January 21, 2022

The statement of scope for this rule, SS 091-19, was approved by the Governor on August 27, 2019, published in Register No. 765A1 on September 3, 2019, and approved by the Natural Resources Board on January 22, 2020. This rule was approved by the Governor on March 2, 2022.

ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD
AMENDING AND CREATING RULES

The Wisconsin Natural Resources Board adopts an order to **amend** NR 219.04 Table F and table note 1; and to **create** NR 102.03 (4e) and (4m), 102.04 (1) (d) (Note) and (8) (d), 105.04 (4m), 106 Subchapter VIII, 219.04 (1) (Note) and Table F (Note), relating to adding narrative and numeric surface water criteria and analytical methods for poly- and perfluoroalkyl substances (PFAS) including PFOS and PFOA for the purpose of protecting public health as well as revisions to the procedures in the Wisconsin Pollutant Discharge Elimination System ("WPDES") permitting program to implement the new water quality criteria and affecting small business.

WY-23-19

Analysis Prepared by the Department of Natural Resources

1. Statute Interpreted:

- Section 281.12, Wis. Stats.
- Section 283.13(5), Wis. Stats.
- Section 281.13(1)(a) and (b), Wis. Stats.
- Section 281.15, Wis. Stats.
- Section 281.65(4)(c) and (cd), Wis. Stats.
- Section 283.11(5), Wis. Stats.
- Section 283.13(5), Wis. Stats.
- Section 283.31(3) and (4), Wis. Stats.
- Section 283.55, Wis. Stats.
- Section 283.83, Wis. Stats.
- Section 227.11(2), Wis. Stats.

2. Statutory Authority:

- Section 281.12, Wis. Stats.
- Section 281.13(1)(a) and (b), Wis. Stats.
- Section 281.15, Wis. Stats.
- Section 281.65(4)(c) and (cd), Wis. Stats.
- Section 283.13(5), Wis. Stats.
- Section 283.31(3) and (4), Wis. Stats.
- Section 283.37, Wis. Stats.
- Section 283.55, Wis. Stats.
- Section 283.83, Wis. Stats.
- Section 227.11(2), Wis. Stats.

3. Explanation of Agency Authority:

The statutory authority for developing PFOS and PFOA surface water quality standards for human health protection, for developing factors for listing waters as impaired for PFOS or PFOA, and for promulgating Wisconsin Pollutant Discharge Elimination System (WPDES) permitting procedures to implement the new standards 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 and 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 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 chs. 281 and 283, Wis. Stats.

4. Related Statutes or Rules:
The proposed rules are related to three other sets of rules currently in progress:
- Rule package DG-15-19 is proposing to establish groundwater standards for several compounds including PFOS and PFOA for the protection of human health.
- Rule package DG-24-19 is proposing drinking water maximum contaminant levels (MCLs) for PFOS & PFOA.
- Rule package WA-07-20 is proposing to regulate class B firefighting foams containing PFAS.
- Rule package WY-23-13 is proposing revisions to ch. NR 102, Wis. Adm. Code, in order to add text regarding waterbody assessments and biological thresholds, which are topics unrelated to this rule but may affect numbering for this rule package.
- Section 299.48, Wis. Stats., regulates class B firefighting foams containing PFAS.
- Section 292.11, Wis. Stats., regulates discharges of hazardous substances.

With regard to existing regulations, these proposed rules relate to surface water quality standards and the Wisconsin Pollutant Discharge Elimination System (WPDES) wastewater permit program. Related rules include chs. NR 102, 104, 105, and 106, Wis. Adm. Code, which contain Wisconsin's surface water quality standards and their application, and chs. NR 200 to 299, Wis. Adm. Code., which contain requirements for the WPDES permit program. Chapter 283, Wis. Stats., contains the statutory authority and requirements for the WPDES permit program.

5. Plain Language Analysis:
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 numeric or narrative and designated uses (e.g. aquatic life use, recreational use, and public health and welfare). 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 and secondary values for toxics that do not yet have promulgated criteria.
- Section NR 102.04(1)(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 protects public health and recreational uses of surface waters by establishing criteria that contain both narrative provisions and numeric criteria. The narrative and numeric criteria interpret Wisconsin's existing narrative standards under ss. NR 105.04(4m) and 102.04, Wis. Adm. Code, with regard to two toxic substances, PFOS and PFOA. 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 levels of public health significance are 20 ng/L in waters classified as public water supplies under ch. NR 104, Wis. Adm. Code, and 95 ng/L for other surface waters.

Related to the proposed PFOS and PFOA standards, the proposed rule also includes assessment protocols that clarify when a surface water that contains levels of PFOS or PFOA above the criteria 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 PFOS and PFOA 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. Source reduction also 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 PFOS and PFOA Minimization Plan based on data generation in a reissued permit, a general schedule for PFOS and PFOA Minimization Plan permit implementation procedures, and PFOS and PFOA 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 discharged effluent, 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 PFOS and PFOA Minimization Plan in accordance with the timelines in the rule and WPDES permit schedule. The permittee must also continue sampling for PFOS and PFOA.

The department expects 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 based standard. The rule allows for up to 85 months of PFOS and PFOA minimization plan implementation. At subsequent permit reissuances after the department's initial determination that a permitted discharge may exceed the PFOS or PFOA standard, for a maximum period of up to 85 months, the department will evaluate progress in source reduction activities and proposed activities for the next permit term and also evaluate the effluent quality of the permitted facility. The proposed rule provides:

- If levels of PFOS or PFOA in the effluent have been eliminated or reduced to a concentration where there is no longer reasonable potential to exceed the standard, then the department may remove future scheduled actions, the permittee will be required to maintain effluent quality at levels that would not have the reasonable potential to cause or contribute to the exceedance of PFOS or PFOA standards, and continued monitoring may be required in the permit.
- If there is still reasonable potential to exceed the standard the department may request updates be made to the PFOA and PFOS minimization plan and may include revised related terms and conditions, including revisions to the schedule in the reissued permit.

Because past pollutant minimization plans for other 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.

6. Summary of, and Comparison with, Existing or Proposed Federal Statutes and Regulations:
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 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 PFOS or PFOA nor proposed criteria under section 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. EPA has stated that it has plans to promulgate both aquatic life criteria and human health criteria for PFAS, but any such recommended criteria won't be established for several years.

The method of calculating numeric criteria in ch. NR 105, Wis. Adm. Code, reflects procedures established by EPA for Great Lakes states. As part of this rulemaking effort, the department also conducted preliminary calculations of numeric criteria using the procedures outlined ch. NR 105, Wis. Adm. Code. At this time, however, the department selected a different methodology to develop public health based PFOS and PFOA criteria. Pursuant to s. NR 105.02 (2), Wis. Adm. Code, the department has authority to promulgate a criterion that is either more or less stringent than a criterion derived under the standard procedures in ch. NR 105, Wis. Adm. Code. The approach selected for deriving the PFOS standard is based on the department's data analysis which shows that fish consumption is the dominant exposure route of concern for PFOS. The department selected a method that allowed correlation with fish consumption advisories, which would not be included in calculation under ch. NR 105, Wis. Adm. Code. Also, with regard to the calculation of PFOA criteria, the department's calculated criteria are more protective of children that ingest or consume PFOA contaminated water compared to the procedures under ch. NR 105, Wis. Adm. Code. Finally, codifying a method for developing PFOS and PFOA minimization plans will reduce the administrative burden and permitting timelines that would have been associated with processing a large volume of variance requests expected as a result of the criteria

developed using the procedures outlined ch. NR 105, Wis. Adm. Code. The department believes that public health-based criteria combined with PFOS and PFOA minimization plans will result in more timely reductions in levels of PFOS and PFOA. The department expects that the selected approach will be effective at reducing sources of PFOS and PFOA in areas of the state where PFOS or PFOA concentrations in wastewater are elevated.

