REVISED EDR VERSION 2.2
REPORTING INSTRUCTIONS

Clean Air Markets Division
U.S. EPA
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EDR VERSION 2.2
REPORTING INSTRUCTIONS

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EDR VERSION 2.2
REPORTING INSTRUCTIONS

I. INTRODUCTION

The purpose of these instructions is to provide the necessary information for owners and operators to meet reporting requirements for the Acid Rain Program (ARP) and for the NO_x Budget Trading Program, established under the 1998 NO_x SIP Call (40 CFR Part 96) and EPA's Section 126 action (40 CFR Part 97). Units that elect or need to use the options provided by the June 12, 2002 revisions to Part 75 should use these instructions for all EDR submissions including: 1) monitoring plans, 2) certification applications, and 3) quarterly reports. A separate companion document, ***"Electronic Data Reporting–Acid Rain Program/Subpart H---Version 2.2" (EDR v2.2)***, provides information on the electronic data reporting file formats and record structures and should be consulted in conjunction with instructions for specific record types. In this document, the acronym "ARP" is used to identify requirements for Acid Rain units and the term "Subpart H" is used for units affected by State or federal regulations implementing NO_x mass emission monitoring consistent with 40 CFR Part 75, Subpart H.

These instructions explain the specific reporting requirements set forth in the applicable regulations. Owners or operators of units subject to the Acid Rain Program should use these instructions in conjunction with 40 CFR Part 75. Owners or operators of units subject to Subpart H monitoring and reporting should also use these instructions in conjunction with Part 75.

Policy on Ongoing Use of EDR v2.1

If you do not elect to use any of the options allowed in the June 12, 2002 revisions to Part 75 and your unit is not affected by any required rule change which is supported only by EDR v2.2, you may continue to report emissions data, monitoring plans and certification test data in EDR v2.1 formats. EPA is providing separate guidance for when the use of EDR v2.2 is required or allowed for each category of rule changes (see "Implementation Guidelines for the June 12, 2002 Revisions to Part 75").

Organization of the Instructions

Section II provides general information on EDR v2.2. This general information is relevant to all quarterly reports submitted using EDR v2.2 format, regardless of the program for which the data are being reported or applicable reporting requirements.

Section III provides specific information on each record type in numerical record type order. Record types or fields within record types that are applicable to one or more specific programs are clearly indicated.

Appendix A is a guideline for determining which record types to include in an EDR submission.

II. GENERAL INSTRUCTIONS

A. EDR Record Structures

The EDR v2.2 companion document provides the record structures which define the order, length, and placement of information within the quarterly report or "file." All quarterly report files must be in ASCII text format. The EDR provides the Record Type, Program, Type Code, Start Column, Data Element Description, Units, Range, Length, Fortran (FTN) Format, and location on the hard copy form for each data element in the electronic report. A detailed explanation of the information follows:

Record Type describes the type of information contained in the record, as required by the appropriate section of the rule.

Program identifies the applicable reporting requirements (ARP and/or Subpart H) to which the record applies.

Type Code is the three digit code for identifying the Record Type.

Start Column indicates the column in which the data element begins.

Field Notes provides specific information such as whether the Record Type is optional or should only be used for certain types of units.

Units indicates the unit of measure in which the value is reported (e.g., ppm for NO_x concentration data). Where applicable, the units column specifies how to format the data (e.g., YYMMDD or YYYYMMDD).

Range provides information, where applicable, on the acceptable lower and upper values or acceptable codes for the data element.

Length indicates the number of columns designated for the data element.

Format specifies the type of data and Fortran (FTN) format that should be used for the data element. There are three data types: "I" for integer, "A" for alphanumeric, and "F" for fixed decimal point. A format of "I3" indicates that the data will be an integer of up to three digits. A data element with an "I" format should never contain a decimal point, and all data elements requiring an "I" format must be right-justified. Right-justification ensures that leading zeros are not necessary; instead, these spaces should be left blank. "A3" indicates an alphanumeric data element containing up to three characters, which may be either alphabetic or numeric and is left-justified. "F5.1" indicates a numeric field, five columns wide, with one numeral to the right of the decimal point. A decimal point (.) must be included in all data elements requiring an "F" format (fixed decimal point format). In addition, all data elements requiring an "F" format must be decimally-justified. In other words, the decimal point must be placed to allow the correct number of columns to the right of the decimal point. Decimal-justification ensures that leading zeros are not necessary; instead, these spaces should be left blank.

Total Record Length indicates the total number of assigned spaces (columns) for all required data elements in a specific record type (e.g., for NO_x emission rate from CEMS, each record will

appear as a single line, 54 columns in length). See Illustration 1 below for an example record structure.

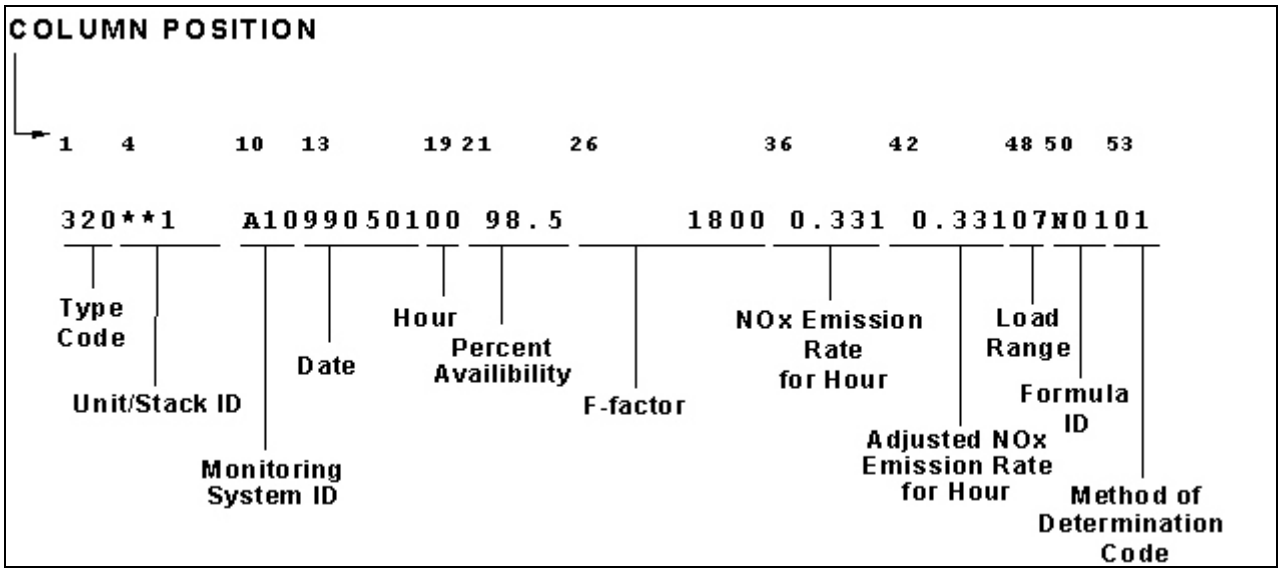
Each record (line) must begin with the three digit "Record Type Code," followed by the associated data elements for the record type. The Record Type Code is a number that EPA has assigned to label a category of information to be reported. The Record Structure for each record type provides the location of each data element within the record. The example in Illustration 1 shows the record structure for RT 320, "NO_x Emission Rate Data."

Illustration 1
EXAMPLE RECORD STRUCTURE FOR RECORD TYPE 320

UNIT DATA								
RECORD TYPE	TYPE CODE	START COL	DATA ELEMENT DESCRIPTION	FIELD NOTES	UNITS	RANGE	LENGTH	FORMAT (FTN)
NOx EMISSIONS DATA								
NO_x Emission Rate Data	320	1	Record type code				3	I3
		4	Unit/Stack ID				6	A6
		10	Monitoring system ID				3	A3
		13	Date		YYMMDD		6	I6
		19	Hour		HH	00-23	2	I2
		21	Percent monitor data availability for NO_x emission rate calculations		%	0.0-100.0	5	F5.1
		26	F-factor converting NO_x concentrations to emission rates				10	F10.1
		36	Average NO_x emission rate for the hour		lb/mmBtu		6	F6.3
		42	Adjusted average NO_x emission rate for the hour		lb/mmBtu		6	F6.3
		48	Load range or operational bin number			01-10	2	I2
		50	Formula ID from monitoring plan for hourly NO_x emission rate				3	A3
		53	Method of determination code[5]			01-12, 14,21, 22, 23,25, 54,55	2	I2
					Total Record Length		54	

Illustration 2, below, presents an example line of hourly NO_x emission rate data (RT 320). The top line of numbers indicates the starting column position for each data element. The second line of numbers represents one hourly record of NO_x emission rate data as the data would appear in an electronic file.

Illustration 2
EXAMPLE DATA FOR RECORD TYPE 320



B. **Quarterly Emissions File Organization and Ordering**

(1) **File Content**

For quarterly report data submitted in EDR format, individual units associated with single stacks must be submitted in separate files, (e.g., for Plant A, one file would be submitted for Unit 1 and a separate file would be submitted for Unit 2). However, if units exhaust through a common stack and emissions are monitored at the common stack (or fuel flow is metered at a common pipe), the data for the units must be included in one file with all the data relevant to the common stack (or common pipe). For all complex configurations (for example, three units which each exhaust through two or more common stacks) submit all unit and stack information in a single quarterly report. In no situation is it acceptable to submit two separate files containing operating and heat input data for the same unit in the same quarter.

Appendix A of these instructions specifies which record types must be reported in each of the three basic types of EDR submittals (i.e., monitoring plan submittals, certification or recertification applications, and quarterly emissions reports). Illustration 3 below shows an example file summary for a quarterly emissions report.

(2) **Record Order**

RT 100 must appear first in any electronic submission including quarterly emissions reports, certification application data, and electronic monitoring plan files. Following RT 100, report RTs 101 (optional) and RT 102 for the facility. Following these records, order all records in the quarterly report file first by unit/stack/pipe ID, second by record type code, third by date and time, and fourth by component/system ID.

(3) Stack or Pipe Record Orders

Stack and pipe IDs are the first IDs within the quarterly report file. Stack and pipe IDs must be in alphanumeric order. The unit IDs must follow the stack and pipe IDs and also need to be in alphanumeric order. For stacks and pipes, this means that CS or CP comes before MS or MP in the file. For units, 1A comes before 1B and 1 comes before 2.

(4) Record Order for Quality Assurance Data

Submit all daily quality assurance data (for example, RTs 230 and 231) in record type order with the unit or stack emissions data. Order these records by date and time, then by component and system ID. For records that may have more than one component/system record for the same unit and hour (for example, daily calibration error data in RT 230), the records should be in alphanumeric order by component/system ID. If there is more than one daily calibration record for the hour for a component/system, order these records by the time the daily calibration was completed. This record order is required; do not use alternative record orders.

For ongoing quality assurance data (RTs 600+) submit all records for a unit, stack or pipe with the unit, stack or pipe emissions data in record type order. Within each record type, order the records using either the standard record order (unit, record type, date, time, component/system, span) or using the record order allowed for certification disks (unit, record type, component/system, span, date, time).

Illustration 3
EXAMPLE SUMMARY OF QUARTERLY REPORT CONTENT FOR TWO ACID RAIN CEMS UNITS EMITTING THROUGH COMMON STACK

FACILITY INFORMATION

Type 100 Record	*(Facility and report data)*
Type 102 Record	*(Facility information)*

COMMON STACK FOR UNITS 1 & 2

Type 200 Records	*(SO_2 concentration data: by date and hour)*
Type 201 Records	*(NO_x concentration data: by date and hour)*
Type 202 Records	*(CO_2 concentration data: by date and hour)*
Type 210 Records	*(Diluent data: by date and hour)*
Type 220 Records	*(Volumetric flow data: by date and hour)*
Type 230 Records	*(Daily calibration test data: by date and hour)*
Type 231 Records	*(Flow interference data: by date and hour)*
Type 300 Records	*(Stack operating parameters: by date and hour)*
Type 301 Record	*(Quarterly and cumulative emission data)*
Type 310 Records	*(SO_2 mass emissions data: by date and hour)*
Type 320 Records	*(NO_x emission rate data: by date and hour)*
Type 330 Records	*(CO_2 mass emissions data: by date and hour)*
Type 503 Records	*(For Unit 1 (Common stack definition table))* *(For Unit 2 (Common stack definition table))*
Type 510 Records	*(Monitoring systems/analytical components table)*
Type 520 Records	*(Formula table)*
Type 530 Records	*(Span table)*
Type 535 Records	*(Stack operating load data)*
Type 536 Record	*(Range of Operation, normal load, and load usage)*
Type 556 Records	*(Monitoring system recertification events)*
Type 601 Records	*(Quarterly linearity test data)*
Type 602 Records	*(Quarterly linearity check results)*
Type 603 Records	*(Flow quarterly leak check results)*
Type 605 Records	*(Reference data for flow-to-load ratio or GHR evaluation)*
Type 606 Records	*(Quarterly flow-to-load or GHR check)*
Type 610 Records	*(RATA and bias test data)*
Type 611 Records	*(RATA and bias test results)*
Type 623 Records	*(On-line/Off-line calibration demonstration)*
Type 699 Record	*(QA test extension claim based on grace period)*

UNIT 1 (MONITORED AT COMMON STACK)

Type 300 Records	*(Unit operating parameters: by date and hour)*
Type 301 Record	*(Quarterly and cumulative emission data)*
Type 504 Record	*(Unit information)*
Type 505 Record	*(Unit/program information)*
Type 585 Records	*(Monitoring methodology information)*
Type 586 Record	*(Control equipment information)*
Type 587 Record	*(Unit fuel type)*

UNIT 2 (MONITORED AT COMMON STACK)

Type 300 Records	*(Unit operating parameters: by date and hour)*
Type 301 Record	*(Quarterly and cumulative emission data)*
Type 504 Record	*(Unit definition table)*
Type 505 Record	*(Unit/program information)*
Type 585 Records	*(Monitoring methodology information)*
Type 586 Record	*(Control equipment information)*
Type 587 Record	*(Unit fuel type)*

CERTIFICATIONS

Type 900 Records	*(Certification electronic signature)*
Type 901 Records	*(Certification statement)*
Type 999 Record	*(Contact person information)*

C. General EDR Instructions

(1) Definition of Reporting Period

Throughout these instructions, the terms "quarterly report" and "quarterly emissions file" are used to describe the required data submittals. In other places, the term "reporting period" is used. The relationship between the quarterly report and the reporting period is as follows:

- For sources that are required to report emissions data on a year-round basis, there are four reporting periods in each calendar year, corresponding to the four quarters of the year. A quarterly report submittal is required for each of these reporting periods.

- For sources that report data only during the ozone season, there are only two reporting periods in each calendar year (i.e., the second quarter (May and June only) and the third quarter). Quarterly report submittals are required only for these two reporting periods.

(2) Identification Numbers

To ensure accurate processing by the Emissions Tracking System (ETS), the system that processes the quarterly report files, each record in the quarterly report must contain consistent and accurate ID numbers.

(a) Facility/ORISPL Number

Utility units and other units that generate energy for sale must use the plant code (otherwise known as an ORISPL code) which is an integer data element assigned by the Department of Energy (DOE) to identify the facility or plant. You can also obtain the plant/facility code from the Energy Information Administration, Department of Energy (DOE) from Form EIA-860, "Annual Electric Generation Report," or from Form EIA-867, "Annual Nonutility Power Producer Report."

If you do not have an ORISPL code for a plant/facility, contact EPA's Clean Air Markets Division to determine what code you should use.

The ORISPL code is six digits in length. For purposes of reporting in the EDR, the ORISPL code is right-justified. Note that unlike other integer ("I" format) data elements, the ORISPL code is padded with leading zeroes. For example, ORISPL code 786 would appear in RT 100 as 000786.

(b) Unit IDs

Each unit at a facility must have a unique unit ID. The unit ID is an alphanumeric data element that is from one to six characters in length.

The unit ID must be included in the quarterly report exactly as it appears in the unit ID column in the National Allowance Database (NADB) (for Acid Rain units) or in the applicable federal or State NO_x mass allowance allocation list or data file (for Subpart H units). Include leading zeros or asterisks (*) exactly as they appear in these files, except as noted below.

If a unit is not listed in NADB or the allowance allocation list, or if the ID on the allowance list differs from the ID commonly used by the company, you may submit a unit ID of your choice in the CAMD Business System (CBS). CBS is a web-based application that enables authorized users to submit data to CAMD on-line though the Clean Air Markets web site. You may also submit a unit ID of your choice in the Certificate of Representation (for Acid Rain units) or the Account Certificate of Representation form (for Subpart H units). In general, the unit ID should conform to the nomenclature used by plant personnel and/or agency personnel to identify a unit. It should also be consistent with the unit ID used on all other program submissions including submissions related to allowances or authorized representatives. For example, use Unit ID "1" for Boiler #1 and "CT1" for combustion turbine #1.

In all cases, use the same unit ID provided in the CAMD Business System or the Certificate of Representation or Account Certificate of Representation form when submitting the monitoring plan and the quarterly report file.

When used to identify data in a quarterly report file, the unit ID must be left-justified (i.e., there must not be any leading blank spaces and no spaces in the unit ID), using blanks on the right if necessary to fill the remaining spaces.

For example,

Unit ID "2" would be formatted as:

2■■■■■ (for illustration "■" = blank space)

(Note: Do not report unit "2" as unit "02," "002," or "000002." These are considered to be different, unique IDs.)

Unit ID "003A" would be formatted:

003A■■ (for illustration "■" = blank space)

(c) **Stack and Pipe IDs**

For monitored common or multiple stack (or pipe) configurations, each stack/pipe ID used for data reporting must correspond to a stack or pipe ID identified in the monitoring plan for the facility. When you assign a stack or pipe ID to a common or multiple stack or pipe, you must use one of the following prefixes to define the type of stack or pipe header:

CS -- For monitored common stacks (stacks serving more than one unit).

MS -- For multiple stacks (i.e., two or more monitored stacks uniquely associated with a single unit).

Except as noted below, whenever a unit exhausts through more than one monitored stack, if all stacks are uniquely associated with the unit, they must be identified as multiple stacks. Also, if any of the monitored stacks serves one or more other units, the stack must be identified as a common stack. For example, if a scrubbed unit (Unit 1) emits to a monitored common stack (CS012) which it

shares with Unit 2 for most operating hours, but discharges through a dedicated, monitored unit-only stack during scrubber bypass conditions, you must identify the bypass stack with a "MS" prefix (e.g., "MS1").

The multiple stack designation must also be used for a unit when multiple ducts (breechings) are individually monitored in lieu of monitoring at the stack. Each duct must be assigned an "MS" prefix.

(Note the following exceptions to the use of multiple stack ("MS") prefixes:

- For a unit that has add-on SO_2 or NO_x emission controls and which: (a) has both a main stack and a bypass stack; and (b) uses CEMS to monitor at the main stack; and (c) does not have monitors on the bypass stack; and (d) reports the maximum potential concentration or emission rate during bypass hours, you should report all data at the unit level instead of using "MS" prefixes.

- If, for a particular unit, flow rate monitors are installed on multiple breechings, you may report the flow rate data at the unit level in lieu of using "MS" prefixes, provided that you: (a) define the duct-mounted flow monitors as components of a single flow monitoring system; (b) include a flow rate summation formula in RT 520; and (c) collect reference method data in the breechings simultaneously during all required flow RATAs, to ensure representativeness.

- For a combustion turbine that: (a) uses the provisions of Appendix D to Part 75; and (b) has a main stack and a bypass stack; and (c) has a NO_x monitor on the main stack, but not on the bypass stack; and (d) reports the maximum potential NO_x emission rate during bypass hours, you should report all emissions and heat input data at the unit level instead of using "MS" prefixes.

- For additional guidance on "MS" prefix exceptions, see Part 75 Policy Questions 17.6 and 17.7.

CP -- For common pipes (oil or gas fuel supplies serving more than one unit), including pipes and oil tanks serving a group of low mass emissions (LME) units.

MP -- Use this prefix only for an Appendix E combined cycle unit comprised of a combustion turbine and duct burner, if fuel flow rate is separately metered and reported at the turbine and duct burner locations.

The pipe or stack ID is an alphanumeric ID of up to six characters; the four characters to the right of the required prefix may be either numbers or letters. EPA recommends the use of commonly used stack identifiers (i.e., CS1 for common stack 1). Once you have assigned a stack ID, it should not be changed.

