

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

The Wisconsin Natural Resources Board proposes an order to **repeal** NR 446.02(1w), 446.029, 446.055 to 446.08 and 446.10 to 446.12; to **renumber** NR 446.025, 446.03 and 446.04; to **renumber and amend** NR 446.027, 446.05, 446.09, 446 subch. III (title), 446.14, 446.15 and 446.16; to **amend** NR 439.075(2)(b)1., 446.01(2)(Note), 446 subch. II(title), 484.04(20m) and (27) and 484.10(47m) and to **create** NR 446.03(title), 446.05, 446 subch. III and 484.03(7) relating to the control of mercury emissions from electrical generating units.

AM-32-05

Summary Prepared by the Department of Natural Resources

1. **Statutes interpreted:** ss. 285.11(6), 285.11(9), and 285.27(2)(b), Stats. The State Implementation Plan developed under s. 285.11(6), Stats., is revised.

2. **Statutory authority:** ss. 227.11(2)(a), 285.11(1), 285.11(9), and 285.27(1)(a), Stats.

3. **Explanation of agency authority:** If an emission standard for an air pollutant is promulgated under section 111 of the Clean Air Act (CAA), the Department is required under s. 285.27(1)(a), Stats., to promulgate by rule a similar standard. On May 18, 2005 the federal Clean Air Mercury Rule (CAMR) requiring emission reductions from coal-fired EGUs was promulgated by the United States Environmental Protection Agency (EPA) under section 111 of the Clean Air Act. On February 8, 2008, the Washington D.C. Court of Appeals vacated the CAMR as well as EPA's removal of coal-fired EGUs from the list of source categories under section 112, the Hazardous Air Pollutant section, of the Clean Air Act (State of NJ v. EPA, D.C. Ct. App. No. 05-1097). The Court found that the EPA's action was "unlawful" and therefore coal-fired EGUs cannot be regulated under section 111 unless EPA makes the finding that "emissions from no source in the category or subcategory concerned ... exceed a level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions from any source." It is not clear, when, and in what manner, EPA will address mercury emissions from coal-fired EGUs.

Thus, to date, federal mercury rules have not been promulgated under section 111 or 112 of the Clean Air Act. If EPA promulgates emission limitations for hazardous air pollutants pursuant to section 112, Wisconsin is required to promulgate similar emission limitations for hazardous air pollutants, as required under 285.27(2)(a), Stats. In the absence of a federal standard promulgated under section 112, the Department may promulgate a standard if it finds that a standard is needed to provide adequate protection of public health and welfare. The Department has made this finding and is proposing a revision to the mercury emission requirements affecting coal-fired electric generating units (EGUs) in the current state mercury rule, Chapter NR 446, Wis. Adm. Code.

Section 227.11(2)(a), Stats. provides state agencies general authority to develop rules. Section 285.11(1), Stats. authorizes the Department to promulgate rules consistent with Chapter 285, Stats. Authority to develop and revise a state implementation plan to control air pollution in the state is provided under s. 285.11(6), Stats. and authority to prepare and adopt minimum standards for the emission of mercury is provided under and s. 285.11(9), Stats.

4. **Related statute or rule:** Chapter 446, Wis. Adm. Code, Control of Mercury Emissions.

5. **Plain language analysis:** Under the current state mercury rule, four utilities and the 42 EGUs they operate are affected. The four utilities are Alliant Energy, Dairyland Power Cooperative, WE Energies and Wisconsin Public Service Corporation. Beginning January 1, 2010, these four utilities must reduce

mercury emissions by 40% from the baseline established under provisions in the current state mercury rule. The proposed revisions will cover an additional six EGUs operated by four additional utilities: Madison Gas & Electric Company, Manitowoc Public Utilities, Mid-American Energy Company and Xcel Energy. Under these revisions, the state's large coal-fired EGUs (150 megawatts and greater) must comply with one of two compliance paths to achieve a 90% mercury emission reduction. Small coal-fired EGUs (greater than 25 megawatts and less than 150 megawatts) must reduce their mercury emissions to a level defined as Best Available Control Technology (BACT). The proposed revisions require new coal-fired EGUs to meet Lowest Achievable Emission Rate (LAER) and in no case shall the permitted mercury reduction be less than 90%. Mercury emissions expected from the application of this standard will prevent almost 4,400 pounds of mercury air emissions annually.

Large coal-fired EGUs must either meet a 90% mercury emission reduction or limit the concentration of mercury emissions to 0.0080 pounds of mercury per gigawatt-hour by January 1, 2015. Compliance is demonstrated annually on a unit-by-unit basis or units under common ownership may average across their units. Large coal-fired EGUs also have the option of choosing a multipollutant alternative. The multipollutant alternative requires the affected EGUs to achieve nitrogen oxides (NO_x) and sulfur dioxide (SO₂) reductions beyond those currently required by federal and state regulations, as well as to attain a delayed 90% mercury emission reduction standard. An additional six years to achieve the 90% mercury emission reduction standard is provided to EGUs included in a multipollutant approach. The units may comply on either a unit-by-unit basis or an average across units under common ownership. An interim mercury reduction provision is established requiring that the affected EGUs meet either a 70% mercury emission reduction or a mercury emission concentration of 0.0190 pounds per gigawatt-hour by January 1, 2015. Beginning January 1, 2018, an 80% mercury emission reduction or an emission concentration limit of 0.0130 pounds of mercury per gigawatt-hour must be achieved. By January 1, 2021, a 90% mercury emission reduction or an emission concentration limit of 0.0080 pounds of mercury per gigawatt-hour is required.

