REVISED RULE DRAFT
4-17-2019

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

The Wisconsin Natural Resources Board proposes an order to **repeal** NR 210.06 (4) to (6); to **renumber** NR 102.03 (6); to **amend** NR 102.04 (5) (a), 104.06 (2) (a) (intro.) and (b) (intro.), 104.20 (7), 210.06 (7), 219.04 Table EM header row 2, parameters "Fecal Coliform" and "Salmonella" (including sub-rows), and table note 11, and 219.04 Table H parameters 1 to 7 (including sub-rows) and table notes 13, 18, 20, and 24; to **repeal and recreate** NR 102.04 (6), 210.06 (2) (a), and 219.04 Table A parameters 1 to 8 (including sub-rows) and table notes 1 to 29; and to **create** NR 102.03 (9), 210.03 (10m), 210.06 (1) (title), (2) (title), (b) (title) and (Note 2), and (3) (title), 219.04 Table EM table notes 16, 17, and 18, and 219.04 Table H note 27 relating to updating Wisconsin's water quality criteria for pathogens, specifically bacteria, to protect recreational uses; and updating related WPDES permit implementation procedures for the revised water quality standards to be consistent with EPA's recreational water quality criteria, and affecting small business.

WY-17-15

Analysis Prepared by the Department of Natural Resources

1. Statute Interpreted:
Sections 281.15, 283.13, and 283.31, Wis. Stats.

2. Statutory Authority:
Sections 281.12, 281.13, 281.15, 283.31, 283.13, 283.37, 283.55, 283.83, and 227.11, Wis. Stats.

3. Explanation of Agency Authority:
Revisions to the recreational use, updated recreational water quality criteria, and newly developed impaired waters listing protocols will be promulgated pursuant to ss. 281.12, 281.13, and 281.15, Wis. Stats.:

- Section 281.12, Wis. Stats., grants the WDNR general supervision and control to carry out the planning, management, and regulatory programs necessary for prevention/reduction of water pollution and for improvement of water quality.
- Section 281.13(1)(a) and (b), Wis. Stats., give the department the authority to create rules to research and assess water quality in the state.
- Section 281.15, Wis. Stats., mandates that the department promulgate water quality standards, including water quality criteria and designated uses. It recognizes that different use categories and criteria are appropriate for different types of waterbodies, and that the department shall establish criteria which are not more stringent than reasonably necessary to ensure attainment of the designated use for the waterbodies in question.

The Wisconsin Pollutant Discharge Elimination System (WPDES) permit program procedures to implement the revised standards will be promulgated under the following authority:

- Section 283.31(3) and (4), Wis. Stats., state that the department may issue a permit upon condition that the permit contains limitations necessary to comply with any applicable federal law or regulation, state water quality standards, and total maximum daily loads.
- Section 283.13(5), Wis. Stats., states that the department shall establish more stringent limitations

than required under subs. 283.13(2) and (4) when necessary to comply with water quality standards.
- Section 283.37, Wis. Stats., gives the department authority to promulgate rules regarding permit applications.
- Section 283.55, Wis. Stats., gives the department authority to impose monitoring and reporting requirements.
- Section 283.83, Wis. Stats., requires the department to establish a continuing planning process and that plans shall include implementation procedures including compliance schedule for revised water quality standards.
- Section 227.11(2), Wis. Stats., provides the department with the authority to promulgate rules that are necessary to administer the specific statutory directives in ch. 283, Wis. Stats.

4. Related Statutes or Rules:
These rules relate to surface water quality standards and the WPDES permit program. Related rules include chs. NR 102 and 104, Wis. Adm. Code, which comprise Wisconsin's surface water quality standards, and chs. NR 200 to 299, Wis. Adm. Code., which comprise the WPDES permit program.

5. Plain Language Analysis:
The Clean Water Act (CWA) requires states to adopt water quality standards to protect recreation in and on the water. Water quality standards include a recreation designated use and water quality criteria that protect this use. In addition to the CWA requirements, the Beaches Environmental Assessment and Coastal Health (BEACH) Act requires States with coastal waters (e.g., the Great Lakes) to adopt new or revised criteria for pathogens (including bacteria) to protect recreation not later than three years after the United States Environmental Protection Agency (EPA) publishes revised criteria to maintain eligibility for grant funding for communities. The EPA published revised national recommended recreation water quality criteria for bacteria in 2012.

Human waste contains a number of pathogens that can be spread through water and cause a wide range of diseases. The EPA employs the pathogen indicator concept for these criteria in which the indicator does not itself cause disease, but instead signals the potential for illness caused by human fecal contamination. Pathogen indicators, such as certain bacteria, are used because they tend to be more numerous than pathogens in human fecal matter and are cheaper, safer, and easier to measure. In their 2012 recommended criteria, EPA provides a choice for states to use either *E. coli* or enterococci as their pathogen indicator.

The goals of this rule package are to adequately protect the public while recreating in and on Wisconsin's waters; revise Wisconsin's bacteria water quality criteria to be consistent with EPA's latest recommendations; and update the permit requirements for sewage treatment works to ensure consistency with EPA's policies. To accomplish these goals, the department proposes to revise the bacteria water quality criteria for recreation in ch. NR 102, Wis. Adm. Code, remove fecal coliform criteria for individual waters from ch. NR 104, Wis. Adm. Code, and revise the permit requirements for publicly owned and privately owned domestic sewage treatment works in ch. NR 210, Wis. Adm. Code.

<u>Bacteria Water Quality Criteria for Recreation</u>
In 2012, EPA recommended updates to bacteria criteria and provided states with a choice of criteria for *E. coli* and enterococci at two different risk levels. The department evaluated the pathogen indicator and risk level as well as the time frame of the criteria, which waters the criteria should apply to, and the frequency and duration of exceedances for assessment determinations. The department also added language to allow for the development of bacteria site-specific criteria and removed the fecal coliform "variance" criteria in ch. NR 104, Wis. Adm. Code.

