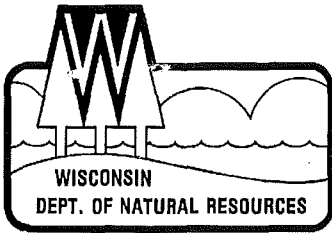


CR 93-12



George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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STATE OF WISCONSIN)
)
DEPARTMENT OF NATURAL RESOURCES) SS

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, George E. Meyer, Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. WR-48-92a was duly approved and adopted by this Department on August 19, 1993. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.



IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building in the City of Madison, this 15th day of January, 1994.

George E. Meyer
George E. Meyer, Secretary

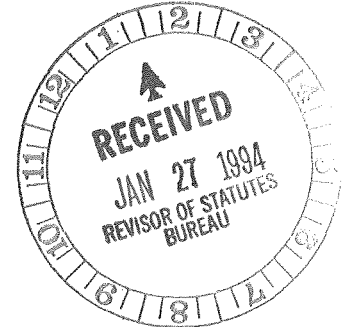
(SEAL)

4-1-94



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

.....
 IN THE MATTER of repealing s. NR 140.26(3)(title); .
 renumbering ss. NR 140.22(2), (3)(intro.), (a), (b) and (c), .
 and (5), 140.24(4)Table 5 entry 10, .
 140.26(2)Table 6 entry 6, 140.26(3)(intro.), (a) and (b), .
 (4) and (5); renumbering and amending ss. 140.22(4) and .
 NR 140.26(2)(intro.); amending ss. NR 140.05(6), .
 140.10 Note and Table 1, 140.12 Table 2, 140.14(1)(b), .
 140.16(1), 140.22(title), (1)(intro.), (a), (b) and (c), .
 (2)(b)3.; 140.24(1)(intro.) and (c)(intro.), .
 140.24(3)(intro.), 140.26(1)(intro.), 140.28(1)(b) and .
 (5)(b); repealing and recreating s. NR 140.16(2); and .
 creating ss. NR 140.05(20h), (20m), (20m)Note, .
 140.22(1)(title) and (d), (2)(title) and (3)(title), .
 140.24(1)(a) Note, 140.24(4)Table 5 entry 10, .
 140.26(1)(a) Note and 140.26(2)Table 6 entry 6 of the .
 Wisconsin Administrative Code pertaining to groundwater .
 quality standards. .



WR-48-92a

Analysis Prepared by the Department of Natural Resources

Statutory authority: ss. 144.025(2), 227.11(2)(a), 160.03, 160.07(5), 160.09(3), 160.15, 160.19 and 160.21, Stats.

Statutes interpreted: ss. 144.025(2), 160.001, 160.05, 160.07, 160.09, 160.11, 160.13, 160.15, 160.19, 160.21, 160.23, 160.25 and 160.29, 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 enforcement standards and preventive action limits for 13 additional substances and modify the enforcement standard and preventive action limit for 20 substances based on recommendations from the Department of Health and Social Services. Groundwater standards are proposed for acetone; asbestos, chlordane, dichlorodifluoromethane, ethylene glycol, formaldehyde, heptachlor, heptachlor epoxide, methyl isobutyl ketone, nitrite, nitrate, polychlorinated biphenyls and styrene. Revised standards are proposed for alachlor, barium, cadmium, carbofuran, chromium, copper, dibromoethane, 1,2-dichlorobenzene, dibromochloropropane, 1,2-chloroethylene, 2,4-dichlorophenoxyacetic acid, ethyl benzene, lead, lindane, methoxychlor, pentachlorophenol, selenium, tetrachloroethylene, toxaphene and 2,4,5-trichlorophenoxypropionic acid. A health-based standard is proposed for copper to replace the present welfare-based standard. Where appropriate, synonyms have been added in parentheses for substances in Table 1 and 2 to make it easier to identify the substances. The preventive action limits for six substances would be modified to be consistent with the statutorily defined limits in s. 160.15(1), Stats. Language is also proposed to clarify sampling procedures and analytical requirements and the evaluation and response procedures of ch. NR 140.

SECTION 1. NR 140.05(6) is amended to read;

NR 140.05(6) "Design management zone" means a 3-dimensional boundary surrounding each regulated facility, practice or activity established under s. NR 140.22~~(5)~~(3).

