

## Chapter NR 428

### CONTROL OF NITROGEN COMPOUND EMISSIONS

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**Note:** Corrections made under s. 13.93 (2m) (b) 7., Stats., Register, December, 1996, No. 492. **Corrections in NR 428.04 to 428.08 made under s. 13.93 (2m) (b) 7., Stats., Register, January, 2001, No. 541.**

**NR 428.01 Applicability; purpose. (1) APPLICABILITY.** This chapter applies to all air contaminant sources which emit nitrogen compounds and to their owners and operators. All references to the code of federal regulations in this chapter mean those parts or provisions as in effect on February 1, 2001, except that in the case of CFR appendices incorporated by reference in ch. NR 484, if a more recent date is specified in the applicable section of ch. NR 484, that date shall apply.

**(2) PURPOSE.** This chapter is adopted under ss. 285.11, 285.13 and 285.17, Stats., to categorize nitrogen compound air contaminant sources and to establish emission limitations and other requirements for these sources in order to protect air quality.

**History:** Cr. Register, September, 1986, No. 369, eff. 10-1-86; am. (1), Register, May, 1992, No. 437, eff. 6-1-92; am. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.02 Definitions.** The definitions contained in ch. NR 400 apply to the terms used in this chapter. In addition, the following definitions apply to the terms used in this chapter:

**(1) "Capacity factor"** means one of the following:

(a) The ratio of a unit's actual electric output (expressed in MWe-hr) to the unit's nameplate capacity times the unit's potential hours of operation. The potential hours of operation on an annual basis are 8,760 hours, and on an ozone season basis are 3,672 hours.

(b) The ratio of a unit's heat input (in million Btu or equivalent units of measure) to the unit's maximum design heat input (in million Btu per hour or equivalent units of measure) times the unit's potential hours of operation.

**(2) "Combined cycle system"** means a system comprised of one or more combustion turbines, heat recovery steam generators and steam turbines configured to improve overall efficiency of electricity generation or steam production.

**(3) "Combustion controls"** has the meaning given in s. NR 409.02(21m).

**(4) "Combustion optimization"** means those activities necessary to maximize combustion efficiency while minimizing NO<sub>x</sub> emissions, including but not limited to the following: burner adjustments, fuel conditioning, fuel flow improvements, furnace design modifications and the application of combustion controls.

**(5) "Combustion turbine"** means an enclosed fossil or other fuel-fired device that is comprised of 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.

**(6) "Commencement of operation"** means the beginning of any mechanical, chemical or electronic process, including, with regard to a unit, startup of a unit's combustion chamber.

**(7) "Kraft recovery boiler"** means "recovery furnace", as defined in s. NR 440.45 (2) (L).

**(8) "Unit"** means a solid fuel-fired or fossil fuel-fired combustion device.

**History:** Cr. (intro.), renum. from NR 154.01 (122), Register, September, 1986, No. 369, eff. 10-1-86; am. (intro.), r. (1), Register, June, 1993, No. 450, eff. 7-1-93; am. (intro.), cr. (1) to (8), Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.03 General limitations.** No person may cause, allow or permit nitrogen oxides or nitrogen compounds to be emitted to the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution.

**History:** Renum. from NR 154.15 (1), Register, September, 1986, No. 369, eff. 10-1-86; am. Register, May, 1992, No. 437, eff. 6-1-92.

#### Subchapter I — NO<sub>x</sub> Emissions Performance Program General Provisions

**NR 428.04 Requirements and performance standards for new or modified sources. (1) APPLICABILITY.** The requirements of this section apply to emissions units described in this section that are located in Kenosha, Milwaukee, Ozaukee, Racine, Washington or Waukesha county and that are constructed or that undergo a major modification, as that term is described in ch. NR 405 or 408, after February 1, 2001

**(2) PERFORMANCE STANDARDS. (a) Boilers. 1. Solid fuel-fired units.** No person may cause, allow or permit nitrogen oxides to be emitted from a solid fuel-fired boiler in amounts greater than those specified in this subdivision.

a. 0.15 pound per million Btu of heat input on a 30-day rolling average basis for boilers with a maximum design heat input of 250 million Btu per hour or greater.

b. 0.20 pound per million Btu of heat input on a 30-day rolling average basis for boilers with a maximum design heat input of less than 250 million Btu per hour.

