

27-089 - NRE 140 GROUNDWATER  
STANDARDS

Michael McMurtry, M.D. (03/25/98)  
Expert Toxicologist Representing the Wisconsin Utilities Association

Good morning. My name is Dr. Michael McMurtry. I am a Senior Toxicologist with STS Consultants, and I am here today on behalf of my client, the Wisconsin Utilities Association. We have specific technical concerns about the proposed NR 140 Standard for boron. These concerns and our technical evaluation are detailed in three sets of written comments, which we previously submitted to DNR on July 23, November 3, and December 12 of last year (1997).

We have reviewed the proposed rule revision package and the revised scientific support documentation for the NR 140 standards. We remain concerned that the State is considering an enforcement standard (ES) for boron based on incomplete information and that the best available toxicological data is not being used to its fullest potential.

DHFS initially recommended adopting EPA's Lifetime Health Advisory (LHA) value for boron. Wisconsin Statutes state that "DHFS may recommend an ES different than the Federal number if there is significant technical information which is scientifically valid and which was not considered when the Federal number was established..." (ss. 160.07[4]e; ss. 160.13 [2]b2). The EPA LHA value for boron is based on a 25 year-old toxicity study in dogs that is outdated and technically flawed (as detailed in our written comments). And it should be noted that the oral reference dose for boron is currently being revised by EPA.

As a result of our initial comments and those of Dr. Jack Moore with the Institute for Evaluating Health Risks (IEHR), DHFS partially revised their technical evaluation of boron and calculated a draft ES based on limited consideration of some of the more recent toxicity studies and risk assessments on boron. In my opinion, DHFS has not taken full advantage of the current information, in particular the published consensus of other scientific experts.

Please be aware that an Expert Scientific Committee, chaired by Dr. Jack Moore of IEHR, reviewed 138 documents and studies on boron's potential health effects. This committee published their findings in 1997, which included a quantitative risk assessment of developmental and reproductive

effects observed in laboratory animals. The expert committee reached a consensus on boron's "unlikely effect levels" in humans. Their report is published in Volume 11 (#1) of *Reproductive Toxicology* (1997: 123-160). Another evaluation, authored by F. Jay Murray, arrived at a similar quantitative endpoint. His human health risk assessment of boron is published in Volume 9 (#4) of *The Journal of Trace Elements in Experimental Medicine* (1996: 231-243) and in Volume 22 of *Regulatory Toxicology and Pharmacology* (1995: 221-230).

In my opinion, Wisconsin's proposed ES for boron is inappropriate because DHFS did not consider the data indicating that boron's biological uptake, distribution and elimination, and certain manifestations of its toxicity are similar between humans and experimental animals. Consideration of this critical information would support the use of technically-sound and more reasonable safety factors when extrapolating effect-levels from animals to humans. The use of chemical-specific safety factors for boron is soundly supported by current peer-reviewed published literature.

Animal-to-human extrapolations of chemical-effect thresholds are subjective, and therefore, are more credible when based on the consensus and judgment of several experts. We previously recommended that DHFS recalculate their proposed ES by reducing the "total" uncertainty factor (UF) from 100 to 30. We based this recommendation on the findings of IEHR's Expert Scientific Committee, including EPA scientists, who developed boron-specific UFs following the "IEHR Evaluative Process for Assessing Human Developmental and Reproductive Toxicity of Agents." EPA has endorsed the application of non-default (chemical-specific) UFs for developmental toxicity risk assessments. In fact, EPA is currently considering the use of reduced UFs specifically for boron in preparing an update to their IRIS database.

EPA is in the process of updating their health assessment on boron (FR Vol. 63, No. 1, January 2, 1998, pages 75 - 77). EPA anticipates entering this new assessment on boron and an oral reference dose into the IRIS database by next summer (1999). In developing their updated human health criterion for boron, EPA is currently considering the use of reduced UFs. In addition, EPA is

evaluating a novel methodology for deriving the reference dose using benchmark dose (BMD) modeling.

Under the 1996 amendments to the Safe Drinking Water Act, EPA was required to develop a Drinking Water Contaminant Candidate List for chemical substances which may require regulation under the [SDW] Act. The final list, which includes boron, was published March 2, 1998, in the Federal Register (Vol. 63, No. 40, pages 10274 - 10287). Boron was grouped by EPA in a Regulatory Determination Priorities category.

In conclusion, we question the technical merit of deriving a regulatory Standard for boron without full consideration of the most current and scientifically valid information. We urge DNR to reject the NR 140 Standard for boron. The proposed Standard did not incorporate the published consensus of numerous experts regarding boron's toxicology. The proposed Standard is also premature in light of the fact that EPA is currently preparing a new health assessment on boron. The EPA health assessment on boron will undergo a rigorous technical review process involving Agency-wide evaluation and external peer review. When EPA's health assessment on boron is entered into IRIS in 1999, it will represent a consensus among various groups of toxicology experts.

We question the value of developing and promulgating a health-based Standard in Wisconsin when EPA's toxicological database and extrapolation (modeling) procedures for various chemicals including boron are about to change.

Thank you for this opportunity to provide expert testimony on boron and the proposed amendments to Chapter NR 140.



April 23, 1998

Mr. Stephen D. Willett, Chair  
P.O. Box 89  
Phillips, WI 54555

Betty Jo Nelsen  
4033 Petit Road  
Oconomowoc, WI 53066

Howard D. Poulson  
1212 Demming Way  
P.O. Box 5550  
Madison, WI 53705

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**RE: Groundwater Standards--Boron**

Dear Environmental Quality/Enforcement Committee Member:

Attached are the Wisconsin Utility Association (WUA) responses to questions raised at the March 1998 DNR Board meeting regarding proposed amendments to NR 140.10 regarding boron. WUA remains opposed to the amendment as proposed and urges the DNR Board to delay action until the EPA completes its research on toxicity information for boron as part of its update of the Integrated Risk Information System (IRIS).