Early mercury emission reduction credits can be used for up to 5% of the annual allowable emission total, in pounds, to achieve compliance with the 70%, 80% and 90% mercury emission reduction requirements for EGUs following the multipollutant approach. The Department must certify emission reduction credits. Mercury emission reductions by EGUs following the multipollutant approach that are greater than the 70% and 80% mercury emission reduction or mercury emission reductions achieved by utilities greater than the January 1, 2010, 40% reduction requirement are eligible for certification.

A report will be prepared and submitted to the Natural Resource Board by August 31, 2013 to evaluate scientific and technology development for reduction of mercury emissions, whether the mercury requirements are achievable and any recommendations for revisions.

6. Summary of, and comparison with, existing or proposed federal regulation: In 2005, EPA promulgated the CAMR which included a federal trading program for mercury emissions from coal-fired EGUs. In 2008, this rule was vacated by the U.S. Court of Appeals for the District of Columbia (State of NJ v. EPA, D.C. Ct. App. No. 05-1097). It is not clear, when, and in what manner, EPA will address mercury emissions from coal-fired EGUs.

7. Comparison with rules in adjacent states: Illinois, Michigan and Minnesota are proposing or have adopted requirements more stringent than the CAMR would have achieved including more mercury emission reductions sooner. Illinois and Michigan declined participation in EPA's national trading program. Ohio and Indiana developed regulations to adopt EPA's now vacated national trading program to meet CAMR requirements.

8. Summary of factual data and analytical methodologies: The Department proposes to adopt administrative rules for a revised emission standard for mercury. In the absence of a federal standard promulgated under section 112 of the Clean Air Act, the Department may promulgate a standard if it finds that a standard is needed to provide adequate protection of public health and welfare. This finding contains the written documentation to support a revised standard for mercury for coal-fired EGUs, as required under

Wis. Stats. 285.27(2)(b). This document includes the following four sections that correspond to the elements for which written documentation supporting the finding are required:

Section 1 - Identify sources of mercury and populations potentially at risk.

Section 2 - Assess whether exposures to mercury are above a level of concern.

Section 3 - Evaluate options to control risks from mercury exposures.

Section 4 - Compare mercury emission standards proposed with those from neighboring states.

9. Analysis and supporting documents used to determine effect on small business or in preparation of economic impact report:

The proposed rule revisions are not expected to have a significant effect on small businesses. The EGUs subject to the emission reduction requirements of the proposed revisions are not small businesses. Any costs which the electric utility industry incurs to meet the emission reduction requirements will likely be passed on to their customers, which will include small businesses. The fiscal estimate prepared by the Department estimated that electricity rates would increase by 0.06 to 0.14 cents per kilowatt-hour. As part of the federal rule promulgation process, the EPA is required under the Regulatory Flexibility Act to consider potential impacts of proposed regulations on small entities. After considering the economic impacts of the CAMR on small entities, EPA has concluded that the CAMR will not have a significant economic impact on a substantial number of small entities and has determined that it is not necessary to prepare a regulatory flexibility analysis. The small entity definition used by EPA includes: (1) electric utilities that produces 4 billion kilowatt-hours or less; (2) a small governmental jurisdiction that is a government of a city, county, town, district, or special district of less than 50,000; and (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field. Although the CAMR was vacated, the analysis of the rule and the estimated impacts has relevance to the proposed revisions.

10. Effect on small business: The proposed rules are not expected to have a significant effect on small businesses. It is expected that the costs of complying will be passed on to customers of electric utilities through increased electricity rates resulting in small businesses having to pay more for electricity.

11. Agency contact person:

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12. Place where comments are to be submitted and deadline for submission:

Written comments may be submitted at the public hearings or by regular mail, fax or email to:

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Written comments may also be submitted to the Department using the Wisconsin Administrative Rules Internet Web site at <http://adminrules.wisconsin.gov>. (Select the Search tab and search for: AM-32-05, select the Comment tab and use the Add comment button.) Questions on this system should be referred to Robert Eckdale at 608.266.2856 or at robert.eckdale@wisconsin.gov.

A public hearing will be held on Monday, April 7, 2008, in Room G09, GEF II, 101 S. Webster St., Madison, Wisconsin at 9:00 am. The deadline for submission of comments is April 14, 2008.

SECTION 1. NR 439.075(2)(b)1. is amended to read:

NR 439.075(2)(b)1. Compliance emission testing for mercury is required for an emission point subject to s. NR ~~446.06(1)(b), 446.09(1)~~ 446.08(1) or ~~446.15(1), (2) or (3)~~ 446.21(1), (2) or (3).

SECTION 2. NR 446.01(2) Note is amended to read:

NR 446.01(2) **Note:** Subchapter ~~III~~ IV of this chapter is based on the federal regulations contained in 40 CFR part 61, Subpart E, created October 14, 1975, as last revised ~~September 23, 1988~~ October 17, 2000.

SECTION 3. NR 446.02(1w) is repealed.

