

## **FULL NOTICE OF INTENT TO AMEND ADMINISTRATIVE RULES RELATING TO STANDARDS OF QUALITY FOR WATERS FOR THE STATE**

TAKE NOTICE that the North Dakota Department of Environmental Quality (NDDEQ) will hold a public hearing to address proposed amendments to the Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33.1-16-02.1 at 5:30 p.m. CST. The hearing will be held on June 21, 2023, at the NDDEQ, 4201 Normandy St., Bismarck, ND 58503-1324, or remotely by video conference by emailing [pwax@nd.gov](mailto:pwax@nd.gov) for details.

The proposed amendments are not expected to have an impact on the regulated community in excess of \$50,000.

The proposed amendments to the Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33.1-16-02.1, are the result of the NDDEQ's period review of the Standards of Quality for Waters of the State, as required by 33 U.S.C. § 1313(c). As proposed, the NDDEQ's amendments will provide clarification in the standards and include changes to the narrative and numeric criteria. Specifically, NDDEQ is proposing the following amendments.

### **Summary of Proposed Changes to the Standards**

#### **1. N.D. Admin. Code § 33.1-16-02.1-08. General water quality standards:**

- Minor grammatical edits to 33.1-16-02.1-08(2)(a) and (c).

#### **2. N.D. Admin. Code § 33.1-16-02.1-09. Surface water classifications, mixing zones, and numeric standards:**

- Edited formatting of 33.1-16-02.1-09 Table 1: (1) Currently the text in the column heading is underlined and it should not be underlined, and (2) revised font in the acute and chronic ammonia criteria formulas for consistency.
- Add Cyanotoxin numeric criteria to Table 1 for Cylindrospermopsin of 15 µg/L and Microcystins of 8 µg/L for the protection of the beneficial use of recreation.
- Add E. Coli criterion to protect Secondary Contact Recreation uses to Table 1 for Class III streams of not to exceed 344 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall more than 10 percent of samples collected during any 30-day consecutive period individually exceed 1,118 organisms per 100 ml. For assessment purposes, the 30-day consecutive period shall follow the calendar month. This standard shall apply only during the recreation season May 1 to September 30.

- Add the USEPA 2018 CWA Section 304(a) recommended aluminum national criteria<sup>1</sup> (2018 Aluminum Criteria) to Table 1 to be used as appropriate for site specific needs. The Aluminum criteria is based upon multiple linear regression (MLR) models for fish and invertebrate species. Data requirements are pH, dissolved organic carbon, and total hardness to quantify the effects of these water chemistry parameters on the bioavailability and associated toxicity of aluminum to aquatic organisms.
- Withdraw chronic mercury criterion of 0.88 µg/L in Table 2.
- Minor grammatical edit to footnote 6 in Table 1.

### 3. Appendix I

- Edit “Little Muddy Creek” to “Little Muddy River.”

The proposed amendments may be reviewed at the office of the NDDEQ, 4201 Normandy St., Bismarck, ND 58503-1324 or on its website at: <https://deq.nd.gov/PublicNotice.aspx>. A copy of the proposed rules, supporting information and/or a regulatory analysis may be requested by writing the above address, emailing [pwax@nd.gov](mailto:pwax@nd.gov), or calling 701-328-5268.

Written or oral comments on the proposed rules sent to the above address or telephone number and received by July 3, 2023, will be fully considered.

The NDDEQ will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access information. To request accommodations, contact the NDDEQ Non-discrimination Coordinator at 701-328-5150 or [deqEJ@nd.gov](mailto:deqEJ@nd.gov). TTY users may use Relay North Dakota at 711 or 1-800-366-6888. If you plan to attend the public hearing and will need special facilities or assistance relating to a disability, please contact the NDDEQ Non-discrimination Coordinator at least five business days prior to the public hearing.

Dated this 12 day of April 2023.

Karl Rockeman, Director  
Division of Water Quality  
NDDEQ

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<sup>1</sup> See *Fact Sheet: Final 2018 Aquatic Life Ambient Water Quality Criteria for Aluminum in Freshwaters*, Office of Water, USEPA (Dec. 2018), available at <https://www.epa.gov/sites/default/files/2018-12/documents/aluminum-criteria-final-factsheet.pdf>.

**PROPOSED RULE AMENDMENT SUMMARY, PROPOSED RULES  
SUPPORTING INFORMATION, PROPOSED AMENDMENTS, REGULATORY  
ANALYSIS, TAKINGS ASSESSMENT, SMALL ENTITY REGULATORY ANALYSIS,  
SMALL ENTITY REGULATORY ANALYSIS, AND FISCAL NOTE**

**Introduction**

The Clean Water Act (CWA), specifically, § 303(c)(1), 33 U.S.C. § 1313(c)(1), and its implementing regulations, 40 C.F.R. § 131.20, require states to review their water quality standards at least once every three years. The review requires North Dakota to incorporate, as appropriate, applicable new scientific and technical information into its Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33.1-16-02.1 (Standards). The CWA requires states to adopt USEPA's recommended criteria or adopt their own to ensure consistency with the requirements of the CWA.

