

**ORDER OF THE STATE OF WISCONSIN
NATURAL RESOURCES BOARD
AMENDING RULES**

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The Wisconsin Natural Resources Board proposes an order .
to amend NR 140.10 Table 1 and Appendix 1, relating to .
groundwater quality standards .
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DG-18-07

Analysis Prepared by the Department of Natural Resources

1. Statutes interpreted: In promulgating this rule, ss. 281.12(1), 281.15, 281.19(1) and 299.11, Stats., and ch. 160, Stats., have been interpreted as authorizing the department to modify and create rules relating to development of numerical groundwater quality standards.

2. Statutory authority: Sections 281.12(1), 281.15, 281.19(1) and 299.11, Stats., and ch. 160, Stats.

3. Explanation of agency authority to promulgate the proposed rules under the statutory authority: Section 281.12(1), Stats., grants the Department the authority to carry out planning, management and regulatory programs necessary to protect, maintain and improve the quality and management of the waters of the state, ground and surface, public and private. Section 281.15, Stats., states that the Department shall promulgate rules setting standards of water quality, applicable to the waters of the state, that protect the public interest, including the protection of public health and welfare, and the present and prospective future use of such waters for public and private water systems. Section 281.19(1), Stats., grants the Department the authority to issue general orders and adopt rules applicable throughout the state for the construction, installation, use and operation of practicable and available systems, methods and means for preventing and abating pollution of the waters of the state.

In accordance with ch. 160, Stats., the reliability of sampling data is to be considered when determining the range of responses that a regulatory agency may take, or require, to address attainment or exceedance of a state groundwater quality standard at an applicable "point of standard application". Section 299.11, Stats., authorizes the Department, in conjunction with the Department of Agriculture Trade and Consumer Protection, to establish uniform minimum criteria for laboratories certified to conduct water analysis testing, and to establish accepted methodologies to be followed in conducting tests and sampling protocols and documentation procedures to be followed when collecting water samples for testing.

Chapter 160, Stats., establishes an administrative process for developing numerical state groundwater quality standards to be used as criteria for the protection of public health and welfare by all state groundwater regulatory programs. Chapter 160, Stats., directs the Department to use this administrative process to establish numeric groundwater quality standards for substances of public health or welfare concern, found in, or having a reasonable probability of being detected in, the groundwater resources of the state.

4. Related statute or rule: Chapter 280, Stats., authorizes the Department to prescribe, publish and enforce minimum standards and rules to be pursued in the obtaining of pure drinking water for human consumption. Chapter NR 809, Wis. Adm. Code, establishes minimum state drinking water standards for the protection of public health safety and welfare. This administrative code contains numeric water quality protection standards applicable to public water supply systems in Wisconsin. Wisconsin state

drinking water standards, applicable to public drinking water systems, have not yet been established foralachlor ethane sulfonic acid (alachlor-ESA).

5. Plain language analysis of the proposed rule: Chapter 160, Stats., requires the Department to develop numerical groundwater quality standards, consisting of enforcement standards and preventive action limits. Chapter NR 140, Wis. Adm. Code, establishes groundwater standards and creates a framework for implementation of the standards by the Department. The proposed amendments to NR 140 would add groundwater quality standards for one additional substance. In accordance with ch. 160, Stats., amendments to NR 140 groundwater quality standards are based on recommendations from the Department of Health and Family Services. New public health related groundwater quality standards are proposed foralachlor ethane sulfonic acid (alachlor-ESA).

6. Summary of and preliminary comparison with any existing or proposed federal regulation: The United States Environmental Protection Agency (US EPA) establishes health based drinking water maximum contaminant levels (MCLs) and health advisory levels (HALs). Federal MCLs are established based on scientific risk assessments and, in some cases, economic and technological considerations. Federal HALs are developed based on established reference doses (RfDs). No federal MCL, HAL or RfD has yet been established foralachlor-ESA. Alachlor-ESA is currently on the US EPA Contaminant Candidate List (CCL). The CCL is the US EPA's list of unregulated contaminants which may require national drinking water regulation in the future.

