COMMONWEALTH of VIRGINIA

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Douglas W. Domenech
Secretary of Natural Resources

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Director

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June 4, 2013

Dear Interested Stakeholder:

This letter shares the information about the newly updated Alternate Concentration Limits (ACL) Table, effective July 1, 2013. The latest table has several changes in ACL values compared to the update that is currently in use dated December 2011. The reason for many changes to the 2013 update is that DEQ has fully adopted the EPA Region 3 calculation equations which were incorporated in the November 2011 version of the EPA Regional Screening Level (RSL) Table. The changes in ACL are a result of changes in toxicity values and inclusion of dermal (skin) exposure for carcinogens and non-carcinogens. Oral, dermal, and inhalation (for VOCs only) are included in the calculations. Some of the advantages of including dermal exposure in the calculations are better science because all exposure routes are considered and consistency across RCRA programs.

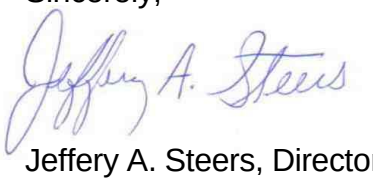
Please keep in mind that for chemicals with an MCL, the MCL will continue to be the groundwater protection standard (GPS). These changes do not impact those chemicals. They are included on the tables for completeness only. As always with metals, the Regulations allow site specific background to be used, so the facilities may use site-specific background instead of ACL for metals. Please note that copper and lead do not have an MCL but have an 'action level.' For the purpose of setting the GPS, these action levels are treated as MCLs. Site-specific ACLs can still be calculated using REAMS software.

VDEQ discussed these changes with the regulated community on March 26, 2013. Based on feedback received from the regulated community, adopting the EPA methodology was the preferred option. The latest update of the ACL table, dated and effective as of July 1, 2013 is attached with this letter.

Additionally, VDEQ discussed several technical and programmatic long-term options that it may consider regarding ACLs. Based upon feedback and further review, VDEQ is pursuing the development of an option which provides for risk-based levels to be tied to the location of the landfill (urban v. rural). It is expected this option would be developed by the end of the calendar year. Beyond this option, VDEQ will continue to consider the merits, necessity, and feasibility of providing a separate option for pre-1993 landfills. A summary of the feedback received by VDEQ at this meeting is attached.

We hope that this information provides insight into DEQ's process of establishing and revising ACLs. If you have further question on the ACL development/changes please contact either Pat McMurray at (804) 698-4186 or Sonal Iyer at (804) 698-4259, or for further questions regarding the effect of the ACL revisions, please contact Geoff Christe at (804) 698-4283.

Sincerely,



Jeffery A. Steers, Director
Division of Land Protection & Revitalization

Encl:

1. ACL table update July 1, 2013
2. ACL Stakeholder Process

ACL Stakeholder Process 2013 – Outcome and Next Steps

1) Methodology

There were no major objections to using the EPA RSL Table methodology (incl. dermal) moving forward. In order to maintain a level playing field, the new numbers will be published soon but with an effective date of July 1, applicable to sampling events occurring in the 2nd half of the calendar year. Future releases will be targeted for mid-December with an effective date of January 2.

2) Policy Options

The following policy options did not receive significant support and will not be pursued further at this time:

- Release of updated ACL values only when significant changes occur or less frequently than annual
- Discontinuing agency-issued ACL values

The following related policy options received significant support and will be further explored by the agency within the next six months:

- Set different across the board risk levels (10^{-6} vs. 10^{-5}) depending on location in rural vs. urban areas. Would only apply if all conditions for urban risk level are met. These conditions would include limited or no use of groundwater. Conditions of applicability to be further defined but this may be implementable this year.
- Extend use of 10^{-5} risk level to multiple constituents depending on site-specific conditions. Would only apply if all conditions for risk level are met. Conditions of applicability to be further defined. May be more difficult to implement than urban option.
- Both options would result in a second ACL column for 10^{-5} risk level.

3) Regulatory Options

Only one regulatory option received support, i.e. to remove the pre-93 landfills from Subtitle D equivalent program. The agency will re-evaluate this option after the policy options above have been addressed and possibly implemented.

Regulatory options that did not receive support are:

- Eliminate ACLs entirely (i.e. rely on background or LOQ)
- Eliminate ACLs during assessment/Phase II monitoring (i.e. rely on background or LOQ)
- Including GPS (incl. ACL values) in the facility permit

ACL for VHWMR or Table 3.1 (VSWMR) constituents

Users of the ACL table are requested to refer to notes provided at the end of the table and draft technical memo accompanying this table.