The Standards consist of the three basic elements of: (1) designated uses, (2) water quality criteria, and (3) antidegradation. All three of these elements are being reviewed and amended where appropriate to reflect the most current scientific and technical information.

1. Designated Uses: The designated use describes the existing and/or potential use of the water body. Examples of some designated uses are municipal water supply (after treatment), aquatic life, water-based recreation, irrigation and stock watering.
2. Narrative Water Quality Criteria and General Requirements: These are referred to as "free from" and include garbage, dead animals, oil, scum, and materials that produce odors and/or render undesirable taste to fish flesh.
3. Numeric Water Quality Criteria: Numeric criteria are established for specific pollutants. If the concentration of a pollutant exceeds the numeric criterion, a designated use is not being maintained.
4. Antidegradation and Mixing Zone Policies: These state policies are established to protect, maintain, and improve the water quality necessary for all existing and designated uses.

The North Dakota Department of Environmental Quality (NDDEQ) began the state's last review of the Standards in September 2019. The review was finalized in the fall of

2020 and the resulting amendments were adopted in June 2021. On November 30, 2021, the United States Environmental Protection Agency (USEPA) approved the revised rules except for the chronic aquatic life mercury criterion, N.D. Admin. Code § 33.1-16-02.1-09, Table 2.

The NDDEQ began the current review on May 11, 2022, with a 55-day solicitation of views, provided an opportunity for public comment, and held a public hearing on July 20, 2022. Following the initial solicitation of views and comment period, the NDDEQ developed proposed amendments to the Standards.

The NDDEQ is accepting comments on the proposed amendments below between April 13, 2023 and July 3, 2023. A public hearing will be held on June 21, 2023, at the NDDEQ, 4201 Normandy St., Bismarck, ND 58503-1324, or remotely by video conference by emailing [pwax@nd.gov](mailto:pwax@nd.gov) for details.

The NDDEQ will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access information. To request accommodations, contact the NDDEQ Non-discrimination Coordinator at 701-328-5150 or [deqEJ@nd.gov](mailto:deqEJ@nd.gov). TTY users may use Relay North Dakota at 711 or 1-800-366-6888. If you plan to attend the public hearing and will need special facilities or assistance relating to a disability, please contact the NDDEQ Non-discrimination Coordinator at least five business days prior to the public hearing.

## **Summary of Proposed Changes to the Standards**

### **1. N.D. Admin. Code § 33.1-16-02.1-08. General water quality standards:**

- Minor grammatical edits to 33.1-16-02.1-08(2)(a) and (c).

### **2. N.D. Admin. Code § 33.1-16-02.1-09. Surface water classifications, mixing zones, and numeric standards:**

- Edited formatting of 33.1-16-02.1-09 Table 1: (1) Currently the text in the column heading is underlined and it should not be underlined, and (2) revised font in the acute and chronic ammonia criteria formulas for consistency.

- Add Cyanotoxin numeric criteria to Table 1 for Cylindrospermopsin of 15 µg/L and Microcystins of 8 µg/L for the protection of the beneficial use of recreation.
- Add E. Coli criterion to protect Secondary Contact Recreation uses to Table 1 for Class III streams of not to exceed 344 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall more than 10 percent of samples collected during any 30-day consecutive period individually exceed 1,118 organisms per 100 ml. For assessment purposes, the 30-day consecutive period shall follow the calendar month. This standard shall apply only during the recreation season May 1 to September 30.
- Add the USEPA 2018 CWA Section 304(a) recommended aluminum national criteria<sup>1</sup> (2018 Aluminum Criteria) to Table 1 to be used as appropriate for site specific needs. The Al criteria is based upon multiple linear regression (MLR) models for fish and invertebrate species. Data requirements are pH, dissolved organic carbon, and total hardness to quantify the effects of these water chemistry parameters on the bioavailability and associated toxicity of aluminum to aquatic organisms.
- Withdraw chronic mercury criterion of 0.88 µg/L in Table 2.
- Minor grammatical edit to footnote 6 in Table 1.

### 3. Appendix I

- Edit "Little Muddy Creek" to "Little Muddy River."

#### **Basis for Revisions (other than grammatical) to Water Quality Standards**

- **Adding recommended human health recreational ambient water quality criteria for microcystins and cylindrospermopsin to Table 1.** The recommended magnitude for each of these cyanotoxins is: Cylindrospermopsin 15 µg/L and

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<sup>1</sup> See *Fact Sheet: Final 2018 Aquatic Life Ambient Water Quality Criteria for Aluminum in Freshwaters*, Office of Water, USEPA (Dec. 2018), available at <https://www.epa.gov/sites/default/files/2018-12/documents/aluminum-criteria-final-factsheet.pdf>.

Microcystins 8 µg/L. These criteria reflect the latest scientific knowledge on the potential human health effects from recreational exposure from these cyanotoxins. Primary contact recreation is protected in water bodies at or below the recommended concentrations of microcystin and cylindrospermopsin.

Cyanotoxins, when present, can make humans and animals sick; thus, are a water quality issue of immediate and serious concern. The NDDEQ reviewed the USEPA's *Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin*,<sup>2</sup> and found the updated triggers for swimming advisory appropriate for protecting the state's beneficial uses.

