+07	6.50E+06	(T)	NA
Prometon	1610180	NA	4,900	14,000	NA	NLV	NLV	NLV	NLV	ID	1.60E+07	NA
Propachlor	1918167	NA	1,900	5,400	NA	NLV	NLV	NLV	NLV	ID	9.50E+06	NA
Propazine	139402	NA	4,000	11,000	NA	NLV	NLV	NLV	NLV	ID	2.00E+07	NA
Propionic acid	79094	NA	2.40E+05	7.00E+05	ID	NLV	NLV	NLV	NLV	8.80E+09	1.0E+9 (C,D)	1.10E+08
Propyl alcohol (I)	71238	NA	28,000	80,000	NA	NLV	NLV	NLV	NLV	2.10E+10	7.4E+7 (DD)	1.10E+08
n-Propylbenzene (I)	103651	NA	1,600	4,600	ID	ID	ID	ID	ID	5.90E+08	8.00E+06	1.00E+07
Propylene glycol	57556	NA	3.00E+06	8.40E+06	5.80E+06	NLV	NLV	NLV	NLV	1.80E+11	1.0E+9 (C,D)	1.10E+08
Pyrene	129000	NA	4.80E+05	4.80E+05	ID	1.0E+9 (D)	7.80E+08	7.80E+08	7.80E+08	2.90E+09	8.40E+07	NA
Pyridine (I)	110861	NA	400	420	NA	2,000	9,800	40,000	97,000	1.00E+08	7.3E+5 (C)	37,000
Selenium (B)	7782492	410	4,000	4,000	400	NLV	NLV	NLV	NLV	5.90E+07	9.60E+06	NA
Silver (B)	7440224	1,000	4,500	13,000	100 (M); 27	NLV	NLV	NLV	NLV	2.90E+06	9.00E+06	NA
Silvex (2,4,5-TP)	93721	NA	3,600	3,600	2,200	NLV	NLV	NLV	NLV	ID	5.50E+06	NA
Simazine	122349	NA	80	80	340	NLV	NLV	NLV	NLV	ID	3.80E+06	NA
Sodium	17341252	NA	4.60E+06	7.00E+06	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA



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Sodium azide	26628228	NA	1,800	5,000	1,000	ID	ID	ID	ID	ID	8.70E+06	NA
Strontium (B)	7440246	NA	92,000	2.60E+05	4.20E+05	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA
Styrene	100425	NA	2,700	2,700	2,100 (X)	1.3E+6 (C)	3.30E+06	3.30E+06	4.20E+06	6.90E+09	1.9E+6 (C)	5.20E+05
Sulfate	14808798	NA	5.00E+06	5.00E+06	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Tebuthiuron	34014181	NA	10,000	30,000	NA	NLV	NLV	NLV	NLV	ID	2.7E+7 (DD)	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	(O)	(O)	NA
1,2,4,5-Tetrachlorobenzene	95943	NA	1.50E+06	1.50E+06	3,400 (X)	1.10E+06	2.70E+05	2.70E+05	2.70E+05	2.90E+07	2.50E+08	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	59 (O)	0.99 (O)	NA
1,1,1,2-Tetrachloroethane	630206	NA	1,500	6,400	ID	33,000	1.20E+05	2.10E+05	3.30E+05	5.30E+08	2.2E+6 (C)	4.40E+05
1,1,2,2-Tetrachloroethane	79345	NA	170	700	1,600 (X)	23,000	34,000	34,000	34,000	6.80E+07	2.40E+05	8.70E+05
Tetrachloroethylene	127184	NA	100	100	1,200 (X)	21,000	2.10E+05	4.90E+05	1.10E+06	1.20E+09	9.3E+5 (C)	88,000
Tetrahydrofuran	109999	NA	1,900	5,400	2.2E+5 (X)	2.40E+06	1.50E+07	6.70E+07	1.60E+08	1.70E+11	9.50E+06	1.20E+08
Tetranitromethane	509148	NA	ID	ID	NA	600	500 (M); 180	ID	ID	2.60E+05	ID	ID
Thallium (B)	7440280	NA	2,300	2,300	4,200 (X)	NLV	NLV	NLV	NLV	5.90E+06	1.30E+05	NA
Toluene (I)	108883	NA	16,000	16,000	5,400	6.1E+5 (C)	3.30E+06	3.60E+07	3.60E+07	1.20E+10	1.6E+8 (C)	2.50E+05
p-Toluidine	106490	NA	660 (M); 300	1,200	NA	NLV	NLV	NLV	NLV	1.30E+08	4.30E+05	1.20E+06
Toxaphene	8001352	NA	24,000	24,000	8,200	NLV	NLV	NLV	NLV	1.20E+07	85,000	NA
Triallate	2303175	NA	95,000	2.7E+5 (C)	NA	ID	ID	ID	ID	ID	9.5E+6 (C)	2.50E+05
Tributylamine	102829	NA	7,800	23,000	ID	1.10E+06	7.20E+05	7.20E+05	7.20E+05	2.10E+08	2.60E+06	3.70E+06
1,2,4-Trichlorobenzene	120821	NA	4,200	4,200	5,900 (X)	1.8E+7 (C)	3.40E+07	3.40E+07	3.40E+07	1.10E+10	5.8E+6 (C,DD)	1.10E+06
1,1,1-Trichloroethane	71556	NA	4,000	4,000	1,800	4.60E+05	4.50E+06	1.50E+07	3.10E+07	2.90E+10	1.0E+9 (C,D)	4.60E+05
1,1,2-Trichloroethane	79005	NA	100	100	6,600 (X)	24,000	57,000	57,000	1.20E+05	2.50E+08	8.40E+05	9.20E+05
Trichloroethylene	79016	NA	100	100	4,000 (X)	1,900	14,000	25,000	58,000	5.90E+07	6.6E+5 (C,DD)	5.00E+05
Trichlorofluoromethane	75694	NA	52,000	1.50E+05	NA	5.1E+6(C)	1.10E+08	1.40E+11	1.40E+11	1.70E+12	2.6E+8 (C)	5.60E+05
2,4,5-Trichlorophenol	95954	NA	39,000	1.10E+05	NA	NLV	NLV	NLV	NLV	1.00E+10	7.30E+07	NA
2,4,6-Trichlorophenol	88062	NA	2,400	9,400	330 (M); 100	NLV	NLV	NLV	NLV	1.30E+09	3.30E+06	NA



**TABLE 3. SOIL: NONRESIDENTIAL**

**PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS**

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (ug/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (§324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based value.

Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
			Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
1,2,3-Trichloropropane	96184	NA	840	2,400	NA	7,500	11,000	11,000	12,000	8.80E+06	4.2E+6 (C)	8.30E+05
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	9.0E+6 (C)	9.0E+6 (C)	1,700	9.3E+6 (C)	2.10E+08	8.90E+08	2.10E+09	2.30E+12	1.0E+9 (C,D)	5.50E+05
Triethanolamine	102716	NA	74,000	2.00E+05	NA	NLV	NLV	NLV	NLV	1.50E+09	3.6E+8 (C)	1.10E+08
Triethylene glycol	112276	NA	86,000	2.4E+5 (C)	NA	NLV	NLV	NLV	NLV	ID	2.3E+8 (C,DD)	1.10E+05
3-Trifluoromethyl-4-nitrophenol	88302	NA	1.10E+05	3.10E+05	NA	NLV	NLV	NLV	NLV	ID	2.4E+8 (DD)	NA
Trifuralin	1582098	NA	1.90E+05	5.70E+05	NA	ID	ID	ID	ID	ID	5.70E+06	NA
2,2,4-Trimethyl pentane	540841	NA	ID	ID	NA	2.0E+5 (C)	6.30E+06	4.00E+07	9.60E+07	1.00E+11	ID	19,000
2,4,4-Trimethyl-2-pentene (I)	107404	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	56,000
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	2,100	570	8.0E+6 (C)	2.50E+07	6.00E+08	6.00E+08	3.60E+10	1.0E+8 (C)	1.10E+05
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,800	1,100	4.8E+6 (C)	1.90E+07	4.60E+08	4.60E+08	3.60E+10	1.0E+8 (C)	94,000
Triphenyl phosphate	115866	NA	1.5E+6 (C)	1.8E+6 (C)	NA	NLV	NLV	NLV	NLV	ID	1.2E+8 (C)	1.10E+05
tris(2,3-Dibromopropyl)phosphate	126727	NA	930	930	ID	4.3E+5 (C)	60,000	60,000	60,000	7.40E+06	20,000	27,000
Urea	57136	NA	ID	ID	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Vanadium	7440622	NA	72,000	9.90E+05	4.30E+05	NLV	NLV	NLV	NLV	ID	5.5E+6 (DD)	NA
Vinyl acetate (I)	108054	NA	13,000	36,000	NA	1.50E+06	2.00E+06	2.70E+06	5.90E+06	5.90E+09	3.4E+7 (C,DD)	2.40E+06
Vinyl chloride	75014	NA	40	40	260 (X)	2,800	29,000	1.70E+05	4.20E+05	8.90E+08	34,000	4.90E+05
White phosphorus (R)	12185103	NA	2.2	6	NA	NLV	NLV	NLV	NLV	ID	17,000 (DD)	NA
Xylenes (I)	1330207	NA	5,600	5,600	820	1.2E+7 (C)	5.40E+07	6.50E+07	1.30E+08	1.30E+11	1.0E+9 (C,D)	1.50E+05
Zinc (B)	7440666	47,000	2.40E+06	5.00E+06	(G)	NLV	NLV	NLV	NLV	ID	6.30E+08	NA



