

**SUBJECT:** Revision of Chapter NR 105 - Surface Water Quality Criteria and Secondary Values for Toxic Substances

**FOR:** OCTOBER 2007 BOARD MEETING

**TO BE PRESENTED BY:** Russell Rasmussen - Director, Bureau of Watershed Management

**SUMMARY:**

The Department is proposing to update surface water quality criteria for 15 substances and to develop new surface water quality criteria for 2 other substances in ch. NR 105. These updates and additions are the result of two federal initiatives. First, in 2000 U.S. EPA formally objected to aquatic life criteria for several substances in ch. NR 105 because the state criteria were not as protective as the federal criteria. Second, U.S. EPA has developed and updated human health criteria for some additional substances subsequent to the 2000 objections. The Department's proposed updates and additions will ensure federal approval of the criteria for those substances. No changes are proposed in the procedures used for developing criteria in ch. NR 105; only the numerical criteria for some of the substances regulated in that code are being addressed at this time.

**RECOMMENDATION:** Approval to hold public hearings on Board Order WT-35-07, revisions to ch. NR 105.

**LIST OF ATTACHED MATERIALS:**

- |    |                                     |   |     |                                     |          |
|----|-------------------------------------|---|-----|-------------------------------------|----------|
| No | <input type="checkbox"/>            | Fiscal Estimate Required                              | Yes | <input checked="" type="checkbox"/> | Attached |
| No | <input checked="" type="checkbox"/> | Environmental Assessment or Impact Statement Required | Yes | <input type="checkbox"/>            | Attached |
| No | <input type="checkbox"/>            | Background Memo                                       | Yes | <input checked="" type="checkbox"/> | Attached |

**APPROVED:**

\_\_\_\_\_  
/s/  
Bureau Director,

\_\_\_\_\_  
9-27-07  
Date

\_\_\_\_\_  
/s/  
Administrator,

\_\_\_\_\_  
10-04-07  
Date

\_\_\_\_\_  
/s/  
Secretary, Matt Frank

\_\_\_\_\_  
10-3-07  
Date

cc: Laurie J. Ross - AD/5

DATE: September 27, 2007

TO: Natural Resources Board Members

FROM: Matt Frank, Secretary

SUBJECT: Proposed Changes to Chapter NR 105

**Purpose of Rule:**

Chapter NR 105 contains water quality criteria for toxic substances that would be applied to surface waters. These criteria are based on protection of long- and short-term impacts on fish and other aquatic life, wildlife, and human health. Department staff review Chapter NR 105 periodically and suggest revisions or additions based on new information about toxic substances and their potential impacts.

**Why is This Rule Being Proposed?**

The Department is proposing to update water quality criteria for 18 toxic substances in ch. NR 105 to be consistent with federal requirements. There are two initiatives that lead to the proposed updates.

In 2000, U.S. EPA formally objected to Wisconsin's aquatic life toxicity criteria for four of the 18 substances. U.S. EPA indicated that Wisconsin's criteria were not as protective as the federal criteria for copper, nickel, selenium and endrin. The proposed changes will ensure federal approval of the criteria for those substances.

In recent years, U.S. EPA has updated water quality criteria for protection of human health for the 14 other substances. Wisconsin's current human health criteria for those substances need to be modified to ensure consistency with the federal criteria. Those substances include 1,3-dichlorobenzene, 1,3-dichloropropene, 3,3'-dichlorobenzidine, antimony, arsenic, cadmium, chlorobenzene, chromium +3, chromium +6, total chromium, cyanide, ethylbenzene, hexachlorocyclopentadiene, and toluene.

**Summary of Rule and Who Will Be Impacted:**

Of the 18 substances proposed for updating, the most significant change in terms of impacts on dischargers will be for copper. In most, but not all, state waters the proposed criteria are about 15% more stringent than those currently in ch. NR 105, meaning facilities with copper limits already in WPDES permits will likely see their limits become about 15% tighter. This will not result in a significant change to the operation of those facilities, but there may be several permits that will need copper limits that currently do not have them.

Of the 580 municipal and industrial point source discharge permits that have been evaluated for the discharge of toxic substances, 58 currently contain copper limits based on acute criteria and

41 contain limits based on chronic criteria (some permits contain both). Of those 99 limits, 79 are projected to be up to 15% tighter while the others either are relaxed or are unchanged. It is projected that 21 additional limits would be needed in permits (6 acute, 15 chronic), but since the changes in criteria are fairly small, this would mean the discharges were close to needing limits already and therefore this should not be a significant burden.

Other substances have criteria that are proposed to change much more than those for copper, nickel being the primary example with the proposed criteria being about 60% more stringent. However, discharges of nickel are rarely at levels that approach current or proposed criteria. As a result, impacts on permitted discharges will be minimal. It is estimated that of the 580 discharges, only one has a current permit limit that will become more stringent and one more will need a limit for the first time. Of the remaining substances, one permittee will need a selenium limit and none of the others will need to be regulated if future effluent data are consistent with those already submitted as part of WPDES permit applications.

Arsenic is also worthy of mention here because of updated human health criteria. Arsenic is potentially controversial because it is one of several substances with human cancer criteria that are more stringent than the federal drinking water standards. For those permittees whose water supply is groundwater containing high levels of arsenic – namely in eastern Wisconsin – compliance with effluent limitations may be difficult if the discharge is directly to Lake Michigan waters. Although the criteria proposed in this rule revision are more stringent than the drinking water standards, they are still about 10% less stringent than the criteria currently published in ch. NR 105. Regardless, it is not probable that these changed criteria will make compliance with limitations any easier. Dischargers affected by arsenic limitations may need to request a variance to the water quality standard using the procedures of ss. 283.15, Wis. Stats.

In inland waters, the proposed criteria are about 75% more stringent than in the existing ch. NR 105. The proposed criteria are still much greater than levels found in typical point source discharges and therefore no new permit limits are expected for discharges that aren't directly to the Great Lakes. The proposed criteria were modified following a public workshop held during December of 2006 in Stevens Point.

### **Has the Board Dealt with this Issue Before?**

The last action of the Board regarding NR 105 criteria was to add criteria for ammonia in 2004. The last action regarding any of the substances proposed in this revision was in 1997.

### **Environmental Analysis:**

This is a type III action under Chapter NR 150, Wis. Adm. Code, and neither an environmental impact statement nor an environmental assessment is required.

### **Small Business Analysis:**

The Department has determined that the changes to criteria proposed in this rule package will not have a significant impact on small businesses.

