

Environmental Protection Agency

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may include flue gases from other affected or nonaffected units), or when flue gases utilize two or more ducts feeding into a single stack and the owner or operator chooses to monitor in the ducts rather than the stack, the owner or operator shall monitor the NO_x emission rate representative of each affected unit. Where another unit also exhausts flue gases to one or more of the stacks where monitoring systems are installed, the owner or operator shall also comply with the applicable common stack monitoring requirements of this section. The owner or operator shall either:

(1) Install, certify, operate, and maintain a NO_x continuous emission monitoring system in each stack or duct and determine the NO_x emission rate for the unit as the Btu-weighted sum of the NO_x emission rates measured in the stacks or ducts using the heat input estimation procedures in appendix F of this part; or

(2) Install, certify, operate, and maintain a NO_x continuous emission monitoring system in one stack or duct from each affected unit and record the monitored value as the NO_x emission rate for the unit. The owner or operator shall account for NO_x emissions from the unit during all times when the unit combusts fuel.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26523, May 17, 1995; 63 FR 57499, Oct. 27, 1998; 64 FR 28592, May 26, 1999]

§ 75.18 Specific provisions for monitoring emissions from common and by-pass stacks for opacity.

(a) *Unit using common stack.* When an affected unit utilizes a common stack with other affected units or nonaffected units, the owner or operator shall comply with the applicable monitoring provision in this paragraph, as determined by existing Federal, State, or local opacity regulations.

(1) Where another regulation requires the installation of a continuous opacity monitoring system upon each affected unit, the owner or operator shall install, certify, operate, and maintain a continuous opacity monitoring system meeting Performance Specification 1 in appendix B to part 60 of this chapter (referred to hereafter as a "cer-

tified continuous opacity monitoring system") upon each unit.

(2) Where another regulation does not require the installation of a continuous opacity monitoring system upon each affected unit, and where the affected source is not subject to any existing Federal, State, or local opacity regulations, the owner or operator shall install, certify, operate, and maintain a certified continuous opacity monitoring system upon each common stack for the combined effluent.

(b) *Unit using bypass stack.* Where any portion of the flue gases from an affected unit can be routed so as to bypass the installed continuous opacity monitoring system, the owner or operator shall install, certify, operate, and maintain a certified continuous opacity monitoring system on each bypass stack flue, duct, or stack gas stream unless either:

(1) An applicable Federal, State, or local opacity regulation or permit exempts the unit from a requirement to install a continuous opacity monitoring system in the bypass stack; or

(2) A continuous opacity monitoring system is already installed and certified at the inlet of the add-on emissions controls.

(3) The owner or operator monitors opacity using method 9 of appendix A of part 60 of this chapter whenever emissions pass through the bypass stack. Method 9 shall be used in accordance with the applicable State regulations.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26524, May 17, 1995; 60 FR 40296, Aug. 8, 1995; 61 FR 59158, Nov. 20, 1996]

§ 75.19 Optional SO₂, NO_x, and CO₂ emissions calculation for low mass emissions units.

(a) *Applicability.* (1) Consistent with the requirements of paragraphs (a)(2) and (b) of this section, the low mass emissions excepted methodology in paragraph (c) of this section may be used in lieu of continuous emission monitoring systems or, if applicable, in lieu of excepted methods under appendix D or E to this part, for the purpose of determining hourly heat input and hourly NO_x, SO₂, and CO₂ mass emissions from a low mass emissions unit.

(i) A low mass emissions unit is an affected unit that is gas-fired, or oil-fired unit, that burns only natural gas or fuel oil and for which:

(A) An initial demonstration is provided, in accordance with paragraph (a)(2) of this section, which shows that the unit emits no more than 25 tons of SO₂ annually and no more than 50 tons of NO_x annually; and

(B) An annual demonstration is provided thereafter, using one of the allowable methodologies in paragraph (c) of this section, showing that the low mass emission unit continues to emit no more than 25 tons of SO₂ annually and no more than 50 tons of NO_x annually.

(ii) Any qualifying unit must start using the low mass emissions excepted methodology in the first hour in which the unit operates in a calendar year. Notwithstanding, the earliest date for which a unit that meets the eligibility requirements of this section may begin to use this methodology is January 1, 2000.

(2) A unit may initially qualify as a low mass emissions unit only under the following circumstances:

(i) If the designated representative submits a certification application to use the low mass emissions excepted methodology and the Administrator certifies the use of such methodology. The certification application must contain:

(A) Actual SO₂ and NO_x mass emissions data for each of the three calendar years prior to the calendar year in which the certification application is submitted demonstrating to the satisfaction of the Administrator that the unit emits less than 25 tons of SO₂ and less than 50 tons of NO_x annually; and

(B) Calculated SO₂ and NO_x mass emissions, for each of the three calendar years prior to the calendar year in which the certification application is submitted, demonstrating to the satisfaction of the Administrator that the unit emits less than 25 tons of SO₂ and less than 50 tons of NO_x annually. The calculated emissions for each year shall be determined using either the maximum rated heat input methodology described in paragraph (c)(3)(i) of this section or the long term fuel flow heat input methodology described in

paragraph (c)(3)(ii) of this section, in conjunction with the appropriate SO₂, NO_x, and CO₂ emission rate from paragraph (c)(1)(i) of this section for SO₂, paragraph (c)(1)(ii) or (c)(1)(iv) of this section for NO_x and paragraph (c)(1)(iii) of this section for CO₂; or