Toxicity values obtained using November 2012 EPA R3 RSL Table

N=NO

Y=YES

N/A = Not Available

RfDo=Oral Reference Dose (mg/kg/d)

RfCi=Inhalation Reference Concentration(mg/m3)

So=Oral Slope Factor (mg/kg/d)

IUR=Inhalation Unit Risk (ug/m3)-1

ACL(ug/L)=Alternate Concentration Limit

sRfD=Subchronic RfD

I=IRIS

P=EPA PROVISIONAL PEER-REVIEWED

Cal=CA EPA

H=HEAST

W=WORLD HEALTH ORGANIZATION

E=EPA DRAFT SOIL SCREENING LEVEL

M=ATSDR MRL

A=HEAST ALTERNATE

O=OTHER EPA DOCUMENTS

S = SCREENING VALUE

PARAMETERS	VOC	Mutagen	CAS NO	RfDo		RfCi		So		IUR		ACL(ug/L) July 2013	MCL (ug/L)	Table 3.1 (VSWMR) constituent?
Acenaphthene	Y	N	83-32-9	0.06	I		0		0		0	400	N	Y
Acenaphthylene	N	N	208-96-8		0		0		0		0		N	Y
Acetone	Y	N	67-64-1	0.9	I	31	A		0		0	12000	N	Y
Acetophenone	Y	N	98-86-2	0.1	I		0		0		0	1500	N	Y
Acetonitrile; Methyl Cyanide	Y	N	75-05-8		0	0.06	I		0		0	130	N	Y
2-Acetylaminofluorene;2-AAF	N	N	53-96-3		0		0	3.8	Cal	0.0013	Cal	0.013	N	Y
Acrolein	Y	N	107-02-8	0.0005	I	0.00002	I		0		0	0.041	N	Y
Acrylonitrile	Y	N	107-13-1	0.04	A	0.002	I	0.54	I	6.8E-05	I	0.045	N	Y
Aldrin	N	N	309-00-2	0.00003	I		0	17	I	0.0049	I	0.004	N	Y
Allyl Chloride	Y	N	107-05-1		0	0.001	I	0.021	Cal	6E-06	Cal	0.63	N	Y
4-Aminodiphenyl	N	N	92-67-1		0		0	21	Cal	0.006	Cal	0.0026	N	Y
Aniline	N	N	62-53-3	0.007	P	0.001	I	0.0057	I	1.6E-06	Cal	12	N	N
Anthracene	Y	N	120-12-7	0.3	I		0		0		0	1300	N	Y
Antimony (total)	N	N	7440-36-0	0.0004	I		0		0		0	6	6	Y
Azobenzene	Y	N	103-33-3				0	0.11	I	3.1E-05	I	0.1	N	N
Arsenic (total)	N	N	7440-38-2	0.0003	I	1.5E-05	Cal	1.5	I	0.0043	I	0.045	10	Y
Barium (total)	N	N	7440-39-3	0.2	I	0.0005	H		0		0	2900	2000	Y
Benzene	Y	N	71-43-2	0.004	I	0.03	I	0.055	I	7.8E-06	I	0.39	5	Y
Benzo[a]anthracene	N	Y	56-55-3		0		0	0.73	O	0.00011	Cal	0.029	N	Y
Benzo[b]fluoranthene	N	Y	205-99-2		0		0	0.73	O	0.00011	Cal	0.029	N	Y
Benzo[k]fluoranthene	N	Y	207-08-9		0		0	0.073	O	0.00011	Cal	0.29	N	Y
Benzo[ghi]perylene	N	N	191-24-2		0		0		0		0		N	Y
Benzo[a]pyrene	N	Y	50-32-8		0		0	7.3	I	0.0011	Cal	0.0029	0.2	Y