7. Comparison of similar rules in adjacent states (Minnesota, Iowa, Illinois and Michigan): The proposed amendments to NR 140 would add numeric groundwater quality standards foralachlor-ESA. The groundwater quality standards contained in NR 140 are used in Wisconsin by state regulatory agencies as state groundwater protection standards. These standards are used as contamination site cleanup levels, design and management criteria for regulated activities and as minimum public health and welfare protection standards for contaminants in groundwater.

The states surrounding Wisconsin - Minnesota, Michigan, Illinois and Iowa, also use groundwater protection standards in their regulation of practices and activities that may impact the quality of groundwater resources. Some of the states surrounding Wisconsin have promulgated individual state groundwater protection standards and some utilize established federal standards (federal drinking water maximum contaminant levels, lifetime health advisory levels and established cancer risk levels) as their state groundwater protection standards.

Groundwater protection quality standards are usually developed based on health risk assessments. States are often required to follow state specific health risk assessment methodologies when establishing groundwater protection quality standards. States may use state specific health risk assessment factors and procedures in calculating and developing their groundwater protection standards. This use of different health risk assessment factors, procedures and methodologies has led to the establishment of differing state groundwater protection standard levels for the same substance. For example, the groundwater protection quality standard for naphthalene used by the states surrounding Wisconsin varies by state - the standard used in Minnesota is 300 micrograms per liter ($\mu\text{g/L}$), the standard used in Michigan is 520 $\mu\text{g/L}$ and the standard used in Iowa and Wisconsin is 100 $\mu\text{g/L}$, the federal lifetime health advisory level.

The state of Minnesota has established state groundwater protection "Health Risk Limits" (HRLs) under Minnesota Statutes Section 103H.201. There is no established Minnesota state HRL foralachlor-ESA. The Minnesota Department of Health has calculated "Health Based Values" (HBVs) for some groundwater contaminants. Minnesota HBVs are not standards that have been promulgated by rule but are calculated concentrations that may be used as advisory levels by Minnesota state groundwater and environmental protection programs. Minnesota has established a HBV foralachlor-ESA at 40 $\mu\text{g/L}$.

The state of Michigan has established state groundwater protection quality standards. Michigan "Drinking Water Criteria and Risk Based Screening Levels (RBSLs)" are Michigan state groundwater protection standards authorized in accordance with Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA). There is no established Michigan Drinking Water Criteria or RBSL for alachlor-ESA.

The state of Illinois has established state groundwater quality standards for "potable resource groundwater". Illinois Groundwater Quality Standards are state groundwater protection standards promulgated in Illinois 35 Ill. Adm. Code 620 environmental protection regulations. No Illinois state "Groundwater Quality Standards for Class I: Potable Resource Groundwater" have been established for alachlor-ESA. The state of Illinois also has established "Groundwater Cleanup Objectives". Illinois Groundwater Cleanup Objectives include both Illinois state Groundwater Quality Standards and Human Threshold Toxicant Advisory Concentrations (HTTACs) established in 35 Ill. Adm. Code 620. No Illinois HTTAC has been established for alachlor-ESA.

The state of Iowa has not established specific state groundwater protection standards. In accordance with Iowa Environmental Protection Regulations 567 IAC Chapter 133, Iowa uses established federal lifetime health advisory levels (HALs), negligible risk levels for carcinogens (NRLs) or drinking water maximum contaminant levels (MCLs) as "Action Levels" in their regulation of practices and activities that may adversely impact groundwater quality. No federal HAL, NRL or MCL has yet been established for alachlor-ESA.

8. Summary of the factual data and analytical methodologies that the agency used in support of the proposed rule and how any related findings support the regulatory approach chosen for the proposed rule: In accordance with s. 160.07, Stats., the Department is required, for substances of public health concern, to propose rules establishing recommendations from the Department of Health and Family Services (DHFS) as groundwater quality enforcement standards. In accordance with s. 160.15, Stats., the Department is required to establish by rule a preventive action limit for each substance for which an enforcement standard is established.