(ii) When the three full years of actual, historical SO₂ and NO_x mass emissions data required under paragraph (a)(2)(i) of this section are not available, the designated representative may submit an application to use the low mass emissions excepted methodology based upon a combination of historical SO₂ and NO_x mass emissions data and projected SO₂ and NO_x mass emissions, totaling three years. Historical data must be used for any years in which historical data exists and projected data should be used for any remaining future years needed to provide capacity factor data for three consecutive calendar years. For example, if a unit commenced operation two years ago, the designated representative may submit actual, historical data for the previous two years and one year of projected emissions for the current calendar year or, for unit that commenced operation after January 1, 1997, the designated representative may submit three years of projected emissions, beginning with the current calendar year. Any actual or projected annual emissions must demonstrate to the satisfaction of the Administrator that the unit will emit less than 25 tons of SO₂ and less than 50 tons of NO_x annually. Projected emissions shall be calculated using either the default emission rates in tables 1,2 and 3 of this section, or for NO_x emission rate a fuel-and-unit-specific NO_x emission rate determined in accordance with the testing procedures in paragraph (c)(1)(iv) of this section, in conjunction with projections of unit operating hours or fuel type and fuel usage, according to one of the allowable calculation methodologies in paragraph (c) of this section.

(b) *On-going qualification and disqualification.* (1) Once a low mass emission unit has qualified for and has started using the low mass emissions excepted methodology, an annual demonstration is required, showing that the unit continues to emit less than 25 tons of SO₂ annually and less than 50 tons of NO_x

annually. The calculation methodology used for the annual demonstration shall be the same methodology, from paragraph (c) of this section, by which the unit initially qualified to use the low mass emissions excepted methodology.

(2) If any low mass emission unit fails to provide the required annual demonstration under paragraph (b)(1) of this section, such that the calculated cumulative year-to-date emissions for the unit exceed 25 tons of SO₂ or 50 tons of NO_x in any calendar quarter of any calendar year, then;

(i) The low mass emission unit shall be disqualified from using the low mass emissions excepted methodology as of the end of the second calendar quarter following such quarter in which either the 25 ton limit for SO₂ or the 50 ton limit for NO_x was exceeded; and

(ii) The owner or operator of the low mass emission unit shall have two calendar quarters from the end of the quarter in which the unit exceeded the 25 ton limit for SO₂ or the 50 ton limit for NO_x to install, certify, and report SO₂, NO_x, and CO₂ emissions from monitoring systems that meet the requirements of §§ 75.11, 75.12, and 75.13.

(3) If a low mass emission unit that initially qualifies to use the low mass emissions excepted methodology under this section changes fuels, such that a fuel other than those allowed for use in the low mass emissions methodology (e.g. natural gas or fuel oil) is combusted in the unit, the unit shall be disqualified from using the low mass emissions excepted methodology as of the first hour that the new fuel is combusted in the unit. The owner or operator shall install, certify, and report SO₂, NO_x, and CO₂ from monitoring systems that meet the requirements of §§ 75.11, 75.12, and 75.13 prior to a change to such fuel. The owner or operator must notify the Administrator in the case where a unit switches fuels without previously having installed and certified a SO₂, NO_x and CO₂ monitoring system meeting the requirements of §§ 75.11, 75.12, and 75.13.

(4) If a unit commencing operation after January 1, 1997 initially qualifies to use the low mass emissions excepted methodology under this section and the owner or operator wants to use a

low mass emissions methodology for the unit, he or she must:

(i) Keep the records specified in paragraph (c)(2) of this section, beginning with the date and hour of commencement of commercial operation, for a unit subject to an Acid Rain emission limitation, and beginning with the date and hour of the commencement of operation, for a unit subject to a NO_x mass reduction program;

(ii) Use these records to determine the cumulative heat input and SO₂, NO_x, and CO₂ mass emissions in order to continue to qualify as a low mass emission unit; and

(iii) Determine the cumulative SO₂ and NO_x mass emissions according to paragraph (c) of this section using the same procedures used after the certification deadline for the unit, for purposes of demonstrating eligibility to use the excepted methodology set forth in this section. For example, use the default emission rates in tables 1, 2 and 3 of this section or use the fuel-and-unit-specific NO_x emission rate determined according to paragraph (c)(1)(iv) of this section. The Administrator will not count SO₂ mass emissions calculated for the period between commencement of commercial operation and the certification deadline for the unit under § 75.4 against SO₂ allowances to be held in the unit account.

(5) A low mass emission unit that has been disqualified from using the low mass emissions excepted methodology may subsequently qualify again to use the low mass emissions methodology under paragraph (a)(2) of this section, provided that if such unit qualified under paragraph (a)(2)(ii) of this section, the unit may subsequently qualify again only if the unit meets the requirements of paragraph (a)(2)(i) of this section.

(c) *Low mass emissions excepted methodology, calculations, and values*—(1) *Determination of SO₂, NO_x, and CO₂ emission rates.* (i) Use Table 1 of this section to determine the appropriate SO₂ emission rate for use in calculating hourly SO₂ mass emissions under this section.

(ii) Use either the appropriate NO_x emission factor from Table 2 of this section, or a fuel-and-unit-specific NO_x emission rate determined according to paragraph (c)(1)(iv) of this section, to

calculate hourly NO_x mass emissions under this section.

(iii) Use Table 3 of this section to determine the appropriate CO₂ emission rate for use in calculating hourly CO₂ mass emissions under this section.