Pathogen Indicator
EPA provided states two options for their pathogen indicator: *E. coli* or enterococci. Since the adoption of the BEACH Act in 2004, permittees in Wisconsin and the other Great Lake States have monitored for *E. coli* in the Great Lakes basin. As such, there is a large amount of data on *E. coli* levels in the Great Lakes. Additionally, the department has been assessing inland and Great Lakes beaches against EPA's 1986 *E. coli* criteria. Given these reasons, the department chose to use *E. coli* as the pathogen indicator for the revised recreation criteria.

Criteria Magnitude
EPA recommends that states assess for their selected indicator using two methods: the geometric mean and the statistical threshold value. Use of both methods ensures that states not only assess the average over time (geometric mean, or GM), but also account for the frequency of bacterial level spikes (statistical threshold value, or STV).

Since 1986, EPA's recommended bacteria water quality criteria for recreation have consisted of long-term and short-term criteria. In the 1986 recommendations, a GM was used as the long-term criterion and a single sample maximum (SSM) as the short-term criterion. In the 2012 recommendations, the same geometric mean is used as the long-term criterion. However, the recommendations for short-term criteria replace the SSM with a different approach, the statistical threshold value (STV). The SSM criterion from 1986 set a "do not exceed" threshold which limited the ability to account for natural variation. The 2012 STV criterion corresponds to the 90th percentile of the water quality distribution data. This is intended to allow for occasional, but not frequent, spikes in bacteria levels, reflecting the expected variability in water quality measurements.

Previously, when the department was using fecal coliform as the pathogen indicator, the criterion was only applied as a geometric mean. The revised rule for *E. coli* contains both GM and STV criteria.

Illness Rate
EPA provided two illness rates for states to choose from: either 32 or 36 cases of gastrointestinal illness out of 1,000 primary contact recreation users. The department selected the criteria based on the higher illness rate of 36 per 1,000 users, given no known human health benefit of selecting the lower illness rate. The criteria based on the higher illness rate are consistent with the level of protection provided by the EPA's previous criteria recommendations, and EPA concluded that criteria based on either of the illness rates would provide adequate human health protection. Criteria based on the lower illness rate would have been more stringent than criteria based on the higher illness rate. The department evaluated the impact of selecting the lower illness rate on permittees and impaired waters listings. Selecting the lower illness rate would unnecessarily require lower (more stringent) effluent limits for facilities and increase the number of impaired waters and beach advisories.

Time Frame
The revised rule includes a note specifying that the recreation season during which bacteria criteria typically apply is May 1st to September 30th, unless otherwise determined under ch. NR 210.06 (1). Currently, disinfection is required from May 1st to September 30th to protect recreation, and beaches are assessed from May through September. However, under current provisions in ch. NR 210.06 (1), that season may be extended as needed to protect public health and recreation. The note is added for clarity.

Criteria Duration
A criterion's duration is the time period over which the criterion is assessed. The department selected a duration of 90 days, which means that samples from throughout a 90-day time period would be used for

calculating attainment of the criteria. The duration of 90 days is proposed for both Geometric Mean and Statistical Threshold Value criteria. It was selected to ensure adequate protection of the recreation designated use and to allow assessment of Wisconsin's waters in a comprehensive and informative manner. This duration allows the department to assess more waterbodies and allows for a clear evaluation of the waterbody's impairment status. The 90-day duration is consistent with a white paper produced by EPA clarifying that up to 90 days was determined to be an acceptable and scientifically defensible duration for *E. coli* criteria (U.S. EPA. 2015. *Narrative justification for longer duration period for recreational water quality criteria*).

Bacteria Site-Specific Criteria (SSC)

When numeric criteria are established, they must be based on EPA's recommended water quality criteria, EPA's recommended water quality criteria modified to reflect site-specific conditions, or other scientifically defensible methods. The EPA must review and approve a state's criteria and does so only if the criteria are based on sound scientific rationale and contain sufficient parameters to protect the designated use. The EPA recognizes that there are sites where non-human and non-fecal sources may contribute to high bacteria levels while the probability of illness at these sites may be much lower than the probability of illness at sites with human sources. In such cases, the EPA allows for less-stringent site-specific criteria to be established if they are based on sound scientific rationale and contain sufficient parameters to protect the designated use.

This rule package includes language that allows the department to adopt bacteria SSC by rule for a specific waterbody. To ensure that bacteria SSC adopted by the state are appropriate, scientifically defensible and protective, the following conditions must be demonstrated: the proposed SSC were developed using an EPA approved method, procedure, or test, are based on sound scientific rationale, and the proposed SSC are as protective of the recreation use as the statewide *E. coli* criteria. For a less-stringent SSC, the request must also demonstrate that the predominant source of the bacteria must be non-human or non-fecal.

Variance Criteria

The existing language in ch. NR 104, Wis. Adm. Code, contains fecal coliform variance criteria for certain individual waters. As part of this rule package, the department removed all references to these variance criteria because they are outdated and not adequately protective. These criteria were based on recommendations by the National Technology Advisory Committee in 1968 for secondary contact recreation. Fecal coliform is no longer recommended as a pathogen indicator because studies conducted in the 1970-80s did not find a correlation between fecal coliform levels and the rate of gastrointestinal illness. Additionally, the EPA does not currently have criteria recommendations for secondary contact waters and the department does not have a designated use category for secondary contact waters. Furthermore, the variance criteria were intended to be temporary with an expectation that water meet these criteria by 1977 and the statewide criteria by July 1983.

Permit Requirements

Effluent Limitations

In the existing language in ch. NR 210, Wis. Adm. Code, a fecal coliform limit of 400 cfu/100 mL applies to all facilities that are required to disinfect. This limit is a categorical limit (i.e., an effluent limit that applies to certain categories of wastewater dischargers) and not a water quality based limit (i.e., an effluent limit designed to meet a water quality standard in the receiving water). Facilities that are disinfecting should be able to maintain fecal coliform in their effluent below this level; however, this limit does not ensure that fecal coliform water quality criteria are met in the receiving water. The department replaced the fecal coliform limit with water quality based effluent limits (WQBELs) for *E. coli*.