7. If Held, Summary of Comments Received During Preliminary Comment Period and at Public Hearing on the Statement of Scope:

The department received written comments related to the scope statement for WY-23-19 from 49 entities during the scope statement comment period, and verbal comments from 5 speakers during the public hearing on the statement of scope. Of the comments received, 38 entities expressed support of the proposed rules, 8 expressed opposition to the proposed rules, and the opinions of the remaining 8 were mixed. Those expressing mixed opinions voiced general support for the rulemaking effort but noted concerns about the cost of implementation, the desire to regulate PFAS as a class rather than compound by compound, technical issues with the toxicity values developed by the Department of Health Services, and regulation of PFOS and PFOA at the source rather than at POTWs.

8. Comparison with Similar Rules in 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 in Section 9 below, and thus the proposed standards 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 statutory framework require rulemaking for SSCs. Thus, there would be no administrative time saved or expedited human health protections gained by developing SSCs compared to statewide criteria.

Wisconsin's proposed standard of 8 ng/L for PFOS is slightly 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 standards 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. The primary reason for the significant difference between Michigan's PFOA criteria and Wisconsin's PFOA criteria is that the reference dose (maximum amount of toxic substance that can be consumed to avoid public health impacts) that Michigan used in its calculations (conducted in 2011) is higher and not based on the most recent science. Furthermore, the bioaccumulation factor (BAF) that Michigan used in its PFOA calculation was experimentally derived based on laboratory data while the department used actual field measured fish tissue and water sampling data from surface waters for its PFOA calculations. Federal regulations state that field measured data should be used if available. Finally, Michigan used adult-specific exposure factors (body weight and water ingestion rates) rather than the child-specific factors that the department used. This difference is discussed below in more detail as well as in the technical support document.

Additional information on each adjacent state's approach to developing their values 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 derived their water quality values for PFOA in 2011 (formally published in 2014) with the information that was available at the time. Their values incorporate data from studies where cynomolgus monkeys were exposed to PFOS or PFOA for 182 days (Butenhoff et al. 2002; Seacat et al. 2002). Their selected reference dose (RfD) is based on effects on liver weight and is higher than RfDs that have been subsequently developed based on developmental or immune effects which occur at lower doses. Michigan currently uses a lower RfD, developed by ATSDR, as the basis of their Health-Based Drinking Water Value for PFOA. Additionally, in derivation of their 2011 surface water values, Michigan incorporated a bioaccumulation factor (BAF) of 4 L/kg based on an experimentally derived bioconcentration factor (BCF). Calculating a BAF using at BCF is a method that is less preferred compared to the method of calculating a BAF using field-measured data from fish and water samples according to 40 CFR part 132. During the course of this rulemaking effort, as part of preliminary numeric criteria calculations, the department calculated BAFs for PFOS and PFOA based on field-measured data. As noted in Appendix E of the Technical Support Document for WY-23-19, the BAF calculated for PFOA was 40 L/kg, which is higher than the experimentally derived value used by Michigan in 2011.

  Michigan implements surface water values for PFOS and PFOA 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.

9. Summary of Factual Data and Analytical Methodologies Used and How Any Related Findings Support the Regulatory Approach Chosen:
A detailed description of the procedures used to calculate these definitions of public health significance under the narrative criteria can be found in the Technical Support Document for this rule.

PFOA: Water ingestion is the exposure pathway of most concern for PFOA (i.e., it doesn't bioaccumulate

to high concentrations in fish). Thus, public health significance was based on the likelihood that, and degree to which, surface waters could be ingested.

- To determine which pathway or pathways by which people might be exposed to PFOA, the department reviewed several datasets of samples analyzed for PFAS, including: 1) paired surface water and fish tissue samples collected throughout Wisconsin and Minnesota between 2006 and 2020; 2) fish tissue samples collected as part of Wisconsin's fish contaminant monitoring program between 2006 and 2020; and 3) surface water samples collected as part of long term trends (LTT) monitoring in Wisconsin in 2020.
- In the paired fish and water dataset, PFOA was detected in surface water samples from over 80% of the waterways, but was detected in only 2% of fish tissue samples. Those fish samples that contained PFOA came from 8 waterways and there were no PFOA detects in samples of fish taken from waterways where PFOA was undetected in the water itself. The pattern of PFOA being detected in most water samples, but few fish tissue samples, was mirrored in the fish contaminants and LTT datasets. Less than 4% of the fish contaminant samples contained detectable levels of PFOA (in contrast, over 85% of these fish samples contained detectable levels of PFOS). In the LTT dataset, PFOA was detected in over 80% of waterways. These data demonstrate that PFOA is unlikely to bioaccumulate in fish tissue and suggest that while there is widespread risk of exposure to PFOA via ingestion of surface waters, exposure via consumption of fish tissue is unlikely to provide a substantive contribution to overall body burdens of PFOA.
- Therefore, for those waters currently used as public water supplies, the level of public health significance was defined as the level already defined by the Departments of Health Services and Natural Resources for the purposes of drinking water protection. Details about the data and methods used to develop this level can be found in the *Scientific Support Document for PFOA Groundwater Standards* at: dnr.wi.gov/topic/Contaminants/documents/pfas/PFOAScientificSupport.pdf.
- For waters not currently used as public water supplies, the department adjusted the formula used to develop the PFOA drinking water protection value to reflect the incidental water consumption rate that occurs during recreation. To determine this incidental ingestion rate, the department followed an approach used in EPA's 2019 *Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin*. Briefly, this approach calculated the amount of water that people ingested during swimming activities and combined that with the number of hours that people spend recreating each day in order to generate a daily incidental ingestion rate. In order to assess the risk of PFOA exposure to children during recreation in surface waters and as per EPA's 2000 Human Health Methodology, the department used the 90th percentile of exposure for the 6 to 10 years old age group to derive the level of public health significance for PFOA in non-public water supply waters. The department selected children as the exposure group for incidental ingestion because children tend to ingest more water while swimming and recreating in waters compared to adults.

PFOS: Fish ingestion is the exposure pathway of most concern for PFOS (i.e., it can build up to high levels in fish even when there is a small amount in the water column). For this reason, there are established PFOS thresholds corresponding to recommended fish consumption frequencies, which are designed to reduce risks from exposure to PFOS while still receiving the benefits of fish consumption. Thus, public health significance was defined as the maximum PFOS concentration in a surface water that is expected to avoid issuance of a 1 meal per month PFOS-based fish consumption advisory for any species taken from that surface water. In other words, the proposed definition of public health significance aims to ensure that levels of PFOS in fish will be such that people can consume fish at a frequency of up to one meal per week (32 grams/day) without exceeding EPA's non-cancer toxicity RfD of 2×10^{-5} mg/kg-day.

- To determine which pathway or pathways by which people might be exposed to PFOS, the

department reviewed several datasets of samples analyzed for PFAS, including: 1) paired surface water and fish tissue samples collected from 95 waterways throughout Wisconsin and Minnesota between 2006 and 2020; 2) fish tissue samples collected from 35 waterways as part of Wisconsin's fish contaminant monitoring program between 2006 and 2020; and 3) surface water samples collected from 42 major rivers as part of long term trends (LTT) monitoring in Wisconsin in 2020.

