

(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 "certified 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.

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**§ 75.19 Optional SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> emissions calculation for low mass emissions (LME) units.**

(a) *Applicability and qualification.* (1) For units that meet the requirements of this paragraph (a)(1) and 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<sub>x</sub>, SO<sub>2</sub>, and CO<sub>2</sub> mass emissions under this part.

(i) A low mass emissions unit is an affected unit that is gas-fired, or oil-fired (as defined in § 72.2 of this chapter), and for which:

(A) An initial demonstration is provided, in accordance with paragraph (a)(2) of this section, which shows that the unit emits:

(1) No more than 25 tons of SO<sub>2</sub> annually and less than 100 tons of NO<sub>x</sub> annually, for Acid Rain Program affected units. If the unit is also subject to the provisions of subpart H of this part, no more than 50 of the allowable annual tons of NO<sub>x</sub> may be emitted during the ozone season; or

(2) Less than 100 tons of NO<sub>x</sub> annually *and* no more than 50 tons of NO<sub>x</sub> during the ozone season, for non-Acid Rain Program units subject to the provisions of subpart H of this part, for which the owner or operator reports emissions data on a year-round basis, in accordance with § 75.74(a) or § 75.74(b); or

(3) No more than 50 tons of NO<sub>x</sub> per ozone season, for non-Acid Rain Program units subject to the provisions of subpart H of this part, for which the owner or operator reports emissions data only during the ozone season, in accordance with § 75.74(b); 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 emissions unit continues to emit no more than the applicable number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section.

(C) This paragraph, (a)(1)(i)(C), applies only to a unit that is subject to an SO<sub>2</sub> emission limitation under the Acid Rain Program, and that combusts a gaseous fuel other than pipeline natural gas or natural gas (as defined in § 72.2 of this chapter). The owner or operator of such a unit must quantify the sulfur content and variability of the

gaseous fuel by performing the demonstration described in section 2.3.6 of appendix D to this part, in order for the unit to qualify for LME unit status. If the results of that demonstration show that the gaseous fuel qualifies under paragraph (b) of section 2.3.6 to use a default SO<sub>2</sub> emission rate to report SO<sub>2</sub> mass emissions under this part, the unit is eligible for LME unit status.

(ii) Each qualifying LME unit must start using the low mass emissions excepted methodology as follows:

(A) For a unit that reports emission data on a year-round basis, begin using the methodology in the first unit operating hour in the calendar year designated in the certification application as the first year that the methodology will be used; or

(B) For a unit that is subject to Subpart H of this part and that reports only during the ozone season according to § 75.74(c), begin using the methodology in the first unit operating hour in the ozone season designated in the certification application as the first ozone season that the methodology will be used.

(C) For a new or newly-affected unit, see paragraph (b)(4) of this section for additional guidance.

(2) A unit may initially qualify as a low mass emissions unit if the designated representative submits a certification application to use the LME methodology (as described in § 75.63(a)(1)(ii) and in this paragraph, (a)(2)) and the Administrator (or permitting authority, as applicable) certifies the use of such methodology. The certification application shall be submitted no later than 45 days prior to the date on which use of the low mass emissions methodology is expected to commence, and the application must contain:

(i) A statement identifying the projected date on which the LME methodology will first be used. The projected commencement date shall be consistent with paragraphs (a)(1)(ii) and (b)(4) of this section, as applicable; and

(ii) Either:

(A) Actual SO<sub>2</sub> and/or NO<sub>x</sub> mass emissions data (as applicable) for each of the three calendar years (or ozone seasons) prior to the calendar year in

which the certification application is submitted demonstrating to the satisfaction of the Administrator or (if applicable) the permitting authority, that the unit emitted less than the applicable number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section. For the purposes of this paragraph, (a)(2)(ii)(A), the required actual SO<sub>2</sub> or NO<sub>x</sub> mass emissions for each qualifying year or ozone season shall be determined using the SO<sub>2</sub>, NO<sub>x</sub> and heat input data reported to the Administrator in the electronic quarterly reports required under § 75.64 or under the Ozone Transport Commission (OTC) NO<sub>x</sub> Budget Trading Program. Notwithstanding this requirement, in the absence of such electronic reports, an estimate of the actual emissions for each of the previous three years (or ozone seasons) shall be provided, using either the maximum rated heat input methodology described in paragraph (c)(3)(i) of this section or procedures consistent with the long term fuel flow heat input methodology described in paragraph (c)(3)(ii) of this section, in conjunction with the appropriate SO<sub>2</sub> or NO<sub>x</sub> emission rate from paragraph (c)(1)(i) of this section for SO<sub>2</sub>, and paragraph (c)(1)(ii) or (c)(1)(iv) of this section for NO<sub>x</sub>. Alternatively, the initial estimate of the NO<sub>x</sub> emission rate may be based on historical emission test data that is representative of operation at normal load or historical data from a CEMS certified under part 60 of this chapter or under a state CEM program; or

(B) When the three full years (or ozone seasons) of actual SO<sub>2</sub> and NO<sub>x</sub> mass emissions data (or reliable estimates thereof) described under paragraph (a)(2)(ii)(A) of this section do not exist, the designated representative may submit an application to use the low mass emissions excepted methodology based upon a combination of actual historical SO<sub>2</sub> and NO<sub>x</sub> mass emissions data and projected SO<sub>2</sub> and NO<sub>x</sub> mass emissions, totaling three years (or ozone seasons). Except as provided in paragraph (a)(3) of this section, actual data must be used for any years (or ozone seasons) in which such data exists and projected data should be used for any remaining future years (or

ozone seasons) needed to provide emissions data for three consecutive calendar years (or ozone seasons). 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 a new unit, 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 the applicable number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section. Projected emissions shall be calculated using either the appropriate default emission rates from paragraphs (c)(1)(i) and (c)(1)(ii) of this section (or, alternatively for NO<sub>x</sub>, a conservative estimate of the NO<sub>x</sub> emission rate, as described in paragraph (a)(4) 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; and

(iii) A description of the methodology from paragraph (c) of this section that will be used to demonstrate ongoing compliance under paragraph (b) of this section; and

(iv) Appropriate documentation demonstrating that the unit is eligible to use projected emissions to qualify for LME status under paragraph (a)(3) of this section (if applicable).