Federal regulations require permit limits for publicly owned treatment works (POTWs) with continuous discharge to be expressed as both average monthly discharge limitations (long-term limits) and average weekly limitations (short-term limits) unless impracticable. The department elected to establish these limits using EPA's recommended "end-of-pipe" approach whereby both the geometric mean and statistical threshold value used in the criteria are applied to the end-of-pipe discharge as permit limits (U.S. EPA. 2015. *FAQ: NPDES Water-Quality Based Permit Limits for Recreational Water Quality Criteria*.). The department also evaluated use of a calculated weekly geometric mean limit as the short-term limit instead of the STV; however it was determined that this was impracticable because it would result in frequent exceedances of the STV criteria in surface waters near discharge locations. Application of the STV is more straightforward, is EPA's recommended approach, and is directly protective of both components of the water quality criteria given the variability in *E. coli* levels.

Repeal of Redundant Language on Compliance Schedules and Public Notice
The proposed rules repeal ch. NR 210.06 (4) to (6) as they are redundant with more recent codes that provide more detailed information. Language in sub. (4) on compliance schedules is repealed because general language allowing compliance schedules for any point source discharger and any substance is found in ch. NR 205.14, with specific requirements provided in ch. NR 106.117. Language in subs. (5) and (6) on tentative and final determinations related to the permit, public notice processes, and review procedures are repealed because this information is provided in detail for all facilities in ch. NR 203, "Wisconsin Pollutant Discharge Elimination System Public Participation Procedures," which covers public noticing of permit applications received and tentative and final determinations. It also covers permit actions such as final determinations and modifications or reissuance of permits. Part of sub. (7) is repealed that required perpetual maintenance of the same WPDES permit conditions as were established in 1986, because it is appropriate that permit terms and conditions evolve over time as needed.

Update of tables with EPA-approved methodologies
Chapter NR 219 includes tables of EPA-approved methods for analyzing bacteria-related parameters. Portions of Tables A, EM, and H related to bacteria are updated to incorporate EPA's most recent approved methods.

6. Summary of, and Comparison with, Existing or Proposed Federal Statutes and Regulations:
With the revisions contained in this rule package, the department rules will be consistent with the following federal regulations:

- Clean Water Act section 303(c), which requires states to periodically review and modify or adopt, if necessary, water quality standards for protection and propagation of fish and shellfish and recreation in and on the water;
- Clean Water Act section 303(i)(1)(B), which requires states to adopt water quality criteria for pathogens and pathogen indicators for coastal recreation waters based on federal criteria published by USEPA;
- 40 CFR 131.10 and 11, which require states to develop water quality standards comprised of uses and criteria to protect the uses, and requires that criteria be based on federal guidance, federal guidance modified to reflect site-specific criteria, or other scientifically-defensible methods;
- 40 CFR ss. 131.4 and 131.11, which allows states to adopt their own water quality criteria so long as these criteria are protective of human health or welfare, enhance the quality of the water, and serve the purposes of the Clean Water Act;
- 40 CFR 122.44(d), which provides that WQBELs must be derived from and comply with water quality standards and designated uses;
- 40 CFR 122.45(d), which requires that POTWs with continuous discharges receive limits expressed as monthly average and weekly average limits;

- 40 CFR 122.47, which specifies the protocols and restrictions for establishing compliance schedules in WPDES permits;
- 40 CFR Part 132, Appendix F, Procedure 9, which authorizes compliance schedule extensions within the Great Lakes Basin.

7. Comparison with Similar Rules in Adjacent States:
For this rule package, comparisons were made to the other states in EPA Region 5 (Illinois, Indiana, Michigan, Minnesota, and Ohio) and Iowa. All of the Region 5 states are subject to the Clean Water Act, BEACH Act, and EPA regulations. As Iowa does not have any coastal waters, they are not subject to the BEACH Act but are still subject to the Clean Water Act and EPA regulations. A brief comparison with these states is provided below on the key issues addressed in this rule package.

Bacteria Water Quality Criteria for Recreation
The other states have different criteria for each of their recreation use subcategories. Because Wisconsin has a single recreation use category, only the criteria for the "full contact" category were considered in this comparison. Because Illinois is currently revising its criteria for bacteria, they were not included in these comparisons.

Pathogen Indicator
All of the states that were used for this comparison, except Illinois, use *E. coli* as the pathogen indicator. Illinois is currently in the process of revising its criteria to use *E. coli*. In this rule package, the department selected *E. coli* as the pathogen indicator for Wisconsin's criteria, consistent with these other states.

Criteria Magnitude
Indiana and Iowa have short- and long-term criteria based on EPA's 1986 recommendations. Michigan also bases its criteria on EPA's 1986 recommendations but uses single day GM instead of the SSM as its short-term criterion. Minnesota currently has criteria based on EPA's 1986 recommendations. Ohio revised its criteria in 2016 based on EPA's 2012 recommendations.

In this rule package, the department selected an approach that is consistent with Ohio. In the revised rule, EPA's 2012 recommendations were used to establish Wisconsin's criteria because they are based on the latest scientific knowledge and allow the natural variation in bacteria levels to be considered when assessing the waterbody.

Illness Rate
In its 2012 recommendations EPA developed criteria based on two illness rates, with the higher illness rate corresponding with the level of protection provided by the EPA's 1986 recommendations. Ohio's criteria are based on the higher illness rate. A comparison to the other states was not made as their criteria were not based on the 2012 recommendations.

In this rule package, the department selected an approach that is consistent with Ohio. In the revised rule, the department selected the criteria based on the higher illness rate because selection of the lower illness rate would unnecessarily increase the number of impaired waters and beach advisories without any known human health benefits.

Time Frame
All of the other states have a specific time frame during which the bacteria criteria apply. This time frame ranges from March 15th – November 15th for Iowa to April 1st – October 31st for Minnesota and Indiana to May 1st – October 31st for Michigan and Ohio.

In this rule package, the department selected an approach that is consistent with the other states. The revised rule applies the bacteria criteria for recreation from May 1st – September 30th. This time frame was chosen because Wisconsin's official beach season is Memorial Day to Labor Day (last weekend in May to first weekend in September), disinfection has historically been required from May 1st through September 30th to ensure adequate protection for beach use, and "full contact" recreation activities are not likely outside of this time frame due to low water temperatures.