SECTION 2. NR 140.05(20h), (20m) and Note are created to read:

NR 140.05(20h) "Remedial action" means a response which is taken to achieve compliance with groundwater quality standards established under this chapter. This term includes, but is not limited to, actions designed to prevent or minimize the further discharge or release of substances to groundwater and actions designed to renovate or restore groundwater quality.

(20m) "Response" means any action taken to respond to an attainment or exceedance of a preventive action limit or enforcement standard as required by s. NR 140.24 or 140.26.

Note: A response may include a remedial action.

SECTION 3. NR 140.10 Note is amended to read:

NR 140.10 Note: For all substances that have carcinogenic, mutagenic or teratogenic properties or interactive effects, the preventive action limit is 10% of the enforcement standard. The preventive action is 20% of the enforcement standard for all other substances that are of public health concern. ~~Based on action by the natural resources board, which amended previous enforcement standards while not amending preventive action limits, the preventive action limits for benzene, 1,2-dichloroethane, 1,1-dichloroethylene, fluoride, trichloroethylene and vinyl chloride are less than the percentage of the enforcement standard specified by s. 160.15(1), Stats.~~ Enforcement standards and preventive action limits for additional substances will be added to Table 1 as recommendations are developed pursuant to ss. 160.07, 160.13 and 160.15, Stats.

SECTION 4. NR 140.10, Table 1 is amended to read:

Table 1

Public Health Groundwater Quality Standards

<u>Substance</u>	<u>Enforcement Standard (micrograms per liter- except as noted)</u>	<u>Preventive Action Limit (micrograms per liter- except as noted)</u>
<u>Acetone</u>	<u>1000</u>	<u>200</u>
Alachlor	0.5 <u>2</u>	0.05 <u>0.2</u>
Aldicarb	10	2
Arsenic	50	5

<u>Asbestos</u>	<u>7 million fibers per liter (MFL)</u>	<u>0.7 MFL</u>
Atrazine, total chlorinated residue	3 ¹	.3 ¹
Bacteria, Total Coliform	Less than one in 100 ml for membrane filter method or not present in any 10 ml portion by fermentation tube method for both preventive action limit and enforcement standard	
Barium	1 milligram <u>2 milligrams/liter</u> (mg/l)	.2 <u>.4</u> mg/l
Benzene	5	.067 <u>0.5</u>
Benzo(a)pyrene	0.003	0.0003
Bromodichloromethane	179	36
Bromoform	4.4	0.44
Butylate	67	6.7
Cadmium	40 <u>5</u>	4 <u>0.5</u>
Carbaryl	960	192
Carbofuran	50 <u>40</u>	40 <u>8</u>
Carbon Tetrachloride	5	.5
Chloramben	150	30
<u>Chlordane</u>	<u>2</u>	<u>0.2</u>
Chloroethane (Ethyl chloride)	400	80
Chloroform	6	.6
Chromium	50 <u>100</u>	5 <u>10</u>
<u>Copper</u>	<u>1300</u>	<u>130</u>
Cyanazine	12.5	1.25
Cyanide	200	40

Dibromochloromethane (Chlorodibromomethane)	215	43
1,2-Dibromoethane (EDB, ethylene dibromide, dibromoethane)	.04 <u>0.05</u>	.004 <u>0.005</u>
1,2-Dibromo-3-chloropropane (DBCP, dibromochloropropane)	.05 <u>0.2</u>	.005 <u>0.02</u>
Dicamba	300	60
<u>Dichlorodifluoromethane</u> (Freon 12)	<u>1000</u>	<u>200</u>
1,2-Dichlorobenzene (O-dichlorobenzene)	4250 <u>600</u>	425 <u>60</u>
1,3-Dichlorobenzene (M-dichlorobenzene)	1250	125
p-Dichlorobenzene (1,4-Dichlorobenzene) (p-Dichlorobenzene)	75	15
1,1-Dichloroethane	850	85
1,2-Dichloroethane	5	.05 <u>0.5</u>
1,1-Dichloroethylene	7	.024 <u>0.7</u>
1,2-Dichloroethylene (cis)	400 <u>70</u>	40 <u>7</u>
1,2-Dichloroethylene (trans)	100	20
2,4-Dichlorophenoxyacetic Acid (2,4-D)	400 <u>70</u>	20 <u>7</u>
1,2-Dichloropropane	5	0.5
Di(2-ethylhexyl) phthalate (Bis(2-ethylhexyl) phthalate)	3	0.3
Dimethoate	2	.4
2,4-Dinitrotoluene	0.05	0.005
2,6-Dinitrotoluene	0.05	0.005