**R 299.49 FOOTNOTES FOR GENERIC CLEANUP CRITERIA TABLES**  
**Cleanup Criteria Requirements for Response Activity (formerly the Part 201 Generic Cleanup**  
**Criteria and Screening Levels)**

**Effective Date December 30, 2013**

**COVER PAGE**

**R 299.49 Footnotes for generic cleanup criteria tables.**

Rule 49. (1) The footnotes that apply to the generic criteria tables in R 299.44, R 299.46, and R 299.48 are as follows:

- (A) Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
- (B) Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
- (C) The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level ( $C_{sat}$ ). The person proposing or implementing response activity shall document whether additional response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific  $C_{sat}$  or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.
- (D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
- (E) Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value provided in the following table:

Hazardous Substance	Chemical Abstract Service Number	Residential Health-Based Drinking Water Value	Non-Residential Health-Based Drinking Water Value
Aluminum	7429905	300	4,100
tertiary Amyl methyl ether	994058	910	2,600
Copper	7440508	1,400	4,000
Diethyl ether	60297	3,700	10,000
Ethylbenzene	100414	700	700
Iron	7439896	2,000	5,600
Manganese	7439965	860	2,500
Methyl-tert-butyl ether (MTBE)	1634044	240	690
Toluene	108883	1,000	1,000
1,2,4-Trimethylbenzene	95636	1,000	2,900
1,3,5-Trimethylbenzene	108678	1,000	2,900
Xylenes	1330207	10,000	10,000

- (F) Criterion is based on adverse impacts to plant life and phytotoxicity.
- (G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness

of the receiving surface water. Where water hardness exceeds 400 mg CaCO<sub>3</sub>/L, use 400 mg CaCO<sub>3</sub>/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote.

Hazardous Substance	FCV Formula ug/L	FCV Conversion Factor (CF)	WV ug/L	HNDV ug/L
Acetate	EXP(0.2732*(pH) + 7.0362)	NA	NA	1.3E+6
Acetic Acid	EXP(0.2732*(pH) + 7.0362)	NA	NA	1.3E+6
Barium	EXP(1.0629*(LnH)+1.1869)	NA	NA	1.6E+5
Beryllium	EXP(2.5279*(LnH)-10.7689)	NA	NA	1,200
Cadmium <sup>⊗</sup>	(EXP(0.7852*(LnH)-2.715))*CF	1.101672- ((LnH)*(0.041838))	NA	130
Chromium (III) <sup>⊗</sup>	(EXP(0.819*(LnH)+0.6848))*CF	0.86	NA	9,400
Copper	(EXP(0.8545*(LnH)-1.702))*CF	0.96	NA	38,000
Lead <sup>⊗</sup>	(EXP(0.9859*(LnH)-1.270))*CF	1.46203- ((LnH)*(0.14571))	NA	190
Manganese <sup>⊗</sup>	EXP(0.8784*(LnH)+3.5385)	NA	NA	59,000
Nickel	(EXP(0.846*(LnH)+0.0584))*CF	0.997	NA	2.1E+5
Pentachlorophenol <sup>⊗</sup>	EXP(1.005*(pH)-5.134)	NA	NA	2.8
Zinc	(EXP(0.8473*(LnH)+0.884))*CF	0.986	NA	16,000