As you can see from the responses, the boron standard, as proposed, will have a costly impact on the electric utility industry. Not only will the new standards be costly, but they will also be nearly impossible to attain, providing little or no benefit to the state.

Both closed and active ash landfills will require additional investigation and groundwater monitoring studies. Landfills in virtually all parts of the state will not be able to meet the PAL concentrations and eight will not be able to meet the ES concentrations. No "off-the-shelf" technology is currently available for treatment of boron in groundwater, especially at such extremely low concentrations.

The utility industry is sensitive to environmental concerns and takes great pains in complying with all environmental laws. However, we believe that adopting standards for boron at this time, based on a limited and over conservative review of the toxicological data, is imprudent and costly.

Before making your decision, we urge you to consider the following:

- **The Department of Health and Family Services (DHFS) did not perform a thorough review.** WUA submitted comments and new research on six chemicals to DHFS during its research on groundwater standards. Based on our input, DHFS changed four of the six recommendations. What if we had looked at the entire list? Would there be more changes based on better data?
- **DHFS is not able to perform in-depth research on so many chemicals.** The department is not to blame. It is limited as to the amount of research it is able to perform due to the sheer amount of information available and the number of staff able to perform the research. We suspect much of the department's research was a review of summary articles and not the original in-depth research. EPA on the other hand is able to conduct original research, scrutinize the research of others, and obtain thorough peer review of EPA work.



- **The proposed standard is based on old information and old methodology.** WUA requested DHFS to revise its extrapolation by using "boron-specific" uncertainty factors published in recent toxicological literature. Several scientists (including the Moore expert committee) agree on a reduction in boron's safety factor (reflecting the latest available database) and on a safe exposure level for boron which is much higher than the level recommended by DHFS.
- **Several experts are being ignored.** In his testimony last month, Dr. McMurtry suggested that if the new data were used, the boron standard would be closer to 3200 ug/L. This is not a number derived by WUA but based on the consensus of several scientific experts.
- **960 ug/L versus 3200 ug/L?** It is not possible to quantify the difference in risk (if any) between the "safe level" recommended by DHFS and the "safe level" developed through the expertise, consensus and judgment of other scientist. However, we can say that the latter "safe level" was developed using boron-specific uncertainty factors, with the goal of insuring that the potential for adverse health effects is not underestimated **even for sensitive sub populations.**
- **Are we ignoring evidence?** There is an abundance of evidence that suggests boron may be essential to humans. Before adopting standards, Wisconsin should have the best possible information regarding boron's role in the human diet. For example, EPA adopted a chronic oral reference concentration for zinc that, if applied to infants and pre-adolescent children, would have deprived them of the Recommended Daily Allowance of zinc. Because zinc is an essential mineral, risk assessors do not apply this reference concentration to evaluate potential hazards to children. This issue **may** be important with boron since the proposed enforcement standard is calculated for infants.
- **Are any other industries affected?** We are in the process of contacting a number of industries to determine if the proposed standards will have an effect on them. Suggested industries include dairy, glass, petroleum, wastewater treatment and paper.

Since our March 17, 1998, letter, the EPA Office of Ground Water and Drinking Water has added boron to the drinking water contaminant candidate list (FR 10273, March 2, 1998). Using the existing database for the chemicals on the candidate list, EPA will prioritize which contaminants (if any) should be regulated. In addition to considering potential health hazards, EPA's analysis will also address treatment technologies and feasibility, which are critical factors with respect to boron. In other words, EPA is trying to determine if it is technically possible to attain a health-based criterion.

EPA has also requested information on boron toxicity as part of an update of the Integrated Risk Information System (IRIS). EPA plans to update toxicity information for boron in the IRIS database between late 1998 and 2000 (FR 76, January 2, 1998).

**In light of this activity, and for the reasons mentioned above, we are asking the members of the Natural Resources Board to reject the proposed amendments regarding boron. At the very least we request that the board delay action until EPA completes the update of boron in its IRIS toxicity database.**

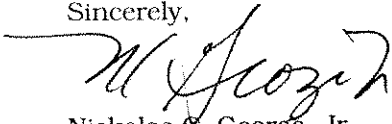
If you have any questions regarding the enclosed material or our position prior to the board meeting, please feel free to call me at the WUA offices, or call the WUA Solid Waste Committee Chairman, Jim Lingle, WEPCO, at 414-221-2156.



DNR Board-Boron  
April 23, 1998  
Page 3

Thank you for your attention to this matter.

Sincerely,



Nickolas C. George, Jr.  
Vice President, Programs & Governmental Relations

Enc.

cc: Herbert F. Behnke  
Trygve A. Solberg  
Neal W. Schneider  
James E. Tiefenthaler  
Secretary George E. Meyer





April 21, 1998

COPY

Steve Karklins  
Wisconsin Department of Natural Resources  
Bureau of Drinking Water & Groundwater  
7th Floor  
101 S. Webster St.  
Madison, WI 53707-7921

RE: Response to Boron Questions

Dear Mr. Karklins:

The following are responses to the questions you asked in your April 6, 1998, letter regarding the impact of the proposed health based groundwater standards for boron on the electric utility industry in Wisconsin. These responses are estimates made by the five major investor-owned utilities and a rural electric cooperative.

We made every effort possible to submit the responses in the time frame you established. Some questions, however, are very complex and require a great deal more time to answer than was allowed. The answers below are the best possible in the allotted time frame.

**Q1.** At your members' facilities, how many coal ash landfills would not be able to meet the proposed health based boron PAL of 190 ug/L?

**A1.** It is estimated that twenty-five active and closed landfills would not meet the proposed PAL of 190 ug/L.

**Q2.** At your members' facilities, how many coal ash landfills would not be able to meet the proposed health based enforcement standard (ES) of 960 ug/L at the applicable PSA? The PSA to determine if an ES has been attained or exceeded is any point outside the DMZ, outside the property boundary or at a point of present groundwater use (potable well).