(iv) In lieu of using the default NO_x emission rate from Table 2 of this section, the owner or operator may, for each fuel combusted by a low mass emission unit, determine a fuel-and-unit-specific NO_x emission rate for the purpose of calculating NO_x mass emissions under this section. This option may be used by any unit which qualifies to use the low mass emission excepted methodology under paragraph (a) of this section, and also by groups of units which combust fuel from a common source of supply and which use the long term fuel flow methodology under paragraph (c)(3)(ii) of this section to determine heat input. If this option is chosen, the following procedures shall be used.

(A) Except as otherwise provided in paragraphs (c)(1)(iv)(F) and (G) of this paragraph, determine a fuel-and-unit-specific NO_x emission rate by conducting a four load NO_x emission rate test procedure as specified in section 2.1 of appendix E to this part, for each type of fuel combusted in the unit. For a group of units sharing a common fuel supply, the appendix E testing must be performed on each individual unit in the group, unless some or all of the units in the group belong to an identical group of units, as defined in paragraph (c)(1)(iv)(B) of this section, in which case, representative testing may be conducted on units in the identical group of units, as described in paragraph (c)(1)(iv)(B) of this section. For the purposes of this section, make the following modifications to the appendix E test procedures:

(1) Do not measure the heat input as required under 2.1.3 of appendix E to this part.

(2) Do not plot the test results as specified under 2.1.6 of appendix E to this part.

(B) Representative appendix E testing may be done on low mass emission units in a group of identical units. All of the units in a group of identical units must combust the same fuel type

but do not have to share a common fuel supply.

(1) To be considered identical, all low mass emission units must be of the same size (based on maximum rated hourly heat input), manufacturer and model, and must have the same history of modifications (e.g., have the same controls installed, the same types of burners and have undergone major overhauls at the same frequency (based on hours of operation)). Also, under similar operating conditions, the stack or turbine outlet temperature of each unit must be within ±50 degrees Fahrenheit of the average stack or turbine outlet temperature for all of the units.

(2) If all of the low mass emission units in the group qualify as identical, then representative testing of the units in the group may be performed according to Table 4 of this section.

(3) If there are only two low mass emission units in the group of identical units, the results of the representative testing under paragraph (c)(1)(iv)(B)(1) of this section may be used to establish the fuel-and-unit-specific NO_x emission rate(s) for the units. However, if there are more than two low mass emission units in the group, the testing must confirm that the units are identical by meeting the following criteria. The results of the representative testing may only be used to establish the fuel-and-unit-specific NO_x emission rate(s) for such units if the following criteria are met:

(i) at each of the four load levels tested, the NO_x emission rate for each tested low mass emission unit does not differ by more than ±10% from the average of the NO_x emission rates for all units tested, or;

(ii) if the average NO_x emission rate of all low mass emission units tested at all four load levels is less than 0.20 lb/mmBtu, an alternative criteria of ±0.020 lb/mmBtu may be used in lieu of the 10% criteria. Units must all be within +0.020 lb/mmBtu of the average from the test to be considered identical units under this section.

(4) If the acceptance criteria in paragraph (c)(1)(iv)(B)(3) of this section are not met then the group of low mass emission units is not considered an identical group of units and individual

appendix E testing of each unit is required.

(5) Fuel and unit specific NO_x emission rates determined according to paragraphs (c)(1)(iv)(F) and (c)(1)(iv)(G) of this section may be used in lieu of appendix E testing for one or more low mass emission units in a group of identical units.

(C) Based on the results of the appendix E testing, determine the fuel-and-unit-specific NO_x emission rate as follows:

(1) For an individual low mass emission unit with no NO_x emissions controls of any kind, the highest NO_x emission rate obtained for a particular type of fuel in the appendix E test multiplied by 1.15 shall be the fuel-and-unit-specific NO_x emission rate, for that type of fuel.

(2) For a group of low mass emission units sharing a common fuel supply with no NO_x controls of any kind on any of the units, the highest NO_x emission rate obtained for a particular type of fuel in all of the appendix E tests of all units in the group of units sharing a common fuel supply multiplied by 1.15 shall be the fuel-and-unit-specific NO_x emission rate for each unit in the group, for that type of fuel.

(3) For a group of identical low mass emission units which perform representative testing according to paragraph (c)(1)(iv)(B) of this section with no NO_x controls of any kind on any of the units, the fuel-and-unit-specific NO_x emission rate for all units, for a particular type of fuel, multiplied by 1.15 shall be the highest NO_x emission rate from any unit tested in the group, for that type of fuel.

(4) For an individual low mass emission unit which has NO_x emission controls of any kind, the fuel-and-unit-specific NO_x emission rate for each type of fuel combusted in the unit shall be the higher of:

(i) The highest emission rate from the appendix E test for that type of fuel multiplied by 1.15; or

(ii) 0.15 lb/mmBtu.

(5) For a group of low mass emission units sharing a common fuel supply, one or more of which has NO_x controls of any kind, the fuel-and-unit-specific NO_x emission rate for each unit in the group of units sharing a common fuel

supply shall, for a particular type of fuel combusted by the group of units sharing a common fuel supply, shall be the higher of:

(i) The highest NO_x emission rate from all appendix E tests of all low mass emission units in the group for that type of fuel multiplied by 1.15; or

(ii) 0.15 lb/mmBtu.

(6) For a group of identical low mass emission units, which perform representative testing according to paragraph (c)(1)(iv)(B) of this section and have identical NO_x controls, the fuel-and-unit-specific NO_x emission rate for each unit in the group of units, for a particular type of fuel, shall be the higher of:

(i) The highest NO_x emission rate from all appendix E tests of all tested low mass emission units in the group of identical units for that type of fuel multiplied by 1.15; or

(ii) 0.15 lb/mmBtu.