The DHFS has provided the Department, in a June 2007 document titled *Scientific Support Documentation for Groundwater Enforcement Standard and Preventive Action Limit Recommendations for Ethane Sulfonic Acid Metabolite of Alachlor (Alachlor-ESA)*, its recommendations for state groundwater quality standards for alachlor-ESA. In developing their recommendations for state groundwater quality enforcement standards for alachlor-ESA, DHFS followed the applicable analytical methodologies required under ss. 160.07 and 160.13, Stats.

The Department has proposed rules establishing the DHFS enforcement standard recommendation for alachlor-ESA as a NR 140 state groundwater quality enforcement standard. The Department has proposed rules establishing a NR 140 state groundwater quality preventive action limit for alachlor-ESA in accordance with s. 160.15(1), Stats.

9. Any analysis and supporting documentation that the agency used in support of the agency's determination of the rule's effect on small business under s. 227.114, Stats., or that was used when the agency prepared an economic impact report: In its determination of the effect of this proposed rule on small businesses the Department used analysis and supporting documentation that included information from the United States Department of Agriculture - National Agricultural Statistics Service (NASS), the University of Wisconsin (UW) - Department of Agronomy and the Wisconsin Department of Agriculture Trade and Consumer Protection (DATCP). Information used from the United States Department of Agriculture NASS included agricultural chemical usage reports from 1992 to 2005

and data from the NASS Agricultural Chemical Use Database. Information used from the UW Department of Agronomy included the UW Extension 2006 Herbicide Price List. Information used from DATCP included results from the agency's well sampling and pesticide registration databases.

10. Effects on small business, including how the rule will be enforced: The Department has determined that this rule order will not have a significant economic impact on small businesses. Chapter NR 140 currently contains groundwater standards for 122 substances of public health concern, 8 substances of public welfare concern and 15 indicator parameters. The proposed groundwater standard revisions would apply to all regulated facilities, practices and activities which may impact groundwater quality.

The enforcement of Wisconsin state groundwater quality standards is done by state regulatory agencies through their groundwater protection programs. State regulatory agencies, in exercising their statutory powers and duties, establish groundwater protection regulations that assure that regulated facilities and activities will not cause state groundwater quality standards to be exceeded. A state regulatory agency may establish specific design and management criteria to ensure that regulated facilities, practices and activities will not cause the concentration of a substance in groundwater, affected by a regulated facility, practice or activity, to exceed state groundwater quality enforcement standards or preventive action limits at applicable "point of standards application" locations.

Regulated facilities, practices and activities, which are sources of the substances for which groundwater standards are proposed are, for the most part, likely sources of substances for which groundwater standards already exist. Consequently, there will likely be few cases where the proposed standards will be exceeded where existing standards are not currently being exceeded. Additional monitoring costs may be imposed upon regulated facilities, practices and activities, but the extent of such monitoring and any costs associated with it, while too speculative to quantify, are not expected to be significant.

The proposed revisions to state groundwater quality standards include new standards for alachlor-ESA, a degradation product of the herbicide alachlor. Alachlor has been used in Wisconsin mainly on field and sweet corn crops. Data on agricultural chemical use in Wisconsin indicates that the use of alachlor on corn crops has decreased significantly over the past 15 years. A check of alachlor containing corn herbicide products registered for use on sweet corn in Wisconsin shows that there are currently limited availability and options for alachlor containing products to be used on sweet corn in the state.

Use of alachlor as an herbicide on field corn crops has decreased significantly. Usage of alachlor on field corn in 1992 was reported to have been 2,358,000 lbs., or on an estimated 30% of the state field corn acreage (NASS *Crop Production 1992 Summary and Agricultural Chemical Usage Survey* report). Since 1992 alachlor use in Wisconsin has steadily decreased. Alachlor use in Wisconsin in 2003 was reported at 172,000 lbs., or on an estimated 3% of state field corn acreage (NASS *Agricultural Chemical Usage 2003 Field Crops Summary* report). No alachlor use was reported on Wisconsin field corn in 2005 (NASS *Agricultural Chemical Usage 2005 Field Crops Summary* report), the latest year for which field corn crop chemical use data is available.

