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(FORM UPDATED: 08/11/2010)

# WISCONSIN STATE LEGISLATURE ... PUBLIC HEARING - COMMITTEE RECORDS

## 2009-10

(session year)

## Senate

(Assembly, Senate or Joint)

## Committee on Environment...

### COMMITTEE NOTICES ...

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### INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

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  - (**ab** = Assembly Bill)                      (**ar** = Assembly Resolution)                      (**ajr** = Assembly Joint Resolution)
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\* Contents organized for archiving by: Stefanie Rose (LRB) (September 2013)

**Senate**

**Record of Committee Proceedings**

**Committee on Environment**

**Clearinghouse Rule 09-102**

Relating to groundwater quality standards.  
Submitted by Department of Natural Resources.

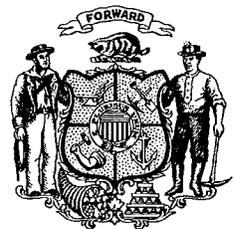
August 19, 2010      Referred to Committee on Environment.

September 19, 2010      No action taken.

  
\_\_\_\_\_  
Elizabeth Bier  
Committee Clerk



# WISCONSIN STATE LEGISLATURE



**State of Wisconsin  
Department of Natural Resources**

**NOTICE TO PRESIDING OFFICERS  
OF PROPOSED RULEMAKING**

Pursuant to s. 227.19, Stats., notice is hereby given that final draft rules are being submitted to the presiding officer of each house of the legislature. The rules being submitted are:

Board Order No.: DG-24-09  
Clearinghouse Number CR10-102  
Subject of Rules: Groundwater Standards  
Date of Transmittal: August 18, 2010

**Send a copy of any correspondence or notices pertaining to the rule to:**

**Linda Haddix  
Department Rules Coordinator  
101 South Webster, LS/8  
P O Box 7921  
Madison, WI 53707-7921**

**An electronic copy of the proposed rules submittal may be obtained by  
contacting: [Linda.haddix@wisconsin.gov](mailto:Linda.haddix@wisconsin.gov)**

## REPORT TO LEGISLATURE

NR 140, Wis. Adm. Code

Board Order No. DG-24-09  
Clearinghouse Rule No. CR09-102

### Basis and Purpose of the Proposed Rule

Wisconsin state groundwater quality standards are established by the Department of Natural Resources for substances of public health or welfare concern that are detected in, or have a reasonable probability of entering the groundwater resources of the state. These groundwater quality standards are established in Wisconsin Administrative Code ch. NR 140, Groundwater Quality.

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 those standards by the Department.

Amendments are being proposed to ch. NR 140, Wis. Adm. Code, to add new state groundwater quality standards for 15 substances of public health concern, to revise existing groundwater quality standards for 15 substances of public health concern and to make minor revisions and additions to update the rule. In accordance with ch. 160, Stats., amendments to ch. NR 140 groundwater quality standards are based on recommendations from the Department of Health Services (DHS).

New public health related groundwater quality standards are proposed for: 1,4-Dioxane, Acetochlor, Acetochlor ethane sulfonic acid + oxanilic acid (Acetochlor - ESA + OXA), Aluminum, Ammonia - nitrogen, Chlorodifluoromethane, Chlorpyrifos, Dimethenamid/Dimethenamid-P, Dinitrotoluenes, Ethyl Ether, Manganese, Metolachlor ethane sulfonic acid + oxanilic acid (Metolachlor - ESA + OXA), Perchlorate, Propazine and Tertiary Butyl Alcohol.

Revised public health related groundwater quality standards are proposed for: 1,3-Dichlorobenzene, 1,3-Dichloropropene, Acetone, Boron, Carbaryl, Chloromethane, Dibutyl Phthalate, Ethylene Glycol, Methyl Ethyl Ketone, Metolachlor, Metribuzin, Phenol, Prometon, Toluene and Xylene.

These proposed amendments to ch. NR 140 continue the existing policy of protecting Wisconsin's groundwater by utilizing the procedures in ch. 160, Stats., to establish new state groundwater quality standards. The 15 new groundwater quality standards will be added to the present ch. NR 140 groundwater standards. There are currently standards for 131 substances of public health and welfare concern. Existing state groundwater standards for 15 substances will be revised. The addition of new standards, and revision of existing standards, does not affect the evaluation and response procedures in ch. NR 140 used by regulatory programs when standards are attained or exceeded.

### Summary of Public Comments

During the public comment period the Department received comments both in support of, and in opposition to, the proposed amendments to ch. NR 140. Comments on proposed code clarification language and information related to toxicity risk assessments were also received. In general, comments were received that:

- support establishing health based standards for manganese and encourage reevaluation of these standards, as new research results on health impacts become available;

- recommend re-review of the available toxicity information for dinitrotoluenes, or deferral of standards until additional toxicity assessment studies are completed; suggest laboratory analytical methods for DNT isomers are not currently low enough to allow an evaluation of compliance with the proposed standards to be made;
- support regulation of the six dinitrotoluene isomers as a single entity, and an enforcement standard set at the same level as the health advisory level established by the WI Dept. of Health Services (DHS);
- support the regulation of perchlorate, pointing out that there are several population subgroups that may be affected by very low levels in food or water, and recommend establishing a lower, "more protective", enforcement standard;
- note that there is a more recent (Jan. 2007) EPA cancer risk assessment available for acetochlor and recommend that the proposed groundwater quality standards be recalculated;
- oppose the proposed combined standard for the two acetochlor degradation products (ESA and OXA) since the "mode of action" of these chemicals is unknown and thyroid hormone effects on test animals are not the same for both substances;
- request federal reference and risk exposure levels for aluminum be reviewed, aluminum toxicity studies used to develop standards be re-evaluated and the total uncertainty factor used to calculate the enforcement standard be reconsidered;
- note that there are agricultural chemicals, applied to relatively large percentages of potato and corn crop acres, that currently do not have state groundwater standards, and therefore a more proactive, "precautionary" approach to groundwater protection in Wisconsin, and consideration of health threats posed by mixtures of pesticides and metabolites, and residues and nitrate nitrogen is needed.

A separate Response to Public Comments document (attached) provides detailed responses to comments received. The Department of Health Services has also provided responses (attached) to comments and information received related to toxicity assessment studies and DHS development of recommendations for new standards.

#### Modifications Made

After review of comments and information received during the rulemaking public comment period, DHS revised their original standards recommendations for three substances: acetochlor, aluminum and perchlorate. The recommendation for acetochlor standards was revised, from an ES of 1 part per billion (ppb) and PAL of 0.1 ppb, to an ES of 7 ppb and PAL of 0.7 ppb. The recommendation for an aluminum ES was revised, from 170 ppb to an ES of 200 ppb. The recommendation for perchlorate standards was revised, from an ES of 7 ppb and PAL of 0.7 ppb, to an ES of 1 ppb and PAL of 0.1 ppb. Based on information provided to the Department during rulemaking by WE Energies the proposed groundwater quality PAL standard for aluminum was revised from 20 ppb to 40 ppb (20% of the proposed aluminum ES value).

#### Appearances at the Public Hearing

Dec. 11, 2009 - Madison

In support  
 Lynn Williamson, 4137 Mandan Crescent, Madison, WI 53711  
 Stanley Senger, DATCP, Madison, WI 53708-8911  
 Rick Graham, DATCP, 2811 Agriculture Dr., Madison, WI 53708

In opposition - none

As interest may appear

Laura Olah, Citizens for Safe Water Around Badger (CSWAB), E12629 Weigand's Bay South, Merrimac, WI 53501

Dec. 14, 2009 - Baraboo

In support

Randy Poelma, Ho-Chunk Nation, P.O. Box 636, Black River Falls, WI 54615

In opposition

Joan Kenney, Badger Army Ammunition Plant, S3920 Fairfield Rd., Baraboo, WI 53913

As interest may appear

Laura Olah, CSWAB, E12629 Weigand's Bay South., Merrimac, WI 53501

Dec. 15, 2009 - Eau Claire

In support – none

In opposition - none

As interest may appear - none

Dec. 15, 2009 in Stevens Point

In support

Lynn Markham, 302 Georgia St. N., Stevens Point, WI 54481

Ray Schmidt, Portage Co. Planning and Zoning Dept., 1462 Strongs Ave., Stevens Point, WI 54481

In opposition - none

As interest may appear - none

Dec. 16, 2009 - Oshkosh

In support – none

In opposition - none

As interest may appear

Anndelee Gregg, Veolia ES Solid Waste, N104 W13275 Donges Bay Road, Germantown, WI 53022

#### Changes to Rule Analysis and Fiscal Estimate

The rule analysis and fiscal estimate are unchanged.