As an alphanumeric field, the stack or pipe ID should always be left-justified for EDR reporting purposes. See the examples for unit IDs provided above.

(3) Data Entry and Editing of Quarterly Reports

This section clarifies which data must be automatically recorded and reported by the DAHS and which data may be manually edited or entered (or recorded in a computer system outside of the DAHS and merged in the final quarterly report file). If data needs to be manually entered or edited in a quarterly report for a situation that is not addressed below, contact EPA's Clean Air Markets Division. EPA will determine whether the request is allowable under Part 75. If the situation is allowable under Part 75, EPA still may require documentation indicating the use of manually entered or edited data. If the situation is not allowable under Part 75, you may petition EPA under § 75.66 for authorization to manually enter or edit data submitted in the quarterly report.

(a) Emissions Data From CEMS

1. Data Recorded Automatically

Except as noted below, all emissions values recorded from a CEMS must be automatically recorded by the DAHS.

2. Data Entered or Edited Manually

In some cases, you may determine, using sound engineering judgment, that a measured emissions value (or values) or other parameter is clearly in error and should be invalidated. When this situation occurs, determine whether correction of all the measured value(s) believed to be in error results in a significant change in the reported SO_2, NO_x, or CO_2 emissions or heat input. Follow the guidance in EPA's "Quarterly Report Review Process for Determining Final Annual Emissions Data" to make this determination. If the effect of replacing the erroneous values is not significant, you may make the replacements and do not have to notify EPA. However, if replacement of the erroneous data values has a significant effect, contact EPA's Clean Air Markets Division. If the Agency agrees that the data are clearly in error, document the error (in RTs 910 or 920 or as part of the quarterly report submittal letter) and replace the erroneous data with quality-assured measured data from a certified backup monitoring system, a substitute value according to missing data procedures, or reference method backup data. If you replace measured data with substitute data, the replacement data should be automatically calculated by a certified component of the DAHS. If you replace measured data with data from a certified backup monitoring system, the replacement data should be automatically recorded by the DAHS.

During startup and shutdown or when the efficiency of an emission control device approaches 100%, emissions may be very low and a CEM may occasionally record negative emissions values. It is <u>never</u> acceptable to report negative emission values in your quarterly data file. For negative emissions or moisture values, EPA will allow either automatic replacement by the DAHS or manual replacement of the negative value. In most cases, it is acceptable to replace the negative emissions value with zero. When you replace a negative value with zero, report an MODC of "21" for the hour in RT 200, 201, 212, or 320. MODC "21" may either be automatically replaced by the DAHS or manually entered. However, if negative or zero CO_2 concentrations are obtained during startup or shutdown, you should replace these readings with the diluent cap value of 5.0% CO_2 (for boilers) or 1.0% CO_2 (for combustion turbines), in order to avoid receiving error messages in your electronic feedback report. Reported CO_2 concentrations

of zero can result in heat input rates of zero being reported for periods of unit operation. This will generate an error message in the feedback report. You must also use the diluent cap values in the missing data lookback period. It is not necessary to contact EPA when negative emissions values are replaced in the above manner. [Note: A CEMS may also record negative values during daily calibrations or QA tests (when a zero-level gas or signal is used); negative readings during these tests are valid and should not be replaced].

As required under § 75.11(e)(3)(iii), if you use an SO_2 CEMS to account for SO_2 emissions during hours in which very low sulfur fuel (as defined in § 72.2) is combusted, for any bias-adjusted hourly average SO_2 concentration of less than 2.0 ppm (including negative values) recorded by the CEMS, adjust the value to a default value of 2.0 ppm. For this replacement, EPA allows either automatic replacement by the DAHS or manual replacement of the value with 2.0 ppm. It is not necessary to contact EPA in these cases.

If you need to manually enter or edit monitored emissions data in any other way, your designated representative or your AAR must petition EPA under § 75.66.

If you use a like-kind replacement analyzer for a component of a primary monitoring system on a temporary basis, EPA allows manual editing of the component ID and MODC for all hours in which data are recorded by the like-kind replacement (which should not exceed 720 hours annually).

(b) Reference Method Backup Data

You may also manually enter reference method backup data. To the extent feasible, it may also be automatically collected and/or processed in another computer/data logger and merged with the final quarterly report file. This component does not have to be identified as part of the monitoring system.

(c) Calibration and Linearity Data

1. Data Recorded Automatically

All calibration and linearity test data recorded from a CEMS must be automatically recorded by the DAHS. Calibration and linearity test results must be calculated by the DAHS. It is permissible for a separate DAHS component to do these calculations, if this DAHS component is identified as part of the monitoring system in the monitoring plan.

2. Data Entered or Edited Manually

If you need to manually enter or edit calibration or linearity data, petition EPA.

(d) RATA Data

1. Data Recorded Automatically

Minute by minute emissions or flow values from the CEMS being tested must be automatically recorded by the DAHS or data logger that is a component of the system. However, you may export this data to an external data system or spreadsheet to perform the actual RATA calculations. It is not necessary for the external software package to be part of the monitoring system.

2. **Data Entered or Edited Manually**

Reference method data may be recorded by and entered into the DAHS manually. It may also be entered into a separate computer system that calculates the RATA results and exports the data into EDR format. This separate computer system does not have to be identified as part of the monitoring system. You may manually enter calculated RATA results into the DAHS.

(e) **Stack or Fuel Flow-to-load Ratio Test Data**

Results of stack or fuel flow-to-load ratio tests may be generated in a separate computer and merged with the quarterly report file. This computer does not have to be a certified DAHS component of the monitoring system.

(f) **Appendix D Data**

1. **Data Recorded Automatically**

Except as noted below, all fuel flow values recorded from a fuel flow meter must be automatically recorded by the DAHS.

Except as noted below, hourly fuel sampling data recorded by a gas chromatograph or online calorimeter must be automatically recorded by the DAHS.

2. **Data Entered or Edited Manually**

You may determine, using sound engineering judgment, that a measured fuel flow value or gas chromatograph value (or values) or other parameter is clearly in error and should be invalidated. When this situation occurs, determine whether correction of the measured value(s) believed to be in error results in a "significant" change in the reported SO_2, NO_x, or CO_2 emissions or heat input. Follow the guidance in EPA's "Quarterly Report Review Process for Determining Final Annual Emissions Data" to make this determination. If replacement of the erroneous data values has a significant effect, contact EPA. If the Agency agrees that the data are clearly in error, document the error (in the RTs 910 or 920 or as part of the quarterly report submittal letter) and replace the erroneous data with quality-assured data from a backup monitoring system or with a substitute value according to missing data procedures. If you replace measured data with missing data, the replacement data should be automatically calculated by a certified DAHS component. If you replace measured data with data from a certified backup monitoring system, the replacement data must be automatically recorded by the DAHS.

Except when a gas chromatograph is used to obtain hourly fuel sampling values, you may manually enter fuel sampling data.

You may enter other quality assurance data (e.g., orifice inspections, transducer/transmitter accuracy test results) manually.

(g) **Other Quality Assurance Data**

1. **Data Recorded Automatically**

All results of daily interference checks must be automatically recorded by the DAHS.

2. **Data Entered or Edited Manually**

Information from other quality assurance tests that cannot be recorded automatically (e.g., leak checks) may be manually entered into the DAHS. The separate computer does not have to be a certified DAHS component of the monitoring system.

(h) **Calculated Emissions Values (e.g., NO_x Emission Rate in RT 320 or Total SO_2 Quarterly Emissions in RT 301), Except For Units Using Low Mass Emissions (LME) Methodology Under § 75.19**

1. **Data Recorded Automatically**

Except as noted below, all calculated emissions values must be automatically calculated, recorded, and reported in EDR format by the DAHS.

2. **Data Entered or Edited Manually**

If short term (not more than one calendar quarter) problems prevent automatic calculation by the DAHS or recording by the DAHS of calculated emissions values, contact EPA and if the Agency agrees, enter these values manually into the quarterly report (either by manually entering the values or by merging a file containing the calculated values with the quarterly report file). Document the problem and indicate which values were manually calculated and/or entered (in RTs 910 or 920 or as part of the quarterly report submittal letter).

If you need to manually edit or enter calculated emissions values for a period longer than one quarter, petition EPA under § 75.66.

(i) **Missing Data**

All substitute data values derived from the Part 75 (or other allowable) missing data routines must be automatically calculated and recorded by the DAHS.

(j) **Other Operating Data**

EPA recommends, but does not require, that other operating data (e.g., unit load, unit operating time) be automatically recorded by the DAHS. If these data are automatically recorded in another computer system, this system does not have to be identified as a DAHS component of the monitoring system.

(k) **Data for Low Mass Emissions Units Under § 75.19**

Most required data may be entered manually. However, when a unit uses a certified fuel flow meter and Appendix D procedures to determine hourly fuel flow and heat input, the data from the fuel flowmeter must be recorded automatically. For long term fuel flow, the DAHS should be capable of recording unit output and apportioning the quarterly/ozone season heat input determined from the long term fuel flow measurements. Long term fuel flow measurements may be entered manually.

(4) **Use of Blank Spaces**

Within one record, where some but not all data are reported, unused columns should be left blank. For example, in RT 300 (Unit Operating Parameters) the field beginning in column 28 is steam load which may be reported in lieu of gross unit load. If you are using this option, you should submit RT 300 with six blank columns for gross unit load in column 22. Furthermore, use blanks when a data element does not entirely fill its allocated space. As specified above, alphanumeric fields ("A" format) should be left-justified, using blanks if necessary for the last few spaces, while integer fields ("I" format) should be right-justified, using blanks if necessary for the first few spaces. Fixed decimal point fields ("F" format) must be decimally-justified. For example, in RT 610, beginning in column 34, a value of 436.2 ppm recorded by the CEM would be reported with six leading blanks and two trailing blanks as follows in the "F13.3" format: "■■■■■■436.2■■" (for illustration ■=blank space).

(5) **Reporting of Dates and Times**

Report time data according to the 24 hour clock: HHMM where HH is a two digit hour (00 - 23) and MM is a two digit minute (00 - 59). Format dates from left to right: YYMMDD, where YY represents the last two digits in the calendar year, MM is a two digit month (01 - 12), and DD is a two digit day (01 - 31). In certain record types the date format is YYYYMMDD, where YYYY is a four-digit year (e.g., 2000).

(6) **Reporting in Standard Time**

Report all data in standard time. Each hour reported in the file represents a clock hour, not an operating hour.

(7) **Computational Requirements and Rounding**

(a) **Computing Hourly Emissions Values**

When computing monitor readings for a specific hour (for example, NO_x concentration for the hour), use all the decimal digits which the DAHS computer normally employs for floating point calculations. Double-precision numbers (8 to 16 digits) may be used for these calculations and should be employed when needed to compute the recorded emissions value.

(b) **Rounding Conventions for Reported Data**

When it is necessary to round a value to report it using the number of required decimal places, use the standard arithmetic rounding convention where numbers 5 through 9 round to the next highest number in the previous decimal position to the left. Some fields in the EDR were designed to be generic

and support reporting data for multiple purposes (e.g., certain fields in RT 610 for reporting RATA results). It is therefore not always appropriate to report values to the number of decimal places in the EDR format. The precision of each measured parameter should be the same as the precision of the hourly record for the parameter. For instance, for an SO_2, CO_2, or O_2 RATA, report the CEM and reference method values in columns 34 through 59 of RT 610 to the nearest 0.1 ppm or 0.1% CO_2 or O_2 (as applicable); zeros may be used as place holders to the right of the last digit in each measurement, but are not considered to be significant figures. For a NO_x RATA, report the NO_x emission rates to three decimal places. For a flow RATA, the last significant digit in the reported flow rate values is in the thousands place; fill in zeros in the hundreds, tens, and unit columns (e.g., round 15,922,855 scfh to 15,923,000 scfh).

(c) Use of Reported Data for Emissions and QA Test Calculations

For quantities calculated from the reported CEM data (such as heat input rate or NO_x emission rate) or for calculation of cumulative emissions (such as quarterly NO_x mass emissions), perform the calculations or summations using values rounded to the number of decimals defined in the EDR. For example, when you calculate NO_x emission rate, use the values (rounded to one decimal place) of NO_x concentration and diluent gas concentration reported in RTs 201 and 210 or 211 to perform the calculation. Do not use the values stored in the computer that may include 8 or 16 places to the right of the decimal. Then, report the NO_x emission rate in RT 320, rounded to the nearest 0.001 lb/mmBtu, as required by Part 75.

(d) QA Test Calculations

Whenever you perform QA test calculations that involve a number of steps in sequence (e.g., linearity error or percent relative accuracy calculations), begin the calculation sequence with the raw data values reported in the EDR (i.e., begin with flow rates that are rounded to the nearest 1000 scfh, gas concentrations that are rounded to the nearest 0.1 ppm, etc.). However, once you have begun the calculation sequence, do not round off any of the intermediate values (such as the mean difference, confidence coefficient, (R - A), etc). Rather, retain the full decimal display of the computer in the intermediate values until the final result is obtained and then and round off the final result. Similarly, do not use rounded intermediate values of statistical terms such as the standard deviation, mean difference, and confidence coefficient when you perform a bias test of a CEMS or determine a bias adjustment factor (BAF). For a more detailed discussion, see Question 8.36 in the Part 75 Policy Manual.

(8) Requirements for Component and System IDs

You must report a system and component ID (as defined in RT 510) for a certified monitoring system for all measured emission values. Exceptions to this requirement for specific record types and configurations are discussed in Section III.

(9) Reporting Data Outside the Reporting Period

Do not submit any hourly emissions data in the quarterly report file representing emissions values recorded for any time period outside of the applicable quarter and year. In some limited cases, it is permissible to submit quality assurance data for tests that were performed partially or entirely in a different quarter. See Section III.D for more information.

(10) Information on Non-operating Hours

In general, operating time should always be indicated in RT 300. For each hour that the unit, stack, or pipe did not operate, report a value of 0.00 in the field for unit operating time in RT 300. There is one exception to this rule: for units that qualify as low mass emissions units under § 75.19, report unit operating time (including non-operating hours) in RT 360 instead of RT 300.

(11) Blank Emissions or Other Values

For each operating hour report a non-blank emissions value and an appropriate method of determination code.

(12) Missing Data and Percent Monitor Data Availability

The Part 75 standard missing data procedures in 40 CFR § 75.33 are based on percent monitor data availability (PMA), which is calculated on a rolling annual basis (based on the previous 8,760 unit operating hours). For infrequently-operated units that have fewer than 8,760 unit operating hours in the past three years, PMA is calculated using all data from the past three years (26,280 clock hours). Percent monitor data availability is calculated on a parameter basis (e.g., SO_2 concentration, NO_x emission rate, stack flow rate, etc.), not on an individual analyzer or monitoring system basis (see 40 CFR § 75.32). Reporting of PMA begins after the initial missing data procedures of § 75.31 have been applied for a period of 720 (for O_2, CO_2, and $\%H_2O$) or 2,160 (for NO_x or flow rate) quality-assured monitor operating hours.

Percent monitor data availability is used to determine the appropriate substitute data values for missing data periods. Although you may record the PMA for each hour of a missing data period, only the PMA value at the end of the missing data period (i.e. for the first hour in which quality-assured data are available following the missing data period) is used to determine the substitute data values.

For a quarter in which a missing data period extends past the end of the quarter, the missing data period is assumed to terminate with the end of the quarter. Use the PMA at the end of the quarter to determine the correct substitute data values. For the next quarter, assume that a new missing data period starts at the beginning of the quarter. Use the PMA at the end of this new missing data period to determine the correct substitute data values.

Quality-assured monitor operating hours can occur only during unit operating (or partial operating) hours. When the unit is not operating, monitor operating hours are not counted in the missing data procedures. For example, if the monitoring system is down first for three hours with the unit still operating, then for four more hours while the unit is down, and then the unit resumes operating while the monitoring system is down for an additional three hours, the total missing data gap is six hours, even though the monitoring system was down for a total of ten hours. If the missing data gap continues past the time when the unit restarts, hours on both sides of the unit down time are part of one single missing data period.

When emissions are measured during a partial unit operating hour, the recorded values for that hour are included in missing data substitution algorithms (including the availability calculation) as if the hour were a full quality-assured monitor operating hour. The partial operating hour will also be treated as a full hour in load ranges, in the missing data algorithm of the average of the hour before and hour

after, in the calculation of hours to determine a QA operating quarter, and in the reporting of quarterly, ozone season, and year-to-date operating hours for RTs 301 and 307.

(13) Data Reporting Requirements for Uncertified Units

For new (non-deferred) units, submit quarterly reports beginning with the earlier of: (1) the quarter in which the monitoring systems for the unit are provisionally certified; or (2) the quarter in which the unit's compliance deadline occurs and emissions reporting from the unit is required. Existing "deferred" units that are shut down at the time of the applicable compliance deadline (i.e., on the program participation date) must begin quarterly reporting on the date and hour that the unit recommences commercial operation. Quarterly reports submitted before certification testing is completed and after the compliance or program participation date must contain the following record types:

Table 1
REPORTING REQUIREMENTS FOR OPERATING UNCERTIFIED UNITS

RTs	Acid Rain Program	Subpart H
100	Required	Required
101	Optional	Optional
102	Required	Required
Applicable Hourly RTs 200+ and 300+ (using appropriate maximum potential values)	Required	Required
301	Required	Not applicable
307	Not applicable	Required
5XX*	Required	Required
900-901	Optional**	Not applicable
910	Optional	Optional
920	Optional	Optional
940-941	Not applicable	Optional**
999	Optional	Optional

* See Tables C, D, and A-1 through A-13 in Appendix A for the applicable 500-level records.

** EPA recommends that certification statements be submitted electronically, rather than in hardcopy.

(14) Data Reporting Requirements for Non-operating Quarters

If you have been operating and reporting for a unit and your unit does not operate for a quarter (and you do not notify EPA that the unit has permanently retired), you must still submit a quarterly report for the non-operating quarter.

The quarterly report for a non-operating quarter must contain the following record types:

Table 2
REPORTING REQUIREMENTS FOR NON-OPERATING QUARTERS

RTs		Subpart H
100	Required	Required
102	Required	Required
301	Required	Not applicable
307	Required for LME only	Required
5XX*	Required	Required
900-901	Optional**	Not applicable
910	Optional	Optional
920	Optional	Optional
940-941	Not applicable	Optional**
999	Optional	Optional

* See Tables C, D, and A-1 through A-13 in Appendix A for the applicable 500-level records.
** EPA recommends that certification statements be submitted electronically rather than in hardcopy.

No other record types should be submitted for a unit in a quarter in which the unit does not operate.

If you elect to claim a deadline extension or exemption for a QA test (e.g., RT 698 or 699) for a non-operating quarter (or quarters), report this claim in the appropriate record type in the quarterly report for the first operating quarter following the quarter(s) of non-operation.

Record Type Instructions for Non-operating Quarters

RT 301. The quarterly emissions and operations information in columns 16 through 25, 36 through 48, 62 through 71, 82 through 91, and 114 through 117 should contain zeros, not blanks. If the unit operated for any other quarter in the calendar year for which the quarterly report is being submitted, the cumulative emissions and operations information in columns 26 through 35, 49 through 61, 72 through 81, 92 through 101, and 118 through 121 must contain the sum (or average, for NO_x emission rate) of those emissions and operations values from all prior quarters in the calendar year.

RT 307. The reporting period emissions and operations information in columns 18 through 27, 38 through 47, and 58 through 61 should contain zeros, not blanks. If the unit operated for any other quarter in the calendar year for which the quarterly report is being submitted, the cumulative emissions and operations information in columns 28 through 37, 48 through 57, and 62 through 90 must contain the sum of those emissions and operations values from all prior quarters in the calendar year.

III. RECORD TYPE INSTRUCTIONS

A. Facility Records

(1) RT 100: Facility Identification

Report only one RT 100 in each quarterly report file. This record must be the first record in all EDR submissions. This record identifies the facility represented by the data in the file.