Where,

EXP(x) = The base of the natural logarithm raised to power x (e<sup>x</sup>).

LnH = The natural logarithm of water hardness in mg CaCO<sub>3</sub>/L.

\* = The multiplication symbol.

⊗ = The GSI criterion developed here may not be protective for surface water that is used as a drinking water source. Refer to footnote (X) for further guidance.

A spreadsheet that may be used to calculate GSI and GSI protection criteria for (G)-footnoted hazardous substances is available on the Department of Environmental Quality (DEQ) internet web site.

- (H) Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 ug/L. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.
- (I) Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of \$45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.
- (J) Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
- (K) Hazardous substance may be flammable or explosive, or both.
- (L) Criteria for lead are derived using a biologically based model, as allowed for under Section 20120a(9) of the NREPA, and are not calculated using the algorithms and assumptions specified in pathway-specific rules. The generic residential drinking water criterion of 4 ug/L is linked to the generic residential soil direct contact criterion of 400 mg/kg. A higher concentration in the drinking water, up to the state action level of 15 ug/L, may be allowed as a site-specific remedy and still allow for drinking water use, under Section 20120a(2) and 20120b of the NREPA if soil concentrations are appropriately lower than 400 mg/kg. If a site-specific criterion is approved based on this subdivision, a notice shall be filed on the deed for all property where the groundwater concentrations will exceed 4 ug/L to provide notice of the potential for unacceptable risk if soil or groundwater concentrations increase. Acceptable combinations of site-specific soil and drinking water concentrations are presented in the following table:

**Acceptable Combinations of Lead in Drinking Water and Soil**

Drinking Water Concentration (ug/L)	Soil Concentration (mg/kg)
5	386-395
6	376-385
7	376-385
8	366-375
9	356-365
10	346-355
11	336-345
12	336-345
13	326-335
14	316-325
15	306-315



- (M) Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
- (N) The concentrations of all potential sources of nitrate-nitrogen (e.g., ammonia-N, nitrite-N, nitrate-N) in groundwater that is used as a source of drinking water shall not, when added together, exceed the nitrate drinking water criterion of 10,000 ug/L. Where leaching to groundwater is a relevant pathway, soil concentrations of all potential sources of nitrate-nitrogen shall not, when added together, exceed the nitrate drinking water protection criterion of 2.0E+5 ug/kg.
- (O) The concentration of all polychlorinated and polybrominated dibenzodioxin and dibenzofuran isomers present at a facility, expressed as an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin based upon their relative potency, shall be added together and compared to the criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin. The generic cleanup criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin are not calculated according to the algorithms presented in R 299.14 to R 299.26. The generic cleanup criteria are being held at the values that the DEQ has used since August 1998, in recognition of the fact that national efforts to reassess risks posed by dioxin are not yet complete. Until these studies are complete, it is premature to select a revised slope factor and/or reference dose for calculation of generic cleanup criteria.
- (P) Amenable cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with all groundwater criteria. Total cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with soil criteria. Nonresidential direct contact criteria may not be protective of the potential for release of hydrogen cyanide gas. Additional land or resource use restrictions may be necessary to protect for the acute inhalation concerns associated with hydrogen cyanide gas.
- (Q) Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
- (R) Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of \$45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
- (S) Criterion defaults to the hazardous substance-specific water solubility limit.
- (T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, Subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards. Subpart D and Subpart G of 40 C.F.R. §761 (July 1, 2001) are adopted by reference in these rules and are available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulations may be purchased, at a cost as of the time of adoption of these rules of \$55, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401, or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost. Alternatives to compliance with the TSCA standards listed below

are possible under 40 C.F.R. §761 Subpart D. New releases may be subject to the standards identified in 40 C.F.R. §761, Subpart G. Use Part 201 soil direct contact cleanup criteria in the following table if TSCA standards are not applicable.