- In the paired fish and water dataset, PFOS was detected in over 90% of fish tissue samples, even when PFOS was not detected in the water column. In the fish contaminants data, more than 85% of fish samples contained detectable levels of PFOS. In the LTT dataset, PFOS was detected in over 62% of waterways. These data demonstrate that PFOS is a highly bioaccumulative compound (in contrast with PFOA, which is rarely detected in fish tissue samples but widely detected in the water) and suggests that exposure to PFOS via fish consumption is likely to provide a substantive contribution to overall body burdens of PFOS.
- PFOS was detected in both fish tissue and water samples from 49 waterways (WI: 25, MN: 24) in the paired fish tissue and water dataset and there is a clear log-linear relationship between levels of PFOS in the water and those in fish tissue ($R^2 = 0.69$, $p<0.001$). In other words, the level of PFOS in the water is a good predictor of the level of PFOS that will be in fish taken from that water. The department then evaluated several statistical models in order to determine the water PFOS level that best delineates fish tissue levels that are over or under the 1 meal per month threshold of 50 ng PFOS/g and ultimately selected a method called the Receiver Operating Characteristics (ROC) curve. Using metrics calculated as part of the ROC method, the department determined that 8 ng PFOS/L is the water level that best delineates fish PFOS levels above or below the 1 meal per month threshold.

As part of this rulemaking effort, the department also conducted preliminary calculations of numeric criteria using the procedures outlined under ch. NR 105, Wis. Adm. Code. At this time, however, the department selected the approach outlined above because the methods used by the department are sufficiently protective of the public health and welfare use. This approach was selected because PFOS public health significance levels are more closely correlated with the issuance of fish consumption advisories than the methods under ch. NR 105, Wis. Adm. Code. Wisconsin's calculations for PFOA are also more protective of children that recreate in Wisconsin's waters. Section NR 105.02(2), Wis. Adm. Code, recognizes that other methods for calculating toxic criteria may be used. Also, the department believes that promulgation of the PFOS and PFOA criteria combined with implementation of PFOS and PFOA minimization plans will result in more timely reductions in levels of PFOS and PFOA. The department expects that the selected approach will be effective at reducing sources of PFOS and PFOA in areas of the state where PFOS or PFOA concentrations in wastewater are elevated.

10. Analysis and Supporting Documents Used to Determine the Effect on Small Business or in Preparation of an Economic Impact Report:

To assess the economic impact of this rule, the department sourced cost information for three categories: sampling costs, PFOS and PFOA minimization plan development and implementation costs, and treatment costs. The department reviewed the costs of PFAS wastewater samples at various private and public labs to determine sampling costs. The department referenced existing cost information obtained by facilities currently implementing mercury pollutant minimization plans to compare with the calculated costs associated with the implementation and development of PFOS and PFOA minimization plans based on staff time devoted to the plan. Last, the department solicited cost information from several facilities in Wisconsin that have installed PFAS treatment systems in order to estimate treatment costs.

To determine the number of facilities that may incur the costs mentioned above, the department first used effluent data obtained through statewide sampling of various publicly-owned treatment works (POTWs) and industries. Based on the number of sampled facilities that were discharging at estimated 30-day P99

concentrations above the proposed public health based criteria for PFOA or PFOS, the department applied those percentages of affected facilities sampled to the total number of facilities throughout the state. The department used data obtained through the "*Identified Industrial Sources of PFOS to Municipal Wastewater Treatment Plants*" document, dated August 2020, and developed by Michigan's Department of Energy, Great Lakes, and the Environment (EGLE). This document provided information on sources of PFOS to POTWs throughout Michigan. Because PFOS is expected to be the parameter that triggers additional actions and costs for businesses in Wisconsin (like it was in Michigan), the department focused on those industrial categories outlined in this document. The cumulative peak annual cost to small businesses is expected to be $2,080,670 annually. See the EIA and supporting narrative for more information on the analysis conducted to derive this cost.

11. Effect on Small Business (initial regulatory flexibility analysis):
The department has determined that there may be an impact on small businesses in Wisconsin. A breakdown of the statewide economic impact on small businesses is provided in the two tables below. The number of affected small businesses was determined based on the number of affected industries discussed in the narrative attached to the EIA (Attachment B). The facilities are all expected to either have reasonable potential to exceed the criteria or be discharging to a POTW that has reasonable potential to exceed the criteria. Consequently, these facilities will, at a minimum, incur costs associated with sampling and development and implementation of a PFOS and PFOA minimization plan or just source reduction activities. See Attachment B to the EIA for further discussion and explanation of the expected treatment costs.

Estimated Number of Affected Small Businesses

Industry Type	Percentages of Small Businesses by Industry Type	Number of Affected Industries	Number of Affected Small Businesses
Metal Finishers	68%	37	25
Paper/Packaging	23%	21	5
CWTs	76%	7	5
Chemical Manufacturers	72%	10	7
Commercial Laundries	70%	8	6
Total			**48**

Estimated Statewide Impact on Small Businesses

Cost Type	Number of Small Businesses	Annual Costs
Treatment	1	$428,126
PFOS and PFOA Minimization Plan/ Source Reduction Measures	48	$658,944
Sampling	48	$993,600
Total		**$2,080,670**

In order to comply with this rule, affected small businesses will need to develop and implement a PFOS and PFOA minimization plan to reduce PFOA and PFOS concentrations from their effluents. In order to develop this plan, small businesses will need to research known sources of PFOA and PFOS as they apply to their specific processes and make efforts to eliminate or minimize those sources. This will require the affected small businesses to have knowledge of how to use the internet, communication skills to solicit information from other affected entities, and documentation skills to show what actions have been taken.

All affected small businesses will also need to learn how to obtain a representative sample from their discharge, whether it is a direct discharge to surface waters or an indirect discharge to a POTW. Although permitted small businesses are familiar with effluent sample collection, because of the high potential for cross-contamination when sampling for PFAS, these procedures may be different than how facilities currently sample their effluent. For small businesses that have a direct discharge, their sample results are submitted on monthly Discharge Monitoring Reports (DMR). Small businesses with WPDES permits are familiar with DMR reports. For small businesses that discharge to a POTW, the small business can submit the PFOS or PFOA results directly to the POTW consistent with existing standard reporting procedures.

The department estimates that there will potentially be one small business that may need to install treatment. This will require the small business's current treatment system operators to research the requirements to properly operate a granular activated-carbon treatment system. A compliance schedule may be granted to install treatment.

Although not expected, in the event a small business with a WPDES permit (direct discharger) had to install treatment to comply with the PFOS or PFOA standard, the small business could apply for an economic variance pursuant to s. 283.15, Wis. Stats., if treatment costs would result in widespread adverse social and economic impacts. Without specific financial and employment information for a small business variance applicant, it is impossible for the department to determine at this time whether any applicant would qualify for a variance.