(D) For each low mass emission unit, each unit in a group of units sharing a common fuel supply, or identical units for which the provisions of paragraph (c)(1)(iv) of this section are used to account for NO_x emission rate, the owner or operator shall determine a new fuel-and-unit-specific NO_x emission rate every five years, unless changes in the fuel supply, physical changes to the unit, changes in the manner of unit operation, or changes to the emission controls occur which may cause a significant increase in the unit's actual NO_x emission rate. If such changes occur, the fuel-and-unit-specific NO_x emission rate(s) shall be re-determined according to paragraph (c)(1)(iv) of this section. If a low mass emission unit belongs to a group of identical units and it is required to retest to determine a new fuel-and-unit-specific NO_x emission rate because of changes in the fuel supply, physical changes to the unit, changes in the manner of unit operation or changes to the emission controls occur which may cause a significant increase in the unit's actual NO_x emission rate, any other unit in that group of identical units is not required to re-determine the fuel-and-unit-specific NO_x emission rate unless such unit also undergoes changes in the fuel supply, physical changes to the unit,

changes in the manner of unit operation or changes to the emission controls occur which may cause a significant increase in the unit's actual NO_x emission rates.

(E) Each low mass emission unit, each low mass emission unit in a group of units combusting a common fuel, or each low mass emission unit in a group of identical units for which a fuel-and-unit-specific NO_x emission rate(s) are determined shall meet the quality assurance and quality control provisions of paragraph (e) of this section.

(F) Low mass emission units may use the results of appendix E testing, if such test results are available from a test conducted no more than five years prior to the time of initial certification, to determine the appropriate fuel-and-unit-specific NO_x emission rate(s). However, fuel-and-unit-specific NO_x emission rates from historical testing may not be used longer than five years after the appendix E testing was conducted.

(G) Low mass emission units for which at least 3 years of NO_x emission rate continuous emissions monitoring system data and corresponding fuel usage data are available may determine fuel-and-unit-specific NO_x emission rates from the actual data using the following procedure. Separate the actual NO_x emission rate data into groups, according to the type of fuel combusted. Discard data from periods when multiple fuels were combusted. Each fuel-specific data set must contain at least 168 hours of data and must represent all normal operating ranges of the unit when combusting the fuel. Sort the data in each fuel-specific data set in ascending order according to NO_x emission rate. Determine the 95th percentile NO_x emission rate for each data set as defined in § 72.2 of this chapter. Use the 95th percentile value for each data set as the fuel-and-unit-specific NO_x emission rate, except that for a unit with NO_x emission controls of any kind, if the 95th percentile value is less than 0.15 lb/mmBtu, a value of 0.15 lb/mmBtu shall be used as the fuel-and-unit-specific NO_x emission rate.

(H) For low mass emission units with NO_x emission controls, the owner or operator shall, during every hour of unit operation during the test period,

monitor and record parameters, as required under paragraph (e)(5) of this section, which indicate that the NO_x emission controls are operating properly. After the test period, these same parameters shall be monitored and recorded and kept for all operating hours in order to determine whether the NO_x controls are operating properly and to allow the determination of the correct NO_x emission rate as required under paragraph (c)(1)(iv) of this section.

(1) For low mass emission units with steam or water injection, the steam-to-fuel or water-to-fuel ratio used during the testing must be documented. The water-to-fuel or steam-to-fuel ratio must be maintained during unit operations for a unit to use the fuel and unit specific NO_x emission rate determined during the test. Owners or operators must include in the monitoring plan the acceptable range of the water-to-fuel or steam-to-fuel ratio, which will be used to indicate hourly, proper operation of the NO_x controls for each unit. The water-to-fuel or steam-to-fuel ratio shall be monitored and recorded during each hour of unit operation. If the water-to-fuel or steam-to-fuel ratio is not within the acceptable range in a given hour the fuel and unit specific NO_x emission rate may not be used for that hour.

(2) For low mass emission units with other types of NO_x controls, appropriate parameters and the acceptable range of the parameters which indicate hourly proper operation of the NO_x controls must be specified in the monitoring plan. These parameters shall be monitored during each subsequent operating hour. If any of these parameters are not within the acceptable range in a given operating hour, the fuel and unit specific NO_x emission rates may not be used in that hour.

(2) *Records of operating time, fuel usage, unit output and NO_x emission control operating status.* The owner or operator shall keep the following records on-site, for three years, in a form suitable for inspection:

(i) For each low mass emission unit, the owner or operator shall keep hourly records which indicate whether or not the unit operated during each clock hour of each calendar year. The owner or operator may report partial

operating hours or may assume that for each hour the unit operated the operating time is a whole hour. Units using partial operating hours and the maximum rated hourly heat input to calculate heat input for each hour must report partial operating hours.

(ii) For each low mass emissions unit, the owner or operator shall keep hourly records indicating the type(s) of fuel(s) combusted in the unit during each hour of unit operation.

(iii) For each low mass emission unit using the long term fuel flow methodology under paragraph (c)(3)(ii) of this section to determine hourly heat input, the owner or operator shall keep hourly records of unit output (in megawatts or thousands of pounds of steam), for the purpose of apportioning heat input to the individual unit operating hours.

(iv) For each low mass emission unit with NO_x emission controls of any kind, the owner or operator shall keep hourly records of the hourly value of the parameter(s) specified in (c)(1)(iv)(H) of this section used to indicate proper operation of the unit's NO_x controls.