(3) In the following circumstances, projected emissions for a future year (or years) may be used in lieu of the actual emissions data from one (or more) of the three years (or ozone seasons) preceding the year of the certification application:

(i) If the owner or operator takes an enforceable permit restriction on the number of annual or ozone season unit operating hours for the future year (or years), such that the unit will emit no more than the applicable number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section; or

(ii) If the actual emissions for one (or more) of the three years (or ozone seasons) prior to the year of the certifi-

cation application is not representative of the present and expected future emissions from the unit, because the owner or operator has recently installed emission controls on the unit.

(4) When the owner or operator elects to demonstrate initial LME qualification and on-going compliance using a fuel-and-unit-specific NO<sub>x</sub> emission rate in accordance with paragraph (c)(1)(iv) of this section, there will be instances (e.g., for a new or newly-affected unit) where it is not possible to determine that NO<sub>x</sub> emission rate prior to submitting the certification application. In such cases, if the generic default NO<sub>x</sub> emission rates in Table LM-2 of this section are inappropriately high for the unit, the owner or operator may use a more representative, but conservatively high estimate of the expected NO<sub>x</sub> emission rate, for the purposes of the initial monitoring plan submittal and to calculate the unit's projected annual or ozone season emissions under paragraph (a)(2)(ii)(B) of this section. For example, the NO<sub>x</sub> emission rate could, as described in paragraph (a)(2)(ii)(A) of this section, be estimated using historical CEM data or historical emission test data that is representative of operation at normal load. The NO<sub>x</sub> emission limit specified in the operating permit for the unit could also be used to estimate the NO<sub>x</sub> emission rate (except for units equipped with SCR or SNCR), or, consistent with paragraph (c)(1)(iv)(C)(4) of this section, for a unit that uses SCR or SNCR to control NO<sub>x</sub> emissions, an estimated default NO<sub>x</sub> emission rate of 0.15 lb/mmBtu could be used. However, these estimated NO<sub>x</sub> emission rates may not be used for reporting purposes in the time period extending from the first hour in which the LME methodology is used to the date and hour on which the fuel-and-unit-specific NO<sub>x</sub> emission rate testing is completed. Rather, in that interval, the owner or operator shall either report the appropriate default NO<sub>x</sub> emission rate from Table LM-2, or shall report the maximum potential NO<sub>x</sub> emission rate, calculated in accordance with § 72.2 of this chapter and section 2.1.2.1 of appendix A to this part. Then, beginning with

the first unit operating hour after completion of the tests, the appropriate default NO<sub>x</sub> emission rate(s) obtained from the fuel-and-unit-specific testing shall be used for emissions reporting.

(b) *On-going qualification and disqualification.* (1) Once a low mass emissions 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 no more than the applicable number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section. The calculation methodology used for the annual demonstration shall be the methodology described in the certification application under paragraph (a)(2)(iii) of this section.

(2) If any low mass emissions unit fails to provide the required annual demonstration under paragraph (b)(1) of this section, such that the calculated cumulative emissions for the unit exceed the applicable number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section at the end of any calendar year or ozone season, then:

(i) The low mass emissions unit shall be disqualified from using the low mass emissions excepted methodology; and

(ii) The owner or operator of the low mass emissions unit shall install and certify monitoring systems that meet the requirements of §§ 75.11, 75.12, and 75.13, and shall report SO<sub>2</sub> (Acid Rain Program units, only), NO<sub>x</sub>, and CO<sub>2</sub> (Acid Rain Program units, only) emissions data and heat input data from such monitoring systems by December 31 of the calendar year following the year in which the unit exceeded the number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section; and

(iii) If the required monitoring systems have not been installed and certified by the applicable deadline in paragraph (b)(2)(ii) of this section, the owner or operator shall report the following values for each unit operating hour, beginning with the first operating hour after the deadline and continuing until the monitoring systems have been provisionally certified: the maximum potential hourly heat input for the unit, as defined in § 72.2 of this

chapter; the SO<sub>2</sub> emissions, in lb/hr, calculated using the applicable default SO<sub>2</sub> emission rate from paragraph (c)(1)(i) of this section and the maximum potential hourly unit heat input; the CO<sub>2</sub> emissions, in tons/hr, calculated using the applicable default CO<sub>2</sub> emission rate from paragraph (c)(1)(iii) of this section and the maximum potential hourly unit heat input; and the maximum potential NO<sub>x</sub> emission rate, as defined in § 72.2 of this chapter.