The department has considered the methods outlined in s. 227.114(2)(a) to (e), Wis. Stats., and has concluded that, based on existing state and federal regulations, the department cannot exempt small businesses from sampling and reporting requirements or provide a relaxed schedule simply based on the size of a business. The department also cannot exempt small businesses from compliance with the water quality standard. Wisconsin's WPDES permit program is based on the requirements in ch. 283, Wis. Stats., and the state's permitting program must be consistent with federal NPDES permit requirements established in the Clean Water Act and applicable federal regulations. Federal regulations do not allow less stringent limitations or compliance schedules categorically for small businesses. Although not specific to small businesses, the proposed rule does allow for less-frequent sampling for permittees on a case-by-case basis, and if a small business is not expected to discharge PFOA or PFOS into surface waters, the business doesn't have to sample for these pollutants and would not be subject to the requirements of this proposed rule.

12. Agency Contact Person: Meghan Williams; 101 S. Webster Street, Madison, WI 53703; MeghanC3.Williams@wisconsin.gov; (608) 267-7654

13. Place where comments are to be submitted and deadline for submission:
A public hearing was held on December 10, 2021. Comments were accepted through December 15, 2021.

RULE TEXT

SECTION 1. NR 102.03 (4e) and (4m) are created to read:

[Note to LRB: A separate rule package, WY-23-13, renumbers a definition to NR 102.03 (4s), which affects the numbering of definitions (4e) and (4m) created under this Section.]

NR 102.03 (4e) "PFOA" means perfluorooctanoic acid in its anionic, cationic, and acidic forms as well as any salts of perfluorooctanoic acid.

(4m) "PFOS" means perfluorooctane sulfonate, including its anionic, cationic, and acidic forms as well as any salts of perfluorooctane sulfonate.

SECTION 2. NR 102.04 (1) (d) (Note) and (8) (d) are created to read:

NR 102.04 (1) (d) Note: For levels of public health significance for PFOA and PFOS, see s. NR 102.04 (8) (d) 1.

(8) (d) *PFOS and PFOA criteria and assessment.* 1. Surface waters shall meet all of the following criteria for PFOS and PFOA at all times and under all flow and water level conditions:

a. In order to protect against adverse public health impacts from consumption of fish taken from surface waters, concentrations of PFOS shall not be present in amounts found to be of public health significance, which is 8 parts per trillion, except in waters that cannot naturally support fish and do not have downstream waters that support fish.

b. In order to protect against adverse public health impacts from the incidental consumption of surface waters associated with recreational activities in the water, concentrations of PFOA shall not be present in amounts found to be of public health significance, which is 95 parts per trillion for surface waters not classified as public water supplies under ch. NR 104.

c. In order to protect against adverse public health impacts from consumption of drinking water supplied by surface waters, concentrations of PFOA shall not be present in amounts found to be of public health significance, which is 20 parts per trillion for surface waters classified as public water supplies under ch. NR 104.

2. The PFOS and PFOA criteria in subd. 1. shall be met in surface waters, and a surface water shall be considered an impaired water as defined in s. NR 151.002 (16m) if any of the criteria are

exceeded more than once every 3 years. Permit requirements shall be implemented following the procedures under subch. VIII of ch. NR 106.

SECTION 3. NR 105.04 (4m) is created to read:

NR 105.04 (4m) The presence of PFOA as defined in s. NR 102.03 (4e), as well as the presence of PFOS as defined in s. NR 102.03 (4m), shall be deemed to have adverse effects on public health and welfare if these substances exceed the public health significance levels in s. NR 102.04 (8) (d) 1.

SECTION 4. NR 106 Subchapter VIII is created to read:

Subchapter VIII — Permit Requirements for PFOS and PFOA Discharges

NR 106.97 Purpose. The purpose of this subchapter is to specify how the department will regulate the discharge of PFOS and PFOA in wastewater to surface waters of the state that are subject to the PFOS and PFOA standards under s. NR 102.04 (8) (d) 1. pursuant to the permitting program under ch. 283, Stats.

NR 106.975 Definitions. In this subchapter:

(1) "Composite sample" has the meaning specified in s. NR 218.04 (11).

(2) "Equipment blank" means a sample collected by passing laboratory-verified PFAS-free water over or through field sampling equipment before the collection of field samples to evaluate potential contamination from the equipment used during sampling.

(3) "Grab sample" has the meaning specified in s. NR 218.04 (10).

(4) "Major municipal discharger" means a treatment works or system that has a major municipal discharge as defined in s. NR 200.02 (7).

(5) "Minor municipal discharger" means a treatment works or system that has a minor municipal discharge as defined in s. NR 200.02 (8).

(6) "Municipal discharger" means all publicly operated treatment works and privately owned domestic sewage treatment works subject to the requirements under ch. NR 210.

(7) "New discharger" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, that is not a new source, and that did not commence the discharge of

pollutants at a particular site prior to the effective date of this section [LRB inserts date], and which has never received a finally effective WPDES permit for discharges at that site.

(8) "New source" has the meaning specified in s. NR 106.117.

(9) "PFAS" means a perfluoroalkyl or polyfluoroalkyl substance that contains a straight or branching chain of carbon atoms in which one or more of the carbon atoms have fluorine atoms attached at all bonding sites not occupied by another carbon atom and the fluorinated part of the molecule can be expressed as C_nF_{2n+1}.

(10) "Perfluorooctanoic acid" or "PFOA" has the meaning specified in s. NR 102.03 (4e).

(11) "Perfluorooctane sulfonate" or "PFOS" has the meaning specified in s. NR 102.03 (4m).

(12) "Primary industry" has the meaning specified in s. NR 200.02 (15).

(13) "Secondary industry" has the meaning specified in s. NR 200.02 (17).

(14) "Source reduction activities" means structural or non-structural measures, practices, techniques, activities, or devices employed to reduce or eliminate the transfer of PFOS and PFOA from sources into surface waters of the state.

(15) "Treatment works" has the meaning specified in s. 283.01 (18), Stats.

(16) "WPDES permit" means the Wisconsin pollutant discharge elimination system permit issued by the department under ch. 283, Stats., for the discharge of pollutants.

NR 106.98 Determination of the necessity for reducing PFOS and PFOA in discharges. (1) GENERAL. This section establishes the procedures for determining when a permitted discharge has the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standards under s. NR 102.04 (8) (d) 1.

(2) DATA GENERATION. At the first reissuance of a WPDES permit after the effective date of this section [LRB inserts date], the department shall require in the reissued permit that the permittee monitor and report PFOS and PFOA at the frequencies and locations specified under this subsection, for up to 2 years, except if a waiver has been granted or reduced frequency is approved under sub. (3). All samples shall be collected and analyzed consistent with the requirements under ch. NR 219 and s. NR 106.995. The following sample frequencies apply to each category of permitted dischargers:

(a) For a major municipal discharger with an average flow rate greater than or equal to 5 million gallons per day, the permittee shall, at a minimum, sample its effluent on a monthly basis. Influent monitoring will be determined on a case-by-case basis and shall be conducted at a frequency specified in the permit.

(b) For a major municipal discharger with an average flow rate greater than or equal to one million gallons per day but less than 5 million gallons per day, the permittee shall, at a minimum, sample its effluent once every 2 months. Influent monitoring will be determined on a case-by-case basis and shall be conducted at a frequency specified in the permit.

(c) For all other municipal dischargers, the permittee may only be required to sample for PFOS or PFOA if the department determines that PFOS or PFOA may be present in the discharge. In making this determination, the department shall consider the presence of potential PFOS or PFOA industrial wastes to the treatment works, the presence of nearby PFOS or PFOA remediation sites, and the presence of other potential sources of PFOS or PFOA that may contribute to any part of the minor municipal discharger. If the department determines that PFOA or PFOS may be present in the discharge, the department shall require that the permittee sample its influent and effluent at a frequency specified in the permit.