WPDES wastewater discharge permits are issued to large and small industries as well as to municipal wastewater treatment systems that may serve businesses in individual communities. These permits contain numerical effluent limitations for toxic substances when warranted under ch. NR 106, following a comparison of reported discharge concentrations to the limits calculated based on criteria in ch. NR 105.

When permits contain effluent limitations, dischargers are assessed fees under programs administered in ch. NR 101. Those fees are based on the mass of the discharge of toxic substances in the wastewater, with the fee rate based on the calculated effluent limitation. Fee assessments will increase if the mass of discharge increases and/or the effluent limitation decreases, and fees will decrease if the mass of discharge decreases and/or the effluent limitation increases. As a result, typically a decrease in the water quality criterion for a substance will mean a decrease in the effluent limitation for that substance, and in turn this will mean an increase in the amount of ch. NR 101 fees that need to be paid for the discharges of that substance. It should be noted that these fees are only charged to permittees that have limits for those substances in their permits.

When more stringent water quality criteria are proposed for any toxic substance, not only will the fees increase for permits that already contain limits for that substance, but if a limit is triggered for the first time in a permit under ch. NR 106, fees would be assessed for the first time as well. Therefore, changes in water quality criteria could have a direct impact on small (or large) businesses with permits containing limits on the affected substance, as well as an indirect impact on businesses located in communities served by a municipal wastewater treatment plant that holds a permit containing limits on that substance. These impacts may be estimated based on historical fees assessed under the ch. NR 101 program.

**Of the 18 substances proposed for criteria revisions in ch. NR 105, it is estimated that no discharge permits will be affected for 14 of those substances.** This is because the criteria are high enough and/or the discharge levels are low enough that no effluent limitations will be needed in any permit. **The only substances for which changes in permit limitations are foreseen are arsenic, copper, nickel, and selenium.**

For arsenic, nickel, and selenium, only a very small number of permits will be affected, again because the criteria and limits are high enough and/or the discharge levels are low enough. In those cases, a very small number of permits will even need effluent limitations. Based on current effluent data, it is anticipated that only two permits will need selenium limits, four will need arsenic limits, and six will need nickel limits out of the 580 that have been evaluated for toxic substance discharges as of the end of 2006.

The four permits likely to need arsenic limits (two municipalities, two industries) would actually have their NR 101 fees decrease because the proposed criteria for those sites would increase, although the fee decrease is likely to be small because the changes in criteria are small.

Both of the permittees likely to need selenium limits are for large industries. No small industries are expected to be impacted.

Of the six permits estimated to need nickel limits, only one currently has a limit. For four of the remaining five permits, it is likely that the proposed limits drop out of their permits following

submittal of additional effluent data since they are close to the threshold under which permit limits are required in ch. NR 106. Therefore, eventually it is expected that only two permits in Wisconsin would be affected by the changes in nickel criteria although neither of them are a small business. One would have an increase in fees while the other would be getting limits for the first time. The permit getting the new limit is for a large industry and the one with the current limit is for a municipality in southeastern Wisconsin so it may have an indirect impact on small businesses located within the community.

For copper, of the 580 permits that were evaluated for toxic substance discharges at the end of 2006, 58 of them contain limits based on acute toxicity criteria and 41 contain limits based on chronic toxicity criteria (some permits contain both). Of the 58 with acute toxicity-based limits, 12 will see limits increase, 39 will see limits decrease, 6 won't change after rounding, and 1 will see the limit drop out of the permit. These changes take place because the criteria will increase in hard water areas and decrease in soft water areas. Of the 41 permits with chronic toxicity-based limits, 40 will see limits decrease while the other permit will have no change in limits; this is because the chronic criteria will decrease by about 15% in all waters. Given that the changes in criteria are relatively small, though, it is not expected that significant treatment plant construction or upgrading will be necessary to meet the new limits, beyond anything that has already been undertaken to meet current limits.

In addition, it is estimated that another 6 permits will need acute toxicity-based limits and 15 will need chronic toxicity-based limits for the first time. These initial impositions of limits are not expected to warrant major construction or upgrading either; since the dischargers would be barely over the NR 106 threshold for needing limits, it would not normally be expected that these 21 discharges would need to do much to come into compliance with new limits.

The number of permits that would need new or lower permit limits include 52 municipalities, 26 industries, and 7 public or privately owned treatment facilities (such as military, health care, and golf courses). A small number of the 26 industries may be considered small businesses, and the changes in the municipality limits could have indirect impacts on small businesses within those communities. It is estimated that the decrease in copper limits at these 85 facilities would result in about \$9,000 in increased State revenues for environmental fees under the NR 101 fee program.

#### **Action Requested of the Natural Resources Board:**

The Department is asking the Board's approval to hold public hearings on the proposed rule changes.

### Fiscal Estimate — 2007 Session

<input checked="" type="checkbox"/> Original <input type="checkbox"/> Updated  <input type="checkbox"/> Corrected <input type="checkbox"/> Supplemental	LRB Number  Bill Number	Amendment Number if Applicable  Administrative Rule Number NR 105
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**Subject**  
 Establishment of surface water quality criteria and secondary values for toxic substances

**Fiscal Effect**

State:  No State Fiscal Effect  
 Indeterminate

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

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

Increase Costs — May be possible to absorb within agency's budget.

Yes     No

Decrease Costs

Local:  No Local Government Costs  
 Indeterminate

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     WTCS Districts

**Fund Sources Affected**

GPR     FED     PRO     PRS     SEG     SEG-S

**Affected Chapter 20 Appropriations**

**Assumptions Used in Arriving at Fiscal Estimate**

The proposed rule package updates water quality criteria for 18 toxic substances in NR 105 so that they are consistent with federal requirements. Of the 18 substances proposed for updating, the most significant change in terms of fiscal impact will be for copper. In most state waters the proposed copper criteria is about 15% more restrictive than those that are currently stipulated in NR 105, meaning that facilities that are permitted under the Wisconsin Pollutant Discharge Elimination System (WPDES) permit program will likely see their copper limits become about 15% tighter.

**STATE FISCAL EFFECT**

**I. REVENUES**

In the past four years, WPDES fees associated with copper limits have ranged between \$45,000 to \$60,000 per year. Assuming that copper-related fees would increase by 15% under this proposal, and applying that percentage to the upper range of copper-related fees collected, the Department estimates that the proposed rule package would increase annual WPDES fee collections under NR 101 by \$9,000 (\$60,000 x 15%). Furthermore, the Department estimates that the proposed rule changes for the remaining 17 toxic substances will have a minimal impact on WPDES fee collections.