Land Use Category	TSCA, Subpart D Cleanup Standards	Part 201 Soil Direct Contact Cleanup Criteria
Residential	1,000 ppb, or 10,000 ppb if capped	4,000 ppb
Nonresidential	1,000 ppb, or 10,000 ppb if capped	16,000 ppb

- (U) Hazardous substance may exhibit the characteristic of corrosivity as defined in 40 C.F.R. §261.22 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of \$45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
- (V) Criterion is the aesthetic drinking water value as required by Section 20120(a)(5) of the NREPA. Concentrations up to 200 ug/L may be acceptable, and still allow for drinking water use, as part of a site-specific cleanup under Section 20120a(2) and 20120b of the NREPA.
- (W) Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.
- (X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value (HDV) listed in the table in this footnote, except for those HDV indicated with an asterisk. For HDV with an asterisk, the generic GSI criterion shall be the lowest of the HDV, the WV, and the calculated FCV. See formulas in footnote (G). Soil protection criteria based on the HDV shall be as listed in the table in this footnote, except for those values with an asterisk. Soil GSI protection criteria based on the HDV shall be as listed in the table in this footnote, except for those values with an asterisk. Soil GSI protection criteria for compounds with an asterisk shall be the greater of 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote.

Hazardous Substance	Chemical Abstract Service Number	Surface Water Human Drinking Water Values (HDV) (ug/L)	Soil GSI Protection Criteria for HDV (ug/kg)
Acrylamide	79061	0.5 (M); 0.12	10
Alachlor	15972608	3.5	88
Antimony	7440360	2.0 (M); 1.7	1,200
Benzene	71432	12	240
Boron	7440428	4,000	80,000
Bromate	15541454	10 (M); 0.5	200
n-Butanol	71363	3,500	70,000
Butyl benzyl phthalate	85687	6.9	13,000
Cadmium	7440439	2.5*	*
Carbon tetrachloride	56235	5.6	110
Chloride	16887006	50,000	1.0E+6
Chloroethane	75003	170	3,400
Chromium (III)	16065831	120*	*
Cyanazine	21725462	2.0 (M); 0.93	200 (M); 40
1,2-Dichloroethane	107062	6.0	120
trans-1,2-Dichloroethylene	156605	470	9,400
1,2-Dichloropropane	78875	9.1	180
1,3-Dichloropropene	542756	3.3	100 (M); 66
N,N-Dimethylacetamide	127195	700	14,000
1,4-Dioxane	123911	34	680
Ethylene dibromide	106934	0.17	20 (M); 3.4
Ethylene glycol	107211	56,000	1.1E+6
Hexachloroethane	67721	5.3	310
Isophorone	78591	310	6,200
Isopropyl alcohol	67630	28,000	5.6E+5
Lead	7439921	14*	*
Manganese	7439965	1,300*	*
Methanol	67561	14,000	2.8E+5
Methyl-tert-butyl ether (MTBE)	1634044	100	2,000
Methylene chloride	75092	47	940
Molybdenum	7439987	120	2,400
Nitrobenzene	98953	4.7	330 (M); 94
Pentachlorophenol	87865	1.8*	*
Styrene	100425	20	530
1,2,4,5-Tetrachlorobenzene	95943	2.8	3,300
1,1,2,2-Tetrachloroethane	79345	3.2	64
Tetrachloroethylene	127184	11	220
Tetrahydrofuran	109999	350	7,000
Thallium	7440280	2.0 (M); 1.2	1,400
1,2,4-Trichlorobenzene	120821	80	4,700
1,1,2-Trichloroethane	79005	12	240
Trichloroethylene	79016	29	580
Vinyl chloride	75014	1.0 (M); 0.25	40 (M); 20

(Y) Source size modifiers shown in the following table shall be used to determine soil inhalation criteria for ambient air when the source size is not one-half acre. The modifier shall be multiplied by the generic soil inhalation criteria shown in the table of generic cleanup criteria to determine the applicable criterion. See Footnote (C).

