

REPORT TO LEGISLATURE

NR 105, Wis. Adm. Code  
Water quality standards for cadmium  
for the protection of aquatic life

Board Order No. WR-56-94  
Clearinghouse Rule No. 94-216

Statement of Need

This proposed revision to ch. NR 105 is being developed in response to significant toxicological data available subsequent to the promulgation of ch. NR 105 in 1989. Based on the new data, significant revisions to the cadmium criteria in ch. NR 105 are appropriate. While the chronic cadmium criterion becomes less stringent, the NR 105 process for generating a water quality standard is designed to produce scientifically defensible standards which will be protective of the environment. Only numerical criteria changes are necessary. The methodologies contained in ss. NR 105.05 and 105.06 remain valid.

The acute and chronic criteria for cadmium are hardness related; that is, cadmium is more toxic in soft water than in hard water. Therefore, the criteria contained in ch. NR 105 are expressed as logarithmic equations. The inputs to the equations will be altered by the new data, resulting in different water quality criteria when a local hardness is considered in the equation. Regardless of whether a criteria becomes more or less stringent by the use of more recent data, the resulting criteria will be more accurate. Because of this change in calculation methodology, the chronic cadmium criterion will be removed from Table 6 in s. NR 105.06 and placed in Table 4 in s. NR 105.06.

In addition to the changes proposed for the cadmium criteria, four typographical errors/omissions will be corrected. The corrections will not change the way in which ch. NR 105 is implemented. They will, however, result in clearer interpretation of the code.

Modifications as a Result of Public Hearing

No modifications were made as a result of public hearing.

Appearances at the Hearings and Their Position

January 11, 1995 - Wausau

In support:

Linda S. Somers, Consolidated Papers Inc., P.O. Box 8050, Wis. Rapids, WI 54495

In opposition - none

As interest may appear - none

January 13, 1995 - Madison

In support:

Caryl Terrell, John Muir Chapter - Sierra Club, 222 S. Hamilton St., #1, Madison, WI 53703

In opposition - none

As interest may appear - none

Response to Legislative Council Rules Clearinghouse Report

The recommendations were accepted.

Final Regulatory Flexibility Analysis

There will be minimal impact on small businesses. Most facilities holding discharge limits for cadmium are not small businesses. There are no anticipated changes in compliance or reporting requirements resulting from this rule revision.

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

The Wisconsin Natural Resources Board proposes an order to repeal NR 105 Table 6 substance entry 1; and to amend NR 105.06(5) (f) and NR 105 Table 2 parameter entry 1, substance entry 1 and 2, parameter entry 2, 2A entry 1, 4, 4A and 6 substance entry 1 relating to water quality standards for cadmium for the protection of aquatic life

WR-56-94

Analysis Prepared by the Department of Natural Resources

Statutory authority: ss. 144.025(2) and 227.11(2) (a), Stats.  
 Statutes interpreted: s. 144.025(2), Stats.

This rule revision amends s. NR 105.06 to update the water quality standards for cadmium for aquatic life protection. The cadmium criterion for acute toxicity protection will be more stringent. There will be a small impact to facilities permitted by the acute criterion. The cadmium criterion for chronic toxicity protection for aquatic life protection will be less stringent. There will be an impact for facilities permitted by the chronic criterion. In addition, to clarify interpretation of the code, typographical corrections will be made pertaining to the aquatic life criteria published in s. NR 105.06.

SECTION 1. NR 105.06(5) (f) is amended to read:

NR 105.05(5) (f) For a given substance, if the SMACR appears to increase or decrease as the species mean acute values (SMAV) calculated for that substance using the procedure described in s. NR 105.05 increase, the final acute-chronic ratio (FACR) shall be equal to the geometric mean of the SMACRs for species with SMAVs closest to the final acute value.

SECTION 2. NR 105, Table 2, parameter entry #1 is amended to read:

Water Quality Parameter: Hardness (in ppm as CaCO<sub>3</sub>)

SECTION 3. NR 105, Table 2, substance entry #1 (cadmium) is amended to read:

Total Recoverable Cadmium:

Great Lakes	<del>1.1281.147</del> - <del>3.828-3.8831</del>	<u>1.791.83</u>	<u>3.924.05</u>	<u>8.578.97</u>
Cold Water	<del>1.1281.147</del> - <del>3.828-3.7684</del>	<u>1.792.05</u>	<u>3.924.54</u>	<u>8.5710.06</u>
Warm Water Sportfish	<del>1.1281.147</del> - <del>1.8291-2.3912</del>	<u>13.258.13</u>	<u>28.9518.01</u>	<u>63.2739.88</u>
All Others	<del>1.1281.147</del> - <del>1.8291-1.9805</del>	<u>13.2512.26</u>	<u>28.9527.16</u>	<u>63.2760.14</u>