Field Descriptions and Instructions

Facility/ORISPL Number (4). Report the ORISPL code or facility ID for the facility. The number should be right-justified and padded to the left with leading zeros. The ORISPL code is the same as the Department of Energy (DOE) plant or facility code. Obtain the plant/facility code from the Energy Information Administration, Department of Energy (DOE) Form EIA-860, "Annual Electric Generations Report" or Form EIA-867, "Annual Nonutility Power Producer Report." If you do not have an ORISPL code for a plant/facility, contact EPA's Clean Air Markets Division to determine what code to use.

Calendar Quarter Data Contained in Report (10). Report the calendar quarter represented by the data (1, 2, 3, or 4). When submitting the initial monitoring plan for a new or newly-affected unit, report the (projected) quarter of the first electronic quarterly report for the unit.

Calendar Year Data Contained in Report (11). For a quarterly report submission, report the calendar year represented by the data. When submitting the initial monitoring plan for a new or newly-affected unit, report the (projected) calendar year of the first electronic quarterly report for the unit.

EDR Version (15). Report the EDR version number used for the report as "V" followed by the version number, i.e., enter "V2.2."

(2) RT 101: Record Types Submitted (Optional)

RTs 101 are optional records that indicate the record types included in the file for each unit, stack, or pipe. RT 101 provides information to EPA on the content of each quarterly report file. RTs 101 do not merely summarize the record types in the file; instead, they are designed to identify for each unit, the stack or pipe IDs, record type, and number of records submitted for each pollutant. RT 101

provides a map to identify all stacks or pipes which are associated with a given unit for which data are reported.

The first RT 101 reported should be the second record in the quarterly report file, immediately following RT 100. For all units and stacks, list the RTs 101 in order by unit, stack ID, and parameter. If there are no common or multiple stacks associated with the unit, leave the stack ID blank. Please note that the order of RTs 101 is not the order in which these records appear in the quarterly report file.

There are seventeen types of records that may be associated with a unit or stack, as listed below. Following this list are four examples of RTs 101 for reporting specific stack and unit configurations.

RT 101 Parameters Reported for All Units

CO2CONC	CO_2 Concentration Records (ARP)
CO2MASS	CO_2 Mass Emissions Records (ARP)
DILUENT	Diluent Records
FLOWRTE	Flow Rate Records
GASRATE	Gas Fuel Flow Records
HEATINP	Heat Input Rate Records (Subpart H)
LOWMASS	Hourly Low Mass Emission Records
MOISTUR	Hourly Moisture Records
NOXCONC	NO_x Concentration Records
NOXMASS	NO_x Mass Emission (Subpart H)
NOXRATE	NO_x Emission Rate Records
OILRATE	Oil Fuel Flow Records
OPERATN	Operating Records
OSNSUMM	Ozone Season Summary (Subpart H)
QTRSUMM	Quarterly/Annual Cumulative Totals (ARP)
SO2CONC	SO_2 Concentration Records (ARP)
SO2MASS	SO_2 Mass Emissions Records (ARP)

EXAMPLE #1: SINGLE ACID RAIN COAL-FIRED UNIT

UNIT ID: 1

This is a coal-fired unit with a single stack and the following monitoring approach: SO_2 CEM, $NO_x(CO_2)$ CEM, and CO_2 CEM. This file includes data for fourth quarter 1994 (which has 2,208 hours in all). The unit operated for all hours during the quarter and there were no periods of missing data.

Record Type	Unit ID	Stack/Pipe ID	Parameter	Record Type Used	# of Records
101	1		CO2CONC	202	2208
	1		CO2MASS	330	2208
	1		DILUENT	210	2208
	1		FLOWRTE	220	2208
	1		NOXCONC	201	2208
	1		NOXRATE	320	2208
	1		OPERATN	300	2208
	1		QTRSUMM	301	1
	1		SO2CONC	200	2208
	1		SO2MASS	310	2208

EXAMPLE #2: SINGLE ACID RAIN OIL-FIRED UNIT USING APPENDIX D AND APPENDIX G

UNIT ID: 3

This is a single oil-fired unit with one stack and the following monitoring approach: ADC (Appendix D) for SO_2, $NO_x(CO_2)$ CEM, and FSA (Appendix G) for CO_2. This file contains data for second quarter 1994 (which has 2,184 hours in all). The unit operated for all hours during the quarter. The NO_x monitor was out-of-control for 240 hours during the quarter and there are no backup systems.

Record Type	Unit ID	Stack/Pipe ID	Parameter	Record Type Used	# of Records
101	3		CO2MASS	331	91
	3		DILUENT	210	1944
	3		NOXCONC	201	1944
	3		NOXRATE	320	2184
	3		OILRATE	302	2184
	3		OPERATN	300	2184
	3		QTRSUMM	301	1
	3		SO2MASS	313	2184

EXAMPLE #3: ACID RAIN COAL-FIRED UNIT WITH MULTIPLE STACKS

UNIT ID: 4
STACK IDs: MS4A, MS4B

This is a coal-fired Acid Rain unit with two stacks. For each stack the utility uses the following monitoring approach: SO_2 CEM, $NO_x(CO_2)$ CEM, and CO_2 CEM. Because the emissions are not thoroughly mixed, the source must monitor NO_x in both stacks and use flow to calculate a unit-level NO_x emissions rate. This file includes data for first quarter 1994 (which has 2,160 hours in all). Unit 4 was shut down for maintenance for 720 hours during the quarter. There were no periods of missing data.

Record Type	Unit ID	Stack/Pipe ID	Parameter	Record Type Used	# of Records
101	4		OPERATN	300	2160
	4		QTRSUMM	301	1
	4	MS4A	CO2CONC	202	1440
	4	MS4A	CO2MASS	330	1440
	4	MS4A	DILUENT	210	1440
	4	MS4A	FLOWRTE	220	1440
	4	MS4A	NOXCONC	201	1440
	4	MS4A	NOXRATE	320	1440
	4	MS4A	OPERATN	300	2160
	4	MS4A	QTRSUMM	301	1
	4	MS4A	SO2CONC	200	1440
	4	MS4A	SO2MASS	310	1440
	4	MS4B	CO2CONC	202	1440
	4	MS4B	CO2MASS	330	1440
	4	MS4B	DILUENT	210	1440
	4	MS4B	FLOWRTE	220	1440
	4	MS4B	NOXCONC	201	1440
	4	MS4B	NOXRATE	320	1440
	4	MS4B	OPERATN	300	2160
	4	MS4B	QTRSUMM	301	1
	4	MS4B	SO2CONC	200	1440
	4	MS4B	SO2MASS	310	1440

EXAMPLE #4: TWO ACID RAIN UNITS IN A COMMON STACK

UNIT ID: 1,2
STACK ID: CS0001

Units 1 and 2 are monitored for SO_2 and NO_x at CS0001 with the following monitoring approach: SO_2 CEM and $NO_x(O_2)$ CEM. The CO_2 monitoring approach for each unit is FSA (Appendix G). This file contains data for third quarter 1994 (which has 2,208 hours in all). Unit 2 only operated for 30 days during the quarter.

Record Type	Unit ID	Stack/Pipe ID	Parameter	Record Type Used	# of Records
101		CS0001	OPERATN	300	2208
		CS0001	QTRSUMM	301	1
	1		CO2MASS	331	92
	1		OPERATN	300	2208
	1		QTRSUMM	301	1
	1	CS0001	DILUENT	211	2208
	1	CS0001	FLOWRTE	220	2208
	1	CS0001	NOXCONC	201	2208
	1	CS0001	NOXRATE	320	2208
	1	CS0001	SO2CONC	200	2208
	1	CS0001	SO2MASS	310	2208
	2		CO2MASS	331	30
	2		OPERATN	300	2208
	2		QTRSUMM	301	1
	2	CS0001	DILUENT	211	2208
	2	CS0001	FLOWRTE	220	2208
	2	CS0001	NOXCONC	201	2208
	2	CS0001	NOXRATE	320	2208
	2	CS0001	SO2CONC	200	2208
	2	CS0001	SO2MASS	310	2208

(3) RT 102: Facility Location and Identification Information

Include only one RT 102 in each quarterly report file, certification, or monitoring plan file. This record contains information that identifies the facility and its location.

Field Descriptions and Instructions

Plant Name (4). Report the name of the facility, as it appears in the National Allowance Database (NADB) (for Acid Rain units) or a similar inventory. If a non-Acid Rain Subpart H unit is located at the same facility as an Acid Rain unit, use the facility name as it appears in the NADB. The facility name must be the same for units that are affected by both the Acid Rain Program and Subpart H.

(Reserved) (24). This field, formerly used for the FINDS ID, is reserved. Leave this field blank.

EPA AIRS Facility System (AFS) ID (36). Report the ten digit AIRS AFS ID for your facility. The first two digits of this ID are the State code, the next three are the FIPS county code, and the last five are the CDS plant ID. Contact your EPA Regional Office if you do not know this identifier. If your EPA Regional Office cannot provide this ID, leave the field blank. This is not the four digit NEDS ID.

State Facility ID (46). Provide the State ID required by the applicable State regulatory agency. Each State will provide specific instructions about the content of this field or about locating the ID. This is not required for units subject only to the Acid Rain Program.

Source Category/Type (61). Describe the facility type. If applicable, use the following uppercase descriptions:

ELECTRIC UTILITY
COGENERATION
INDUSTRIAL BOILER
INDUSTRIAL TURBINE
IRON & STEEL
MUNICIPAL WASTE COMB
PETROLEUM REFINERY
PULP & PAPER MILL
SMALL POWER PRODUCER
CEMENT MANUFACTURING
THEME PARK

If a unit does not fit one of these categories, contact EPA to agree on an appropriate description. Do not leave this field blank.

Primary SIC Code (81). Report the primary Standard Industrial Classification code for the plant (for example, 4911 for electric utilities).

You can get your SIC code from EPA's Monitoring Data Checking (MDC) software. If MDC does not contain the correct code for your plant, contact EPA.

State Postal Abbreviation (85). Report the two-character postal abbreviation for the State in which the facility is located. Do not leave this field blank.

County Code (FIPS) (87). Report the three-digit federal county code for the county in which the facility is located. Do not leave this field blank.

[Reserved] (90). This field is reserved. Leave this field blank.

Latitude and Longitude (91, 97). Report the coordinates representing the facility location. Latitude/longitude coordinates must be in accordance with Federal Interagency Coordinating Committee for Digital Cartography (FICCDC) recommendations.

The format for representing this information is:

DDMMSS (latitude)
DDDMMSS (longitude)

Where:

DD represents degrees of latitude; a two-digit decimal number ranging from 00 through 90.

DDD represents degrees of longitude; a three-digit decimal number ranging from 000 through 180.

MM represent minutes of latitude or longitude; a two-digit decimal number ranging from 00 through 60.

SS represents seconds of latitude or longitude.

All latitudes are assumed to be north of the equator and longitudes are assumed to be west of the prime meridian. Do not leave these fields blank.

B. Hourly Emissions and Quality Assurance Records and Emissions Summary Records (RTs 200+ through 300+)

(1) RT 200: SO_2 Concentration Data (ARP)

If you use continuous emissions monitoring (CEM) to determine SO_2 mass emissions under the Acid Rain Program, report SO_2 concentration in RT 200 for each hour or partial hour of unit operation, with one exception: Do not report RT 200 for hours in which only gaseous fuel is combusted, if you account for SO_2 mass emissions during those hours using the provisions of § 75.11(e)(1) or (e)(2), in lieu of operating and recording data from the SO_2 monitoring system.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). For each hour of quality-assured data, identify the monitoring system and component used during the hour. If you have missing data, leave these fields blank. Note that hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours.

Report the monitoring system and component IDs of the monitoring system in use at the time of any of the following occurrences: (1) when you report the 2.0 ppm default value for an hour during which very low sulfur fuel (as defined in § 72.2) is combusted and the bias-adjusted hourly average SO_2 concentration is below 2.0 ppm; or (2) when you use a default high range value of 200% of the MPC in the calculation of the hourly average SO_2 concentration; or (3) when a full-scale exceedance of the high range occurs and you use a value of 200% of the range in the calculation of the hourly average SO_2 concentration. In these cases, the hours are treated as quality-assured monitor operating hours. They are included in missing data lookback and are counted as available hours for percent monitor data availability calculations.

If a like-kind replacement non-redundant backup analyzer is used during a period of maintenance or repair of the primary analyzer (see § 75.20(d)), report the primary monitoring system ID; however, for the like-kind replacement analyzer component, assign a unique component ID number (beginning with the prefix "LK" as defined in RT 510—e.g., "LK1"). The like-kind replacement analyzer component ID may be manually entered.

For units with add-on SO_2 emission controls, if you report data from a certified inlet monitor, report the system and component ID for the monitor. You may report from an inlet monitor in lieu of reporting the MPC:

- During hours in which the flue gases are routed through an unmonitored bypass stack (§ 75.16 (c)(3)); or
- During hours when the outlet SO_2 monitor is unavailable and proper operation of the add-on controls is not verified (§ 75.34 (a)(1)).

Percent Monitor Data Availability for SO_2 (24). Report the percent monitor data availability for each hour unless data are substituted using Part 75 missing data procedures. It is optional to report percent monitor availability during hours in which missing data are substituted.

For units with add-on SO_2 emission controls:

(1) If you report the MPC for hours in which the flue gases are routed through an unmonitored bypass stack, or when the outlet SO_2 monitor is unavailable and proper operation of the emission controls is not verified, do not include these hours in the calculation of percent monitor data availability. Treat these hours as missing data hours; or

(2) If you report data from a certified inlet monitor during hours in which the flue gases are routed through an unmonitored bypass stack, or when the outlet SO_2 monitor is unavailable and proper operation of the emission controls is not verified, include these hours in the missing data lookbacks and treat them as available hours in the PMA calculations.

Average SO_2 Concentration for the Hour (29). Report the unadjusted, quality-assured SO_2 concentration for the hour, expressed in parts per million, rounded to one decimal place. Leave this field blank for hours in which you use substitute data.

Leave this field blank for hours in which the flue gases are routed through an unmonitored bypass stack, or when the outlet SO_2 monitor is unavailable and proper operation of the emission controls is not verified, if you report the MPC for those hours. However, if you report data from a certified inlet monitor during those hours, report the unadjusted SO_2 concentration recorded by the monitor.

Do not leave this field blank for hours in which: (1) very low sulfur fuel is combusted and you report a 2.0 ppm default value in column 35; or (2) you use the default high range value of 200% of the MPC in the calculation of the hourly SO_2 concentration; or (3) a full-scale exceedance occurs and you use 200% of the range in the calculation of the hourly SO_2 concentration. All of the hours described in (1) - (3), above, are treated as quality-assured monitor operating hours.

Average SO_2 Concentration for the Hour Adjusted for Bias (35). For each hour in which you obtain quality-assured values, apply the appropriate bias adjustment factor (BAF) to the rounded average SO_2 concentration for the hour and report the adjusted SO_2 concentration for the hour in ppm, also rounded to one decimal place.

For each hour in which you use missing data procedures, report the substitute data value.

For each hour in which the flue gases are routed through an unmonitored bypass stack, or when the outlet SO_2 monitor is unavailable and proper operation of the emission controls is not verified, you may either report the MPC in this field or, if data are available from a certified inlet monitor, report the bias-adjusted SO_2 concentration measured by the monitor.

For each hour in which only very low sulfur fuel (as defined in § 72.2) is combusted, report the bias-adjusted hourly average SO_2 concentration unless it is less than 2.0 ppm, in which case, report 2.0 ppm.

For each hour in which a default high range value is used in the calculation of the hourly average SO_2 concentration, report the bias-adjusted hourly average in this field unless application of the BAF causes the hourly average to exceed 200% of the MPC, in which case, report 200% of the MPC.

When a full-scale exceedance of the high range occurs and 200% of the range is used in the calculation of the hourly average SO_2 concentration, report the bias-adjusted hourly

average in this field unless application of the BAF causes the hourly average to exceed 200% of the range, in which case, report 200% of the range.

See Questions 10.27 through 10.29 in the Part 75 Policy Manual for a further discussion of overscaling and use of the default high range value.

Method of Determination Code (41). Report one of the following method of determination codes (MODC) to identify the type of monitoring system or value used to measure and report SO_2 concentration for the hour. Manual entry of MODCs "16," "17," and "21" is permitted.

01	Primary Monitoring System
02	Redundant Backup or Regular Non-redundant Backup Monitoring System
03	Approved Subpart E Alternative Monitoring System
04	Reference Method Backup System (Method 6A)
05	Preapproved Parametric Monitoring Method Data for Controlled Units
06	Average Hour Before/Hour After
07	Average Hourly Concentration, Initial Missing Data
08	90th Percentile Value in Lookback Period
09	95th Percentile Value in Lookback Period
10	Maximum Hourly SO_2 Concentration Value in Lookback Period
12	Maximum Potential Concentration of SO_2 (see Section 2.1 of Appendix A to Part 75)
16	SO_2 Concentration Value of 2.0 ppm During Hours When Very Low Sulfur Fuel is Combusted. These hours are included in missing data lookback and are treated as available hours for percent availability calculation.
17	Like-kind Replacement Analyzer
19	200% of MPC; Default High Range Value Used in the Calculation of the Hourly Average SO_2 Concentration. These hours <u>are</u> included in missing data lookback and are treated as available hours for percent availability calculations.
20	200% of the Full-scale Range Used in the Calculation of the Hourly Average SO_2 Concentration (full-scale exceedance of high range). These hours <u>are</u> included in missing data lookback and are treated as available hours for percent availability calculations.
21	Negative Hourly Average SO_2 Concentration Replaced With Zero
22	SO_2 concentration from a certified monitor at the control device inlet, when exhaust gases are routed through an unmonitored bypass stack, or when the outlet SO_2 monitor is unavailable and proper operation of the emission controls is not verified. These hours are included in missing data lookback and are treated as available hours for percent availability calculations.
23	Maximum Potential Concentration of SO_2, When Flue Gases are Routed Through an Unmonitored Bypass Stack. These hours are considered to be missing data hours.
54	Other Quality-assured Methodologies Approved Through Petition by EPA. These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.

55 Other Substitute Data Approved Through Petition by EPA. These hours are not included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes 56 through 99 may be used by vendors and companies for other purposes but must not be reported in a quarterly report.

(Note: When very low sulfur fuel is combusted, if a negative SO_2 concentration is replaced (in column 29) with a value of zero ppm and the 2.0 ppm default SO_2 concentration is reported in column 35, report the MODC of "16," rather than "21" for that hour.)

(2) **RT 201: NO_x Concentration Data**

Reporting Requirements for NO_x Emission Rate Only

If you use a NO_x-diluent monitoring system to determine and report the NO_x emission rate in RT 320, then report RT 201 for each unit or stack operating hour in which a quality-assured NO_x concentration is available and a quality-assured diluent gas (CO_2 or O_2) concentration is available. Report RT 201 using the NO_x diluent monitoring system ID using columns 1 through 31 only. If NO_x concentration is missing for an hour, or if the diluent concentration is missing for the hour, report the appropriate substitute data value for NO_x emission rate in RT 320 and do not report RT 201. Note that for units with add-on NO_x emission controls, hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours. However, when the outlet NO_x monitor is unavailable and proper operation of the emission controls is not verified, § 75.34 (a)(1) allows you to report data for from a certified NO_x monitor at the control device inlet. If you choose this option, these hours are treated as "available " hours, for the purposes of the missing data lookbacks and PMA calculations (see instructions below for columns 10, 13, 24, 30 and 32).

Reporting Requirements for NO_x Mass Calculations

For units subject to Subpart H, you may use either NO_x emission rate times heat input rate or NO_x concentration times stack flow as the primary methodology for calculating hourly NO_x mass emissions. If you use NO_x emission rate times heat input rate as the primary methodology, you may elect to use NO_x concentration times stack flow as a secondary (backup) methodology for any hour in which NO_x concentration is available and the diluent concentration is unavailable. The following general rules apply to reporting in RT 201 for each of these options:

(a) If NO_x emission rate times heat input rate is the primary methodology for determining NO_x mass emissions:

Follow the instructions above under "Reporting Requirements for NO_x Emission Rate Only."