**A2.** It is estimated that eight landfills could not meet the proposed ES of 960 ug/L. The answer is complicated by the fact that monitoring of groundwater quality beyond the DMZ is not done at all landfills.

**Q3.** What additional response actions under NR 140.24 or NR 140.26 do you believe would be necessary at your members' facilities to address the exceedances noted above if boron were regulated as a health based parameter instead of an indicator parameter?

**A3.** The response actions listed in Table 5 and Table 6 that would likely be required by the DNR include the following:

- Installation of additional groundwater monitoring wells to define the extent of groundwater impacts.
- Monitoring of new wells to determine if the extent of the plume has been defined.
- Require a change in the monitoring programs to increase the monitoring frequency.







Page 2  
April 21, 1998  
Karklins/DNR

Additional response actions relating to re-mediation may include:

- Installation of groundwater collection and treatment systems for contaminated groundwater. (Note: We do not believe the technology of groundwater treatment, to date, is capable of treating such low levels of boron consistently and economically.)
- Upgrade the cap on some of the landfills with surface water drainage controls.
- Install leachate collection systems in a closed landfill.
- The DNR would likely require the closing of existing facilities in use.

**Q4.** For these additional response actions, what additional costs do you believe your members would incur if boron were regulated as a health based parameter instead of an indicator parameter?

**A4.** Typical costs for site investigations and one year of groundwater monitoring would range from \$8,000 to \$24,000 per site. The total costs for remedial action could range from \$0.6 million to \$4.0 million per landfill. These costs do not include actions being taken at landfills due to exceedances of other parameters. However, exact costs are very difficult to establish without conducting a detailed groundwater data evaluation at each site which is not possible during this short response time frame.

**Q5.** What other specific impacts, response actions and costs do you believe your members would incur if boron were regulated as a health based parameter instead of an indicator parameter?

**A5.** If, as in the past, DNR uses a strict interpretation of the code, further delineation of the extent of the plume with remedial actions to control and collect the impacted groundwater as discussed above would be required. In the worst case, extreme measures may be needed, such as excavating and re-burying ash. Other more pragmatic alternatives, such as deed restrictions preventing groundwater use, could also be used.

We hope the above responses will help the DNR Board in their decision-making process. Clearly, the proposed boron standards would have a significant impact on Wisconsin's electric industry and its customers.

That impact is why it is so important that the department adopt standards that are based on the most current scientific research supported by a consensus of the scientific community. We believe the numbers proposed by DH&FS are too conservative, not supported by the scientific community and put Wisconsin at a disadvantage to other states with no reciprocal benefits to its citizens or businesses.

If you have further questions, please feel free to give me a call at the WUA offices, or call Jim Lingle at WEPCO, (414) 221-2156.

Sincerely,

Nickolas C. George, Jr.  
Vice President, Programs & Governmental Relations

cc: WUA Solid Waste Committee

State of Wisconsin  
Department of Natural Resources

NOTICE TO PRESIDING OFFICERS  
OF PROPOSED RULEMAKING

MAY 13 1998

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:

Natural Resources Board Order No. DG-11-97

Legislative Council Rules Clearinghouse Number 97-089

Subject of Rules Groundwater Quality Standards

Date of Transmittal to Presiding Officers May 12, 1998

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

202-466-3800  
JCOFF  
~~SPENCER~~  
Spencerville

Carol Turner, Rules Coordinator  
DNR Bureau of Legal Services  
LC/5, 101 South Webster

266-1959

This is Big Jeff  
w/ News  
Rebecca's Standards  
from EPA  
ALEC

## REPORT TO LEGISLATURE

NR 140, Wis. Adm. Code  
Groundwater quality standards

Board Order No. DG-11-97  
Clearinghouse Rule No. 97-089

### Statement of Need

Chapter NR 140 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 standards for 21 additional substances and modify existing standards for cyanazine based on recommendations from the Department of Health and Family Services. The proposed groundwater standards conform to and do not exceed federal drinking water standards where they exist and conform to ch. 160, Stats., where federal drinking water standards do not exist.

Language is also proposed to clarify groundwater sampling, analysis and reporting requirements and exemption procedures. Proposed amendments would move reference to the Department's groundwater sampling publication from a note to the rule itself.

Public health related groundwater standards are proposed for ammonia, anthracene, bentazon, benzo(b)fluoranthene, boron, carbon disulfide, chrysene, cobalt, dibutyl phthalate, fluoranthene, n-hexane, hydrogen sulfide, methanol, n-nitrosodiphenylamine, prometon, pyrene, pyridine, 1,1,1,2-tetrachloroethane, 1,2,3-trichloropropane, trimethylbenzenes (1,2,4- and 1,3,5- combined), and vanadium.

### Modifications as a Result of Public Hearing

The Department of Health and Family Services (DHFS) recommended revision of the proposed standards for boron, prometon and trimethylbenzenes (1,2,4 and 1,3,5) based on new toxicological information received during the public hearings. Furthermore, as recommended by DHFS, the Department has withdrawn proposed standards for acenaphthylene due to insufficient toxicological information.

Proposed amendments to ch. NR 140 also included the addition of groundwater standards for three radioactive substances. However, state law requires that DHFS, on recommendation of the State Radiation Council, promulgate rules adopting radioactive standards prior to other state agencies doing so. DHFS will be unable to promulgate its rule and, consequently, the Department has withdrawn the three radioactive substances from the proposed amendments.