Alachlor has also been used in Wisconsin as an herbicide on sweet corn. Use of alachlor on sweet corn in Wisconsin has also declined and currently there is limited availability and options for alachlor containing products to be used on sweet corn. Usage of alachlor on sweet corn for processing in 1994 was reported to have been 145,000 lbs., or on an estimated 45% of the state sweet corn for processing acreage (NASS *Vegetables - 1994 Summary and Agricultural Chemical Usage Survey* report). In 2004, the latest year for which vegetable crop chemical use data is available, alachlor use on sweet corn for processing was reported to have been 48,300 lbs., or on an estimated 29% of the state sweet corn for processing acreage (NASS *Agricultural Chemical Usage 2004 Vegetables Summary* report).

Usage of alachlor on sweet corn for fresh market in 1994 was reported to have been 5,900 lbs., or on an estimated 44% of the state sweet corn for fresh market acreage (NASS *Vegetables - 1994 Summary and Agricultural Chemical Usage Survey* report). In 2002 alachlor use on sweet corn for fresh market was reported to have been 1,900 lbs., or on an estimated 11% of the state sweet corn for processing acreage (NASS *Agricultural Chemical Usage 2002 Vegetables Summary* report). In 2004, the latest year for which vegetable crop chemical use data is available, no alachlor use on sweet corn for fresh market was reported (NASS *Agricultural Chemical Usage 2004 Vegetables Summary* report).

There are a number of corn herbicide products available to farmers in Wisconsin. Corn herbicide products containing alachlor are marketed in Wisconsin for use via preplant incorporated (PPI) or pre-emergence (Pre) application. The University of Wisconsin (UW) Department of Agronomy *Herbicide Price List, 2006* (UW Extension 2007 *Pest Management in Wisconsin Field Crops* bulletin, Appendix Table 3) contains price per acre estimates for PPI/Pre herbicide products for use on corn crops. PPI/Pre herbicide products for use on corn crops are listed in the 2006 Herbicide Price List in the \$14.55 to \$18.98 (per acre) range for application at coarse soil application rates, and in the \$19.36 to \$23.33 (per acre) range for application at medium soil application rates. Lariat and Micro-Tech, PPI/Pre corn herbicide products that contain alachlor, are listed on the 2006 Herbicide Price List. Lariat is listed at \$14.05 (per acre), for application at coarse soil application rates, and \$21.07 (per acre) for application at medium soil application rates. Micro-Tech is listed at \$13.50 (per acre) for application at coarse soil application rates, and \$16.88 (per acre) for application at medium soil application rates.

Results from the Department of Agriculture Trade and Consumer protection (DATCP) well sampling database, through January of 2007, showed that approximately 17% of water supply wells tested (historically, 243 of 1,464) have been above the proposed alachlor-ESA groundwater quality preventive action limit of 4 µg/L. The DATCP well sampling database also shows that, through January 2007, approximately 1% of water supply wells tested (historically, 13 of 1,464) have been above the proposed alachlor-ESA groundwater quality enforcement standard level of 20 µg/L.

Because few water supply wells have tested above proposed alachlor-ESA groundwater standards, and as use of alachlor has decreased in Wisconsin to relatively low levels, and because available alachlor herbicide products are priced comparably to other corn herbicide products, the Department has determined that any management practice restrictions that might be placed on alachlor to prevent exceedances of state groundwater quality standards for alachlor-ESA, are unlikely to have a significant economic impact on Wisconsin corn growers.

11. Agency Contact Person: William Phelps, Wisconsin Dept. of Natural Resources, Bureau of Drinking Water & Groundwater, 101 S. Webster St., Madison, WI, 73707-7921; (608) 267-7619; William.Phelps@Wisconsin.gov.