Source Size sq. feet or acres	Modifier
400 sq feet	3.17
1000 sq feet	2.2
2000 sq feet	1.76
1/4 acre	1.15
1/2 acre	1
1 acre	0.87
2 acre	0.77
5 acre	0.66
10 acre	0.6
32 acre	0.5
100 acre	0.43

- (Z) Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.
- (AA) Use 10,000 ug/l where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/l for all other uses.
- (BB) The state drinking water standard for asbestos (fibers greater than 10 micrometers in length) is in units of a million fibers per liter of water (MFL). Soil concentrations of asbestos are determined by polarized light microscopy.
- (CC) Groundwater: The generic GSI criteria are based on the toxicity of unionized ammonia (NH<sub>3</sub>); the criteria are 29 ug/L and 53 ug/L for cold water and warm water surface water, respectively. As a result, the GSI criterion shall be compared to the percent of the total ammonia concentration in the groundwater that will become NH<sub>3</sub> in the surface water. This percent NH<sub>3</sub> is a function of the pH and temperature of the receiving surface water and can be estimated using the following table, taken from Emerson, et al., (Journal of the Fisheries Research Board of Canada, Volume 32(12):2382, 1975).

**Percent NH<sub>3</sub> in Aqueous Ammonia Solutions for 0-30 °C and pH 6-10**

Temp (°F)	Temp (°C)	pH								
		6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
32.0	0	0.00827	0.0261	0.0826	0.261	0.820	2.55	7.64	20.7	45.3
33.8	1	0.00899	0.0284	0.0898	0.284	0.891	2.77	8.25	22.1	47.3
35.6	2	0.00977	0.0309	0.0977	0.308	0.968	3.00	8.90	23.6	49.4
37.4	3	0.0106	0.0336	0.106	0.335	1.05	3.25	9.60	25.1	51.5
39.2	4	0.0115	0.0364	0.115	0.363	1.14	3.52	10.3	26.7	53.5
41.0	5	0.0125	0.0395	0.125	0.394	1.23	3.80	11.1	28.3	55.6
42.8	6	0.0136	0.0429	0.135	0.427	1.34	4.11	11.9	30.0	57.6
44.6	7	0.0147	0.0464	0.147	0.462	1.45	4.44	12.8	31.7	59.5
46.4	8	0.0159	0.0503	0.159	0.501	1.57	4.79	13.7	33.5	61.4
48.2	9	0.0172	0.0544	0.172	0.542	1.69	5.16	14.7	35.3	63.3
50.0	10	0.0186	0.0589	0.186	0.586	1.83	5.56	15.7	37.1	65.1
51.8	11	0.0201	0.0637	0.201	0.633	1.97	5.99	16.8	38.9	66.8
53.6	12	0.0218	0.0688	0.217	0.684	2.13	6.44	17.9	40.8	68.5
55.4	13	0.0235	0.0743	0.235	0.738	2.30	6.92	19.0	42.6	70.2
57.2	14	0.0254	0.0802	0.253	0.796	2.48	7.43	20.2	44.5	71.7
59.0	15	0.0274	0.0865	0.273	0.859	2.67	7.97	21.5	46.4	73.3
60.8	16	0.0295	0.0933	0.294	0.925	2.87	8.54	22.8	48.3	74.7
62.6	17	0.0318	0.101	0.317	0.996	3.08	9.14	24.1	50.2	76.1
64.4	18	0.0343	0.108	0.342	1.07	3.31	9.78	25.5	52.0	77.4
66.2	19	0.0369	0.117	0.368	1.15	3.56	10.5	27.0	53.9	78.7
68.0	20	0.0397	0.125	0.396	1.24	3.82	11.2	28.4	55.7	79.9
69.8	21	0.0427	0.135	0.425	1.33	4.10	11.9	29.9	57.5	81.0
71.6	22	0.0459	0.145	0.457	1.43	4.39	12.7	31.5	59.2	82.1
73.4	23	0.0493	0.156	0.491	1.54	4.70	13.5	33.0	60.9	83.2
75.2	24	0.0530	0.167	0.527	1.65	5.03	14.4	34.6	62.6	84.1
77.0	25	0.0569	0.180	0.566	1.77	5.38	15.3	36.3	64.3	85.1
78.8	26	0.0610	0.193	0.607	1.89	5.75	16.2	37.9	65.9	85.9
80.6	27	0.0654	0.207	0.651	2.03	6.15	17.2	39.6	67.4	86.8
82.4	28	0.0701	0.221	0.697	2.17	6.56	18.2	41.2	68.9	87.3
84.2	29	0.0752	0.237	0.747	2.32	7.00	19.2	42.9	70.4	88.3
86.0	30	0.0805	0.254	0.799	2.48	7.46	20.3	44.6	71.8	89.0