- **Adding E. Coli criterion specific to protection of secondary contact recreation for Class III streams in Table 1:** Not to exceed 344 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall more than 10 percent of samples collected during any 30-day consecutive period individually exceed 1,118 organisms per 100 ml. For assessment purposes, the 30-day consecutive period shall follow the calendar month. This standard shall apply only during the recreation season May 1 to September 30.

North Dakota's Standards have always had a definition of "recreation" identifying secondary contact recreation uses as including activities such as boating, fishing, and wading. N.D. Admin. Code § 33.1-16-02.1-04(12)(c). These uses apply to all Class III streams. N.D. Admin. Code § 33.1-16-02-09(1)(d).

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<sup>2</sup> *Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin*, Office of Water, USEPA (May 2019), available at <https://www.epa.gov/sites/default/files/2019-05/documents/hh-rec-criteria-habs-factsheet-2019.pdf>.

### **33.1-16-02.1-04. Definitions.**

- c. Recreation. Primary recreational waters are suitable for recreation where direct body contact is involved, such as bathing and swimming, and where secondary recreational activities such as boating, fishing, and wading are involved. Natural high turbidities in some waters and physical characteristics of banks and streambeds of many streams are factors that limit their value for bathing.

### **33.1-16-02.1-09. Surface water classifications, mixing zones, and numeric standards.**

- d. Class III streams. The quality of the waters in this class shall be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, they are of limited value for recreation and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g., wading), fish and aquatic biota, and wildlife uses.

Generally, Class III streams are too shallow for total immersion and too narrow for boating. Many go dry or lack flow for extended periods during mid to late summer. Approximately ninety-four (94) percent of Class III streams are on private property and lack any developed public access. Contact recreational activities are limited both by morphology and accessibility, with the most common activities being hunting and trapping. There are a few streams large enough to float a canoe during select periods of year, or years with adequate snow runoff or summer precipitation, though none are regular canoeing destinations.

Currently, secondary contact recreation uses in Class III streams are protected with the same *E. coli* criterion that applies to primary contact recreation uses. In 2022, USEPA published a new methodology (USEPA 2022) that can be used to calculate *E. coli* criteria that protect secondary contact uses.<sup>3</sup>

In brief, USEPA 2022 describes a method that could be used to adjust USEPA's 2012 recreational water quality criteria recommendation<sup>4</sup> (USEPA 2012) for primary contact recreation to account for less exposure to ambient water associated with secondary contact recreation. Adapting Equation 6 from USEPA 2022, secondary contact recreation criteria may be derived using the equation:

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<sup>3</sup> *An Approach for Applying EPA's 2012 Recreational Water Quality Criteria Recommendation to Non-primary Contact Exposure Scenarios*, Office of Science and Technology, Office of Water, USEPA (Jan. 2022) (USEPA 2022), available at <https://www.epa.gov/system/files/documents/2022-01/rec-criteria-white-paper-final.pdf>.

<sup>4</sup> *Recreational Water Quality Criteria*, Office of Water, USEPA (2012) (USEPA 2012), available at <https://www.epa.gov/sites/default/files/2015-10/documents/rwqc2012.pdf>.

$$C_{secondary} = C_{primary} \times \frac{I_{primary}}{I_{secondary}}$$

where:

$C_{primary}$  = a recreational water quality criteria magnitude value for primary contact recreation.

$C_{secondary}$  = an analogous recreational water quality criteria magnitude value for secondary contact recreation with a risk of illness comparable to the magnitude value for primary contact recreation.

$I_{primary}$  = the amount of ambient water incidentally ingested during primary contact recreation.

$I_{secondary}$  = the amount of ambient water incidentally ingested during secondary contact recreation.

The ratio of the amount of incidental ingestion associated with primary contact recreation to the amount of incidental ingestion associated with secondary contact recreation is essentially a conversion factor that adjusts USEPA 2012's recreational water quality criteria for primary contact recreation to a criteria value for secondary contact recreation with the same risk of illness.

Adjusting USEPA 2012's criteria recommendation for primary contact recreation to protect secondary contact recreation using the methodology in USEPA 2022 requires selecting a value for  $I_{secondary}$  in the equation. Selection of a value for  $I_{secondary}$  requires identification of the activities the state defines as secondary contact recreation and quantitative information on the amount of incidental ingestion associated with those activities. The methodology in USEPA 2022 also requires selecting a value for  $I_{primary}$  in the equation. The value  $I_{primary}$  represents the magnitude of incidental ingestion associated with primary contact recreation that represents the primary contact exposure scenario in the epidemiological studies that formed the basis of the primary contact criteria recommendations in USEPA 2012.

The NDDEQ defines secondary contact recreation as:

- Fishing
- Boating
- Wading



USEPA's *Exposure Factors Handbook 2011 Edition*<sup>5</sup>(*Exposure Factors Handbook*) summarizes many of these studies and provides tables of ingestion magnitude estimates for different types of recreational activities. Chapter 3<sup>6</sup> of the *Exposure Factors Handbook* identifies ingestion estimates from a study by Dorevitch et al. (2011)<sup>7</sup> associated with recreational activities that are the same or similar to the three secondary contact recreational activities listed above.