SECTION 1. NR 140.10, Table 1 is amended to read:

Table 1
Public Health Groundwater Quality Standards

Substance ¹	Enforcement Standard (micrograms per liter – except as noted)	Preventive Action Limit (micrograms per liter – except as noted)
Acetone	1000	200
Alachlor	2	0.2
<u>Alachlor ethane sulfonic acid (Alachlor-ESA)</u>	<u>20</u>	<u>4</u>

Aldicarb	10	2
Antimony	6	1.2
Anthracene	3000	600
Arsenic	10	1
Asbestos	7 million fibers per liter (MFL)	0.7 MFL
Atrazine, total chlorinated residues	3 ²	0.3 ²
Bacteria, Total Coliform	0 ³	0 ³
Barium	2 milligrams/liter (mg/l)	0.4 mg/l
Bentazon	300	60
Benzene	5	0.5
Benzo(b)fluoranthene	0.2	0.02
Benzo(a)pyrene	0.2	0.02
Beryllium	4	0.4
Boron	960	190
Bromodichloromethane	0.6	0.06
Bromoform	4.4	0.44
Bromomethane	10	1
Butylate	400	80
Cadmium	5	0.5
Carbaryl	960	192
Carbofuran	40	8
Carbon disulfide	1000	200
Carbon tetrachloride	5	0.5
Chloramben	150	30
Chlordane	2	0.2
Chloroethane	400	80
Chloroform	6	0.6
Chloromethane	3	0.3
Chromium	100	10
Chrysene	0.2	0.02
Cobalt	40	8
Copper	1300	130
Cyanazine	1	0.1
Cyanide	200	40
Dacthal	70	14
1,2-Dibromoethane (EDB)	0.05	0.005
Dibromochloromethane	60	6
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.02
Dibutyl phthalate	100	20
Dicamba	300	60
1,2-Dichlorobenzene	600	60
1,3-Dichlorobenzene	1250	125
1,4-Dichlorobenzene	75	15
Dichlorodifluoromethane	1000	200
1,1-Dichloroethane	850	85
1,2-Dichloroethane	5	0.5
1,1-Dichloroethylene	7	0.7
1,2-Dichloroethylene (cis)	70	7
1,2-Dichloroethylene (trans)	100	20
2,4-Dichlorophenoxy acetic Acid (2,4-D)	70	7
1,2-Dichloropropane	5	0.5
1,3-Dichloropropene (cis/trans)	0.2	0.02
Di (2-ethylhexyl) phthalate	6	0.6
Dimethoate	2	0.4
2,4-Dinitrotoluene	0.05	0.005
2,6-Dinitrotoluene	0.05	0.005
Dinoseb	7	1.4
Dioxin (2, 3, 7, 8-TCDD)	0.00003	0.000003
Endrin	2	0.4
EPTC	250	50
Ethylbenzene	700	140
Ethylene glycol	7 mg/l	0.7 mg/l

Fluoranthene	400	80
Fluorene	400	80
Fluoride	4 mg/l	0.8 mg/l
Fluorotrichloromethane	3490	698
Formaldehyde	1000	100
Heptachlor	0.4	0.04
Heptachlor epoxide	0.2	0.02
Hexachlorobenzene	1	0.1
<i>N</i> -Hexane	600	120
Hydrogen sulfide	30	6
Lead	15	1.5
Lindane	0.2	0.02
Mercury	2	0.2
Methanol	5000	1000
Methoxychlor	40	4
Methylene chloride	5	0.5
Methyl ethyl ketone (MEK)	460	90
Methyl isobutyl ketone (MIBK)	500	50
Methyl tert-butyl ether (MTBE)	60	12
Metolachlor	15	1.5
Metribuzin	250	50
Molybdenum	40	8
Monochlorobenzene	100	20
Naphthalene	100	10
Nickel	100	20
Nitrate (as N)	10 mg/l	2 mg/l
Nitrate + Nitrite (as N)	10 mg/l	2 mg/l
Nitrite (as N)	1 mg/l	0.2 mg/l
<i>N</i> -Nitrosodiphenylamine	7	0.7
Pentachlorophenol (PCP)	1	0.1
Phenol	6 mg/l	1.2 mg/l
Picloram	500	100
Polychlorinated biphenyls (PCBs)	0.03	0.003
Prometon	90	18
Pyrene	250	50
Pyridine	10	2
Selenium	50	10
Silver	50	10
Simazine	4	0.4
Styrene	100	10
1,1,1,2-Tetrachloroethane	70	7
1,1,2,2-Tetrachloroethane	0.2	0.02
Tetrachloroethylene	5	0.5
Tetrahydrofuran	50	10
Thallium	2	0.4
Toluene	1 mg/l	0.2 mg/l
Toxaphene	3	0.3
1,2,4-Trichlorobenzene	70	14
1,1,1-Trichloroethane	200	40
1,1,2-Trichloroethane	5	0.5
Trichloroethylene (TCE)	5	0.5
2,4,5-Trichlorophenoxy-propionic acid (2,4,5-TP)	50	5
1,2,3-Trichloropropane	60	12
Trifluralin	7.5	0.75
Trimethylbenzenes (1,2,4- and 1,3,5- combined)	480	96
Vanadium	30	6
Vinyl chloride	0.2	0.02
Xylene ⁴	10 mg/l	1 mg/l