### Appearances at the Public Hearing and Their Position

*July 28, 1997 - Madison*

In support - none

In opposition:

Steve Jackson, Wisconsin Power & Light, 222 W. Washington Avenue, Madison, WI 53701  
John Exner, Midwest Food Processors Association, Inc., P.O. Box 1297, Madison, WI 53701

As interest may appear:

Caryl Terrell, Sierra Club John Muir Chapter, 222 S. Hamilton St., #1, Madison, WI 53703  
Patrick Stevens, WI Manufacturers & Commerce, 501 E. Washington, Madison, WI 53701

*July 29, 1997 - Waukesha*

In support - none

In opposition:

Dr. Michael McMurtry, Wis. Utilities Assoc., 3650 Annapolis Lane, #120, Minneapolis, MN 55447  
Dr. Robert E. Rowland, Waukesha Water Supply Co., 700 W. Fabyan Parkway, Apt. 8C,  
Batavia, IL 60510  
Mayor Carol Opel, City of Waukesha, City Hall, 201 Delafield St., Waukesha, WI 53188  
Harold H. Fuhrman, Waukesha City Attorney, 710 N. Plankinton Ave., Suite 440, Milwaukee, WI  
53203

As interest may appear - none

*July 30, 1997 - Green Bay*

In support:

Michael Bluma, Brown Co. Land Conservation Dept., 1150 Bellevue St., Green Bay, WI 54302

In opposition:

Boyd Possin, President, Environmental Compliance Consultants, Inc., 710 Montreal Place,  
DePere, WI 54115  
Laura Mushinski, Dean Food Vegetable Co., P.O. Box 19027, Green Bay, WI 54307

As interest may appear - none

*July 31, 1997 - Stevens Point*

In support - none

In opposition - none

As interest may appear:

Charles R. Bossingham, Del Monte Foods, 911 Ramble Lane, Plover, WI 54467  
John Robinson, WI Water Well Association, 4080 N. 20<sup>th</sup> Avenue, Wausau, WI 54401

#### Response to Legislative Council Rules Clearinghouse Report

The recommendations were accepted.

#### Final Regulatory Flexibility Analysis

The Department does not believe that the proposed rule amendments 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 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. Depending on the type of facility and its activities, e.g., wastewater treatment operation, there may be one or more of the new substances for which a facility may have to monitor and report exceedances and take one or more appropriate response as required by ch. NR 140.

The types 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 an unpermitted discharge of a hazardous substance exceeding health or welfare groundwater standards listed in ch. NR 140 will be responsible for responding to the release consistent with the requirements of 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 standards is attained or exceeded, based on the size of the business causing the contamination. Chapter NR 140 currently requires that the owner or operator of any facility, practice or activity, including any small business, report the exceedance of a groundwater standard to the appropriate regulatory agency. A detailed report may be necessary and possible remedial action depending on the severity of the exceedance. The individual program that regulates the facility, practice or activity determines whether a report is necessary and the amount of detail required in the report. The cost of this report for small business 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. As with the cost of remedial options reports, the cost of remediation of groundwater contamination for small business 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.

Chapter NR 160, Stats., requires establishment of both performance and design standards. The performance standards (the groundwater quality standards) are contained in ch. NR 140. The individual programs (e.g., air and waste management, DATCP) will establish or modify design and operational standards in their individual program rules. The proposed amendments do not contain any exemptions from the requirements based on the size of a facility. Chapter NR 140 provides for exemptions from remedial action based on background water quality, not on the size of a facility.

There would be adverse impacts on public health, welfare, safety and the environment if small businesses were not required to submit such reports and implement remedial responses. The more quickly the 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.

ORDER OF THE STATE OF WISCONSIN  
NATURAL RESOURCES BOARD  
AMENDING, REPEALING AND  
RECREATING, AND CREATING RULES

.....  
The Wisconsin Natural Resources Board  
proposes an order to amend NR 140.03 and note,  
140.05(20), 140.10 Table 1, 140.20 Table 3,  
140.24(1)(a), 140.26(1)(a), 140.28(2)(intro.),  
5)(a), (b) note, (6)(intro.), (a) and (b),  
and Appendix 1; to repeal and recreate  
NR 140.16(1) and note and 140.28(1)(title);  
and to create NR 140.28(1)(c), (d), and (2) note,  
relating to groundwater quality standards.  
.....

DG-11-97

Analysis prepared by the Department of Natural Resources

Statutory authority: ss. 160.07, 160.11, 160.13 and 160.15, and 281.12(1),  
281.15(1) and (2) and 281.19(1) [formerly s. 144.025(2)], and s. 299.11  
[formerly s. 144.95], Stats.

Statutes interpreted: ss. 281.12(1), 281.15, 281.19(1) and 299.11, Stats.,  
and ch. 160, Stats.

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 health-based groundwater  
standards for 21 additional substances based on recommendations from the  
Department of Health and Family Services. Public health related groundwater  
standards are proposed for ammonia, anthracene, bentazon,  
benzo(b)fluoranthene, boron, carbon disulfide, chrysene, cobalt, dibutyl  
phthalate, fluoranthene, n-hexane, hydrogen sulfide, methanol, n-  
nitrosodiphenylamine, prometon, pyrene, pyridine, 1,1,1,2-tetrachloroethane,  
1,2,3-trichloropropane, trimethylbenzenes (1,2,4- and 1,3,5- combined), and  
vanadium. Revised standards are proposed for cyanazine.

The proposed amendments to ch. NR 140 also include provisions to clarify  
groundwater sampling, analysis and reporting requirements and exemption  
procedures, and to reflect renumbering and reorganization of the environmental  
chapters of the Wisconsin Statutes effective January 1, 1997.

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SECTION 1. NR 140.03 and note are amended to read:

NR 140.03 APPLICABILITY. This subchapter and subch. II apply to all  
facilities, practices and activities which may affect groundwater quality and  
which are regulated under ch. 85, 93, 94, 101, ~~144, 145, 146 or 283~~281, 283,  
287, 289, 291 and 292, Stats., by the department of agriculture, trade and  
consumer protection, the department of ~~industry, labor and human~~  
~~relations~~commerce, the department of transportation, or the department of  
natural resources, as well as to facilities, practices and activities which  
may affect groundwater quality which are regulated by other regulatory

agencies. Health-related enforcement standards adopted in s. NR 140.10 also apply to bottled drinking water manufactured, bottled, sold or distributed in this state as required by s. 97.34(3)(b), Stats., and to determining eligibility for the well compensation program under s. 281.75, Stats. Subchapter III applies to all facilities, practices and activities which may affect groundwater quality and which are regulated by the department under ch. ~~144, 146~~281, 283, 287, 289, 291, 292, 295 or ~~282~~299, Stats. This chapter does not apply to any facilities, practices or activities on a prospecting site or a mining site because those facilities, practices and activities are subject to the groundwater quality requirements of chs. NR 131, 132 and 182. The department may promulgate new rules or amend rules governing facilities, practices or activities regulated under ~~ss. 144.80 to 144.94~~ch. 293, Stats., if the department determines that the amendment or promulgation of rules is necessary to protect public health, safety or welfare. The requirements of this chapter are in addition to the requirements of any other statutes or rules.