(3) *Heat input.* Hourly, quarterly and annual heat input for a low mass emission unit shall be determined using either the maximum rated hourly heat input method under paragraph (c)(3)(i) of this section or the long term fuel flow method under paragraph (c)(3)(ii) of this section.

(i) *Maximum rated hourly heat input method.* (A) For the purposes of the mass emission calculation methodology of paragraph (c)(3) of this section, the hourly heat input (mmBtu) to a low mass emission unit shall be deemed to equal the maximum rated hourly heat input, as defined in § 72.2 of this chapter, multiplied by the operating time of the unit for each hour. The owner or operator may choose to record and report partial operating hours or may assume that a unit operated for a whole hour for each hour the unit operated. However, the owner or operator of a unit may petition the Administrator under § 75.66 for a lower value for maximum rated hourly heat input than that defined in § 72.2 of this chapter. The Administrator may approve such lower value if the owner or operator demonstrates that either the

maximum hourly heat input specified by the manufacturer or the highest observed hourly heat input, or both, are not representative, and such a lower value is representative, of the unit's current capabilities because modifications have been made to the unit, limiting its capacity permanently.

(B) The quarterly heat input, HI_{qtr}, in mmBtu, shall be determined using Equation LM-1:

$$HI_{qtr} = T_{qtr} \times HI_{hr} \quad (\text{Eq. LM-1})$$

Where:

T_{qtr} = Actual number of operating hours in the quarter (hr).

HI_{hr} = Hourly heat input under paragraph

(c)(3)(i)(A) of this section (mmBtu).

(C) The year-to-date cumulative heat input (mmBtu) shall be the sum of the quarterly heat input values for all of the calendar quarters in the year to date.

(ii) *Long term fuel flow heat input method.* The owner or operator may, for the purpose of demonstrating that a low mass emission unit or group of low mass emission units sharing a common fuel supply meets the requirements of this section, use records of long-term fuel flow, to calculate hourly heat input to a low mass emission unit.

(A) This option may be used for a group of low mass emission units only if:

(1) The low mass emission units combust fuel from a common source of supply; and

(2) Records are kept of the total amount of fuel combusted by the group of low mass emission units and the hourly output (in megawatts or pounds of steam) from each unit in the group; and

(3) All of the units in the group are low mass emission units.

(B) For each fuel used during the quarter, the volume in standard cubic feet (for gas) or gallons (for oil) may be determined using any of the following methods;

(1) Fuel billing records (for low mass emission units, or groups of low mass emission units, which purchase fuel from non-affiliated sources);

(2) American Petroleum Institute (API) standard, American Petroleum Institute (API) Petroleum Measurement Standards, Chapter 3, Tank

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Gauging: Section 1A, Standard Practice for the Manual Gauging of Petroleum and Petroleum Products, December 1994; Section 1B, Standard Practice for Level Measurement of Liquid Hydrocarbons in Stationary Tanks by Automatic Tank Gauging, April 1992 (reaffirmed January 1997); Section 2, Standard Practice for Gauging Petroleum and Petroleum Products in Tank Cars, September 1995; Section 3, Standard Practice for Level Measurement of Liquid Hydrocarbons in Stationary Pressurized Storage Tanks by Automatic Tank Gauging, June 1996; Section 4, Standard Practice for Level Measurement of Liquid Hydrocarbons on Marine Vessels by Automatic Tank Gauging, April 1995; and Section 5, Standard Practice for Level Measurement of Light Hydrocarbon Liquids Onboard Marine Vessels by Automatic Tank Gauging, March 1997; Shop Testing of Automatic Liquid Level Gages, Bulletin 2509 B, December 1961 (Reaffirmed August 1987, October 1992) (incorporated by reference under §75.6); or;

(3) A fuel flow meter certified and maintained according to appendix D to this part.

(C) For each fuel combusted during a quarter, the gross calorific value of the fuel shall be determined by either:

(1) Using the applicable procedures for gas and oil analysis in sections 2.2 and 2.3 of appendix D to this part. If this option is chosen the highest gross calorific value recorded during the previous calendar year shall be used; or

(2) Using the appropriate default specific gravity value in Table LM-6 of this section.

(D) For each type of fuel oil combusted during the quarter, the specific gravity of the oil shall be determined either by:

(1) Using the procedures in section 2.2.6 of appendix D to this part. If this option is chosen, use the highest specific gravity value recorded during the previous calendar year shall be used; or

(2) Using the appropriate default specific gravity value in Table 5 of this section.

(E) The quarterly heat input from each type of fuel combusted during the quarter by a low mass emission unit or group of low mass emission units shar-

ing a common fuel supply shall be determined using Equation LM-2 for oil and LM-3 for natural gas.

$$HI_{\text{fuel-qtr}} = M_{\text{qtr}} \frac{GCV_{\text{max}}}{10^6}$$

Eq LM-2 (for fuel oil or diesel fuel)

Where:

$HI_{\text{fuel-qtr}}$ = Quarterly total heat input from oil (mmBtu).

M_{qtr} = Mass of oil consumed during the entire quarter, determined as the product of the volume of oil under paragraph (c)(3)(ii)(B) of this section and the specific gravity under paragraph (c)(3)(ii)(D) of this section (lb)

GCV_{max} = Gross calorific value of oil, as determined under paragraph (c)(3)(ii)(C) of this section (Btu/lb)

10^6 = Conversion of Btu to mmBtu.

$$HI_{\text{fuel-qtr}} = Q_g \frac{GCV_{\text{max}}}{10^6}$$

Eq LM-3 (for natural gas)

Where:

$HI_{\text{fuel-qtr}}$ = Quarterly heat input from natural gas (mmBtu).

