

Report to
Legislative Council Rules Clearinghouse
NR 102, 105, 106 and 219, Wis. Adm. Code
Natural Resources Board Order No. WY-23-19

Wisconsin Statutory Authority

The statutory authority for developing PFAS surface water quality standards for human health protection and for developing factors for listing waters as impaired for PFAS is as follows:

- Section 281.12, Wis. Stats., grants the department 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.
- Section 281.65(4)(c) and (cd), Wis. Stats., directs the department to prepare a list of impaired waters.
- 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. 281, Wis. Stats.

The statutory authority to promulgate Wisconsin Pollutant Discharge Elimination System (WPDES) permitting procedures to implement the new standards is as follows:

- Section 283.13(5), Wis. Stats., states that the department shall establish more stringent limitations than required under subs (3) and (4) when necessary to comply with water quality standards.
- 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 283.37, 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 that the department establish a continuing planning process and that plans shall include implementation procedures including compliance schedule for new 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.

Federal Authority

Federal statutes and regulations direct states to establish and periodically review water quality standards. State adoption of water quality standards and revisions to standards require U.S. Environmental Protection Agency (EPA) approval pursuant to 40 CFR 131.20 and 131.21.

- 33 USC s. 1313(c) (section 303(c) of the Clean Water Act) requires that states periodically review and modify or adopt, if necessary, water quality standards. This requirement applies to all surface waters in the state.
- 33 USC s. 1314(a) (section 304 of the Clean Water Act) requires that EPA develop and publish criteria for water quality for all waters for uses such as aquatic life, public health protection, and recreation.
- 40 CFR s. 130.3 defines water quality standards as setting water quality goals for a waterbody that will protect its designated uses (such as protection of fish, wildlife, recreation, and public health and

welfare). Criteria will be set to protect those uses.

- 40 CFR s. 131.4 specifies that states are responsible for reviewing, establishing and revising their own water quality standards.
- 40 CFR ss. 131.10 and 11 require states to develop water quality standards including uses and criteria to protect the uses. 40 CFR s. 131.11 (b) states that the criteria must be based on federal guidance, federal guidance modified to reflect site-specific criteria, or other scientifically defensible methods.
- 40 CFR s. 131.11 specifies that criteria must protect the designated uses and that criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. Furthermore, states must review water quality data and information on discharges to identify specific water bodies where toxic pollutants may be adversely affecting water quality or the attainment of the designated use or where the levels of toxic pollutants are at a level to warrant concern, and must adopt criteria for such toxic pollutants applicable to the water body sufficient to protect the designated use.
- 40 CFR 131.20 requires states to periodically review water quality standards.
- 40 CFR 132 and Appendices contain requirements for developing water quality standards in the Great Lakes System as well as implementation procedures for the standards and National Pollutant Discharge Elimination System (NPDES) permitting requirements for point source discharges to the Great Lakes System.
- 40 CFR 123.25 lists the federal regulations in 40 CFR 122 and 124 that states must follow in the administration of the NPDES permit program. State rules must be at least as stringent as these federal requirements.

EPA has neither promulgated specific water quality standards for PFAS nor proposed criteria under s.304(a) of the Clean Water Act. EPA typically relies on states to take the initiative and develop water quality standards because states have varying types of fish and aquatic life species and varying types of waterbodies within, and adjacent to, their borders. Occasionally, EPA will specifically direct states to promulgate water quality standards or promulgate procedures for deriving criteria for pollutants in advance of state efforts, and then require that states adopt water quality standards for the pollutant that are at least as stringent as EPA's procedure or standard. EPA has not expressly directed states to develop water quality standards for PFAS at this time, although states do not need EPA approval to begin developing water quality standards and have the discretion to develop water quality criteria for any pollutant.

Comparison of Adjacent States

The administrative codes of adjacent states contain narrative criteria for the protection of surface waters, although none of the adjacent states' narrative criteria are specific to PFOS or PFOA. The narrative criteria of Illinois, Iowa, and Michigan specifically prohibit concentrations of toxic substances in surface waters in amounts that will adversely affect human health or public health. Minnesota's narrative criteria prohibits discharge of wastes in such quantities that will cause pollution as defined by law.