**COSTS**

A minimal amount of DNR staff time will be required to implement the proposed rule changes.

**Long-Range Fiscal Implications**

Revenues that would be generated by the proposed rule package would likely decrease in subsequent fiscal years as more and more permittees come into compliance with the new discharge limits.

Prepared By:	Telephone No.	Agency
Joe Polasek	266-2794	Department of Natural Resources
Authorized Signature	Telephone No.	Date (mm/dd/ccyy)
	266-2794	

## Fiscal Estimate — 2007 Session

### Page 2 Assumptions Narrative Continued

LRB Number	Amendment Number if Applicable
Bill Number	Administrative Rule Number NR 105

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Assumptions Used in Arriving at Fiscal Estimate – Continued

#### LOCAL GOVERNMENT AND PRIVATE SECTOR EFFECTS

The proposed rule changes would impact both local government and private sector facilities that are permitted under WPDES; however, these changes are not expected to require major construction projects or other significant upgrades in order for those facilities to come into compliance with the new limits.

**Fiscal Estimate Worksheet — 2007 Session**  
 Detailed Estimate of Annual Fiscal Effect

- Original       Updated  
 Corrected       Supplemental

LRB Number	Amendment Number if Applicable
Bill Number	Administrative Rule Number NR 105

Subject  
 Establishment of surface water quality criteria and secondary values for toxic substances

One-time Costs or Revenue Impacts for State and/or Local Government (do not include in annualized fiscal effect):

Annualized Costs:		Annualized Fiscal Impact on State Funds from:	
		Increased Costs	Decreased Costs
<b>A. State Costs by Category</b>			
State Operations — Salaries and Fringes		\$	\$ -
(FTE Position Changes)		( FTE )	(- FTE )
State Operations — Other Costs			-
Local Assistance			-
Aids to Individuals or Organizations			-
<b>Total State Costs by Category</b>		\$	\$ -
<b>B. State Costs by Source of Funds</b>			
GPR		\$	\$ -
FED			-
PRO/PRS			-
SEG/SEG-S			-
State Revenues	Complete this only when proposal will increase or decrease state revenues (e.g., tax increase, decrease in license fee, etc.)	Increased Revenue	Decreased Revenue
GPR Taxes		\$	\$ -
GPR Earned		9,000	-
FED			-
PRO/PRS			-
SEG/SEG-S			-
<b>Total State Revenues</b>		\$ 9,000	\$ -

**Net Annualized Fiscal Impact**

	<u>State</u>	<u>Local</u>
Net Change in Costs	\$	\$
Net Change in Revenues	\$ 9,000	\$

Prepared By: Joe Polasek	Telephone No. 266-2794	Agency Department of Natural Resources
Authorized Signature	Telephone No. 266-2794	Date (mm/dd/ccyy)

ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD  
AMENDING RULES

The State of Wisconsin Natural Resources Board proposes an order to amend NR 105 Tables 2, 2A, 5, 6, 8, and 9 relating to surface water quality criteria.

WT-35-07

Summary Prepared by the Department of Natural Resources

Statutory Authority: , ss. 227.11(2)(a) and 281.15, Stats.

Statutes Interpreted: s. 281.15, Stats.

Explanation of Agency Authority: In addition to the general authority granted by s. 227.11(2)(a), Stats., to implement and interpret its statutory authority. The Department of Natural Resources has specific authority in ch. 281, Stats., to promulgate rules setting standards of water quality to be applicable to the waters of the State and to implement those standards, as appropriate, under the Water Pollutant Discharge Elimination System.

Related statute or rule: ch. 283, Stats., and chs. NR 102, 104 and 106.

Plain Language Analysis: Chapter NR 105 is the principal rule setting water quality criteria and secondary values for toxic substances in surface waters of the State of Wisconsin. Those criteria and values are designed to protect surface waters from potentially toxic levels of chemical compounds, including the consideration of short- and/or long-term impacts on fish and other aquatic life, wildlife, and human health. These criteria and values may be used as a basis for regulating wastewater discharges to surface waters and for justifying monitoring and remedial action (cleanup) activities statewide. This chapter is reviewed and revisions proposed by staff on a regular basis.

Criteria were first developed and included in ch. NR 105 in February of 1989. The code was revised in August of 1997 to update criteria and incorporate procedures in the U.S. Environmental Protection Agency's (U.S. EPA) Great Lakes Water Quality Initiative (GLWQI or GLI), a federal law passed in 1995. Other revisions have taken place since 1989 to modify existing numerical water quality criteria or create new criteria for toxic substances.

The revisions proposed at this time are done, in part, in response to formal actions taken by the U.S. EPA in December of 2000 to object to Wisconsin's water quality criteria for four substances regulated under the GLWQI. In addition, criteria for fourteen other substances are being proposed for revision or addition in response to human health criteria developed by U.S. EPA after 1995.

No revisions are proposed to the methods of calculating numerical water quality criteria, which are also listed in ch. NR 105. Only the numerical criteria themselves are being added or revised at this time. Fifteen (15) of the 124 substances currently addressed in the code are proposed for revision, while 3 new criteria are being added.

New criteria are proposed for the following substances:

- Chronic aquatic life toxicity criteria = Selenium
- Human threshold (non-cancer) criteria = Total chromium (only in waters used for public drinking water supplies)

- Human cancer criteria = 1,3-dichloropropene

Revised criteria that are more restrictive (tighter or more stringent) than those already in ch. NR 105 are proposed for the following substances:

- Acute aquatic life toxicity criteria = Copper (only in softer water areas), and nickel
- Chronic aquatic life toxicity criteria = Copper, nickel, endrin
- Human threshold (non-cancer) criteria = Cadmium, chlorobenzene, hexavalent chromium, cyanide, 1,2-dichlorobenzene, ethylbenzene, hexachlorocyclopentadiene, toluene
- Human cancer criteria = Arsenic (only in waters not used for public drinking water supplies), 3,3'-dichlorobenzidine (only in waters used for public drinking water supplies)

Revised criteria that are less restrictive (looser or less stringent) than those already in ch. NR 105 are proposed for the following substances:

- Acute aquatic life toxicity criteria = Copper (only in harder water areas)
- Human threshold (non-cancer) criteria = Trivalent chromium
- Human cancer criteria = Arsenic (only in waters used for public drinking water supplies), 3,3'-dichlorobenzidine (only in waters not used for public drinking water supplies)

Federal Regulatory Analysis: The formal actions taken by U.S. EPA in 2000 were done because the criteria published in ch. NR 105 in 1997 were determined to be *not as protective as* the federal criteria. To address those concerns, criteria were developed or revised for copper, nickel, selenium, and endrin. The proposed criteria for nickel, selenium, and endrin are identical to federal criteria. The copper criteria are slightly relaxed or less stringent than federal criteria, but in this case a difference is allowable because the federal criteria in the GLWQI are, in part, based on the protection of a sensitive species of fish that is not present in the Great Lakes states or Iowa. The criteria calculation approach in the GLWQI allows for less restrictive criteria based on consideration of resident organisms as long as the approach is followed. In late 2000, before the U.S. EPA actions were formally taken, a representative of that agency approved the calculated criteria that eventually became the proposed revisions to the ch. NR 105 copper criteria.