Q_g = Value of natural gas combusted during the quarter, as determined under paragraph (c)(3)(ii)(B) of this section standard cubic feet (scf).

GCV_g = Gross calorific value of the natural gas combusted during the quarter, as determined under paragraph (c)(3)(ii)(C) of this section (Btu/scf)

10^6 = Conversion of Btu to mmBtu.

(F) The quarterly heat input (mmBtu) for all fuels for the quarter, $HI_{\text{qtr-total}}$, shall be the sum of the $HI_{\text{fuel-qtr}}$ values determined using Equations LM-2 and LM-3.

$$HI_{\text{qtr-total}} = \sum_{\text{all-fuels}} HI_{\text{fuel-qtr}}$$

(Eq. LM-4)

(G) The year-to-date cumulative heat input (mmBtu) for all fuels shall be the sum of all quarterly total heat input ($HI_{\text{qtr-total}}$) values for all calendar quarters in the year to date.

(H) For each low mass emission unit, each low mass emission unit of an identical group of units, or each low mass emission unit in a group of units sharing a common fuel supply, the owner or operator shall determine the quarterly unit output in megawatts or pounds of

steam. The quarterly unit output shall be the sum of the hourly unit output values recorded under paragraph (c)(2) of this section and shall be determined using Equations LM-5 or LM-6.

$$MW_{qtr} = \sum_{\text{all-hours}} MW$$

Eq LM-5 (for MW output)

$$ST_{qtr} = \sum_{\text{all-hours}} ST$$

Eq LM-6 (for steam output)

Where:

MW_{qtr} = the power produced during all hours of operation during the quarter by the unit (MW)

$ST_{fuel-qtr}$ = the total quarterly steam output produced during all hours of operation during the quarter by the unit (klb)

MW = the power produced during each hour in which the unit operated during the quarter (MW).

ST = the steam output produced during each hour in which the unit operated during the quarter (klb)

(I) For a low mass emission unit that is not included in a group of low mass emission units sharing a common fuel supply, apportion the total heat input for the quarter, $HI_{qtr-total}$ to each hour of unit operation using either Equation LM-7 or LM-8:

$$HI_{hr} = HI_{qtr-total} \frac{MW_{hr}}{MW_{qtr}}$$

(Eq LM-7 for MW output)

$$HI_{hr} = HI_{qtr-total} \frac{ST_{hr}}{ST_{qtr}}$$

(Eq LM-8 for steam output)

Where:

HI_{hr} = hourly heat input to the unit (mmBtu)

MW_{hr} = hourly output from the unit (MW)

ST_{hr} = hourly steam output from the unit (klb)

(J) For each low mass emission unit that is included in a group of units sharing a common fuel supply, apportion the total heat input for the quarter, $HI_{qtr-total}$ to each hour of operation using either Equation LM-7a or LM-8a:

$$HI_{hr} = HI_{qtr-total} \frac{MW_{hr}}{\sum_{\text{all-units}} MW_{qtr}}$$

(Eq LM-7a for MW output)

$$HI_{hr} = HI_{qtr-total} \frac{ST_{hr}}{\sum_{\text{all-units}} ST_{qtr}}$$

(Eq LM-8a for steam output)

Where:

HI_{hr} = hourly heat input to the individual unit (mmBtu)

MW_{hr} = hourly output from the individual unit (MW)

ST_{hr} = hourly steam output from the individual unit (klb)

$\sum_{\text{all-units}} MW_{qtr}$ = Sum of the quarterly outputs (from Eq. LM-5) for all units in the group (MW)

$\sum_{\text{all-units}} ST_{qtr}$ = Sum of the quarterly steam outputs (from Eq. LM-6) for all units in the group (klb)

(4) *Calculation of SO₂, NO_x and CO₂ mass emissions.* The owner or operator shall, for the purpose of demonstrating that a low mass emission unit meets the requirements of this section, calculate SO₂, NO_x and CO₂ mass emissions in accordance with the following.

(i) *SO₂ mass emissions.* (A) The hourly SO₂ mass emissions (lbs) for a low mass emission unit shall be determined using Equation LM-9 and the appropriate fuel-based SO₂ emission factor from Table 1 of this section for the fuels combusted in that hour. If more than one fuel is combusted in the hour, use the highest emission factor for all of the fuels combusted in the hour. If records are missing as to which fuel was combusted in the hour, use the highest emission factor for all of the fuels capable of being combusted in the unit.

$$W_{SO_2} = EF_{SO_2} \times HI_{hr} \quad (\text{Eq. LM-9})$$

where:

W_{SO_2} = Hourly SO₂ mass emissions (lbs).

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EF_{SO₂} = SO₂ emission factor from Table 1 of this section (lb/mmBtu).

HI_{hr} = Either the maximum rated hourly heat input under paragraph (c)(3)(i)(A) of this section or the hourly heat input under paragraph (c)(3)(ii) of this section (mmBtu).

(B) The quarterly SO₂ mass emissions (tons) for the low mass emission unit shall be the sum of all the hourly SO₂ mass emissions in the quarter, as determined under paragraph (c)(4)(i)(A) of this section, divided by 2000 lb/ton.