Criteria Duration
All of the other states, except for Iowa, have duration specified as part of their criteria. Michigan, Minnesota, and Indiana's criteria are based on EPA's 1986 recommendations. Both Michigan and Indiana use a monthly duration for both the geometric mean (GM) and single sample maximum (SSM) criteria. Michigan uses geometric mean values for both its long- and short-term criteria and uses a duration of a month for the long-term criterion and a day for the short-term criterion. Ohio's criteria are based on EPA's 2012 recommendations and use a duration of 90 days for both its GM and statistical threshold value (STV) criteria.

In this rule package, the department selected an approach that is consistent with Ohio and is acceptable to EPA. The revised rule specifies a duration of 90 days for both the GM and STV criteria because it allows the department to adequately protect the recreation designated use while assessing Wisconsin's waters in a comprehensive and informative manner.

Bacteria Site-Specific Criteria
None of the other states have language specific to the development of site-specific criteria for bacteria.

Variance Criteria
These variances, proposed for deletion, are specific to individual waterbodies in Wisconsin. A comparison to the other states was not conducted.

Permit Requirements
To ensure recreation is protected in Wisconsin's waters, dischargers of treated human waste are required to meet effluent limits for bacteria. The requirements described in this section apply to facilities that are subject to ch. NR 210, Wis. Admin. code, including publicly owned treatment works and privately owned domestic sewage treatment works. Only the requirements for dischargers to "full contact" use waters were considered in this comparison as Wisconsin has a single recreation use category. Because Illinois is currently revising its permit requirements for bacteria, they were not included in these comparisons.

Effluent Limitations
Effluent limits vary by state. For this comparison, only the limits that apply during the time frame in which the bacteria criteria apply were included. Minnesota and Michigan have effluent limits for fecal coliform that are based on EPA's 1976 recommended criteria. Minnesota has a monthly limit equal to the geometric mean (GM) criterion and does not have specified monitoring requirements. Michigan has monthly and weekly limits, with the monthly limit equal to the GM criterion and the weekly limit equal to the "10% exceedance" criterion. Michigan requires a minimum of 5 samples for the monthly limit and 3 samples for the weekly limits.

Iowa and Indiana have effluent limits for *E. coli* that are based on EPA's 1986 recommended criteria. Iowa has a monthly limit equal to the GM criterion and requires a minimum of 5 samples a month, with monitoring conducted for one month during each quarter of the recreation season. Indiana has both monthly and daily limits. The monthly limit equals the GM criterion and the daily limit equals the SSM criterion for designated bathing beaches. The daily limit only applies when 10 or more samples have been

collected in a month. Indiana bases its minimum monitoring requirements on the average design flow of the facility. Small facilities are typically required to monitor only once a week while large facilities may be required to monitor daily.

Ohio has monthly and weekly effluent limits for *E. coli*. Limits for dischargers to the Ohio River are based on EPA's 1986 recommended criteria while limits for dischargers to all other waters are based on EPA's 2012 recommended criteria. These limits differ because of specific requirements from the Ohio River Valley Water Sanitation Commission. For the Ohio River dischargers, the monthly limit equals the GM criterion (rounded) and the weekly limit equals the SSM criterion for designated bathing beaches (rounded). For dischargers to other Ohio waters, the monthly limit equals the GM criterion and the weekly limit is calculated using procedures in the U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control*. Ohio bases its minimum monitoring requirements on the average design flow of the facility with very small facilities typically required to monitor only once per quarter and large facilities often required to monitor daily.

In this rule package, the department selected EPA's recommended approach of applying both the geometric mean and statistical threshold value criteria to the end-of-pipe discharge. The monthly geometric mean is used by several states. States use a wide variety of approaches to the short-term limit. The statistical threshold value (one type of short-term limit) is not currently applied by Wisconsin's neighboring states. However, EPA states that the "end-of-pipe" approach selected by Wisconsin "is considered to be the simplest and most common method to develop the effluent limits for pathogens and pathogen indicators." (U.S. EPA. 2015. *FAQ: NPDES Water-Quality Based Permit Limits for Recreational Water Quality Criteria*.)

8. Summary of Factual Data and Analytical Methodologies Used and How Any Related Findings Support the Regulatory Approach Chosen:
The methodology identified in this rule package is based on Clean Water Act and Great Lake Initiative requirements and on EPA guidance including the U.S. EPA (March 1991) Technical Support Document for Water Quality-based Toxics Control. PB91-127415: Office of Water.

9. Analysis and Supporting Documents Used to Determine the Effect on Small Business or in Preparation of an Economic Impact Report:
This rule is expected to have minimal economic impact overall and for small businesses. The costs incurred will be due to changes in analytical methods associated with monitoring each type of bacteria. These changes solely pertain to facilities subject to ch. NR 210, Wis. Adm. Code (i.e., publicly owned treatment works, privately owned domestic sewage treatment works). We anticipate the total annual cost of compliance for 336 facilities to be $52,986. Cost savings for 20 facilities are estimated at $32,193. Taken together, the net annual cost of compliance is anticipated to be $20,793. The economic impact of alternative compliance methods is also presented.

The department's initial rule revision proposal included creation of a minimum twice-a-week monitoring requirement for all facilities. However, after review of comments on the original Economic Impact Assessment, review of current code, and consultations with department wastewater staff, it was determined that current regulations provide sufficient flexibility for facilities to select a monitoring frequency that reflects variability in their samples. Removing this requirement greatly reduced the anticipated fiscal burden for most facilities and in particular small facilities, some of which may be small businesses.

Facilities that may experience an increased cost associated with the revisions to this rule are those that are currently monitoring for fecal coliform and will be required to switch to monitoring for *E. coli*. Facilities

may also incur increased costs associated with purchasing equipment to analyze *E. coli* samples using a defined substrate method if they choose to use that analytical technique. To estimate costs associated with this rule, the department looked both at costs for facilities to send samples to an external certified lab for analysis, and at an alternative of conducting analysis in-house if the facility has a certified lab.

The department obtained quotes from several commercial labs in the state for both fecal coliform and *E. coli* monitoring (per sample, *E. coli*: $25; fecal coliform: $19). This information, along with monitoring requirements in current permits, was used to estimate facilities' current cost of monitoring. Projected costs were then calculated assuming facilities will monitor for only *E. coli* at their current monitoring frequency from May 1 through September 30, and send samples to an external lab for analysis (Table 1). For facilities currently monitoring for a longer time frame, the same monitoring time frame currently being used by the facility was used in the analysis.