(d) For a primary or secondary industrial discharger, if the department determines that the permittee's effluent may contain PFOS or PFOA, the department shall require that the permittee sample its effluent at least monthly.

(e) The department may require PFOS or PFOA monitoring for other discharges not included in one of the categories specified under pars. (a) to (d) if the department has a reasonable expectation that the discharge contains PFOS or PFOA at levels that will likely cause or contribute to an exceedance of the criteria under s. NR 102.04 (8) (d) 1.

Note: The department has authority to sample the effluent from permitted facilities under s. 283.55, Stats.

Note: The department has authority under s. NR 205.066 (1) to specify monitoring frequency for PFOS and PFOA in WPDES permits at its discretion on a case-by-case basis after 24 months.

(3) REDUCED SAMPLE FREQUENCY AND WAIVER. (a) The department may reduce monitoring frequency to once every 3 months for dischargers described under sub. (2) (a), (b) or (d) on a case-by-case basis, but only after at least 12 representative results have been generated.

(b) The department may waive the requirement to conduct PFOS or PFOA sampling for a discharger under sub. (2) if the department determines that it is unlikely that the permittee's effluent will contain PFOS or PFOA at levels above the criteria in s. NR 102.04 (8) (d) 1. Any approved waivers shall be reviewed at each permit reissuance to determine whether any changes were made at the permitted facility or when the department becomes aware of new information that may result in new or increased discharges of PFOS or PFOA, in which case monitoring may be required.

(4) DETERMINATION OF THE NEED FOR A PFOS AND PFOA MINIMIZATION PLAN. The department shall require creation and implementation of a PFOS and PFOA minimization plan that meets the requirements under s. NR 106.99 as a condition of a WPDES permit whenever the department determines that the discharge from the permitted facility contains PFOS or PFOA at concentrations that have reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standard in s. NR 102.04 (8) (d) 1. When determining whether a permitted discharge has the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standard in s. NR 102.04 (8) (d) 1., the department shall use the methods in this subsection to make the determination and shall use representative data that meet the sampling and analysis requirements under ch. NR 219 and s. NR 106.995. When making a reasonable potential determination for a permitted discharge of PFOS or PFOA under this subsection, the department shall consider whether the intake provisions in s. NR 106.06 (6) (b) apply to the discharge. When calculating a water quality based effluent limitation for PFOS in the reasonable potential determination, the department shall apply the requirements in s. NR 106.06 (1) and (6) in the calculation and shall use the applicable PFOS criterion in s. NR 102.04 (8) (d) 1. A mixing zone under s. NR 106.06 (2) may not be included in the limit calculation for a discharge of PFOS. When calculating a water quality based effluent limitation for PFOA in the reasonable potential determination, the department shall apply the requirements in s. NR 106.06 (1) and (4) to (11) in the calculation and shall use the applicable PFOA criterion in s. NR 102.04 (8) (d) 1. If any one of the following methods indicate that there is reasonable potential for an exceedance of either the PFOS or PFOA standard, a PFOS and PFOA minimization plan shall be required in the permit:

(a) If at least 11 daily discharge concentrations of the substance are greater than the limit of detection, a PFOS and PFOA minimization plan is required for a permitted facility if the upper 99th percentile of the 30-day average discharge concentrations for PFOS or PFOA exceeds the applicable water quality based effluent limitation calculated under this subsection. To calculate upper 99th percentile values of the daily discharge concentrations, one of the following shall be used:

1. If a log normal probability distribution is determined to be appropriate, the upper 99th percentile of the 30-day average discharge concentrations may be calculated using the equation under s. NR 106.05 (5) (a).

2. If a probability distribution other than log normal is determined to be more appropriate and alternate methods are available, those methods may be used to calculate the upper 99th percentile.

(b) If fewer than 11 daily discharge concentrations of the substance are greater than the limit of detection, a PFOS and PFOA minimization plan is required for a permitted facility if the arithmetic average discharge concentration exceeds one-fifth of the applicable water quality based effluent limitation calculated under this subsection. The arithmetic average discharge concentration shall be calculated using all available representative discharge data, applying the following principles:

1. If, in the judgment of the department, the analytical methods used to test for the substance represent acceptable methods, all values reported as less than the limit of detection shall be set equal to zero for calculation of the average concentration.

2. If, in the judgment of the department, the analytical methods used to test for the substance do not represent the best acceptable methods, all values reported as less than the limit of detection shall be discarded from the data.

NR 106.985 PFOS and PFOA minimization plans, permit implementation procedures schedule. (1) GENERAL. If the department determines a permittee has reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standard in s. NR 102.04 (8) (d) 1. based on the reasonable potential procedures and data collected under s. NR 106.98, the department shall notify the permittee in writing that a PFOS and PFOA minimization plan that satisfies the requirements in s. NR 106.99 is required.

Note: The department intends to make the reasonable potential determination during the term of the first reissued permit under s. NR 106.98 (2) as soon as the effluent sampling is completed. If the department determines that a permittee has reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standard, the department will modify the permit pursuant to the public notice and public participation procedures under ch. 283, Stats., and ch. NR 203 to incorporate the PFOS and PFOA minimization plan and other related terms and conditions, including annual progress reporting requirements and a schedule of compliance to meet applicable water quality based effluent limitations into the permit.

(2) SCHEDULES. The following timeline applies to a permittee that receives written notification that a PFOS and PFOA minimization plan is required under sub. (1):

(a) The permittee shall submit an initial PFOS and PFOA minimization plan that contains applicable goals and actions listed in s. NR 106.99 for department review and approval no later than 90 days after written notification under sub. (1) was sent from the department. The department may approve, conditionally approve, or reject the plan. The department shall provide a written response to the permittee within 120 days of receiving the plan and, if the initial plan is rejected, the response shall explain the reasons for the rejection. The permittee shall submit a revised plan that addresses all deficiencies and concerns within 30 days of department notification.

(b) As soon as possible after department approval of the PFOS and PFOA minimization plan, the department shall modify or revoke and reissue the permit in accordance with the public notice and public participation procedures required under ch. 283, Stats., and ch. NR 203 to include the PFOS and PFOA minimization plan and other related terms and conditions, including annual progress reporting requirements and a schedule of compliance to meet applicable water quality based effluent limitations. After the permit has been modified or revoked and reissued the permittee shall implement actions identified in the approved plan and report annually to the department on the progress of the PFOS and PFOA minimization plan. The annual PFOS and PFOA minimization plan report shall include all of the following:

1. An analysis of trends in total effluent concentrations based on sampling, and for municipal dischargers an analysis of how influent and effluent concentrations vary with time and with significant loading of PFOS and PFOA.

2. A summary of activities that have been implemented during the previous year and description of which, if any, activities from the approved PFOS and PFOA minimization plan were not pursued and why.

3. An assessment of whether each implemented PFOS and PFOA minimization action appears to be effective or ineffective at reducing pollutant discharge concentrations and identification of actions planned for the upcoming year.

4. Identification of barriers that have limited the plan's effectiveness and adjustments to the plan that will be implemented during the next year to help address these barriers.