SECTION 4. NR 105 Table 2, substance entry #2 (title) is amended to read:

Total Recoverable Chromium(+3):

(+):

SECTION 5. NR 105, Table 2, parameter entry #2 (heading) is amended to read:

Water Quality Parameter: pH

V lnACI 50 6.5 100 7.8 200 8.8

SECTION 6. NR 105, Table 2A, entry #1 (cadmium) is amended to read:

Cadmium Hardness (ppm) 6 - ~~368~~ 449

SECTION 7. NR 105, Table 4 is amended to read:

<u>Substance</u>	<u>V</u>	<u>ln CCI</u>	<u>50</u>	<u>100</u>	<u>200/175</u>
		(Reserved)			
<u>Total Recoverable Cadmium:</u>					
<u>Great Lakes</u>	<u>0.7852</u>	<u>-3.015</u>	<u>1.06</u>	<u>1.82</u>	<u>2.83</u>
<u>Cold Water</u>	<u>0.7852</u>	<u>-3.015</u>	<u>1.06</u>	<u>1.82</u>	<u>2.83</u>
<u>Warm Water Sportfish</u>	<u>0.7852</u>	<u>-2.9109</u>	<u>1.17</u>	<u>2.02</u>	<u>3.14</u>
<u>All Others</u>	<u>0.7852</u>	<u>-2.9109</u>	<u>1.17</u>	<u>2.02</u>	<u>3.14</u>

SECTION 8. NR 105, Table 4A, is amended to read:

Table 4A  
Water Quality Parameter Ranges for Substances  
With Chronic Toxicity Related to Water Quality

<u>Substance</u>	<u>Parameter</u>	<u>Applicable Range</u>
	(Reserved)	
<u>Cadmium</u>	<u>Hardness (ppm)</u>	<u>19-173</u>

SECTION 9. NR 105, Table 6 substance entry #1 (cadmium) is repealed (the entry "Total Recoverable Cadmium" and the following subheadings are repealed).

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on March 23, 1995.

The rules shall take effect 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 \_\_\_\_\_  
George E. Meyer, Secretary

(SEAL)

FISCAL ESTIMATE  
DOA-2048 (R 11/90)

ORIGINAL  UPDATED  
 CORRECTED  SUPPLEMENTAL

Amendment No. if Applicable

Subject

Water quality standards rule revision for cadmium - Amending chapter NR 105, Wis. Adm. Code, by revising Tables 2, 4A, and 6 of the fish and aquatic life section found in sections NR 105.05 and NR 105.06.

Fiscal Effect

State:  No State Fiscal Effect

Check columns below only if bill makes a direct appropriation or affects a sum sufficient appropriation

Increase Costs - May be possible to Absorb Within Agency's Budget  Yes  No

Increase Existing Appropriation  Increase Existing Revenues  
 Decrease Existing Appropriation  Decrease Existing Revenues  
 Create New Appropriation

Decrease Costs

Local:  No local government costs

- 1.  Increase Costs  
 Permissive  Mandatory
- 2.  Decrease Costs  
 Permissive  Mandatory

- 3.  Increase Revenues  
 Permissive  Mandatory
- 4.  Decrease Revenues  
 Permissive  Mandatory

5. Types of Local Governmental Units Affected:
- Towns  Villages  Cities
  - Counties  Others
  - School Districts  VTAE Districts

Fund Sources Affected

GPR  FED  PRO  PRS  SEG  SEG-S

Affected Ch. 20 Appropriations  
Not applicable

Assumptions Used in Arriving at Fiscal Estimate

Overview of Rule - The proposed revisions to chapter NR 105 will update the existing water quality standards (acute and chronic) for cadmium to reflect recent toxicological data. The revision has the potential to affect 37 permittees whose discharge of cadmium is limited in a WPDES permit. Water quality based effluent limitations based upon the revised acute criterion will become more stringent, while those based upon the chronic criterion will become less stringent.

Impact to Local Governments - The following assumptions were used to estimate the fiscal impacts of the proposed revisions to NR 105:

- 1. The average existing municipal ch. NR 101 fee related to cadmium = \$2,000;
- 2. The average annual monitoring costs related to cadmium = \$600;
- 3. Costs associated with a more stringent limit to a municipality will get passed on to it's contributors (source control).
- 4. There are 4 permittees (one municipality) currently limited by the acute criterion and 33 (17 municipal) by the chronic criterion.

The one municipality with a acute limit also has a chronic limit. Therefore, the net financial impact for this municipal facility should be approximately zero.

- Continued on Next Page -

Long-Range Fiscal Implications

Not applicable

Agency/Prepared by: (Name & Phone No.)