PARAMETERS	VOC	Mutagen	CAS NO	RfDo		RfCi		So		IUR		ACL(ug/L) July 2013	MCL (ug/L)	Table 3.1 (VSWMR) constituent?
Benzyl alcohol	N	N	100-51-6	0.1	P		0		0		0	1500	N	Y
Beryllium (total)	N	N	7440-41-7	0.002	I	0.00002	I		0	0.0024	I	16	4	Y
BHC-alpha; HCH(alpha)	N	N	319-84-6	0.008	A		0	6.3	I	0.0018	I	0.0062	N	Y
BHC-beta; HCH(beta)	N	N	319-85-7		0		0	1.8	I	0.00053	I	0.022	N	Y
BHC-delta	N	N	319-86-8		0		0		0		0		N	Y
BHC-gamma(Lindane)	N	N	58-89-9	0.0003	I		0	1.1	Cal	0.00031	Cal	0.036	0.2	Y
Bis(2-chlorethoxy)methane	N	N	111-91-1	0.003	P		0		0		0	46	N	Y
Bis(2-chloroethyl)ether	Y	N	111-44-4		0		0	1.1	I	0.00033	I	0.012	N	Y
Bis(2-chloro-1-methylethyl)ether; 2,2	Y	N	108-60-1	0.04	I		0	0.07	H	0.00001	H	0.31	N	Y
Bis(2-Chloroisopropyl)ether; 2,2-Dich	N	N	39638-32-9		0		0		0		0		N	Y
Bis(2-ethylhexyl)phthalate; DEHP	N	N	117-81-7	0.02	I		0	0.014	I	2.4E-06	I	4.8	6	Y
Bromochloromethane	Y	N	74-97-5		0	0.04	P		0		0	83	N	Y
Bromodichloromethane (THM); Dibro	Y	N	75-27-4	0.02	I		0	0.062	I	3.7E-05	Cal	0.12	N	Y
Bromoform (tribromomethane) (THM	N	N	75-25-2	0.02	I		0	0.0079	I	1.1E-06	I	7.9	N	Y
4-Bromophenyl phenyl ether	N	N	101-55-3				0		0		0		N	Y
Butyl benzyl phthalate;Benzyl butyl p	N	N	85-68-7	0.2	I		0	0.0019	P		0	14	N	Y
Cadmium (total)	N	N	7440-43-9	0.0005	I	0.00002	Cal		0	0.0018	I	6.9	5	Y
Carbon disulfide	Y	N	75-15-0	0.1	I	0.7	I		0		0	720	N	Y
Carbon tetrachloride	Y	N	56-23-5	0.004	I	0.1	I	0.07	I	6E-06	I	0.39	5	Y
Chlordane	N	N	12789-03-6	0.0005	I	0.0007	I	0.35	I	0.0001	I	0.19	2	Y
p-Chloroaniline; 4-Chloroaniline	N	N	106-47-8	0.004	I		0	0.2	P		0	0.32	N	Y
Chlorobenzene	Y	N	108-90-7	0.02	I	0.05	P		0		0	72	100	Y
Chlorobenzilate	N	N	510-15-6	0.02	I		0	0.11	Cal	3.1E-05	Cal	0.27	N	Y
p-Chloro-m-cresol	N	N	59-50-7	0.1	M		0		0		0	1100	N	Y
Chloroethane (Ethyl Chloride)	Y	N	75-00-3		0	10	I		0		0	21000	N	Y
Chloroform	Y	N	67-66-3	0.01	I	0.098	A	0.031	Cal	2.3E-05	I	0.19	N	Y
2-Chloronaphthalene;beta-Chloronap	Y	N	91-58-7	0.08	I		0		0		0	550	N	Y
2-Chlorophenol	Y	N	95-57-8	0.005	I		0		0		0	71	N	Y
4-Chlorophenyl phenyl ether	N	N	7005-72-3		0		0		0		0		N	Y
Chloroprene; 2-Chloro-1,3-butadiene	Y	N	126-99-8	0.02	H	0.02	I		0	0.0003	I	0.016	N	Y
Chromium III and compounds	N	N	16065-83-1	1.5	I		0		0		0	16000	N	N
Chromium VI and compounds	N	Y	18540-29-9	0.003	I	0.0001	I	0.5	O	0.084	I	0.031	N	N
Chromium (Total)	N	N	7440-47-3		0		0		0		0		100	Y
Chrysene	N	Y	218-01-9		0		0	0.0073	O	1.1E-05	Cal	2.9	N	Y
Cobalt (total)	N	N	7440-48-4	0.0003	P	6E-06	P		0	0.009	P	4.7	N	Y
Copper (total)	N	N	7440-50-8	0.04	H		0		0		0	620	1300++	Y