2. Gaseous fuel-fired units. No person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired boiler with a maximum design heat input of 25 million Btu per hour or greater in an amount greater than 0.05 pound per million Btu of heat input on a 30-day rolling average basis.

3. Distillate fuel oil-fired boilers. No person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired boiler with a maximum design heat input of 25 million Btu per hour or greater in an amount greater than 0.09 pound per million Btu of heat input on a 30-day rolling average basis.

4. Residual fuel oil-fired boilers. No person may cause, allow or permit nitrogen oxides to be emitted from a residual fuel oil-fired boiler with a maximum design heat input of 25 million Btu per hour or greater in an amount greater than 0.15 pound per million Btu of heat input on a 30-day rolling average basis.

5. Kraft recovery boilers. No person may cause, allow or permit nitrogen oxides to be emitted from a kraft recovery boiler with

a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 0.10 pound per million Btu of heat input on a 30-day rolling average basis.

(b) *Cement kilns, lime kilns and calciners.* No person may cause, allow or permit nitrogen oxides to be emitted from a cement kiln, lime kiln or calciner with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.10 pound per million Btu on a 30-day rolling average basis when burning gaseous fuel.

2. 0.12 pound per million Btu on a 30-day rolling average basis when burning distillate fuel oil.

3. 0.20 pound per million Btu on a 30-day rolling average basis when burning residual fuel oil.

4. 0.60 pound per million Btu on a 30-day rolling average basis when burning solid fuel.

(c) *Reheat, annealing and galvanizing furnaces.* No person may cause, allow or permit nitrogen oxides to be emitted from a reheat furnace, annealing furnace or galvanizing furnace with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 0.10 pound per million Btu on a 30-day rolling average basis.

(d) *Glass furnaces.* No person may cause, allow or permit nitrogen oxides to be emitted from a glass furnace with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 4.0 pounds per ton of pulled glass on a 30-day rolling average basis.

(e) *Asphalt plants.* No person may cause, allow or permit nitrogen oxides to be emitted from an asphalt plant with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.15 pound per million Btu of heat input on a 30-day rolling average basis when burning gaseous fuel.

2. 0.20 pound per million Btu of heat input on a 30-day rolling average basis when burning distillate fuel oil.

3. 0.27 pound per million Btu of heat input on a 30-day rolling average basis when burning residual fuel oil or waste oil.

(f) *Process heating units.* No person may cause, allow or permit nitrogen oxides to be emitted from a process heater, dryer, oven or other external combustion unit with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.10 pound per million Btu of heat input on a 30-day rolling average basis when burning gaseous fuel.

2. 0.12 pound per million Btu of heat input on a 30-day rolling average basis when burning distillate fuel oil.

(g) *Combustion turbines.* 1. Gaseous fuel-fired units. No person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired combustion turbine in amounts greater than those specified in this subdivision.

a. 12 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 85 MWe or greater.

b. 9 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 40 MWe or greater but less than 85 MWe.

c. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of less than 40 MWe.

d. 3 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of 25 MWe or greater.

e. 14 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of less than 25 MWe.

2. Distillate fuel oil-fired units. No person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired combustion turbine in amounts greater than those specified in this subdivision.

a. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 85 MWe or greater.

b. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 40 MWe or greater but less than 85 MWe.

c. 65 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of less than 40 MWe.

d. 8 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of 25 MWe or greater.

e. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of less than 25 MWe.

(h) *Reciprocating engines.* No person may cause, allow or permit nitrogen oxides to be emitted from a reciprocating engine in amounts greater than those specified in this paragraph.

1. 6.9 grams per brake horsepower for a compression ignition unit with a maximum design power output of 1000 hp or greater.

2. 4.0 grams per brake horsepower for a spark ignition unit with a maximum design power output of 1000 hp or greater.