Code citations for these narrative criteria are as follows:

- Illinois: Ill. Admin. Code tit. 35, § 302.210: "Other Toxic Substances. Waters of the State shall be free from any substances or combination of substances in concentrations toxic or harmful to human health, or to animal, plant or aquatic life. Individual chemical substances or parameters for which numeric standards are specified in the Subpart are not subject to this Section."
- Iowa: IAC § 567.61.3(2)(d): "General water quality criteria. The following criteria are applicable to all surface waters including general use and designated use waters, at all places and at all times for the uses described in 61.3(1) 'a.' ... 'd.' Such waters shall be free from substances attributable to wastewater discharges or agricultural practices in concentrations or combinations which are acutely toxic to human, animal, or plant life."
- Michigan: R 323.1057, Mich. Admin. Code: "Rule 51. (1) Toxic substances shall not be present in the surface waters of the state at levels that are or may become injurious to the public health, safety, or welfare, plant and animal life, or the designated uses of the waters. As a minimum level of protection, toxic substances shall not exceed the water quality values specified in, or developed pursuant to, the provisions of subrules (2) to (4) of this rule or conditions set forth by the provisions

of subrule (6) of this rule. A variance to these values may be granted consistent with the provisions of R 323.1103.”

- Minnesota: Minn. Stat. 7050.0210-13: “Pollution prohibited. No sewage, industrial waste, or other wastes shall be discharged from either a point or a nonpoint source into the waters of the state in such quantity or in such manner alone or in combination with other substances as to cause pollution as defined by law. In any case where the waters of the state into which sewage, industrial waste, or other waste effluents discharge are assigned different standards than the waters of the state into which the receiving waters flow, the standards applicable to the waters into which the sewage, industrial waste, or other wastes discharged shall be supplemented by the following: The quality of any waters of the state receiving sewage, industrial waste, or other waste effluents shall be such that no violation of the standards of any waters of the state in any other class shall occur by reason of the discharge of the sewage, industrial waste, or other waste effluents.”

Two adjacent states – Michigan and Minnesota – have released numeric water quality values for PFOS, or PFOS and PFOA. Both states developed their values according to the procedures outlined in 40 CFR 132, but each state used different inputs, which resulted in different numeric values. Similarly, Wisconsin selected a different methodology and different inputs, as described below, and thus the proposed thresholds are different. Further, Minnesota released site-specific criteria (SSC) for PFOS rather than implementing the criteria statewide. Michigan has calculated statewide values as Wisconsin is proposing to do. Wisconsin chose not to pursue the development of SSC for this rulemaking effort. Over the past several years, the department has endeavored to collect data on the occurrence of PFAS across the state, and this data indicates the possibility of human exposure to PFOA and PFOS via surface waters or fish taken from surface waters in areas throughout the state. With statewide criteria the department seeks to provide protection for citizens’ use of all waters. Additionally, Minnesota’s code includes provisions for developing SSCs without rulemaking, but Wisconsin’s does not. Thus, there would be no administrative time saved or expedited human health protections gained by developing SSCs compared to statewide criteria.

Wisconsin’s proposed threshold of 8 ng/L for PFOS is more stringent than Michigan’s value of 11 ng/L and, compared to Minnesota’s PFOS criterion in waters where it applies, less stringent than Minnesota’s criterion of 0.05 ng/L. Wisconsin’s proposed thresholds of 20 ng/L and 95 ng/L for PFOA in public drinking water supply waters and non-public drinking supply waters, respectively, are more stringent than Michigan’s values of 420 and 12,000 ng/L for PFOA in drinking and non-drinking waters, respectively.

Additional information on each adjacent state’s approach to developing their criteria is provided below:

- In 2020, the Minnesota Pollution Control Agency (MPCA) released SSC for PFOS in surface waters and fish tissue for Lake Elmo and two connected waterbodies, Bde Maka Ska and Mississippi River Pool 2. These SSC are not promulgated standards but were developed according to the procedures outlined in 40 CFR 132 pursuant to Minnesota’s statutory provisions. Minnesota’s administrative code provides the flexibility to implement SSCs without going through rulemaking. The value for fish tissue is 0.37 ng PFOS/g and the value for water that supports the fish tissue criterion is 0.05 ng PFOS/L. MPCA’s SSC incorporated the Minnesota Department of Health’s toxicity value, which was derived using a model that focuses on the protection of infants and women of childbearing age (WCBA). Accordingly, MPCA’s SSC derivation also included WCBA-specific body weights and fish consumption and drinking water intake rates.