(b) If NO_x concentration times stack flow is the primary methodology for determining NO_x mass emissions:

For hours (or partial hours) in which you use quality-assured data from a certified NO_x concentration system and flow monitoring system to calculate hourly NO_x mass emissions

under Subpart H, report NO_x concentration in RT 201. Report RT 201 using the NO_x concentration (NOXC) monitoring System ID and report data in columns 1 through 42. Do not leave columns 32 and 38 blank. If NO_x concentration is missing, report substitute data in RT 201 using the applicable missing data procedures. Note that hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours. For units with add-on NO_x emission controls, if you report data from a certified NO_x monitor at the control device inlet when the outlet NO_x monitor is unavailable and proper operation of the emission controls is not verified, treat these hours as "available" hours, for the purposes of the missing data lookbacks and PMA calculations for the NOXC monitoring system.

If you are required to report both the hourly NO_x emission rate and the hourly NO_x mass emissions and if you elect to use NO_x concentration times flow rate as the method of determining NO_x mass, you must report two RTs 201 for every hour in which quality-assured data are obtained, (i.e., one RT 201 under the NO_x-diluent monitoring system ID and one under the NO_x concentration monitoring system ID). Then, when NO_x concentration is missing for the hour: (1) do not report RT 201 under the NO_x-diluent monitoring system ID and perform missing data substitution for NO_x emission rate in RT 320; and (2) report RT 201 under the NO_x concentration monitoring system ID and perform missing data substitution for NO_x concentration in RT 201.

(c) If NO_x concentration times flow is a secondary methodology for NO_x mass emissions:

For hours (or partial hours) in which the diluent monitor of your NO_x-diluent system is unavailable and you use a certified NO_x concentration system and flow monitoring system as a secondary (back up) methodology for calculating hourly NO_x mass emissions under Subpart H, report NO_x concentration in RT 201. Report RT 201 using the NO_x concentration monitoring system ID and report data in columns 1 through 37. In column 32 report the bias-adjusted NO_x concentration.

If the NO_x and diluent concentration are both missing for the hour, do not use this secondary methodology (NO_x concentration times stack flow). Instead, use your primary methodology (NO_x emission rate times heat input rate) to calculate hourly NO_x mass emissions using a substitute NO_x emission rate. Also, if you use the diluent concentration from RT 210 or RT 211 to calculate heat input rate, use the appropriate substitute data value for diluent gas concentration in the heat input rate equation.

For Acid Rain units which are also Subpart H units, RT 320 must be reported for every operating hour, including hours in which the secondary NO_x mass methodology is used. For these units, perform missing data substitution in RT 320 and report RT 320 for each hour in which you use the secondary NO_x mass methodology.

For a summary of these requirements, see Table 3 below.

Reporting of High Range and Full Scale Exceedance Defaults

Treat any hour(s) in which a default high range value (200% of MPC) or a full scale exceedance value (200% of range) is used in the calculation of the hourly average NO_x concentration as follows:

(a) For NO_x concentration monitoring systems: Treat these hours as quality-assured monitor operating hours and include them in missing data lookback and as available hours for percent monitor data availability calculations.

(b) For NO_x-diluent monitoring systems:

1. If a quality-assured diluent value is available for the hour, treat the hour as quality-assured data and use the appropriate NO_x concentration value in conjunction with the quality-assured average diluent gas concentration for the hour to calculate and report NO_x emission rate in RT 320.

2. If a quality-assured diluent gas concentration is not available for the hour, then consider the NO_x emission rate data for the hour to be missing and do not report RT 201 or RT 210 (or 211) for the hour. Instead, report the maximum potential NO_x emission rate (MER) as a substitute data value in RT 320 using an MODC of 25.

Table 3
SUMMARY OF RT 201 REPORTING REQUIREMENTS

Use of NO_x Analyzer	Monitoring System ID Used	Report Columns	Missing Data Instructions
For NO_x emission rate	NO_x-diluent monitoring system ID	Columns 1 through 31 in RT 201	Perform NO_x missing data substitution in RT 320 (if NO_x or diluent concentration is unavailable). Do not report RT 201 for the hour.
For NO_x mass calculation using NO_x concentration times stack flow as the primary method	NO_x concentration monitoring system ID	Columns 1 through 42 in RT 201	Perform missing data substitution for NO_x concentration in RT 201. Report RT 201 for the hour.
Subpart H-affected units: for NO_x mass calculation using NO_x emission rate times heat input rate as the primary method and NO_x concentration times stack flow rate as the secondary (backup) method	NO_x-diluent monitoring system ID for hours that primary method is used	Columns 1 through 31 in RT 201 for hours that primary method is used	(1) If NO_x concentration is missing, use the primary NO_x mass methodology.* Perform NO_x missing data substitution in RT 320. Do not report RT 201. (2) If a quality-assured NO_x concentration is available but diluent concentration is missing, then either: (a) Use the primary NO_x mass methodology and perform NO_x missing data substitution in RT 320. Do not report RT 201; or (b) Use the secondary NO_x methodology. Report RT 201 under the NO_x concentration system ID, but do not report RT 320 unless the unit is also Acid Rain-affected. If so, perform NO_x missing data substitution in RT 320, report RT 320, and suppress reporting of the RT 201 under the NO_x diluent system ID.
	NO_x concentration monitoring system ID for hours that secondary method is used	Columns 1 through 37 in RT 201 for hours that secondary method is used	

* The secondary (backup) method may only be used when a quality-assured NO_x concentration is available.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). For each hour of quality-assured data, identify the monitoring system and component used during the hour.

If the NO_x data from RT 201 are used to determine the hourly NO_x emission rate, report the monitoring system and component IDs for the NO_x component of the NO_x emission rate monitoring system.

If the NO_x concentration in RT 201 is used with the stack flow rate from RT 220 to calculate NO_x mass emissions, report the NO_x concentration monitoring system ID and the NO_x component ID, as defined in the monitoring plan.

If you are using a NO_x concentration monitoring system and have missing data, leave these fields blank.

When reporting a default high range value of 200% of the MPC or when reporting a value of 200% of the range during a full-scale exceedance of the high range, report the system ID and the NO_x component ID of the monitoring system in use at the time of the occurrence of the full-scale exceedance.

If a like-kind replacement non-redundant backup analyzer is used during a period of maintenance or repair of the primary analyzer (see § 75.20(d)), report the primary monitoring system ID and assign and report a unique component ID (beginning with the prefix "LK" as defined in RT 510—e.g., "LK1") for the like-kind replacement analyzer. The like-kind replacement analyzer component ID may be manually entered.

For units with add-on NO_x emission controls, if you report data from a certified inlet monitor during hours in which the outlet NO_x monitor is unavailable and proper operation of the emission controls is not verified, report the system ID and component ID for the inlet monitor.

Average NO_x Concentration for the Hour (24). For both NO_x concentration monitoring systems and NO_x-diluent monitoring systems, report the unadjusted, quality-assured NO_x concentration for the hour, expressed in parts per million, rounded to one decimal place. For NO_x concentration monitoring systems, leave this field blank for hours in which you use substitute data for NO_x concentration.

Do not leave this field blank for hours in which: (1) you use a default high range value of 200% of the MPC in the calculation of the hourly NO_x concentration; or (2) a full-scale exceedance occurs and you use 200% of the range in the calculation of the hourly NO_x concentration. All of the hours described in (1) and (2), above are treated as quality-assured monitor operating hours. See Questions 10.27 through 10.29 in the Part 75 Policy Manual for further discussion of overscaling and use of the default high range.

For units with add-on NO_x emission controls, if you report data from a certified control device inlet monitor during hours in which the outlet NO_x monitor is unavailable and proper operation of the emission controls is not verified, report the average, unadjusted NO_x concentration recorded by the inlet monitor.

Method of Determination Code (30). Report one of the following method of determination codes (MODC) to identify the type of monitoring system or missing data procedures used to determine NO_x concentration for the hour. Manual entry of MODCs "17" and "21" is permitted.

All Systems

01	Primary Monitoring System
02	Redundant Backup or Regular Non-redundant Backup Monitoring System
03	Approved Subpart E Alternative Monitoring System
04	Reference Method Backup System (Method 7E)
17	Like-kind Replacement Analyzer
19	200% of MPC; Default High Range Value Used in the Calculation of the Hourly Average NO_x Concentration. (These hourly concentrations or the NO_x emission rates calculated for these hours are included in missing data lookback and are treated as available hours for percent availability calculations for RT 201 or RT 320 as appropriate.)
20	200% of Full-scale Range Used in the Calculation of the Hourly Average NO_x Concentration. (These hourly concentrations or the NO_x emission rates calculated for these hours are included in missing data lookback and are treated as available hours for percent availability calculations for RT 201 or RT 320 as appropriate.)
21	Negative Hourly Average NO_x Concentration Replaced With Zero
22	NO_x concentration from a certified monitoring system at the control device inlet, when the outlet NO_x monitor is unavailable and proper operation of the emission controls is not verified. Include these hours in the missing data lookbacks and treat them as available hours in the PMA calculations.

Additional Codes for NO_x Concentration Monitoring Systems

06	Average Hour Before/Hour After
07	Average Hourly Concentration, Initial Missing Data
08	90th Percentile Value in Load Range Lookback Period
09	95th Percentile Value in Load Range Lookback Period
10	Part 75 Maximum Hourly Concentration Value in Load Range for Lookback Period
11	Part 75 Average Hourly Concentration in Load Range
12	Part 75 Unit or Stack Maximum Potential Concentration (MPC)
23	Maximum Potential Concentration of NO_x, When Flue Gases are Routed Through an Unmonitored Bypass Stack. These hours are considered to be missing data hours.
54	Other Quality-assured Methodologies Approved through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if submitted solely for purposes of Subpart H). These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.
55	Other Substitute Data Approved through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if

submitted solely for purposes of Subpart H). These hours are not included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes 56 through 99 may be used by vendors and companies for other purposes but must not be reported in a quarterly report. MODCs of 30, 31, 35, and 36 were defined in EDR v2.0 for OTC NBP units only and are not allowed for Acid Rain or Subpart H reporting.

Adjusted Average NO_x Concentration for the Hour (32).

Report data in this field only if you use NO_x concentration times stack flow rate to determine NO_x mass emissions. Otherwise, leave it blank.

For each hour in which you obtain a quality-assured value and use NO_x concentration times stack flow as the methodology for NO_x mass emissions calculations, apply the appropriate adjustment factor (1.000 or system BAF) to the rounded average NO_x concentration for the hour. Report the adjusted average NO_x concentration for the hour in ppm, rounded to one decimal place.

For each hour in which NO_x concentration is missing, report the substitute NO_x concentration value.

For each hour in which a default high range value is used in the calculation of the hourly average NO_x concentration, report the bias-adjusted hourly average in this field unless it exceeds 200% of the MPC, in which case, report 200% of the MPC.

When a full-scale exceedance of the high range occurs and 200% of the range is used in the calculation of the hourly average NO_x concentration, report the bias-adjusted hourly average in this field unless it exceeds 200% of the range, in which case, report 200% of the range.

For units with add-on NO_x emission controls, if you report data from a certified NO_x monitor at the control device inlet during hours in which the outlet NO_x monitor is unavailable and proper operation of the emission controls is not verified, report the average, bias-adjusted NO_x concentration recorded by the monitor. Include these hours in the missing data lookbacks and treat them as available hours in the PMA calculations.

Percent Monitor Data Availability for NO_x Concentration (38). Report data in this field only if you use NO_x concentration times stack flow as the primary methodology for NO_x mass calculations for all hours. Report the percent monitor data availability for each hour unless the hourly NO_x concentration is unavailable and the Part 75 missing data procedures are used. It is optional to report percent monitor data availability for hours in which missing data are substituted.

Leave this field blank if you use NO_x concentration times stack flow as a secondary (backup) methodology.

(3) **RT 202: CO_2 Concentration Data (ARP)**

Report RT 202 only if you use continuous emissions monitoring to determine CO_2 mass emissions under the Acid Rain Program. If you use an O_2 concentration monitor and Equation F-14a or F-14b to determine CO_2 concentration for each hour, report both RT 211 and 202 for the hour (see the instructions for RT 211). For non-Acid Rain Subpart H units, report the CO_2 diluent concentration values used to calculate NO_x emission rates and heat input rates in RT 210, not in RT 202.

(a) If you use a CO_2 monitor only to determine CO_2 mass emissions (and not for heat input rate or NO_x emission rate determination):

Report RT 202, under the CO_2 monitoring system ID, for each hour or partial hour of unit operation. When the hourly CO_2 concentration is missing, or for hours in which the flue gases are discharged through an unmonitored bypass stack, use the missing data routines in § 75.35 to provide substitute data values.

(b) If you use the same CO_2 monitor to account for CO_2 mass emissions and hourly heat input rate (but not for NO_x emission rate):

Report RT 202 under the CO_2 monitoring system ID and use the CO_2 data from RT 202 to calculate the hourly CO_2 mass emissions and heat input rates. When the hourly CO_2 concentration is missing, or for hours in which the flue gases are discharged through an unmonitored bypass stack, use the missing data procedures in §§ 75.35 and 75.36 to provide substitute data values.

(c) If you use the same CO_2 monitor to account for CO_2 mass emissions and NO_x emission rate (but not heat input rate):

Report RT 202 under the CO_2 monitoring system ID and report RT 210 under the NO_x-diluent monitoring system ID. If the hourly CO_2 concentration is missing, or for hours in which the flue gases are discharged through an unmonitored bypass stack, calculate and report a substitute CO_2 concentration in RT 202, using the Part 75 missing data procedures in § 75.35. Do not report RT 210 for the hour if: (1) a quality-assured CO_2 concentration is not available; or (2) a quality-assured NO_x concentration is not available; or (3) both (1) and (2). Instead, report a substitute data value for NO_x emission rate in RT 320.

(d) If you use the same CO_2 monitor to account for CO_2 mass emissions, heat input rate, and NO_x emission rate:

Report RT 202 under the CO_2 monitoring system ID and report RT 210 under the NO_x-diluent monitoring system ID. If the hourly CO_2 concentration is missing, or for hours in which the flue gases are discharged through an unmonitored bypass stack, calculate and report a substitute CO_2 concentration in RT 202, using the Part 75 missing data procedures in §§ 75.35 and 75.36. Use the substitute data value in the heat input rate equation. Do not report RT 210 for the hour if: (1) a quality-assured CO_2 concentration is not available; or (2) a quality-assured NO_x concentration is not available; or (3) both (1) and (2). Instead, report a substitute data value for NO_x emission rate in RT 320.

For a summary of these requirements, see Table 4 below.

Table 4
SUMMARY OF RT 202 REPORTING REQUIREMENTS (ARP)

Use of CO_2 Analyzer	Monitoring System ID Used	Report Columns	Missing Data Instructions
For CO_2 mass emission rate only	CO_2 monitoring system ID	Columns 1 through 36 in RT 202	Perform CO_2 missing data substitution in RT 202.
For heat input rate (HI) and CO_2 mass emission rate	CO_2 monitoring system ID for both CO_2 mass and HI	Columns 1 through 36 in RT 202	Perform CO_2 missing data substitution in RT 202. Use the substitute data value to calculate heat input rate.
For CO_2 mass emission rate and NO_x emission rate	CO_2 monitoring system ID for CO_2 mass (RT 202)	Columns 1 through 36 in RT 202	Perform CO_2 missing data substitution in RT 202.
	NO_x-diluent monitoring system ID for NO_x emission rate (RT 210)	Columns 1 through 30 in RT 210	Perform NO_x missing data substitution in RT 320 for the hour. Do not report RT 210.
For CO_2 mass emission rate, NO_x emission rate and heat input rate	CO_2 monitoring system ID for both CO_2 mass and HI (RT 202)	Columns 1 through 36 in RT 202	Perform CO_2 missing data substitution in RT 202. Use the substitute data value to calculate heat input rate.
	NO_x-diluent monitoring system ID for NO_x emission rate (RT 210)	Columns 1 through 30 in RT 210	Perform NO_x missing data substitution in RT 320 for the hour. Do not report RT 210.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). For each hour of quality-assured data, report the identification numbers of the monitoring system and component used during the hour. For missing data hours, leave these fields blank.

If a full-scale exceedance value of 200% of the range is used in the calculation of the hourly average CO_2 concentration, report the monitoring system and component IDs of the monitoring system in use at the time of the occurrence. Treat such hours as though they are quality-assured monitor operating hours; include them in missing data lookback and count them as available hours for percent monitor data availability calculations.

If a like-kind replacement non-redundant backup analyzer is used during periods of maintenance and repair of the primary analyzer (see § 75.20(d)), report the primary monitoring system ID number and assign and report a unique component ID number (beginning with the prefix "LK" as defined in RT 510, e.g., "LK1") for the like-kind replacement analyzer. The like-kind replacement analyzer component ID may be manually entered.

Average CO_2 Concentration for the Hour (24). Report the quality-assured CO_2 concentration for the hour, expressed in percent CO_2 (%CO_2), rounded to one decimal place. During hours in which you use substitute data, or for hours in which the flue gases are discharged through an unmonitored bypass stack, report the substituted value obtained from the CO_2 missing data procedures under §§ 75.35 or 75.36 (as applicable).

For each hour in which a diluent cap value is used to calculate CO_2 mass emissions or heat input rate, report the actual quality-assured CO_2 concentration and appropriate MODC (01 through 04). For each such hour, report the appropriate flag(s) in RT 300, column 56 and/or RT 330, column 43 if the diluent cap is being used to calculate heat input rate and CO_2 mass emission rate. If you use Equation F-14B to determine CO_2 concentration from O_2 concentration you must use the modified Equation F-14D to calculate %CO_2 from %O_2 during hours in which you use the diluent cap (see Table 18 under RT 520). You must also use the diluent cap value in the missing data lookback.

Method of Determination Code (30). Report one of the following method of determination codes (MODC) to identify the type of monitoring system or missing data procedure used to determine CO_2 concentration for the hour. Note that MODC 14 is no longer valid for this record type. Manual entry of MODC "17" is permitted.

01	Primary Monitoring System
02	Redundant Backup Monitoring or Regular Non-redundant Backup System
03	Approved Subpart E Alternative Monitoring System
04	Reference Method Backup System (Method 3A)
06	Average Hour Before/Hour After
07	Average Hourly Concentration, Initial Missing Data
08	90th Percentile Value in Lookback Period
09	95th Percentile Value in Lookback Period
10	Maximum Hourly CO_2 Concentration Value in Lookback Period
12	Maximum Potential Concentration of CO_2 (see Section 2.1.3.1 of Appendix A to Part 75)
17	Like-kind Replacement Analyzer
20	200% of Full-scale Range Used in Hourly Average Percent CO_2 Calculation (full-scale exceedance of high range). These hours <u>are</u> included in missing data lookback and are treated as available hours for percent availability calculations.
54	Other Quality-assured Methodologies Approved Through Petition by EPA. These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.
55	Other Substitute Data Approved Through Petition by EPA. These hours are <u>not</u> included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes 56 through 99 may be used by vendors and companies for other purposes but must <u>not</u> be reported in a quarterly report.

Percent Monitor Data Availability for CO_2 Concentration (32). Report the percent monitor data availability for each hour unless missing data are substituted using Part 75

missing data procedures. It is optional to report percent monitor availability during hours in which missing data are substituted.

(4) **RT 210: CO_2 Diluent Concentration Data**

Report RT 210 for each operating hour (or partial operating hour) to support NO_x emission rate, and/or heat input rate determination as follows:

(a) If the CO_2 concentration from RT 210 is used only to determine the hourly NO_x emission rate and not to determine hourly heat input rate:

Report RT 210 (under the NO_x-diluent system monitoring ID) for each hour in which a quality-assured CO_2 concentration is used with a quality-assured NO_x concentration value to calculate the NO_x emission rate (reported in RT 320).

Do not report RT 210 for the hour if: (1) a quality-assured CO_2 concentration is not available; or (2) a quality-assured NO_x concentration is not available; or (3) both (1) and (2) apply. Instead, report a substitute data value for NO_x emission rate in RT 320. Note that hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours. (For these hours, do not report RT 210. In RT 320, report the NO_x MER and MODC 23.)

When a default high range value (200% of MPC) or a full-scale exceedance value (200% of the range) is used in the calculation of the hourly average NO_x concentration, the NO_x concentration is considered to be both quality-assured and available. Therefore, if a quality-assured CO_2 concentration is available for that hour, report RT 210 and calculate the NO_x emission rate in the usual manner. However, if a quality-assured CO_2 concentration is not available for that hour, the NO_x emission rate data for the hour are considered missing. In that case, do not report RT 210 for the hour and report the maximum potential NO_x emission rate (MER) as a substitute data value in RT 320, using an MODC of 25.