**(3) MONITORING REQUIREMENTS.** (a) *General requirements.*

1. The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (2) shall comply with the monitoring requirements of subch. III.

2. The emissions measurements recorded and reported in accordance with subch. III shall be used to determine compliance by the unit with the applicable NO<sub>x</sub> emissions performance standard under sub. (2).

(b) *Specific requirements.* The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (2) shall determine the annual average NO<sub>x</sub> emission rate, in pound per million Btu, using methods and procedures specified in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04 (21), or other combustion monitoring methods approved by the department.

**(4) RECORDKEEPING AND REPORTING REQUIREMENTS.** (a)

Except as provided in subd. 1, the owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of this section shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created.

1. All emissions monitoring information, in accordance with subch. III; except that, to the extent that subch. III provides for a 3-year period for record retention, the 3-year period shall apply.

2. Copies of all reports, compliance certifications and other submissions and all records made or required under the NO<sub>x</sub> emissions performance program.

(b) The owner or operator of the NO<sub>x</sub> emissions source shall submit the compliance reports and certifications required under the NO<sub>x</sub> emissions performance program in conjunction with those required under the construction permit requirements of ch. NR 406 and the operation permit requirements of s. NR 407.09.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.05 Requirements and performance standards for existing sources.** (1) **APPLICABILITY.** The requirements of this section apply to emissions units described in this section that are located in Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha county and that were constructed or last modified on or before February 1, 2001.

(2) **NO<sub>x</sub> EMISSIONS OPTIMIZATION.** (a) The requirements of this subsection do not apply to emissions units which are subject to the emission limits of sub. (3).

(b) Except as provided in par. (a) or (c), the following categories of NO<sub>x</sub> emissions units listed in this subsection shall complete a combustion optimization to minimize NO<sub>x</sub> emissions in accordance with s. NR 439.096 by December 31, 2002.

1. Solid fuel-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

2. Natural gas-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

3. Distillate or residual fuel oil-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

4. Cement kilns, lime kilns and calciners with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

5. Reheat furnaces, annealing furnaces and galvanizing furnaces with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

6. Glass manufacturing furnaces with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

(c) An emissions unit described in par. (b) which first operates with a capacity factor exceeding 20% in an ozone season after the 2000 ozone season shall complete a combustion optimization by December 31 of the calendar year following that ozone season.

(d) The owner or operator of an NO<sub>x</sub> emissions unit subject to a combustion optimization requirement under par. (b) shall operate the emissions unit in a manner consistent with the results of the combustion optimization.

(e) The owner or operator of a source subject to the NO<sub>x</sub> emissions optimization requirements of this subsection shall perform monitoring sufficient to determine compliance with the requirements of this subsection. The monitoring required under this paragraph shall be either continuous monitoring of NO<sub>x</sub> emissions or periodic monitoring of parameters adequate to ascertain the quality of the combustion and shall conform to the source's approved combustion optimization plan pursuant to s. NR 439.096.

(3) **PERFORMANCE STANDARDS.** (a) *Utility boilers.* No person may cause, allow or permit nitrogen oxides to be emitted from a boiler owned or operated by a utility as defined in s. NR 409.02(84) with a maximum design heat input of 500 million Btu per hour or greater in excess of the most stringent of the following limits, as applicable, during the ozone season:

1. 0.33 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2002.

2. 0.31 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2003.

3. 0.30 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2004.

4. 0.29 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2005.

5. 0.29 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2006.

6. 0.28 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2007.

(b) *Other boilers.* The requirements of this paragraph apply to boilers which are not subject to the emission limits of par. (a).

1. Solid fuel-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a solid fuel-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of the following limits during the ozone season:

a. 0.45 pound per million Btu of heat input on a 30-day rolling average basis for cyclone-fired boilers.

b. 0.20 pound per million Btu of heat input on a 30-day rolling average basis for fluidized bed combustion boilers.

d. 0.30 pound per million Btu of heat input on a 30-day rolling average basis for pulverized coal-fired boilers.