When asked for input from Minnesota on implementation, Minnesota officials responded that they implement their SSC for PFOS in a handful of waterbodies in the Minneapolis-St. Paul metro area – both in the East Metro cleanup area and in other parts. For the most part, PFOS criteria were developed in order to provide appropriate cleanup values for the East Metro and for an area of Minneapolis that has been impacted by a chrome plater. Limitations based on the numeric PFOS SSC described above have not yet been applied in NPDES permits. In 2007, MPCA and STS Consultants, LTD., developed SSC for PFOA and PFOS for Bde Maka Ska and Mississippi River Pool 2. Minnesota has had limited permit implementation of the 2007 criteria; to date, there is only one wastewater plant that has PFAS limits based on these criteria. See: <https://www.pca.state.mn.us/waste/water-quality-criteria-development-pfas> for more information.

- Michigan Department of Environmental Quality (now called the Department of Environment, Great Lakes, and Energy; EGLE) released statewide water quality values for PFOS in 2014 and PFOA in 2011. The process for calculating surface water quality values, outlined in 40 CFR 132, is promulgated in Michigan’s administrative code R. 323.1057. However, values resulting from this process are not promulgated and appear in “Rule 57 Water Quality Values Spreadsheets” available at https://www.michigan.gov/egle/0,9429,7-135-3313_3681_3686_3728-11383--,00.html. Michigan’s PFOS and PFOA values apply to surface waters statewide. Concentrations of PFOS may not exceed 11 and 12 ng/L in drinking and non-drinking waters, respectively. Concentrations of PFOA may not exceed 420 and 12,000 ng/L in drinking and non-drinking waters, respectively. Michigan EGLE’s surface water quality values incorporate toxicity values based on data from studies where cynomolgus monkeys were exposed to PFOS or PFOA for 182 days (Butenhoff et al. 2002; Seacat et al. 2002). Derivation of both values also included adult body weights and fish consumption and drinking water rates.

Michigan implements surface water PFOS and PFOA values through various water quality programs. Michigan is carrying out an Industrial Pretreatment Program PFAS Initiative, a Municipal NPDES Permitting Strategy, and an Industrial Direct and Industrial Storm Water Discharge Compliance Strategy for monitoring and addressing PFOS and PFOA in regulated discharges. Under the Municipal NPDES Permitting Strategy, municipal permits issued/re-issued after October 1, 2021 will include effluent limits for PFOS/PFOA if applicable. In addition, after July 1, 2021, Michigan will require sampling of biosolids prior to land application as part of a biosolids Interim Strategy. Michigan supports these programs through ambient surface water and fish tissue monitoring.

Iowa and Illinois have not promulgated water quality criteria for any PFAS compounds.

Court Decisions Directly Relevant

None.

Analysis of the Rule - Rule Effect - Reason for the Rule

Poly- and perfluoroalkyl substances (PFAS) are human-made, organic compounds that have been manufactured for use in non-stick coatings, waterproof fabrics, firefighting foams, food packaging, and many other applications since the 1940s. PFAS are highly resistant to degradation and have been detected globally in water, sediment, and wildlife. This global distribution is of concern as PFAS have documented toxicity to animals and because epidemiological studies have suggested probable links to several human health effects. In Wisconsin, PFAS have been detected in drinking and surface water near sources of industrial use or manufacture and near spill locations. Perfluorooctane sulfonate (PFOS) has been found in fish tissue resulting in the issuance of special fish consumption advisories for some surface waters in the state.