SECTION 4. NR 446 subch. II(title) to precede s. NR 446.05 as created in SECTION 13 is amended to read:

NR 446 subch. II(title) SUBCHAPTER II – CONTROL OF ~~THE~~ ATMOSPHERIC DEPOSITION OF MERCURY EMISSIONS FROM MAJOR UTILITIES

SECTION 5. NR 446.029, 446.055 to 446.08 and 446.10 to 446.12 are repealed.

SECTION 6. NR 446.03 is renumbered NR 446.06.

SECTION 7. NR 446.04 is renumbered NR 446.07.

SECTION 8. NR 446.09 is renumbered NR 446.08 and as renumbered, s. NR 446.08(title), (1)(intro.) and (d) and (4) are amended to read:

NR 446.08(title) **Annual mercury emissions determination and reporting for major utilities**.
(1)(intro.) The owner or operator of an emissions unit subject to the requirements of s. NR ~~446.06~~ 446.05 shall determine and report to the department, by March 1, annual mercury emissions for each emissions unit, beginning with calendar year ~~2008~~ 2010 emissions and ending with calendar year 2014 emissions, using the following formula:

Annual Mercury Emissions = Fuel Use X Mercury Content of Fuel X Reduction of Mercury Prior to its Release to the Atmosphere

where:

(d) The department may require that more than one source performance test be conducted if a single test is determined not to be ~~non-representative~~ representative of conditions at the combustion unit.

~~(4) In addition to the performance test required under s. NR 446.06 (1) (b), the owner or operator of a major utility shall conduct source performance tests of the utility's combustion units according to the following schedules:~~

~~(a) All units subject to s. NR 446.06 446.05, with an electrical generating capacity equal to or greater than 200 MW, and all units that undergo process changes or change control equipment after January 1, 2006, shall have source performance tests conducted during calendar years 2010, and 2013, ~~2015 and~~ biennially thereafter.~~

~~(b) All units subject to s. NR 446.06, with an electrical generating capacity of less than 200 MW, and which do not undergo process changes or changes to control equipment after January 1, 2006, shall have source performance tests conducted during calendar year 2015 and every 4 years thereafter.~~

SECTION 9. NR 446.03(title) is created to read:

NR 446.03(title) **Mercury emission limits.**

SECTION 10. NR 446.025 is renumbered NR 446.03(1).

SECTION 11. NR 446.05 is renumbered NR 446.03(2) and as renumbered NR 446.03(2)(b) is amended to read:

NR 446.03(2)(b) New or modified stationary sources that are subject to an emission limit for mercury required under section 111 or 112 of the Act (42 USC 7411 and 7412 respectively) or s. NR 446.11 are exempt from the requirements of this section.

SECTION 12. NR 446.027 is renumbered NR 446.04 and as renumbered NR 446.04(1)(c) and (2)(intro.) are amended to read:

NR 446.04(1)(c) ~~The~~ 1. Except as provided in subd. 2., the owner or operator shall calculate the removal efficiency of mercury by air pollution control equipment for each fuel used in one of the following ways except natural gas and fuel oil, based on source performance tests on the equipment conducted according to the following methods and procedures:

~~1. Based on~~ a. The source performance tests on the equipment following the testing procedures in s. NR 446.09(3) shall be conducted according to Method 101A in 40 CFR part 61, Appendix B, incorporated by reference in s. NR 484.04(23), or Method 29 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(20m).

b. A sample of the fuel burned during the test shall be analyzed for mercury content, using ASTM D3684-01, incorporated by reference in s. NR 484.10 (47m), or an equivalent method approved by the department. During each of the 3 runs of the performance test, a separate sample of the fuel being burned during the run shall be collected and analyzed.

c. During the source performance testing, the consumption of fuel shall be monitored and recorded.

~~2. Based on~~ Instead of conducting a source performance test under subd. 1., information derived from performance testing of other combustion units which are similar in terms of the type of combustion unit, particulate control equipment, fuel characteristics, and operating parameters may be used if the performance test was conducted according to the procedures in subd. 1.

(2)(intro.) The owner or operator of a process unit at the source which is not subject to subch. II, III or IV shall calculate and report annual mercury emissions from the process unit using the procedures and methods of this subsection and shall provide all associated data to the department. The calculations shall apply a mass balance approach, emission test data, or both, as follows:

SECTION 13. NR 446.05 is created to read:

NR 466.05 **Mercury emission limits for major utilities.** Beginning January 1, 2010, no owner or operator of a major utility may cause, allow or permit mercury emissions that exceed 60% of the mercury emissions baseline determined by the department under s. NR 446.06.

SECTION 14. NR 446 subch. III(title) to precede NR 446.20, as renumbered in SECTION 15, is renumbered NR 446 subch. IV and as renumbered is amended to read:

NR 446 subch. IV(title)

SUBCHAPTER IV– MERCURY EMISSION STANDARDS FOR ~~MERCURY~~ OTHER SOURCES

SECTION 15. NR 446.14 is renumbered NR 446.20 and as renumbered NR 446.20(1) and (2) are amended to read:

NR 446.20(1) In quantities greater than ~~2,300 grams~~ 2.3 kg (5.1 lbs) per 24-hour period from mercury cell chlor-alkali plants, or mercury ore processing facilities.

(2) In quantities greater than ~~3,200 grams of mercury~~ 3.2 kg (7.1 lbs) per 24-hour period from sludge incineration plants, sludge drying plants, or a combination of these that process wastewater treatment plant sludges.