The generic approach for estimating NH<sub>3</sub> assumes a default pH of 8 and default temperatures of 68°F and 85°F for cold water and warm water surface water, respectively. The resulting percent NH<sub>3</sub> is 3.8 percent and 7.2 percent for cold water and warm water, respectively. This default percentage shall be multiplied by the total ammonia-nitrogen (NH<sub>3</sub>-N) concentration in the groundwater and the resulting NH<sub>3</sub> concentration compared to the applicable GSI criterion. As an

alternative, the maximum pH and temperature data from the specific receiving surface water can be used to estimate, from the table in this footnote, a lower percent unionized ammonia concentration for comparison to the generic GSI.

Soil: The generic soil GSI protection criteria for unionized ammonia are 580 ug/kg and 1,100 ug/kg for cold water and warm water surface water, respectively.

- (DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.
- (EE) The following are applicable generic GSI criteria as required by Section 20120e of the NREPA.

Hazardous Substance	GSI (ug/L)	Notes
Phosphorus	1,000	Criteria applicable unless receiving water is a surface water that has a phosphorus waste load allocation or is an inland lake. In those cases, contact the department for applicable values.
Total dissolved solids (TDS)	5.0E+5	If TDS data are not available, the TDS criterion may be used a screening level for the sum of the concentrations of the following substances: calcium, chlorides, iron, magnesium, potassium, sodium, sulfate.
Dissolved Oxygen (DO): Cold receiving waters Warm receiving waters	≥ 7,000 ≥ 5,000	Since a low level of DO can be harmful to aquatic life, the criterion represents a minimum level that on-site samples must exceed. This is in contrast to other criteria which represent "not to exceed" concentrations. DO criteria are not applicable if groundwater Carbonaceous Biochemical Oxygen Demand (CBOD) is less than 10,000 ug/L and groundwater ammonia concentration is less than 2,000 ug/L.

- (FF) The chloride GSI criterion shall be 125 mg/l when the discharge is to surface waters of the state designated as public water supply sources or 50 mg/l when the discharge is to the Great Lakes or connecting waters. Chloride GSI criteria shall not apply for surface waters of the state that are not designated as a public water supply source, however, the total dissolved solids criterion is applicable.
- (GG) Risk-based criteria are not available for methane due to insufficient toxicity data. An acceptable soil gas concentration (presented for both residential and nonresidential land uses) was derived utilizing 25 percent of the lower explosive level for methane. This equates to 1.25 percent or 8.4E+6 ug/m<sup>3</sup>.
- (HH) The residential criterion for sodium is 230,000 ug/l in accordance with the Sodium Advisory Council recommendation and revised Groundwater Discharge Standards.

"ID" means insufficient data to develop criterion.

"NA" means a criterion or value is not available or, in the case of background and CAS numbers, not applicable.

"NLL" means hazardous substance is not likely to leach under most soil conditions.

“NLV” means hazardous substance is not likely to volatilize under most conditions.

**R 299.50 Toxicological and chemical-physical properties.**

Rule 50. (1) The toxicological and chemical-physical properties used to calculate generic shall be as shown in table 4, except as provided in section 20120a(9) of the act, R 299.49(1)(l) and R 299.49(1)(o).

(2) Abbreviations used in table 4 have the following meanings when used in this rule:

(a) “NA” means not available.

(b) “NR” means not relevant.