2. Gaseous fuel-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.10 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

3. Distillate fuel oil-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.12 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

4. Residual fuel oil-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a residual fuel oil-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.20 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

(c) *Reheat, annealing and galvanizing furnaces.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a reheat furnace, annealing furnace or galvanizing furnace with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.10 pound per million Btu heat input on a 30-day rolling average basis during the ozone season.

(d) *Combustion turbines.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a combustion turbine with a maximum design power output of 50 MWe or greater in an amount greater than the following during the ozone season:

1. Gaseous fuel-fired units. 75 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average for units burning gaseous fuel.

2. Distillate fuel oil-fired units. 110 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for units burning distillate fuel oil.

(e) *Reciprocating engines.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted during the ozone season from reciprocating engines with a maxi-

mum design power output of 2000 hp or greater in excess of the following limits:

1. 9.5 grams per brake horsepower for rich-burn units.
2. 10.0 grams per brake horsepower for lean-burn units.
3. 8.5 grams per brake horsepower for distillate fuel oil-fired units.
4. 6.0 grams per brake horsepower for dual-fuel units.

**(4) MONITORING REQUIREMENTS.** (a) *General requirements.*

1. The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (3) shall comply with the monitoring requirements of subch. III.

2. The emissions measurements recorded and reported in accordance with subch. III shall be used to determine compliance by the unit with the NO<sub>x</sub> emissions performance standard under sub. (3).

(b) *Specific requirements.* 1. The owner or operator of an emissions unit subject to the requirements of sub. (3) (a) shall determine the average NO<sub>x</sub> emission rate, in pound per million Btu, using the methods and procedures specified in 40 CFR part 75, Appendices A through I, incorporated by reference in s. NR 484.04 (27).

2. The owner or operator of an emissions unit subject to any of the requirements of sub. (3) (b) to (e) shall determine the average NO<sub>x</sub> emission rate, in pounds per million Btu, using methods and procedures specified in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04 (21), or other combustion monitoring methods approved by the department.

**(5) RECORDKEEPING AND REPORTING REQUIREMENTS.** (a)

Unless otherwise provided, the owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of this section shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created:

1. All emissions monitoring information, in accordance with subch. III; except that, to the extent that subch. III provides for a 3-year period for record retention, the 3-year period shall apply.
2. Copies of all reports, compliance certifications and other submissions and all records made or required under the NO<sub>x</sub> emissions performance program.

(b) The owner or operator of the NO<sub>x</sub> emissions source shall submit the compliance reports and certifications required under the NO<sub>x</sub> emissions performance program in conjunction with those required under the operation permit requirements of s. NR 407.09.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**Subchapter II — NO<sub>x</sub> Emissions Performance Program Compliance Provisions**

**NR 428.06 Compliance determination.** (1) **EMISSIONS AVERAGING.** (a) Except as provided in par. (c), the NO<sub>x</sub> emissions per million Btu of heat input from all units subject to the requirements of s. NR 428.04(2) or 428.05(3) under the common ownership or control may be averaged together for the purpose of determining compliance with the source's aggregate NO<sub>x</sub> emissions limitation.

(b) Total pounds of emissions shall be determined by continuous emissions monitors that meet the requirements of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04 (21).

(c) Excess NO<sub>x</sub> emission reductions from emissions units subject to s. NR 428.05 may not be used for demonstrating compliance by an emissions unit which is subject to an NO<sub>x</sub> emission limit under ch. NR 405 or 408 or s. NR 428.04.

(2) **EMISSIONS TRADING.** (a) In accordance with par. (d), 2 NO<sub>x</sub> emissions sources subject to the requirements of s. NR 428.04(2) or 428.05(3) may enter into an agreement for trading emissions unless the sum of the proposed traded emissions and the emissions of the grantor source for the year to which the agreement will

apply would exceed the allowable emissions of the grantor source under ss. NR 428.04 (2) and 428.05 (3) on an ozone season basis, based on the applicable heat rate and the applicable maximum heat input.

(b) To determine whether the NO<sub>x</sub> emissions source that is the grantor in an agreement under par. (a) is in compliance with sub. (1) or the applicable emission limitation under s. NR 428.04 or 428.05 in a given year, the department shall add the traded emissions and the grantor's emissions and divide the sum by the heat input of the grantor on an ozone season basis.