A critical component in the development of human health criteria in Wisconsin is the fish consumption rate. Because people in the Great Lakes states eat more fish on the average than nationwide as a whole, human health criteria in the Great Lakes states are typically more stringent than federal criteria. The difference in fish consumption rates was considered as part of the 1997 update to ch. NR 105 and appropriately recognizes the differences in consumption rates among the general public and especially tribal populations in Wisconsin. As a result, the proposed human health criteria are considered to be as protective as criteria developed using the GLWQI approach.

Comparison of Criteria in Adjacent States to the Proposed Wisconsin Criteria:

Substance	Illinois	Minnesota	Michigan	Iowa
Copper	MS	Acute = LS, Chronic = EQ in soft water, MS in hard water	MS	LS
Nickel	MS	LS	EQ	EQ
Selenium	EQ	EQ	EQ	EQ
Endrin	EQ	EQ	EQ	EQ
Antimony	NA	MS	NA	LS in PWS, NA in non-PWS

Arsenic	LS	LS in PWS, MS in non-PWS	NA	MS in PWS, LS in non-PWS
Cadmium	NC	LS in PWS, NC in non-PWS	NS	MS in PWS, LS in non-PWS
Chromium, triv.	NC	NC	NA	NA
Chromium, hexav.	NC	NC	NA	LS in PWS, MS in non-PWS
Chromium, total	NA	EQ in PWS	NA	EQ in PWS
Cyanide	NC	NC	NA	LS in PWS, NA in non-PWS
Chlorobenzene	MS	MS	NA	EQ
Ethylbenzene	NA	LS in PWS, MS in non-PWS	NA	LS
Toluene	LS	NC	LS	MS
Hexachlorocyclopentadiene	NC	LS in PWS, NC in non-PWS	NA	LS
3,3'-dichlorobenzidine	MS	NA	NA	MS
1,2-dichlorobenzene	NC	EQ in PWS, NA in non-PWS	NS	EQ in PWS, NA in non-PWS
1,3-dichloropropane	NA	NA	NA	NA

LS = Less stringent than proposed Wisconsin criteria

MS = More stringent than proposed Wisconsin criteria

EQ = Equal to proposed Wisconsin criteria

NC = No corresponding criteria are available because others in that state are more stringent and only the most stringent criteria are published

NA = No criteria available in state rule at this time

PWS = Waters classified as public water supplies in Wisconsin

Non-PWS = Waters not classified as public water supplies in Wisconsin

Summary of Factual Data and Analytical Methodologies: The criteria are calculated in a manner consistent with that already listed in ch. NR 105. This approach is identical to that contained in the GLWQI. No changes are proposed to the calculation approach. New toxicity information is available to supplement the existing databases, and corrections were made to errors that were made in the calculation of the criteria for copper, nickel, and endrin in the existing ch. NR 105. A technical support document can be requested from the Water Evaluation Section of the Department's Bureau of Watershed Management pursuant to Wis. Stats., s. 281.15(2)(e); these documents show how the revised criteria were calculated.

The Department did not take into account any specific economic or social considerations when developing these criteria. The revised criteria were calculated using procedures already present in the Wisconsin Administrative Code and in federal procedures to provide consistency with federal guidelines based on current toxicity information.

Effects on Small Business: The Department has determined that the changes to criteria proposed in this rule package will not have a significant impact on small businesses.

Of the 18 substances proposed for criteria revisions or additions, it is estimated that no WPDES permits will be affected for 14 of those substances. This is because the criteria are high enough and/or the discharge levels are low enough that no effluent limitations will be needed in any WPDES permit for 14 substances.

The only substances for which changes in permit limitations may occur are arsenic, selenium, nickel and copper. For arsenic, selenium and nickel, based on current effluent data, the Department anticipates that there will be no increased ch. NR 101 fees or new permit limits for permitted facilities that are considered small businesses.

For copper, out of 580 permitted facilities that have been evaluated recently for copper discharges, approximately 39 facilities (public and private) may receive lower acute limits, and approximately 40 facilities (public and private) may receive lower chronic limits due to the proposed changes in copper criteria. Since the changes in criteria are relatively small, the Department does not expect that significant treatment plant construction or upgrading will be necessary to meet the revised limits. In addition, it is anticipated that another 6 permits will need acute limits and 15 will need chronic limits for the first time. These initial impositions of limits are not expected to require major construction or upgrading either since discharges will be barely over the level for needing permit limits. These facilities will have to pay increased ch. NR 101 fees, but the costs are not expected to be significant.

In conclusion, due to the proposed changes in criteria, the number of permits that would need new or lower permit limits for copper include 52 municipalities, 26 industries (many of which are not small businesses), and 7 publicly or privately owned facilities (such as military, health care, and golf courses). A few of the 26 industries may be considered small businesses, and the changes in the limits for municipalities may have indirect impacts on small businesses located within those communities, but overall the Department does not expect significant fiscal impacts to small businesses due to the proposed changes. For copper limits, it is estimated that the decrease in copper limits at these 85 facilities will result in approximately \$9,000 in increased state revenues for environmental fees under the chapter NR 101 fee program.

These proposed rules do not include any reporting, implementation, compliance or enforcement procedures. All reporting, implementation, compliance or enforcement procedures that may apply to the proposed criteria are found in existing regulations and statutory provisions.

Agency Contact Persons:

Bob Masnado	E-mail: <a href="mailto:robert.masnado@wisconsin.gov">robert.masnado@wisconsin.gov</a>	Phone: (608) 267-7662
Jim Schmidt	E-mail: <a href="mailto:jamesw.schmidt@wisconsin.gov">jamesw.schmidt@wisconsin.gov</a>	Phone: (608) 267-7658

Written Comments:

Written comments may be submitted to:

c/o Jim Schmidt  
Bureau of Watershed Management  
Wisconsin Department of Natural Resources  
P.O. Box 7921  
Madison WI 53707

Written comments may also be electronically submitted at the following internet site:  
<http://adminrules.wisconsin.gov>

The deadline for written comments is to be determined.