Note: ~~This chapter does not apply to public water systems except for the purpose of determining eligibility for well compensation as stated above. Chapter NR 809 contains maximum contaminant levels applicable to public water systems. The groundwater standards in this chapter do not replace the maximum contaminant levels applicable to public water systems contained in ch. NR 809.~~ Drinking water maximum contaminant levels and health advisory levels may take into account such factors as treatment costs and feasibility for public water systems.

SECTION 2. NR 140.05 (20) is amended to read:

NR 140.05 (20) "Regulatory agency" means the department of agriculture, trade and consumer protection, the department of ~~industry, labor and human relations~~ commerce, the department of transportation, the department of natural resources and other state agencies which regulate activities, facilities or practices which are related to substances which have been

detected in or have reasonable probability of entering the groundwater resources of the state.

SECTION 3. NR 140.10, Table 1 is amended to read:

**Table 1  
Public Health Groundwater Quality Standards**

<i>Substance<sup>21</sup></i>	<i>Enforcement Standard (micrograms per liter - except as noted)</i>	<i>Preventive Action Limit liter - (micrograms per except as noted)</i>
Acetone	1000	200
Alachlor	2	0.2
Aldicarb	10	2
<u>Ammonia (as N)</u>	<u>9.7 milligrams/liter (mg/l)</u>	<u>1.9 mg/l</u>
Antimony	6	1.2
<u>Anthracene</u>	<u>3000</u>	<u>600</u>
Arsenic	50	5
Asbestos	7 million fibers per liter (MFL)	0.7 MFL
Atrazine, total chlorinated residues	3 <sup>12</sup>	0.3 <sup>12</sup>
Bacteria, Total Coliform	0 <sup>3</sup>	0 <sup>3</sup>
Barium	2 milligrams/liter (mg/l)	0.4 mg/l
<u>Bentazon</u>	<u>300</u>	<u>60</u>
Benzene	5	0.5
<u>Benzo(b)fluoranthene</u>	<u>0.2</u>	<u>0.02</u>
Benzo(a)pyrene	0.2	0.02
Beryllium	4	0.4
<u>Boron</u>	<u>960</u>	<u>190</u>



Bromodichloromethane	0.6	0.06
Bromoform	4.4	0.44
Bromomethane	10	1
Butylate	67	6.7
Cadmium	5	0.5
Carbaryl	960	192
Carbofuran	40	8
<u>Carbon disulfide</u>	<u>1000</u>	<u>200</u>
Carbon tetrachloride	5	0.5
Chloramben	150	30
Chlordane	2	0.2
Chloroethane	400	80
Chloroform	6	0.6
Chloromethane	3	0.3
Chromium	100	10
<u>Chrysene</u>	<u>0.2</u>	<u>0.02</u>
<u>Cobalt</u>	<u>40</u>	<u>8</u>
Copper	1300	130
Cyanazine	<del>12.5</del> 1	<del>1.25</del> 0.1
Cyanide	200	40
Dacthal	4 mg/l	0.8 mg/l
1,2-Dibromoethane (EDB)	0.055	0.005
Dibromochloromethane	60	6
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.02
<u>Dibutyl phthalate</u>	<u>100</u>	<u>20</u>
Dicamba	300	60
1,2-Dichlorobenzene	600	60

1,3-Dichlorobenzene	1250	125
1,4-Dichlorobenzene	75	15
Dichlorodifluoromethane	1000	200
1,1-Dichloroethane	850	85
1,2-Dichloroethane	5	0.5
1,1-Dichloroethylene	7	0.7
1,2-Dichloroethylene (cis)	70	7
1,2-Dichloroethylene (trans)	100	20
2,4-Dichlorophenoxyacetic Acid (2,4-D)	70	7
1,2-Dichloropropane	5	0.5
1,3-Dichloropropene (cis/trans)	0.2	0.02
Di (2-ethylhexyl) phthalate	6	0.6
Dimethoate	2	0.4
2,4-Dinitrotoluene	0.05	0.005
2,6-Dinitrotoluene	0.05	0.005
Dinoseb	7	1.4
Dioxin (2, 3, 7, 8-TCDD)	0.00003	0.000003
Endrin	2	0.4
EPTC	250	50
Ethylbenzene	700	140
Ethylene glycol	7 mg/l	0.7 mg/l
<u>Fluoranthene</u>	<u>400</u>	<u>80</u>
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
<u>N-Hexane</u>	<u>600</u>	<u>120</u>
<u>Hydrogen sulfide</u>	<u>30</u>	<u>6</u>
Lead	15	1.5
Lindane	0.2	0.02
Mercury	2	0.2
<u>Methanol</u>	<u>5000</u>	<u>1000</u>
Methoxychlor	40	4
Methylene chloride	5	0.5
Methyl ethyl ketone (MEK)	460	90
Methyl isobutyl ketone (MIBK)	500	50
Methyl tert-butyl ether (MTBE)	60	12
Metolachlor	15	1.5
Metribuzin	250	50
Monochlorobenzene	100	20
Naphthalene	40	8
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
<u>N-Nitrosodiphenylamine</u>	<u>7</u>	<u>0.7</u>
Pentachlorophenol (PCP)	1	0.1
Phenol	6 mg/l	1.2 mg/l
Picloram	500	100
Polychlorinated biphenyls (PCBs)	0.03	0.003
<u>Prometon</u>	<u>90</u>	<u>18</u>