PARAMETERS	VOC	Mutagen	CAS NO	RfDo		RfCi		So		IUR		ACL(ug/L) July 2013	MCL (ug/L)	Table 3.1 (VSWMR) constituent?
m-Cresol; 3-Methylphenol	N	N	108-39-4	0.05	I	0.6	Cal		0		0	720	N	Y
o-Cresol; 2-Methylphenol	N	N	95-48-7	0.05	I	0.6	Cal		0		0	720	N	Y
p-Cresol; 4-Methylphenol	N	N	106-44-5	0.1	M	0.6	Cal		0		0	1400	N	Y
Cyanide; Free	Y	N	57-12-5	0.0006	I	0.0008	O*		0		0	1.4	200	Y
2,4-D; 2,4-dichlorophenoxy acetic ac	N	N	94-75-7	0.01	I		0		0		0	130	70	Y
4,4-DDD	N	N	72-54-8		0		0	0.24	I	6.9E-05	Cal	0.027	N	Y
4,4-DDE	N	N	72-55-9		0		0	0.34	I	9.7E-05	Cal	0.2	N	Y
4,4-DDT	N	N	50-29-3	0.0005	I		0	0.34	I	9.7E-05	Cal	0.2	N	Y
Diallate	N	N	2303-16-4		0		0	0.061	H		0	0.46	N	Y
Dibenz(a,h)anthracene	N	Y	53-70-3		0		0	7.3	O	0.0012	Cal	0.0029	N	Y
Dibenzofuran	N	N	132-64-9	0.001	O		0		0		0	5.8	N	Y
Dibromochloromethane;Chlorodibror	Y	N	124-48-1	0.02	I		0	0.084	I	2.7E-05	Cal	0.15	N	Y
1,2-Dibromo-3-chloropropane (DBCF	Y	Y	96-12-8	0.0002	P	0.0002	I	0.8	P	0.006	P	0.00032	0.2	Y
1,2-Dibromoethane; Ethylene dibrom	Y	N	106-93-4	0.009	I	0.009	I	2	I	0.0006	I	0.0065	0.05	Y
Di-n-butyl phthalate	N	N	84-74-2	0.1	I		0		0		0	670	N	Y
Di-n-Octyl phthalate	N	N	117-84-0	0.012	P		0		0		0	190	N	Y
o-Dichlorobenzene; 1,2	Y	N	95-50-1	0.09	I	0.2	H		0		0	280	600	Y
m-Dichlorobenzene; 1,3	N	N	541-73-1		0				0		0		N	Y
p-Dichlorobenzene; 1,4	Y	N	106-46-7	0.07	A	0.8	I	0.0054	Cal	1.1E-05	Cal	0.42	75	Y
3,3-Dichlorobenzidine	N	N	91-94-1		0		0	0.45	I	0.00034	Cal	0.11	N	Y
trans-1,4-Dichloro-2-butene	Y	N	110-57-6		0		0		0	0.0042	P	0.0012	N	Y
Dichlorodifluoromethane	Y	N	75-71-8	0.2	I	0.1	S		0		0	190	N	Y
1,1-Dichloroethane	Y	N	75-34-3	0.2	P		0	0.0057	Cal	1.6E-06	Cal	2.4	N	Y
1,2-Dichloroethane	Y	N	107-06-2	0.006	S	0.007	P	0.091	I	2.6E-05	I	0.15	5	Y
1,1-Dichloroethylene;1,1-Dichloroeth	Y	N	75-35-4	0.05	I	0.2	I		0		0	260	7	Y
cis-1,2-Dichloroethylene; cis-1,2-dich	Y	N	156-59-2	0.002	I		0		0		0	28	70	Y
trans-1,2-Dichloroethylene;Trans-1,2	Y	N	156-60-5	0.02	I	0.06	P		0		0	86	100	Y
2,4-Dichlorophenol	N	N	120-83-2	0.003	I		0		0		0	35	N	Y
2,6-Dichlorophenol	N	N	87-65-0		0		0		0		0		N	Y
1,2-Dichloropropane; Propylene dich	Y	N	78-87-5	0.09	A	0.004	I	0.036	Cal	0.00001	Cal	0.38	5	Y
1,3-Dichloropropane;Trimethylene di	Y	N	142-28-9	0.02	P		0		0		0	290	N	Y
2,2-Dichloropropane;isopropylidene (	N	N	594-20-7		0		0		0		0		N	Y
1,3-Dichloropropene	Y	N	542-75-6	0.03	I	0.02	I	0.1	I	4E-06	I	0.41	N	N
1,1-Dichloropropene	N	N	563-58-6		0		0		0		0		N	Y
cis-1,3-Dichloropropene	N	N	10061-01-5		0		0		0		0		N	Y
trans-1,3-Dichloropropene	N	N	10061-02-6		0		0		0		0		N	Y