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SECTION 1. NR 105 Table 2 is amended to read:

Table 2  
Acute Toxicity Criteria for Substances  
With Toxicity Related to Water Quality  
(all in ug/L)

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

Substance	V	ln ACI	ATC at Various Hardness (ppm) Levels		
			50	100	200
<u>ATC = e<sup>(V ln (hardness) + ln ACI)</sup></u>					
Total Recoverable Cadmium:					
Cold Water	1.147	-3.8104	1.97	4.36	9.65
Warm Water Sportfish	1.147	-2.9493	4.65	10.31	22.83
Limited Aquatic Life	1.147	-1.9435	12.73	28.18	62.41
Total Recoverable Chromium (+3):					
All Surface Waters	0.819	3.7256	1022	1803	3181
Total Recoverable Copper:					
All Surface Waters	<del>0.8561</del>	<del>-1.1199</del>	<del>9.29</del>	<del>16.82</del>	<del>30.45</del>
	<u>0.9436</u>	<u>-1.6036</u>	<u>8.07</u>	<u>15.51</u>	<u>29.84</u>
Total Recoverable Lead:					
All Surface Waters	0.9662	0.2226	54.73	106.92	208.90
Total Recoverable Nickel:					
All Surface Waters	<del>1.083</del>	<del>2.2289</del>	<del>642.7</del>	<del>1361</del>	<del>2434</del>
	<u>0.846</u>	<u>2.255</u>	<u>261</u>	<u>469</u>	<u>843</u>
Total Recoverable Zinc:					
All Surface Waters	0.8745	0.7634	65.66	120.4	220.7
Water Quality Parameter: pH					
	<u>ATC = e<sup>(V(pH) + ln ACI)</sup></u>		ATC at Various pH (s.u.) Levels		
	V	ln ACI	6.5	7.8	8.8
Pentachlorophenol:					
All Surface Waters	1.0054	-4.877	5.25	19.40	53.01

SECTION 2. NR 105 Table 2A is amended to read:

Table 2A  
Water Quality Parameter Ranges for Substances  
With Acute Toxicity Related to Water Quality

<u>Substance</u>	<u>Parameter</u>	<u>Applicable Range</u>
Cadmium	Hardness (ppm)	6 - 457
Chromium (+3)	Hardness (ppm)	13 - 301
Copper	Hardness (ppm)	<del>14 - 427</del> <u>13 - 495</u>
Lead	Hardness (ppm)	12 - 356
Nickel	Hardness (ppm)	<del>19 - 157</del> <u>13 - 268</u>
Zinc	Hardness (ppm)	12 - 333
Pentachlorophenol	pH (s.u.)	6.6 - 8.8

SECTION 3. NR 105 Table 5 is amended to read:

Table 5  
Chronic Toxicity Criteria  
Using Acute-Chronic Ratios for Substances  
With Toxicity Unrelated to Water Quality  
(all in ug/L)

<u>Substance</u>	<u>Cold Water</u>	Warm Water Sportfish, Warm Water Forage and <u>Limited Forage</u>	<u>Limited Aquatic</u>
			<u>Life</u>
Arsenic (+3) <sup>‡1</sup>	148	152.2	152.2
Chromium (+6) <sup>‡1</sup>	10.98	10.98	10.98
Mercury (+2) <sup>‡1</sup>	0.44	0.44	0.44
Cyanide, free	5.22	11.47	11.47
<u>Selenium</u> <sup>2</sup>	<u>5.0</u>	<u>5.0 (warmwater sport fish only)</u>	
Chlorine <sup>‡1</sup>	7.28	7.28	7.28
Dieldrin	0.055	0.077	0.077

Endrin	<del>0.072</del> <u>0.036</u>	<del>0.072</del> <u>0.036</u>	<del>0.10</del> <u>0.049</u>
Parathion	0.011	0.011	0.011

Notes: <sup>1</sup> - Criterion listed is applicable to the "total recoverable" form except for chlorine which is applicable to the "total residual" form.

<sup>2</sup> - Selenium criteria are only applicable to waters classified as cold water and warmwater sport fish communities. Discharges of selenium to waters classified as warmwater forage, limited forage, and limited aquatic life shall be evaluated using ch. NR 106 where the discharges could impact downstream cold water and/or warmwater sport fish communities.

SECTION 4. NR 105 Table 6 is amended to read:

Table 6  
Chronic Toxicity Criteria  
Using Acute-Chronic Ratios for Substances  
With Toxicity Related to Water Quality  
(all in ug/L)

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

Substance	V	ln CCI	CTC at Various Hardness (ppm) Levels		
			50	100	200
Total Recoverable Chromium (+3):					
Cold Water	0.819	0.6851	48.86	86.21	152.1
Warm Water Sportfish	0.819	1.112	74.88	132.1	233.1
All Others	0.819	1.112	74.88	132.1	233.1
Total Recoverable Copper:					
All Surface Waters	<del>0.8561</del> <u>0.8557</u>	<del>-1.4647</del> <u>-1.6036</u>	<del>6.58</del> <u>5.72</u>	<del>11.91</del> <u>10.35</u>	<del>21.57</del> <u>18.73</u>
Total Recoverable Lead:					
All Surface Waters	0.9662	-1.1171	14.33	28.01	54.71
Total Recoverable Nickel:					
All Surface Waters	<del>1.083</del>	<del>0.033</del>	<del>71.50</del>	<del>151.5</del>	<del>270.8</del>
Cold Water, Warm Water Sportfish, Warm Water Forage, and Limited Forage Limited Aquatic Life	<u>0.846</u>	<u>0.059</u>	<u>29.0</u>	<u>52.2</u>	<u>93.8</u>
Total Recoverable Zinc:					



