Chapter NR 159

MANAGEMENT OF CLASS B FIREFIGHTING FOAM

NR 159.01 Purpose. The purpose of this chapter is to establish the appropriate containment, treatment, and disposal and storage measures when testing Class B firefighting foam that contains intentionally added PFAS; to establish consistent, uniform standards and procedures to limit the discharge of Class B firefighting foams, unless the foam is used in emergency firefighting or fire prevention operations; and to clarify recordkeeping and notification requirements. This chapter is adopted under s. 299.48, Stats.

History: EmR2045: emerg. cr., eff. 12–4–20; CR 21–073: cr. Register July 2022 No. 799, eff. 8–1–22.

NR 159.02 Applicability. (1) This chapter applies to any person conducting testing of foam that contains intentionally added PFAS, including calibration testing, conformance testing, or fixed–system testing, to evaluate its effectiveness or testing of a firefighting foam delivery system or equipment.

(2) This chapter applies to any person that uses or discharges foam that contains intentionally added PFAS including use as part of an emergency firefighting or fire prevention operation.

(3) This chapter applies to any person that contains, treats, disposes, or stores foam from a testing facility or generated as a result of testing.

(4) The prohibitions and requirements in this chapter apply to foam that is in concentrate or that is mixed with water, liquids, or other substances. No person may discharge foam to a storm or sanitary sewer or to the environment unless the discharge meets the treatment requirements of this chapter and the discharge is in accordance with all other applicable environmental regulations.

(5) This chapter may not be construed as prohibiting the manufacture, sale, or distribution of foam that contains intentionally added PFAS.

History: EmR2045: emerg. cr., eff. 12–4–20; CR 21–073: cr. Register July 2022 No. 799, eff. 8–1–22.

NR 159.03 Definitions. In this chapter:

(1) "Calibration testing" means the comparison of measurement values delivered by a device under testing with those of a calibration standard of known accuracy.

Note: Calibration testing is typically associated with the installation, maintenance, and repair of emergency fire suppression and firefighting equipment.

(2) "Class B firefighting foam" has the meaning specified in s. 299.48 (1) (a), Stats.

Note: Under s. 299.48 (1) (a), Stats., "Class B firefighting foam" means a foam designed for use on a flammable liquid fire, which may include a dual action Class A and B foam.

(3) "Conformance testing" means testing or other activities that determine whether a process, product, or service complies with the requirements of a specification, technical standard, contract, or regulation.

(4) "Container" means any device in which a material is stored, transported, treated, disposed of, or otherwise handled.

(5) "Containment" means use of a container or secondary containment structure or device to keep foam under control or within boundaries.

(6) "Department" means the department of natural resources.

(7) "Discharge" has the meaning specified in s. 292.01 (3), Stats.

Note: Under s. 292.01 (3), Stats., "discharge" means, but is not limited to, spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

(8) "Dispose" or "disposal" means the discharge, deposit, injection, dumping, or placing of any solid waste into or on any land or water.

(9) "Emergency firefighting" means the act of attempting to prevent the spread of or extinguishing unwanted fires.

(10) "Environment" has the meaning specified in s. NR 700.03 (18).

Note: Under s. NR 700.03 (18), "environment" means any plant, animal, natural resource, surface water (including underlying sediments and wetlands), groundwater, drinking water supply, land surface and subsurface strata, and ambient air within the state of Wisconsin or under the jurisdiction of the state of Wisconsin.

(11) "Fire prevention operation" means measures and practices directed toward the prevention and suppression of unwanted fires.

(12) "Fire suppression system" means a system used to extinguish or prevent the spread of fire through the application of a substance.

(13) "Fixed system" means a permanently installed fire suppression system designed for use on the specific fire hazards the system is expected to control or extinguish.

(14) "Foam" means class B firefighting foam as defined under s. 299.48 (1) (a), Stats.

(15) "Foam that contains intentionally added PFAS" means foam in which PFAS is a constituent of the foam added during the manufacturing process.

(16) "Method detection limit" means the minimum measured concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results. The method detection limit is generated as defined in s. NR 149.03 (46).

(17) "Person" has the meaning specified in s. 299.01 (10), Stats.

Note: Under s. 299.01 (10), Stats., "person" means an individual, owner, operator, corporation, limited liability company, partnership, association, municipality, interstate agency, state agency, or federal agency.

(18) "PFAS" has the meaning specified in s. 299.48 (1) (b), Stats.

Note: Under s. 299.48 (1) (b), Stats., "PFAS" means a perfluoroalkyl or polyfluoroalkyl substance.

(19) "Safety data sheet" means a document that contains safety and safe handling information in respect to the product, including protection information regarding human health, and may include information on protection of the environment.

(20) "Storage" means storing on a temporary basis for future use or future treatment or disposal in such a manner as not to constitute ultimate disposal.

(21) "Testing" has the meaning specified in s. 299.48 (1) (c), Stats.