(c) To determine whether the NO<sub>x</sub> emissions source that is the grantee in an agreement under par. (a) is in compliance with sub. (1) or the applicable requirements under s. NR 428.05 (3) in a given year, the department shall subtract the traded emissions from the grantee's emissions and divide the difference by the heat input of the grantee on an ozone season basis. The grantee may not use traded emissions to demonstrate compliance with an emission limit under ch. NR 405 or 408 or s. NR 428.04 (2).

(d) Any NO<sub>x</sub> emissions source may be a grantor to another NO<sub>x</sub> emissions source provided the grantor has demonstrated to the department that there have been actual NO<sub>x</sub> emission reductions using continuous emission monitoring which meets the requirements of 40 CFR Part 60, Appendix B, incorporated by reference in s. NR 484.04 (21), that the NO<sub>x</sub> emission reductions are not otherwise required by state or federal emission reduction requirements, and that the NO<sub>x</sub> emission reductions represent a reduction from the source's NO<sub>x</sub> emissions during 2000, if the source was operating in 2000.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**Subchapter III — NO<sub>x</sub> Emissions Performance Program Monitoring And Reporting Provisions**

**NR 428.07 General requirements.** The owner or operator of an NO<sub>x</sub> emissions unit subject to the requirements of subch. I shall comply with the monitoring and reporting requirements of this subchapter.

(1) **REQUIREMENTS FOR MONITORING, INSTALLATION, CERTIFICATION AND DATA ACCOUNTING.** (a) By the dates listed in sub. (2), the owner or operator of an NO<sub>x</sub> emissions unit shall submit to the department a monitoring plan that describes in detail the systems to be used on the unit to satisfy the monitoring requirements of this subchapter.

(b) The owner or operator of each NO<sub>x</sub> emissions unit shall do all of the following:

1. Install all monitoring systems required under this subchapter for monitoring NO<sub>x</sub> mass. This includes all systems required to monitor NO<sub>x</sub> emission rate, NO<sub>x</sub> concentration, heat input and flow, in accordance with s. NR 439.09.

2. Install all monitoring systems for monitoring heat input, if required under this chapter, for developing NO<sub>x</sub> emission rate determinations expressed in pounds per million Btu.

3. Successfully complete all certification tests and meet all other provisions of this subchapter and 40 CFR parts 60 and 75 applicable to the monitoring systems under subds. 1. and 2.

4. Record and report data from the monitoring systems under subds. 1. and 2.

(2) **COMPLIANCE DATES.** The owner or operator shall meet the requirements of sub. (1) (b)1. to 3. on or before the following dates and shall record and report data on and after the applicable listed date as follows:

(a) NO<sub>x</sub> emissions units subject to the requirements of this subchapter that commence operation before February 1, 2001 shall comply with the requirements of this subchapter by December 31, 2002.

(b) NO<sub>x</sub> emissions units subject to the requirements of this subchapter that commence operation on or after February 1, 2001

shall comply with the requirements of this subchapter by the later of the following dates:

1. December 31, 2002.
2. 180 days after the date on which the unit commences operation.

(c) However, if the applicable deadline under par. (b) does not occur during an ozone season, the deadline for compliance with the requirements of this subchapter becomes the May 1 immediately following the date determined in accordance with par. (b).

(d) 1. An NO<sub>x</sub> emissions unit with a new stack or flue for which construction is completed after the applicable deadline under par. (a), (b) or (c) shall comply with the requirements of this subchapter 90 days after the date on which emissions first exit through the new stack or flue.

2. However, if the unit reports on an ozone season basis and the applicable deadline under subd. 1. does not occur during the ozone season, the deadline for compliance with the requirements of this subchapter becomes the May 1 immediately following the date determined in accordance with subd. 1.