Dorevitch et al. (2011) provides two sets of values for secondary contact recreational activities. One set of values was derived from self-reported estimates of the volume of water recreators ingested during specific activities in ambient water, and another set of values was derived by measuring cyanuric acid in urine after recreators engaged in activities in a swimming pool. Table 3 shows the ingestion magnitude values from Dorevitch et al. (2011) that are similar to the recreational activities relevant to Class III streams in North Dakota.

**Table 3: Relevant Water Ingestion Rates from Dorevitch et al. (2011).**

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<sup>5</sup> *Exposure Factors Handbook: 2011 Edition*, USEPA (Sept. 2011) (*Exposure Factors Handbook*), available at [https://ofmpub.epa.gov/eims/eimscomm.getfile?p\\_download\\_id=522996](https://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=522996).

<sup>6</sup> *Update for Chapter 3 of the Exposure Factors Handbook, Ingestion of Water and Other Select Liquids*, USEPA (Feb. 2019), available at <https://www.epa.gov/expobox/exposure-factors-handbook-chapter-3>.

<sup>7</sup> Samuel Dorevitch, Suraj Panthi, Yue Huang, Hong Li, Angela M. Michalek, Preethi Pratap, Meredith Wroblewski, Li Liu, Peter A. Scheff, An Li, *Water Ingestion During Water Recreation*, 45(5) *Water Res.* 2020-2028 (2011) (Dorevitch et al. (2011)) available at <https://doi:10.1016/j.watres.2010.12.006>.

<b>Activity</b>	<b>Category of recreational contact</b>	<b>Recreational activity in Dorevitch et al. (2011)</b>	<b>Ingestion magnitude (ambient water, median ml/hr)<sup>a</sup></b>	<b>Ingestion magnitude (pool, median ml/hr)<sup>a</sup></b>
Fishing	Secondary	Fishing	2.0	2.0
Boating	Secondary	Boating	2.1	-
Wading*		Wading/Splashing	-	2.2
Wading, swimming, diving, surfing and water skiing	Primary	Swimming	-	6.0

\*Wading/splashing took place in “splash pools,” some with and some without fountains. Participants in the study were instructed to walk around, play, or splash in the water, but not to swim. The activities “wading/splashing” in Dorevitch et al. (2011)<sup>8</sup> would more closely mimic exposures associated with recreation in Class III streams than activities associated with primary contact recreation.

The activity identified as wading/splashing in Dorevitch et al. (2011) has the highest ingestion magnitude (2.2 ml/hr) of the recreational activities identified by North Dakota as representing secondary contact recreation. Therefore, a secondary contact ingestion magnitude of 2.2 ml/hr is the appropriate value for  $I_{secondary}$  in the equation because it will result in the most stringent criterion that will protect all three secondary contact recreational activities.

Applying the method described in USEPA 2022<sup>9</sup> to develop secondary contact recreation criteria also requires selection of a value for  $I_{primary}$  in the equation. USEPA 2022 specifies that the value of  $I_{primary}$  should represent the primary contact exposure scenario in the epidemiological studies that formed the basis of USEPA 2012’s recreational water quality criteria<sup>10</sup> for primary contact recreation. Because the epidemiological studies USEPA used to develop its 2012 recreational water quality criteria evaluated illness rates of “swimmers” at public beaches, the estimate of incidental ingestion associated with “swimming” in Dorevitch et al. (2011) is an

<sup>8</sup> Dorevitch et al. (2011), *supra* note 7.

<sup>9</sup> See USEPA 2022, *supra* note 3.

<sup>10</sup> See USEPA 2012, *supra* note 4.

appropriate value for  $I_{primary}$ .

USEPA's *Exposure Factors Handbook*<sup>11</sup> provides other estimates of incidental ingestion associated with swimming. However, USEPA 2022<sup>12</sup> warns that choosing values for  $I_{primary}$  and  $I_{secondary}$  with unequal statistical bias could result in inaccurate criteria values, and that one approach for choosing appropriate values is to choose a pair of values with the same biases so that the biases cancel. Using this approach, the ingestion magnitude of 6.0 ml/hr associated with swimming in the pool study from Dorevitch et al. (2011) is the most appropriate value for  $I_{primary}$  because it was derived from the same study using the same experimental methods as the value of  $I_{secondary}$ , thus minimizing the possibility of unequal statistical bias between the two values. USEPA 2022 also states that the units of measure for  $I_{primary}$  and  $I_{secondary}$  should be the same, should be appropriate for describing incidental ingestion of ambient water during recreation, and should be consistent with the distribution of the underlying data. The units of measure for  $I_{primary}$  and  $I_{secondary}$  are the same (ml/hour) and appropriate for measuring incidental ingestion. In addition, Dorevitch et al. (2011) states that the distribution of the underlying data most closely approximates a lognormal distribution. Therefore, the NDDEQ selected the median values rather than the arithmetic mean values provided by Dorevitch et al. (2011) because the arithmetic mean assumes a normal distribution, whereas the median makes no assumptions about the underlying distribution.