(b) For an Acid Rain unit using a CO_2 analyzer to determine CO_2 mass emissions, NO_x emission rate, and heat input rate:

Report RT 210 under the NO_x-diluent monitoring system ID and follow the instructions in (a) above. In this case, the CO_2 value used for heat input rate purposes and for CO_2 mass emissions is reported (and substituted if necessary) in RT 202 (using the CO_2 monitoring system ID) and not in RT 210.

(c) If the CO_2 concentration from RT 210 is used to determine the hourly NO_x emission rate and the hourly heat input rate:

Report RT 210 for every unit or stack operating hour or partial operating hour (under the NO_x-diluent monitoring system ID), including hours in which substitute data are reported in RT 320 for NO_x emission rate.

If the hourly CO_2 concentration is missing, or for hours in which the flue gases are discharged through an unmonitored bypass stack: (1) calculate a substitute CO_2

concentration, using the Part 75 missing data procedures in § 75.36; (2) report the substitute data value in RT 210; (3) use the substitute data value to calculate the heat input rate; and (4) perform missing data substitution for RT 320 for the hour for NO_x emission rate (for unmonitored bypass stack hours, report NO_x MER and MODC 23).

(d) If the CO_2 concentration from RT 210 is to be used only for heat input rate determination (and not to determine NO_x emission rate):

Define a CO_2 monitoring system in the monitoring plan. Then, report RT 210 (under the CO_2 monitoring system ID) for every unit or stack operating hour.

When CO_2 concentration for the hour is missing, use the missing data procedures in § 75.36 to calculate an appropriate substitute CO_2 concentration. Report the value and use it for the hourly heat input rate determination.

For a summary of these requirements, see Table 5 below.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). If the CO_2 data from RT 210 are used only to determine the hourly NO_x emission rate or are used to determine both NO_x emission rate and hourly heat input rate, report the monitoring system and component IDs for the CO_2 component of the NO_x-diluent monitoring system.

If the CO_2 data from RT 210 are used only to determine heat input rate, report the monitoring system and component IDs for the CO_2 component of the CO_2 monitoring system certified for heat input rate purposes. If CO_2 concentration is missing for the hour and this value is needed to determine hourly heat input rate, use missing data substitution for the hour and leave the monitoring system and component ID blank. Note that hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours.

If a like-kind replacement non-redundant backup analyzer is used, during periods of maintenance and repair of the primary analyzer (see § 75.20(d)), report the primary monitoring system ID; for the like-kind replacement analyzer assign and report a unique three-character component ID (beginning with the prefix "LK" as defined in RT 510, e.g., "LK1"). The component ID of the like-kind analyzer may be manually entered.

Average CO_2 Concentration for the Hour (24). Report the CO_2 concentration for the hour, expressed as percent (%CO_2), rounded to one decimal place. For each hour in which you use the diluent cap value to calculate NO_x emission rate, heat input rate, or CO_2 mass emissions, report the actual quality-assured CO_2 concentration in RT 210 and appropriate MODC (01 through 04). There is one exception to this -- if the actual measured hourly average CO_2 concentration is negative or zero and you use the diluent cap, report the cap value in RT 210 (see section II..C.(3).(a).2 of these Instructions).

For each hour in which the diluent cap is used for NO_x emission rate, report an MODC of 14 in RT 320, column 53. If the diluent cap is used to calculate heat input rate and CO_2

mass emission rate, report the appropriate flag(s) in RT 300, column 56 and/or RT 330, column 43. The use of the diluent cap is optional for any type of unit, but if you use it to calculate CO_2 mass emission rate you must also use it to calculate the heat input rate.

If you use the CO_2 diluent monitor only for heat input rate determination, but not to determine CO_2 mass emissions (i.e., for the third or fourth case in Table 5, below), then, for any hour in which the flue gases are routed through an unmonitored bypass stack, report the substitute CO_2 concentration calculated using the missing data procedures in § 75.36. If you use the CO_2 monitor to determine CO_2 mass emissions as well as heat input rate (i.e., the second case in Table 5), perform the missing data substitution in RT 202.

Table 5
SUMMARY OF RT 210 REPORTING REQUIREMENTS

Use of CO_2 Diluent Analyzer	Monitoring System ID Used	Report Columns	Missing Data Instructions
For NO_x emission rate only	NO_x-diluent system monitoring ID	Columns 1 through 30 in RT 210	Perform NO_x missing data substitution in RT 320 for the hour. Do not report RT 210.
For NO_x emission rate, heat input rate and CO_2 mass emissions (Acid Rain only)	NO_x-diluent monitoring system ID for NO_x emission rate (RT 210)	Columns 1 through 30 in RT 210	Perform NO_x missing data substitution in RT 320 for the hour. Do not report RT 210.
	CO_2 monitoring system ID for HI and CO_2 mass (RT 202)	Columns 1 through 36 in RT 202	Perform CO_2 missing data substitution in RT 202. Use the substitute data value in the heat input rate equation.
For NO_x emission rate and heat input rate	NO_x-diluent system monitoring ID	Columns 1 through 35 in RT 210	Perform CO_2 missing data substitution in RT 210. Use the substitute data value in the heat input rate equation. Also perform NO_x missing data substitution in RT 320 for the hour for NO_x emission rate.
For heat input rate only	CO_2 monitoring system ID	Columns 1 through 35 in RT 210	Perform CO_2 missing data substitution in RT 210 for the hour. Use the substitute data value in the heat input rate equation.

Method of Determination Code (29). This field is required for all hours in which RT 210 is reported. Do not leave this field blank. Report one of the following method of determination codes (MODC) to identify the type of monitoring system or missing data procedure used to determine CO_2 concentration for the hour. Manual entry of MODC "17" is permitted. Codes 06 through 12 apply only when a CO_2 monitor is used for heat input rate determinations. Codes 06 through 12 do not apply when the necessary CO_2 data for heat input rate determinations are obtained from RT 202.

All Systems

01	Primary Monitoring System
02	Redundant Backup or Regular Non-redundant Backup Monitoring System
03	Approved Part 75 Alternative Monitoring System
04	Reference Method Backup System (Method 3A)

Additional CO_2 Codes for Heat Input Rate Determinations

06	Average Hour Before/Hour After
07	Average Hourly Concentration, Initial Missing Data
08	90th Percentile Value in Lookback Period
09	95th Percentile Value in Lookback Period
10	Maximum Hourly CO_2 Concentration in Lookback Period
12	Maximum Potential Concentration (Section 2.1.3.1 of Appendix A to Part 75)
17	Like-kind Replacement Analyzer
20	200% of Full-scale Range Used in the Calculation of the Hourly Average CO_2 Concentration. These hours are included in missing data lookback and are treated as available hours for percent availability calculations..
54	Other Quality-assured Methodologies Approved Through Petition by EPA and the State (if submitted solely for purposes of Subpart H). These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.
55	Other Substitute Data Approved Through Petition by EPA and the State (if submitted solely for purposes of Subpart H). These hours are not included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes for 56 through 99 may be used by vendors and companies for other purposes but must not be reported in a quarterly report. An MODC of 30 was defined in EDR v2.0 for OTC NBP units only and is not allowed for Acid Rain or Subpart H reporting.

Percent Monitor Availability for CO_2 Concentration (31). Report percent monitor data availability in RT 210 only when the CO_2 data in RT 210 are used for determining heat input rate (i.e., for the third or fourth case in Table 5, above). It is optional to report percent monitor availability during hours in which missing data are substituted.

(5) RT 211: O_2 Diluent Concentration Data

For each hour in which you obtain a quality-assured O_2 concentration and use this value to determine the hourly NO_x emission rate, heat input rate, CO_2 concentration, or percent moisture, report the O_2 concentration in RT 211.

(a) If the O_2 concentration from RT 211 is used only to determine the hourly NO_x emission rate:

Report RT 211 (under the NO_x-diluent monitoring system ID) for each hour in which a quality-assured O_2 concentration is obtained and is used with a quality-assured NO_x concentration to calculate a quality-assured NO_x emission rate (reported in RT 320).

Do not report RT 211 for the hour if: (1) a quality-assured O_2 concentration is not available; or (2) a quality-assured NO_x concentration is not available; or (3) both (1) and (2) apply. Instead, report a substitute data value for NO_x emission rate in RT 320. Note that hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours. (For these hours, do not report RT 211. In RT 320, report the NO_x MER and MODC 23.)

When a default high range value (200% of MPC) or a full-scale exceedance value (200% of the range) is used in the calculation of the hourly average NO_x concentration, the NO_x concentration is considered to be both quality-assured and available. Therefore, if a quality-assured O_2 concentration is available for the hour, calculate and report the NO_x emission rate in the usual manner. However, if a quality-assured O_2 concentration is not available for the hour, the NO_x emission rate data for the hour are considered to be missing. In that case, do not report RT 211 for the hour and report the maximum potential NO_x emission rate (MER) as a substitute data value in RT 320, using an MODC of 25.

(b) If the O_2 concentration from RT 211 is used to determine both the hourly NO_x emission rate and the hourly heat input rate:

Report RT 211 for every unit or stack operating hour or partial operating hour (under the NO_x-diluent monitoring system ID).

If the hourly O_2 concentration is missing or for hours in which the flue gases are discharged through an unmonitored bypass stack, calculate a substitute O_2 concentration, using the Part 75 missing data procedures in § 75.36. Report the substitute data value in RT 211 and use it for the hourly heat input rate determination. Also perform missing data substitution for NO_x emission rate in RT 320 (for unmonitored bypass stack hours, report NO_x MER and MODC 23). Hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours.

(c) If the O_2 concentration from RT 211 is used only to determine the hourly heat input rate:

Define an O_2 monitoring system in the monitoring plan. Report RT 211 (under the O_2 monitoring system ID) for every unit or stack operating hour.

When O_2 concentration for the hour is missing or for hours in which the flue gases are discharged through an unmonitored bypass stack, use the missing data procedures in § 75.36

to calculate an appropriate substitute O_2 concentration in RT 211 for the hourly heat input rate determination. Hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours.

(d) If you use wet and dry O_2 analyzers only to determine the hourly percent moisture:

Report two RTs 211 for each hour under the moisture monitoring system ID. Report one RT 211 with a "W" in column 31 and report the other RT 211 with a "D" in column 31, as appropriate.

If either O_2 value is missing or for hours in which the flue gases are discharged through an unmonitored bypass stack, perform missing moisture data substitution in RT 212, in accordance with § 75.37.

(e) If the O_2 concentrations from RTs 211 are used to determine both hourly percent moisture and hourly heat input rate (but not NO_x emission rate):

Report one RT 211 under the O_2 monitoring system ID and report a second RT 211 under the moisture monitoring system ID. Report one RT 211 with a "W" and the other with a "D" in column 31, as appropriate.

If either O_2 value is missing or for hours in which the flue gases are discharged through an unmonitored bypass stack, perform missing moisture data substitution in RT 212, in accordance with § 75.37. Do not report RT 211 for the hour under the moisture monitoring system ID.

When the O_2 concentration used for heat input rate determination is missing or for hours in which the flue gases are discharged through an unmonitored bypass stack, use the missing data procedures in § 75.36 to calculate an appropriate substitute O_2 concentration in RT 211 for the hourly heat input rate determination.

(f) If you define a moisture system comprised of wet and dry O_2 analyzers and one of the O_2 analyzers is also part of a NO_x-diluent system:

Report one RT 211 under the NO_x-diluent monitoring system ID and report a second RT 211 under the moisture monitoring system ID. Report one RT 211 with a "W" and the other with a "D" in column 31, as appropriate.

For hours in which the flue gases are discharged through an unmonitored bypass stack, perform the missing data substitution for percent moisture in RT 212 using the procedures in § 75.37 and report NO_x MER and MODC 23 in RT 320.

If the O_2 concentration needed for the NO_x emission rate determination is missing for the hour, then: (1) perform missing data substitution in RT 320 for NO_x emission rate; (2) do not report any RTs 211 for the hour; and (3) perform missing data substitution for percent moisture in RT 212 using the procedures in § 75.37.

If the O_2 concentration needed only for moisture determination is missing for the hour but the other O_2 concentration is available, perform missing data substitution for percent moisture in RT 212. Do not report RT 211 for the hour under the moisture monitoring system ID.

(g) If the O_2 concentration from RT 211 is used to calculate CO_2 concentration using Equations F-14A or F-14B and this CO_2 value is used to determine hourly CO_2 mass emissions:

(1) If the O_2 analyzer is used to determine CO_2 concentration but not for NO_x emission rate, define a CO_2 monitoring system in the monitoring plan. Report RT 211 (under the CO_2 monitoring system ID) for each hour in which a quality-assured O_2 concentration is obtained. If a quality-assured O_2 concentration is not available or for hours in which the flue gases are discharged through an unmonitored bypass stack, then: (a) perform missing CO_2 data substitution in RT 202, according to § 75.35, and (b) do not report RT 211 for that hour unless the O_2 data are needed for heat input rate determination, in which case, also perform missing O_2 data substitution in RT 211, according to the procedures in § 75.36.

(2) If the O_2 analyzer is also part of a NO_x-diluent system and you use the same O_2 hourly value for both NO_x emission rate and CO_2 concentration, report RT 211 under the NO_x-diluent system ID. Calculate and report in RT 202 the CO_2 concentration (under the CO_2 monitoring system ID) based on the O_2 value reported in RT 211. If a quality-assured O_2 concentration is not available for the hour or for hours in which the flue gases are discharged through an unmonitored bypass stack, then: (a) perform missing CO_2 data substitution in RT 202, according to § 75.35; (b) perform missing data substitution in RT 320 for NO_x emission rate (but for unmonitored bypass stack hours, report NO_x MER and MODC 23); and (c) do not report RT 211 for that hour unless O_2 data are needed for heat input rate determination, in which case also perform missing O_2 data substitution in RT 211, according to the procedures in § 75.36.

For a summary of these requirements, see Table 6 below.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). If the O_2 data in a particular RT 211 are used to determine: (1) hourly NO_x emission rate only; or (2) both hourly NO_x emission rate and heat input rate; or (3) both hourly NO_x emission rate and moisture; or (4) both hourly NO_x emission rate and CO_2 concentration, report the monitoring system and component IDs for the O_2 component of the NO_x emission rate monitoring system.

If the O_2 data in a particular RT 211 are only used for heat input rate determination, define an O_2 monitoring system in your monitoring plan. Report the monitoring system ID and the O_2 component ID as defined in the O_2 system.

If the O_2 data in a particular RT 211 are only used for purposes of determining CO_2 concentration, define a CO_2 monitoring system in your monitoring plan. Report the monitoring system ID and the O_2 component ID as defined in the CO_2 system.

Table 6
SUMMARY OF RT 211 REPORTING REQUIREMENTS

Use of O_2 Diluent Analyzer	Monitoring System ID Used	Report Columns	Missing Data Instructions
For NO_x emission rate only	NO_x-diluent monitoring system ID	Columns 1 through 30 in RT 211	Perform NO_x missing data substitution in RT 320 for the hour. Do not report RT 211.
For NO_x emission rate and heat input rate	NO_x-diluent monitoring system ID	Columns 1 through 36 in RT 211	Perform O_2 missing data substitution in RT 211 for the hour. Use the substitute data value in the heat input rate equation. Also perform NO_x missing data substitution in RT 320 for the hour.
For heat input rate only	O_2 monitoring system ID	Columns 1 through 36 in RT 211	Perform O_2 missing data substitution in RT 211 for the hour. Use the substitute data value in the heat input rate equation.
For moisture only	Moisture monitoring system ID	Columns 1 through 31 in RT 211	Perform moisture missing data substitution in RT 212 for the hour if either O_2 concentration is missing. Do not report any RTs 211 for the hour.
For heat input rate and moisture (but not NO_x emission rate)	O_2 monitoring system ID for one O_2 reading	Columns 1 through 36 in RT 211	Perform O_2 missing data substitution in RT 211 for the hour. Use the substitute data value in the heat input rate equation.
	Moisture monitoring system ID for other O_2 reading	Columns 1 through 31 in RT 211	Perform moisture missing data substitution in RT 212 for the hour if either O_2 concentration is missing. Do not report this RT 211.

(cont.)

Table 6
SUMMARY OF RT 211 REPORTING REQUIREMENTS (cont.)

Use of O_2 Diluent Analyzer	Monitoring System ID Used	Report Columns	Missing Data Instructions
For NO_x emission rate and moisture	NO_x-diluent monitoring system ID for one O_2 reading (wet or dry)	Columns 1 through 31 in RT 211	Perform NO_x missing data substitution in RT 320 for the hour. Perform moisture missing data substitution in RT 212 for the hour if this O_2 concentration is missing. Do not report any RTs 211 for the hour.
For NO_x emission rate and moisture (cont.)	Moisture monitoring system ID for other O_2 reading (wet or dry)	Columns 1 through 31 in RT 211	Perform moisture missing data substitution in RT 212 for the hour if this O_2 concentration is missing. Do not report this RT 211 for the hour.
For determining CO_2 concentration and possibly heat input rate, but not NO_x emission rate	CO_2 monitoring system ID in RT 211 for measured O_2 value	Columns 1 through 31 in RT 211	Do not report RT 211 if O_2 is missing for the hour unless O_2 is needed for heat input rate determination.
	CO_2 monitoring system ID in RT 202 for calculated CO_2 value	Columns 1 through 36 in RT 202	Perform CO_2 missing data substitution in RT 202 for the hour.
For CO_2 concentration and NO_x emission rate, and possibly for heat input rate	NO_x-diluent monitoring system ID in RT 211 for measured O_2 value	Columns 1 through 31 in RT 211	Perform NO_x missing data substitution in RT 320 for the hour. Do not report RT 211 if O_2 is missing for the hour unless O_2 is needed for heat input rate determination.
	CO_2 monitoring system ID in RT 202 for calculated CO_2 value	Columns 1 through 36 in RT 202	Perform CO_2 missing data substitution in RT 202 for the hour.

If the O_2 data in a particular RT 211 are only used for purposes of determining moisture, report the monitoring system ID and the appropriate O_2 component ID as defined in the moisture monitoring system.

If O_2 concentration is missing for the hour and missing data are substituted for heat input rate purposes, leave the monitoring system and component ID blank. This includes hours in which the flue gases are discharged through an unmonitored bypass stack.

If a like-kind replacement non-redundant backup analyzer is used, during periods of maintenance and repair of the primary analyzer (see § 75.20(d)), report the primary monitoring system ID and assign and report the like-kind replacement analyzer a unique component ID (beginning with the prefix "LK" as defined in RT 510, e.g., "LK1"). The component ID of the like-kind analyzer may be manually entered.

Average O_2 Concentration for the Hour (24). Report O_2 concentration for the hour, expressed in $\%O_2$, rounded to one decimal place. For each hour in which you use the diluent cap value to calculate NO_x emission rate, CO_2 mass emission rate, or heat input rate, report the actual quality-assured O_2 concentration in RT 211 and appropriate MODC (01 through 04). For each such hour, report an MODC of 14 in RT 320, column 53, to indicate that the diluent cap is being used for NO_x emission rate. Also, if applicable, report the appropriate flag(s) in RT 300, column 56 and/or RT 330, column 43 if the diluent cap is used to calculate heat input rate and CO_2 mass emission rate. The use of the diluent cap is optional for any type of unit, but if you use it to calculate CO_2 mass emission rate you must also use it to calculate heat input rate.

If you use the data in RT 211 for heat input rate determination, report the appropriate substitute data value in this field when a quality-assured O_2 concentration for the hour is unavailable or for hours in which the flue gases are discharged through an unmonitored bypass stack.

Method of Determination Code (29). This field is required for all hours in which RT 211 is reported. Do not leave this field blank. Report one of the following method of determination codes (MODC) to identify the type of monitoring system or missing data procedure used to report O_2 concentration for the hour. Manual entry of MODC "17" is permitted. Codes 06 through 12 apply only when a separately certified O_2 monitoring system is defined in the monitoring plan and is used exclusively for heat input rate determinations in accordance with Equation F-17 or F-18 in Appendix F to Part 75.