Dinoseb	13	2.6
Dioxin (2,3,7,8-TCDD)	0.00000022	0.000000022
Endrin	.2	.02
EPTC (Eptam)	250	50
Ethylbenzene	1360 <u>700</u>	272 <u>140</u>
<u>Ethylene glycol</u>	<u>7 mg/l</u>	<u>0.7 mg/l</u>
Fluoride	4 mg/l	.44 <u>0.8 mg/l</u>
Fluorotrchloromethane (Freon-11, <u>trichloro- fluoromethane</u>)	3490	698
<u>Formaldehyde</u>	<u>1000</u>	<u>100</u>
<u>Heptachlor</u>	<u>0.4</u>	<u>0.04</u>
<u>Heptachlor epoxide</u>	<u>0.2</u>	<u>0.02</u>
Lead	50 <u>15</u>	5 <u>1.5</u>
Lindane	. 02 <u>0.2</u>	. 002 <u>0.02</u>
Mercury	2	0.2
Methoxychlor	100 <u>40</u>	20 <u>4</u>
Methylene Chloride (Dichloromethane)	150	15
Methyl ethyl ketone (<u>MEK</u>)	460	90
<u>Methyl isobutyl ketone</u> (<u>MIBK, 4-methyl-2-pentanone,</u> <u>isopropylacetone</u>)	<u>500</u>	<u>50</u>
Methyl tert-butyl ether (<u>MTBE, 2-methoxy-2-methyl- propane</u>)	60	12
Metolachlor	15	1.5
Metribuzin	250	50

Monochlorobenzene (Chlorobenzene)	100	20
Naphthalene	40	8
<u>Nitrate (as N)</u>	<u>10 mg/l</u>	<u>2 mg/l</u>
Nitrate + Nitrite (as N)	10 mg/l	2 mg/l
<u>Nitrite (as N)</u>	<u>1 mg/l</u>	<u>0.2 mg/l</u>
Pentachlorophenol (PCP)	300 <u>1</u>	30 <u>0.1</u>
<u>Polychlorinated biphenyls (PCBs)</u>	<u>0.03</u>	<u>0.003</u>
Phenol	6 mg/l	1.2 mg/l
Selenium	40 <u>50</u>	4 <u>10</u>
Silver	50	10
Simazine	1.7	0.17
<u>Styrene (Ethenylbenzene)</u>	<u>100</u>	<u>10</u>
Tetrachloroethylene (Perchloroethylene)	4 <u>5</u>	4 <u>0.5</u>
Tetrahydrofuran	50	10
Toluene	343	68.6
Toxaphene	.00007 <u>3</u>	.000007 <u>0.3</u>
1,1,1-Trichloroethane	200	40
1,1,2-Trichloroethane	.6	.06
Trichloroethylene (TCE)	5	.18 <u>0.5</u>
2,4,5-Trichlorophenoxy- propionic Acid (<u>2,4,5-TP,</u> <u>silvex</u>)	40 <u>50</u>	2 <u>5</u>
Trifluralin	7.5	.75
Vinyl Chloride	.2	.0015 <u>0.02</u>

¹Total chlorinated atrazine residue includes parent compound and the following metabolites of health concern: deethylatrazine, deisopropylatrazine and diaminoatrazine.