#### Response to Legislative Council Rules Clearinghouse Report

The recommendation was accepted (LCRC Report to Agency attached).

### Final Regulatory Flexibility Analysis

The Department does not believe that the proposed rule will have a significant economic impact on a substantial number of small businesses. The compliance and reporting requirements in ch. NR 140 are not changed by the proposed amendments. If a groundwater quality standard is exceeded, the owner or operator of a facility, practice or activity, including any small business, must report the violation to the appropriate regulatory agency. There would be 15 new substances for which a facility may have to monitor and report exceedances and 15 additional substances with revised standards. Of the 15 revised standards, 9 are proposed to be less restrictive than their current standard.

Chapter 160, Stats., requires establishment of both design and performance standards. Individual state agency regulatory programs establish design and operational standards in their specific program rules. Performance standards (groundwater quality standards) are contained in ch. NR 140. Chapter 160, Stats., does not allow for less stringent schedules, deadlines or reporting requirements, or for exemptions to remedial action, when a groundwater quality standard is attained or exceeded, based on the size of the business causing the contamination.

There would be adverse impacts on public health, welfare, safety and the environment if small businesses were not required to meet regulatory reporting requirements and implement remedial responses. The more quickly contamination can be evaluated and responses initiated, the less likely that public health, safety and welfare will be adversely affected. If small businesses were exempt from these requirements, groundwater contamination would continue unabated at least until the Department could appropriate sufficient resources to undertake this work. The delay, or possibility that nothing would be done, would lead to adverse impacts on public health, welfare, safety and the environment.

The type of small businesses that are typically impacted by ch. NR 140 include dry cleaners, small manufacturers, agricultural cooperatives, farmers, underground storage tank owners, small solid waste disposal facilities, small wastewater treatment operations, as well as others. In effect, any small business that has a permitted or unpermitted discharge of a substance exceeding the health or welfare groundwater quality standards listed in ch. NR 140 is responsible for responding to the release consistent with the requirements of ch. NR 140.

There will be 15 additional new groundwater quality standards, and 15 revised standards, which would be used as design and compliance standards, and for clean-up standards in the event of a spill or unpermitted discharge. If remedial action or other response is necessary, the individual programs which regulate the facility, practice or activity would determine the appropriate level of clean-up required. As the cost of remedial options varies, the cost of remediation of groundwater contamination for small businesses will vary, depending on the complexity of the site and contamination at the facility, practice or activity, and federal and state laws that are being used to guide the remedial action.

The majority of the substances for which new groundwater quality standards are proposed have already been detected in groundwater at one or more sites in Wisconsin. The adoption of design, compliance and clean-up standards for these substances may aid small businesses in a number of ways. The standards will provide specifications for facility and activity design purposes, inform whether a substance detected in groundwater does or does not exceed a standard and, if it does, let a small business know when the clean-up efforts are finished based on standards being met. When substances are detected in groundwater for which a standard does not exist in ch. NR 140, the Department may require clean-up of the groundwater "to the extent practicable" which may be overly conservative depending upon the actual toxicity of the substance detected.

## RESPONSE TO PUBLIC COMMENTS

March, 10, 2010

### Revisions to ch. NR 140, Wis. Adm. Code, to amend NR 140.10 Table 1 and Appendix 1, relating to groundwater quality standards

#### Natural Resources Board Order No. DG-24-09

#### Introduction

In October of 2009, the Natural Resources Board authorized the Department to hold public hearings and solicit comments on proposed revisions to ch. NR 140, "Groundwater Quality". The proposed rule package included establishing new state groundwater quality standards for 15 substances and revising existing state groundwater quality standards for 15 additional substances. In addition, minor revisions and additions were proposed to update and clarify rule language.

Five public hearings were held in December of 2009. A total of 16 people attended these hearings. Two marked hearing appearance slips "As interest may appear", 6 marked hearing appearance slips "In support" of the proposed rule revisions and 1 marked their hearing appearance slip "In opposition" to the proposed rule revisions. 5 oral statements were made at the hearings and 4 written comments were submitted.

Written comments on the proposed rule revisions were accepted through Dec. 30, 2009. Approximately 152 letters, postcards, e-mails and information documents were received by the Department during the rule public comment period.

The Response to Public Comments document is organized in two sections. Section I covers comments received at the public hearings and submitted during the rule comment period. Section II addresses comments received from the Wisconsin Legislative Council Rules Clearinghouse.

Comments related to the interpretation of toxicologic studies and the risk assessment methodology used by the WI Dept. of Health Services (DHS) to develop their recommendations for new and revised state groundwater quality standards have been responded to by DHS staff. These responses are included in a DHS memo, dated Feb. 10, 2010 (Attachment 2). Revised DHS recommendations for groundwater quality standards are included in the DHS (Feb. 2010) *Scientific Support Documentation for Cycle 9, Revisions of NR 140.10, Groundwater Enforcement Standard & Preventive Action Limit Recommendations* document (Attachment 3).

#### I. Oral and written comments received by the Department on proposed rule revisions

The following acronyms and abbreviations are used to identify commenting organizations in this section:

<b>WE</b>	We Energies (Wisconsin Electric Power Co. and Wisconsin Gas Co.)
<b>DA</b>	Dept. of the Army (Office of Regional Environmental and Government Affairs -Northern)
<b>CSWAB</b>	Citizens for Safe Water Around Badger
<b>ARP</b>	Acetochlor Registration Partnership (Dow AgroSciences, LLC and Monsanto Co.)
<b>PC</b>	Portage County - Planning and Zoning Department
<b>TA</b>	Test America, Inc.

1. **Comment:** Recommended that the Department re-review the available toxicity information for dinitrotoluenes and conduct an independent peer review of this toxicity evaluation, and recommended that the Department defer developing standards for "dinitrotoluene, total residues" groundwater quality standards until after the U. S. Army Public Health Command completes their provisional dinitrotoluene toxicity assessment studies. (DA)

**Response:** This information has been reviewed and the proposed standards remain unchanged. The DHS addresses specific technical comments in their Response to Comments document (Attachment 2), see response 3.

2. **Comment:** Laboratory analytical methods for dinitrotoluene isomers are not currently low enough to allow an evaluation of compliance with the proposed standards to be made. (DA)

**Response:** Note that s. NR 140.16(2) requires a laboratory to utilize an analytical methodology that produces the lowest available limits of detection, and that s. NR 140.14(3), provides guidance for dealing with situations where groundwater quality standards are equal to, or less than, laboratory limits of quantitation. The DHS addresses this in its Response to Comments document (Attachment 2), see response 3.

3. **Comment:** Multiple comments supporting regulation of the six dinitrotoluene isomers as a single entity, and a groundwater ch. NR 140 enforcement standard set at the same level as the health advisory level for total residues of dinitrotoluene established by the WI DHS. (CSWAB & others)

**Response:** The proposed standards regulate the six isomers of dinitrotoluenes as a single entity. The DHS addresses this in its Response to Comments document (Attachment 2), see response 4.

4. **Comment:** Multiple comments made recommending establishment of a lower, "more protective", enforcement standard for perchlorate than proposed in the rule amendments because there are several subgroups, such as pregnant women, people with low iodine intake and those who consume food with iodine uptake blockers, that may be affected by very low levels of perchlorate in food and water. (CSWAB & others)

**Response:** The proposed standards have been lowered. The DHS addresses this in its Response to Comments document (Attachment 2), see response 4.