Finally, applying the method described in USEPA 2022 to develop secondary contact recreation criteria requires a value for the  $C_{primary}$  in the equation. USEPA 2022 states that the value  $C_{primary}$  should be the USEPA 2012 water quality criterion magnitude for primary contact recreation that is being adjusted to derive a criteria magnitude value for secondary contact recreation. North Dakota currently has a Standard for primary contact recreation for other fresh surface waters based on USEPA 2012 recommendations. North Dakota's current criteria for primary contact recreation uses *E. coli* as the indicator with a geometric mean (GM) of 126 organisms and a statistical threshold value (STV) of 410 organisms. Therefore, the value of 126 is an appropriate value for  $C_{primary}$  to calculate a secondary contact recreation GM and a value of 410 organisms is an appropriate value for  $C_{primary}$  to calculate a secondary contact STV.

Applying the equation above adapted from USEPA 2022 results in the following criteria for secondary contact recreation in Class III streams:

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<sup>11</sup> *Exposure Factors Handbook*, *supra* note 5.

<sup>12</sup> USEPA 2022, *supra* note 3.

*E. coli* freshwater:

$$GM = 126 \times \frac{6.0 \text{ ml/hour}}{2.2 \text{ ml/hour}} = 344 \text{ CFU}$$

$$STV = 410 \times \frac{6.0 \text{ ml/hour}}{2.2 \text{ ml/hour}} = 1,118 \text{ CFU}$$

- **Adding, for a site specific option, USEPA's updated aquatic life ambient water quality criteria recommendations for aluminum under Section 304(a) of the CWA, 33 U.S.C. § 1314(a).**

Based on the NDDEQ's review, USEPA's 2018 CWA Section 304(a) updated aquatic life ambient water quality criteria recommendation<sup>13</sup> for aluminum (2018 Aluminum Criteria) increases accuracy but is difficult to apply and does not provide an increase in aquatic life protection over the current criteria.

To further clarify, the 2018 Aluminum Criteria are sensitive to select parameters, which makes it difficult to characterize the receiving water. To elucidate, the information (data) required to calculate, and the expertise to interpret the data is lacking on most waters and for facilities in the state. Additionally, collecting the data is expensive and labor intense. This is starkly different from the current criteria of 87 µg/L (chronic) and 750 µg/L (acute) that are easily applied and understood, inexpensive to monitor for, and provide greater protection.

When the NDDEQ tested the 2018 Aluminum Criteria (spreadsheet supplied by USEPA) to calculate aluminum criteria with a default dissolved organic carbon (DOC) of 5 mg/L and a hardness of 150 mg/L, the acute and chronic criteria are less stringent than the NDDEQ's current criteria. Additional investigation using relatively hard water (>250 mg/L CaCO<sub>3</sub>), shows the current criteria of 87 µg/L and 750 µg/L (chronic and acute, respectively) are substantially more protective than the 2018 Aluminum Criteria with a calculated chronic criterion range of over 3000 µg/L and an acute criterion of over 4000 µg/L. North Dakota's surface waters have an average DOC of 10.83 mg/L (n=2,835) and a hardness of 566 mg/L (n=20,734).

While the increased accuracy of the updated aluminum criteria is not being questioned at this time, it does not provide an increase in aquatic life

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<sup>13</sup> See *supra* note 1.

protection in hard water (>150 mg/L CaCO<sub>3</sub>) with a DOC greater than 5 mg/L. Just as importantly, the supposed added accuracy is obtained at a cost to simplicity and transparency. Based on these two main premises, the NDDEQ chooses not to adopt the 2018 Aluminum Criteria for all water bodies but proposes to adopt the criteria as a site-specific criteria option that may be used when appropriate to allow for greater discharges of aluminum and still protect aquatic life.

- **Withdraw Mercury (Hg) Chronic Criterion of 0.88 ug/L from Table 2.**

During the NDDEQ's 2019 triennial review, the chronic mercury criterion for the protection of aquatic life was proposed to be amended from 0.012 µg/L to 0.88 µg/L. The chronic criterion of 0.012 µg/L is based on USEPA's recommended Ambient Aquatic Life Water Quality Criteria for Mercury published in 1985. The chronic criterion of 0.88 µg/L is based on USEPA's recommend Ambient Aquatic Life Criteria for Mercury published in 1995. The USEPA's recommended chronic criterion of 0.77 µg/L was converted to 0.88 µg/L total recoverable for permitting purposes. On June 8, 2021, the state adopted the amendments proposed during the triennial review (including the chronic criterion of 0.88 µg/L for Hg). On November 30, 2021, USEPA approved for CWA purposes all proposed revisions to the Standards except the chronic mercury criterion of 0.88 µg/L. To maintain consistency, the NDDEQ proposes to withdraw the 0.88 µg/L to ensure that the Standards accurately reflect the criterion approved for CWA purposes. As a result, the chronic mercury criterion for the protection of aquatic life for CWA and non-CWA purposes will be 0.012 µg/L.

**Proposed Amendments to the Standards (Strikeouts are proposed deletions and underlined proposed additions)**

**CHAPTER 33.1-16-02.1**

Subsection 2 of Section 33.1-16-02.1-08 is amended as follows:

**2. Narrative biological goal.**

- a. Goal. The biological condition of surface waters shall be similar to ~~that of~~ sites or water bodies determined by the department to be regional reference sites.
  