Table 1. Cost Estimates Due to Changes in Monitoring and Analysis: Using External Lab

Proposed Change	Number of Facilities	Estimated Annual Change per Facility ($)	Total Annual Costs ($)
Switch indicator from fecal coliform to *E. coli*; External lab analysis	336	158	**52,986**

Facilities with a certified lab in-house can determine whether it is more cost-effective for them to send their samples to an external lab or do the analysis in-house. If doing in-house analysis, facilities may use membrane filtration methods or defined substrate methods. Most facilities are already doing membrane filtration for fecal coliform. If they continue with membrane filtration for *E. coli*, cost per sample would be generally equivalent. Some facilities may wish to instead purchase equipment to convert to defined substrate analysis, which can save staff time and may be more efficient in the long-term. The department obtained cost estimates from a defined substrate test manufacturer (IDEXX) for upfront capital costs as well as ongoing annual costs for facilities that choose to begin analyzing *E. coli* using a defined substrate method rather than a membrane filtration method (Table 2). Costs shown in Table 2 are optional and would be in place of costs from Table 1 for facilities selecting this option.

Table 2. Cost Estimates Due to Changes in Monitoring and Analysis: In-house Lab Analysis with Defined Substrate Methods

Proposed Change	Number of Facilities	Estimated Annual Change per Facility ($)		Total Annual Costs over 10 years ($)
Switch indicator from fecal coliform to *E. coli*; Purchase defined substrate analytical equipment (optional)	102*	First year**	5000	**51,000**
		Subsequent years**	140	**14,280**

* represents 50% of facilities that have a laboratory certification
** first year costs represent basic equipment; subsequent year costs represent UV bulb replacement

For some facilities, changes to the monitoring requirements will reduce costs. There are 20 municipal wastewater treatment facilities that are monitoring for both fecal coliform and *E. coli*. These facilities may see an economic benefit from this rule as they will no longer have to monitor for fecal coliform (Table 3). Each of these 20 facilities is estimated to save $1,610 annually, for a total of $32,193 combined annual savings.

Revisions to the water quality criteria and effluent limits are likely to lead to improved water quality and reduced risk of illness in people recreating in Wisconsin's waters. While these benefits are hard to quantify, they are likely to result in an overall benefit to the citizens of Wisconsin.

Table 3. Savings Estimates Due to Changes in Monitoring Requirements

Proposed Change	Number of Facilities	Estimated Annual Change per Facility ($)	Total Annual Savings ($)
Drop fecal coliform indicator; continue monitoring *E. coli*	20	-1,610	**-32,193**

10. Effect on Small Business (initial regulatory flexibility analysis):
Seven of the identified facilities may be small businesses, such as mobile home parks or nursing homes. Costs for small businesses were estimated in the same way as described above, but using just the subset of these seven facilities. Annual costs for switching from monitoring wastewater for fecal coliform to monitoring *E. coli* are projected to be approximately $132 per facility. Total costs for these seven facilities combined are estimated at $924 annually.

11. Agency Contact Person: Kristi Minahan, Wisconsin Department of Natural Resources, Bureau of Water Quality WY/3, P.O. Box 7921, Madison, WI 53707-7921;
Kristi.Minahan@Wisconsin.gov, 608-266-7055

12. Place where comments are to be submitted and deadline for submission:
Written comments may be submitted at the public hearings, by regular mail or email to:

Kristi Minahan
Wisconsin Department of Natural Resources
Bureau of Water Quality WY/3
101 S. Webster St.
P.O. Box 7921
Madison, WI 53707-7921
Kristi.Minahan@Wisconsin.gov

Written comments may also be submitted to the Department at
DNRAdministrativeRulesComments@wisconsin.gov.

Public hearings will be held on the following dates:

Date: April 18, 2019
Time: 2:00 p.m.
Location: WI Department of Natural Resources, 101 S. Webster St., Madison, WI 53707, Room G27A

Date: April 23, 2019
Time: 1:00 p.m.
Location: WI Department of Natural Resources, 1300 W. Clairemont, Eau Claire, WI 54701,

The deadline for submitting public comments is May 15, 2019.

The consent of the Attorney General will be requested for the incorporation by reference of certain EPA-approved laboratory methods used to analyze bacteria samples. These are incorporated by reference in ch. NR 219.04 Tables A, EM, and H.

SECTION 1. NR 102.03 (6) is renumbered NR 210.03 (10m).

SECTION 2. NR 102.03 (9) is created to read:

NR 102.03 (9) "U.S. EPA" means the United States environmental protection agency.

SECTION 3. NR 102.04 (5) (a) is amended to read:

NR 102.04 (5) (a) *General.* All surface waters shall be suitable for supporting recreational use and shall meet the criteria specified in sub. (6). ~~A sanitary survey or evaluation, or both to assure protection from fecal contamination is the chief criterion for determining the suitability of a water for recreational use.~~

SECTION 4. NR 102.04 (6) is repealed and recreated to read:

NR 102.04 (6) CRITERIA FOR RECREATIONAL USE. Bacteria criteria are established as follows to protect humans from illness caused by fecal contamination due to recreational contact with surface water:

(a) *Escherichia coli* (*E. coli*) *criteria*. All of the *Escherichia coli* (*E. coli*) criteria in Table A apply during the recreation season unless bacteria site-specific criteria have been adopted pursuant to par. (b).

Table A	
E. coli (counts[1] per 100 mL)	
Geometric Mean[2]	Statistical Threshold Value[3]
126	410
1. For determining attainment or compliance, counts are considered equivalent to either colony forming units or most probable number. 2. The geometric mean shall not be exceeded in any rolling 90-day period during the recreation season. 2. The statistical threshold value shall not be exceeded more than 10 percent of the time during any rolling 90-day period during the recreation season.	

Note: The recreation season is typically May 1 to September 30, unless otherwise determined under ch. NR 210.06 (1).