(c) A permittee may be allowed up to a maximum period of 85 months from the date the permit was modified or revoked and reissued to include the initial PFOS and PFOA minimization plan to implement PFOS and PFOA source reduction activities. After the initial PFOS and PFOA minimization plan is incorporated into the permit under par. (b), prior to each subsequent permit reissuance within the maximum 85 month period, the department shall evaluate whether levels of PFOS or PFOA in the effluent still have the reasonable potential to cause or contribute to an exceedance of the standard pursuant to s. NR 106.98 (4). If the department determines that levels of PFOS or PFOA in the effluent no longer have the reasonable potential to cause or contribute to an exceedance of the standard, the department may remove future PFOS and PFOA minimization plan requirements and future scheduled actions. However, the department shall include terms and conditions in the permit in accordance with the requirements in sub. (3). If the department determines that levels of PFOS or PFOA in the effluent still have the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standard and there are feasible effective PFOS or PFOA source reduction activities that the permittee can still implement, the department may include the PFOS and PFOA minimization plan with source reduction activities in the reissued permit as a condition of the schedule. The department may require submittal of an updated PFOS and PFOA minimization plan as part of the reissuance application, or the permittee may choose to submit a revised PFOS and PFOA minimization plan. All revised PFOS and PFOA minimization plans are subject to department review and approval. If, however, the department or the permittee determine that there are no more feasible effective PFOS or PFOA source reduction activities that a permittee can implement, then the source reduction activities have been completed and par. (d) applies.

(d) After the actions in pars. (a) to (c) have been completed, all of the following requirements apply:

1. For PFOS, after a permittee has completed all feasible PFOS source reduction activities within the maximum allowable period of 85 months, if the department determines levels of PFOS in the permitted discharge still have the reasonable potential, as determined using the procedures in s. NR 106.98 (4), to cause or contribute to an exceedance of the PFOS standard in s. NR 102.04 (8) (d) 1., the permittee shall be required to achieve compliance with a water quality based effluent limitation that is calculated using the procedure in s. NR 106.98 (4). The limit shall be expressed as a monthly average and in accordance with the requirements in s. NR 106.07 unless impracticable.

2. For PFOA, after a permittee has completed all feasible PFOA source reduction activities within the maximum allowable period of 85 months, if the department determines levels of PFOA in the

discharge still have the reasonable potential, as determined under the procedures in s. NR 106.98 (4), to cause or contribute to an exceedance of the PFOA standard in s. NR 102.04 (8) (d) 1., a water quality based effluent limitation for PFOA shall be included in the permit. The limitation shall be calculated using the calculation procedures in s. NR 106.98 (4). The PFOA limitation shall be expressed as a monthly average and in accordance with the requirements in s. NR 106.07 unless impracticable.

3. The department may provide additional time in the compliance schedule consistent with the requirements under s. NR 106.117 to achieve compliance with the water quality-based effluent limitations as soon as reasonably possible.

4. The department shall require continued monitoring of PFOS and PFOA with the water quality-based effluent limitation at a frequency specified in the permit and may require continued monitoring in the permit even if a water quality-based effluent limit for PFOS or PFOA is not required in the permit under this subsection.

(3) MAINTENANCE OF PFOS AND PFOA EFFLUENT QUALITY. If implementation of the PFOS and PFOA minimization plan reduces or eliminates the discharge of PFOS and PFOA to a level where the permitted discharge no longer has the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standards under s. NR 102.04 (8) (d) 1., the permittee shall maintain effluent quality below the standards. The department may require continued monitoring of PFOS and PFOA and may include requirements in a permit to ensure maintenance of effluent quality.

NR 106.99 PFOS and PFOA minimization plans. (1) GENERAL. A PFOS and PFOA minimization plan shall include similar types of goals and actions that are required for pollutant minimization programs under s. NR 106.04 (5). The plan shall be implemented in a manner that reduces PFOS and PFOA concentrations to the maximum extent practicable and shall include all of the following:

(a) Identification of specific PFOS and PFOA source reduction activities to be undertaken and a relative timeline to implement those activities.

(b) A list of PFOS and PFOA source reduction activities that have been implemented prior to submission of the plan, if any, and a description of how effective those activities were in reducing potential and actual PFOS or PFOA discharges, concentrations, or sources.

(c) An explanation of how implementation of the PFOS and PFOA minimization plan will be documented, including measures such as the number of contacts of various types made, programs implemented, and other activities.

(d) Steps to measure the effectiveness of the PFOS and PFOA minimization plan elements in reducing potential and actual PFOS and PFOA discharges. Where the permittee regularly monitors influent, effluent, sludge, or biosolids for PFOS and PFOA, measures shall include any changes in PFOS and PFOA concentrations over comparable historic data. When practicable, other measures or estimates of PFOS and PFOA reductions from programs such as PFOS and PFOA recycling, collection, or safe disposal may also be included.

(2) MUNICIPAL DISCHARGER PLANS. In addition to the actions under sub. (1), for permitted municipal dischargers, a PFOS and PFOA minimization plan shall consist of all of the following elements:

(a) *Source identification*. The permittee shall establish an inventory of treatment system users to identify dischargers to the municipal treatment system that may be significant sources of PFOS or PFOA.

Note: The following types of users are examples of users that have the potential to be significant sources of PFOS or PFOA: (a) Metal finishers that are using, or have used, PFAS-containing wetting agents, demisters, defoamers, or surfactants in their plating tanks; (b) Landfills that have accepted waste from metal finishers using hexavalent chromium or other industries associated with PFAS use, including tanneries, fabric or leather treaters, or paper manufacturers; (c) Contaminated sites discharging wastewater potentially containing PFAS, including those associated with firefighting foam, certain metal finishing wastes, or water- or stain-repellent treatment chemicals, (d) Centralized waste treatment facilities that accept any of the above wastewaters; and (e) Any other industrial users that use or have used PFAS products or raw materials.

(b) *Source monitoring.* Once sources have been identified under par. (a), the permittee shall develop a monitoring plan to sample all probable sources of PFOS and PFOA, the sampling protocol that will be followed, and the timeline for completion. The monitoring plan shall include a schedule to conduct all sampling of identified probable sources of PFOS and PFOA within the first 24 months from the date the permit was modified or revoked and reissued to include the initial PFOS and PFOA minimization plan. Any plan developed for collecting PFOS and PFOA samples from the permittee's sewer system users may be independently implemented by the permittee, jointly by the permittee and others, or by another governmental unit.

(c) *Perform source monitoring*. The permittee shall provide sample results from each probable source identified in the monitoring plan for PFOS and PFOA, using grab samples, and following recommended sampling protocols to prevent cross-contamination.

Note: Permittees may refer to the Michigan Department of Environmental Quality's "Wastewater PFAS Sampling Guidance" for recommended sampling protocols and cross-contamination prevention measures. This document may be found through searching the Michigan Department of Environment, Great Lakes, and Energy website.

(d) *Actions to reduce or eliminate PFOS and PFOA in permitted discharges.* The plan shall identify PFOS and PFOA source reduction activities and measures to eliminate, reduce, or control sources to the maximum extent practicable.

Note: An example of an action to eliminate, reduce, or control PFAS in permitted discharges is to update sewer use ordinances.

(e) *Education and outreach*. The plan shall include activities to educate the general public, industrial and commercial sewer system users, or other professionals about the ways to reduce the use of PFAS-containing products, proper disposal of PFAS-containing products, and other mitigation efforts.

(f) *Other activities.* The plan may include activities that the department, in consultation with the permittee, determines to be appropriate for the individual permittee's circumstances.

(3) PRIMARY AND SECONDARY INDUSTRY PLANS. In addition to the provisions under s. NR 106.99 (1), for primary and secondary industries, a PFOS and PFOA minimization plan shall consist of an evaluation of all of the following elements:

(a) Source identification and inventory.