- c. Implementation. The intent of the state in adopting a narrative biological goal is solely to provide an additional assessment method that can be used to identify impaired surface waters. Regulatory or enforcement actions based solely on a narrative biological goal, such as the development and enforcement of North Dakota pollutant discharge elimination system permit limits, are not authorized. However, adequate and representative biological assessment information may be used in combination with other information to assist in determining whether designated uses are attained and to assist in determining whether new or revised chemical-specific permit limitations may be needed. Implementation will be based on the comparison of current biological conditions at a particular site to the biological conditions deemed attainable based on regional reference sites. In implementing a narrative biological goal, biological condition may be expressed through an index composed of multiple metrics or through appropriate statistical procedures.

Subsection 3 of Section 33.1-16-02.1-09 is amended as follows:

**3. Numeric standards.**

- a. Class I streams. The physical and chemical criteria for class I streams are listed in table 1 and table 2.
- b. Class IA streams. The physical and chemical criteria shall be those for class I streams, with the exceptions for E. coli, chloride, percent sodium, and sulfate as listed in table 1.
- c. Site-specific sulfate standard. The physical and chemical criteria for the Sheyenne River from its headwaters to one-tenth of a mile downstream from Baldhill Dam shall be those for class IA streams, with the exception of sulfate as listed in table 1.
- d. Class II streams. The physical and chemical criteria shall be those for class IA, with the exceptions for E. coli, chloride and pH and sulfates as listed in table 1.

None	E. coli <sup>34</sup> (d)	<p><b><u>Class I, IA, and II:</u></b> Not to exceed 126 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall more than 10 percent of samples collected during any 30-day consecutive period individually exceed 409 organisms per 100 ml. For assessment purposes, the 30-day consecutive period shall follow the calendar month. This standard shall apply only during the recreation season May 1 to September 30.</p> <p><b><u>Class III:</u></b> <u>Not to exceed 344 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall more than 10 percent of samples collected during any 30-day consecutive period individually exceed 1,118 organisms per 100 ml. For assessment purposes, the 30-day consecutive period shall follow the calendar month. This standard shall apply only during the recreation season May 1 to September 30.</u></p>
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Section 33.1-16-02.1-09, Table 1 is amended as follows:

TABLE 1 MAXIMUM LIMITS FOR SUBSTANCES IN OR CHARACTERISTICS OF CLASSES I, IA, II, AND III STREAMS

<b><u>CAS<sup>1</sup> No.</u></b>	<b><u>Substance or Characteristic</u></b> <b><u>(a = aquatic life)</u></b> <b><u>(b = municipal &amp; domestic drinking water)</u></b> <b><u>(c = agricultural, irrigation, industrial)</u></b> <b><u>(d = recreation)</u></b>	<b><u>Maximum Limit</u></b>
<b>CAS<sup>1</sup> No.</b>	<b>Substance or Characteristic</b> <b>(a = aquatic life)</b> <b>(b = municipal &amp; domestic drinking water)</b> <b>(c = agricultural, irrigation, industrial)</b> <b>(d = recreation)</b>	<b>Maximum Limit</b>
<u>None</u>	<u>Cylindrospermopsin (d)</u>	<u>15 µ/l For Clean Water Act water quality criterion, no more than 3 excursions (10-day assessment periods) within a single recreational season in a single year.</u>
<u>None</u>	<u>Microcystins (d)</u>	<u>8 µ/l For Clean Water Act water quality criterion, no more than 3 excursions (10-day assessment periods) within a single recreational season in a single year.</u>

<sup>2</sup>The US EPA 2018 recommended national criteria (304(a) criteria) for aluminum can be used for site specific chronic and acute criteria when appropriate and data is available. The criteria is based upon multiple linear regression (MLR) models for fish and invertebrate species. Data requirements are pH, DOC, and total hardness to quantify the effects of these water chemistry parameters on the bioavailability and associated toxicity of aluminum to aquatic organisms.

Section 33.1-16-02.1-09, Table 2 is amended as follows:

7439-97-6	Mercury	1.7	<del>0.88</del> <u>0.012</u>	0.050	0.051
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<sup>6</sup>Hardness dependent criteria. Value given is an example ~~only and is~~ based on a CaCO<sub>3</sub> concentration of 400 mg/l. Criteria for each case must be calculated using the following formula:

Chapter 33.1-16-02.1, Appendix I is amended as follows:

RIVER BASINS

SUBBASINS

TRIBUTARIES

CLASSIFICATION

Missouri River, including Lake Sakakawea and Oahe Reservoir	I
Yellowstone	I
Little Muddy-Creek <u>River</u> near Williston	II



**TAKING ASSESSMNT  
REGULATORY ANALYSIS  
SMALL ENTITY REGULATORY ANALYSIS  
SMALL ENTITY ECONOMIC IMPACT STATEMENT  
And  
FISCAL NOTE**

**TAKINGS ASSESSMENT PURSUANT TO  
NORTH DAKOTA CENTURY CODE § 28-32-09  
TO AMEND NORTH DAKOTA ADMINISTRATIVE CODE CHAPTER 33.1-16-02.1  
STANDARDS OF QUALITY OF WATERS OF THE STATE**

- 1. Assess the likelihood that the proposed rule may result in a taking or regulatory taking.**

The proposed rules update the Standards for Quality for Waters of the State to be consistent with the Federal Clean Water Act (CWA) and the federal rules promulgated thereunder. The proposed rules will not limit the use of a landowner's private real property and will not result in a regulatory taking.