All Systems

01	Primary Monitoring System
02	Redundant Backup or Regular Non-redundant Backup Monitoring System
03	Subpart E Alternative Monitoring System
04	Reference Method Backup System (Method 3A)

Additional Codes for Heat Input Rate

06	Average Hour Before/Hour After
07	Average Hourly Concentration, Initial Missing Data
08	10th Percentile Value in Lookback Period
09	5th Percentile Value in Lookback Period
10	Minimum Hourly O_2 Concentration in Lookback Period

12	Minimum Potential Concentration (Section 2.1.3.2 of Appendix A to Part 75)
17	Like-kind Replacement Analyzer
20	200% of Full-scale Range Used in the Calculation of the Hourly Average O_2 Concentration. These hours are included in missing data lookback and are treated as available hours for percent availability calculations
54	Other Quality-assured Methodologies Approved Through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if submitted solely for purposes of Subpart H). These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.
55	Other Substitute Data Approved Through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if submitted solely for purposes of Subpart H). These hours are not included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes for 56 through 99 may be used by vendors and companies for other purposes but must not be reported in a quarterly report. An MODC of 30 was defined in EDR v2.0 for OTC NBP units only and is not allowed for Acid Rain or Subpart H reporting.

Moisture Basis of Measurement (31). If you use reported O_2 values to determine hourly moisture, report one of the following uppercase codes to indicate the moisture basis of the O_2 reading.

D	Dry
W	Wet

Percent Monitor Availability for O_2 Concentration (32). Reporting of percent monitor data availability in RT 211 is only required when the CO_2 data in RT 211 are used for determining heat input rate. It is optional to report percent monitor availability during hours in which missing data are substituted.

(6) **RT 212: Moisture Data**

For any unit or stack that requires hourly moisture measurements to determine emissions or heat input rate, report the moisture value in RT 212 for each operating hour or partial operating hour. Moisture is updated hourly from moisture sensors, wet and dry-basis O_2 analyzers, or, for saturated gas streams, from a temperature sensor and look-up table. Do not report moisture values in RT 220.

(a) If you use a fuel-specific default moisture value, as allowed under § 75.11 or § 75.12 (for coal and wood burning units only), see the instructions for RT 531 and use this constant in the calculation. Represent the constant as a variable in the formula text of RT 520. Do not report RT 212 on an hourly basis.

(b) If you use a moisture value from a look-up table based on the stack temperature and the presence of saturated conditions, report this value on an hourly basis in RT 212.

(c) When moisture is determined using wet and dry-basis O_2 analyzers, the percent monitor data availability for moisture is tracked in RT 212 on a system basis, and the percent availability of the individual O_2 monitors is not tracked. This is analogous to the reporting and availability requirements for NO_x-diluent monitoring systems (see the instructions for RT 320).

The Part 75 missing data procedures for moisture are found in § 75.37. These procedures are modeled after the standard missing data procedures for SO_2. In most instances, the moisture missing data algorithm is the inverse of the SO_2 algorithm (i.e., the lower moisture values are more conservative and therefore an inverted moisture missing data algorithm must be applied (using 10th percentile values instead of 90th percentile values, minimum values instead of maximum values, etc)). However, when Equations 19-3, 19-4, or 19-8 from Method 19 of 40 CFR Part 60 are used to determine NO_x emission rate, a higher moisture value is more conservative and therefore the standard SO_2 missing data algorithm must be applied.

Field Descriptions and Instructions

Component ID (10). Leave the component ID blank if: (1) the reported moisture value is a substitute data value or (2) if the reported moisture value is calculated from the readings of two or more components in the system. Otherwise report the component ID. Hours in which the flue gases are discharged through an unmonitored bypass stack are considered to be missing data hours.

Monitoring System ID (13). If the reported moisture value is a substitute data value, leave the monitoring system ID blank; otherwise report the monitoring system ID.

Average Moisture Content of Flue Gases for the Hour (24). Report moisture for the hour, expressed in $\%H_2O$, rounded to one decimal place. Report the appropriate substitute data value for hours in which a quality-assured moisture percentage is unavailable or for hours in which the flue gases are discharged through an unmonitored bypass stack.

Formula ID (29). If hourly moisture is calculated from wet and dry oxygen readings, report the formula ID from RT 520 that represents this calculation. If moisture is provided by a continuous moisture sensor or by a temperature sensor and a look-up table, leave this field blank.

Method of Determination Code (32). Report one of the following method of determination codes (MODC) to identify the type of monitoring system or missing data procedure used to determine hourly moisture. Manual entry of MODC "21" is permitted.

01	Primary Monitoring System
02	Redundant Backup or Regular Non-redundant Backup Monitoring System
03	Part 75 Alternative Monitoring System
04	Reference Method Backup System
06	Average Hour Before/Hour After
07	Average Hourly Moisture Percentage, Initial Missing Data
08	90th or 10th Percentile Value in Lookback Period
09	95th or 5th Percentile Value in Lookback Period

10	Maximum or Minimum Hourly Moisture Percentage in Lookback Period
12	Maximum or Minimum Potential Moisture Percentage (Section 2.1.5 or 2.1.6 of Appendix A to Part 75)
21	Measured Negative Moisture Percentage Replaced with Zero
54	Other Quality-assured Methodologies Approved Through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if submitted solely for the purposes of Subpart H). These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.
55	Other Substitute Data Approved Through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if submitted solely for the purposes of Subpart H). These hours are not included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes 56 through 99 may be used by vendors and companies for other purposes but must not be reported in a quarterly report. MODCs of 30 and 31 were defined in EDR v2.0 for OTC NBP units only and are not allowed for Acid Rain or Subpart H reporting.

Percent Monitor Data Availability for Moisture (34). When you use the standard moisture missing data procedures in § 75.37, which are based on percent availability, calculate and report the annual moisture percent data availability for each hour unless missing data are substituted. It is optional to report percent monitor availability during hours in which missing data are substituted.

(7) **RT 220: Volumetric Flow Data**

If you use stack flow monitoring to determine hourly heat input rate or SO_2, CO_2, or NO_x mass emissions, report RT 220 for each operating hour or partial operating hour.

Field Descriptions and Instructions

Component ID (10). If you determine hourly stack flow rate by averaging (or subtracting) the readings from two flow components which are identified as components of the same monitoring system, leave this field blank. If the hourly flow rate is a substitute data value, leave this field blank. This includes hours in which the flue gases are discharged through an unmonitored bypass stack.

Monitoring System ID (13). If the hourly flow rate is a substitute data value, leave this field blank. This includes hours in which the flue gases are discharged through an unmonitored bypass stack. If a full-scale exceedance occurs and you use a value of 200% of the range in the calculation of the hourly average flow rate, report the monitoring system and component IDs of the monitoring system which is in use at the time of the occurrence. Treat such hours as though they are quality-assured monitor operating hours; include them in missing data lookback and count them as available hours for percent monitor data availability calculations.

Percent Monitor Data Availability for Volumetric Flow (24). Report the percent monitor data availability for each hour unless missing data are substituted. It is optional to report percent monitor data availability for hours in which missing data are substituted.

Average Volumetric Flow Rate for the Hour (29). For each operating hour (or partial operating hour) in which a quality-assured flow rate was measured (MODC 01 through 04 and 54), report the unadjusted flow rate in units of scfh (wet basis). Report flow rate to the nearest 1000 scfh. For missing data hours, leave this field blank (this includes hours in which the flue gases are discharged through an unmonitored bypass stack).

If a start-up or shut-down hour results in a stack flow rate that is too low to be registered by the stack flow monitor, you may report a default minimum stack flow rate of 1,000 scfh. In column 56, report MODC 55 for the hour. Manual entry of this MODC is permitted.

Average Volumetric Flow Rate for the Hour Adjusted for Bias (39). For hours in which quality-assured data are obtained, apply the appropriate bias adjustment factor (1.000 or BAF) to the rounded quality-assured value and report the adjusted stack flow for the hour, also rounded to the nearest 1000 scfh. For each hour in which missing data procedures are used to report data, report the substitute data value. When the flue gases are discharged through an unmonitored bypass stack, report the maximum potential flow rate in this field. Do not leave this field blank.

Average Moisture Content of Flue Gases for the Hour [Reserved] (49). This field has been replaced by RT 212, column 24. Leave this field blank.

Load Range or Operational Bin Number (54). Report load range for each operating hour for units that produce electrical output (megawatts) or steam load (klb/hr). For non load-based units (e.g., cement kilns, refinery process heaters, etc.), report the operational bin number, if operational bins are used—otherwise, leave this field blank. If the operational bin number is indeterminable for a particular operating hour, report "00".

Allowable load bin numbers: 01-20
Allowable operational bin numbers: 00-10

Method of Determination Code (56). Report one of the following method of determination codes (MODC) to identify the flow monitoring system or missing data procedure used to report hourly stack flow:

01	Primary Monitoring System
02	Redundant Backup or Non-redundant Backup Monitoring System
03	Part 75 Alternative Monitoring System
04	Reference Method Backup System (Method 2)
05	Part 75 Approved Parametric Method
06	Average Hour Before/Hour After
07	Average Hourly Flow Rate, Initial Missing Data
08	90th Percentile Value in Load Range in Lookback Period
09	95th Percentile Value in Load Range in Lookback Period

10	Maximum Flow Rate in Load Range in Lookback Period
11	Average Flow Rate in Load Range in Lookback Period
12	Unit or Stack Maximum Potential Flow Rate (MPF)
20	200% of the Full-scale Range Used in the Calculation of the Hourly Average Flow Rate (full scale exceedance of high range). These hours are included in missing data lookback and are treated as available hours for percent availability calculations.
54	Other Quality-assured Methodologies Approved Through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if submitted solely for the purposes of Subpart H). These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.
55	Other Substitute Data Approved Through Petition by EPA (if data are submitted for the Acid Rain Program) or by EPA and the State (if submitted solely for the purposes of Subpart H). These hours are not included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes 56 through 99 may be used by vendors and companies for other purposes but must not be reported in a quarterly report. MODCs of 30 and 31 were defined in EDR v2.0 for OTC NBP units only and are not allowed for Acid Rain or Subpart H reporting.

(8) **RT 230: Daily Calibration Test Data and Results**

Report all daily calibrations performed on SO_2, NO_x, CO_2, O_2, or flow components to quality assure measured data, as required in the applicable regulation. Report the results of all failed, passing, and incomplete calibrations that affect data validation in component, system, and chronological order. For redundant backup monitors, the results of daily calibration error tests need not be reported except on days when you use the monitors to report emission data. Do not report the results of off-line calibrations performed during periods of non-operation of the unit or stack unless the unit has passed the off-line calibration demonstration and is using off-line calibrations to validate data.

During maintenance procedures, you do not have to report the results of calibration gas injections used during those procedures if the results of the calibration gas injection do not indicate that the control status of the monitor has changed. For instance, if a monitoring system is already out-of-control and calibration gases are injected as part of the maintenance procedures, you do not have to report the results of these injections. Only the results of the post-maintenance calibration error test which is used to validate the subsequent emissions data must be reported. Similarly, if as part of a maintenance procedure on one monitor, calibration gases must be injected into other monitors, you do not have to report the results of these injections as long as they are within the calibration error specification. If the results of these injections indicate that any monitoring system is out-of-control, you must report these injections and consider them to be a failed calibration error test.

If a component is part of two systems (for example, a CO_2 analyzer used both as a primary CO_2 monitor and as a diluent monitor in a NO_x-diluent monitoring system) report the calibration twice, once for each system using the appropriate system IDs. For example, for a diluent monitor used as part of a CO_2 monitoring system and a NO_x-diluent system, report CO_2 daily calibrations twice. Report one RT

230, using the CO_2 monitoring system ID and the diluent component ID and the other RT 230 using the NO_x-diluent monitoring system ID and the diluent component ID.

For moisture monitoring systems consisting of wet and dry-basis O_2 monitors, report two calibrations only if the wet and dry readings are obtained from two different analyzers. Report only the dry-basis O_2 calibration when a single analyzer is used for both wet and dry oxygen.

For an O_2 monitor which is used to determine CO_2 mass emissions in accordance with § 75.13(c), report the daily calibration of the O_2 monitor under the CO_2 monitoring system ID. If the O_2 monitor is also part of a NO_x-diluent monitoring system, report the O_2 monitor calibration a second time, under the NO_x-diluent system ID.

For flow monitoring systems comprised of two flow components, perform and report a daily calibration for each flow component in the system.

For dual range monitors, perform and report daily calibrations for the instrument range(s) used during the day.

Conduct the daily calibration according to the requirements of 40 CFR Part 75, Appendices A and B. Daily calibrations validate the acceptability of emissions data from each monitoring component. The validation rules and criteria used for Subpart H are the same as those used in the Acid Rain Program.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). For calibration of a like-kind replacement analyzer, report the special "LK" component ID and the primary monitoring system ID (see RT 510 instructions). Manual entry of the "LK" component ID is permitted.

Instrument Span (24). Report the span value used to determine the appropriate calibration gas or reference signal used for the check. The span value must be the same as the span value defined for the unit or stack and scale in RT 530, column 36.

Reference Value (37). Report the calibration gas or reference signal value used in this injection.

Measured Value (50). Report the value measured by the instrument in response to the reference following the gas injection or reference signal.

Results (Calibration Error or |R - A|) (63). Report the results of the calibration error test, as required by Part 75. For SO_2, NO_x, and flow monitors, express the results either as a percentage of the span value or (for low-emitters of SO_2 or NO_x or for low-span differential pressure-type flow monitors) as the absolute value of the difference between the reference and measured values, (i.e., $|R - A|$). If the calculated calibration error meets the standard specification, report the result as a percentage of the span even though the result would also pass the alternative specification. Only when the result does not pass the standard specification, but meets the alternative specification, should you report the absolute value of the difference. Note that in the June, 2002 revisions to Part 75, the

alternate calibration error specification |R - A| was lowered to 5.0 ppm for SO_2 and NO_x monitors with span values of 50 ppm or less. For span values between 50 ppm and 200 ppm, the alternate calibration error specification remains at 10.0 ppm.

For CO_2 and O_2 monitors, the results are always determined using |R - A| and are expressed in terms of absolute percent CO_2 or O_2. Use this method for all diluent gas monitors used for CO_2 reporting and/or NO_x reporting.

For low-span DP-type flow monitors using the alternate calibration error specification: (1) report "0.0" in this field if the value of |R - A| is $\leq$ 0.02 inches of water; or (2) report "0.1" in this field if the value of |R - A| is > 0.02 , but $\leq$ 0.10 inches of water; or (3) if the value of |R - A| is > 0.10 inches of water, report the result to the nearest 0.1 in. H_2O.

Alternative Performance Specification (APS) Flag (68). Report whether the test result was determined using the normal specification (APS Flag equals "0" (zero)) or low emitter specification (APS Flag equals "1") allowed under Part 75.

Appendix A to Part 75 specifies that the calibration error of an O_2 or CO_2 monitor is always expressed in $\%O_2$ or $\%CO_2$, rather than as a percentage of span. This is considered to be the normal calibration error specification and must have a "0" flag in RTs 230 and 600. The alternative specification flag in these record types applies only to SO_2 and NO_x pollutant concentration monitors at facilities that are low-emitters of those pollutants and to low-span differential pressure flow monitors.

Calibration Gas or Reference Signal Level (71). Indicate whether the gas injection or reference signal is zero (Z) or high (H) by reporting the appropriate code. You may perform and report mid-level (M) gas injections in lieu of the high level injections, provided that the mid-level (M) gas is more representative of the actual stack emissions.

Span Scale (72). Report whether the component or the range of the instrument tested is high (H) or low (L) scale. If the unit or stack only requires monitors that measure at a single instrument range, enter "H" or leave this field blank.

(9) **RT 231: Flow Daily Interference Check Results**

Perform and report a daily interference check according to Part 75 requirements for all flow monitors, including ultrasonic monitors, that are used for measuring and recording volumetric stack flow.

(10) **RTs 260 Through 262: Reference Method Backup Quality Assurance Data**

For more information on the reporting of quality assurance information for each reference method run used to provide data as a backup monitoring methodology, consult the reference methods in Appendix A to 40 CFR Part 60 and the separate guidance provided by the Clean Air Markets Division in the Reference Methods as Backup Monitors Section of the Part 75 Policy Manual.

Whenever you use a reference method backup monitoring system to report pollutant or diluent concentration data (SO_2, NO_x, CO_2, or O_2), submit RT 260 for each hour of data reported and submit the associated quality assurance information in RT 261 for each run. In other words, submit one RT 260 for

each hour of data reported in RTs 202, 210, or 211 from a reference method backup system. The corresponding RT 260 must have the same component/system ID, date and hour, and emissions value as its companion record. You must report RT 261 for each reference method component/system for each run. Because the run length may be up to eight hours, you may report one RT 261 for up to eight RTs 260 associated with the run.

If you use Reference Method 2 (or one of its allowable alternatives in Appendix A to 40 CFR Part 60) as a backup reference method to measure stack flow, submit one RT 262 for each hour of data reported in RT 220 using Reference Method 2. Each reference method run represents one clock hour, and therefore for reporting purposes, each run is regarded as beginning on minute 00 and ending on minute 59. The total flow rate in scfh in RT 262 should be the same as the flow rate reported for the same hour in RT 220.

Selected Field Descriptions and Instructions for RT 262

Average Square Root of ΔP (26). Report this value only when Method 2 or 2G is used. Otherwise leave this field blank.

Pitot Tube or Probe Coefficient (70). For Method 2 or 2G, report the pitot tube coefficient, C_p. For Method 2F, report the velocity calibration coefficient, F_2. If more than one probe is used for the velocity traverses, leave this field blank.

Date of Latest Pitot Tube or Probe Calibration (75). If more than one probe is used for the velocity traverses, leave this field blank.

Total Volumetric Flow Rate (87). Using the reported average velocity and the stack cross-sectional area, calculate and report the stack gas total volumetric flow rate, at standard conditions, wet basis.

Average Axial Velocity (97). Report the average velocity for the run, at stack conditions, on a wet basis. If Reference Method 2F, 2G, or 2H is used, the average velocity for each traverse shall be the average of the individual velocities at the traverse points, corrected for pitch angle, yaw angle, and wall effects (as applicable).

Reference Method Probe Type (105). Select from among the following the type of reference method probe used for the velocity traverses:

AS	Type S (automated)
DA	3-D Pitot (without thermocouple)
DAT	3-D Pitot (with thermocouple)
P	Prandtl
S	Type S (manual)
SPH	Spherical

(11) **RT 300: Unit Operating Parameters**

Report RT 300 for <u>every</u> clock hour of every unit operating quarter, as follows: (a) for each affected unit, irrespective of the location(s) at which the emissions are measured; and (b) for each

common stack (or pipe) or multiple stack (or pipe) location at which emissions are measured. Note: For common stacks, a unit operating quarter is a calendar quarter in which *any* of the units serving the common stack operates.

For example, if common stack CS1 serves Units 1 and 2 and emissions are monitored at the common stack, report RT 300 for the common stack and also report RTs 300 for each unit. As a second example, if Unit 1 discharges through two stacks, MS1 and MS2, and emissions are monitored at each stack, report separate RTs 300 for each stack and also report RT 300 for Unit 1.

If a common stack serves Units 1, 2, and 3, but Unit 1 did not operate during the quarter, report RTs 300 for every clock hour in the quarter for Unit 1 with 0.00 as the operating time in column 18 and leave the remaining columns blank. The RTs 300 for Units 2 and 3 will contain the appropriate operating data.

Exception

For units using the low mass emissions methodology in § 75.19, report RT 360 for each hour (including non-operating hours) and do not report RT 300.

Field Descriptions and Instructions

Unit Operating Time (18). Report the fraction of the clock hour during which the unit combusted any fuel (or the fraction of the clock hour during which the stack or pipe was used). You may use any equal increments from hundredths (0.01 hr.) to quarters (0.25 hr.) of an hour.

For single unit-single stack configurations, report a unit operating time of "0.00" in RT 300 for any clock hour in which the unit does not combust fuel.

For common stack and multiple stack configurations, report an operating time of 0.00 in RT 300 for any clock hour in which none of the units that exhaust through a particular stack are operating or for any clock hour in which the dampers are closed so that flue gas is unable to pass through the stack.

Gross Unit Load and Steam Load During Unit Operation (22, 28). Report hourly load information as either steam load or unit load. Leave the other load field blank. The units for average hourly gross unit load are megawatts and the units for steam load are 1000 lbs/hr. Note that these values are rates and must be multiplied by operating time to yield the output for an hour. Do not correct steam load for standard temperature and pressure; use steam load at measured temperature and pressure (see Part 75, Appendix C, Section 2.2.1).

