

Clearinghouse Rule 07-034

**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 .
..... 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 for Alachlor 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 ch. NR 140 would add groundwater quality standards for one additional substance. In accordance with ch. 160, Stats., amendments to ch. 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 for Alachlor 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 for Alachlor-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 ch. NR 140, Wis. Adm. Code, would add numeric groundwater quality standards for Alachlor-ESA. The groundwater quality standards contained in ch. 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 methodology when establishing groundwater protection quality standards. States may use state specific health risk assessment factors and methodology in calculating and developing their groundwater protection standards. This use of different health risk assessment factors and methodologies has led to the establishment of different 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 parts per billion (ppb), the standard used in Michigan is 520 ppb and the standard used in Iowa is 100 ppb, 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 for Alachlor-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. The Minnesota HBV for Alachlor-ESA is 40 micrograms per liter (ug/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 March 2005 (revised August 2005) document titled *Scientific Support Documentation for Cycle 8 Revisions of NR 140.10 Groundwater Enforcement Standard & Preventive Action Limit Recommendations*, 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 ch. NR 140, Wis. Adm. Code, state groundwater quality enforcement standard. The Department has proposed rules establishing a ch. NR 140, Wis. Adm. Code, 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) [NASS agricultural chemical usage reports from 1991 - 2006 and the NASS Agricultural Chemical Use Database], the University of Wisconsin - Department of Agronomy [UW Dept. of Agronomy Herbicide Price List] and the Wisconsin Department of Agriculture Trade and Consumer Protection (DATCP) [results from DATCP well sampling database].

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, Wis. Adm. Code, 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 and activities will not cause the concentration of a substance in groundwater, affected by the facilities or activities, to exceed state groundwater quality enforcement standards or preventive action limits at an applicable "point of standards application" location.

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 at this time - are not expected to be significant.

The proposed revisions to state groundwater quality standards include new standards for Alachlor ethane sulfonic acid (Alachlor-ESA), a degradation product of the herbicide Alachlor. Alachlor is used in Wisconsin mainly as a corn herbicide. Use of Alachlor as a corn herbicide has decreased significantly over the last fourteen years. Usage of Alachlor on corn in 1992 was reported to have been 2,358,000 lbs., or on an estimated 30% of the state "corn acreage". Since 1992 Alachlor use in Wisconsin has steadily decreased. Alachlor use in Wisconsin in 2001 was reported as 215,000 lbs., or on an estimated 3% of the state "corn acreage". Use in 2002 was reported as on less than 1% of state corn acreage, and in 2003 Alachlor use was reported at 172,000 lbs., or on an estimated 3% of state "corn acreage". Alachlor use was reported "Applied on less than one percent" of state corn acreage in 2005, the latest year for which corn crop agricultural chemical use data is available.

There are a number of comparably priced corn herbicide products available to farmers in Wisconsin. Corn herbicide products containing Alachlor are marketed in Wisconsin for use as a preplant incorporated (PPI) or pre-emergence herbicide. The University of Wisconsin (UW) Department of Agronomy *2004 Herbicide Price List* contains price per acre estimates for herbicide products containing Alachlor listed at approximately \$12.80/acre (coarse soil application rate) and \$19.20/acre (medium soil application rate). The UW *2004 Herbicide Price List* contains estimated price per acre listings for 21 PPI/pre-emergence corn herbicide products. The price estimated for these 21 corn herbicide products range between approximately \$10.30/acre (coarse soil application rate) and \$22.30/acre (medium soil application rate).

Results from the Department of Agriculture Trade and Consumer protection (DATCP) well sampling database in July 2005 showed that approximately 20% of the water supply wells tested (historically, 256

of 1,288) were above the proposed Alachlor-ESA groundwater quality preventive action limit of 4 micrograms per liter (ug/L). The DATCP well sampling database also showed that approximately 1% of the water supply wells tested (historically, 13 of 1,288) were above the proposed Alachlor-ESA groundwater quality enforcement standard level of 20 ug/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 there are comparably priced alternatives to Alachlor herbicide products available, the Department has determined that any management practice restrictions 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.

12. Place where comments are to be submitted and deadline for submission: The deadline for written comments is May 18, 2007. Written comments may be submitted to Mr. Phelps. Comments may also be electronically submitted at the following Internet site: <http://adminrules.wisconsin.gov>

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

[Drafters Note: For the sake of clarity only the addition of Alachlor-ESA, which is the subject of this rule, is being shown]

**Table 1
Public Health Groundwater Quality Standards**

Substance¹	Enforcement Standard (micrograms per liter - except as noted)	Preventive Action Limit (micrograms per liter - except as noted)
<u>Alachlor ethane sulfonic acid (Alachlor-ESA)</u>	<u>20</u>	<u>4</u>

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

[Drafters Note: For the sake of clarity only the addition of Alachlor-ESA, which is the subject of this rule, is being shown]

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

Substance	CAS RN¹	Common synonyms/Trade name²
<u>Alachlor ethane sulfonic acid (Alachlor-ESA)</u>		<u>Alachlor Ethane Sulfonate, MON 5775</u>

SECTION 3. EFFECTIVE DATES. 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.

SECTION 4. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on _____.

Dated at Madison, Wisconsin _____

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By _____
Scott Hassett, Secretary

(SEAL)