5. **Comment:** Oppose the proposed acetochlor groundwater quality standards as there is a more recent EPA cancer risk assessment (Jan. 2007) available than the one used by DHS to develop the proposed standards. Recommend recalculating the proposed acetochlor groundwater quality standards using the more recent acetochlor cancer risk assessment. (ARP)

**Response:** This information has been reviewed and a less stringent standard is proposed. The DHS addresses this in its Response to Comments document (Attachment 2), see response 1.

6. **Comment:** Recommendation made to develop individual standards for each of the two acetochlor degradation products, acetochlor-ethane sulfonic acid (acetochlor-ESA) and acetochlor-oxanilic acid (acetochlor-OXA), as the "mode of action" of these chemicals is

unknown, and because the thyroid hormone effect on test animals is not the same for both substances. Recommendation made to use an uncertainty factor consistent with federal guidance when developing these standards. (ARP)

**Response:** This information has been reviewed and the proposed standards remain unchanged. The DHS addresses this in its Response to Comments document (Attachment 2), see response 1.

7. **Comment:** Recommendation made to review three potentially relevant federal regulatory levels for aluminum during ch. NR 140 groundwater standards development. These regulatory levels are: US EPA tap water Regional Screening Level (RSL) for aluminum of 37 mg/L (37,000 ppb), US EPA Superfund Program Provisional Peer Reviewed Toxicity Value (PPRTV) for aluminum of 1 mg/kg/day, and Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Level (MRL) for aluminum of 1 mg/kg/day. (WE)

**Response:** This information has been reviewed and a less stringent standard is proposed. The DHS addresses this in its Response to Comments document (Attachment 2), see response 2.

8. **Comment:** Recommendation made to re-evaluate the results of the 2005 Yousef et al. rabbit study, used to develop the DHS recommended aluminum standards and to reconsider the total uncertainty factor used in the calculation of the proposed aluminum groundwater enforcement standard. (WE)

**Response:** This information has been reviewed and a less stringent standard is proposed. The DHS addresses this in its Response to Comments document (Attachment 2), see response 2.

9. **Comment:** Individual commenter noted that there are agricultural chemicals, applied to relatively large percentages of potato and corn crop acres, that currently do not have state groundwater quality standards. Suggestion made to utilize a more proactive, "precautionary" approach to groundwater protection in Wisconsin.

**Response:** The WI Dept. of Agriculture, Trade & Consumer Protection (DATCP) periodically conducts surveys evaluating the occurrence of agricultural chemicals in groundwater. The Department will forward comments related to agricultural chemicals applied to Wisconsin crops to DATCP for possible inclusion in future surveys.

10. **Comment:** Need to consider the health threats posed by mixtures of pesticides and pesticide metabolites, and by pesticide residues and nitrate nitrogen. (PC)

**Response:** This information has been reviewed and, in part, is included in the existing process. The DHS addresses this in its Response to Comments document (Attachment 2), see response 5.

11. **Comment:** Need to clarify, in ch. NR 140, what analytical methods could be used as acceptable measures of "free cyanide" in groundwater. (WE & TA).

**Response:** A note has been added to s. NR 140.10, Table 1 clarifying what laboratory analytical methods are acceptable for "free cyanide".

## **II. Wisconsin Legislative Council Rules Clearinghouse report comments**

One comment was received from the Legislative Council Rules Clearinghouse on Clearinghouse Rule CR09-102 "Form, Style and Placement in Administrative Code":

**Comment:** Provide a definition for the symbol  $\mu\text{S}$ , proposed to be used for field specific conductance, or keep current "micromho" units term.

**Response:** The  $\mu\text{S}$  symbol was replaced in the proposed code amendments with the term "microSiemens".

## Attachment 2

### Cycle 9 Groundwater Standard Revisions

#### Response to Comments

Prepared by Lynda Knobeloch, Ph.D., Senior Toxicologist

Wisconsin Department of Health Services

February 10, 2010

#### 1. Acetochlor Registration Partnership (ARP)

The Acetochlor Registration Partnership (ARP) provided new information regarding EPA's re-assessment of acetochlor. In 2007, the EPA withdrew the cancer slope factor for acetochlor, changing its classification from "probable" to "suggestive" and recommended a threshold approach to risk assessment. The ARP also recommended revising the proposed standards for the ESA and OXA metabolites of acetochlor. Their justification for revision included, in part, current federal risk assessment guidelines which do not allow uncertainty factors to exceed 3,000. ARP also argued that these metabolites should be regulated separately explaining that the toxicity profiles are not "virtually the same" as stated in the supporting document because one caused thyroid hormone levels to increase, while the other was associated with lower hormone levels.

Response: Following review of the January 3, 2007 report prepared by the EPA's Cancer Assessment Review Committee, DHS has updated the support document for acetochlor and revised the proposed ES from 1 µg/L to 7 µg/L. The newly proposed standard was developed using the federal reference dose with an additional uncertainty factor of 10 to protect against possible oncogenic effects. The proposed PAL has been adjusted to 0.7 µg/L.

With regard to comments regarding the uncertainty factors used to develop the proposed standard for acetochlor metabolites, Wisconsin state statute Chapter 160.13.2(b3) lists ten factors to be considered in establishing an uncertainty factor. EPA's reference dose for acetochlor was developed considering only one of these items – inter and intra-species

variability. We have included two additional uncertainty factors of 10 each to account for the use of a subchronic study and to account for data gaps in the toxicological database. These factors are consistent with Chapter 160's directive to consider the quality and quantity of data relevant to establishing an acceptable daily intake level, but could also be justified under the directive to consider the importance to full health of the most sensitive target organs or body systems affected by the substance, or by the directive to consider potential interactions with other environmental chemicals. It should be noted that while federal risk assessments no longer utilize uncertainty factors above 3,000, EPA routinely applies a relative source contribution of 20% to chemicals in drinking water. When EPA combines an uncertainty factor of 3,000 with the 20% RSC to develop a drinking water health advisory, they are applying an overall safety factor of 15,000 which exceeds the uncertainty factor used in our Cycle 9 proposal. At this time, DHS is not proposing any changes in the proposed enforcement standards or preventive action limits for these metabolites.

## **2. WE Energies**

WE Energies commented on the proposed ES for aluminum citing EPA Region 9's screening level of 37 mg/L for aluminum in tap water and the Agency for Toxic Substances and Disease Registry's (ATSDR) minimal risk level of 1 mg/kg/day for aluminum.

Response: We have not used these values in the development of a groundwater protection ES. It is our understanding that screening levels used by regional EPA offices are not official federal numbers as they are not published in the Federal Register or in IRIS and are not subjected to approval by EPA's central office or peer reviewed. ATSDR's minimal risk level of 1 mg/kg/day provides a guideline for total dietary and drinking water intake and was considered in our development of a safe level in groundwater, but was not used for our calculation since it was developed to consider ingestion from foods as well as water. The most useful federal guideline for drinking water identified in DHS' review was the US Food and Drug Administration's standard of 200 µg/L for commercially-sold bottled water. The World Health Organization has also established a standard of 200 µg/L for aluminum in drinking water.

We thank WE Energies for their comments and have amended the support document for aluminum to include information they have provided. The proposed ES has been rounded up from 170 to 200 µg/L to be consistent with the FDA and WHO guidelines for aluminum in drinking water.

### 3. US Department of Defense

The US DOD provided comments on the proposed standard for dinitrotoluene isomers. In its comments, the DOD argued that the toxicity database for minor isomers of DNT, as reviewed in our background document, does not support a combined standard and that analytical methods for DNT isomers cannot demonstrate compliance with the proposed standard. They recommended deferment of adoption of an ES until the US Army Public Health Command completes an assessment of the mutagenicity of DNT. The commenter cited two studies conducted by the Midwest Research Institute during the 1970s and supported by the US Army Medical Research and Development Command as primary studies that should have been included in our support document. While data from these studies have been published in secondary sources, the primary sources are available only from a DOD website. We were able to locate the December 8, 1978 progress report prepared by Ellis et al. which was referenced in the DOD comments and have added information from that report to our support document.