Note: The department developed the *E. coli* criteria in this section based on criteria developed by U.S. EPA. U.S. EPA developed the *E. coli* criteria using membrane filtration methods to count E. coli colony forming units.

(b) *Bacteria site-specific criteria.* 1. The department may establish bacteria site-specific criteria by rule to protect a waterbody's recreational use when it is determined that the statewide *E. coli* criteria under par. (a) are inappropriate due to site-specific conditions. Once bacteria site-specific criteria are adopted in a rule and approved by U.S. EPA, those criteria supersede the statewide *E. coli* criteria under par. (a) for that waterbody.

2. Any interested party may submit proposed bacteria site-specific criteria for a waterbody to the department. Any request for bacteria site-specific criteria must include a demonstration that the proposed site-specific criteria were developed using a U.S. EPA approved method, procedure, or test, are based on sound scientific rationale, and are as protective of the recreational use as the statewide *E. coli* criteria in par. (a). A request for a less-stringent site-specific criteria must also demonstrate that the predominant source of the bacteria is non-human or non-fecal.

SECTION 5. NR 104.06 (2) (a) (intro.) and (b) (intro.) are amended to read:

NR 104.06 (2) (a) The following surface waters in the southeast district shall meet the standards for fish and aquatic life except that the dissolved oxygen shall not be lowered to less than 2 mg/L at any time~~, nor shall the membrane filter fecal coliform count exceed 1,000 per 100 ml as a monthly geometric mean based on not less than 5 samples per month nor exceed 2,000 per 100 ml in more than 10% of all samples during any month~~:

(b) The following surface waters in the southeast district shall meet the standards for fish and aquatic life except that the dissolved oxygen may not be lowered to less than 2 mg/L at any time~~, nor may the membrane filter fecal coliform count exceed 1,000 per 100 mL as a monthly geometric mean based on not less than 5 samples per month~~ nor may the ambient water temperature exceed 89ºF at any time at the edge of the mixing zones established by the department under s. NR 102.05 (3):

SECTION 6. NR 104.20 (7) is amended to read:

NR 104.20 (7) The sector of Honey Creek above the Clarno-Cadiz town line shall meet the standards for fish and aquatic life except that the dissolved oxygen shall not be lowered to less than 2 mg/L at any time. ~~The membrane filter fecal coliform count in this sector shall not exceed 1,000 per 100 ml as a monthly geometric mean based on not less than 5 samples per month, nor exceed 2,000 per ml in more than 10% of all samples during any month.~~

SECTION 7. NR 210.06 (1) (title) is created to read:

NR 210.06 (1) (title) DISINFECTION REQUIREMENTS.

SECTION 8. NR 210.06 (2) (title) is created to read:

NR 210.06 (2) (title) EFFLUENT LIMITATIONS.

SECTION 9. NR 210.06 (2) (a) is repealed and recreated to read:

NR 210.06 (2) (a) *Escherichia coli* (*E. coli*). 1. The geometric mean of *E. coli* bacteria in effluent samples collected in any calendar month may not exceed 126 counts/100 mL.

Note: To calculate the geometric mean, a value of 1 should be used for any result of 0.

Note: As specified in ch. NR 102, Table A, for determining attainment or compliance with bacteria criteria or limits, counts are equivalent to either colony forming units or most probable number.

2. No more than 10 percent of *E. coli* bacteria samples collected in any rolling 90-day period may exceed 410 counts/100 mL.

Note: U.S. EPA developed the *E. coli* criteria in s. NR 102.04 (6), on which these effluent limits are based using membrane filtration to count *E. coli* colony forming units.

SECTION 10. NR 210.06 (2) (b) (title) and (Note 2), and (3) (title) are created to read:

NR 210.06 (2) (b) (title) *Chlorine.*

Note: Compliance schedules for effluent limits established under this subsection are authorized in ch. NR 205.14 and procedures are detailed in ch. NR 106.117. Language on tentative and final determinations related to the permit, public notice processes, and review procedures are provided for all facilities in ch. NR 203.

NR 210.06 (3) (title) DISINFECTION DETERMINATION.

SECTION 11. NR 210.06 (4) to (6) are repealed.

SECTION 12. NR 210.06 (7) is amended to read:

NR 210.06 (7) DISINFECTION CONTINUATION. In the absence of a specific determination under sub. (1), all dischargers which are required to disinfect as of ~~the effective date of this rule~~November 1, 1986 or thereafter shall continue to disinfect ~~and comply with all terms of their WPDES permit in effect on that date~~.

SECTION 13. NR 219.04 Table A Parameters 1 to 8 (including sub-rows) and table notes 1 to 29 are repealed and recreated to read:

Table A

List of Approved Biological Methods for Wastewater and Sewage Sludge

Parameter and units	Analytical Technology [1]	EPA	Standard Methods [27]	AOAC, ASTM, USGS	Other
Bacteria					
1. Coliform (fecal), number per 100 mL or number per gram dry weight	Most Probable Number (MPN), 5 tube, 3 dilution, or	p. 132,[3] 1680,[11,15] 1681[11,20]	9221 C E-2006		
	Multiple tube/multiple well, or				Colilert-18®[13,18,21,28]
	Membrane filter (MF)[2], single step	p. 124[3]	9222 D-2006[30]	B-0050-85[4]	
2. Coliform (fecal) in presence of chlorine, number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 132[3]	9221 C E-2006		
	MF[2], single step[5]	p. 124[3]	9222 D-2006[30]		
3. Coliform (total), number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 114[3]	9221 B-2006		
	MF[2], single step or two step	p. 108[3]	9222 B-2006	B-0025-85[4]	
4. Coliform (total), in presence of chlorine, number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 114[3]	9221 B-2006		
	MF[2] with enrichment[5]	p. 111[3]	9222 B-2006		
5. *E. coli*, number per 100 mL[21]	MPN[6,8,16] multiple tube, or		9221B.2-2006/9221F-2006[12 14]		
	multiple tube/multiple well, or		9223 B-2004[13]	991.15[10]	Colilert® [13 18] Colilert-18® [13,17,18]

	MF[2,6,7,8] single step	1603[22]			mColiBlue-24®[19]
6. Fecal streptococci, number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 139[3]	9230 B-2007		
	MF[2], or	p. 136[3]	9230 C-2007	B-0055-85[4]	
	Plate count	p. 143[3]			
7. Enterococci, number per 100 mL[21]	MPN, 5 tube, 3 dilution, or	p. 139[3]	9230 B-2007		
	MPN[6,8], multiple tube/multiple well, or		9230 D-2007	D6503-99[9]	Enterolert®[13,24]
	MF[2,6,7,8] single step or	1600[25]	9230 C-2007		
	Plate count	p. 143[3]			
8. *Salmonella* number per gram dry weight[11]	MPN multiple tube	1682[23]			

[1] The method must be specified when results are reported.