**(3) REPORTING DATA PRIOR TO INITIAL CERTIFICATION.** The owner or operator of an NO<sub>x</sub> emissions unit under sub. (2) (b) or (c) shall determine, record and report NO<sub>x</sub> mass, heat input, if required for purposes of compliance, and any other values required to determine NO<sub>x</sub> mass, for example NO<sub>x</sub> emission rate and heat input or NO<sub>x</sub> concentration and stack flow, using the provisions of 40 CFR 75.70(g), from the date and hour that the unit starts operating until all required certification tests are successfully completed.

**(4) PROHIBITIONS.** (a) No owner or operator of an NO<sub>x</sub> emissions unit may use any alternative monitoring system, alternative reference method or any other alternative for the required continuous emission monitoring system without having obtained prior written approval in accordance with s. NR 428.10.

(b) No owner or operator of an NO<sub>x</sub> emissions unit may operate the unit so as to emit NO<sub>x</sub> without accounting for all NO<sub>x</sub> emissions in accordance with the applicable provisions of this subchapter.

(c) No owner or operator of an NO<sub>x</sub> emissions unit may disrupt the continuous emission monitoring system, any portion thereof, or any other approved emission monitoring method, and thereby avoid monitoring and recording NO<sub>x</sub> mass emissions emitted, except for periods of recertification or periods when calibration, quality assurance testing or maintenance is performed in accordance with the applicable provisions of this subchapter.

(d) No owner or operator of an NO<sub>x</sub> emissions unit may retire or permanently discontinue use of the continuous emission monitoring system, any component thereof or any other approved emission monitoring system under this subchapter, except under one of the following circumstances:

1. The unit is within a period during which it is covered by a retired unit exemption under s. NR 409.05 that is in effect.

2. The owner or operator is monitoring emissions from the unit with another certified monitoring system approved, in accordance with the applicable provisions of this subchapter, by the department for use at that unit that provides emission data for the same pollutant or data for the same parameter as the retired or discontinued monitoring system.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.08 Specific provisions for monitoring NO<sub>x</sub> and heat input for the purpose of calculating NO<sub>x</sub> mass emissions.** **(1) UTILITY UNITS.** This subsection applies to NO<sub>x</sub> emissions units subject to the requirements of s. NR 428.05(3) (a).

(a) *Coal-fired units.* The owner or operator of a coal-fired boiler shall do one of the following:

1. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub>-diluent continuous emission monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor, an O<sub>2</sub>- or

CO<sub>2</sub>-diluent gas monitor and a data acquisition and handling system, to measure NO<sub>x</sub> emission rate, and for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, except as provided in accordance with subpart E of 40 CFR part 75.

2. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub> concentration monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor and a data acquisition and handling system, to measure NO<sub>x</sub> concentration and for a flow monitoring system. In addition, if heat input is required to be reported under this chapter, the owner or operator also shall meet the general operating requirements for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, or, if applicable, use the procedures in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27). These requirements shall be met, except as provided in subpart E of 40 CFR part 75.

(b) *Moisture correction.* If a correction for the stack gas moisture content is needed to properly calculate the NO<sub>x</sub> emission rate in pounds per million Btu, i.e., if the NO<sub>x</sub> pollutant concentration monitor measures on a different moisture basis from the diluent monitor, or NO<sub>x</sub> mass emissions in tons, i.e., if the NO<sub>x</sub> concentration monitoring system or diluent monitor measures on a different moisture basis from the flow rate monitor, the owner or operator of a boiler shall account for the moisture content of the flue gas on a continuous basis in accordance with 40 CFR 75.11(b) except that the term "SO<sub>2</sub>" shall be replaced by the term "NO<sub>x</sub>".

(c) *Gaseous fuel-fired nonpeaking units or oil-fired nonpeaking units.* The owner or operator of a boiler or combustion turbine that, based on information submitted in the monitoring plan, qualifies as a gaseous fuel-fired or oil-fired unit but not as a peaking unit, as defined in 40 CFR 72.2, shall do one of the following:

1. Meet the requirements of par. (a) and, if applicable, par. (b).

2. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub>-diluent continuous emission monitoring system, except as provided in accordance with 40 CFR part 75 Subpart E, and use the procedures specified in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input.