SECTION 16. NR 446.15 is renumbered NR 446.21 and as renumbered NR 446.21(3)(a) is amended to read:

NR 446.21(3)(a) Stationary sources using mercury chlor-alkali cells may test cell room emissions in accordance with par. (b), or demonstrate compliance with par. (d) and assume ventilation emissions of ~~1,300 grams~~ 1.3 kg (2.9 lbs) per day of mercury.

SECTION 17. NR 446.16 is renumbered NR 446.22 and as renumbered NR 446.22(1) is amended to read:

NR 446.22(1) All wastewater treatment plant sludge incineration and drying plants for which mercury emissions exceed ~~1600 grams/day~~ 1.6 kg (3.5 lbs) per 24-hour period, demonstrated either by stack sampling or sludge sampling according to s. NR ~~446.04(4)~~ 446.21(4), shall monitor mercury emissions at intervals of at least once per year in accordance with Method 105 ~~or~~ and the procedures

specified in s. NR ~~446.15(4)(f)~~ 446.21(4)(f). The results of monitoring shall be reported to the department by registered letter dispatched before the close of the next business day following the monitoring. The results shall be retained at the source and shall be made available for inspection by a department representative for a minimum of 2 years.

SECTION 18. NR 446 subch. III to follow NR 446.08, as renumbered in SECTION 8, is created to read:

NR 446 subch. III

SUBCHAPTER III – CONTROL OF MERCURY EMISSIONS FROM COAL-FIRED ELECTRIC
GENERATING UNITS

NR 446.09 Applicability. (1) Except for those units that are excluded under sub. (2), this subchapter applies to the owner or operator of a coal-fired EGU, serving at any time, since the startup of the unit's combustion chamber, a generator with nameplate capacity of more than 25 MWe producing electricity for sale.

(2) A cogeneration unit which otherwise satisfies the applicability statement of this sub. (1) is exempt from this subchapter if the cogeneration unit, during the 12-month period starting on the date the unit first produces electricity and continues to qualify as a cogeneration unit, and which does not serve at any time, since the later of November 15, 1990 or the start-up of the cogeneration unit's combustion chamber, a generator with a nameplate capacity of more than 25 MWe supplying in any calendar year more than one-third of the cogeneration unit's potential electric output capacity or 219,000 MWh, whichever is greater, to any utility power distribution system for sale.

(3) If a coal-fired EGU qualifies as a cogeneration unit during the 12-month period starting on the date the unit first produces electricity but subsequently no longer qualifies as a cogeneration unit, the coal-fired EGU shall become subject to this subchapter starting on the day on which the coal-fired EGU first no longer qualifies as a cogeneration unit.

NR 446.10 Definitions. The definitions contained in ch. NR 400 and in s. NR 446.02 apply to the terms used in this subchapter. In addition, the following definitions apply to the terms used in this subchapter:

(1) "Boiler" means an enclosed combustion device use to produce heat and to transfer heat to recirculating water, steam or other medium.

(2) "Coal-fired" means combusting any amount of coal or coal-derived fuel, alone or in combination with any amount of any other fuel.

(3) "Cogeneration" means an EGU that simultaneously produces both electrical or mechanical, and useful thermal energy from the same primary energy source.

(4) "Combustion turbine" means an enclosed device comprising a compressor, a combustor and a turbine and in which the flue gas resulting from the combustion of fuel in the combustor passes through the turbine, rotating the turbine. If the enclosed device is combined cycle, the combustion turbine includes any associated duct burner, heat recovery steam generator and steam turbine.

(5) "Electric generating unit" or "EGU" means a boiler or a combustion turbine serving a generator that produces electricity.

(6) "Gross electrical output" means electricity made available for use, including any electricity used in the power production process. A power production process includes any on-site processing or treatment of fuel combusted at the EGU and any on-site emission controls.

(7) "Large coal-fired EGU" means an electric generating unit serving a generator with nameplate capacity 150 megawatts and greater.

(8) "Process energy efficiency" means, with regard to cogeneration, the percentage of thermal energy used in the process excluding any energy contained in condensate return, makeup water, and system losses divided by the process internal energy input.

(9) "Process thermal energy input" means, with regard to cogeneration, the total amount of thermal energy made available to a process for use other than for generating electricity.

(10) "Small coal-fired EGU" means an electric generating unit serving a generator with a nameplate capacity greater than 25 megawatts but less than 150 megawatts.

(11) "Useful thermal energy" means , with regard to cogeneration, thermal energy that is any of the following:

(a) Made available to an industrial or commercial process, not a power production process, excluding any heat contained in condensate return or makeup water.

(b) Used in a heating application, such as space heating or hot water heating.

(c) Used in space cooling application, such as thermal energy used by an absorption chiller.

NR 446.11 Mercury emission limits for new coal-fired electrical generating units. (1) After the effective date of this section . . . [LRB insert date], no person may commence construction of a new coal-fired EGU unless the department finds that emissions of mercury will be controlled to a level that is the lowest achievable emission rate.

(2) Notwithstanding sub. (1), a 90% mercury emission reduction as measured from the mercury content of fuel combusted is the minimum allowed mercury emission limitation.

NR 446.12 Mercury emission limits for small coal-fired electric generating units. (1) Beginning January 1, 2015, an owner or operator of a small coal-fired EGU shall limit mercury emissions to a level that is determined by the department to be the best available control technology.