10. Chromium (+6)	<del>140</del> <u>83.5</u>	<del>140</del> <u>83.5</u>	<del>13000</del> <u>7636</u>	<del>13000</del> <u>7636</u>	<del>28000</del> <u>16800</u>
11. Cyanide, Total <sup>2</sup>	<del>200</del> <u>138.6</u>	<del>200</del> <u>138.6</u>	<del>40000</del> <u>9300</u>	<del>40000</del> <u>9300</u>	<del>120000</del> <u>28000</u>
12. *4,4-DDT (ng/L)	3.0	0.88	3.0	0.88	2800000
13. 1,2-Dichlorobenzene <sup>2</sup>	600	600	<del>6400</del> <u>1509</u>	<del>1900</del> <u>481</u>	<del>500000</del> <u>126000</u>
14. 1,3-Dichlorobenzene <sup>2</sup>	1400	710	3300	1000	500000
15. <u>cis</u> -1,2-Dichloroethene <sup>2</sup>	70	70	14000	9000	56000
16. <u>trans</u> -1,2-Dichloroethene <sup>2</sup>	100	100	24000	13000	110000
17. Dichloromethane <sup>2</sup> (methylene chloride)	5	5	95000	72000	328000
18. 2,4-Dichlorophenol	74	58	580	180	17000
19. Dichloropropenes <sup>3</sup> (1,3-Dichloropropene)	8.3	8.2	420	260	1700
20. *Dieldrin (ng/L)	0.59	0.17	0.59	0.17	280000
21. 2,4-Dimethylphenol	450	430	11000	4500	94000
22. Diethyl phthalate <sup>2</sup>	5000	5000	68000	21000	4500000
23. Dimethyl phthalate <sup>2</sup> (mg/L)	241	184	1680	530	56000
24. 4,6-Dinitro-o-cresol	100	96	1800	640	22000
25. Dinitrophenols <sup>3</sup> (2,4-Dinitrophenol)	55	55	2800	1800	11000
26. 2,4-Dinitrotoluene	0.51	0.48	13	5.3	110
27. Endosulfan	87	41	181	54	33600
28. Ethylbenzene <sup>2</sup>	<del>700</del> <u>567</u>	<del>700</del> <u>401</u>	<del>12000</del> <u>2620</u>	<del>3700</del> <u>931</u>	<del>560000</del> <u>140000</u>
29. Fluoranthene	890	610	4300	1300	220000
30. *Hexachlorobenzene	0.075	0.022	0.075	0.022	4500
31. Hexachlorocyclopentadiene	<del>50</del> <u>34.7</u>	<del>50</del> <u>25.6</u>	<del>980</del> <u>195</u>	<del>310</del> <u>65.3</u>	<del>39000</del> <u>8400</u>
32. Hexachloroethane	8.7	3.3	13	3.7	5600
33. *gamma-BHC (lindane)	0.20	0.20	0.84	0.25	1900
34. Isophorone	5500	5300	180000	80000	1100000
35. Lead	10	10	140	140	2240
36. *Mercury <sup>5</sup>	0.0015	0.0015	0.0015	0.0015	336
37. Nickel <sup>2</sup>	100	100	43000	43000	110000
38. *Pentachlorobenzene	0.46	0.14	0.47	0.14	4500
39. Selenium <sup>2</sup>	50	50	2600	2600	28000

40. Silver	140	140	28000	28000	28000
41. *2,3,7,8-TCDD (pg/L)	0.11	0.032	0.11	0.032	7300
42. *1,2,4,5-Tetrachlorobenzene	0.54	0.17	0.58	0.17	1700
43. Tetrachloroethene	5.8	4.6	46	15	1300
44. Toluene <sup>2</sup>	1000	1000	<del>760100</del> <u>15359</u>	<del>26000</del> <u>5201</u>	<del>1200000</del> <u>280000</u>
45. 1,1,1-Trichloroethane <sup>2</sup>	200	200	270000	110000	2000000
46. 2,4,5-Trichlorophenol	1600	830	3900	1200	560000

\* Indicates substances that are BCCs.

<sup>1</sup> A human threshold criterion expressed in micrograms per liter (ug/L) can be converted to milligrams per liter (mg/L) by dividing the criterion by 1000.

<sup>2</sup> For this substance the human threshold criteria for public water supply receiving water classifications equal the maximum contaminant level pursuant to s. NR 105.08 (3) (b).

<sup>3</sup> The human threshold criteria for this chemical class are applicable to each isomer.

<sup>4</sup> For BCCs, these criteria apply to all waters of the Great Lakes System.

<sup>5</sup> The mercury criteria were calculated using 20 g/day fish consumption and the human non-cancer criteria derivation procedure in 40 CFR Part 132, Appendix C. For these criteria, 40 CFR Part 132, Appendix C as stated on {effective date of this rule} is incorporated by reference.

## SECTION 6. NR 105 Table 9 is amended to read:

**Table 9**  
**Human Cancer Criteria**  
(ug/L unless specified otherwise<sup>1</sup>)

Substance	Public Water Supply		Non-public Water Supply		
	Warm Water Sport Fish Communities	Cold Water <sup>4</sup> Communities	Warm Water Forage, Lim. Forage, and Warm Water Sport Fish Communities	Cold Water Communities	Limited Aquatic Life
1. Acrylonitrile	0.57	0.45	4.6	1.5	130
2. Arsenic <sup>2</sup>	<del>0.185</del> <u>0.2</u>	<del>0.185</del> <u>0.2</u>	<del>50</del> <u>13.3</u>	<del>50</del> <u>13.3</u>	<del>50</del> <u>40</u>
3. *alpha-BHC	0.012	0.0037	0.013	0.0039	11
4. *gamma-BHC (lindane)	0.052	0.018	0.064	0.019	54
5. *BHC, technical grade	0.038	0.013	0.047	0.014	39
6. Benzene <sup>2</sup>	5	5	140	45	1300
7. Benzidine (ng/L)	1.5	1.5	81	55	300
8. Beryllium	0.054	0.054	0.33	0.33	16
9. Bis(2-chloroethyl)ether	0.31	0.29	7.6	3.0	64
10. Bis(chloromethyl)ether (ng/L)	1.6	1.6	96	79	320
11. Carbon tetrachloride	2.5	2.1	29	9.5	540