The commenter has provided the following technical comments:

*The oral LD50 for 3,4 DNT should be 807 mg/kg, not 177 mg/kg.*

Response: We appreciate this correction. Table I has been amended to list LD<sub>50</sub>s in female rats as reported by Rickert et al. 1984. While these are not always the lowest LD<sub>50</sub>s, the selection of a single species and single sex is intended to allow comparison of the toxicity of these isomers.

*The underlying science does not support the development of a combined standard for DNT isomers.*

Response: While data for the minor isomers is too limited for independent risk assessments, existing data indicates that they are similar in toxicity to the 2,4- and 2,6-isomers and that some effects of exposure are likely to be additive. On page 31 of their Dec 8, 1978 progress report submitted to the US Army, Ellis et al. concluded, "The acute oral toxicities of all the nitrotoluenes tested are generally similar... 3,5-DNT is the most toxic...All these (sic) nitrotoluenes were fairly well absorbed and widely distributed by rats. They were concentrated in the liver and kidneys...Ames tests of various munitions found that TNM, TNT, 2,4-DNT, 2,5-DNT and 1,2-DNG were potential mutagens active at 10 to 30 µg/plate. The other nitrotoluenes tested (2,3-DNT, 2,6-DNT, 3,4-DNT and 3,5-DNT) were weak mutagens." On page 28 of this report, the authors summarize the Ames tests results stating, "Many recent studies have shown that, in general, nitroaromatics exhibit a high degree of mutagenic activity in the Salmonella microsome plate test. . . In light of these considerations, it appears that TNT and the six DNT isomers should be considered as potentially mutagenic and possibly carcinogenic."

Our review of available literature on these isomers suggests that the chronic toxicities of DNT isomers are also likely similar although the toxicological databases are incomplete for the minor isomers. In the absence of a complete toxicological database for all six isomers, the most practical approach to ensure protection of public health is to regulate these chemicals, which have a common production source and are often found together in groundwater, as a group.

*Purified 2,4-DNT and all of the minor isomers had no detectable initiating activity. The minor isomers had no detectable hepatocarcinogenic initiating activity.*

Response: The literature is inconsistent regarding this issue. While Leonard et al. reported this finding, a 1979 report by Ellis et al. found that mice and rats fed a diet containing 98% pure 2,4-DNT had higher levels of liver (rats) and kidney (mice) tumors. In its review of these studies, the European Organization for Economic Cooperation and Development (OECD) provided the following, "The pure 2,4-DNT isomer induced the same tumor spectrum in long-term feeding studies in rats as was shown for the technical grade isomer mixture. Additionally, tumors of the renal tubular epithelium were observed in male mice after chronic 2,4-DNT feeding."

*The minor isomers do not contribute to the carcinogenicity of Technical Grade DNT in an additive manner.*

Response: We have been unable to locate any scientific studies that address the carcinogenic additivity of DNT isomers. While we do not have data from long-term feeding studies for the minor isomers, their structural similarity to the 2,4- and 2,6- isomers and their acute toxicity and mutagenicity profiles support an assumption of additivity.

*DNT in groundwater cannot be accurately and reliably measured at levels proposed as standards and preventive action limits.*

Response: Since analytical precision varies from lab to lab and tends to improve over time, it is not considered in our development of groundwater protection standards. According to Table 2 of the comments submitted by DOD which shows method quantitation limits (MQLs) and method detection limits (MDLs) for DNT isomers at the Badger Army Ammunition Facility in Baraboo, only 2,6- and 3,4-DNT have MQLs that exceed the proposed ES and all of the isomers have MDLs of <0.05 µg/L suggesting that laboratories can detect these substances if they exceed the proposed enforcement standard. While MDLs for some isomers exceed the proposed preventive action limit, detection of these substances would be considered an exceedance of this secondary standard.

#### **4. Laura Olah, Executive Director, Citizens for Safe Water around Badger**

*DNR's proposal to regulate DNT in drinking water is vital to the community around Badger Army Ammunitions Plant and to millions of Wisconsin adults, children and infants who rely on groundwater as a source of drinking water.*

Response: We appreciate the support of Ms. Olah and other members of this group for our efforts in ensuring the safety of Wisconsin's groundwater resource.

*We support the proposed regulation of perchlorate and recommend that the proposed standard be revised from 7 µg/L to 1 µg/L – a level that is consistent with*

*recommendations from the NRDC, Environmental Working Group and many others. The proposed enforcement standard would put breast-fed infants, bottle-fed infants and young children at risk of having daily exposures that are near or even exceed the EPA reference dose considered to be a safe daily intake.*

Response: Following review of additional materials submitted by this commenter, we have applied an additional uncertainty factor to ensure protection against long-term exposure to perchlorate, which has been detected in many foods as well as in surface and groundwater throughout the United States and is considered a possible human carcinogen.

**5. Raymond Schmidt, Water Quality Specialist, Portage County Planning and Zoning Department**

*I am pleased to see that additional health-based standards are being proposed by pesticides and metabolites that are found in Wisconsin's groundwater. I encourage the state to develop methods for evaluating the health threats posed by mixtures of pesticides, metabolites and nitrate.*

Response: We appreciate this comment. We encourage the use of hazard indices to assess the potability of water that contains more than one contaminant. While this approach does not address potential synergistic effects, it provides an additional measure of safety when multiple contaminants are detected and should be used to assess the need to replace severely contaminated water supplies.



DG-24-09

LCRC  
FORM 2

WISCONSIN LEGISLATIVE COUNCIL  
RULES CLEARINGHOUSE

Ronald Sklansky  
Clearinghouse Director

Terry C. Anderson  
Legislative Council Director

Richard Sweet  
Clearinghouse Assistant Director

Laura D. Rose  
Legislative Council Deputy Director

CLEARINGHOUSE REPORT TO AGENCY

[THIS REPORT HAS BEEN PREPARED PURSUANT TO S. 227.15, STATS. THIS IS A REPORT ON A RULE AS ORIGINALLY PROPOSED BY THE AGENCY; THE REPORT MAY NOT REFLECT THE FINAL CONTENT OF THE RULE IN FINAL DRAFT FORM AS IT WILL BE SUBMITTED TO THE LEGISLATURE. THIS REPORT CONSTITUTES A REVIEW OF, BUT NOT APPROVAL OR DISAPPROVAL OF, THE SUBSTANTIVE CONTENT AND TECHNICAL ACCURACY OF THE RULE.]

CLEARINGHOUSE RULE 09-102

AN ORDER to amend NR 140.10 Table 1 and Appendix 1, relating to groundwater quality standards.

Submitted by DEPARTMENT OF NATURAL RESOURCES

11-04-2009 RECEIVED BY LEGISLATIVE COUNCIL.

12-03-2009 REPORT SENT TO AGENCY.

RNS:DLL

RECEIVED-DNR  
DRINKING WATER & GW  
RECEIVED-DNR  
JAN 29 2010  
DRINKING WATER & GW

**LEGISLATIVE COUNCIL RULES CLEARINGHOUSE REPORT**

This rule has been reviewed by the Rules Clearinghouse. Based on that review, comments are reported as noted below:

1. STATUTORY AUTHORITY [s. 227.15 (2) (a)]  
Comment Attached      YES       NO
2. FORM, STYLE AND PLACEMENT IN ADMINISTRATIVE CODE [s. 227.15 (2) (c)]  
Comment Attached      YES       NO
3. CONFLICT WITH OR DUPLICATION OF EXISTING RULES [s. 227.15 (2) (d)]  
Comment Attached      YES       NO
4. ADEQUACY OF REFERENCES TO RELATED STATUTES, RULES AND FORMS [s. 227.15 (2) (e)]  
Comment Attached      YES       NO
5. CLARITY, GRAMMAR, PUNCTUATION AND USE OF PLAIN LANGUAGE [s. 227.15 (2) (f)]  
Comment Attached      YES       NO
6. POTENTIAL CONFLICTS WITH, AND COMPARABILITY TO, RELATED FEDERAL REGULATIONS [s. 227.15 (2) (g)]  
Comment Attached      YES       NO
7. COMPLIANCE WITH PERMIT ACTION DEADLINE REQUIREMENTS [s. 227.15 (2) (h)]  
Comment Attached      YES       NO



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WISCONSIN LEGISLATIVE COUNCIL  
RULES CLEARINGHOUSE

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Ronald Sklansky  
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*Legislative Council Deputy Director*

CLEARINGHOUSE RULE 09-102

Comments

[NOTE: All citations to "Manual" in the comments below are to the Administrative Rules Procedures Manual, prepared by the Legislative Reference Bureau and the Legislative Council Staff, dated September 2008.]