(2) Notwithstanding sub. (1) an owner or operator may elect to have a small coal-fired EGU comply with the mercury emission limits in s. NR 446.13 or 446.14 in accordance with the provisions in s. NR 446.17(2)(b).

NR 446.13 Mercury emission limits for large coal-fired electric generating units. (1) Beginning January 1, 2015, an owner or operator of a large or a small coal-fired EGU designated by the department to meet the emission limitation in this subsection under s. NR 446.17(2)(b) shall achieve a minimum of 90% mercury emission reduction as measured from the mercury content of fuel combusted or limit mercury emissions annually to 0.0080 pounds per gigawatt-hour (lbs/GWh) of electricity produced.

(2) An owner or operator may achieve compliance with sub. (1) by either of the following methods:

(a) *Unit-by-unit compliance.* Demonstrating that the mercury emissions from each coal-fired EGU meet either of the mercury emission limits in sub. (1) using the measurement methods and calculation procedures in s. NR 446.18.

(b) *Unit averaging.* Demonstrating that the sum of the mercury emissions from all coal-fired EGUs subject to the mercury emission limits in sub. (1) does not exceed the sum of the allowable mercury

emissions for the coal-fired EGUs using the measurement methods and calculation procedures in s. NR 446.18.

NR 446.14 Multipollutant reduction alternative for coal-fired electrical generating units. (1)

An owner or operator of a large or small coal-fired EGU may elect to meet the emission limitations in this section instead of the emission limitations of s. NR 446.12 or 446.13 in accordance with the provisions of s. NR 446.17(2). The following annual emission limitations for NO_x, SO₂ and mercury apply to each unit for which the owner or operator makes an election under this section:

- (a) For NO_x, beginning January 1, 2015, 0.07 pounds per mmBtu of heat input.
- (b) For SO₂, beginning January 1, 2015, 0.10 pounds per mmBtu of heat input.
- (c) For mercury emissions, all of the following:
 1. Beginning January 1, 2015 and to December 31, 2017, a 70% mercury emission reduction as measured from the mercury content of fuel combusted or 0.0190 pounds per gigawatt-hour (lbs/GWh).
 2. Beginning January 1, 2018 and to December 31, 2020, an 80% mercury emission reduction as measured from the mercury content of fuel combusted or 0.0130 pounds per gigawatt-hour (lbs/GWh).
 3. Beginning January 1, 2021, a 90% mercury emission reduction as measured from the mercury content of fuel combusted or 0.0080 pounds per gigawatt-hour (lbs/GWh).

(2) An owner or operator may achieve compliance with sub. (1) by either of the following methods:

(a) *Unit-by-unit compliance.* Demonstrating that the mercury, NO_x and SO₂ emissions from each coal-fired EGU meet the applicable emission limitation in sub. (1) using the measurement methods and calculation procedures in s. NR 446.18.

(b) *Unit averaging.* Demonstrating that for each pollutant, the sum of the emissions from all coal-fired EGUs subject to the emission limits in sub. (1) do not exceed the sum of the allowable mercury, NO_x and SO₂ emissions for the coal-fired EGUs using the measurement methods and calculation procedures in s. NR 446.18

NR 446.15 Early mercury emission reduction credits. (1) An owner or operator of a coal-fired EGU that is subject to this subchapter may request that the department certify excess mercury emission reductions as early emission reduction credits.

(2) The department may only approve emission reductions that meet either of the following criteria as early emission reduction credits:

(a) Emission reductions achieved by major utilities in calendar years 2010 to 2014 in excess of the emission limitation in s. NR 446.05.

(b) Emission reductions achieved in calendar years 2015 to 2020 from coal-fired EGUs subject to s. NR 446.14 in excess of the emission limitation in s. NR 446.14(1)(c)1. or 2.

(3) Beginning March 1, 2011, and on or before March 1, 2021, owners and operators may request the department to certify excess mercury reductions from the previous calendar year as early emission reduction credits. The department shall provide written notice within 180 days of the receipt of a request approving or denying the early emission reduction credit request.

(4) The department shall certify the emission reductions, in terms of pounds of mercury emissions reduced, as early emission reduction credits if the owner or operator demonstrates to the department that the reductions are actual and permanent mercury emission reductions that are not required under any state or federal law, court order or air permit condition.

(5) Certified mercury emission reduction credits may be used by the owner or operator of a coal-fired EGU to meet the annual mercury emission limitations in s. NR 446.14(1)(c) subject to the provisions in sub. (6).

(6) For demonstrating compliance with the mercury emission limitations in s. NR 446.14(1)(c), an owner or operator shall only be allowed to surrender certified mercury emission reduction credits in an amount that does not exceed 5% of the annual allowable emission total, in pounds as calculated under s. NR 446.18(x).

(7) The department will maintain an ongoing record of the early mercury emission reduction credits certified and surrendered to achieve compliance with s. NR 446.14.

NR 446.16 Multipollutant compliance extension. (1) The owner or operator of a coal-fired EGU

electing to comply with the provisions in s. NR 446.14 may request an extension to achieve compliance with the NO_x, SO₂ and mercury emission limitations in s. NR 446.14(1)(a), (b) and (c)1.