12. *Chlordane (ng/L)	0.41	0.12	0.41	0.12	54000
13. Chloroethene (vinyl chloride)	0.18	0.18	10	6.8	37
14. Chloroform (trichloromethane)	55	53	1960	922	11200
15. *4,4'-DDT (ng/L)	0.22	0.065	0.22	0.065	206000
16. 1,4-Dichlorobenzene	14	12	163	54	2940
17. 3,3'-Dichlorobenzidine	<del>0.51</del> <u>0.5</u>	<del>0.29</del> <u>0.3</u>	<del>1.5</del> <u>1.3</u>	<del>0.46</del> <u>0.4</u>	<del>154</del> <u>140</u>
18. 1,3-Dichloropropene	<u>3.4</u>	<u>3.4</u>	<u>173</u>	<u>108</u>	<u>700</u>
19. 1,2-Dichloroethane	3.8	3.8	217	159	770
20. Dichloromethane <sup>2</sup> (methylene chloride)	5	5	2700	2100	9600
21. *Dieldrin (ng/L)	0.0091	0.0027	0.0091	0.0027	4400
22. 2,4-Dinitrotoluene	0.51	0.48	13	5.3	110
23. 1,2-Diphenylhydrazine	0.38	0.31	3.3	1.04	88
24. Halomethanes <sup>3</sup>	55	53	1960	922	11200
25. *Hexachlorobenzene (ng/L)	0.73	0.22	0.73	0.22	44000
26. * Hexachlorobutadiene	0.59	0.19	0.69	0.2	910
27. Hexachloroethane	7.7	2.9	11	3.3	5000
28. N-Nitrosodiethylamine (ng/L)	2.3	2.3	150	140	460
29. N-Nitrosodimethylamine	0.0068	0.0068	0.46	0.46	1.4
30. N-Nitrosodi-n-butylamine	0.063	0.062	2.5	1.3	13
31. N-Nitrosodiphenylamine	44	23	116	34	13000
32. N-Nitrosopyrrolidine	0.17	0.17	11	11	34
33. *Polychlorinated biphenyls (ng/L)	0.01	0.003	0.01	0.003	9100
34. *2,3,7,8-Tetrachlorodibenzo-p-dioxin (pg/L)	0.014	0.0041	0.014	0.0041	930
35. 1,1,2,2-Tetrachloroethane	1.7	1.6	52	22	350
36. Tetrachloroethene	5.8	4.6	46	15	1300
37. *Toxaphene (ng/L)	0.11	0.034	0.14	0.034	63600
38. 1,1,2-Trichloroethane <sup>2</sup>	6.0	6.0	195	87	1200
39. Trichloroethene <sup>2</sup>	5	5	539	194	6400
40. 2,4,6-Trichlorophenol	29	24	30	97	6400

\* Indicates substances that are BCCs.

<sup>1</sup> A human cancer criterion expressed in micrograms per liter (ug/L), nanograms per liter (ng/L) or picograms per liter (pg/L) can be converted to milligrams per liter (mg/L) by dividing the criterion by 1000, 1,000,000 or 1,000,000,000, respectively.

<sup>2</sup> Human cancer criteria for arsenic equal the maximum contaminant level.

<sup>3</sup> For this substance the human cancer criteria for public water supply receiving water classifications equal the maximum contaminant level pursuant to s. NR 105.09 (4) (b).

<sup>4</sup> Human cancer criteria for halomethanes are applicable to any combination of the following chemicals: bromomethane (methyl bromide), chloromethane (methyl chloride), tribromomethane (bromoform), bromodichloromethane (dichloromethyl bromide), dichlorodifluoromethane (fluorocarbon 12) and trichlorofluoromethane (fluorocarbon 11).

<sup>5</sup> For BCCs, these criteria apply to all waters of the Great Lakes System.

SECTION 7. EFFECTIVE DATE. This rule shall take effect the first day of the month following publication in the Wisconsin administrative register.

SECTION 8. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on \_\_\_\_\_.

Dated at Madison, Wisconsin \_\_\_\_\_

STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

By \_\_\_\_\_  
Matthew J. Frank, Secretary

(SEAL)

# SURFACE WATER QUALITY STANDARDS

## Draft Communication Plan for Revising NR 105

### History:

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In 1989, Wisconsin promulgated new standards for toxic substances. Those standards include the following:

- 1) Water quality criteria for protection of fish and other aquatic life, wildlife, and human health in ch. NR 105,
- 2) Water quality criteria for the prevention of objectionable taste and odors in fish and water in ch. NR 102,
- 3) Procedures for calculating discharge limits for those criteria,
- 4) The decision process for determining if and when those limits were needed in WPDES discharge permits in ch. NR 106, and
- 5) An antidegradation assessment procedure for new or increased discharges of toxic substances in ch. NR 207.

In the early 1990's, the U.S. Environmental Protection Agency (EPA) developed an approach that allowed for common water quality standards among the Great Lakes states. Although there already were national standards available, the Great Lakes deserved special consideration because of concerns over bioaccumulative chemicals of concern (BCC's), which included among others, PCBs, dioxin (2,3,7,8-TCDD), and mercury. Since there was also a Federal concern over consistency with state criteria and implementation procedures, the EPA effort also covered non-BCC's. The product of this effort was the Great Lakes Water Quality Initiative (GLWQI, or GLI for short). U.S. EPA published the GLWQI in the Federal Register on March 23, 1995, the intent being that the individual Great Lakes states and tribes (where applicable) were to adopt similar language into their standards within two years of that publication date.

Fortunately for Wisconsin, having a similar format for water quality standards already in chs. NR 102, 105, 106 and 207 made the state adoption an easier process. In fact, a good part of the GLWQI language used the Wisconsin Administrative Codes (as well as corresponding rules in other states) as an example or template. Instead of having to create new codes from scratch, the Wisconsin DNR used this opportunity to revise those codes to bring them into compliance with the GLWQI. There were still some differences as discussed later, but although Wisconsin did not quite meet U.S. EPA's two year mandate, the codes were revised in slightly over two years following the Federal Register publication date for GLWQI, with the revised codes being promulgated in August of 1997.

The 1997 code revision process included a decision to make the majority of the GLWQI language applicable to the entire state, not just the portion (less than half) within the Great Lakes basin. Because of the initial GLWQI focus on BCC's, the 1997 revisions included some language on BCC's specific to the Great Lakes basin. However, since much of the criteria and implementation procedures in GLWQI also reflected U.S. EPA's national guidance, it was decided that Wisconsin's code updates should be applied to all of the state's waters where appropriate.

Following the 1997 revisions, the intent was to consider future revisions to the codes as part of the triennial standards review process, or as needed based on other issues. Those issues included U.S. EPA's evaluation of, and formal objections to, the 1997 Wisconsin revisions as discussed below.

## **Rationale for Changes:**

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There are two primary reasons for the proposed changes in ch. NR 105:

- 1) U.S. EPA objections to criteria promulgated by Wisconsin for copper, nickel, selenium and endrin, and
- 2) New toxicity information for 13 substances with criteria published in 1997.