<u>Pyrene</u>	<u>250</u>	<u>50</u>
<u>Pyridine</u>	<u>10</u>	<u>2</u>
Selenium	50	10
Silver	50	10
Simazine	4	0.4
Styrene	100	10
<u>1,1,1,2-Tetrachloroethane</u>	<u>70</u>	<u>7</u>
1,1,2,2-Tetrachloroethane	0.2	0.02
Tetrachloroethylene	5	0.5
Tetrahydrofuran	50	10
Thallium	2	0.4
Toluene	343	68.6
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
<u>1,2,3-Trichloropropane</u>	<u>60</u>	<u>12</u>
Trifluralin	7.5	0.75
<u>Trimethylbenzenes</u> <u>(1,2,4- and 1,3,5- combined)</u>	<u>480</u>	<u>96</u>
<u>Vanadium</u>	<u>30</u>	<u>6</u>
Vinyl chloride	0.2	0.02
Xylene <sup>4</sup>	620	124

<sup>21</sup> Appendix I contains Chemical Abstract Service (CAS) registry numbers, common synonyms and trade names for most substances listed in Table 1.

<sup>2</sup> Total chlorinated atrazine residues includes parent compound and the following metabolites of health concern: ~~deethylatrazine, deisopropylatrazine and diaminoatrazine~~ 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>3</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>4</sup> ~~Xyulene~~ Xylene includes meta-, ortho-, and para-xylene.

SECTION 4. NR 140.16 (1) and note are repealed and recreated to read:

NR 140.16 MONITORING AND LABORATORY DATA REQUIREMENTS. (1) (a) All groundwater quality samples collected to determine compliance with ch. 160, Stats., shall comply with this section except as noted.

(b) *Groundwater sampling requirements.* All groundwater quality samples shall be collected and handled in accordance with procedures specified by the applicable regulatory agency or, where no sampling procedures are specified by that agency, in accordance with the sampling procedures referenced in par.

(c). The sampling procedures specified by a regulatory agency may include requirements for field filtration.

(c) *Department groundwater sampling procedures.* 1. If sampling procedures are not specified by the applicable regulatory agency pursuant to par. (b), all groundwater quality samples shall be collected and handled in accordance with the sampling procedures contained in the following publications:

a. "Groundwater Sampling Desk Reference." Wisconsin Department of Natural Resources, PUBL-DG-037-96, September, 1996.

b. "Groundwater Sampling Field Manual." Wisconsin Department of Natural Resources, PUBL-DG-038-96, September, 1996.

Note: Copies of these publications may be purchased from:

Wisconsin Department of Administration  
Document Sales Unit  
202 South Thornton Avenue  
P.O. Box 7840  
Madison, WI 53707-7840

These publications are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

2. Where no procedure for collecting a particular groundwater quality sample is specified by the appropriate regulatory agency or in the publications referenced in subd. 1, other published scientifically valid groundwater sampling procedures may be used.

(d) *Laboratory requirements.* All groundwater quality samples, except samples collected for total coliform bacteria analysis and field analyses for pH, specific conductance and temperature, shall be analyzed in accordance with provisions of ch. NR 149 by a laboratory certified or registered under ch. NR 149. Samples for total coliform bacteria analysis shall be analyzed by the state laboratory of hygiene or at a laboratory approved or certified by the department of agriculture, trade and consumer protection.

Note: Refer to s. NR 149.11 for sample preservation procedures and holding times.

(e) *Data submittal.* The results of the analysis of groundwater quality samples shall be submitted to the department and any applicable regulatory agency. Except as provided in s. NR 205.07(3)(c) for wastewater permittees, this section does not require the submission of groundwater monitoring data which is collected voluntarily and is not required to be collected to determine compliance with this chapter or another rule or statute.

SECTION 5. 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 (BOD5)	25
Boron	2
Calcium	25
Chemical oxygen demand (COD)	25
Magnesium	25
Nitrogen series	

<del>Ammonia nitrogen</del>	2
<del>Organic nitrogen</del>	2
<del>Total nitrogen</del>	5
Potassium	5
Sodium	10
Field specific conductance	200 micromhos/cm
Total dissolved solids (TDS)	200
Total hardness	100
Total organic carbon (TOC)	1
Total organic halogen (TOX)	0.25

SECTION 6. NR 140.24 (1)(a) is amended to read:

NR 140.24 (1)(a) The owner or operator of the facility, practice or activity shall notify the department in writing when monitoring data is submitted that a preventive action limit has been attained or exceeded in accordance with any deadlines in applicable statutes, rules, permits or plan approvals. Where no deadlines are imposed, the owner or operator shall notify the department as soon as practical after the results are received. When the results of any private well sampling attain or exceed a preventive action limit, the owner or operator of the facility, practice or activity shall notify the department ~~as soon as practical but no more than~~ within 10 days after the results are received. The notification shall provide a preliminary analysis of the cause and significance of the concentration.

SECTION 7. NR 140.26 (1)(a) is amended to read:

NR 140.26 (1)(a) The owner or operator of the facility, practice or activity shall notify the department in writing when monitoring data is submitted that an enforcement standard has been attained or exceeded in accordance with any deadlines in applicable statutes, rules, permits or plan approvals. Where no deadlines are imposed, the owner or operator shall notify the department as soon as practical after the results are received. When the

results of any private well sampling attain or exceed an enforcement standard or preventive action limit, the owner or operator of the facility, practice or activity shall notify the department ~~as soon as practical but no more than~~ within 10 days after the results are received. The notification shall provide a preliminary analysis of the cause and significance of the concentration.

SECTION 8. NR 140.28 (1)(title) is repealed and recreated to read:

NR 140.28 (1) (title) APPLICABILITY.