[2] A 0.45-µm membrane filter (MF) or other pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with their growth.

[3] Microbiological Methods for Monitoring the Environment, Water, and Wastes, EPA/600/8-78/017. 1978. U.S. EPA.

[4] U.S. Geological Survey Techniques of Water-Resource Investigations, Book 5, Laboratory Analysis, Chapter A4, Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples. 1989. USGS.

[5] Because the MF technique usually yields low and variable recovery from chlorinated wastewaters, the Most Probable Number method will be required to resolve any controversies.

[6] Tests must be conducted to provide organism enumeration (density). Select the appropriate configuration of tubes/filtrations and dilutions/volumes to account for the quality, character, consistency, and anticipated organism density of the water sample.

[7] When the MF method has been used previously to test waters with high turbidity, large numbers of noncoliform bacteria, or samples that may contain organisms stressed by chlorine, a parallel test should be conducted with a multiple-tube technique to demonstrate applicability and comparability of results.

[8] To assess the comparability of results obtained with individual methods, it is suggested that side-by-side tests be conducted across seasons of the year with the water samples routinely tested in accordance with the most current Standard Methods for the Examination of Water and Wastewater or EPA alternate test procedure (ATP) guidelines.

[9] Annual Book of ASTM Standards-Water and Environmental Technology, Section 11.02. 2000, 1999, 1996. ASTM International.

[10] Official Methods of Analysis of AOAC International. 16th Edition, 4th Revision, 1998. AOAC International.

[11] Approved for enumeration of target organism in sewage sludge.

[12] The multiple-tube fermentation test is used in 9221B.2-2006. Lactose broth may be used in lieu of lauryl tryptose broth (LTB), if at least 25 parallel tests are conducted between this broth and LTB using the water samples normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliform using lactose broth is less than 10 percent. No requirement exists to run the completed phase on 10 percent of all total coliform-positive tubes on a seasonal basis.

[13] These tests are collectively known as defined enzyme substrate tests, where, for example, a substrate is used to detect the enzyme β-glucuronidase produced by *E. coli*.

[14] After prior enrichment in a presumptive medium for total coliform using 9221B.2-2006, all presumptive tubes or bottles showing any amount of gas, growth or acidity within 48 h ± 3 h of incubation shall be submitted to 9221F-2006. Commercially available EC-MUG media or EC media supplemented in the laboratory with 50 µg/mL of MUG may be used.

[15] Method 1680: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation Using Lauryl-Tryptose Broth (LTB) and EC Medium, EPA-821-R-14-009. September 2014. U.S. EPA.

[16] Samples shall be enumerated by the multiple-tube or multiple-well procedure. Using multiple-tube procedures, employ an appropriate tube and dilution configuration of the sample as needed and report the Most Probable Number (MPN). Samples tested with Colilert® may be enumerated with the multiple-well procedures, Quanti-Tray® and the MPN calculated from the table provided by the manufacturer.

[17] Colilert-18® is an optimized formulation of the Colilert® for the determination of total coliforms and *E. coli* that provides results within 18 h of incubation at 35 °C rather than the 24 h required for the Colilert® test and is recommended for marine water samples.

[18] Descriptions of the Colilert®, Colilert-18®, and Quanti-Tray® may be obtained from IDEXX Laboratories, Inc.

[19] A description of the mColiBlue24® test, is available from Hach Company.

[20] Method 1681: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using A-1 Medium, EPA-821-R-06-013. July 2006. U.S. EPA.

[21] Approved for enumeration of target organism in wastewater effluent.

[22] Method 1603: *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using Modified membrane-Thermotolerant *Escherichia coli* Agar (modified mTEC), EPA-821-R-14-010. September 2014. U.S. EPA.

[23] Method 1682: *Salmonella* in Sewage Sludge (Biosolids) by Modified Semisolid Rappaport-Vassiliadis (MSRV) Medium, EPA-821-R-14-012. September 2014. U.S. EPA.

[24] A description of the Enterolert® test may be obtained from IDEXX Laboratories Inc.

[25] Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (mEI), EPA-821-R-14-011. September 2014. U.S. EPA.

[26] Standard Methods for the Analysis of Water and Wastewater. With the promulgation of Federal Register /Vol. 77, No. 97 / Friday, May 18, 2012, the EPA lists only the most recently EPA–approved version of a Standard Method (regardless of the printed or online edition) in 40 CFR Part 136, with few exceptions, to identify the method with the year of Standard Methods approval or adoption designated by the last four digits in the method number (e.g., Standard Method 3113B–2004). This approach clearly identifies the version of the standard method approved under Part 136 and no longer ties it to a particular compendium printing or edition of Standard Methods. Methods can be purchased at www.standardmethods.org/.

[27] Compliance monitoring must be performed in accordance with the specifications in the "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition," Wisconsin Department of Natural Resources, 2004. This publication is available for inspection at the offices of the Department of Natural Resources and the Legislative Reference Bureau. Copies are available from the Department of Natural Resources, Bureau of Science Services, P.O. Box 7921, Madison, WI 53707.

[28] To use Colilert-18® to assay for fecal coliforms, the incubation temperature is 44.5 ± 0.2 °C, and a water bath incubator is used.

[29] On a monthly basis, at least ten blue colonies from the medium must be verified using Lauryl Tryptose Broth and EC broth, followed by count adjustment based on these results; and representative non-blue colonies should be verified using Lauryl Tryptose Broth. Where possible, verifications should be done from randomized sample sources.