Note: Under s. 299.48 (1) (c), Stats., "testing" means the testing of a firefighting foam to evaluate its effectiveness and testing of a firefighting foam delivery system or equipment.

(22) "Training" has the meaning specified in s. 299.48 (1) (d), Stats.

Note: Under s. 299.48 (1) (d), Stats., "training" means providing first–hand field experience to a person who may use a firefighting foam as part of an emergency firefighting or fire prevention operation.

(23) "Treatment" means any method, technique, or process, including thermal destruction, that changes the physical, chemical, or biological character or composition of a contaminant.

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NR 159.04 Prohibition and exemptions. (1) Except as provided under sub. (2), no person may use or otherwise discharge, including for training purposes, a class B firefighting foam that contains intentionally added PFAS.

(2) All of the following actions are exempt from the prohibition under sub. (1):

(a) The use or discharge by any person of a class B firefighting foam that contains intentionally added PFAS as part of an emergency firefighting or fire prevention operation.

(b) The use by any person of class B firefighting foam that contains intentionally added PFAS for testing purposes, including calibration testing, conformance testing, or fixed system testing, if the testing facility has implemented appropriate containment, treatment, and disposal or storage measures, as specified in ss. NR 159.06 to 159.08, to prevent discharges of the foam to the environment.

Note: Under s. 299.48 (3) (b), Stats., appropriate containment, treatment, and disposal or storage measures may not include flushing, draining, or otherwise discharging foam into a storm or sanitary sewer.

Note: A person responsible under s. 292.11 (3), Stats., for discharges of PFAS to the environment shall follow the applicable requirements in chs. NR 700 to 754 for response action sites.

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NR 159.05 Notification and recordkeeping. (1) NOTIFICATION. A person that uses or discharges foam shall do all of the following:

(a) Notify the department of the use or discharge of foam as part of an emergency firefighting or fire prevention operation immediately or as soon as practicable without hindering emergency firefighting or fire prevention operations.

(b) Notify the department immediately of any discharge of foam to the environment resulting from testing purposes.

(2) RECORDKEEPING. Any person in possession of foam shall retain foam safety data sheets and make them available to the department for examination upon request.

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NR 159.06 Storage. A person that uses foam for testing purposes shall store foam in accordance with manufacturer instructions and safety data sheets, and in a manner that shall prevent discharge of foam to the environment. A person that stores foam for testing purposes shall do all of the following:

(1) Establish and maintain a quarterly inspection program for detecting leaks in storage containers and a plan to undertake response measures to halt, contain, remove, treat, or dispose of foam discharges.

(2) Post safety data sheets in a visible location in the storage area.

(3) Clearly label all containers to indicate the contents of the container and keep containers in a manner that allows easy detection of signs of leakage.

(4) Store and transport foam in containers fabricated from or lined with materials compatible with foam and designed to prevent evaporation of foam, including containers direct from the manufacturer.

(5) Maintain material for absorbing any discharges of foam onsite.

(6) Block any drains in a storage area from any connection to a sanitary or storm sewer.

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NR 159.07 Containment. A person that uses foam for testing purposes shall ensure that appropriate containment is in place during testing of foam or testing of fire suppression systems, foam delivery systems, or foam equipment to prevent discharge of foam to the environment. Appropriate containment shall include all of the following:

(1) Use of water or surrogate solutions; testing equipment indoors; spraying into drums, lined pits, or other containment equipment; and testing with closed–loop systems, when consistent with industry standards and other regulations governing foam testing.

Note: Other regulations may include chs. SPS 314 and 361 to 366, which incorporate standards of the national fire protection association, federal aviation administration requirements, and other applicable industry and national association standards.

(2) Testing and flushing of foam testing equipment, systems, and facilities conducted with a containment system capable of capturing, diverting, and storing generated foam.

(3) Testing that employs measures to prevent foam that escapes containment from entering surface waters, groundwater, storm sewers, or sanitary sewers.

(4) Containment system design that takes into account location and use of the foam, the risk to the environment, the automatic or manually activated design of a foam system, and any other applicable local, state, or federal regulations.

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NR 159.08 Treatment and disposal. A person that uses foam for testing purposes or that conducts treatment or disposal of foam that was used for testing purposes may employ on–site or off–site measures for treatment, disposal, or a combination of treatment and disposal for foam. When implemented, appropriate treatment measures render wastewater containing foam to no longer be subject to the prohibition on discharge to storm or sanitary sewer under s. 299.48 (2), Stats. Treatment or disposal of foam used for testing purposes shall be conducted in a manner that prevents discharge of foam to the environment and shall meet all of the following requirements:

(1) TREATMENT. (a) *Incineration or thermal destruction.* Incineration or thermal destruction of foam shall be conducted at a temperature range and residence time sufficient to destroy PFAS while also ensuring the maximum degree of reduction in emission of PFAS, including elimination of emissions of PFAS when achievable. Prior to any person operating an incineration or thermal destruction treatment system under this subsection, a person shall submit documentation to the department that demonstrates the incineration or thermal destruction treatment system meets all of the requirements of this paragraph.