(2) The department may grant an extension under this section if, in consultation with the public service commission, the department determines that the information submitted by the owner or operator supports a conclusion that without the extension a major electrical supply disruption is likely to occur. An extension may not be granted beyond January 1, 2017.

(3) The owner or operator shall submit a written request for extension to the department at the time the emission limitation election in s. NR 446.17(2) is provided.

(4) The request shall provide sufficient information concerning the conditions on which the request is based to demonstrate to the department's satisfaction that an extension is warranted. In addition, the request shall include all of the following:

(a) The proposed control equipment installation schedule for all coal-fired EGUs the owner or operator has included in the notification to meet the requirements of this subchapter through the emission limitations in s. NR 446.14(1)(a), (b) and (c)1.

(b) The additional period of time being requested.

(c) The alternative annual emission limitations for mercury, NO_x and SO₂ that will be achieved during the period of the requested extension.

(d) The reasons why the owner or operator is unable to meet the January 1, 2015 compliance schedule and emission limitations in s. NR 446.14.

(5) Within 180 days after the receipt of a completed request, the department shall notify the applicant in writing of the reasons for denying, approving or conditionally approving any request for an extension.

NR 446.17 Annual compliance report, emission limitation election and BACT determination.

(1) **ANNUAL COMPLIANCE REPORT.** Beginning March 1, 2015, and on or before March 1 of every year thereafter, the owner or operator of a coal-fired EGU subject to this subchapter shall prepare and submit a compliance report for the previous year. This report shall include all of the following:

(a) The actual mercury emissions and, if subject to NO_x and SO₂ emission limitations under this

subchapter, the actual NO_x and SO₂ emissions from each coal-fired EGU for the previous year following the methodology in s. NR 446.18.

(b) The designated emission limitations under sub. (2) for each coal-fired EGU.

(c) The amount of early reduction emission credits certified under s. NR 446.15 and currently held by the owner or operator, in pounds, and the amount of certified early reduction emission credits being surrendered.

(d) A comparison of annual actual emissions minus any surrendered early emission reduction credits to the annual allowable emissions, in pounds, for each coal-fired EGU by the applicable emission limitation requirement established in sub. (2) using the methods and procedures in s. NR 446.18.

(2) EMISSION LIMITATION ELECTION. (a) No later than 24 months after the effective date of this subchapter...[LRB insert date] owners or operators of coal-fired EGUs affected by the requirements of this subchapter shall identify for each unit under their ownership or control the mercury emission limitations in this subchapter for those units including any elections made under s. NR 446.12(2) and s. NR 446.14(1). This identification shall be made to the department in writing.

(b) Within 90 days after the receipt of the notice in sub. (1), the department shall notify the owner or operator in writing of the emission limitation designations for each coal-fired EGUs subject to this subchapter.

(c) Designations by the department under par. (b) establish permanent emission limitation requirements.

(3) BACT DETERMINATION FOR SMALL COAL-FIRED EGUs. (a) No later than 30 months after the effective date of this subchapter...[LRB insert date], owners or operators of small coal-fired EGUs subject to s. NR 446.12 shall provide the department with a preliminary BACT determination.

(b) Notwithstanding par. (a), a small coal-fired EGU designated by the department under sub. (2) to meet the emission limitations in s. NR 446.13 or 446.14 are not required to provide a preliminary BACT determination.

(c) The owner or operator shall submit the information required in par. (a) on the application form required for an operation permit, an amendment to an application, or renewal of the operation permit, as applicable.

(d) Within 180 days after the receipt of the information in par. (c), the department shall approve, conditionally approve or disapprove the owner's or operator's preliminary BACT determination.

NR 446.18 Emission determination methodology. (1) MONITORING REQUIREMENTS.

Owners and operators of a coal-fired EGU affected by this subchapter shall monitor emissions and heat input and, as required for compliance, electricity generation and process thermal energy according to the following methods and specifications:

(a) For NO_x and SO₂, hourly mass emissions according to 40 CFR part 75 and 40 CFR part 75, Appendices A to I, incorporated by reference in ss. NR 484.03(7) and 484.04 (27) respectively.

(b) For mercury, hourly mass emissions using continuous emission monitoring. By December 31, 2013, the department shall promulgate rules that specify the requirements for continuous emission monitoring for purposes of this paragraph.

Note: On February 8, 2008, the U.S. District Court of Appeals for the D.C. Circuit vacated rules the department had intended to rely on related to continuous emission monitoring for mercury emissions. (See New Jersey, et. al. v. Environmental Protection Agency, D.C. Ct. App. No 05-1097, February 8, 2008.)

(c) For heat input flow rate and hourly heat input, according to 40 CFR part 75 and 40 CFR part 75, Appendices A to I, incorporated by reference in ss. NR 484.03(7) and 484.04(27) respectively.

(d) For gross electric output, hourly megawatt-hours using continuous monitoring.

(e) For process thermal energy input, hourly mmBtus using continuous monitoring.