(d) *Gaseous fuel-fired or oil-fired peaking units.* The owner or operator of a boiler or combustion turbine that qualifies as a peaking unit and as either gaseous fuel-fired or oil-fired, as defined in 40 CFR 72.2, based on information submitted in the monitoring plan, shall do one of the following:

1. Meet the requirements of par. (c).

2. Use the procedures in 40 CFR part 75 Appendix D, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input and the procedures specified in 40 CFR part 75 Appendix E, incorporated by reference in s. NR 484.04 (27), for estimating the hourly NO<sub>x</sub> emission rate. In addition, if after certification of an excepted monitoring system under 40 CFR part 75 Appendix E, a unit's operations exceed a capacity factor of 20.0% in any calendar year or exceed a capacity factor of 10.0% averaged over 3 years, the owner or operator shall meet the requirements of par. (c) or, if applicable, par. (e), by no later than December 31 of the following calendar year.

(e) *Other units.* The owner or operator of a boiler or combustion turbine that combusts wood, refuse or other materials shall comply with the monitoring provisions specified in par. (a) and, where applicable, par. (b).

**(2) NON-UTILITY UNITS.** This subsection applies to NO<sub>x</sub> emissions units subject to the requirements of s. NR 428.04 (2) or 428.05 (3) (b) to (e).

(a) *Coal-fired units.* The owner or operator of a coal-fired boiler shall do one of the following:

1. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub>-diluent continuous emission monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor, an O<sub>2</sub>- or

CO<sub>2</sub>-diluent gas monitor, and a data acquisition and handling system, to measure NO<sub>x</sub> emission rate, and for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, except as provided in accordance with 40 CFR 60.13(i).

2. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub> concentration monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor and a data acquisition and handling system, to measure NO<sub>x</sub> concentration and for a flow monitoring system. In addition, if heat input is required to be reported under this chapter, the owner or operator also shall meet the general operating requirements for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, or, if applicable, use the procedures in Appendix E to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27). These requirements shall be met, except as provided in 40 CFR 60.13(i).

(b) *Moisture correction.* If a correction for the stack gas moisture content is needed to properly calculate the NO<sub>x</sub> emission rate in pounds per million Btu, i.e., if the NO<sub>x</sub> pollutant concentration monitor measures on a different moisture basis from the diluent monitor, or NO<sub>x</sub> mass emissions in tons, i.e., if the NO<sub>x</sub> concentration monitoring system or diluent monitor measures on a different moisture basis from the flow rate monitor, the owner or operator of an NO<sub>x</sub> emissions unit subject to the requirements of this subchapter shall account for the moisture content of the flue gas on a continuous basis in accordance with 40 CFR 75.11(b) except that the term "SO<sub>2</sub>" shall be replaced by the term "NO<sub>x</sub>".

(c) *Gaseous fuel-fired nonpeaking units or oil-fired nonpeaking units.* The owner or operator of a boiler or combustion turbine that, based on information submitted in the monitoring plan, qualifies as a gaseous fuel-fired or oil-fired unit but not as a peaking unit, as defined in 40 CFR 72.2, shall do one of the following:

1. Meet the requirements of par. (a) and, if applicable, par. (b).

2. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub>-diluent continuous emission monitoring system, except as provided in accordance with 40 CFR 60.13(i), and use the procedures specified in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input.

(d) *Gaseous fuel-fired or oil-fired peaking units.* The owner or operator of a boiler or combustion turbine that qualifies as a peaking unit and as either gaseous fuel-fired or oil-fired, as defined in 40 CFR 72.2, based on information submitted in the monitoring plan, shall do one of the following:

1. Meet the requirements of par. (c).

2. Use the procedures in 40 CFR part 75 Appendix D, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input and the procedures specified in 40 CFR part 75 Appendix E, incorporated by reference in s. NR 484.04 (27), for estimating hourly NO<sub>x</sub> emission rate. In addition, if after certification of an excepted monitoring system under 40 CFR part 75 Appendix E, a unit's operations exceed a capacity factor of 20.0% in any calendar year or exceed a capacity factor of 10.0% averaged over 3 years, the owner or operator shall meet the requirements of par. (c) or, if applicable, par. (e), by no later than December 31 of the following calendar year.