- 2. Clearly and specifically identify the purpose of the proposed rule.**

The purpose of the proposed rules is to update the state's water quality standards.

- 3. Explain why the proposed rule is necessary to substantially advance that purpose and why no alternative action is available that would achieve the agency's goals while reducing the impact on private property owners.**

No alternative is available. For the state of North Dakota to maintain primacy, the state (North Dakota Department of Environmental Quality (NDDEQ)) is required to periodically review and, as appropriate, adopt new or revised water quality standards (WQS) to meet the requirements of the CWA and consider the latest science regarding water quality protection. States and tribes must submit any new or revised WQS resulting from such a review to the United States Environmental Protection Agency (USEPA) for review and approval or disapproval action under the CWA Section 303(c). If the state would lose primacy, the USEPA would assume the responsibility of writing and enforcing water quality standards for the state.

- 4. Estimate the potential cost to the government if a court determines that the proposed rule constitutes a taking or regulatory taking.**

There will be no additional costs as the comparable federal rules are already in place.

- 5. Identify the source of payment within the agency's budget for any compensation that may be ordered.**

There would be no payment (see 4).

**6. Certify that the benefits of the proposed rule exceed the estimated compensation costs.**

Since there will be no cost associated with the rules, any benefits achieved will exceed the costs.

**REGULATORY ANALYSIS PURSUANT TO  
NORTH DAKOTA CENTURY CODE § 28-32-08  
TO AMEND NORTH DAKOTA ADMINISTRATIVE CODE CHAPTER 33.1-16-02.1  
STANDARDS OF QUALITY OF WATERS OF THE STATE**

**1. Who are the classes of person(s) who will probably be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule?**

The proposed amendments to the Standards of Quality for Waters of the State have the potential to affect new industries, existing industries, and municipalities.

**2. What is the probable impact, including economic impact, of the proposed rule?**

The proposed updates and addition of a secondary recreation criteria will not change the current permitting process or add additional monitoring. The addition of a secondary recreation criteria is to accurately define the limiting stressor for the beneficial use of fishing, boating, and wading in/on Class III streams.

The addition of criteria for the algal toxins Cylindrospermopsin of 15 µg/L and Microcystin 8 µg/L is not anticipated to have any effect on the regulated community. The sampling and tracking of the presence or absence of the algal toxins has been carried out by the North Dakota Department of Environmental Quality (NDDEQ) with no cost to the public or regulated communities.

The withdrawal of the mercury criteria will have no impact on the private or regulated community. The purpose for withdrawing the mercury criteria of 0.88 µg/L is to prevent confusion by matching the criteria recognized by United States Environmental Protection Agency (USEPA) for Clean Water Act purposes. Currently the USEPA recognizes 0.012 µg/L as the criteria for North Dakota for Clean Water Act purposes.

There is no anticipated economic impact to point source dischargers and other regulated entities. The proposed criteria are unlikely to affect point source dischargers.

Other changes are editorial corrections or clarifications.

**3. What are the probable costs to the agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues?**

There will be no additional or minimal staff time required to implement and enforce the changes to the rules.

**4. What were the alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency/board and why was each method rejected in favor of the proposed rule?**

The NDDEQ could choose not to adopt the changes. If this occurred, the USEPA could establish water quality standards for North Dakota and enforce them or the agency could be sued by a third party.

**5. Please explain the information and data assessment as well as how the amounts of impact were determined, to the extent practicable.**

Regulatory analysis for numeric criteria (mercury, aluminum, *e. coli*, cylindrospermopsin, and microcystins) is based on a comparison of the current criteria to the proposed. It assumes a steady state condition for all dischargers (no increases or decreases from current conditions). This comparison shows that there will be no change for the regulated community.

**SMALL ENTITY REGULATORY ANALYSIS  
PURSUANT TO NORTH DAKOTA CENTURY CODE § 28-32-08.1  
TO AMEND NORTH DAKOTA ADMINISTRATIVE CODE CHAPTER 33.1-16-02.1  
STANDARDS OF QUALITY OF WATERS OF THE STATE**

The following analysis is prepared to comply with the requirements for changes to the North Dakota Administrative Code (N.D.A.C.) Chapter 33.1-16-02.1, Standards of Quality for Water of the State (Standards). Under N.D.C.C. § 28-32-08.1, this regulatory analysis is not required as these are rules mandated by federal law. However, for consistency purposes, the North Dakota Department of Environmental Quality (NDDEQ) prepared this regulatory analysis.

**1. Was establishment of less stringent compliance or reporting requirements for small entities considered? To what result?**

The small entity regulatory analysis considers each of the possible ways the North Dakota Department of Environmental Quality (NDDEQ) can enact rules that minimize the adverse impact on small entities. A less stringent criteria or exempting of criteria for small entities was not considered as: (1) the criteria protects the beneficial use aquatic life for all citizens regardless of geographic residence, and (2) under the Clean Water Act (CWA) the NDDEQ is required to update the state's water quality standards every three years with the most current federally recommended criteria or develop criteria of our own that is as or more protective.