(3) If a low mass emissions 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 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 and certify SO<sub>2</sub> (Acid Rain Program units, only), NO<sub>x</sub>, and CO<sub>2</sub> (Acid Rain Program units, only) and flow (if necessary) monitoring systems that meet the requirements of §§ 75.11, 75.12, and 75.13 prior to a change to such fuel, and shall report emissions data from such monitoring systems beginning with the date and hour on which the new fuel is first combusted in the unit. If the required monitoring systems are not installed and certified prior to the fuel switch, the owner or operator shall report (as applicable) the maximum potential concentration of SO<sub>2</sub>, CO<sub>2</sub> and NO<sub>x</sub>, the maximum potential NO<sub>x</sub> emission rate, the maximum potential flowrate, the maximum potential hourly heat input and the maximum (or minimum, if appropriate) potential moisture percentage, from the date and hour of the fuel switch until the monitoring systems are certified or until probationary calibration error tests of the monitors are passed and the conditional data validation procedures in § 75.20(b)(3) begin to be used. All maximum and minimum potential values shall be specific to the new fuel and shall be determined in a manner consistent with section 2 of appendix A to this part and § 72.2 of this chapter. The owner or operator must notify the Administrator (or the permitting authority) in the case where a

unit switches fuels without previously having installed and certified a SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub> monitoring system meeting the requirements of §§ 75.11, 75.12, and 75.13.

(4) If a new or newly-affected unit initially qualifies to use the low mass emissions excepted methodology under this section and the owner or operator wants to use the 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 new unit subject to an Acid Rain emission limitation, and beginning with the date and hour of the commencement of operation, for a new unit subject to a NO<sub>x</sub> mass reduction program under subpart H of this part. For newly-affected units, the records in paragraph (c)(2) of this section shall be kept as follows:

(A) For Acid Rain Program units, begin keeping the records as of the first hour of commercial operation of the unit following the date on which the unit becomes affected; or

(B) For units subject to a NO<sub>x</sub> mass reduction program under subpart H of this part, begin keeping the records as of the first hour of unit operation following the date on which the unit becomes an affected unit;

(ii) Use these records to determine the cumulative heat input and SO<sub>2</sub>, CO<sub>2</sub>, and/or NO<sub>x</sub> mass emissions in order to continue to qualify as a low mass emissions unit; and

(iii) Determine the cumulative SO<sub>2</sub> and/or NO<sub>x</sub> 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 LM-1, LM-2, and LM-3 of this section or use the fuel-and-unit-specific NO<sub>x</sub> emission rate determined according to paragraph (c)(1)(iv) of this section. For Acid Rain Program LME units, the Administrator will not count SO<sub>2</sub> mass emissions calculated for the period between commencement of commercial operation and the certification deadline for

the unit under § 75.4 against SO<sub>2</sub> allowances to be held in the unit account.

(5) A low mass emissions unit that has been disqualified from using the low mass emissions excepted methodology may subsequently submit an application to qualify again to use the low mass emissions methodology under paragraph (a)(2) of this section only if, following the non-compliant year (or ozone season), at least three full years (or ozone seasons) of actual, monitored emissions data is obtained showing that the unit emitted no more than the applicable number of tons of SO<sub>2</sub> and/or NO<sub>x</sub> specified in paragraph (a)(1)(i)(A) of this section. Further, the designated representative or authorized account representative must certify in the application that the unit operation for the years or ozone seasons for which the emissions were monitored are representative of the projected future operation of the unit.

(c) *Low mass emissions excepted methodology, calculations, and values—(1) Determination of SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> emission rates.* (i) If the unit combusts only natural gas and/or fuel oil, use Table LM-1 of this section to determine the appropriate SO<sub>2</sub> emission rate for use in calculating hourly SO<sub>2</sub> mass emissions under this section (Acid Rain Program units, only). If the unit combusts gaseous fuel(s) other than natural gas, the owner or operator shall use the procedures in section 2.3.6 of appendix D to this part to document the total sulfur content of each such fuel and to determine the appropriate default SO<sub>2</sub> emission rate for each such fuel.

(ii) If the unit combusts only natural gas and/or fuel oil, use either the appropriate NO<sub>x</sub> emission factor from Table LM-2 of this section, or a fuel-and-unit-specific NO<sub>x</sub> emission rate determined according to paragraph (c)(1)(iv) of this section, to calculate hourly NO<sub>x</sub> mass emissions under this section. If the unit combusts a gaseous fuel other than pipeline natural gas or natural gas, the owner or operator shall determine a fuel-and-unit-specific NO<sub>x</sub> emission rate according to paragraph (c)(1)(iv) of this section.

(iii) If the unit combusts only natural gas and/or fuel oil, use Table LM-

3 of this section to determine the appropriate CO<sub>2</sub> emission rate for use in calculating hourly CO<sub>2</sub> mass emissions under this section (Acid Rain Program units, only). If the unit combusts a gaseous fuel other than pipeline natural gas or natural gas, the owner or operator shall determine a fuel-and-unit-specific CO<sub>2</sub> emission rate for the fuel, as follows:

(A) Derive a carbon-based F-factor for the fuel, using fuel sampling and analysis, as described in section 3.3.6 of appendix F to this part; and

(B) Use Equation G-4 in appendix G to this part to derive the default CO<sub>2</sub> emission rate. Rearrange the equation, solving it for the ratio of W<sub>CO2</sub>/H (this ratio will yield an emission rate, in units of tons/mmBtu). Then, substitute the carbon-based F-factor determined in paragraph (c)(1)(iii)(A) of this section into the rearranged equation to determine the default CO<sub>2</sub> emission rate for the unit.

(iv) In lieu of using the default NO<sub>x</sub> emission rate from Table LM-2 of this section, the owner or operator may, for each fuel combusted by a low mass emissions unit, determine a fuel-and-unit-specific NO<sub>x</sub> emission rate for the purpose of calculating NO<sub>x</sub> mass emissions under this section. This option may be used by any unit which qualifies to use the low mass emission accepted 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. The testing must be completed in a timely manner, such that the test results are

reported electronically no later than the end of the calendar year or ozone season in which the LME methodology is first used. If this option is chosen, the following procedures shall be used.