¹ Appendix I contains Chemical Abstract Service (CAS) registry numbers, common synonyms and trade names for most substances listed in Table I.

² Total chlorinated atrazine residues includes parent compound and the following metabolites of health concern: 2-chloro-4-amino-6-isopropylamino-s-triazine (formerly deethylatrazine), 2-chloro-4-amino-6-ethylamino-s-triazine (formerly deisopropylatrazine) and 2-chloro-4,6-diamino-s-triazine (formerly dianinoatrazine).

³ Total coliform bacteria may not be present in any 100 ml sample using either the membrane filter (MF) technique, the presence-absence (P-A) coliform test, the minimal medium ONPG-MUG (MMO-MUG) test or not present in any 10 ml portion of the 10-tube multiple tube fermentation (MTF) technique.

⁴ Xylene includes meta-, ortho-, and para-xylene combined. The preventive action limit has been set at a concentration that is intended to address taste and odor concerns associated with this substance.

SECTION 2. Appendix 1 to Table 1 is amended to read:

**CHAPTER NR 140
APPENDIX I TO TABLE 1
PUBLIC HEALTH GROUNDWATER QUALITY STANDARDS**

Substance	CAS RN¹	Common synonyms/Trade name²
Acetone	67-64-1	<i>Propanone</i>
Alachlor	15972-60-8	<i>Lasso</i>
<u>Alachlor ethane sulfonic acid (Alachlor-ESA)</u>		<u>Alachlor Ethane Sulfonate, MON 5775</u>
Aldicarb	116-06-3	<i>Temik</i>
Anthracene	120-12-7	Para-naphthalene
Asbestos	12001-29-5	
Bentazon	25057-89-0	<i>Basagran</i>
Benzene	71-43-2	
Benzo(b)fluoranthene	205-99-2	B(b)F,3,4-Benzofluoranthene
Benzo(a)pyrene	50-32-8	BaP, B(a)P
Boron	7440-42-8	
Bromodichloromethane	75-27-4	Dichlorobromomethane, BDCM
Bromoform	75-25-2	Tribromomethane
Bromomethane	74-83-9	Methyl bromide
Butylate	2008-41-5	S-ethyl di-isobutylthiocarbamate, <i>Sutan+</i>
Carbaryl	63-25-2	<i>Sevin</i>
Carbofuran	1563-66-2	<i>Furadan</i>
Carbon disulfide	75-15-0	Carbon bisulfide
Carbon tetrachloride	56-23-5	Tetrachloromethane, Perchloroethane
Chloramben	133-90-4	
Chlordane	57-74-9	
Chloroethane	75-00-3	Ethyl chloride, Monochloroethane
Chloroform	67-66-3	Trichloromethane
Chloromethane	74-87-3	Methyl chloride
Chrysene	218-01-9	1,2-Benzphenanthrene
Cobalt	7440-48-4	
Cyanazine	21725-46-2	<i>Bladex</i> , 2-chloro-4-ethylamino-6-nitriloisopropylamino-s-triazine
Cyanide	57-12-5	
Dacthal	1861-32-1	DPCA, Chlorothal, <i>Dacthalor</i> , 1,4-benzene-dicarboxylic acid
Dibromochloromethane	124-48-1	Chlorodibromomethane, DBCM
1,2-Dibromo-3-chloropropane	96-12-8	DBCP, Dibromochloropropane
1,2-Dibromoethane	106-93-4	EDB, Ethylene dibromide, Dibromoethane
Dibutyl phthalate	84-74-2	DP, Di- <i>n</i> -butyl phthalate, <i>n</i> -Butyl phthalate
Dicamba	1918-00-9	<i>Banvel</i>
1,2-Dichlorobenzene	95-50-1	o-Dichlorobenzene, o-DCB
1,3-Dichlorobenzene	541-73-1	m-Dichlorobenzene, m-DCB
1,4-Dichlorobenzene	106-46-7	p-Dichlorobenzene, p-DCB
Dichlorodifluoromethane	75-71-8	<i>Freon 12</i>
1,1,-Dichloroethane	75-34-3	Ethylidene chloride
1,2-Dichloroethane	107-06-2	1,2-DCA, Ethylene dichloride
1,1-Dichloroethylene	75-35-4	1,1-DCE, 1,1-Dichloroethene, Vinylidene chloride