PARAMETERS	VOC	Mutagen	CAS NO	RfDo		RfCi		So		IUR		ACL(ug/L) July 2013	MCL (ug/L)	Table 3.1 (VSWMR) constituent?
Dieldrin	N	N	60-57-1	0.00005	I		0	16	I	0.0046	I	0.0015	N	Y
Diethyl phthalate	N	N	84-66-2	0.8	I		0		0		0	11000	N	Y
O,O-Diethyl O-2-pyrazinylphosphoro	N	N	297-97-2		0		0		0		0		N	Y
Dimethoate	N	N	60-51-5	0.0002	I		0		0		0	3.1	N	Y
p-(Dimethylamino)azobenzene	N	N	60-11-7		0		0	4.6	Cal	0.0013	Cal	0.0043	N	Y
7,12-Dimethylbenzidine[a]anthracene	N	Y	57-97-6		0		0	250	Cal	0.071	Cal	0.000086	N	Y
3,3-Dimethylbenzidine	N	N	119-93-7		0		0	11	P		0	0.0056	N	Y
2,4-Dimethylphenol; m-Xylenol	N	N	105-67-9	0.02	I		0		0		0	270	N	Y
Dimethyl phthalate	N	N	131-11-3		0		0		0		0		N	Y
m-Dinitrobenzene; 1,3	N	N	99-65-0	0.0001	I		0		0		0	1.5	N	Y
4,6-Dinitro-o-cresol	N	N	534-52-1	0.00008	O		0		0		0	1.2	N	Y
2,4-Dinitrophenol	N	N	51-28-5	0.002	I		0		0		0	30	N	Y
2,4-Dinitrotoluene	N	N	121-14-2	0.002	I		0	0.31	Cal	8.9E-05	Cal	0.2	N	Y
2,6-Dinitrotoluene	N	N	606-20-2	0.001	H		0		0		0	15	N	Y
2-sec-Butyl-4,6-dinitrophenol; Dinose	N	N	88-85-7	0.001	I		0		0		0	11	7	Y
1,4-Dioxane	N	N	123-91-1	0.03	I	3	Cal	0.1	I	7.7E-06	Cal	0.67	N	N
Diphenylamine	N	N	122-39-4	0.025	I		0		0		0	240	N	Y
Disulfoton	N	N	298-04-4	0.00004	I		0		0		0	0.38	N	Y
Endosulfan	N	N	115-29-7	0.006	I		0		0		0	78	N	N
Endosulfan I; alpha	N	N	959-98-8		0		0		0		0		N	Y
Endosulfan II	N	N	33213-65-9		0		0		0		0		N	Y
Endosulfan sulfate	N	N	1031-07-8		0		0		0		0		N	Y
Endrin	N	N	72-20-8	0.0003	I		0		0		0	1.7	2	Y
Endrin aldehyde	N	N	7421-93-4		0		0		0		0		N	Y
Ethylbenzene	Y	N	100-41-4	0.1	I	1	I	0.011	Cal	2.5E-06	Cal	1.3	700	Y
Ethyl methacrylate	Y	N	97-63-2	0.09	H	0.3	P		0		0	420	N	Y
Ethyl methanesulfonate	N	N	62-50-0		0		0		0		0		N	Y
Famphur	N	N	52-85-7		0		0		0		0		N	Y
Fluoranthene	N	N	206-44-0	0.04	I		0		0		0	630	N	Y
Fluorene	Y	N	86-73-7	0.04	I		0		0		0	220	N	Y
Formaldehyde	N	N	50-00-0	0.2	I	0.00983	A		0	1.3E-05	I	3100	N	N
Heptachlor	N	N	76-44-8	0.0005	I		0	4.5	I	0.0013	I	0.0018	0.4	Y
Heptachlor epoxide	N	N	1024-57-3	1.3E-05	I		0	9.1	I	0.0026	I	0.0033	0.2	Y
Hexachlorobenzene	N	N	118-74-1	0.0008	I		0	1.6	I	0.00046	I	0.042	1	Y
Hexachlorobutadiene	N	N	87-68-3	0.001	P		0	0.078	I	2.2E-05	I	0.26	N	Y
Hexachlorocyclopentadiene	N	N	77-47-4	0.006	I	0.0002	I		0		0	22	50	Y