2. Form, Style and Placement in Administrative Code

SECTION 2 of the rule replaces a word with a known meaning (micromho) with an undefined symbol (uS). The rule should either retain the word or define the symbol.

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

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

DG-24-09

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.

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.

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 standards 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.

**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: 1,4-Dioxane, Acetochlor, Acetochlor ethane sulfonic acid (ESA) + oxanilic acid (OXA), Ammonia (as N), Chlorodifluoromethane, Chlorpyrifos, Dimethenamid/Dimethenamid-P, Dinitrotoluene Total Residues, Ethyl Ether, Metolachlor ethane sulfonic acid (ESA) + oxanilic acid (OXA), Perchlorate, Propazine or Tertiary Butyl Alcohol. Secondary Standards, established for aesthetic quality, have been promulgated in s. NR 809.60, Wis. Adm. Code, for Aluminum and Manganese. These ch. NR 809 Secondary Standards are 50 to 200 parts per billion (ppb) for aluminum, and 50 ppb for manganese. Note, units are parts per billion (ppb), 1 ppb is equivalent to 1 microgram per liter (ug/L).

**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. These proposed amendments to ch. NR 140 would add new state groundwater quality standards for 15 substances and revise existing standards for another 15 substances. In accordance with ch. 160, Stats., amendments to ch. NR 140 groundwater quality standards are based on recommendations from the Department of Health Services.

New public health related groundwater quality standards are proposed for: 1,4-Dioxane, Acetochlor, Acetochlor - ESA + OXA, Aluminum, Ammonia, Chlorodifluoromethane, Chlorpyrifos, Dimethenamid/Dimethenamid-P, Dinitrotoluenes, Ethyl Ether, Manganese, Metolachlor - ESA + OXA, Perchlorate, Propazine and Tertiary Butyl Alcohol.

Revised public health related groundwater quality standards are proposed for: 1,3-Dichlorobenzene, 1,3-Dichloropropene, Acetone, Boron, Carbaryl, Chloromethane, Dibutyl Phthalate, Ethylene Glycol, Methyl Ethyl Ketone, Metolachlor, Metribuzin, Phenol, Prometon, Toluene and Xylene.

Minor revisions, to clarify rule language and update rule reference information, are also proposed to ch. NR 140. These revisions include:

- Replacing current "Chromium" in ch. NR 140 Table 1 with "Chromium (total)" to clarify that ch. NR 140 standards apply to total chromium (combination of chromium III and chromium VI).
- Replacing current "Cyanide" term in ch. NR 140 Table 1 with "Cyanide, free" to clarify that ch. NR 140 standards apply to "free cyanide" (HCN, CN<sup>-</sup> and metal-cyanide complexes that are easily dissociated into free cyanide ions). Footnote added to Table 1 stating that "Cyanide, free" refers to the simple cyanides (HCN, CN<sup>-</sup>) and /or readily dissociable metal-cyanide complexes, and that free cyanide is regulatorily equivalent to cyanide quantified by approved analytical methods for "amenable cyanide" or "available cyanide".
- Changing "Metolachlor" in ch. NR 140 Table 1 to "Metolachlor/s-Metolachlor" to clarify that ch. NR 140 standards apply to both Metolachlor (CAS RN 51218-45-2) and its stereo isomer, s-Metolachlor (CAS RN 87392-12-9).
- Revising units for field specific conductance in s. NR 140.20 Table 3 from micromhos/cm (micromhos per centimeter) to microSiemens/cm (microSiemens per centimeter or  $\mu$ S/cm).
- Revising s. NR 140.28(5)(c)6 note to add "for discharges, as defined by s. 283.01(4), Stats" language related to the need for a wastewater discharge permit.
- Adding CAS RN of 142363-53-9 for Alachlor-ESA to Appendix I to Table 1.
- Changing existing Appendix I to Table 1 CAS RN for Asbestos from 12001-29-5 (chrysotile asbestos) to 1332-21-4 (asbestos, all forms).
- Adding "Chromium (total)", with CAS RN of 7440-47-3, to ch. NR 140 Appendix I to table 1.
- Adding CAS RN of 542-75-6 for cis/trans 1,3 Dichloropropene (mixed isomers) to ch. NR 140 Appendix I to Table 1.
- Changing existing Appendix I to Table 1 CAS RN for Fluoride from 16984-48-8 to 7681-49-4.

- Adding 1,1,1,2-PCA synonym for 1,1,1,2 tetrachloroethane to ch. NR 140 Appendix I to table 1.
- Adding 1,1,2,2-PCA synonym for 1,1,2,2 tetrachloroethane to ch. NR 140 Appendix I to table 1.
- Adding 1,1,1-TCA synonym for 1,1,1 trichloroethane to ch. NR 140 Appendix I to table 1.

**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), cancer risk levels and health advisories (HAs). Federal drinking water MCLs are established based on scientific risk assessments and, in some cases, economic and technological considerations. Cancer risk levels are established as the concentration of a chemical in drinking water that corresponds to a specific excess estimated lifetime cancer risk. Federal lifetime health advisories (LHAs) are developed based on an established health risk acceptable daily intake (ADI) level or reference dose (RfD). An ADI or RfD is the daily oral exposure to a chemical that is likely to be without an appreciable risk over a lifetime.

No federal drinking water MCLs have yet been established for any of the substances for which new Wisconsin state groundwater quality standards are proposed. Federal 1 in 1,000,000 drinking water cancer risk levels have been established at 3 ppb for 1,4-Dioxane and at 0.05 ppb for DNT (mixture of 2,4-/2,6-DNT). US EPA LHAs have been established at 2 ppb for Chlorpyrifos, at 300 ppb for Manganese and at 10 ppb for Propazine. The US EPA has also developed an "Interim Drinking Water Health Advisory" of 15 ppb for Perchlorate. RfDs have been established by EPA for: Dimethenamid at 0.05 mg/kg-day, Ethyl Ether at 0.2 mg/kg-day and Perchlorate at 0.0007 mg/kg-day. A Reference Concentration (RfC) for Chronic Inhalation Exposure of 50 mg/m<sup>3</sup> has been established by EPA for Chlorodifluoromethane.

US EPA Contaminant Candidate List (CCL): The Contaminant Candidate List (CCL) is the US EPA's list of unregulated contaminants which may require national drinking water regulation in the future. The current list is designated Contaminant Candidate List 3 (CCL 3). Substances on EPA's CCL 3 include: 1,4-Dioxane, Acetochlor, Acetochlor ethansulfonic acid (Acetochlor-ESA), Acetochlor oxanillic acid (Acetochlor-OXA), HCFC-22 (Chlorodifluoromethane), Metolachlor ethansulfonic acid (Metolachlor-ESA), Metolachlor oxanillic acid (Metolachlor-OXA), and Perchlorate.