If you convert auxiliary heat input to megawatts equivalent (e.g., for a heat recovery steam generator with a duct burner) and add that value to megawatts for a gas turbine, you should report the unit electric load and leave the steam load field blank.

For monitored common stacks, report the sum of the hourly unit loads, for all units that exhaust through the stack.

Leave these fields blank (do not report zeros) for any clock hour in which the unit does not operate. Also leave these fields blank for units that do not produce electrical or steam load (e.g., cement kilns, refinery process heaters, etc.).

Load Range or Operational Bin Number (34).

Report an operating load range (load bin number) for each operating hour (see Appendix C to Part 75) for units that produce electrical or steam load. For units that do not produce electrical or steam load (e.g., cement kilns, refinery process heaters, etc.), report the operational bin number, if operational bins are used for missing data purposes. If the operational bin number is indeterminable, report "00".

For load-based units, leave this field blank (do not report zeros) for any clock hour in which the unit does not operate. Also leave this field blank for non load-based units that do not use operational bins for missing data purposes.

Hourly Heat Input Rate During Unit Operation for All Fuels (36). Report this value in mmBtu per hour (mmBtu/hr). If you use CEMS to determine hourly heat input rate, calculate the hourly rate using the diluent gas concentration, bias-adjusted hourly stack flow rate, percent moisture (if appropriate), and F-factor.

If you measure and report heat input rate at a common stack or pipe, also apportion and report heat input rate at the unit level. This apportionment should be based on either megawatts, steam load, or fuel flow rate, using Equation F-21A , F-21B, or F-21D in Appendix F to Part 75, as applicable. These formulas use time-weighted hourly load to apportion the heat input rate measured at a common stack to the individual units.

For each hour, the sum of the individual heat inputs in mmBtu (i.e., the sum of the individual unit heat input rates, each multiplied by the corresponding unit operating time) must equal the total common stack heat input in mmBtu (i.e., the common stack heat input rate multiplied by the common stack operating time).

For a unit with a multiple stack configuration, having installed flow rate and diluent monitors on each stack, calculate the hourly heat input rate for the unit using Equation F-21C in Appendix F to Part 75. Also use Equation F-21C for multiple pipe configurations (see section II.C (2)(c), above).

For each hour, the total unit heat input in mmBtu (i.e., the unit heat input rate multiplied by the unit operating time) must equal the sum of the individual stack (or pipe) heat inputs in mmBtu (i.e., the sum of the individual stack (or pipe) heat input rates, each multiplied by the corresponding stack (or pipe) operating time).

For Appendix D units combusting multiple fuels, report the hourly heat input rate calculated from all fuels in RT 300.

For non-Acid Rain Subpart H units that use NO_x concentration times stack flow as the primary methodology to calculate NO_x mass emissions, report the hourly heat input rate unless you are specifically exempted (e.g., by a State SIP) from reporting it for allocation

purposes. However, you must report unit operating time and load (except for non load-based units) for each hour in RT 300, even if you are not required to report hourly heat input.

Leave these fields blank (do not report zeros) for any clock hour in which the unit does not operate.

Heat Input Formula ID (43). Report the formula ID (from RT 520) representing the equation used to calculate heat input rate for the hour.

Leave these fields blank (do not report zeros) for any clock hour in which the unit does not operate.

F-factor for Heat Input Calculation (46). If you use CEMS or another F-factor based methodology to determine hourly heat input rate, report the F-factor used for each hour or partial hour of operation. Otherwise, leave this field blank.

Leave these fields blank (do not report zeros) for any clock hour in which the unit does not operate.

Use of Diluent Cap for Heat Input Calculation for This Hour (56). If you elect to substitute a maximum or minimum diluent cap value to calculate heat input rate for hours in which the quality-assured diluent gas concentration is below or above the specified cap, indicate the use of the diluent cap value by reporting "Y." Leave this field blank for all hours in which the diluent cap is not used for heat input rate calculations. If you normally use Equation F-17 to determine heat input rate, you must use modified Equation F-17D to calculate heat input rate during hours in which you use the diluent cap to calculate heat input rate (see Table 20 under RT 520).

Leave these fields blank (do not report zeros) for any clock hour in which the unit does not operate.

Total Heat Input for the Hour (Optional) (57). Report the total heat input for the hour (mmBtu) by multiplying the heat input rate by the operating time. This field is optional.

Leave these fields blank (do not report zeros) for any clock hour in which the unit does not operate.

Type of Fuel Combusted (64). Report data in this field <u>only</u> <u>if</u>: (1) you have elected to use the fuel-specific CEMS missing data option under § 75.33; or (2) you have a an exhaust configuration consisting of a monitored main stack and an unmonitored bypass stack, and you opt to report the fuel-specific MPC or MER value during bypass hours (see §§ 75.16, 75.17 and 75.72). Select one of the following fuel type codes:

MIX	Use this code for any hour in which fuels are co-fired
BFG	Blast Furnace Gas
BUT	Butane (if measured as a gas)

C	Coal
CDG	Coal Derived Gas
COG	Coke Oven Gas
CRF	Coal Refuse (culm or gob)
DGG	Digester Gas
DSL	Diesel Oil
LFG	Landfill Gas
LPG	Liquified Petroleum Gas (as defined in § 72.2)
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
OSF	Other Solid Fuel
PDG	Producer Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRP	Propane (if measured as a gas)
PRS	Process Sludge
R	Refuse
RFG	Refinery Gas
SRG	Unrefined Sour Gas
W	Wood
WL	Waste Liquid

(12) **RT 301: Quarterly Cumulative Emissions Data (ARP)**

Do not report RT 301 for non-Acid Rain Subpart H units.

For Acid Rain units, report quarterly and cumulative annual SO_2 mass emissions, CO_2 mass emissions, heat input (in mmBtu), and operating hours in RT 301. In addition, report the quarterly and year-to-date average NO_x emission rate. Report this information for each location (unit, stack, or pipe) at which emissions are measured.

For common stack, multiple stack, and complex stack configurations, report RT 301 for each affected unit, irrespective of the location(s) at which emissions are measured.

Common Stacks or Pipes. For a simple common stack or pipe (emissions from two or more units accounted for at one stack or pipe location), a RT 301 must be submitted for the common stack or pipe and an additional RT 301 must be submitted for each unit associated with the common stack or pipe. The quarterly and cumulative heat input values for the stack or pipe (in mmBtu) must equal the sum of the heat inputs for the units associated with the stack or pipe. Report only heat input and operating hour information in the RTs 301 for the individual units. Do <u>not</u> apportion SO_2 mass emissions, CO_2 mass emissions, or average NO_x emission rates to the individual units.

For example, if CS1 is a monitored common stack for Units 1 and 2, report three RTs 301: one for Stack CS1, one for Unit 1, and one for Unit 2. In RT 301 for CS1, report the quarterly and year-to-date cumulative heat inputs, SO_2 emissions, CO_2 emissions, and average NO_x emission rates, as measured at the common stack, and report the operating hour information for the common stack. In the RTs 301

for Units 1 and 2, report only the quarterly and year-to-date cumulative apportioned heat input in mmBtu (as derived from the heat input rates and operating times in the RTs 300) and operating hours. Do not report unit-level CO_2 mass emissions, SO_2 mass emissions, or NO_x emission rates in the RTs 301 for Units 1 and 2.

Multiple Stacks or Pipes. For some units, there are multiple stacks or ducts (with installed CEMS) leading from the unit. Additionally, a combined cycle Appendix E combustion turbine with a duct burner may have multiple pipes (with installed fuel flowmeters). For these configurations, submit one RT 301 for each multiple stack, duct, or pipe and a separate RT 301 for the unit. For each multiple stack, duct, or pipe, report the quarterly and cumulative SO_2 or CO_2 mass emissions, the quarterly and year-to-date arithmetic average NO_x emission rates, and the quarterly and cumulative heat input and operating hours. Report only the quarterly and cumulative heat input, operating hour information, and weighted average NO_x emission rates in the unit-level RT 301 (see the instructions below for calculation of quarterly and cumulative weighted average NO_x emission rates.) Do not report quarterly and cumulative SO_2 or CO_2 mass emissions at the unit level. The reported quarterly or cumulative heat input value for the unit must equal the sum of the corresponding heat input values reported for the individual stacks, ducts, or pipes.

For example, if MS1A and MS1B are monitored multiple stacks for Unit 1, report three RTs 301: one for MS1A, one for MS1B, and one for Unit 1. In the RTs 301 for MS1A and MS1B, report the quarterly and year-to-date cumulative heat input, SO_2 emissions, CO_2 emissions, and average NO_x emission rates, as measured by the CEMS at each stack, and report the operating hour information. In the RT 301 for Unit 1, report only the quarterly and year-to-date cumulative apportioned heat input in mmBtu (as derived from the heat input rates and operating times in the RTs 300), the weighted average NO_x emission rate, and operating hour information. Do not report unit-level CO_2 mass emissions or SO_2 mass emissions in the RT 301 for Unit 1.

Note that for certain multiple-stack configurations, data may be reported at the unit level, in lieu of using multiple stack ("MS") prefixes. See section II.C.(2)(b) of these Instructions for further guidance.

Complex Stack Configurations. A complex stack configuration exists where a unit's emissions are measured at more than one stack location and where at least one of these stack locations is a common stack shared with one or more other units.

For the purposes of quarterly and cumulative heat input accounting, the sum of the heat inputs for all units associated with all stacks in a complex configuration must equal the sum of the stack heat inputs for all of the stacks. For example, if emissions from scrubbed Units 1, 2, and 3 are measured at CS1 during normal unit operation and are measured at CS2 during scrubber bypass hours, the sum of the heat inputs for Units 1, 2, and 3 must equal the sum of the heat inputs for CS1 and CS2.

Data for all units and stacks involved in a complex configuration must be reported in a single quarterly report file. In this quarterly report file, report only one RT 301 for each individual unit, regardless of the number of stacks to which the unit discharges its emissions.

Low Mass Emissions Units. For Acid Rain Program units using the low mass emissions excepted methodology under § 75.19, report the quarterly and cumulative SO_2 mass emissions, CO_2 mass emissions, heat input, average NO_x emission rate, and operating hours for each unit in RT 301.

If a group of LME units is served by a common fuel pipe (or supply tank) and the long-term fuel flow option is used to quantify heat input, also submit a RT 301 for the common pipe (or tank). Report data only in the quarterly and cumulative heat input fields, leaving all of the emissions fields and operating hours fields blank. If more than one common pipe (or tank) serves the same group of LME units, report the quarterly and cumulative heat input for each pipe (or tank) in a separate RT 301.

(Note: RT 301 does not contain fields for reporting quarterly and cumulative NO_x mass emissions. Therefore, for the purpose of documenting compliance with the LME emission thresholds for NO_x, you must report the appropriate quarterly, ozone season (if applicable), and cumulative tons of NO_x emissions from each Acid Rain Program LME unit in RT 307.

Field Descriptions and Instructions. Report data in the RT 301 fields as described below, except where the RT 301 introductory text above instructs you to leave a field blank for a particular monitoring methodology or configuration.

Date of Report Generation (10). Report the calendar date on which the quarterly report was created.

Quarterly and Cumulative Annual SO_2 Tons Emitted (16, 26). For data from an SO_2 CEMS, convert each of the SO_2 pounds per hour values reported in RT 310 to SO_2 mass in pounds by multiplying it by the corresponding unit operating time from column 18 of RT 300. For Appendix D data, convert each SO_2 pounds per hour value reported in RTs 313 and 314 to SO_2 mass in pounds by multiplying it by the corresponding fuel usage time from column 52 of RT 302 or RT 303 (as applicable). Sum the hourly SO_2 mass values for the quarter. Divide this sum by 2,000 to convert to tons and round to one decimal place.

For Acid Rain low mass emissions units, sum the hourly SO_2 mass emissions (lbs) reported in column 44 of RT 360, divide by 2,000, and round to one decimal place.

In Quarter 1, the quarterly total SO_2 tons reported in column 16 must be the same as the cumulative annual tons reported in column 26. In subsequent quarters, add the total SO_2 tons emitted in the current quarter to the cumulative annual SO_2 tons reported in column 26 of the previous quarter's report to obtain the new value of the cumulative annual SO_2 tons emitted.

Quarterly and Cumulative Average NO_x Emission Rate (36, 49). For NO_x-diluent monitoring system data or for Appendix E data, report the quarterly and cumulative (year-to-date) average NO_x emission rates in RT 301. The quarterly value in column 36 is a straight arithmetic average of the NO_x emission rates for all unit operating hours in the quarter, as reported in RT 320 (for CEMS) or, for Appendix E, in RTs 323, 324 (single fuel hours only), or 325 (as appropriate). The cumulative value in column 49 is a straight arithmetic average of the hourly NO_x emission rates for all unit operating hours in the calendar year to-date (see Equation F-10 in Appendix F to Part 75).

If the recorded NO_x emission rate is zero, include these hours in your average only if the operating time for the hour (as reported in RT 300) is greater than zero. Do not weight the quarterly or cumulative average NO_x emission rate for partial operating hours (i.e.,

count all hourly NO_x emission rates equally, irrespective of the unit operating time). Report both the quarterly and cumulative average NO_x emission rates for the unit or stack to three decimal places.

For simple multiple stack or multiple duct configurations in which NO_x emissions and heat input are monitored separately in each of the stacks or ducts, you must calculate and report the quarterly and cumulative *arithmetic* average NO_x emission rate in RT 301 for each stack or duct, and you must also calculate and report a quarterly and cumulative heat input-weighted NO_x emission rate in RT 301 for the unit. Determine the heat input-weighted averages for the unit as follows. First, use the reported hourly data (i.e., stack level NO_x emission and heat input rates) and the following formula to calculate a heat input-weighted unit NO_x emission rate for each stack operating hour in the quarter:

$$\text{Hourly Unit } NO_x \text{ Emission Rate } (lb/mmBtu) = \frac{(NO_x\ Rate)_A (Heat\ Input)_A + (NO_x\ Rate)_B (Heat\ Input)_B}{(Heat\ Input)_A + (Heat\ Input)_B}$$

In the formula above, the term "Heat Input" for multiple stack A or B is the product of the hourly heat input rate for the stack (as reported in RT 300, column 36) and the corresponding operating time for the stack (as reported in RT 300, column 18).

The quarterly heat input-weighted average NO_x emission rate for the unit is then determined by taking the sum of all of the hourly heat input-weighted NO_x emission rates for the quarter and dividing this sum by the total number of unit operating hours in the quarter. In determining the number of unit operating hours in the quarter, each partial operating hour is counted as a full hour of unit operation. The cumulative heat input-weighted average NO_x emission rate for the unit is determined in the same way as the quarterly average for the unit, except that the terms "for the quarter" and "in the quarter" are replaced, respectively, with the terms, "for the year, to date" and "in the year, to date."

For Acid Rain Program low mass emissions (LME) units, determine the quarterly average NO_x emission rate for each unit as follows. Sum all of the hourly NO_x mass values from column 50 of RT 360 to get the total NO_x mass for the quarter. Then, sum the hourly heat input values in column 34 of RT 360 to obtain the total heat input for the quarter. Divide the total NO_x mass for the quarter by the total quarterly heat input, to determine the quarterly NO_x emission rate in lb/mmBtu. Calculate the cumulative (year-to-date) NOx emission rate by separately summing the RT 360 hourly NOx mass and heat input values over all operating hours in all quarters, and then dividing the NOx mass sum by the heat input sum.

Quarterly and Cumulative Annual CO_2 Tons Emitted (62, 72). For hourly CO_2 data reported from a CEMS or determined using Equation G-4 of Appendix G, convert each of the CO_2 tons per hour values reported in RT 330 to CO_2 mass in tons by multiplying it by the corresponding unit operating time from column 18 of RT 300. Sum the hourly CO_2 tons values for the quarter and round the result to one decimal place. For Appendix G

data determined from Equation G-1, sum the CO_2 daily tons reported in RT 331 for the quarter. Round and report the sum to one decimal place.

For Acid Rain low mass emissions units, sum the CO_2 mass emissions reported in RT 360 and round to one decimal place.

In Quarter 1, the quarterly total CO_2 tons reported in column 62 must be the same as the cumulative annual tons reported in column 72. In subsequent quarters, add the total tons of CO_2 emitted in the current quarter to the cumulative annual CO_2 tons reported in column 72 of the previous quarter's report to obtain the new value of the cumulative annual CO_2 tons emitted.

Quarterly and Cumulative Annual Total Heat Input (82, 92). For each unit, stack or pipe, determine the quarterly heat input in mmBtu as follows. Calculate the heat input for each hour in the quarter, by multiplying the hourly heat input rate (reported in RT 300, column 36) by the corresponding operating time (reported in RT 300, column 18). Then, sum all calculated hourly heat input for the quarter. Round and report this sum to one decimal place.

Except for low mass emissions (LME) units, this is the correct method to use for all units, stacks, and pipes, including units that are associated with a common stack or pipe.

For low mass emissions units, sum the hourly heat inputs reported in RT 360 and round to one decimal place. If a common fuel pipe (or supply tank) serves a group of LME units and the long-term fuel flow option is used to quantify heat input, report the cumulative heat input for the group of units in a RT 301, under the common pipe (or tank) ID. If more than one common pipe (or tank) serves the same group of LME units, report a separate RT 301 for each pipe (or tank).

In Quarter 1, the quarterly heat input in mmBtu reported in column 82 must be the same as the cumulative annual heat input reported in column 92. In subsequent quarters, add the total heat input in the current quarter to the cumulative annual heat input reported in column 92 of the previous quarter's report to obtain the new value of the cumulative annual heat input.

Quarterly and Cumulative Annual Unit/Stack/Pipe Operating Hours (114, 118). In column 114, report the number of hours in which the unit, stack or pipe operated during the quarter. Count each hour of partial operation as a single hour. For CEMS units, this value indicates whether the calendar quarter is a "QA operating quarter" (i.e., a calendar quarter with $\geq$ 168 unit or stack operating hours). In column 118 report the cumulative number of unit, stack, or pipe operating hours in the year-to-date.

(13) **RT 302: Oil Fuel Flow**

Report RT 302 for each hour in which oil is combusted and you use an oil flowmeter to determine heat input rate or SO_2 or CO_2 mass emissions in accordance with Appendix D. Also report RT 302 for any hour in which oil is combusted as a startup fuel and fuel flow is estimated through tank measurements.

For low mass emissions units that use a certified Appendix D fuel flowmeter for long term fuel flow purposes, do not report RT 302. See the instructions for RT 360 and RT 305.

If you combust different types of oil in the same hour (which must be measured by separately defined fuel flowmeter monitoring systems), report a RT 302 for each type of fuel combusted, using the monitoring system ID associated with the appropriate flowmeter monitoring system and identifying the type of oil in column 56.

It is not necessary to report RT 302 for other hours in which the unit operated, if, during these hours, only fuels other than oil were burned.

For Acid Rain units, report a companion RT 313 for each RT 302. Do not report a companion RT 313 for non-Acid Rain Subpart H units.

The oil flow rate is the net fuel flow rate to the unit(s). For example, it may represent the difference between the values measured for the main supply and recirculating oil lines or it may represent the sum of oil flow for two fuel flowmeters measuring the same type of oil to the unit.

If you measure fuel flow at a common pipe location, report RT 302 using the common pipe ID for each hour in which fuel is combusted by a unit served by the common pipe. Do not report RTs 302 for the individual units on an hourly basis. Apportion the heat input rate calculated at the common pipe location to each unit, using appropriate time-weighted apportionment formulas based on load (see Appendix F and the RT 520 instructions). Report the apportioned hourly heat input rate values in separate RTs 300 for the individual units. Use the hourly heat input rates and operating times from RT 300 to calculate the cumulative heat input values for each unit and report these values in unit-level RTs 301 and 307 (as applicable). If you use Equation F-21D to apportion the common pipe heat input to the individual units, report RT 302 only for the common pipe---do <u>not</u> report any RTs 302 showing the oil flow to the individual units.

If the fuel flow system measures mass flow rate of oil directly, leave blank columns 59 through 88 in RT 302.

Field Descriptions and Instructions

Monitoring System ID (10). For hours in which the oil flow system provides quality-assured data, report the monitoring system ID for the OILM or OILV system.