PARAMETERS	VOC	Mutagen	CAS NO	RfDo		RfCi		So		IUR		ACL(ug/L) July 2013	MCL (ug/L)	Table 3.1 (VSWMR) constituent?
Hexachloroethane	N	N	67-72-1	0.0007	I	0.03	I	0.04	I	1.1E-05	Cal	0.79	N	Y
Hexachlorophene	N	N	70-30-4	0.0003	I		0		0		0	4.7	N	N
Hexachloropropene	N	N	1888-71-7		0		0		0		0		N	Y
2-Hexanone; Methyl butyl ketone	Y	N	591-78-6	0.005	I	0.03	I		0		0	34	N	Y
Indeno(1,2,3-cd)pyrene	N	Y	193-39-5		0		0	0.73	O	0.00011	Cal	0.029	N	Y
Isobutyl alcohol; Isobutanol	N	N	78-83-1	0.3	I		0		0		0	4600	N	Y
Isodrin	N	N	465-73-6		0		0		0		0		N	Y
Isophorone	N	N	78-59-1	0.2	I	2	Cal	0.00095	I		0	67	N	Y
Isosafrole	N	N	120-58-1		0		0		0		0		N	Y
Kepone	N	N	143-50-0	0.0003	I		0	10	I	0.0046	Cal	0.003	N	Y
Lead (total)	N	N	7439-92-1		0		0		0		0		15++	Y
Mercury (inorganic)	Y	N	7439-97-6		0	0.0003	I		0		0	0.63	2	Y
Methacrylonitrile	Y	N	126-98-7	0.0001	I	0.03	P		0		0	1.5	N	Y
Methapyrilene	N	N	91-80-5		0		0		0		0		N	Y
Methoxychlor	N	N	72-43-5	0.005	I		0		0		0	27	40	Y
Methyl bromide (Bromomethane)	Y	N	74-83-9	0.0014	I	0.005	I		0		0	7	N	Y
Methyl chloride (Chloromethane)	Y	N	74-87-3			0.09	I		0		0	190	N	Y
3-Methylcholanthrene	N	Y	56-49-5		0		0	22	Cal	0.0063	Cal	0.00098	N	Y
Methylene bromide;Dibromomethane	Y	N	74-95-3	0.01	A	0.004	O		0		0	7.9	N	Y
Methylene chloride;Dichloromethane	Y	Y	75-09-2	0.006	I	0.6	I	0.002	I	1E-08	I	9.9	5	Y
Methyl Ethyl Ketone; MEK; 2-Butano	Y	N	78-93-3	0.6	I	5	I		0		0	4900	N	Y
Methyl iodide (Iodomethane)	N	N	74-88-4		0		0		0		0		N	Y
Methyl methacrylate	Y	N	80-62-6	1.4	I	0.7	I		0		0	1400	N	Y
Methyl methanesulfonate	N	N	66-27-3		0		0	0.099	Cal	2.8E-05	Cal	0.68	N	Y
2-Methylnaphthalene	Y	N	91-57-6	0.004	I		0		0		0	27	N	Y
Methyl parathion; Parathion methyl	N	N	298-00-0	0.00025	I		0		0		0	3.4	N	Y
4-Methyl-2-pentanone (MIBK);Methy	Y	N	108-10-1	0.08	H	3	I		0		0	1000	N	Y
Naphthalene	Y	N	91-20-3	0.02	I	0.003	I		0	3.4E-05	Cal	0.14	N	Y
1,4-Naphthoquinone	N	N	130-15-4		0		0		0		0		N	Y
1-Naphthylamine	N	N	134-32-7		0		0		0		0		N	Y
2-Naphthylamine	N	N	91-59-8		0		0	1.8	Cal		0	0.033	N	Y
Nickel (total)	N	N	7440-02-0	0.02	I	0.00009	A		0	0.00026	Cal	300	N	Y
o-Nitroaniline; 2-	N	N	88-74-4	0.01	O	0.00005	O		0		0	150	N	Y
3-Nitroaniline	N	N	99-09-2		0		0		0		0		N	Y
4-Nitroaniline	N	N	100-01-6	0.004	P	0.006	P	0.02	P		0	3.3	N	Y
Nitrobenzene	Y	N	98-95-3	0.002	I	0.009	I		0	0.00004	I	0.12	N	Y