1,2-Dichloroethylene (cis)	156-59-2	cis-Dichloroethylene, 1,2-Dichloroethene (cis)
1,2-Dichloroethylene (trans)	156-60-5	trans-1,2-Dichloroethylene
2,4-Dichlorophenoxyacetic acid	94-75-7 2,4-D	
1,2-Dichloropropane	78-87-5	Propylene dichloride
1,3-Dichloropropene (cis/trans) ³		<i>Telone</i> , DCP, Dichloropropylene
Di(2-ethylhexyl) phthalate	117-81-7	DEHP, Bis(2-ethylhexyl) phthalate, 1,2-Benzenedicarboxylic acid, Bis (2-ethyl-hexyl)ester
Dimethoate	60-51-5	
2,4-Dinitrotoluene	121-14-2	2,4-DNT, 1-methyl-2,4-dinitrobenzene
2,6-Dinitrotoluene	606-20-2	2,6-DNT, 2-methyl-1,3-dinitrobenzene
Dinoseb	88-85-7	2-(1-methylpropyl)-4,6-dinitrophenol
Dioxin	1746-01-6	
2,3,7,8-TCDD, 2,3,7,8-Tetrachlorodibenzo-		p-dioxin
Endrin	72-20-8	
EPTC	759-94-4	<i>Eptam</i> , <i>Eradicane</i>
Ethylbenzene	100-41-4	Phenylethane, EB
Ethylene glycol	107-21-1	
Fluoranthene	206-44-0	Benzo(jk)fluorene
Fluorene	86-73-7	2,3-Benzidine, Diphenylenemethane
Fluoride	16984-48-8	
Fluorotrichloromethane	75-69-4	<i>Freon 11</i> , Trichlorofluoromethane
Formaldehyde	50-00-0	
Heptachlor	76-44-8	<i>Velsicol</i>
Heptachlor epoxide	1024-57-3	Perchlorobenzene, <i>Granox</i>
Hexachlorobenzene	118-74-1	Hexane, Skellysolve B
N-Hexane	110-54-3	Dihydrogen sulfide
Hydrogen sulfide	7783-06-4	
Lindane	58-89-9	
Mercury	7439-97-6	Methyl alcohol, Wood alcohol
Methanol	67-56-1	
Methoxychlor	72-43-5	Dichloromethane, Methylene dichloride
Methylene chloride	75-09-2	MEK, 2-Butanone
Methyl ethyl ketone	78-93-3	MIBK, 4-Methyl-2-pentanone, Isopropylacetone, <i>Hexone</i>
Methyl isobutyl ketone	108-10-1	MTBE, 2-Methoxy-2-methyl-propane, tert-Butyl methyl ether
Methyl tert-butyl ether	1634-04-4	<i>Dual</i> , <i>Bicep</i> , <i>Milosep</i>
Metolachlor	51218-45-2	Sencor, Lexone
Metribuzin	21087-64-9	
Molybdenum	7439-98-7	Chlorobenzene
Monochlorobenzene	108-90-7	
Naphthalene	91-20-3	NDPA
N-Nitrosodiphenylamine	86-30-6	PCP, Pentachlorohydroxybenzene
Pentachlorophenol	87-86-5	
Phenol	108-95-2	<i>Tordon</i> , 4-amino-3,5,6-trichloropicolinic acid
Picloram	1918-02-1	PCBs
Polychlorinated biphenyls ⁴		<i>Pramitol</i> , <i>Prometone</i>
Prometon	1610-18-0	Benzo(def)phenanthrene
Pyrene	129-00-0	Azabenzene
Pyridine	110-86-1	<i>Princep</i> , 2-chloro-4,6-diethylamino-s-triazine
Simazine	122-34-9	Ethylbenzene, Vinylbenzene
Styrene	100-42-5	1,1,1,2-TCA
1,1,1,2-Tetrachlorethane	630-20-6	1,1,2,2-TCA
1,1,2,2,-Tetrachloroethane	79-34-5	Perchloroethylene, PERC, Tetrachloroethene
Tetrachloroethylene	127-18-4	THF
Tetrahydrofuran	109-99-9	