(b) Improvement of operational controls or maintenance.

(c) Substitution of raw materials or chemical additives with low or zero PFOS, PFOA, and PFOS and PFOA precursor alternatives.

(d) Institution of alternative processes.

(e) Clean-up of historical contamination.

(f) Other activities that the department, in consultation with the permittee, determines to be appropriate for the individual permittee's circumstances.

(4) REVIEWING AND APPROVING A PFOS AND PFOA MINIMIZATION PLAN. In reviewing the appropriate elements for a PFOS and PFOA minimization plan for municipal dischargers or primary and secondary industrial dischargers, the department shall consider all of the following:

(a) The type and size of discharger.

(b) The operations that generate the wastewater.

(c) The concentrations of PFOS and PFOA in the effluent, influent, and biosolids or sludge, if applicable and available.

(d) The costs of potential PFOS and PFOA minimization plan elements.

(e) The environmental costs and benefits of the PFOS and PFOA minimization plan elements.

(f) The characteristics of the community in which the discharger is located, if applicable.

(g) The opportunities for material or product substitution.

(h) The opportunities available for support from or cooperation with other organizations.

(i) The actions the discharger has taken in the past to reduce PFOS or PFOA use or discharges.

(j) Any other relevant information.

(5) REVISIONS TO PLANS. Any revision to previously approved plans requires department approval.

NR 106.995 Sampling and laboratory analysis requirements. (1) The permittee shall collect samples in accordance with the requirements in the permit. The department may require either grab or composite samples as a permit condition. If the permittee uses a composite sampler, an equipment blank is required.

Note: If the permittee uses a composite sampler, it is recommended the permittee contact their department compliance representative prior to sample collection for additional sampling information.

(2) The laboratory performing the analyses on any samples shall be certified for the applicable PFAS compounds in the aqueous matrix by the Wisconsin Laboratory Certification Program established under s. 299.11, Stats., in accordance with s. NR 149.41.

Note: If the EPA Office of Water publishes a 1600 series isotope dilution method for the analysis of PFAS in wastewater, the department recommends use of the EPA method.

(3) The department may reject any sample results if results are produced by a laboratory that is not in compliance with certification requirements under ch. NR 149.

NR 106.996 New dischargers or new sources. If the department determines that a new source or new discharger may have the reasonable potential to cause or contribute to an exceedance of the PFOS or PFOA standard under s. NR 102.04 (8) (d) 1., the permittee shall install pollution control measures to achieve the standard prior to discharge, and water quality based effluent limitations for PFOS or PFOA or both that are calculated using the procedure in ss. NR 106.98 (4), 106.07 (2), and ch. NR 207 shall be included in the permit.

SECTION 5. NR 219.04 (1) (Note) is created to read:

NR 219.04 (1) Note: The laboratory performing the analyses on any samples will be certified for the applicable PFAS compounds in aqueous, sludge (biosolids), and tissue matrices in accordance with s. NR 149.41 by the Wisconsin Laboratory Certification Program established under s. 299.11, Stats. If the EPA Office of Water publishes a final approved 1600 series isotope dilution method for the analysis of PFAS in aqueous, sludge (biosolids), and tissue matrices, the department recommends use of the final approved EPA method.

SECTION 6. NR 219.04 Table F and table note 1 are amended to read:

Table F
Required Containers, Preservation Techniques, and Holding Times for wastewater

Parameter Number/Name	Container[1]	Preservation[2,3]	Maximum Holding Time[4]
Table A — Bacterial Tests			
1-5. Coliform, total, fecal and *E. coli*	PA, G	Cool, <10°C, 0.0008% $Na_2S_2O_3$[5]	8 hours.[22,23]
6. Fecal streptococci	PA, G	Cool, <10°C, 0.0008% $Na_2S_2O_3$[5]	8 hours.[22]
7. Enterococci	PA, G	Cool, <10°C, 0.0008% $Na_2S_2O_3$[5]	8 hours.[22]
8. *Salmonella*	PA, G	Cool, <10°C, 0.0008% $Na_2S_2O_3$[5]	8 hours.[22]
Table A — Aquatic Toxicity Tests			
9-12. Toxicity, acute and chronic	P, FP, G	Cool, ≤6°C[16]	36 hours
Table B — Inorganic Tests			
1. Acidity	P, FP, G	Cool, ≤6°C[18]	14 days
2. Alkalinity	P, FP, G	Cool, ≤6°C[18]	14 days
4. Ammonia	P, FP, G	Cool, ≤6°C,[18] H_2SO_4 to pH<2	28 days
9. Biochemical oxygen demand	P, FP, G	Cool, ≤6°C[18]	48 hours
11. Bromide	P, FP, G	None required	28 days

14. Biochemical oxygen demand, carbonaceous	P, FP, G	Cool, ≤6°C[18]	48 hours
15. Chemical oxygen demand	P, FP, G	Cool, ≤6°C,[18] H_2SO_4 to pH<2	28 days
16. Chloride	P, FP, G	None required	28 days
17. Chlorine, total residual	P, G	None required	Analyze within 15 minutes
21. Color	P, FP, G	Cool, ≤6°C[18]	48 hours
23-24. Cyanide, total or available (or CATC) free	P, FP, G	Cool, ≤6°C, [18] NaOH to pH>10,[6] reducing agent if oxidizer present	14 days
25. Fluoride	P	None required	28 days
27. Hardness	P, FP, G	HNO_3 or H_2SO_4 to pH<2	6 months
28. Hydrogen ion (pH)	P, FP, G	None required	Analyze within 15 minutes
31, 43. Kjeldahl and organic N	P, FP, G	Cool, ≤6°C, [18] H_2SO_4 to pH<2	28 days
38. Nitrate	P, FP, G	Cool, ≤6°C[18]	48 hours
39. Nitrate - nitrite	P, FP, G	Cool, ≤6°C, [18] H_2SO_4 to pH<2	28 days
40. Nitrite	P, FP, G	Cool, ≤6°C[18]	48 hours
41. Oil and grease	G	Cool, ≤6°C, [18] HCl or H_2SO_4 to pH<2	28 days
42. Organic carbon	P, FP, G	Cool, ≤6°C, [18] HCl, H_2SO_4 or H_3PO_4 to pH<2	28 days
44. Orthophosphate	P, FP, G	Cool, to ≤6°C [18,24]	Filter within 15 minutes; Analyze within 48 hours.
46. Oxygen, dissolved (Probe or Luminescence)	G, Bottle and top	None required	Analyze within 15 minutes
47. Oxygen, Dissolved Winkler	G, Bottle and top	Fix on site and store in dark	8 hours
48. Phenols	G	Cool, ≤6°C, [18] H_2SO_4 to pH<2	28 days
49. Phosphorus (elemental)	G	Cool, ≤6°C[18]	48 hours
50. Phosphorus, total	P, FP, G	Cool, ≤6°C, [18] H_2SO_4 to pH<2	28 days
53. Residue, total	P, FP, G	Cool, ≤6°C[18]	7 days
54. Residue, Filterable (TDS)	P, FP, G	Cool, ≤6°C[18]	7 days
55. Residue, Nonfilterable (TSS)	P, FP, G	Cool, ≤6°C[18]	7 days
56. Residue, Settleable	P, FP, G	Cool, ≤6°C[18]	48 hours
57. Residue, Volatile	P, FP, G	Cool, ≤6°C[18]	7 days
61. Silica	P or Quartz	Cool, ≤6°C[18]	28 days
64. Specific conductance	P, FP, G	Cool, ≤6°C[18]	28 days
65. Sulfate	P, FP, G	Cool, ≤6°C[18]	28 days
66. Sulfide	P, FP, G	Cool, ≤6°C,[18] add zinc acetate plus sodium hydroxide to pH>9	7 days
67. Sulfite	P, FP, G	None required	Analyze within 15 minutes
68. Surfactants	P, FP, G	Cool, ≤6°C[18]	48 hours
69. Temperature	P, FP, G	None required	Analyze
73. Turbidity	P, FP, G	Cool, ≤6°C[18]	48 hours
Table B — Metals[7]			
10. Boron	P, FP, or Quartz	HNO_3 to pH<2	6 months
18. Chromium VI	P, FP, G	Cool, ≤6°C, [18] pH = 9.3 - 9.7[20]	28 days