**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 new state numeric groundwater quality standards for 15 substances: 1,4-Dioxane, Acetochlor, Acetochlor ESA + OXA, Aluminum, Ammonia (as N), Chlorodifluoromethane, Chlorpyrifos, Dimethenamid/Dimethenamid-P, Dinitrotoluenes (Total Residues), Ethyl Ether, Manganese, Metolachlor ESA + OXA, Perchlorate, Propazine and Tertiary Butyl Alcohol. 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 values/levels/standards in their regulation of practices and activities that might impact the quality of groundwater resources. Three of the states surrounding Wisconsin have promulgated individual state groundwater protection standards and one utilizes 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 values/levels/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 assessments; factors and methodology in calculating and developing their groundwater protection standards. This use of different health risk assessment factors and methodologies has lead to the establishment of different state groundwater protection values/levels/standards for the same substance. For example, the health based groundwater protection quality standard for manganese used by the states surrounding Wisconsin varies by state - the standard used in Minnesota is 300 ppb, the standard used in Michigan is 860 ppb, Illinois uses 150 ppb and the standard used in Iowa is 300 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. The State of Minnesota has established HRLs for Acetochlor at 9 ppb and for Ethyl Ether at 1,000 ppb. The Minnesota Department of Health has also 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 State of Minnesota has established HBVs for: Metolachlor-ESA at 800 ppb, Metolachlor-OXA at 800 ppb, Acetochlor-ESA at 300 ppb and Acetochlor-OXA at 100 ppb. The Minnesota Department of Health also issues Risk Assessment Advice (RAA) levels for some groundwater contaminants. Minnesota Department of Health RAAs are advisory concentrations developed to assist Minnesota agencies in evaluating potential health risks to humans from exposures to a chemical. Generally, RAAs contain greater uncertainty than HRLs and HBVs because the information available to develop them is more limited. The State of Minnesota has established a RAA for Manganese at 300 ppb.

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). The State of Michigan has established a Drinking Water Criteria/RBSL for: 1,4-Dioxane at 85 ppb, Manganese at 860 ppb, Aluminum at 300 ppb, Propazine at 200 ppb, Chlorpyrifos at 22 ppb, Ethyl Ether at 3,700 ppb and Tertiary Butyl Alcohol at 3,900 ppb. The State of Michigan also has established a Drinking Water Criteria/RBSL for "all potential sources of nitrate-nitrogen", including ammonia nitrogen, in groundwater drinking water supplies at 10,000 ppb.

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 35 Ill. Adm. Code 620, environmental protection regulations. Illinois state "Groundwater Quality Standards for Class I: Potable Resource Groundwater" have been established for Manganese at 150 ppb. The state of Illinois also has established "Groundwater Cleanup Objectives" in 8 Ill. Adm. Code 259. Illinois Groundwater Cleanup Objectives include both Illinois state Groundwater Quality Standards and Human Threshold Toxicant Advisory Concentrations (HTTACs). Illinois has established state Groundwater Cleanup Objectives for Class I, Potable Resource Groundwater: at 21 ppb for Chlorpyrifos, at 2 ppb for Acetochlor and at 10,000 ppb for Ammonia. The Illinois Acetochlor groundwater cleanup objective value was established in accordance with the Acetochlor Registration Agreement monitoring program. The state groundwater cleanup objective for Ammonia was developed based on the US EPA's 30,000 ppb Lifetime Health Advisory level for ammonia in drinking water.

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 EPA lifetime health advisory levels, "negligible risk levels" (NRLs) for carcinogens, the estimate of one additional cancer case per million people over a lifetime of exposure, and federal drinking water maximum contaminant levels (MCLs) as "Action Levels" in their regulation of practices and activities that may adversely impact groundwater quality. As noted in section 6 above, federal lifetime health

advisory levels have been established at 2 ppb for Chlorpyrifos, at 300 ppb for Manganese and at 10 ppb for Propazine. Federal 1 in 1,000,000 drinking water cancer risk levels have been established at 3 ppb for 1,4-Dioxane and at 0.05 ppb for DNT (mixture of 2,4-/2,6-DNT).

**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 Services (DHS) as state 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 DHS has provided the Department, in a document titled *Scientific Support Documentation for Cycle 9 Revisions of NR 140.10 Groundwater Enforcement Standard & Preventive Action Limit Recommendations* (Revised February 2010), its recommendations for new state public health related groundwater quality standards for 15 substances: 1,4-Dioxane, Acetochlor, Acetochlor ESA + OXA, Aluminum, Ammonia (as N), Chlorodifluoromethane, Chlorpyrifos, Dimethenamid/Dimethenamid-P, Dinitrotoluenes, Ethyl Ether, Manganese, Metolachlor ESA + OXA, Perchlorate, Propazine and Tertiary Butyl Alcohol. DHS has also provided recommendations for revisions to existing public health related state groundwater quality standards for 15 additional substances: 1,3-Dichlorobenzene, 1,3-Dichloropropene, Acetone, Boron, Carbaryl, Chloromethane, Dibutyl Phthalate, Ethylene Glycol, Methyl Ethyl Ketone, Metolachlor, Metribuzin, Phenol, Prometon, Toluene and Xylene.

The Department is proposing rules establishing the DHS enforcement standard recommendations as ch. NR 140, Wis. Adm. Code, state groundwater quality enforcement standards. The Department is also proposing rules establishing ch. NR 140, Wis. Adm. Code, state groundwater quality preventive action limits 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 2001 - 2007, and the NASS Agricultural Chemical Use Database. Information used from the UW Department of Agronomy included the UW Extension 2008 Herbicide price list and the UW Extension Corn and Soybean Herbicide Chart. Information from DATCP included data from DATCP's *Agricultural Chemicals in Wisconsin Groundwater - Final Report March 2008* document and results from the agency's groundwater monitoring 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, Wis. Adm. Code, currently contains groundwater standards for 123 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 new and revised groundwater standards are proposed are, for the most part, likely sources of substances for which other 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 and revised standards for some pesticides and pesticide degradation products found in Wisconsin groundwater. New proposed groundwater quality standards include standards for the insecticide chlorpyrifos, the herbicides acetochlor, dimethenamid and propazine, and the herbicide degradation products acetochlor ethane sulfonic acid and oxanilic acid, and metolachlor ethane sulfonic acid and oxanilic acid.

The insecticide active ingredient chlorpyrifos is used on corn crops to control rootworm, and on soybean crops to control aphids and spider mites. There are currently 32 insecticide products registered in Wisconsin that contain the active ingredient chlorpyrifos. Chlorpyrifos has been reported as detected in groundwater at 2% of DATCP Agricultural Chemical Cleanup Program sites. In a DATCP 2007 statewide survey of agricultural chemicals in Wisconsin groundwater, no chlorpyrifos was reported detected in 398 private water supply wells sampled.

Acetochlor and dimethenamid/dimethenamid-P are herbicides that have been used in Wisconsin to control weeds in corn and soybeans. There are currently 46 herbicide products registered in Wisconsin that contain the active ingredient acetochlor or dimethenamid/dimethenamid-P. Acetochlor has been reported as detected in groundwater at 25% of DATCP Agricultural Chemical Cleanup Program sites and dimethenamid/dimethenamid-P has been reported as detected at 27% of those sites. In DATCP's 2007 statewide survey of agricultural chemicals in Wisconsin groundwater, no "parent" acetochlor or dimethenamid/dimethenamid-P were reported as detected in 398 private water supply wells sampled. Metabolite degradation products of these herbicides were, however, detected in some of the sampled wells.

Propazine is a herbicide used for weed control on sorghum, umbelliferous crops (carrots, parsley etc.) and greenhouse ornamentals. It is also a contaminant of the herbicide atrazine, which is used in Wisconsin on corn. There are currently no herbicide products registered in Wisconsin that contain the active ingredient propazine. Propazine has been reported as detected in groundwater at 22% of DATCP Agricultural Chemical Cleanup Program sites.

The acetochlor ethane sulfonic acid and oxanilic acid (acetochlor ESA & OXA) degradation products of acetochlor have been found in Wisconsin groundwater. In DATCP's 2007 statewide survey of agricultural chemicals in Wisconsin groundwater, acetochlor ESA & OXA were reported as detected in 16 private water supply wells and 3 private water supply wells respectively, of 398 wells sampled. The highest levels of acetochlor ESA & OXA reported in the DATCP study were 2.32 ppb and 4.36 ppb respectively. The highest levels reported in the DATCP groundwater monitoring database for private water supply wells are 9.52 ppb for acetochlor-ESA and 4.36 ppb for acetochlor-OXA.