Note: Any discharge of treated foam to a sanitary sewer requires the approval from the owner of the publicly owned treatment works and may be subject to additional limitations. Any discharge of treated foam to waters of the state, including a discharge of treated foam through a storm sewer, requires Wisconsin pollutant discharge elimination system permit coverage under ch. 283, Stats., and may be subject to the regulations promulgated under that chapter.

(b) *Other treatment.* 1. 'Best available technology.' If treatment other than that specified in par. (a) is proposed, the treatment shall, at a minimum, satisfy all of the following design and operational standards:

a. Treatment shall include preliminary treatment prior to granular activated carbon adsorption to remove compounds that may reduce adsorption capacity of granular activated carbon or interfere with PFAS removal. The preliminary treatment system may include clarifiers, bag filter units, clay filter units, or other similar treatment.

b. Following preliminary treatment under subd. 1. a. and prior to granular activated carbon adsorption under subd. 1. c., the treat-

ment shall include cloth filtration, ultrafiltration, or filtration of a finer pore size.

c. Following filtration under subd. 1. b., the treatment shall include a minimum of 3 granular activated carbon adsorption units in series. Granular activated carbon adsorption units shall be optimized for PFAS removal. The granular activated carbon adsorption units shall have a cumulative minimum empty bed contact time of 30 minutes. The lead granular activated carbon adsorption unit's media shall be replaced at a frequency that allows for optimal PFAS removal but no less frequently than once per treatment of each 10,000 bed volumes. Following media replacement, the lead unit shall be moved to the lag unit position with each of the other units moved forward one position in the series. The granular activated carbon media shall be derived from bituminous coal unless the discharger utilizes a more frequent media replacement schedule appropriate for that media and receives approval under subd. 2.

d. Treatment shall include at least one anion−exchange resin polishing unit to remove trace PFAS compounds.

e. Sampling ports shall be provided immediately after each treatment unit, including between granular activated carbon adsorption units.

f. If any sludges or solids are produced during any stages of treatment, they shall be solidified by mixing with cementitious materials or a comparable process prior to disposal at a licensed solid waste facility. Sludges or solids generated during the treatment process may not be disposed of via land application.

2. 'Alternative treatment technology.' The department may, on a case−by−case basis, approve an alternative treatment technology to any of the treatment, design, and operation requirements under subd. 1., if the applicant can demonstrate that the proposed alternative treatment system will achieve treatment equivalent to or better than a system specified under subd. 1. Requests for approval of alternative requirements shall be made in writing and accompanied by written justification including performance data from pilot installations if requested by the department.

Note: Alternative treatment technologies may include solutions that improve upon the best available technology, existing alternative systems such as reverse osmosis with treatment of reject water, or modifications to the best available technology such as use of 2 granular activated carbon units with tailored operation and management plans to ensure prevention of breakthrough, or use of non−bituminous granular activated carbon media with an appropriately adjusted minimum empty bed contact time.

3. 'Treatment systems review.' Construction or modification of any treatment system subject to this paragraph requires plan review and approval prior to commencement of construction, in accordance with ch. NR 108 and s. 281.41, Stats.

4. 'PFAS treatment.' Any treatment system subject to this paragraph shall be operated to minimize the level of PFAS substances in effluent, and a person operating a treatment system shall take actions under this subsection to maintain appropriate and effective foam treatment. Actions taken under this subsection shall be documented in writing, and that documentation shall be retained for at least 3 years and made available to the department upon request.

(2) DISPOSAL. Appropriate foam disposal employed by a person shall comply with all of the following requirements:

(a) Unless treated in accordance with sub. (1), PFAS in foam shall be effectively immobilized through solidification by mixing with cementitious materials or a comparable process prior to disposal.

(b) Sludges or solids generated as a result of treatment and solidified in accordance with sub. (1) or foam managed in accordance with sub. (2) (a) in the state shall be disposed of at a licensed solid waste facility.

History: EmR2045: emerg. cr., eff. 12−4−20; CR 21−073: cr. Register July 2022 No. 799, eff. 8−1−22.

NR 159.09 Lab analyses and samples for PFAS in foam. (1) Laboratory analyses of any treated foam samples collected shall report results to the testing laboratory's method detection limit. Laboratories shall use procedures suitable for the matrix, potential interferences, and expected level of PFAS in the sample. All chemical and physical analyses for which accreditation is available under ch. NR 149 shall be conducted by a laboratory accredited under ch. NR 149.

(2) Upon request of the department, a person or testing facility subject to this chapter shall provide the department with any foam safety data sheets, sampling, and analyses of the foam stored, tested, treated, disposed of, contained, or used at the facility or treated or disposed of at another facility.

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