(C) The year-to-date cumulative SO₂ mass emissions (tons) for the low mass emission unit shall be the sum of the quarterly SO₂ mass emissions, as determined under paragraph (c)(4)(i)(B) of this section, for all of the calendar quarters in the year to date.

(ii) *NO_x mass emissions.* (A) The hourly NO_x mass emissions for the low mass emission unit (lbs) shall be determined using Equation LM-10. If more than one fuel is combusted in the hour, use the highest emission rate for all of the fuels combusted in the hour. If records are missing as to which fuel was combusted in the hour, use the highest emission factor for all of the fuels capable of being combusted in the unit. For low mass emission units with NO_x emission controls of any kind and for which a fuel-and-unit-specific NO_x emission rate is determined under paragraph (c)(1)(iv) of this section, for any hour in which the parameters under paragraph (c)(1)(iv)(A) of this section do not show that the NO_x emission controls are operating properly, use the NO_x emission rate from Table 2 of this section for the fuel combusted during the hour with the highest NO_x emission rate.

$$W_{NO_x} = EF_{NO_x} \times HI_{hr} \quad (\text{Eq. LM-10})$$

Where:

W_{NO_x} = Hourly NO_x mass emissions (lbs).

EF_{NO_x} = Either the NO_x emission factor from Table LM-2 of this section or the fuel- and unit-specific NO_x emission rate determined under paragraph (c)(1)(iv) of this section (lb/mmBtu).

HI_{hr} = Either the maximum rated hourly heat input from paragraph (c)(3)(i)(A) of this section or the hourly heat input as determined under paragraph(c)(3)(ii) of this section (mmBtu).

(B) The quarterly NO_x mass emissions (tons) for the low mass emission

unit shall be the sum of all of the hourly NO_x mass emissions in the quarter, as determined under paragraph (c)(4)(ii)(A) of this section, divided by 2000 lb/ton.

(C) The year-to-date cumulative NO_x mass emissions (tons) for the low mass emission unit shall be the sum of the quarterly NO_x mass emissions, as determined under paragraph (c)(4)(ii)(B) of this section, for all of the calendar quarters in the year to date.

(iii) *CO₂ Mass Emissions.* (A) The hourly CO₂ mass emissions (tons) for the affected low mass emission unit shall be determined using Equation LM-11 and the appropriate fuel-based CO₂ emission factor from Table 3 of this section for the fuel being combusted in that hour. If more than one fuel is combusted in the hour, use the highest emission factor for all of the fuels combusted in the hour. If records are missing as to which fuel was combusted in the hour, use the highest emission factor for all of the fuels capable of being combusted in the unit.

$$W_{CO_2} = EF_{CO_2} \times HI_{hr} \quad (\text{Eq. LM-11})$$

Where:

W_{CO₂} = Hourly CO mass emissions (tons).

EF_{CO₂} = Fuel-based CO₂ emission factor from Table 3 of this section (ton/mmBtu).

HI_{hr} = Either the maximum rated hourly heat input from paragraph (c)(3)(i)(A) of this section or the hourly heat input as determined under paragraph (c)(3)(ii) of this section (mmBtu).

(B) The quarterly CO₂ mass emissions (tons) for the low mass emission unit shall be the sum of all of the hourly CO₂ mass emissions in the quarter, as determined under paragraph (c)(4)(iii)(A) of this section.

(C) The year-to-date cumulative CO₂ mass emissions (tons) for the low mass emission unit shall be the sum of all of the quarterly CO₂ mass emissions, as determined under paragraph (c)(4)(iii)(B) of this section, for all of the calendar quarters in the year to date.

(d) Each unit that qualifies under this section to use the low mass emissions methodology must follow the recordkeeping and reporting requirements pertaining to low mass emissions units in subparts F and G of this part.

(e) The quality control and quality assurance requirements in §75.21 are

not applicable to a low mass emissions unit for which the low mass emissions excepted methodology under paragraph (c) of this section is being used in lieu of a continuous emission monitoring system or an excepted monitoring system under appendix D or E to this part, except for fuel flowmeters used to meet the provisions in paragraph (c)(3)(ii) of this section. However, the owner or operator of a low mass emissions unit shall implement the following quality assurance and quality control provisions:

(1) For low mass emission units or groups of units which use the long term fuel flow methodology under paragraph (c)(3)(ii) of this section and which use fuel billing records to determine fuel usage, the owner or operator shall keep, at the facility, for three years, the records of the fuel billing statements used for long term fuel flow determinations.

(2) For low mass emission units or groups of units which use the long term fuel flow methodology under paragraph (c)(3)(ii) of this section and which use American Petroleum Institute (API) standard, American Petroleum Institute (API) Petroleum Measurement Standards, Chapter 3, Tank Gauging: Section 1A, Standard Practice for the Manual Gauging of Petroleum and Petroleum Products, December 1994; Section 1B, Standard Practice for Level Measurement of Liquid Hydrocarbons in Stationary Tanks by Automatic Tank Gauging, April 1992 (reaffirmed January 1997); Section 2, Standard Practice for Gauging Petroleum and Petroleum Products in Tank Cars, September 1995; Section 3, Standard Practice for Level Measurement of Liquid Hydrocarbons in Stationary Pressurized Storage Tanks by Automatic Tank Gauging, June 1996; Section 4, Standard Practice for Level Measurement of Liquid Hydrocarbons on Marine Vessels by Automatic Tank Gauging, April 1995; and Section 5, Standard Practice for Level Measurement of Light Hydrocarbon Liquids On-board Marine Vessels by Automatic Tank Gauging, March 1997, Shop Testing of Automatic Liquid Level Gages, Bulletin 2509 B, December 1961 (Reaffirmed August 1987, October 1992) (incorporated by reference under § 75.6), to

determine fuel usage, the owner or operator shall keep, at the facility, a copy of the standard used and shall keep records, for three years, of all measurements obtained for each quarter using the methodology.