In the DATCP's 2007 statewide survey of agricultural chemicals in Wisconsin groundwater, metolachlor ESA & OXA were reported as detected in 106 private water supply wells and 18 private water supply wells respectively, of 398 wells sampled. The highest levels of metolachlor ESA & OXA reported in the DATCP study were 6.54 ppb and 1.37 ppb respectively. The highest levels reported in the DATCP groundwater monitoring database for private water supply wells are 31.2 ppb for metolachlor-ESA and 22.8 ppb for metolachlor-OXA.

As it appears that the occurrence of the pesticides chlorpyrifos, acetochlor, dimethenamid/dimethenamid-P and propazine in Wisconsin groundwater is limited to DATCP Agricultural Chemical Cleanup Program sites, and as the pesticide metabolite degradation products acetochlor ESA & OXA and metolachlor ESA & OXA have been detected statewide at levels relatively low compared to proposed state groundwater quality standards for those substances, and as comparably priced alternative herbicide products appear to be available to state farmers, the Department has determined that any management practice restrictions placed on the pesticides chlorpyrifos, acetochlor, dimethenamid/dimethenamid-P and propazine to limit their impact on Wisconsin groundwater, or on acetochlor or metolachlor to limit the impact of their ESA or OXA metabolite degradation products on groundwater, are unlikely to have a significant economic impact on corn or soybean growers in Wisconsin.

**11. Agency Contact Person:** Mike Lemcke, Wisconsin Dept. of Natural Resources, Bureau of Drinking Water & Groundwater, 101 S. Webster St., Madison, WI, 73707-7921; (608) 266-2104; [michael.lemcke@wisconsin.gov](mailto:michael.lemcke@wisconsin.gov).

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

**Table 1  
Public Health Groundwater Quality Standards**

<b>Substance<sup>1</sup></b>	<b>Enforcement Standard (micrograms per liter - except as noted)</b>	<b>Preventive Action Limit (micrograms per liter - except as noted)</b>
<u>Acetochlor</u>	<u>7</u>	<u>0.7</u>
<u>Acetochlor ethane sulfonic acid + oxanilic acid (Acetochlor - ESA + OXA)</u>	<u>230</u>	<u>46</u>
Acetone	1000 <u>9 mg/l</u>	200 <u>1.8 mg/l</u>
Alachlor	2	0.2
Alachlor ethane sulfonic acid ( <u>Alachlor-</u> <u>(Alachlor - ESA)</u> )	20	4
Aldicarb	10	2
<u>Aluminum</u>	<u>200</u>	<u>40</u>
<u>Ammonia (as N)</u>	<u>9.7 mg/l</u>	<u>0.97 mg/l</u>
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 <sup>2</sup>	0.3 <sup>2</sup>
Bacteria, Total Coliform	0 <sup>3</sup>	0 <sup>3</sup>
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	<u>960 1000</u>	<u>190 200</u>
Bromodichloromethane	0.6	0.06
Bromoform	4.4	0.44
Bromomethane	10	1
Butylate	400	80
Cadmium	5	0.5
Carbaryl	<u>960 40</u>	<u>192 4</u>
Carbofuran	40	8
Carbon disulfide	1000	200
Carbon tetrachloride	5	0.5
Chloramben	150	30
Chlordane	2	0.2
<u>Chlorodifluoromethane</u>	<u>7 mg/l</u>	<u>0.7 mg/l</u>
Chloroethane	400	80
Chloroform	6	0.6
<u>Chlorpyrifos</u>	<u>2</u>	<u>0.4</u>
Chloromethane	<u>-3 30</u>	<u>-0.3 3</u>
Chromium (total)	100	10
Chrysene	0.2	0.02
Cobalt	40	8
Copper	1300	130
Cyanazine	1	0.1
Cyanide, free <sup>4</sup>	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	<u>400 1000</u>	<u>20 100</u>
Dicamba	300	60
1,2-Dichlorobenzene	600	60
1,3-Dichlorobenzene	<u>1250 600</u>	<u>125 120</u>
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-Dichlorophenoxyacetic Acid (2,4-D)	70	7
1,2-Dichloropropane	5	0.5
1,3-Dichloropropene (cis/trans)	<u>0.2 0.4</u>	<u>0.02 0.04</u>
Di (2-ethylhexyl) phthalate	6	0.6
<u>Dimethenamid/Dimethenamid-P</u>	<u>50</u>	<u>5</u>
Dimethoate	2	0.4
2,4-Dinitrotoluene	0.05	0.005
2,6-Dinitrotoluene	0.05	0.005
<u>Dinitrotoluene, Total Residues<sup>5</sup></u>	<u>0.05</u>	<u>0.005</u>
Dinoseb	7	1.4
<u>1,4-Dioxane</u>	<u>3</u>	<u>0.3</u>
Dioxin (2, 3, 7, 8-TCDD)	0.00003	0.000003
Endrin	2	0.4
EPTC	250	50
Ethylbenzene	700	140
<u>Ethyl ether</u>	<u>1000</u>	<u>100</u>
Ethylene glycol	<u>7 mg/l 14 mg/l</u>	<u>0.7 mg/l 2.8 mg/l</u>
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
N-Hexane	600	120
Hydrogen sulfide	30	6
Lead	15	1.5
Lindane	0.2	0.02
<u>Manganese</u>	<u>300</u>	<u>60</u>
Mercury	2	0.2
Methanol	5000	1000
Methoxychlor	40	4
Methylene chloride	5	0.5
Methyl ethyl ketone (MEK)	460 4 mg/l	<del>90</del> 0.8 mg/l
Methyl isobutyl ketone (MIBK)	500	50
Methyl tert-butyl ether (MTBE)	60	12
Metolachlor/s-Metolachlor	<del>15</del> 100	<del>1.5</del> 10
<u>Metolachlor ethane sulfonic acid + oxanilic acid</u> (Metolachlor - ESA + OXA)	<u>1.3 mg/L</u>	<u>0.26 mg/L</u>
Metribuzin	<del>250</del> 70	<del>50</del> 14
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
N-Nitrosodiphenylamine	7	0.7
Pentachlorophenol (PCP)	1	0.1
<u>Perchlorate</u>	<u>1</u>	<u>0.1</u>
Phenol	<del>6 mg/l</del> 2 mg/l	<del>1.2 mg/l</del> 0.4 mg/l
Picloram	500	100
Polychlorinated biphenyls (PCBs)	0.03	0.003
Prometon	<del>90</del> 100	<del>18</del> 20
<u>Propazine</u>	<u>10</u>	<u>2</u>
Pyrene	250	50
Pyridine	10	2
Selenium	50	10
Silver	50	10
Simazine	40	.4
Styrene	100	10
<u>Tertiary Butyl Alcohol (TBA)</u>	<u>12</u>	<u>1.2</u>
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	<del>1 mg/l</del> 800	<del>0.2 mg/l</del> 160
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 <sup>4c</sup>	<del>10 mg/l</del> 2 mg/l	<del>1 mg/l</del> 0.4 mg/l

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

<sup>4</sup> 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 diaminoatrazine).

<sup>1</sup>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.

<sup>2</sup>"Cyanide, free" refers to the simple cyanides (HCN, CN<sup>-</sup>) and/or readily dissociable metal-cyanide complexes. Free cyanide is regulatorily equivalent to cyanide quantified by approved analytical methods for "amenable cyanide" or "available cyanide".

<sup>3</sup>Dinitrotoluene, Total Residues includes the dinitrotoluene (DNT) isomers: 2,3-DNT, 2,4-DNT, 2,5-DNT, 2,6-DNT, 3,4-DNT and 3,5-DNT.