Note that the NDDEQ could choose not to adopt new criteria for all waters. If this occurred, the U.S. Environmental Protection Agency (USEPA) would be required to establish water quality standards for North Dakota and enforce them.

Secondary Recreation Criteria: Less stringent criteria were investigated by two groups in the NDDEQ (TMDL & Standards). Based on lengthy investigations and multiple discussions, the criteria proposed is appropriate to protect the beneficial uses recognized on Class III streams without being overly protective. Beneficial uses protected are fishing, boating, and wading.

Cylindrospermopsin and Microcystins: Less stringent criteria or exempting of criteria for small entities was not considered as: (1) the criteria protects the beneficial use of citizen recreation, pets and livestock, and (2) under the federal Clean Water Act (CWA 303(c)) the state (NDDEQ) is required to update the water quality standards every three years with the most current federally recommended criteria or develop criteria of our own that is as or more protective. Note that the NDDEQ could choose to not

adopt the criteria. If this occurred, the USEPA could establish water quality standards for North Dakota and enforce them or the agency could be sued by a third party.

Mercury: Proposing less stringent criteria instead of withdrawal of the mercury criteria was not considered. The purpose of withdrawing the current criterion is to prevent confusion for regulators, industry, and municipalities that must comply with the CWA. Having mercury criteria of 0.88 µg/L in our water quality standards and 0.012 µg/L in USEPA's will cause confusion.

Other Amendments: Other amendments are not anticipated to have regulatory impact on small entities.

**2. Was establishment of less stringent schedules or deadlines for compliance or reporting requirements considered for small entities? To what result?**

No, see response to #1.

**3. Was consolidation or simplification of compliance or reporting requirements for small entities considered? To what result?**

No, see response to #1.

**4. Were performance standards established for small entities for replacement design or operational standards required in the proposed rule? To what result?**

No, see response to #1.

**5. Was exemption of small entities from all or any part of the requirements in the proposed rule considered? To what result?**

No, see response to #1.

**SMALL ENTITY ECONOMIC IMPACT STATEMENT PURSUANT TO  
NORTH DAKOTA CENTURY CODE § 28-32-08.1  
TO AMEND NORTH DAKOTA ADMINISTRATIVE CODE CHAPTER 33.1-16-02.1  
STANDARDS OF QUALITY OF WATERS OF THE STATE**

The following statement is prepared to comply with the requirements for changes to the North Dakota Administrative Code (N.D.A.C.) Chapter 33.1-16-02.1, Standards of Quality for Water of the State (Standards). Under N.D.C.C. § 28-32-08.1, this economic impact statement is not required as these are rules mandated by federal law. However, for consistency purposes, the North Dakota Department of Environmental Quality (NDDEQ) prepared this economic impact statement.

**1. Which small entities are subject to the proposed rule?**

All entities defined as small in N.D.C.C. § 28-32-08.1 that discharge wastes to waters of the state and all small entities that have the potential to spill pollutants to waters of the state are subject to these rules.

**2. What are the administrative and other costs required for compliance with the proposed rule?**

The NDDEQ has reviewed the updated the secondary recreation criteria. The review compared the current lack of any criteria for Class III streams and the proposed criteria. The NDDEQ reached the conclusion that protecting Class III streams with a criteria designed for Class I, IA and II would not result in an increase in criteria violations but the opposite. Based on the NDDEQ's review, implementing the proposed secondary recreation criteria poses no regulatory compliance challenges.

**3. What is the probable cost and benefit to private persons and consumers who are affected by the proposed rule?**

If an entity were to increase the volume of accepted waste, there is the possibility of increased cost in operation or construction to address the additional volume. The cost would be passed onto the consumer.

**4. What is the probable effect of the proposed rules on State revenue?**

No effect on state revenues is anticipated.



**5. Are there less intrusive or costly ways of achieving the proposed rule's purpose?**

The NDDEQ has spent considerable time investigating and strategizing ways to minimize the economic impact of the rules to all citizens and have found none.

**FISCAL NOTE PURSUANT TO  
NORTH DAKOTA CENTURY CODE SECTION § 28-32-08.2  
TO AMEND NORTH DAKOTA ADMINISTRATIVE CODE CHAPTER 33.1-16-02.1  
STANDARDS OF QUALITY FOR WATERS OF THE STATE**

**BACKGROUND**

N.D.C.C. § 28-32-08.2, requires the North Dakota Department of Environmental Quality (NDDEQ) to provide the Administrative Rules Committee with a fiscal note reflecting the effect of the rule changes on state revenues and expenditures, including any effect on funds controlled by the agency, or a statement that the rules have no fiscal effect.

**COST TO AGENCY AND EFFECT ON STATE REVENUES**

It is anticipated that there will be no significant fiscal cost to the agency to implement and enforce proposed amendments. The proposed amendments will require no additional staff. The amendments will require a small amount of additional time to implement. The additional time will be absorbed without adding staff, increasing management duties or employee training. The amendments to these rules have no fiscal effect.