(A) Except as otherwise provided in paragraphs (c)(1)(iv)(F), (c)(1)(iv)(G), and (c)(1)(iv)(I) of this section, determine a fuel-and-unit-specific NO<sub>x</sub> emission rate by conducting a four load NO<sub>x</sub> 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.

(3) When using Method 20 for turbines do not correct the NO<sub>x</sub> concentration to 15% O<sub>2</sub>.

(4) If the testing is performed on an uncontrolled diffusion flame turbine, a correction to the observed average NO<sub>x</sub> concentration from each run of the Method 20 test must be applied using the following Equation LM-1a.

$$NO_{X_{corr}} = NO_{X_{obs}} \left( \frac{P_r}{P_o} \right)^{0.5} e^{19(H_o - H_r)} \left( \frac{T_r}{T_a} \right)^{1.53} \quad (\text{Eq. LM-1a})$$

Where:

NO<sub>X<sub>corr</sub></sub> = Corrected NO<sub>x</sub> concentration (ppm).  
 NO<sub>X<sub>obs</sub></sub> = Average measured NO<sub>x</sub> concentration for each run of the Method 20 test (ppm).

P<sub>r</sub> = Average annual atmospheric pressure (or average ozone season atmospheric pressure for a Subpart H unit that reports data

only during the ozone season) at the nearest weather station (e.g., a standardized NOAA weather station located at the airport) for the year (or ozone season) prior to the year of the test (mm Hg).

P<sub>o</sub> = Observed atmospheric pressure during the test run (mm Hg).

## Environmental Protection Agency

## § 75.19

$H_r$  = Average annual atmospheric humidity ratio (or average ozone season humidity ratio for a Subpart H unit that reports data only during the ozone season) at the nearest weather station, for the year (or ozone season) prior to the year of the test (g H<sub>2</sub>O/g air).

$H_o$  = Observed humidity ratio during the test run (g H<sub>2</sub>O/g air).

$T_r$  = Average annual atmospheric temperature (or average ozone season atmospheric temperature for a Subpart H unit that reports data only during the ozone season) at the nearest weather station, for the year (or ozone season) prior to the year of the test (° K).

$T_a$  = Observed atmospheric temperature during the test run (° K).

(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 LM-4 of this section.

(3) [Reserved]

(4) If the acceptance criteria in paragraph (c)(1)(iv)(B)(1) 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<sub>x</sub> 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 part 75 appendix E testing, determine the fuel-and-unit-specific NO<sub>x</sub> emission rate as follows:

(1) Except for LME units that use selective catalytic reduction (SCR) or selective non-catalytic reduction (SNCR) to control NO<sub>x</sub> emissions, the highest three-run average NO<sub>x</sub> emission rate obtained at any load in the appendix E test for a particular type of fuel shall be the fuel-and-unit-specific NO<sub>x</sub> emission rate, for that type of fuel.

(2) [Reserved]

(3) For a group of identical low mass emissions units (except for units that use SCR or SNCR to control NO<sub>x</sub> emissions), the fuel-and-unit-specific NO<sub>x</sub> emission rate for all units in the group, for a particular type of fuel, shall be the highest three-run average NO<sub>x</sub> emission rate obtained at any tested load from any unit tested in the group, for that type of fuel.

(4) Except as provided in paragraphs (c)(1)(iv)(C)(7) and (c)(1)(iv)(C)(8) of this section, for an individual low mass emissions unit which uses SCR or SNCR to control NO<sub>x</sub> emissions, the fuel-and-unit-specific NO<sub>x</sub> emission rate for each type of fuel combusted in the unit shall be the higher of:

(i) The highest three-run average emission rate from any load of the appendix E test for that type of fuel; or

(ii) 0.15 lb/mmBtu.

(5) [Reserved]

(6) Except as provided in paragraphs (c)(1)(iv)(C)(7) and (c)(1)(iv)(C)(8) of this section, for a group of identical low mass emissions units that are all equipped with SCR or SNCR to control NO<sub>x</sub> emissions, the fuel-and-unit-specific NO<sub>x</sub> emission rate for each unit in the group of units, for a particular type of fuel, shall be the higher of:

(i) The highest three-run average NO<sub>x</sub> emission rate at any load from all appendix E tests of all tested units in the group, for that type of fuel; or

(ii) 0.15 lb/mmBtu.

(7) Notwithstanding the requirements of paragraphs (c)(1)(iv)(C)(4) and (c)(1)(iv)(C)(6) of this section, for a unit (or group of identical units) equipped with SCR (or SNCR) and water (or steam) injection to control NO<sub>x</sub> emissions:

(i) If the appendix E testing is performed when the water (or steam) injection is in use *and* either upstream of the SCR or SNCR or during a time period when the SCR or SNCR is out of service; then

(ii) The highest three-run average emission rate from the appendix E testing may be used as the fuel-and-unit-specific NO<sub>x</sub> emission rate for the unit (or, if applicable, for each unit in the group), for each unit operating hour in which the water-to-fuel ratio is within the acceptable range established during the appendix E testing.