(3) For low mass emission units or groups of units which use the long term fuel flow methodology under paragraph (c)(3)(ii) of this section and which use a certified fuel flow meter to determine fuel usage, the owner or operator shall comply with the quality control quality assurance requirements for a fuel flow meter under section 2.1.6 of appendix D of this part.

(4) For each low mass emission unit for which fuel-and-unit-specific NO_x emission rates are determined in accordance with paragraph (c)(1)(iv) of this section, the owner or operator shall keep, at the facility, records which document the results of all NO_x emission rate tests conducted according to appendix E to this part. If CEMS data are used to determine the fuel-and-unit-specific NO_x emission rates under paragraph (c)(1)(iv)(G) of this section, the owner or operator shall keep, at the facility, records of the CEMS data and the data analysis performed to determine a fuel-and-unit-specific NO_x emission rate. The appendix E test records and historical CEMS data records shall be kept until the fuel and unit specific NO_x emission rates are re-determined.

(5) For each low mass emission unit for which fuel-and-unit-specific NO_x emission rates are determined in accordance with paragraph (c)(1)(iv) of this section and which have NO_x emission controls of any kind, the owner or operator shall develop and keep on-site a quality assurance plan which explains the procedures used to document proper operation of the NO_x emission controls. The plan shall include the parameters monitored (e.g., water-to-fuel ratio) and the acceptable ranges for each parameter used to determine proper operation of the unit's NO_x controls.

TABLE LM-1.—SO₂ EMISSION FACTORS (LB/MMBTU) FOR VARIOUS FUEL TYPES

Fuel type	SO ₂ emission factors
Pipeline Natural Gas	0.0006 lb/mmBtu.
Other Natural Gas	0.06 lb/mmBtu.

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TABLE LM-1.—SO₂ EMISSION FACTORS (LB/MMBTU) FOR VARIOUS FUEL TYPES—Continued

Fuel type	SO ₂ emission factors
Residual Oil	2.1 lb/mmBtu.
Diesel Fuel	0.5 lb/mmBtu.

TABLE LM-2.—NO_x EMISSION RATES (LB/MMBTU) FOR VARIOUS BOILER/FUEL TYPES

Boiler type	Fuel type	NO _x emission rate
Turbine	Gas	0.7
Turbine	Oil	1.2
Boiler	Gas	1.5
Boiler	Oil	2

TABLE LM-3.—CO₂ EMISSION FACTORS (TON/MMBTU) FOR GAS AND OIL

Fuel type	CO ₂ emission factors
Natural Gas	0.059 ton/mmBtu.
Oil	0.081 ton/mmBtu.

TABLE LM-4.—IDENTICAL UNIT TESTING REQUIREMENTS

Number of identical units in the group	Number of appendix E tests required
2	1
3 to 6	2
7	3
>7	n tests; when n = number of units divided by 3 and rounded to nearest integer.

TABLE LM-5.—DEFAULT GROSS CALORIFIC VALUES (GCVS) FOR VARIOUS FUELS

Fuel	GCV for use in equation LM-2 or LM-3
Pipeline Natural Gas	1050 Btu/scf.
Natural Gas	1100 Btu/scf.
Residual Oil	19,700 Btu/lb or 167,500 Btu/gallon.
Diesel Fuel	20,500 Btu/lb or 151,700 Btu/gallon.

TABLE LM-6.—DEFAULT SPECIFIC GRAVITY VALUES FOR FUEL OIL

Fuel	Specific gravity (lb/gal)
Residual Oil	8.5
Diesel Fuel	7.4

[63 FR 57500, Oct. 27, 1998, as amended at 64 FR 28592, May 26, 1999; 64 FR 37582, July 12, 1999]

Subpart C—Operation and Maintenance Requirements

§ 75.20 Initial certification and recertification procedures.

(a) *Initial certification approval process.* The owner or operator shall ensure that each continuous emission or opacity monitoring system required by this part, which includes the automated data acquisition and handling system, and, where applicable, the CO₂ continuous emission monitoring system, meets the initial certification requirements of this section and shall ensure that all applicable initial certification tests under paragraph (c) of this section are completed by the deadlines specified in § 75.4 and prior to use in the Acid Rain Program. In addition, whenever the owner or operator installs a continuous emission or opacity monitoring system in order to meet the requirements of §§ 75.11 through 75.18, where no continuous emission or opacity monitoring system was previously installed, initial certification is required.

(1) *Notification of initial certification test dates.* The owner or operator or designated representative shall submit a written notice of the dates of initial certification testing at the unit as specified in § 75.61(a)(1).

(2) *Certification application.* The owner or operator shall apply for certification of each continuous emission or opacity monitoring system used under the Acid Rain Program. The owner or operator shall submit the certification application in accordance with § 75.60 and each complete certification application shall include the information specified in § 75.63.

(3) *Provisional approval of certification (or recertification) applications.* Upon the successful completion of the required certification (or recertification) procedures of this section for each continuous emission or opacity monitoring system or component thereof, continuous emission or opacity monitoring system or component thereof shall be deemed provisionally certified (or recertified) for use under the Acid Rain Program for a period not to exceed 120 days following receipt by the Administrator of the complete certification (or