The proposed rules include a water quality standard for two types of PFAS: PFOS and perfluorooctanoic acid (PFOA). Under the Clean Water Act, surface water quality standards can include criteria that are either numeric or narrative. Wisconsin’s existing Administrative Codes contain both numeric and narrative criteria for toxic substances:

- Chapter NR 105, Wis. Adm. Code, contains specific numeric criteria for numerous toxic pollutants as well as formulas for calculating numeric criteria for toxics that do not yet have promulgated criteria.
- Section NR 102.04(d), Wis. Adm. Code, contains Wisconsin’s narrative criteria for toxics. This existing rule states that substances in concentrations or combinations which are toxic or harmful to humans *shall not be present in amounts found to be of public health significance* [emphasis added], nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

The proposed PFOS and PFOA standard interprets Wisconsin's existing narrative criterion with numeric thresholds, created under s. NR 105.04(4m) and s. NR 102.04. As shown above, existing rule language specifies that substances shall not be present in amounts found to be of public health significance. The proposed rule defines levels of public health significance for the two types of PFAS based on preventing adverse effects from contact with or ingestion of surface waters of the state, or from ingestion of fish taken from waters of the state.

- For PFOS, the proposed level of public health significance is 8 ng/L for all waters except those that cannot naturally support fish and do not have downstream waters that support fish.
- For PFOA, the proposed level of public health significance is 20 ng/L in waters classified as public water supplies under ch. NR 104, and 95 ng/L for other surface waters.

Related to the proposed PFOS and PFOA standard, the proposed rule also includes assessment protocols that clarify when a surface water that contains levels of PFOS or PFOA above the public health significance threshold levels in the narrative standard should be listed on the state's impaired waters list.

Additionally, this rule includes revisions to ch. NR 106, Wis. Adm. Code that address WPDES permit implementation procedures for the new PFOS and PFOA standard. With regard to permit implementation of the narrative criteria, DNR is proposing source reduction as a first step toward reducing levels of PFOS and PFOA in the effluent rather than requiring treatment up front because source reduction is the most cost effective approach to reducing or eliminating PFOS and PFOA in wastewater discharges and it avoids the generation of contaminated carbon filters from treatment systems which will contain higher levels of PFOA and PFOS that will have to be disposed of in a safe manner.

The proposed rule establishes WPDES permit requirements for PFOS and PFOA discharges to surface waters of the state, in ch. NR 106 – Subchapter VIII, Wis Adm. Code, including: the determination of the need for a PFAS Minimization Plan based on data generation in a reissued permit, a general schedule for PFAS Minimization Plan permit implementation procedures, and PFAS Minimization Plan requirements. The proposed permit requirements include standard PFOS and PFOA sampling frequencies for categories of permitted dischargers. If the department does not believe that PFOS or PFOA is present in a permittee's discharge, sampling may be waived. Based on the effluent data collected, the proposed rule establishes procedures for determining whether a permitted facility's discharge contains PFOS or PFOA at levels that have the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standard. For permitted facilities that have the reasonable potential to exceed the PFOS or PFOA standard, the proposed rule requires that the permittee develop and implement a PFAS Minimization Plan in accordance with the timelines in the rule and WPDES permit schedule. The permittee must also continue sampling for PFOS and PFOA.

It is expected that for nearly all WPDES permitted facilities with discharges to surface waters as well as industrial facilities that discharge wastewater to publicly owned treatment plants, source reduction actions outlined in minimization plans will reduce PFOS and PFOA discharges to levels that are below the public health thresholds in standard. Because past pollutant minimization plans for other similar pollutants such as mercury have been shown to result in a 43% percent (median) reduction in effluent concentrations and based on relatively low initial concentrations of PFOS and PFOA observed in permittees' effluents, the department predicts that only a couple of industrial facilities (indirect dischargers) in the state will eventually have to install treatment to comply with the PFOS and PFOA standard. In these cases, the proposed rule allows a compliance schedule for installation of treatment technology.

In the event treatment becomes necessary for a WPDES permit holder, pursuant to s. 283.15, Wis. Stats., the permitted facility may apply for an economic variance if installation of treatment technology will cause substantial and widespread adverse social and economic impacts in the area where the permittee is located.

Finally, this rule adds specifications for the preservation and holding times of aqueous, biosolids (sludge), and tissue samples that will be analyzed for PFAS in ch. NR 219, Wis. Adm. Code.

Agency Procedures for Promulgation

The department will hold a hearing online on December 10, 2021 at 1:00 p.m. The hearing will be followed by request for board adoption, expected in February 2022, followed by a request for the governor's approval and legislative review.

Description of any Forms (attach copies if available)

None.

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