(8) Notwithstanding the requirements of paragraphs (c)(1)(iv)(C)(4) and (c)(1)(iv)(C)(6) of this section, for a unit (or group of identical units) equipped with SCR (or SNCR) *and* uses dry low-NO<sub>x</sub> technology to control NO<sub>x</sub> emissions:

(i) If the appendix E testing is performed during a time period when the dry low-NO<sub>x</sub> controls are in use, but the SCR or SNCR is out of service; then

(ii) The highest three-run average emission rate from the appendix E testing may be used as the fuel-and-unit-specific NO<sub>x</sub> emission rate for the unit (or, if applicable, for each unit in the group), for each unit operating hour in which the parametric data described in paragraph (c)(1)(iv)(H)(2) of this section demonstrate that the dry low-NO<sub>x</sub> controls are operating in the premixed or low-NO<sub>x</sub> mode.

(9) For an individual combustion turbine (or a group of identical turbines) that operate principally at base load (or at a set point temperature), but are capable of operating at a higher peak load (or higher internal operating temperature), the fuel-and-unit-specific NO<sub>x</sub> emission rate for the unit (or for each unit in the group) shall be as follows:

(i) If the testing is done only at base load, use the three-run average NO<sub>x</sub> emission rate for base load operating hours and 1.15 times that emission rate for peak load operating hours; or

(ii) If the testing is done at both base load and peak load, use the three-run average NO<sub>x</sub> emission rate from the base load testing for base load operating hours and the three-run average

NO<sub>x</sub> emission rate from the peak load testing for peak load operating hours.

(D) For each low mass emissions unit, or group of identical units for which the provisions of paragraph (c)(1)(iv) of this section are used to account for NO<sub>x</sub> emission rate, the owner or operator shall determine a new fuel-and-unit-specific NO<sub>x</sub> emission rate every five years (20 calendar quarters), 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<sub>x</sub> emission rate. If such changes occur, the fuel-and-unit-specific NO<sub>x</sub> emission rate(s) shall be re-determined according to paragraph (c)(1)(iv) of this section. Testing shall be done at the number of loads specified in paragraph (c)(1)(iv)(A) or (c)(1)(iv)(I) of this section, as applicable. If a low mass emissions unit belongs to a group of identical units and it is required to retest to determine a new fuel-and-unit-specific NO<sub>x</sub> 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<sub>x</sub> emission rate, any other unit in that group of identical units is not required to re-determine the fuel-and-unit-specific NO<sub>x</sub> 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<sub>x</sub> emission rates.

(E) Each low mass emissions unit or each low mass emissions unit in a group of identical units for which a fuel-and-unit-specific NO<sub>x</sub> 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<sub>x</sub> emission

rate(s). However, fuel-and-unit-specific NO<sub>x</sub> emission rates from historical testing may not be used longer than five years after the appendix E testing was conducted.

(G) Low mass emissions units for which at least 3 years of quality-assured NO<sub>x</sub> emission rate data from a NO<sub>x</sub>-diluent CEMS and corresponding fuel usage data are available may determine fuel-and-unit-specific NO<sub>x</sub> emission rates from the actual data using the following procedure. Separate the actual NO<sub>x</sub> 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<sub>x</sub> emission rate. Determine the 95th percentile NO<sub>x</sub> 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<sub>x</sub> emission rate, except that for a unit that uses SCR or SNCR for NO<sub>x</sub> emission control, 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<sub>x</sub> emission rate.

(H) For low mass emission units with add-on NO<sub>x</sub> emission controls, and for units that use dry low-NO<sub>x</sub> technology, 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<sub>x</sub> 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<sub>x</sub> controls are operating properly and to allow the determination of the correct NO<sub>x</sub> emission rate as required under paragraph (c)(1)(iv) of this section.

(I) 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 oper-

ations for a unit to use the fuel and unit specific NO<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> emission rate may not be used for that hour, and the appropriate default NO<sub>x</sub> emission rate from Table LM-2 shall be reported instead.

(2) For a low mass emissions unit that uses dry low-NO<sub>x</sub> premix technology to control NO<sub>x</sub> emissions, proper operation of the emission controls means that the unit is in the low-NO<sub>x</sub> or premixed combustion mode, and fired with natural gas. Evidence of operation in the low-NO<sub>x</sub> or premixed mode shall be provided by monitoring the appropriate turbine operating parameters. These parameters may include percentage of full load, turbine exhaust temperature, combustion reference temperature, compressor discharge pressure, fuel and air valve positions, dynamic pressure pulsations, internal guide vane (IGV) position, and flame detection or flame scanner condition. The acceptable values and ranges for all parameters monitored shall be specified in the monitoring plan for the unit, and the parameters shall be monitored during each subsequent operating hour. If one or more of these parameters is not within the acceptable range or at an acceptable value in a given operating hour, the fuel-and-unit-specific NO<sub>x</sub> emission rate may not be used for that hour, and the appropriate default NO<sub>x</sub> emission rate from Table LM-2 shall be reported instead. When the unit is fired with oil the appropriate default value from Table LM-2 shall be reported.

(3) For low mass emission units with other types of add-on NO<sub>x</sub> controls, appropriate parameters and the acceptable range of the parameters which indicate hourly proper operation of the NO<sub>x</sub> 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<sub>x</sub> emission rates may not be used in that hour, and the appropriate default NO<sub>x</sub> emission rate from Table LM-2 shall be reported instead.