(2) DETERMINING ANNUAL FUEL MERCURY CONTENT. Owners and operators of a coal-fired EGU affected by this subchapter shall determine the annual mass of mercury contained in combusted fuels according to the following procedures:

(a) Calculate the mass of mercury contained in each fuel for each month, according to Equation 1, as the mercury concentration in fuel combusted each month as determined following the procedures in s. NR 446.07 (1),(2) and (3), multiplied by the amount of fuel, in mmBtu, combusted each month as determined following the procedures in s. NR 446.07(4).

$$\text{Fuel Hg}_{\text{fm}} = \text{HI}_{\text{fm}} \times \text{Hg C}_{\text{fm}} \quad \text{Equation 1}$$

where:

Fuel Hg_{fm} is the mass of mercury contained in fuel f, in month m

HI_{fm} is the heat input of the combusted fuel f, in month m

Hg C_{fm} is the mercury concentration for fuel f, in month m

(b) Calculate the annual mass of mercury, according to Equation 2, as the sum of mercury contained in all fuels combusted for all months during the compliance year.

$$\text{Fuel Hg}_{\text{annual}} = \sum_{m=1}^{12} \left(\sum_{i=1}^f \text{Fuel HG}_i \right)_m \quad \text{Equation 2}$$

where:

Fuel Hg_{annual} is the mass amount of mercury contained in all fuels combusted during the compliance year

Fuel Hg_i is the mercury mass content for fuel i, combusted in month m, during the compliance year

f is number of fuels combusted during the compliance month

3) DETERMINING ANNUAL GROSS OUTPUT. Owners and operators of a coal-fired EGU affected by this subchapter shall determine the annual gross output in gigawatt-hours according to the following procedures:

(a) Calculate the annual gross electric output in gigawatt-hours, according to Equation 3, as the sum of gross electric output measured in megawatt-hours for each hour the EGU is operating.

$$E_{\text{GWh}} = \frac{\sum_{i=1}^n \text{MWh}_i}{1,000} \quad \text{Equation 3}$$

where:

E_{GWh} is the total annual gross electric output in GWh

MWh_i is the gross electric output in MWh for each hour i the EGU operated during the compliance year

1,000 is the factor to convert MWh to GWh

n is the number of hours the EGU operated during the compliance year

(b) Calculate the annual amount of useful thermal energy in mmBtu, according to Equation 4, as the sum of the process thermal energy input for each hour the EGU is operated multiplied by the process energy efficiency.

$$UTE_{\text{annual}} = \sum_{i=1}^n \left(PTEI_i \times \frac{PEE}{100} \right) \quad \text{Equation 4}$$

where:

UTE_{annual} is the annual amount of thermal energy, in mmBtu, utilized in the cogeneration process

$PTEI_i$ is the amount of thermal energy input, in mmBtu, made available to the cogeneration process for each hour i the EGU operated during the compliance year

PEE is the process energy efficiency, expressed as a percent, measured for the EGU. A value of 50% may be assumed.

n is the number of hours the unit operated during the year of compliance

(c) Calculate the annual gross output in mmBtu, according to Equation 5, as the sum of the annual gross electric output and the annual applied thermal energy converted to electric output.

$$GO_{\text{GWh}} = E_{\text{GWh}} + \frac{UTE_{\text{annual}}}{3,413} \quad \text{Equation 5}$$

where:

GO_{GWh} is the total annual gross output in GWh

E_{GWh} is the total annual gross electric output in GWh

UTE_{annual} is the total annual useful thermal energy in mmBtu determined in par. (a)

3,413 is the factor to convert thermal energy in mmBtu to GWh determined in par. (b)

(4) DETERMINING ANNUAL ALLOWABLE EMISSIONS. Owners and operators of a coal-fired EGU affected by this subchapter shall determine annual allowable emissions according to the following procedures:

(a) When achieving compliance on a unit-by-unit basis, use one of the following equations as applicable:

1. For a percent reduction mercury emission limitation.

$$\text{Hg}_{\text{allowable}} = \text{Fuel Hg}_{\text{annual}} \times (1 - \text{Hg CE}) \quad \text{Equation 6}$$

where:

$\text{Hg}_{\text{allowable}}$ is the mass of mercury emissions allowed for the compliance year

$\text{Fuel Hg}_{\text{annual}}$ is the mass of mercury in fuel combusted during the compliance year as determined in sub. (2)(b).

Hg CE is the applicable requirement for mercury control removal divided by 100.

2. For a mercury output emission limitation.

$$\text{Hg}_{\text{allowable}} = \text{GO}_{\text{GWh}} \times \text{EL}_{\text{output}} \quad \text{Equation 7}$$

where:

$\text{Hg}_{\text{allowable}}$ is the mass of mercury emissions allowed for the compliance year.

GO_{GWh} is the annual gross output during the compliance year as determined in sub. (3)(c)

$\text{EL}_{\text{output}}$ is the applicable mercury output based emission limitation in pounds per GWh

3. For a NO_x or SO_x emission limitation.

$$\text{P}_{\text{allowable}} = \text{HI}_{\text{annual}} \times \text{EL}_p \quad \text{Equation 8}$$

where:

$\text{P}_{\text{allowable}}$ is the mass of NO_x or SO_x emissions allowed for the compliance year

HI is the annual heat input of fuel combusted during the compliance year

EL_p is the applicable emission limitation of s. NR 446.14(1) for NO_x or SO_x

(b) When achieving compliance using unit averaging as allowed under s. NR 446.13(2)(b) or s. NR 446.14(2)(b), according to Equation 9:

$$\text{Unit Averaging } P_{\text{allowable}} = \sum_{u=1}^n P_u \quad \text{Equation 9}$$

where:

Unit Averaging $P_{\text{allowable}}$ is the mass of mercury, NO_x , or SO_x emissions allowed for each pollutant for all EGUs participating in emissions averaging during the compliance year