PARAMETERS	VOC	Mutagen	CAS NO	RfDo		RfCi		So		IUR		ACL(ug/L) July 2013	MCL (ug/L)	Table 3.1 (VSWMR) constituent?
o-Nitrophenol	N	N	88-75-5		0		0		0		0		N	Y
p-Nitrophenol; 4-	N	N	100-02-7		0		0		0		0		N	Y
4-Nitroquinoline-1-oxide	N	N	56-57-5		0		0		0		0		N	N
N-Nitrosodi-n-butylamine	Y	N	924-16-3		0		0	5.4	I	0.0016	I	0.0024	N	Y
N-Nitrosodiethylamine	N	Y	55-18-5		0		0	150	I	0.043	I	0.00014	N	Y
N-Nitrosodimethylamine	N	Y	62-75-9	8E-06	P	0.00004	O	51	I	0.014	I	0.00042	N	Y
N-Nitrosodiphenylamine	N	N	86-30-6		0		0	0.0049	I	2.6E-06	Cal	10	N	Y
N-Nitrosodi-n-propylamine; Di-n-prop	N	N	621-64-7		0		0	7	I	0.002	Cal	0.0093	N	Y
N-Nitrosomethylethylamine	N	N	10595-95-6		0		0	22	I	0.0063	Cal	0.003	N	Y
N-Nitrosomorpholine	N	N	59-89-2		0		0	6.7	Cal	0.0019	Cal	0.01	N	N
N-Nitrosopiperidine	N	N	100-75-4		0		0	9.4	Cal	0.0027	Cal	0.0071	N	Y
N-Nitrosopyrrolidine	N	N	930-55-2		0		0	2.1	I	0.00061	I	0.032	N	Y
5-Nitro-o-toluidine;2-Methyl-5-Nitrobe	N	N	99-55-8	0.02	S		0	0.009	P		0	7	N	Y
Parathion	N	N	56-38-2	0.006	H		0		0		0	65	N	Y
Polychlorinated biphenyls; PCB's; Ar	N	N	1336-36-3		0		0	0.07	I	0.00057	I	0.17	0.5	Y
Polychlorinated dibenzo-p-dioxins; P	N	N			0		0		0		0		N	N
Polychlorinated dibenzofurans; PCDI	N	N	136677-10-6		0		0		0		0		N	N
Pentachlorobenzene	N	N	608-93-5	0.0008	I		0		0		0	2.3	N	Y
Pentachloroethane	N	N	76-01-7		0		0	0.09	P		0	0.56	N	N
Pentachloronitrobenzene	N	N	82-68-8	0.003	I		0	0.26	H		0	0.1	N	Y
Pentachlorophenol	N	N	87-86-5	0.005	I		0	0.4	I	5.1E-06	Cal	0.035	1	Y
Phenacetin	N	N	62-44-2		0		0	0.0022	Cal	6.3E-07	Cal	30	N	Y
Phenanthrene	N	N	85-01-8		0		0		0		0		N	Y
Phenol	N	N	108-95-2	0.3	I	0.2	Cal		0		0	4500	N	Y
p-Phenylenediamine	N	N	106-50-3	0.19	H		0		0		0	3000	N	Y
Phorate	N	N	298-02-2	0.0002	H		0		0		0	2.3	N	Y
2-Picoline; alpha-; 2-Methylpyridine	N	N	109-06-8		0		0		0		0		N	N
Potassium	N	N	2023695		0		0		0		0		N	N
Pronamide; Kerb	N	N	23950-58-5	0.075	I		0		0		0	900	N	Y
Propionitrile; Ethyl Cyanide	N	N	107-12-0		0		0		0		0		N	Y
Pyrene	Y	N	129-00-0	0.03	I		0		0		0	87	N	Y
Pyridine	Y	N	110-86-1	0.001	I		0		0		0	15	N	N
Safrole	N	Y	94-59-7		0		0	0.22	Cal	6.3E-05	Cal	0.083	N	Y
Selenium (total)	N	N	7782-49-2	0.005	I	0.02	Cal		0		0	78	50	Y
Silver (total)	N	N	7440-22-4	0.005	I		0		0		0	71	N	Y
Silvex (2,4,5-TP);2(2,4,5-Trichloroph	N	N	93-72-1	0.008	I		0		0		0	84	50	Y