35. Mercury (CVAA)	P, FP, G	HNO_3 to pH<2	28 days
35. Mercury (CVAFS)	FP, G; and FP-lined cap[17]	5 mL/L 12N HCl or 5 mL/L BrCl[17]	90 days[17]
3, 5-8, 12, 13, 19, 20, 22, 26, 29, 30, 32-34, 36, 37, 45, 47, 51, 52, 58-60, 62, 63, 70-72, 74, 75. Metals, except boron, chromium VI, and mercury.	P, FP, G	HNO_3 to pH<2, or at least 24 hours prior to analysis[19]	6 months
Table C — Organic Tests[8]			
3, 4. Acrolein and acrylonitrile	G, FP-lined septum	Cool, ≤6°C, [18] 0.008% $Na_2S_2O_3$, pH to 4-5[10]	14 days[10]
119. Adsorbable Organic Halides (AOX)	G	Cool, <6°C, 0.008% $Na_2S_2O_3$ HNO_3 to pH<2	Hold *at least* 3 days, but not more than 6 months
114-118. Alkylated phenols	G	Cool, <6°C, H_2SO_4 to pH <2	28 days until extraction, 40 days after extraction
7, 38. Benzidines[11, 12]	G, FP-lined cap	Cool, ≤6°C,[18] 0.008% $Na_2S_2O_3$[5]	7 days until extraction[13]
29, 35-37, 63-65, 107. Chlorinated hydrocarbons[11]	G, FP-lined cap	Cool, ≤6°C[18]	7 days until extraction, 40 days after extraction
120. Chlorinated Phenolics		Cool, <6°C, 0.008% $Na_2S_2O_3$, H_2SO_4 to pH <2	30 days until acetylation, 30 days after acetylation.
15, 16, 21, 31, 87. Haloethers [11]	G, FP-lined cap	Cool, ≤6°C,[18] 0.008% $Na_2S_2O_3$[5]	7 days until extraction, 40 days after extraction
54, 55, 75, 79. Nitroaromatics and Isophorone[11]	G, FP-lined cap	Cool, ≤6°C,[18] store in dark, 0.008% $Na_2S_2O_3$[5]	7 days until extraction, 40 days after extraction
82-84. Nitrosamines[11, 14]	G, FP-lined cap	Cool, ≤6°C,[18] store in dark, 0.008% $Na_2S_2O_3$[5]	7 days until extraction, 40 days after extraction
88-94. PCBs [11]	G, FP-lined cap	Cool, ≤6°C[18]	1 year until extraction, 1 year after extraction
60-62, 66-72, 85, 86, 95-97, 102, 103. PCDDs/PCDFs [11]			
Aqueous Samples: Field and Lab Preservation	G	Cool, ≤6°C[18], 0.008% $Na_2S_2O_3$[5], pH<9	1 year
Solids and Mixed-Phase Samples: Field Preservation	G	Cool, ≤6°C[18]	7 days
Tissue Samples: Field Preservation	G	Cool, ≤6°C[18]	24 hours
Solids, Mixed-Phase, and Tissue Samples: Lab Preservation	G	Freeze, ≤-10°C	1 year
Per- and polyfluoroalkyl substances (PFAS)			
Aqueous samples	HDPE or PP	Cool, ≤6°C	28 days until extraction, 30 days after extraction
Sludge (biosolids) samples	HDPE or PP	Cool, ≤6°C	28 days until extraction, 30 days after extraction
Tissue samples	PE freezer bags or Al foil	Frozen	1 year until extraction, 30 days after extraction
23, 30, 44, 49, 53, 77, 80, 81, 98, 100, 112. Phenols [11]	G, FP-lined cap	Cool, ≤6°C,[18] 0.008% $Na_2S_2O_3$	7 days until extraction, 40 days after extraction
14, 17, 48, 50-52. Phthalate esters[11]	G, FP-lined cap	Cool, ≤6°C[18]	7 days until extraction, 40 days after extraction
1, 2, 5, 8-12, 32, 33, 58, 59, 74, 78, 99, 101. Polynuclear aromatic hydrocarbons [11]	G, FP-lined cap	Cool, ≤6°C,[18] store in dark, 0.008% $Na_2S_2O_3$[5]	7 days until extraction, 40 days after extraction
6, 57, 106. Purgeable aromatic hydrocarbons	G, FP-lined septum	Cool, ≤6°C,[18] 0.008% $Na_2S_2O_3$[5],	14 days[9]

		HCl to pH 2[9]	
13, 18-20, 22, 24-28, 34-37, 39-43, 45-47, 56, 76, 104, 105, 108-111, 113. Purgeable halocarbons.	G, FP-lined septum	Cool, ≤6°C,[18] 0.008% $Na_2S_2O_3$[5]	14 days
Table D — Pesticides Tests:			
1-70. Pesticides[11]	G, FP-lined cap	Cool, ≤6°C,[18] pH 5-9[15]	7 days until extraction, 40 days after extraction
Table E — Radiological Tests:			
1-5. Alpha, beta and radium	P, FP, G	HNO_3 to pH<2	6 months
Table H — Bacterial Tests:			
1. *E. coli*	PA, G	Cool, <10°C, 0.0008% $Na_2S_2O_3$[5]	8 hours.[22]
2. Enterococci	PA, G	Cool, <10°C, 0.0008% $Na_2S_2O_3$[5]	8 hours.[22]
Table H — Protozoan Tests:			
8.*Cryptosporidium*	LDPE; field filtration	1-10 °C	96 hours.[21]
9.*Giardia*	LDPE; field filtration	1-10 °C	96 hours.[21]

[1] "P" is for polyethylene; "FP" is fluoropolymer (polytetrafluoroethylene (PTFE); Teflon®), or other fluoropolymer, unless stated otherwise in this Table F; "G" is glass; "PA" is any plastic that is made of a sterilizable material (polypropylene or other autoclavable plastic); "LDPE" is low density polyethylene; "HDPE" is high density polyethylene; "PE" is polyethylene; "PP" is polypropylene.

SECTION 7. NR 219.04 Table F table (Note) is created to read:

NR 219.04 Table F Note: If the EPA Office of Water publishes a final approved 1600 series isotope dilution method for the analysis of PFAS in aqueous, sludge, biosolids, and tissue matrices, the department recommends use of the final approved EPA method.

SECTION 8. 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 9. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on February 23, 2022.

Dated at Madison, Wisconsin _____.

STATE OF WISCONSIN

DEPARTMENT OF NATURAL RESOURCES

BY _____

For Preston D. Cole, Secretary