Toluene	108-88-3	Methylbenzene
Toxaphene	8001-35-2	
1,2,4-Trichlorobenzene	120-82-1	
1,1,1-Trichloroethane	71-55-6	Methylchloroform
1,1,2-Trichloroethane	79-00-5	1,1,2-TCA, Vinyl trichloride
Trichloroethylene	79-01-6	TCE, Chloroethene
2,4,5-Trichlorophenoxy- propionic acid	93-72-1	2,4,5-TP, <i>Silvex</i>
1,2,3-Trichloropropane	96-18-4	1,2,3-TCP, Glycerol trichlorohydrin
Trifluralin	1582-09-8	<i>Treflan</i>
1,2,4-Trimethylbenzene	95-63-6	
1,3,5-Trimethylbenzene	108-67-8	
Vanadium	7440-62-2	
Vinyl chloride	75-01-4	VC, Chloroethene
Xylene ⁵		

¹ Chemical Abstracts Service (CAS) registry numbers are unique numbers assigned to a chemical substance. The CAS registry numbers were published by the U.S. Environmental Protection Agency in 40 CFR Part 264, Appendix IV

² Common synonyms include those widely used in government regulations, scientific publications, commerce and the general public. A trade name, also known as the proprietary name, is the specific, registered name given by a manufacturer to a product. Trade names are listed in *italics*. Common synonyms and trade names should be cross-referenced with CAS registry number to ensure the correct substance is identified.

³ This is a combined chemical substance which includes cis 1,3-Dichloropropene (CAS RN 10061-01-5) and trans 1,3-Dichloropropene (CAS RN 10061-02-6).

⁴ Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals (same molecular composition, different molecular structure and formula), including constituents of Aroclor-1016 (CAS RN 12674-11-2), Aroclor-1221 (CAS RN 11104-28-2), Aroclor-1232 (CAS RN 11141-16-5), Aroclor-1242 (CAS RN 53469-21-9), Aroclor-1248 (CAS RN 12672-29-6), Aroclor-1254 (CAS RN 11097-69-1), and Aroclor-1260 (CAS RN 11096-82-5).

⁵ Xylene (CAS RN 1330-20-7) refers to a mixture of three isomers, meta-xylene (CAS RN 108-38-3), ortho-xylene (CAS RN 95-47-6), and para-xylene (CAS RN 106-42-3)

SECTION 3. NATURAL RESOURCES BOARD DIRECTIVE: In the event that a reference dose or federal number, as defined in s. 160.01(3), Stats., is adopted by the federal environmental protection agency foralachlor ethane sulfonic acid (alachlor-ESA) the Department shall, within 60 days, initiate rulemaking in accordance with the applicable provisions of ch. 160, Stats., to revise existing state groundwater quality standards foralachlor-ESA to incorporate the new reference dose or federal number.

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on August 15, 2007.

The rules shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin _____

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By _____
Matthew J. Frank, Secretary

(SEAL)