PARAMETERS	VOC	Mutagen	CAS NO	RfDo		RfCi		So		IUR		ACL(ug/L) July 2013	MCL (ug/L)	Table 3.1 (VSWMR) constituent?
Styrene	Y	N	100-42-5	0.2	I	1	I		0		0	1100	100	Y
Sulfide	Y	N	18496-25-8		0		0		0		0		N	Y
1,2,4,5-Tetrachlorobenzene	N	N	95-94-3	0.0003	I		0		0		0	1.2	N	Y
2,3,7,8-Tetrachlorodibenzo-p-dioxin	N	N	1746-01-6	7E-10	I	4E-08	C	130000	Cal	38	Cal	0.00000052	3E-05	N
1,1,1,2-Tetrachloroethane	Y	N	630-20-6	0.03	I		0	0.026	I	7.4E-06	I	0.5	N	Y
1,1,2,2-Tetrachloroethane	Y	N	79-34-5	0.02	I		0	0.2	I	5.8E-05	I	0.066	N	Y
Tetrachloroethylene (PCE)	Y	N	127-18-4	0.006	I	0.04	I	0.0021	I	2.6E-07	I	9.7	5	Y
2,3,4,6-Tetrachlorophenol	N	N	58-90-2	0.03	I		0		0		0	170	N	Y
Tetraethyl dithiopyrophosphate; Sulfo	N	N	3689-24-5	0.0005	I		0		0		0	5.3	N	N
Thallium (total)	N	N	7440-28-0	0.00001	S		0		0		0	0.16	2	Y
Tin (total)	N	N	7440-31-5	0.6	H		0		0		0	9300	N	Y
Toluene	Y	N	108-88-3	0.08	I	5	I		0		0	860	1000	Y
o-Toluidine;2-Methylaniline;2-Methyll	N	N	95-53-4		0		0		0		0		N	Y
Toxaphene	N	N	8001-35-2		0		0	1.1	I	0.00032	I	0.013	3	Y
1,2,4-Trichlorobenzene	Y	N	120-82-1	0.01	I	0.002	P	0.029	P		0	0.99	70	Y
1,1,1-Trichloroethane	Y	N	71-55-6	2	I	5	I		0		0	7500	200	Y
1,1,2-Trichloroethane	Y	N	79-00-5	0.004	I	0.0002	S	0.057	I	1.6E-05	I	0.24	5	Y
Trichloroethylene	Y	Y	79-01-6	0.0005	I	0.002	I	0.046	I	4.1E-06	I	0.44	5	Y
Trichlorofluoromethane; CFC-11	Y	N	75-69-4	0.3	I	0.7	H		0		0	1100	N	Y
2,4,5-Trichlorophenol	N	N	95-95-4	0.1	I		0		0		0	890	N	Y
2,4,6-Trichlorophenol	N	N	88-06-2	0.001	P		0	0.011	I	3.1E-06	I	3.5	N	Y
2,4,5-Trichloro-phenoxyacetic acid;2	N	N	93-76-5	0.01	I		0		0		0	120	N	Y
1,2,3-Trichloropropane	Y	Y	96-18-4	0.004	I	0.0003	I	30	I		0	0.00065	N	Y
O,O,O-Triethyl phosphorothioate	N	N	126-68-1		0		0		0		0		N	Y
1,3,5-Trinitrobenzene	N	N	99-35-4	0.03	I		0		0		0	460	N	Y
Vanadium (total)	N	N	7440-62-2	0.005	S		0		0		0	78	N	Y
Vinyl acetate	Y	N	108-05-4	1	H	0.2	I		0		0	410	N	Y
Vinyl chloride;Chloroethene	Y	Y	75-01-4	0.003	I	0.1	I	0.72	I	4.4E-06	I	0.015	2	Y
Xylene (total)	Y	N	1330-20-7	0.2	I	0.1	I		0		0	190	10000	Y
Zinc (total)	N	N	7440-66-6	0.3	I		0		0		0	4700	N	Y

Note: (1) MCL, when available, superseeds ACL
(2) ++ = The compound has Action Level, not MCL
(3) Individal constituents of THM are marked with (THM) next to the constituent name
(4) Individal constituents of THM compounds do not have constituent-specific MCL
(5) ACL for vinyl chloride is calculated using EPA region 3 formula
(6) ACL with "0" or "N/A" value or blanck means that toxicity value and ACL value are not available at this time.