(I) Notwithstanding the requirements in paragraph (c)(1)(iv)(A) of this section, the appendix E testing to determine (or re-determine) the fuel-specific, unit-specific NO<sub>x</sub> emission rate for a unit (or for each unit in a group of identical units) may be performed at fewer than four loads, under the following circumstances:

(1) Testing may be done at one load level if the data analysis described in paragraph (c)(1)(iv)(J) of this section is performed and the results show that the unit has operated (or all units in the group of identical units have operated) at a single load level for at least 85.0 percent of all operating hours in the previous three years (12 calendar quarters) prior to the calendar quarter of the appendix E testing. For combustion turbines that are operated to produce approximately constant output (in MW) but which use internal operating and exhaust temperatures and not the actual output in MW to control the operation of the turbine, the internal operating temperature set point may be used as a surrogate for load in demonstrating that the unit qualifies for single-load testing. If the data analysis shows that the unit does not qualify for single-load testing, testing may be done at two (or three) load levels if the unit has operated (or if all units in the group of identical units have operated) cumulatively at two (or three) load levels for at least 85.0 percent of all operating hours in the previous three years; or

(2) If a multiple-load appendix E test was initially performed for a unit (or group of identical units) to determine the fuel-and-unit specific NO<sub>x</sub> emission rate, then the periodic retests required under paragraph (c)(1)(iv)(D) of this section may be single-load tests, performed at the load level for which the highest average NO<sub>x</sub> emission rate was obtained in the initial test.

(J) To determine whether a unit qualifies for testing at fewer than four loads under paragraph (c)(1)(iv)(I) of this section, follow the procedures in paragraph (c)(1)(iv)(J)(1) or (c)(1)(iv)(J)(2) of this section, as applicable.

(1) Determine the range of operation of the unit, according to section 6.5.2.1 of appendix A to this part. Divide the range of operation into four equal load bands. For example, if the range of operation extends from 20 MW to 100 MW, the four equal load bands would be: band #1: from 20 MW to 40 MW; band #2: from 41 MW to 60 MW; band #3: from 61 MW to 80 MW; and band #4: from 81 to 100 MW. Then, perform a historical load analysis for all unit operating hours in the 12 calendar quarters preceding the quarter of the test. Alternatively, for sources that report emissions data only during the ozone season, the historical load analysis may be based on unit operation in the previous three ozone seasons, rather than unit operation in the previous 12 calendar quarters. Determine the percentage of the data that fall into each load band. For a unit that is not part of a group of identical units, if 85.0% or more of the data fall into one load band, single-load testing may be performed at any point within that load band. For a group of identical units, if each unit in the group meets the 85.0% criterion, then representative single-load testing within the load band may be performed. If the 85.0% criterion cannot be met to qualify for single-load testing but this criterion can be met cumulatively for two (or three) load levels, then testing may be performed at two (or three) loads instead of four.

(2) For a combustion turbine that uses exhaust temperature and not the actual output in megawatts to control the operation of the turbine (or for a group of identical units of this type), the owner or operator must document that the unit (or each unit in the group) has operated within ±10% of the set point temperature for 85.0% of the operating hours in the previous 12 calendar quarters to qualify for single-load testing. Alternatively, for sources that report emissions data only during the ozone season, the historical set

point temperature analysis may be based on unit operation in the previous three ozone seasons, rather than unit operation in the previous 12 calendar quarters. When the set point temperature is used rather than unit load to justify single-load testing, the designated representative shall certify in the monitoring plan for the unit that this is the normal manner of unit operation and shall document the setpoint temperature.

(2) *Records of operating time, fuel usage, unit output and NO<sub>x</sub> emission control operating status.* The owner or operator shall keep the following records on-site, for three years, in a form suitable for inspection, except that for unmanned facilities, the records may be kept at a central location, rather than on-site:

(i) For each low mass emissions 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 emissions 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 load (in megawatts or thousands of pounds of steam per hour), for the purpose of apportioning heat input to the individual unit operating hours.

(iv) For each low mass emissions unit with add-on NO<sub>x</sub> emission controls of any kind and each unit that uses dry low-NO<sub>x</sub> technology, 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<sub>x</sub> controls.

(3) *Heat input.* Hourly, quarterly and annual heat input for a low mass emissions 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, HI<sub>hr</sub>, the hourly heat input (mmBtu) to a low mass emissions 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<sub>qtr</sub>, in mmBtu, shall be determined using Equation LM-1:

$$HI_{qtr} = \sum_{1}^{n} HI_{hr} \quad (\text{Eq. LM-1})$$

Where:

$n$  = Number of unit operating hours in the quarter.

$HI_{hr}$  = 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.

(D) For a unit subject to the provisions of subpart H of this part, which is not required to report emission data on

§ 75.19

40 CFR Ch. I (7-1-07 Edition)

a year-round basis and elects to report only during the ozone season, the quarterly heat input for the second calendar quarter of the year shall, for compliance purposes, include only the heat input for the months of May and June, and the cumulative ozone season heat input shall be the sum of the heat input values for May, June and the third calendar quarter of the year.

(ii) *Long term fuel flow heat input method.* The owner or operator may, for the purpose of demonstrating that a low mass emissions 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 emissions 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 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) Except as provided in paragraph (c)(3)(ii)(C)(3) of this section, 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, for a new or newly-affected unit, if there are no sample results from the previous year, use the highest GCV from the samples taken in the current year); or

(2) Using the appropriate default gross calorific value listed in Table LM-5 of this section.

(3) For gaseous fuels other than pipeline natural gas or natural gas, the GCV sampling frequency shall be daily unless the results of a demonstration under section 2.3.5 of appendix D to this part show that the fuel has a low GCV variability and qualifies for monthly sampling. If daily GCV sampling is required, use the highest GCV obtained in the calendar quarter as  $GCV_{max}$  in Equation LM-3, of this section.