SECTION 9. NR 140.28 (1)(c) and (d) are created to read:

NR 140.28 (1)(c) For an existing facility, practice or activity that has taken or is taking a response under s. NR 140.24(2) or 140.26(2), a continued response is required unless a substance no longer attains or exceeds a preventive action limit or an exemption has been granted under this section.

(d) If a substance or remedial material is to be infiltrated or injected into groundwater at a concentration which attains or exceeds a preventive action limit, or at any concentration for a substance or remedial material for which a groundwater quality standard has not been established under this chapter, a temporary exemption is required under sub. (5).

SECTION 10. NR 140.28 (2)(intro.) is amended to read:

NR 140.28 (2) (intro.) The department may grant an exemption under this section when a preventive action limit is attained or exceeded, where the background concentration of the substance is below the preventive action limit, if it determines that:

SECTION 11. NR 140.28 (2) note is created to read:

Note: An exemption may be considered under sub. (2) even if monitoring data indicates no detectable background concentration of the substance.



SECTION 12. NR 140.28 (5)(a) is amended to read:

NR 140.28 (5)(a) General. In lieu of an exemption granted ~~under~~in ~~compliance with the criteria in~~ subs. (2) to (4), the department may grant a temporary exemption ~~under~~if the criteria in this subsection ~~to an owner or operator of a proposed or existing facility, practice or activity when a preventive action limit or enforcement standard may be attained or exceeded at a point of standards application~~are complied with. This exemption applies to the owner or operator of a facility, practice or activity that is undertaking a remedial action that includes the infiltration or injection of contaminated groundwater or remedial material, has been approved by the department, and will comply with the applicable response objectives under s. NR 140.24 or 140.26 within a reasonable period of time. The owner or operator of the facility, practice or activity may submit a temporary exemption request to the department at the same time or after the department has approved the remedial action.

SECTION 13. NR 140.28 (5)(b) note is amended to read:

Note: For most remedial actions, a microcosm or treatability study, or other bench scale or pilot scale study will be required by the department prior to consideration of an exemption for the full-scale remedial action under this section. If a pilot scale study is deemed necessary before an exemption for a full-scale remedial action can be granted, a separate temporary exemption issued under this section is required before the pilot scale study can begin.

SECTION 14. NR 140.28 (6)(intro.), (a) and (b) are amended to read:

NR 140.28 (6) EXEMPTION PROCEDURES. (intro.) If the department grants an exemption under this section for a substance or a remedial material, it shall specify:

(a) The substance or remedial material to which the exemption applies;

(b) The terms and conditions of the exemption, which may include an alternative concentration limit, under which the department may seek a response under s. NR 140.24 or 140.26 relating to the substance or remedial material; and

SECTION 15. Appendix 1 to Table 1 is amended to read:

**APPENDIX I 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>
Acetone	67-64-1	Propanone
Alachlor	15972-60-8	<i>Lasso</i>
Aldicarb	116-06-3	<i>Temik</i>
<u>Anthracene</u>	<u>120-12-7</u>	<u>Para-naphthalene</u>
Asbestos	12001-29-5	
<u>Bentazon</u>	<u>25057-89-0</u>	<u>Basagran</u>
Benzene	71-43-2	
<u>Benzo(b)fluoranthene</u>	<u>205-99-2</u>	<u>B(b)F, 3,4-Benzofluoranthene</u>
Benzo(a)pyrene	50-32-8	<u>BaP, B(a)P</u>
<u>Boron</u>	<u>7440-42-8</u>	
Bromodichloromethane	75-27-4	Dichlorobromomethane, <u>BDCM</u>
Bromoform	75-25-2	Tribromomethane
Bromomethane	74-83-9	Methyl bromide
Butylate	2008-41-5	
Carbaryl	63-25-2	<i>Sevin</i>
Carbofuran	1563-66-2	<i>Furadan</i>
<u>Carbon disulfide</u>	<u>75-15-0</u>	<u>Carbon bisulfide</u>
Carbon tetrachloride	56-23-5	<u>Tetrachloromethane, Perchloroethane</u>