<sup>4</sup>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. NR 140.20, Table 3 is amended to read:

**Table 3**  
**Methodology for Establishing Preventive Action Limit for Indicator Parameters**

<i>Parameter</i>	<i>Minimum Increase (mg/l)</i>
Alkalinity	100
Biochemical oxygen demand (BOD <sub>5</sub> )	25
Calcium	25
Chemical oxygen demand (COD)	25
Magnesium	25
Nitrogen series	
Ammonia nitrogen	2
Organic nitrogen	2
Total nitrogen	5
Potassium	5
Sodium	10
Field specific conductance	200 micromhos/cm <u>microSiemens/cm</u>
Total dissolved solids (TDS)	200
Total hardness	100
Total organic carbon (TOC)	1
Total organic halogen (TOX)	0.25

SECTION 3. NR 140.28(5)(c)6 note is amended to read:

Note: The issuance of a wastewater discharge permit by the Department is required prior to the infiltration or injection of substances or remedial material into unsaturated soil or groundwater for discharges, as defined by s. 283.01(4), Stats. A wastewater discharge permit establishes the effluent or injection limits for substances or remedial material which may be infiltrated or injected into unsaturated soil or groundwater. A temporary exemption granted under this subsection applies to substances or remedial material which may enter groundwater or may be detected at a point of standards applications; it does not apply to substances or remedial material infiltrated or injected into unsaturated soil.

SECTION 4. Appendix to Table 1 is amended to read:

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

<b>Substance</b>	<b>CAS RN<sup>1</sup></b>	<b>Common synonyms/Tradename<sup>2</sup></b>
<u>Acetochlor</u>	<u>34256-82-1</u>	<u>Cadence, Degree, Harness, Keystone, Overtime, Volley</u>
<u>Acetochlor ethane sulfonic acid + oxanilic acid</u>	<u>187022-11-3 (ESA)</u> <u>184992-44-4 (OXA)</u>	<u>Acetochlor - ESA + OXA</u>
Acetone	67-64-1	Propanone
Alachlor	15972-60-8	Lasso

Alachlor ethane sulfonic acid (Alachlor-ESA)	142363-53-9	Alachlor-ESA, Alachlor Ethane Sulfonate, MON 5775 Temik
Aldicarb	116-06-3	
Aluminum	7429-90-5	
Ammonia	7664-41-7	
Anthracene	120-12-7	Para-naphthalene
Asbestos	<del>12001-29-5</del> 1332-21-4	
Bentazon	25057-89-0	Basagran
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> <i>Sevin</i>
Carbaryl	63-25-2	<i>Furadan</i>
Carbofuran	1563-66-2	Carbon bisulfide
Carbon disulfide	75-15-0	Tetrachloromethane, Perchloroethane
Carbon tetrachloride	56-23-5	
Chloramben	133-90-4	
Chlordane	57-74-9	
Chlorodifluoromethane	75-45-6	HCFC-22, Freon 22
Chloroethane	75-00-3	Ethyl chloride, Monochloroethane
Chloroform	67-66-3	Trichloromethane
Chlorpyrifos	2921-88-2	<i>Dursban, Lorsban, Warhawk, Hatchet, Yuma,</i> <i>Whirlwind, Eraser</i>
Chloromethane	74-87-3	Methyl chloride
Chromium (total)	7440-47-3	
Chrysene	218-01-9	1,2-Benzphenanthrene
Cobalt	7440-48-4	
Cyanazine	21725-46-2	<i>Bladex</i> , 2-chloro-4-ethylamino-6- nitriiloisopropylamino-s-triazine
Cyanide, free	57-12-5	
Dacthal	1861-32-1	DPCA, Chlorothal, <i>Dacthalor</i> , 1,4-benzenedicarboxylic 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-n-butyl phthalate, n-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) <sup>1</sup>	542-75-6	<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
Dimethenamid/Dimethinamid-P	87674-68-8	<i>Frontier, Outlook, Propel, Establish, Sortie,</i> <i>Tower</i>
	163515-14-8 (-P)	
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
<u>Dinitrotoluene, Total Residues</u>	<u>25321-14-6</u>	<u>Dinitrotoluene, DNT</u>
Dinoseb	88-85-7	2-(1-methylpropyl)-4,6-dinitrophenol
<u>1,4-Dioxane</u>	<u>123-91-1</u>	<u>p-Dioxane</u>
Dioxin	1746-01-6	2,3,7,8-TCDD, 2,3,7,8-Tetrachlorodibenzo- p-dioxin
Endrin	72-20-8	<i>Eptam, Eradicane</i>
EPTC	759-94-4	Phenylethane, EB
Ethylbenzene	100-41-4	<u>Diethyl Ether</u>
<u>Ethyl ether</u>	<u>60-29-7</u>	
Ethylene glycol	107-21-1	Benzo(jk)fluorene
Fluoranthene	206-44-0	2,3-Benzidine, Diphenylenemethane
Fluorene	86-73-7	
Fluoride	<del>16984-48-8</del> <u>7681-49-4</u>	<i>Freon 11</i> , Trichlorofluoromethane
Fluorotrichloromethane	75-69-4	
Formaldehyde	50-00-0	<i>Velsicol</i>
Heptachlor	76-44-8	
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	
<u>Manganese</u>	<u>7439-96-5</u>	
Mercury	7439-97-6	
Methanol	67-56-1	Methyl alcohol, Wood alcohol
Methoxychlor	72-43-5	
Methylene chloride	75-09-2	Dichloromethane, Methylene dichloride
Methyl ethyl ketone	78-93-3	MEK, 2-Butanone
Methyl isobutyl ketone	108-10-1	MIBK, 4-Methyl-2-pentanone, Isopropylacetone, <i>Hexone</i>
		MTBE, 2-Methoxy-2-methyl-propane, tert-Butyl methyl ether
Methyl tert-butyl ether	1634-04-4	<i>Dual, Bicep, Milocep, Stalwart, Parallel, Prefix, Charger, Brawl, Cinch, Dual Magnum, Boundary</i>
Metolachlor/s-Metolachlor	51218-45-2	<u>Metolachlor - ESA + OXA</u>
	<u>87392-12-9</u> (s-)	
<u>Metolachlor ethane sulfonic acid + oxanilic acid</u>	<u>171118-09-5</u> (ESA)	
	<u>152019-73-3</u> (OXA)	
Metribuzin	21087-64-9	Sencor, Lexone
Molybdenum	7439-98-7	
Monochlorobenzene	108-90-7	Chlorobenzene
Naphthalene	91-20-3	
N-Nitrosodiphenylamine	86-30-6	NDPA
Pentachlorophenol	87-86-5	PCP, Pentachlorohydroxybenzene
<u>Perchlorate</u>	<u>14797-73-0</u>	<u>Perchlorate and perchlorate salts, Perchlorate ion</u>
Phenol	108-95-2	
Picloram	1918-02-1	<i>Tordon</i> , 4-amino-3,5,6-trichloropicolinic acid
		PCBs
Polychlorinated biphenyls <sup>1</sup>		<i>Pramitol, Prometone</i>
Prometon	1610-18-0	
Pyrene	129-00-	Benzo(def)phenanthrene
Pyridine	110-86-1	Azabenzene
Simazine	122-34-9	<i>Princep</i> , 2-chloro-4,6-diethylamino- s-triazine
		Ethenylbenzene, Vinylbenzene
Styrene	100-42-5	<u>TBA</u>
<u>Tertiary Butyl Alcohol</u>	<u>75-65-0</u>	1,1,1,2-TCA, 1,1,1,2-PCA
1,1,1,2-Tetrachlorethane	630-20-6	1,1,2,2-TCA, 1,1,2,2-PCA
1,1,2,2-Tetrachloroethane	79-34-5	Perchloroethylene, PERC, Tetrachloroethene
Tetrachloroethylene	127-18-4	THF
Tetrahydrofuran	109-99-9	Methylbenzene
Toluene	108-88-3	
Toxaphene	8001-35-2	
1,2,4-Trichlorobenzene	120-82-1	

1,1,1-Trichloroethane	71-55-6	Methyl chloroform, <u>1,1,1-TCA</u>
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 <sup>5</sup>		

<sup>1</sup>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

<sup>2</sup>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.

<sup>3</sup>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).

<sup>4</sup>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).

<sup>5</sup>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)

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on August 10, 2010.

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)