

Proposed Thermal Water Quality Standards

January 2009

What's Changed & Why?



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“Any change, even a change for the better, is always accompanied by drawbacks and discomforts.”

Arnold Bennett
British Novelist
1867-1931



Meeting Goals

- **Provide insights to catalyst for changes made.**
- **Inform attendees of changes made to draft rules.**
- **Encourage comments for consideration by the Natural Resources Board.**
- **Challenge attendees to think about new and innovative ways to address management of heated water.**

Meeting Materials

- **Attendance List:**
 - Name & Mailing Address
 - Affiliation
 - Phone
 - E-mail Address
- **Public Appearance Instructions for NRB Meeting**
- **Materials To Be Included on Website ASAP**
 - Summary of Comments Received & Department Responses
 - Rationale for POTW Approach
 - Excel Limits Calculation Spreadsheet

Timeline

- **October 2007:** Request for Public Hearing Authorization to Natural Resources Board
- **January 2008:** Public Hearings held in Green Bay, Madison, & Waukesha
- **March–November 2008:** Staff revisions to draft rules in response to public comments.
- **January 2009:** Revised draft rules to interested parties.
- **February 2009:** Request for Adoption to Natural Resources Board

Hearing Summary

Hearing Location	Attendees	Oral Comments
Green Bay	23	2
Madison	16	1
Waukesha	5	0

Written Comment Summary

- 36 Written Comments Submitted
- Key Areas of Comment:
 - “Cap Limits”
 - Adequacy of Limits
 - Economic Burden of Compliance
 - Mixing Zones
 - POTWs
 - General Permits

“Cap Limits”

- Catalyst for Change:
 - Not supported by science
 - Overly stringent for small discharges to high flow receiving waters
 - Misapplication of EPA Mixing Zone Guidance
 - Contrary to “water quality-based approach”
 - Significant costs & energy use for no increased protection

“Cap Limits”

- Changed to: “Flow-ratio Approach”
 - Uses a true water quality-based approach to recognize assimilative capacity of receiving waters
 - Retains “cap” of 120°F to protect humans
 - Lethality “safety-net” via language in new NR 102.04(1m)
 - Capitol investments & energy use where appropriate

Flow-Ratio

Warm Water & Limited Forage Communities	Effluent Limitations	Cold Water
$Q_s:Q_e \geq 20:1$	120°F	$Q_s:Q_e \geq 30:1$
$20:1 > Q_s:Q_e > 2.1$	More stringent of: 120°F or Sub-lethal	$30:1 > Q_s:Q_e > 2.5$
$Q_s:Q_e \leq 2.1$	Sub-lethal and Acute Limits	$Q_s:Q_e \leq 2.5$

Adequacy of Limits

- Catalyst for Change:
 - Acute lethality must be prevented
 - Human Health protection not consistent with other similar standards
 - Downstream waters not protected
 - Added protection for 303(d) listed waters

Adequacy of Limits

- **Change** (Lethality): Added s. NR 102.04(1m) to allow more stringent limitations when relevant information indicates real potential for “lethality”
- **No change** (Human Health Criteria): 120°F recognizes potential for short-term exposure only
- **No change** (Downstream Waters) – language already included in rules
- **No change** (303(d)): Federal restrictions already in place and will be employed as appropriate

Economic Burden

- Catalyst for Change:
 - Significant capital costs for treatment
 - Increased carbon footprint
 - Increased consumptive use of water
 - Competitive disadvantage

Economic Burden

- **Change:** Shift to “flow-ratio” approach will likely reduce:
 1. Need for some dischargers to add treatment
 2. Need for cooling will use less energy than prior draft rule
 3. Demand for increased volume of cooling water
 4. Consumptive use associated with prior draft rule
- **No Change:** No specific revisions to draft rule proposed to address competition

Mixing Zones

- Catalyst for Change:
 - No lethality allowed anywhere in mixing zone
 - Default dilution values too conservative
 - Default dilution values not conservative enough
 - No recognition of dissipation and assimilative capacity of receiving water
 - Concerns over mechanisms for obtaining alternative mixing zones

Mixing Zones

- **Change:** Addition of s. NR 102.04(1m) authorizes more restrictive limitations if valid concerns exist related to default mixing zones
- **Change:** “Flow-ratio” approach clearly recognizes principles of assimilative capacity
- **No Change:** Default values remain unchanged
- **No Change:** Mechanisms for alternative mixing zones similar to those for toxic substances.
 1. Statewide rule vs. site-specific decision
 2. Qs variable not a site-specific water quality criterion
 3. Modified Qs reviewable during public comment period

POTWs

- Catalyst for Change:
 - Variance not supported by “findings”
 - Variance should not be afforded to “new” facilities
 - Variance to be “guaranteed” to POTWs
 - Exemption *preferred* over Variance
 - Dissimilar treatment between POTWs and Industrial permittees

POTWs

- New Approach in s. NR 106.59:
 - Permit-by-permit review
 - Requires temperature monitoring for POTWs
 - Uses Department knowledge of *normal* POTW effluent temperatures
 - Considers dissipative capacity of receiving water
 - Assumes effluent temperatures below acute water quality criteria
 - Assumes no overlapping thermal mixing zones

POTWs

- Changed to: Permit specific review of potential for sub-lethal impacts with conditions
 - **Change:** Removed categorical variance approach
 - **No Change:** “Variance” authorized by s. 285.15 (Wis. Stats.) remains available
 - **No Change:** Not applicable to “new” facilities
 - **No Change:** Relief not guaranteed
 - **No Change:** Exemption not a legal option
 - **No Change:** Applies only to POTWs

General Permits

- Catalyst for Change:
 - “Cap Limits” too conservative
 - No General Permits to *cold water communities*
 - Need for downstream water protection
 - No General Permits for discharges containing process water

General Permits

- Changes to:

- **Change:** “Cap Limits” removed as well as other effluent flow and stream flow-related restrictions
- **No Change:** No General Permits allowed to Outstanding or Exceptional Resource Waters which covers most *cold water communities*
- **No Change:** Language already included
- **Change:** Clear language added which prohibits issuance of General Permits for discharges containing process water

Challenge

- Many comments in opposition of proposed rules were based on cost of compliance
- Construction of cooling towers was cited as the optimal heat management tool to comply
- No comments recognized alternative cooling technologies:
 - Geo-thermal cooling
 - Re-use of heated water
- Why? Are there alternatives to capture and use the heat instead of “disposing” it?

What Now?

- Materials to be posted to DNR Website:

<http://dnr.wi.gov/org/water/wm/wqs/thermalrulesrevisions.htm>

- Preparation of written and oral comments for Natural Resources Board
- Natural Resources Board Meeting in February 2009