Date 2/3/95

Natural Resources/David Webb  
(264-6260)

Authorized Signature/Telephone No.

*David Webb*  
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For the 17 municipal facilities that will have less stringent effluent limits for cadmium, the cost savings to these facilities primarily include ch. NR 101 fees and costs of cadmium analysis in effluent. Because of the range of existing NR 101 fees paid on cadmium, it is not possible to accurately determine the cost savings to these 17 facilities. However, the Department estimates that the cost savings to these facilities will be approximately  $17 \times \$1,000 = \$17,000$ .

Thus, the net fiscal impact to local government of the proposed revisions to NR 105 will approximate  $-\$17,000$  in costs.

There is a possibility that a few facilities which did not previously have limits would now require one due to a slightly more stringent acute criterion. At the same time, some facilities would not require a limit where they previously had one due to the less stringent chronic criterion.

Impacts to State Government - No additional staff for the Department are needed to implement these revisions.

**FISCAL ESTIMATE WORKSHEET**

Detailed Estimate of Annual Fiscal Effect  
DOA-2047(R 11/90)

ORIGINAL  
 CORRECTED

UPDATED  
 SUPPLEMENTAL

1993 SESSION

LRB or Bill No/Adm.Rule No.  
ch. NR 105

Amendment No.

Subject

Water quality standard revision for cadmium contained in Chapter NR 105.

I. One-time Costs or Revenue Fluctuations for State and/or Local Government (do not include in annualized fiscal effect):  
None

II. Annualized Costs:

A. State Costs by Category	Annualized Fiscal Impact on State funds for	
	Increased Costs	Decreased Costs
State Operations-Salaries and Fringes	\$ 0	\$ 0
(FTE Position Changes)	( FTE)	(- FTE)
State Operations-Other Costs		-
Local Assistance		-
Aids to Individuals or Organizations		-
<b>TOTAL State Costs by Category</b>	<b>\$ 0</b>	<b>\$ 0</b>
B. State Costs by Source of Funds	Increased Costs	Decreased Costs
GPR	\$	\$ -
FED	\$	\$ -
PRO/PRS	\$	\$ -
SEG/SEG-S	\$	\$ -
III. State Revenues- GPR Taxes	Increased Rev.	Decreased Rev.
Complete this only when proposal will increase or decrease state revenues (e.g., tax increase, decrease in license fees, etc.)	\$	\$ -
GPR Earned		-
FED		-
PRO/PRS		-
SEG/SEG-S		-
<b>TOTAL State Revenues</b>	<b>\$ 0</b>	<b>\$ 0</b>

NET ANNUALIZED FISCAL IMPACT

	STATE	LOCAL
NET CHANGE IN COSTS	\$ 0	\$ - 17,000
NET CHANGE IN REVENUES	\$ 0	\$ 0

Agency/Prepared by: (Name & Phone No.)  
Natural Resources  
Natural Resources/David Webb 4-6260

Authorized Signature/Telephone No.  
6-2794

Date  
02/05/95

*John Polisher*  
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**CLEARINGHOUSE REPORT TO AGENCY**

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[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 94-216**

AN ORDER to repeal NR 105 Table 6 substance entry 1; and to amend NR 105.06 (5) (f) and NR 105 Table 2 parameter entry 1, substance entry 1 and 2, parameter entry 2, 2A entry 1, 4, 4A and 6 substance entry 1, relating to water quality standards for cadmium for the protection of aquatic life.

Submitted by **DEPARTMENT OF NATURAL RESOURCES**

12-08-94 RECEIVED BY LEGISLATIVE COUNCIL.

01-09-95 REPORT SENT TO AGENCY.

RNS:AS:kjf:jt

**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

RECEIVED BY LEGISLATIVE COUNCIL 12-04-94  
REPORT SENT TO AGENCY 01-09-95

RMP 22-117

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## CLEARINGHOUSE RULE 94-216

### Comments

**[NOTE: All citations to "Manual" in the comments below are to the Administrative Rules Procedures Manual, prepared by the Revisor of Statutes Bureau and the Legislative Council Staff, dated October 1994.]**

#### 2. Form, Style and Placement in Administrative Code

- a. In SECTION 1, "MR 105.05 (5) (f)" should be "NR 105.05 (5) (f)."
- b. In SECTION 4, the retained colon should follow the stricken material.

#### 5. Clarity, Grammar, Punctuation and Use of Plain Language

- a. SECTION 5 would be clearer if it indicated that the amendment was under the parameter entry entitled Water Quality Parameter: pH, since the entries are not labeled by number.
- b. SECTION 9 would be clearer if it stated that the heading "Total Recoverable Cadmium" and the following subheadings or entries were repealed.