Chloramben	133-90-4	
Chlordane	57-74-9	
Chloroethane	75-00-3	Ethyl chloride, <u>Monochloroethane</u>
Chloroform	67-66-3	Trichloromethane
Chloromethane	74-87-3	Methyl chloride
<u>Chrysene</u>	<u>218-01-9</u>	<u>1,2-Benzphenanthrene</u>
<u>Cobalt</u>	<u>7440-48-4</u>	
Cyanazine	21725-46-2	<u>Bladex, 2-chloro-4-ethylamino-6-nitriloisopropylamino-s-triazine</u>
Cyanide	57-12-5	
Dacthal	1861-32-1	<u>DPCA, Chlorothal</u>
Dibromochloromethane	124-48-1	Chlorodibromomethane, <u>DBCM</u>
1,2-Dibromo-3-chloropropane	96-12-8	DBCP, Dibromochloropropane
1,2-Dibromoethane	106-93-4	EDB, Ethylene dibromide, Dibromoethane
<u>Dibutyl phthalate</u>	<u>84-74-2</u>	<u>DP, Di-n-butyl phthalate, n-Butyl phthalate</u>
Dicamba	1918-00-9	<i>Banvel</i>
1,2-Dichlorobenzene	95-50-1	o-Dichlorobenzene, <u>o-DCB</u>
1,3-Dichlorobenzene	541-73-1	m-Dichlorobenzene, <u>m-DCB</u>
1,4-Dichlorobenzene	106-46-7	p-Dichlorobenzene, <u>p-DCB</u>
Dichlorodifluoromethane	75-71-8	<i>Freon 12</i>
1,1,-Dichloroethane	75-34-3	<u>Ethylidene chloride</u>
1,2-Dichloroethane	107-06-2	<u>DCE1,2-DCA</u> , Ethylene dichloride
1,1-Dichloroethylene	75-35-4	1,1-DCE, 1,1-Dichloroethene, <u>Vinylidene chloride</u>
1,2-Dichloroethylene (cis)	156-59-2	cis-Dichloroethylene, <u>1,2-Dichloroethene (cis)</u>
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>3</sup>		<u>Telone, DCP, Dichloropropylene</u>
Di(2-ethylhexyl) phthalate	117-81-7	DEHP, Bis(2-ethylhexyl) phthalate, <u>1,2-Benzenedicarboxylic acid, Bis(2-ethylhexyl)ester</u>
Dimethoate	60-51-5	
2,4-Dinitrotoluene	121-14-2	<u>2,4-DNT, 1-methyl-2,4-dinitrobenzene</u>
2,6-Dinitrotoluene	606-20-2	<u>2,6-DNT, 2-methyl-1,3-dinitrobenzene</u>
Dinoseb	88-85-7	<u>2-(1-methylpropyl)-4,6-dinitrophenol</u>
<u>DioxinsDioxin</u>	1746-01-6	<u>2,3,7,8-TCDD, 2,3,7,8-Tetrachlorodibenzo-p-dioxin</u>
Endrin	72-20-8	
EPTC	759-94-4	<u>Eptam, Eradicane</u>
Ethylbenzene	100-41-4	<u>Phenylethane, EB</u>
Ethylene glycol	107-21-1	
<u>Fluoranthene</u>	<u>206-44-0</u>	<u>Benzo(jk)fluorene</u>
Fluorene	86-73-7	<u>2,3-Benzidine, Diphenylenemethane</u>
Fluoride	16984-48-8	
Fluorotrichloromethane	75-69-4	<u>Freon 11, Trichlorofluoromethane</u>
Formaldehyde	50-00-0	
Heptachlor	76-44-8	<u>Velsicol</u>
Heptachlor epoxide	1024-57-3	
Hexachlorobenzene	118-74-1	Perchlorobenzene, <u>Granox</u>
<u>N-Hexane</u>	<u>110-54-3</u>	<u>Hexane, Skellysolve B</u>
<u>Hydrogen sulfide</u>	<u>7783-06-4</u>	<u>Dihydrogen sulfide</u>
Lindane	58-89-9	
Mercury	7439-97-6	
<u>Methanol</u>	<u>67-56-1</u>	<u>Methyl alcohol, Wood alcohol</u>

Methoxychlor	72-43-5	
Methylene chloride	75-09-2	Dichloromethane, <u>Methylene dichloride</u>
Methyl ethyl ketone	78-93-3	MEK, 2-Butanone
Methyl isobutyl ketone	108-10-1	MIBK, 4-Methyl-2-pentanone, Isopropylacetone, <i>Hexone</i>
Methyl tert-butyl ether	1634-04-4	MTBE, 2-Methoxy-2-methylpropane, tert-Butyl methyl ether
Metolachlor	51218-45-2	<i>Dual, Bicep, Milocep</i>
Metribuzin	21087-64-9	<i>Sencor, Lexone</i>
Monochlorobenzene	108-90-7	Chlorobenzene
Naphthalene	91-20-3	
<u>N-Nitrosodiphenylamine</u>	<u>86-30-6</u>	<u>NDPA</u>
Pentachlorophenol	87-86-5	PCP, <u>Pentachlorohydroxybenzene</u>
Phenol	108-95-2	
Picloram	1918-02-1	<i>Tordon</i> , <u>4-amino-3,5,6-trichloropicolinic acid</u>
Polychlorinated biphenyls <sup>4</sup>		PCBs
<u>Prometon</u>	<u>1610-18-0</u>	<i>Pramitol, Prometone</i>
<u>Pyrene</u>	<u>129-00-0</u>	<u>Benzo(def)phenanthrene</u>
<u>Pyridine</u>	<u>110-86-1</u>	<u>Azabenzene</u>
Simazine	122-34-9	<i>Princep</i> , <u>2-chloro-4,6-diethylamino-s-triazine</u>
Styrene	100-42-5	Ethenylbenzene, <u>Vinylbenzene</u>
<u>1,1,1,2-Tetrachlorethane</u>	<u>630-20-6</u>	<u>1,1,1,2-TCA</u>
1,1,2,2,-Tetrachloroethane	79-34-5	<u>TCA1,1,2,2-TCA</u>
Tetrachloroethylene	127-18-4	Perchloroethylene, <u>PERC</u> , <u>Tetrachloroethene</u>
Tetrahydrofuran	109-99-9	<u>THE</u>
Toluene	108-88-3	<u>Methylbenzene</u>
Toxaphene	8001-35-2	

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

The foregoing rule was approved and adopted by the State of Wisconsin Natural Resources Board on March 25, 1998 and April 29, 1998.

The rule 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

(SEAL)

By George E. Meyer, Secretary

September 10, 1998

Memorandum

To : Bob

From - Les

Subject : Utility Managers Briefing

When you called yesterday, you asked about the chemicals that the Utilities were worried about earlier that came before Natural Resources. The issue was a proposed groundwater standard for Boron not Benzene which I think we discussed.

- Currently, there is **no groundwater standard** for Boron under NR 140.
- The standard is under review by the EPA and utilities wanted the state to hold off until the EPA completed its research on toxicity information for Boron as part of its update of the Integrated Risk Information System(IRIS)
- The impact would be very costly and was not scientifically justified.
- In depth research on this issue by the Department of HFS was not done because of the amount of materials to go through
- Site investigations were for one year of groundwater monitoring was estimated to be between \$8,000 to \$24,000 per site.
- Utilities indicated that they did not feel that the technology was available to meet the proposed standard.
- Expert testimony and research indicated the standards were questionable.
- Standard was calculated based on effect on less than health infants

The Department of Natural Resources withdrew the rule because the JCRAR was going to suspend it –one minute after twelve of the day it would have taken effect.(At least this is what I told Johnsrud, who then passed it on to the DNR—I nodded affirmatively). Hell of a bluff eh. Hope this helps