SECTION 14. NR 219.04 Table EM header row 2, Parameters "Fecal Coliform" and "Salmonella" (including sub-rows), and table note 11 are amended to read:

TABLE EM
List of Approved Analytical Methods for Sludge

		Sample Preparation		Determinative Method			
Parameter	**Analytical Technology**	~~**SW–8461**~~ **SW–846[1]**	**EPA[4]**	**SW–846[1]**	**EPA [2,3]**	**Standard Methods [ed.] [8,9]**	**Other**
Fecal Coliform	Most Probable Number Membrane Filter		1680 [16] 1681 [17]		1680 [16] 1681 [17]	9221 E [18,19, 20,21], 9221 E–99, 9222 D, 9222 D–97	Appendix F[10]
Salmonella	Most Probable Number		1682 [18]		1682 [18]		9260 D.1[8]
	Selective Media Culture						Appendix G[10]

[11] "Environmental Regulations and Technology – Control of Pathogens and Vectors Attraction in Sewage Sludge", EPA–625/R–92/013, Revised ~~October 1999,~~July 2003, Environmental Protection Agency, Cincinnati, OH, ~~1999. Available from: the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.~~2003.

SECTION 15. NR 219.04 Table EM table notes 16, 17, and 18 are created to read:

[16] "Method 1680: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple Tube Fermentation using Lauryl Tryptose Broth (LTB) and EC Medium" April 2010, EPA-821-R-10-003, U.S. Environmental Protection Agency, Office of Water (4303T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

[17] "Method 1681: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using A-1 medium" July 2006, EPA-821-R-06-013, U.S. Environmental Protection Agency, Office of Water (4303T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

[18] "Method 1682: Salmonella in Sewage Sludge (Biosolids) by Modified Semisolid Rappaport-Vassiliadis (MSRV) Medium" July 2016, EPA-821-R-06-14, U.S. Environmental Protection Agency, Office of Water (4303T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

SECTION 16. NR 219.04 Table H Parameters 1 to 7 (including sub-rows) and table notes 13, 18, 20, and 24 are amended to read:

Table H

List of Approved Microbiological Methods for Ambient Water

Parameter and units	Method [1]	EPA	Standard Methods	AOAC, ASTM, USGS	Other
Bacteria:					
1. Coliform (fecal), number per 100 mL or number per gram dry weight	Most Probable Number (MPN), 5 tube, 3 dilution, or	p. 132[3]	9221 C E-2006		
	Membrane filter (MF),[2] single step	p. 124[3]	~~9222 D-1997~~9222 D-2006[27]		
2. Coliform (fecal) in presence of chlorine, number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 132[3]	9221 C, E-2006		
	MF,[2] single step[5]	p. 124[3]	~~9222 D-1997~~9222 D-2006[27]		
3. Coliform (total), number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 114[3]	9221 B-2006		
	MF,[2] single step or two step	p. 108[3]	~~9222 B-1997~~9222 B-2006		
4. Coliform (total), in presence of chlorine, number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 114[3]	~~9222 (B+B.5c) 1997~~9221 B-2006		
	MF[2] with enrichment	p. 111[3]	9222 B-2006		
5. *E. coli*, number per 100 mL	MPN[6, 8, 14], multiple tube, or		~~9221 B.1-2006/9221 F-2006[11 13]~~9221 B.2-2006/9221 F-2006[11 13]		
	Multiple tube/multiple well, or		9223 B-2004[12]	991.15 [10]	Colilert®[12, 16] Colilert-18®[12, 15, 16]
	MF[2, 5, 6, 7, 8], two step, or	1103.1 [19]	~~9222 B-1997 / 9222 G-1997~~9222 B-2006/9222 G-2006,[18] 9213 D-2007	D-5392-93[9]	
	Single step	1603 [20] 1604 [21]			mColiBlue-24®[17]
6. Fecal streptococci, number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 139[3]	9230 B-2007.		
	MF[2], or	p. 136[3]	9230 C-2007	B-0055-85[4]	
	Plate count	p. 143[3]			

7. Enterococci, number per 100 mL	MPN[6, 8], multiple tube/multiple well, or		9230 D-2007	D6503-99[9]	Enterolert®[12, 22]
	MF[2, 5, 6, 7, 8] two step or	1106.1 [23]	9230 C-2007	D5259-92[9]	
	Single step, or	1600 [24]	9230 C-2007		
	Plate count	p. 143[3]			
Protozoa:					
8. *Cryptosporidium*	Filtration/IMS/FA	1622 [25] 1623 [26]			
9. *Giardia*	Filtration/IMS/FA	1623 [26]			

[13]After prior enrichment in a presumptive medium for total coliform using ~~9221B.1-2006~~9221B.2-2006, all presumptive tubes or bottles showing any amount of gas, growth or acidity within 48 h ± 3 h of incubation shall be submitted to 9221F-2006. Commercially available EC-MUG media or EC media supplemented in the laboratory with 50 µg/mL of MUG may be used.

[18]Subject total coliform positive samples determined by ~~9222B-1997~~9222B-2006 or other membrane filter procedure to ~~9222G-1997~~9222G-2006 using NA-MUG media.

[20]Method 1603:*Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using Modified membrane-Thermotolerant *Escherichia coli* Agar (Modified mTEC), ~~EPA–821–R–09–007. December 2009.~~EPA-821-R-14-010. September 2014. U.S. EPA.

[24]Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (mEI), ~~EPA–821–R–09–016. December 2009.~~EPA-821-R-14-011. September 2014. U.S. EPA.

SECTION 17. NR 219.04 Table H table note 27 is created to read:

[27]On a monthly basis, at least ten blue colonies from the medium must be verified using Lauryl Tryptose Broth and EC broth, followed by count adjustment based on these results; and representative non-blue colonies should be verified using Lauryl Tryptose Broth. Where possible, verifications should be done from randomized sample sources.

SECTION 18. EFFECTIVE DATE. This rule takes effect on the first day of the month following publication in the Wisconsin Administrative Register as provided in s. 227.22 (2) (intro.), Stats.

SECTION 19. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on _____.

Dated at Madison, Wisconsin _____.

STATE OF Wisconsin DNR

DEPARTMENT OF NATURAL RESOURCES

BY _____

Preston D. Cole, Secretary

(SEAL)