P_u is the mass of mercury, NO_x or SO_x emissions allowed for each EGU for the compliance year as determined under par. (a).

n is the number of EGUs participating in emissions averaging

(5) DETERMINING ANNUAL ACTUAL EMISSIONS. Owners and operators of a coal-fired EGU affected by this subchapter shall determine annual mass of actual emissions for each pollutant as the sum of monitored emissions according to Equation 8.

$$P_{\text{actual}} = \sum_{i=1}^n P_{\text{monitored}} \quad \text{Equation 10}$$

where:

P_{actual} Actual Emissions is the mass of mercury, NO_x or SO_x emitted during the compliance year

$P_{\text{monitored}}$ is the mass of mercury, NO_x or SO_x emissions monitored and determined for each hour i the EGU is operated during the compliance year

n is the number of hours the EGU is operating during the compliance year

NR 446.19 Evaluation. (1) The department staff shall report to the natural resources board by August 31, 2013. This report shall include:

(a) An evaluation of the scientific and technology developments in relation to the control or reduction of mercury emissions.

(b) An evaluation of whether the mercury requirements of s. NR 446.14 are achievable, given the scientific and technological developments.

(c) Recommendations for revisions to this subchapter or other actions including additional

compliance flexibility to achieve the mercury emission reduction requirement in s. NR 446.14 (1) (c) 3., given the scientific and technological developments.

SECTION 19. NR 484.03(7) in Table 1 is created to read:

CFR Reference	Title	Incorporated by Reference For
NR 484.03 (7) 40 CFR part 75	Continuous Emission Monitoring	NR 446.18(1)(a) and (c)

SECTION 20. NR 484.04(20m) and (27) in Table 2 are amended to read:

CFR Appendix Referenced	Title	Incorporated by Reference For
NR 484.04 (20m) 40 CFR part 60 Appendix A, Method 29	Determination of Metals Emissions from Stationary Sources	<u>NR 446.04(1)(c)1.a.</u> NR 446.09(1)(c)1. <u>446.08(1)(c)1.</u> NR 462 Table 5
(27) 40 CFR part 75 Appendices A to I		NR 428 NR 428.23(1)(b)1. NR 439 <u>NR 446.18(1)(a) and (c)</u>

SECTION 21 NR 484.10(47m) in Table 5 is amended to read:

Standard Number	Standard Title	Incorporated by Reference For
NR 484.10 (47m) ASTM D3684-01	Standard Test Method for Total Mercury in Coal by Oxygen Bomb Combustion/Atomic Absorption Method	NR 446.027(1)(b) <u>446.04(1)(b)</u> <u>NR 446.04(1)(c)1.b.</u> NR 446.04(1) <u>446.07(1)</u> NR 446.04(2) <u>446.07(2)</u> NR 446.09(1)(b) <u>446.08(1)(b)</u> NR 446.09(1)(c)2. <u>446.08(1)(c)2.</u> NR 462, Table 6

SECTION 22. CROSS-REFERENCE CHANGES. For the sections listed in Column A, the cross reference shown in Column B should be changed to the cross reference shown in column C.

Column A	Column B	Column C
NR 405.01(2)(Note)	subch. III of ch. NR 446	subch. IV of ch. NR 446
NR 405.02(22)(c)	subch. III of ch. NR 446	subch. IV of ch. NR 446
NR 406.04(intro.)	s. NR 446.05	s. NR 446.03(2)(a)
NR 408.02(2)(a) and (4)	subch. III of ch. NR 446	subch. IV of ch. NR 446
NR 408.04(1)	subch. III of ch. NR 446	subch. IV of ch. NR 446
NR 446.02(1c)	s. NR 446.04	s. NR 446.07
NR 446.03(2)(c) as renumbered	sub. (2)	par. (b)
NR 446.03(2)(c) as renumbered	sub. (1)	par. (a)
NR 446.04(intro.) as renumbered	s. NR 446.09	subchs. II, III and IV
NR 446.04(1)(a) as renumbered	s. NR 446.09	subch. II, III or IV
NR 446.06(1) as renumbered	s. NR 446.04	s. NR 446.07
NR 446.07(intro.) as renumbered	s. NR 446.0(1)	s. NR 446.06(1)
NR 446.08(1)(b) as renumbered	s. NR 446.04(1), (2), and (3)	s. NR 446.07(1), (2) and (3)
NR 446.22(2)(a) as renumbered	s. NR 446.03(2)	s. NR 446.20(1)
NR 446.22(2)(g) as renumbered	s. NR 446.04(2)	s. NR 446.21(2)
NR 446.22(3)(intro.) and (b) as renumbered	s. NR 446.03(2)	s. NR 446.20(1)
NR 484.04(26m)(a), (b), (c) and (d) in Table 2	NR 446.09(1)(c)1.	NR 446.08(1)(c)1.
NR 484.04(26m)(a), (b), (c) and (d) in Table 2	NR 446.04(3)	NR 446.07(3)
NR 484.05(9) in Table 3	NR 446.15(3)(d) Note	NR 446.21(3)(d) Note

SECTION 23. EFFECTIVE DATE. This rule shall take 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 24. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on _____.

Dated at Madison, Wisconsin _____.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By _____
Matthew J Frank, Secretary

(SEAL)