(D) If Eq. LM-2 is used for heat input determination, the specific gravity of each type of fuel oil combusted during the quarter 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

**Environmental Protection Agency**

**§ 75.19**

previous calendar year (or, for a new or newly-affected unit, if there are no sample results from the previous year, use the highest specific gravity from the samples taken in the current year); or

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

(E) The quarterly heat input from each type of fuel combusted during the quarter by a low mass emissions unit or group of low mass emissions units sharing a common fuel supply shall be

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

determined using either Equation LM-2 or Equation LM-3 for oil (as applicable to the method used to quantify oil usage) and Equation LM-3 for gaseous fuels. For a unit subject to the provisions of subpart H of this part, which is not required to report emission data on a year-round basis and elects to report only during the ozone season, the quarterly heat input for the second calendar quarter of the year shall include only the heat input for the months of May and June.

Eq. LM-2 (for fuel oil)

Where:

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

$M_{\text{qtr}}$  = Mass of oil consumed during the 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).

$GCV_{\text{max}}$  = 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.

$$HI_{\text{fuel-qtr}} = Q_{\text{qtr}} \frac{GCV_{\text{max}}}{10^6} \quad \text{Eq. LM-3 (for gaseous fuel or fuel oil)}$$

Where:

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

$Q_{\text{qtr}}$  = Volume of gaseous fuel or fuel oil combusted during the quarter, as determined under paragraph (c)(3)(ii)(B) of this section standard cubic feet (scf) or (gal), as applicable.

$GCV_{\text{max}}$  = Gross calorific value of the gaseous fuel or fuel oil combusted during the quarter, as determined under paragraph (c)(3)(ii)(C) of this section (Btu/scf) or (Btu/gal), as applicable.

$10^6$  = Conversion of Btu to mmBtu.

(F) Use Eq. LM-4 to calculate  $HI_{\text{qtr-total}}$ , the quarterly heat input (mmBtu) for all fuels.  $HI_{\text{qtr-total}}$  shall be the sum of the  $HI_{\text{fuel-qtr}}$  values determined using Equations LM-2 and LM-3.

$$HI_{\text{qtr-total}} = \sum_{\text{all-fuels}} HI_{\text{fuel-qtr}} \quad (\text{Eq. LM-4})$$

(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. For a unit subject to the provisions of subpart H of this part, which is not required to report emission data on a year-round basis and elects to report only during the ozone season, the cumulative ozone season heat input shall be the sum of the quarterly heat input values for the second and third calendar quarters of the year.

(H) For each low mass emissions unit or each low mass emissions unit in a group of identical units, the owner or operator shall determine the cumulative quarterly unit load in megawatts or thousands of pounds of steam per hour. The quarterly cumulative unit load shall be the sum of the hourly unit load values recorded under paragraph (c)(2) of this section and shall be determined using Equations LM-5 or LM-6. For a unit subject to the provisions of subpart H of this part,

§ 75.19

40 CFR Ch. I (7-1-07 Edition)

which is not required to report emission data on a year-round basis and elects to report only during the ozone season, the quarterly cumulative load

for the second calendar quarter of the year shall include only the unit loads for the months of May and June.

$$MW_{\text{qtr}} = \sum_{\text{all-hours}} MW \quad \text{Eq. LM-5 (for MW output)}$$

$$ST_{\text{qtr}} = \sum_{\text{all-hours}} ST \quad \text{Eq. LM-6 (for steam output)}$$

Where:

$MW_{\text{qtr}}$  = Sum of all unit operating loads recorded during the quarter by the unit (MW).

$ST_{\text{fuel-qtr}}$  = Sum of all hourly steam loads recorded during the quarter by the unit (klb of steam/hr).

$MW$  = Unit operating load for a particular unit operating hour (MW).

$ST$  = Unit steam load for a particular unit operating hour (klb of steam/hr).

(I) For a low mass emissions 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,  $HI_{\text{qtr-total}}$  to each hour of unit operation using either Equation LM-7 or LM-8:

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

(Eq LM-7 for MW output)

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

(Eq LM-8 for steam output)

Where:

$HI_{\text{hr}}$  = Hourly heat input to the unit (mmBtu).

$MW_{\text{hr}}$  = Hourly operating load for the unit (MW).

$ST_{\text{hr}}$  = Hourly steam load for the unit (klb of steam/hr).

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

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

(Eq LM-7a for MW output)

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

(Eq LM-8a for steam output)

Where:

$HI_{\text{hr}}$  = Hourly heat input to the individual unit (mmBtu).

$MW_{\text{hr}}$  = Hourly operating load for the individual unit (MW).

$ST_{\text{hr}}$  = Hourly steam load for the individual unit (klb of steam/hr).

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

$\Sigma ST_{\text{qtr}}$  = Sum of the quarterly steam *all-units* loads (from Eq. LM-6) for all units in the group (klb of steam/hr)

(4) *Calculation of SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub> mass emissions.* The owner or operator shall, for the purpose of demonstrating that a low mass emissions unit meets the requirements of this section, calculate SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub> mass emissions in accordance with the following.

(i) *SO<sub>2</sub> mass emissions.* (A) The hourly SO<sub>2</sub> mass emissions (lbs) for a low mass emissions unit (Acid Rain Program units, only) shall be determined using Equation LM-9 and the appropriate fuel-based SO<sub>2</sub> emission factor from Table LM-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

**Environmental Protection Agency**

**§ 75.19**

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 SO<sub>2</sub> mass emissions (lbs.)