SECTION 5. NR 140.12, Table 2 is amended to read:

Table 2

Public Welfare Groundwater Quality Standards

<u>Substance</u>	<u>Enforcement Standard (milligrams per liter- except as noted)</u>	<u>Preventive Action Limit (milligrams per liter- except as noted)</u>
Chloride	250	125
Color	15 color units	7.5 color units
Copper	1.0	.5
Foaming agents MBAS (Methylene- Blue Active Substances)	.5	.25
Iron	.3	.15
Manganese	.05	.025
Odor	3 (Threshold Odor No.)	1.5 (Threshold Odor No.)
Sulfate	250	125
Zinc	5	2.5

SECTION 6. NR 140.14(1)(b) is amended to read:

NR 140.14(1)(b) The regulatory agency shall require a remedial response in accordance with the rules promulgated under s. 160.21, Stats. No remedial response shall be required if it is demonstrated to the satisfaction of the appropriate regulatory agency that a scientifically valid determination cannot be made that the preventive action limit or enforcement standard for a substance in Table 1 or 2 has been attained or exceeded based on consideration of sampling procedures or laboratory precision and accuracy, at a significance level of 0.05.

SECTION 7. NR 140.16(1) is amended to read:

NR 140.16(1) All water quality samples collected to determine compliance with ch. 160, Stats., except samples collected for total coliform bacteria analysis and field analyses for pH, specific conductance, and temperature, shall be analyzed 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 health and social services. The results of the analysis shall be submitted to the department and the appropriate regulatory agency. Except as provided in s. NR 205.07(3)(c) for wastewater permittees, this subsection does not require the submission of groundwater monitoring data which is collected voluntarily and which is not being collected to determine compliance with this chapter or other laws. The samples shall be collected in accordance with procedures specified by the department or, where no procedures are specified, in accordance with published sampling procedures. The specified sampling procedures may include requirements for field filtration.

SECTION 8. NR 140.16(2) is repealed and recreated to read:

NR 140.16(2) The laboratory shall select the analytical methodology which:

- (a) Is specified in rules or approved by the regulatory agency, and
- (b) Is appropriate for the concentration of the sample, and
- (c) Is one of the following:
 1. Has a limit of detection and limit of quantitation below the preventive action limit,

or

2. Produces the lowest available limit of detection and limit of quantitation if the limit of detection and limit of quantitation are above the preventive action limit.

SECTION 9. NR 140.22(title) is amended to read:

NR 140.22(title) POINT OF STANDARDS APPLICATION FOR DESIGN AND COMPLIANCE.

SECTION 10. NR 140.22(1)(title) is created to read:

NR 140.22(1)(title) DESIGN.

SECTION 11. NR 140.22(1)(intro.), (a), (b) and (c) are amended to read:

NR 140.22(1)(intro.) Facilities, practices or activities regulated by the department, including remedial actions, shall be designed to minimize the level of substances in groundwater and to comply with the preventive action limits to the extent technically and economically feasible at all the following locations:

- (a) Any point of present groundwater use;
- (b) Any point beyond the boundary of the property on which the facility, practice or activity is located; ~~and,~~
- (c) Any point within the property boundaries beyond the 3-dimensional design management zone if one is established by the department at each facility, practice or activity under sub. ~~(5)~~(3).

SECTION 12. NR 140.22(1)(d) and (2)(title) are created to read:

NR 140.22(1)(d) Every point at which groundwater is monitored to determine if a preventive action limit or enforcement standard has been attained or exceeded for sites identified under s. NR 140.22(2)(c).

(2)(title) COMPLIANCE.

SECTION 13. NR 140.22(2), (3)(intro.), (a), (b) and (c), are renumbered NR 140.22(2)(a), (2)(b)(intro.), 1., 2. and 3.

SECTION 14. NR 140.22(2)(b)3. is amended to read:

NR 140.22(2)(b)3. Any point within the property boundaries beyond the 3 dimensional design management zone if one is established by the department at each facility, practice or activity under sub. ~~(5)~~(3).

SECTION 15. NR 140.22(4) is renumbered NR 140.22(2)(c) and amended to read:

NR 140.22(2)(c) For spills and discharges, releases, sites or facilities regulated under ss. 144.76, Stats., ~~or s. NR 600.07, 144.442, 144.64(2m) or 144.735, Stats., or s. NR 600.07, for which a design management zone has not been established in sub. (3), Table 4,~~ the point of standards application shall be every point at which groundwater is monitored to determine if a preventive action limit or enforcement standard has been attained or exceeded.

SECTION 16. NR 140.22(5) is renumbered NR 140.22(3).

SECTION 17. NR 140.22(3)(title) is created to read:

NR 140.22(3)(title) DESIGN MANAGEMENT ZONE.