1) The U.S. EPA objections to Wisconsin's water quality standards are based on a perception of potential inconsistencies with the GLWQI. The intent of GLWQI was to provide common water quality standards among the Great Lakes states. These standards would include water quality criteria for designated uses, implementation of criteria using effluent limit calculations and decision processes for when those limitations need to be included in discharge permits, and antidegradation procedures covering new or increased discharges of pollutants to surface waters.

The objections relating to the proposed changes to ch. NR 105 are based on Wisconsin surface water criteria that were believed to be not as protective as those listed in GLWQI. Some of those objections were resolved because U.S. EPA allows relaxation of GLWQI criteria when the aquatic species that drive the calculated criteria are not found in certain areas. For Wisconsin that consideration includes not only organisms not present in Wisconsin waters, but also in waters of the other Great Lakes states as well as Iowa, a non-Great Lakes state that borders Wisconsin. Following those considerations, though, any remaining objections needed to be resolved by revising criteria, and those revisions are what is being proposed here for copper, nickel, selenium, and endrin.

2) In addition, the opportunity arises for other criteria to be revised based on information that has recently become available to the Department following the previous code revision in 1997. If additional information affects existing criteria or allows for new criteria to be developed where none existed before, it is the Department's responsibility to consider that additional information as well in order to insure that any future regulatory or monitoring activities and decisions are based on the most current information available. This additional information was considered for copper and nickel aquatic life criteria, as well as human health criteria for 13 other substances.

## **Recent Initiatives:**

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Beyond the responses to the formal objections to ch. NR 105 by U.S. EPA, there were no other initiatives that led to the proposed revisions to that code.

## **Goals of the Communication Plan:**

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1. Resolution of the formal objections to the current ch. NR 105 that were made by the U.S. Environmental Protection Agency following the previous revisions to ch. NR 105 in 1997.
2. A broad spectrum of people, including regulated industrial and municipal wastewater dischargers, environmental groups, and the general public, will comment on the proposed criteria at public hearings.
3. People will understand what the water quality criteria are designed to protect and why criteria need to be updated when additional data on potential impacts become available.
4. Regulated dischargers will understand what impacts the proposed criteria are likely to have on the conditions in their wastewater discharge permits.

## **Messages:**

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1. Surface water quality criteria are necessary to insure protection of fish and other aquatic life, wildlife, and human health (associated with eating fish, drinking water, or incidental water contact).
2. Wisconsin's water quality standards were revised in 1997 in order to provide a common procedure for calculating and implementing criteria in the Great Lakes states, the U.S. Environmental Protection Agency's Great Lakes Water Quality Initiative (GLWQI, or GLI for short).
3. For the most part, the same criteria and implementation procedures are applied to Wisconsin's basins that do not drain to the Great Lakes, in order to eliminate any unfair disadvantages to discharges located outside of, or within, the Great Lakes basin.
4. In 2000, the U.S. EPA filed several objections to the administrative codes revised by the Department in 1997. These objections were related to provisions of the codes where the potential existed for Wisconsin's standards to be not as protective as the GLI. Many of those objections were resolved. The proposed changes to ch. NR 105 are an important part of resolving the remaining differences of opinion. The objections relating to the criteria in ch. NR 105 included consideration of additional data as well as calculation errors in the 1997 criteria.
5. Besides resolving past objections, the revisions to the ch. NR 105 criteria reflect additional information on aquatic life and human health related impacts associated with toxic substances. This information has become available following the last code update in 1997.
6. No changes are proposed at this time to the decision-making process in which the Department determines when toxic substances need to be limited in wastewater discharge permits. Approximately 2,000 industries and municipalities currently have wastewater discharge permits in Wisconsin. Of those, about 580 are required to test their discharges for the presence of toxic substances.
7. Of those 580 permitted facilities, almost all contain at least one of the toxic substances proposed for revision in ch. NR 105, but less than 100 total have found those substances in levels high enough that regulation is needed in the permits (mostly for copper).

8. With periodic updates to the criteria, the Department hopes that any future regulation of wastewater discharges is based on current scientific knowledge. Having up-to-date water quality criteria will allow the Department, the citizens of the state of Wisconsin, and those who use the state's waters for fishing, recreation, and drinking to make better decisions on the condition of the waters as they are tested for toxic substances.

## **Decision-Making Environment:**

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Major updates to surface water quality standards would typically involve some sort of technical advisory committee. This is the process that was used leading up to the 1997 revisions to ch. NR 102, 105, 106, and 207 to evaluate compliance with the U.S. EPA's Great Lakes Water Quality Initiative (GLWQI). Since no revisions are proposed here to the process in which criteria are developed or implemented, no technical advisory committee was deemed to be necessary at this time. The update process involved re-calculation of criteria and communication with U.S. EPA to determine whether the revised criteria conformed to the procedures and intent of GLWQI. Where differences remained, they were found to be acceptable under provisions of the GLWQI that allowed for state and tribal implementation flexibility..

## **Delivery**

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### **Phase One**

Regular meetings were held between Department and U.S. EPA staff to determine the basis for objections and the means to which those objections could be resolved.

### **Phase Two**

As the proposed criteria were being developed, the Department would evaluate industrial and municipal discharges in the Great Lakes basin using both the current and proposed NR 105 criteria to determine the impact of the proposed criteria changes on those permits. Only the Great Lakes basin facilities were evaluated using this comparison because technically, the GLWQI only applies within the Great Lakes basin. However, with one major exception NR 105 criteria are applied to all waters of Wisconsin to avoid competitive advantages within the state. That exception is related to the regulation of bioaccumulative chemicals of concern, a topic that is not part of the ch. NR 105 revisions proposed here.

### **Phase Three**

After criteria were proposed and agreed upon between the two agencies, a public workshop was held in Stevens Point in December of 2006. At that time, the proposed criteria were presented to interested members of the general public and the regulated community. Comments were received and used to make any last-minute changes prior to the beginning of the formal rule-making efforts.

### **Phase Four**

Following authorization by the Natural Resources Board, three public hearings are proposed around the state to again inform the public and the regulated permittees of the proposed criteria changes and provide for another public comment period. The hearings will likely be held in Madison, Milwaukee, and Eau Claire. However, given that more WPDES permits in northern

Wisconsin will be affected by the changes in criteria than those in southern Wisconsin, we may substitute a hearing in Appleton for the Milwaukee hearing. These hearings would be held in late 2007 or early 2008.

## **Audiences**

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Wisconsin Pollutant Discharge Elimination System (WPDES) permit holders, including industries and municipalities

Consulting engineers for WPDES permittees

Environmental groups

Department staff or other interested parties involved in surface water monitoring activities around the state