(e) *Other units.* The owner or operator of a boiler or combustion turbine that combusts wood, refuse or other materials shall comply with the monitoring provisions specified in par. (a) and, where applicable, par. (b).

History: Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.09 Quarterly reports.** The owner or operator of a unit subject to the NO<sub>x</sub> requirements of this subchapter shall submit quarterly reports, as required under this section.

(1) **UNITS SUBJECT TO AN ACID RAIN EMISSION LIMITATION.** If a unit is subject to an acid rain emission limitation or if the owner or operator of the NO<sub>x</sub> emissions unit chooses to meet the annual reporting requirements of this subchapter, the owner or operator

shall submit a quarterly report for each calendar quarter beginning with the following quarters:

(a) For units commencing operation prior to December 31, 2002, the calendar quarter from April 1, 2003 to June 30, 2003. Data shall be recorded and reported from the first hour on May 1, 2003.

(b) For a unit that commences operation on or after December 31, 2002, the calendar quarter in which the unit commences operation. Data shall be reported from the date and hour corresponding to when the unit commenced operation.

(2) **UNITS NOT SUBJECT TO AN ACID RAIN EMISSION LIMITATION.** If an NO<sub>x</sub> emissions unit is not subject to an acid rain emission limitation, the owner or operator of the NO<sub>x</sub> emissions source shall comply with either of the following requirements:

(a) Meet all of the requirements of 40 CFR part 75 related to monitoring and reporting NO<sub>x</sub> mass emissions during the entire year and meet the reporting deadlines specified in sub. (1).

(b) Submit a quarterly report for each calendar quarter, beginning with the following quarters:

1. For units commencing operation prior to December 31, 2002, the calendar quarter from April 1, 2003 to June 30, 2003. Data shall be reported from the first hour of April 1, 2003.

2. For units that commence operation on or after December 31, 2002, the calendar quarter in which the unit commences operation. Data shall be reported from the date and hour corresponding to when the unit commenced operation.

(3) **DEADLINES FOR SUBMITTALS.** The owner or operator of an NO<sub>x</sub> emissions source shall submit each quarterly report to the department within 30 days following the end of the calendar quarter covered by the report according to the following schedule:

(a) For units subject to an acid rain emissions limitation, quarterly reports shall be submitted within 30 days following the end of the calendar quarter covered by the report and include all of the data and information required in subpart G of 40 CFR part 75.

(b) For units not subject to an acid rain emissions limitation, reports shall be submitted with the compliance reports required under the facility's operation permit.

(4) **COMPLIANCE CERTIFICATION.** The owner or operator of an NO<sub>x</sub> emissions source shall submit to the department a compliance certification in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall state the following:

(a) The monitoring data submitted were recorded in accordance with the applicable requirements of this subchapter, including the quality assurance procedures and specifications.

(b) For a unit with add-on NO<sub>x</sub> emission controls and for all hours where data are substituted in accordance with 40 CFR 75.34(a)(1), the add-on emission controls were operating within the range of parameters listed in the monitoring plan and the substitute values do not systematically underestimate NO<sub>x</sub> emissions.

(c) For a unit that is reporting on an ozone season basis under this subsection, the NO<sub>x</sub> emission rate and NO<sub>x</sub> concentration values substituted for missing data under subpart D of 40 CFR part 75 are calculated using only values from an ozone season and do not systematically underestimate NO<sub>x</sub> emissions.

History: Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.10 Petitions.** The owner or operator of an NO<sub>x</sub> emissions source may submit a petition to the department requesting approval to apply an alternative to any requirement of this subchapter. Application of an alternative to any requirement of this subchapter is in accordance with this subchapter only to the extent that the petition under this section is approved by the department.

History: Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.11 Additional requirements to provide heat input data.** The owner or operator of a unit that either monitors

and reports or elects to monitor and report NO<sub>x</sub> mass emissions using an NO<sub>x</sub> concentration system and a flow system shall also monitor and report heat input at the unit level.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.