SECTION 18. NR 140.24(1)(intro.) is amended to read:

NR 140.24(1)(intro.) NOTIFICATION AND ASSESSMENT. If the concentration of a substance, including indicator parameters, in groundwater attains or exceeds a preventive action limit at a point of standards application as described ~~under~~ in s. NR 140.22(2):

SECTION 19. NR 140.24(1)(a)Note: is created to read:

NR 140.24(1)(a)Note: See s. NR 140.27.

SECTION 20. NR 140.24(1)(c)(intro.) and (3)(intro.) are amended to read:

NR 140.24(1)(c)(intro.) The department shall assess the cause and significance of the concentration of the substance in determining the appropriate response ~~measures~~ to meet the objectives of sub. (2). In addition to all other relevant information, the department shall consider the information submitted under par. (b) and the following factors where applicable:

(3)(intro.) RANGE OF RESPONSES FOR INDICATOR PARAMETERS. Except as otherwise provided in this subsection, the range of responses which the department may take or may require if a preventive action limit for an indicator parameter identified in Table 3 has been attained or exceeded, ~~are~~ is one or more of the ~~actions~~ responses in items 1 to 4 in Table 5. The range of responses is one or more of the ~~actions~~ responses in items 1 to 6 of Table 5 in the event the department determines that:

SECTION 21. NR 140.24(4)Table 5, entry 10 is renumbered NR 140.24(4)Table 5, entry 11.

SECTION 22. NR 140.24(4)Table 5, entry 10 is created to read:

NR 140.24(4)Table 5, entry 10 Require remedial action to prevent or minimize the further discharge or release of the substance to groundwater.

SECTION 23. NR 140.26(1)(intro.) is amended to read:

NR 140.26(1)(intro.) NOTIFICATION AND ASSESSMENT. If the concentration of a substance in groundwater attains or exceeds an enforcement standard at a point of standards application as described ~~under~~ in s. NR 140.22(2):

SECTION 24. NR 140.26(1)(a)Note: is created to read:

NR 140.26(1)(a)Note: See s. NR 140.27.

SECTION 25. NR 140.26(2)(intro.) is renumbered NR 140.26(2)(a) and amended to read:

NR 140.26(2) REGULATORY RESPONSES. (a) ~~Based on the evaluation of the increased concentration as outlined in sub. (1),~~ If a facility, activity or practice is regulated under subch. IV of ch. 144 or 147, Stats., the department shall require responses as necessary, based on the evaluation of the increased concentration as outlined in sub. (1), to prevent any new releases of the substance from traveling beyond the design management zone or other applicable point of standards application described in s. NR 140.22 and restore contaminated groundwater within a reasonable period of time. Both the source control and the groundwater restoration components of the response shall be designed to achieve compliance with the enforcement standard at the point of standards application and to achieve compliance with the preventive action limit at the point of standards application unless compliance with the preventive action limit is not technically and economically feasible. The range of responses which the department may take or require if an enforcement standard for a substance of public health or welfare concern has been attained or exceeded at a point of standards application ~~are~~ is listed in Table 6. More than one response may be required by the department. In addition, the department may require one or more responses from Table 5, except number one.

SECTION 26. NR 140.26(2)Table 6, entry 6 is renumbered NR 140.26(2)Table 6, entry 7.

SECTION 27. NR 140.26(2)Table 6, entry 6 is created to read:

NR 140.26(2)Table 6, entry 6 Require remedial action to prevent or minimize the further release of the substance to groundwater.

SECTION 28. NR 140.26(3)(title) is repealed.

SECTION 29. NR 140.26(3)(intro.), (a) and (b), (4) and (5) are renumbered NR 140.26(2)(b)(intro.), 1. and 2., (3) and (4).

SECTION 30. NR 140.28(1)(b) and (5)(b) are amended to read:

NR 140.28(1)(b) ~~For an existing facility, practice or activity,~~ a response is required under s. NR 140.24(2) or 140.26(2) when a preventive action limit or an enforcement standard has been attained or exceeded at a point of standards application unless an exemption has been granted under this section or the criteria of s. NR 140.24(5)(a) or (b) are met.

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

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on August 19, 1993.

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 January 15, 1994

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

By George E. Meyer
George E. Meyer, Secretary

(SEAL)