$EF_{SO_2}$  = Either the SO<sub>2</sub> emission factor from Table LM-1 of this section or the fuel-and-unit-specific SO<sub>2</sub> emission rate from paragraph (c)(1)(i) 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 SO<sub>2</sub> mass emissions (tons) for the low mass emissions unit shall be the sum of all the hourly SO<sub>2</sub> 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 SO<sub>2</sub> mass emissions (tons) for the low mass emissions unit shall be the sum of the quarterly SO<sub>2</sub> 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<sub>x</sub> mass emissions.* (A) The hourly NO<sub>x</sub> mass emissions for the low mass emissions 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<sub>x</sub> emission controls of any kind and for which a fuel-and-unit-specific NO<sub>x</sub> 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<sub>x</sub> emission controls are operating properly, use the NO<sub>x</sub> emission rate from Table LM-2 of this section for the fuel combusted during the hour with the highest NO<sub>x</sub> emission rate.

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

Where:

$W_{NOX}$  = Hourly NO<sub>x</sub> mass emissions (lbs).

$EF_{NOX}$  = Either the NO<sub>x</sub> emission factor from Table LM-2 of this section or the fuel-

unit-specific NO<sub>x</sub> 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<sub>x</sub> mass emissions (tons) for the low mass emissions unit shall be the sum of all of the hourly NO<sub>x</sub> 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<sub>x</sub> mass emissions (tons) for the low mass emissions unit shall be the sum of the quarterly NO<sub>x</sub> mass emissions, as determined under paragraph (c)(4)(ii)(B) of this section, for all of the calendar quarters in the year to date. For a unit subject to the provisions of subpart H of this part, which is not required to report emission data on a year-round basis and elects to report only during the ozone season, the ozone season NO<sub>x</sub> mass emissions for the unit shall be the sum of the quarterly NO<sub>x</sub> mass emissions, as determined under paragraph (c)(4)(ii)(B) of this section, for the second and third calendar quarters of the year, and the second quarter report shall include emissions data only for May and June.

(iii) *CO<sub>2</sub> Mass Emissions.* (A) The hourly CO<sub>2</sub> mass emissions (tons) for the affected low mass emissions unit (Acid Rain Program units, only) shall be determined using Equation LM-11 and the appropriate fuel-based CO<sub>2</sub> emission factor from Table LM-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:

$W_{CO_2}$  = Hourly CO<sub>2</sub> mass emissions (tons).

$EF_{CO_2}$  = Either the fuel-based CO<sub>2</sub> emission factor from Table LM-3 of this section or the fuel-and-unit-specific CO<sub>2</sub> emission rate from paragraph (c)(1)(iii) of this section (tons/mmBtu).

**§ 75.19**

**40 CFR Ch. I (7–1–07 Edition)**

$HI_{hr}$  = 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 CO<sub>2</sub> mass emissions (tons) for the low mass emissions unit shall be the sum of all of the hourly CO<sub>2</sub> mass emissions in the quarter, as determined under paragraph (c)(4)(iii)(A) of this section.

(C) The year-to-date cumulative CO<sub>2</sub> mass emissions (tons) for the low mass emissions unit shall be the sum of all of the quarterly CO<sub>2</sub> 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 emissions units or groups of units which use the long term fuel flow methodology under paragraph (c)(3)(ii) of this section and which use one of the methods specified in paragraph (c)(3)(ii)(B)(2) of this section 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 emissions unit for which fuel-and-unit-specific NO<sub>x</sub> 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<sub>x</sub> emission rate tests conducted according to appendix E to this part. If CEMS data are used to determine the fuel-and-unit-specific NO<sub>x</sub> 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<sub>x</sub> emission rate. The appendix E test records and historical CEMS data records shall be kept until the fuel and unit specific NO<sub>x</sub> emission rates are re-determined.

(5) For each low mass emissions unit for which fuel-and-unit-specific NO<sub>x</sub> emission rates are determined in accordance with paragraph (c)(1)(iv) of this section and which has add-on NO<sub>x</sub> emission controls of any kind or uses dry low-NO<sub>x</sub> technology, 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<sub>x</sub> 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<sub>x</sub> controls.

(6) For unmanned facilities, the records required by paragraphs (e)(1), (e)(2) and (e)(4) of this section may be kept at a central location, rather than at the facility.

**Environmental Protection Agency**

**§ 75.20**

**TABLE LM-1—SO<sub>2</sub> EMISSION FACTORS (LB/MMBTU) FOR VARIOUS FUEL TYPES**

Fuel type	SO <sub>2</sub> emission factors
Pipeline Natural Gas .....	0.0006 lb/mmBtu.
Other Natural Gas .....	0.06 lb/mmBtu.
Residual Oil .....	2.1 lb/mmBtu.
Diesel Fuel .....	0.5 lb/mmBtu.

**TABLE LM-2—NO<sub>x</sub> EMISSION RATES (LB/MMBTU) FOR VARIOUS BOILER/FUEL TYPES**

Unit type	Fuel type	NO <sub>x</sub> emission rate
Turbine .....	Gas .....	0.7
Turbine .....	Oil .....	1.2
Boiler .....	Gas .....	1.5
Boiler .....	Oil .....	2

**TABLE LM-3—CO<sub>2</sub> EMISSION FACTORS (TON/MMBTU) FOR GAS AND OIL**

Fuel type	CO <sub>2</sub> emission factors
Pipeline (or other) 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; where 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.
Other 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; 67 FR 40424, 40425, June 12, 2002; 67 FR 53504, Aug. 16, 2002]

**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 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, each continuous emission or opacity monitoring system 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 recertification) application under paragraph (a)(4) of this section. Notwithstanding this paragraph, no