For hours in which you report the source of the oil flow rate data (column 31 or 74) as codes 4, 5, or 6 for "Emergency Fuels," "Ignitor Oil from Tank Measurements," or "Uncertified OFFM to Measure Ignitor Oil," leave the monitoring system ID blank.

For hours in which you use substitute data for fuel flow rate, you may <u>either</u> report the primary monitoring system ID or leave the monitoring system ID blank (subject to the exception described below).

For Acid Rain units, you <u>must</u> report the same fuel flow monitoring system ID in RT 313 as is reported in RT 302. For any hour in which you use substitute data, report either the

primary system ID in both the RT 302 and RT 313, or leave the system ID blank in both RTs.

For hours in which two different fuels are combusted and two RTs 302 are reported for a unit or common pipe, if the fuel flow rate data are missing for both fuels, you must report a valid monitoring system ID (as reported in RT 510) in at least one of the 302 records. Report this same monitoring system ID in the companion RT 313.

For Appendix E units, if you report NO_x emission rate in RT 324 and report heat input rate in RT 302, each RT 302/324 pair (for the same type of oil and the same fuel flowmeter) must contain the same fuel flow monitoring system IDs in columns 10 of RT 302 and column 13 of RT 324.

Mass Flow Rate of Oil During Oil Combustion (21). This value is either measured directly by a fuel flowmeter system or calculated from the volumetric flow rate measured by a fuel flowmeter system. All values must be reported in lb/hr, rounded to one decimal place. This value represents an hourly rate for the period in which fuel is combusted, not total flow for the hour.

For Acid Rain units using Appendix D, you must report mass flow rate in order to calculate SO_2 mass emissions. Where the density of the oil is determined by the applicable ASTM procedures referenced in Part 75, use Equation D-3 to calculate the mass flow rate of oil (in lb/hr).

$$OIL_{rate} = V_{oil-rate} \times D_{oil}$$

(Equation D-3)
Where:
OIL_{rate} = Mass rate of oil consumed per hr (lb/hr) (RT 302, column 21)
$V_{oil-rate}$ = Volume rate of oil consumed per hr, measured in scfh, gal/hr, barrels/hr, or m^3/hr (RT 302, column 59) (rounded to one decimal place)
D_{oil} = Density of oil, measured in lb/scf, lb/gal, lb/barrel, or lb/m^3 (RT 302, column 75)

However, for non-Acid Rain Subpart H units using Appendix D for heat input determination, you may measure and report either mass flow rate or volumetric flow rate of oil. If you use volumetric flow rate and GCV to determine hourly heat input rate, leave this field blank.

Source of Data Code for Mass Oil Flow Rate (31). Report one of the following codes to indicate the type of value reported for oil flow rate:

0	Measured Data (using a mass flowmeter)
1	Substitute Data Using Lookback Procedures
2	Mass Flowrate Derived From Volumetric Measurement
3	Maximum Potential Fuel Flow Rate (simplified missing data procedure for peaking units, only)

4	Emergency Fuel (maximum unit fuel flow rate)
5	Ignitor Oil From Tank Measurements
6	Uncertified OFFM to Measure Ignitor Oil
9	Default Minimum Fuel Flow Rate

Do not leave this field blank if fuel flow is reported in column 21.

Load Range or Operational Bin Number (32).

If you use the standard, load-based fuel flow missing data substitution procedures required in Part 75, Appendix D, report an operating load range ("bin number") for each hour. During hours when you report measured values, use the load ranges to define the values at each load range for missing data purposes. During hours of fuel flow missing data use the load ranges to calculate the appropriate substitute value.

Leave this field blank if you use the simplified missing data procedures for peaking units, as described in section 2.4.2.1 of Appendix D.

For units that do not produce electrical or steam load (e.g., cement kilns, refinery process heaters, etc.), leave this field blank unless you have an approved petition to use operational bins for fuel flowrate missing data substitution. In that case, report the operational bin number. If the operational bin number is indeterminable for a particular hour, report "00".

For common pipes, you may use load ranges of 01 through 10 or 01 through 20; for fuel flow measured at single units, use load ranges of 01 through 10. For non load-based units with approved petitions to use operational bins, the allowable operational bin numbers range from 00 through 10.

Gross Calorific Value (GCV) of Oil (34). Report the heat content or gross calorific value (GCV) of the oil from an appropriate sample to calculate heat input. If GCV is missing, report a substitute value based on the Appendix D missing data procedures. Report this value in units consistent with the units used to report the mass or volumetric flow of oil as described below.

Reserved (44). This field was used only by OTC NO_x Budget Program units, and has been reserved.

Heat Input Rate from Oil During Oil Combustion (45). Calculate and report heat input rate to the unit or common pipe by multiplying the heat content (GCV) of the fuel by the hourly oil mass flow rate or the volumetric flow rate. Report this value in units of mmBtu/hour rounded to one decimal place.

Fuel Usage Time (52). Report the fraction of the clock hour during which the unit combusted oil. You may use any equal increments from hundredths (0.01 hr.) to quarters (0.25 hr.) of an hour. Do not leave this field blank.

For common pipes, report the cumulative portion of the hour during which oil was combusted in any of the units served by the common pipe, not to exceed a fuel usage time of 1.00. For example, if a common pipe serves Units 1 and 2 and both units operate for the first 24 minutes (0.40 hr) of the hour and then are both shut down, the fuel usage time is 0.40. If Unit 1 operates only for the first 24 minutes of the hour and Unit 2 operates only for the last 24 minutes of the hour, the fuel usage time is 0.40 hr plus 0.40 hr, or 0.80. If Unit 1 operates for the first 40 minutes of the hour and Unit 2 operates for the last 40 minutes of the hour, report a fuel usage time of 1.00, since for all minutes in the hour, at least one of the units operated.

Type of Oil (56). Identify the type of oil combusted during the hour for the system reported in column 10. You may either report the type of fuel using the General Fuel Type codes below (which are consistent with the codes for oil in RT 587) or you may report more specific information on the type of oil combusted using one of the Specific Fuel Type codes below. EPA requests that owners and operators use the more specific codes if you have information on an hour-to-hour basis on the type of oil combusted. EPA will use these data to determine whether specific types of fuel can be predictably associated with a range of NO_x emission rates. If an adequate fuel-to-NO_x emission rate correlation can be established, EPA may consider using these data to set fuel-specific default NO_x emission rates for qualifying low mass emissions units. Do not provide information on more specific types of oil if you are uncertain about the fuel type for all or any hours in the quarter.

General Fuel Type Codes

DSL	Diesel Oil
OIL	Residual Oil
OOL	Other Oil

Specific Fuel Type Codes

G1	Grade 1 Light Distillate Used in Vaporizing Burners
G2	Grade 2 Distillate Used in Atomizing Type Burners
ATF	Aviation Turbine Fuels Meeting ASTM D-1655-91b (Jet A and Jet A-1)
LPG	Liquefied Petroleum Gases Meeting ASTM D-1835-91 (propane, butane, and propane-butane mixtures)
KER	Kerosene Meeting ASTM D-3699-90 or Equivalent
1D	Diesel Fuel Oil Meeting ASTM D975-91 Grade 1-D
2D	Diesel Fuel Oil Meeting ASTM D975-91 Grade 2-D
4D	Diesel Fuel Oil Meeting ASTM D975-91 Grade 4-D
0GT	Gas Turbine Fuel Oil Meeting ASTM D2880-90a Grade 0-GT (naphtha, Jet B)
1GT	Gas Turbine Fuel Oil Meeting ASTM D2880-90a Grade 1-GT
2GT	Gas Turbine Fuel Oil Meeting ASTM D2880-90a Grade 2-GT
3GT	Gas Turbine Fuel Oil Meeting ASTM D2880-90a Grade 3-GT
4GT	Gas Turbine Fuel Oil Meeting ASTM D2880-90a Grade 4-GT
WMO	Waste Motor Oils
G4L	Grade 4 Light

G4H	Grade 4 Heavy
G5L	Grade 5 Light
G5H	Grade 5 Heavy
G6	Grade 6, Also Known as Bunker C

Volumetric Flow Rate of Oil During Oil Combustion (59). If the fuel flow system measures the volumetric flow rate of oil, report the volumetric flow rate, as measured, rounded to one decimal place. This value represents an hourly rate for periods in which the fuel is combusted, not a total flow for the hour. If the hourly oil flow rate is so small that it results in a heat input rate of 0.0 mmBtu/hr (rounded to the nearest tenth) when Equation D-8 is used, you may report, as a default value, the minimum oil flow rate that will give a heat input rate greater than zero.

For Acid Rain units you must report mass flow rate and you must also report volumetric flow rate used to calculate the mass flow if you use a volumetric flowmeter. For both Acid Rain Program units and non-Acid Rain, Subpart H units, if the fuel flow system measures mass flow rate of oil directly, leave this field blank.

Units of Measure for Volumetric Oil Flow Rate (69). Report the units of measure used to report volumetric flow rate using one of the following uppercase codes:

<u>Volumetric Oil Flow Rate Units</u>

BBLHR	Barrels/Hour
GALHR	Gallons/Hour
M3HR	Cubic Meters/Hour
SCFH	Standard Cubic Feet/Hour

If you calculate hourly heat input directly from volumetric flow for a non-Acid Rain Subpart H unit, be sure that gross calorific value of the fuel reported in column 34 is expressed in the corresponding units, as follows:

<u>GCV Units</u>

BTU/BBL	Btu Per Barrel (Subpart H)
BTU/GAL	Btu Per Gallon (Subpart H)
BTU/M3	Btu Per Cubic Meter (Subpart H)
BTU/SCF	Btu Per Standard Cubic Foot (Subpart H)

Source of Data Code for Volumetric Oil Flow Rate (74). Report one of the following codes to indicate the type of value reported for oil flow rate:

0	Measured Data
1	Substitute Data Using Lookback Procedures
3	Maximum Potential Fuel Flow Rate (simplified missing data procedure for peaking units, only)

5	Ignitor Oil From Tank Measurements
6	Uncertified OFFM to Measure Ignitor Oil
9	Default minimum fuel flow rate

If you measure and report volumetric flow rate in column 59, do not leave this field blank.

Density of Oil (75). If you measure volumetric flow rate of oil for an Acid Rain unit, you must sample and report the density of oil used to calculate the mass flow rate of oil.

If you calculate hourly heat input rate using volumetric fuel flow rate and are not required to report mass flow rate of oil, it is not necessary to sample and report density. Leave this field blank.

Units of Measure for Density of Oil (83). If you sample and report density of the oil, report the units of measure for density. The units must correspond to the units of measure for oil flow rate reported at column 69 as follows:

Oil Flow Rate Units	Density of Oil Units	
BBLHR	LBBBL	Pounds Per Barrel
GALHR	LBGAL	Pounds Per Gallon
M3HR	LBM3	Pounds Per Cubic Meter
SCFH	LBSCF	Pounds Per Standard Cubic Feet

If you report density of oil, do not leave this field blank.

Reserved (88). This field was for OTC NO_x Budget Program units only, and has been reserved.

Flag to Indicate Multiple or Single Fuel Types Combusted (89). Report for each hour whether only a single type of fuel was burned or whether other types of fuel were burned during the same hour. Report an "S" for hours during which only one type of fuel was combusted. Report an "M" for hours during which multiple fuels were combusted.

Type of Oil Sampling and GCV/Density Value Used in Calculations (90, 92). Report the type of oil sampling and value used with one of the following codes:

0	Actual Measured Value From Daily Manual Sample
1	Actual Measured Value From Flow Proportional/Weekly Composite Sample
2	Actual Measured Value From Oil Tank Sample
4	Highest Sampled Value in Previous Calendar Year From Oil Tank Sampling (or a higher sampled value, superseding the assumed value)
5	Highest Sampled Value in Previous Calendar Year From As Delivered Sample (or a higher sampled value, superseding the assumed value)
6	Maximum Value Allowed by Contract (or a higher oil tank sample value, superseding the assumed value)

7	Maximum Value Allowed by Contract (only if higher than measured oil as delivered sample)
8	Maximum potential value from Table D-6 for missing data or emergency fuel
10	Highest Value in Previous 30 Daily Samples

(14) **RT 303: Gas Fuel Flow**

Report RT 303 for each hour in which gaseous fuel is combusted and you use a gas flowmeter to determine heat input rate or SO_2 or CO_2 emissions in accordance with Appendix D.

For low mass emissions units that use a certified Appendix D fuel flowmeter for long term fuel flow purposes, do not report RT 303. See the instructions for RT 360.

If more than one type of gas is combusted in the hour (which must be measured by separately defined fuel flowmeter monitoring systems), report multiple RTs 303 for the hour (i.e., one for each type of fuel).

It is not necessary to report RT 303 for other hours in which the unit operated, if, during those hours, only fuels other than gaseous fuels were burned.

For Acid Rain units, report a companion RT 314 for each RT 303. Do not report a companion RT 314 for non-Acid Rain Subpart H units.

If you measure fuel flow at a common pipe location, report RT 303 using the common pipe ID for each hour in which fuel is combusted by a unit served by the common pipe. Do not report RTs 303 for the individual units on an hourly basis. Apportion the heat input rate calculated at the common pipe to each unit, using appropriate time-weighted apportionment formulas based on load (see Appendix F and the RT 520 instructions). Report the apportioned hourly heat input rate values in separate RTs 300 for the individual units. Use the hourly heat input rates and operating times from columns 36 and 18 of RT 300 to calculate the cumulative heat input values for each unit and report these values in unit-level RTs 301 and 307 (as applicable). If you use Equation F-21D to apportion the common pipe heat input to the individual units, report RT 303 only for the common pipe---do not report any RTs 303 showing the gas flow to the individual units.

Field Descriptions and Instructions

Monitoring System ID (10). For hours in which the gas flow system provides quality-assured data, report the monitoring system ID for the GAS system.

For hours in which you use substitute data, you may either report the primary monitoring system ID or leave the monitoring system ID blank (subject to the exception described below).

For Acid Rain units, you must report the same fuel flow monitoring system ID in RT 314 as is reported in RT 303. For hours in which you use substitute data, report either the primary system ID in both the RT 303 and RT 314, or leave the system ID blank in both RTs.

For hours in which two different fuels are combusted and two RTs 303 are reported for a unit or common pipe, if the fuel flow rate data are missing for both fuels, you must report a valid monitoring system ID (as reported in RT 510) in at least one of the 303 records. Report this same monitoring system ID in the companion RT 314.

For Appendix E units, if you report NO_x emission rate in RT 324 and report heat input rate in RT 303, each RT 303/324 pair (for the same type of gas and the same fuel flowmeter) must contain the same fuel flow monitoring system ID's in columns 10 of RT 303 and column 13 of RT 324.

Flow Rate of Gas During Gas Combustion (21). For Appendix D gas systems, the flow rate of gas is measured hourly by the fuel flowmeter system. The flow rate is the net fuel flow rate to the unit(s). For example, it may represent the sum of the gas flow rates for two fuel flowmeters measuring gas to the unit. All values must be reported in 100 standard cubic feet per hour (100 scfh) rounded to one decimal place. This value represents an hourly rate for periods in which the fuel is combusted, not a total flow for the hour. If the hourly gas flow rate is so small that it results in a heat input rate of 0.0 mmBtu/hr (rounded to the nearest tenth) when Equation D-6 is used, you may report, as a default value, the minimum gas flow rate that will give a heat input rate greater than zero.

Source of Data Code for Gas Flow Rate (31). Report one of the following codes to indicate the source of the value for gas flow rate:

0	Hourly Measurement
1	Substitute Data Using Lookback Procedures
2	Default Minimum Fuel Flow Rate
3	Maximum Potential Fuel Flow Rate (simplified missing data procedure for peaking units, only)
4	Emergency Fuel (maximum unit fuel flow rate)

Do not leave this field blank.

Load Range or Operational Bin Number (32).

If you use the standard, load-based fuel flow missing data procedures of Part 75, Appendix D, you must report an operating load range ("bin number") for each hour. During hours when you report quality assured values, use the load ranges to define the values at each load range for missing data purposes. During hours when you use the fuel flow missing data procedure, use the load ranges to calculate the appropriate substitute value.

Leave this field blank if you use the simplified missing data procedures for peaking units, as described in section 2.4.2.1 of Appendix D.

For units that do not produce electrical or steam load (e.g., cement kilns, refinery process heaters, etc.), leave this field blank unless you have an approved petition to use operational bins for fuel flowrate missing data substitution. In that case, report the

operational bin number. If the operational bin number is indeterminable for a particular hour, report "00".

For common pipes, you may use load ranges of 01 through 10 or 01 through 20. For fuel flowmeters serving a single unit, use load ranges of 01 through 10. For non load-based units with approved petitions to use operational bins, the allowable operational bin numbers range from 00 through 10.

Gross Calorific Value (GCV) of Gas (34). Report the heat content or gross calorific value of the gas from the appropriate sample to calculate heat input. Report this value in units of Btu/100 scf.

[Reserved] (44). This field was for OTC NO_x Budget Program units only, and has been reserved.

Heat Input Rate from Gas During Gas Combustion (45). Calculate and report hourly heat input rate to the unit or common pipe from gas by multiplying the heat content of the gas sample by the hourly gas flow rate. Report this value in units of mmBtu/hour rounded to one decimal place.

Fuel Usage Time (52). Report the fraction of the clock hour during which the unit combusted gas. You may use any equal increments from hundredths (0.01 hr.) to quarters (0.25 hr.) of an hour. For common pipes, report the cumulative portion of the hour during which gas was combusted in any of the units served by the common pipe, not to exceed a fuel usage time of 1.00 (see example under instructions for column 52 of RT 302).

Type of Gas (56). Identify the type of gas combusted during the hour for the system reported in column 10. You may either report the type of fuel using the General Fuel Type codes (which are consistent with the codes for gas in RT 587) or you may report more specific information on the type of gas combusted using one of the Specific Fuel Type codes listed below. EPA requests that owners and operators use the more specific codes if you have information on an hour-to-hour basis on the type of gas combusted. EPA will use these data to determine whether specific types of fuel can be predictably associated with a range of NO_x emission rates. If an adequate fuel to NO_x emissions rate correlation can be established, EPA may consider using these data to set fuel-specific default NO_x emission rates for qualifying low mass emissions units. Do not provide information on more specific types of gas if you are uncertain about the fuel type for all or any hours in the quarter.

<u>General Fuel Type Codes</u>

LPG	Liquefied Petroleum Gas (if measured as a gas)
NNG	Natural Gas
OGS	Other Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas

Specific Fuel Type Codes

BFG	Blast Furnace Gas
BUT	Butane (if measured as a gas)
CDG	Coal Derived Gas
COG	Coke Oven Gas
DGG	Digester Gas
LFG	Landfill Gas
PDG	Producer Gas
PRP	Propane (if measured as a gas)
RFG	Refinery Gas
SRG	Unrefined Sour Gas

Flag to Indicate Multiple or Single Fuel Types Combusted (59). Report for each hour whether only one type of fuel was burned or whether other types of fuel were burned during the same hour. Report an "S" for hours during which only one type of fuel was combusted. Report an "M" for hours during which multiple fuels were combusted.

Type of Gas Sampling and GCV Value Used in Calculations (60). Report the type of gas sampling and value used with one of the following codes:

0	Actual Measured GCV From Most Recent Monthly Sampling
1	Highest of All Sampled Values in Previous Calendar Year (or a higher sampled value, superseding the assumed value)
2	Maximum Value Allowed by Contract (or a higher sampled value, superseding the assumed value)
4	Actual Measured GCV From Continuous (hourly) Sampling
5	Gas Fuel in Lots, as Delivered Sampling: Highest of All Sampled Values in Previous Calendar Year (or a higher sampled value, superseding the assumed value)
6	Gas Fuel in Lots, as Delivered Sampling: Maximum Value Allowed by Contract (or a higher sampled value, superseding the assumed value)
7	Actual Measured GCV From Daily Sampling
8	Missing Data Based on Table D-6 Default
10	Actual GCV From Most Recent Shipment or Lot

(15) **RT 305: Quarterly Heat Input From Long Term Fuel Flow Measurements for Qualifying Low Mass Emissions Units**

If you have a qualifying low mass emissions unit and use a long term fuel flow system to measure oil or gas to calculate heat input for the unit, report one RT 305 for each long term oil (LTOL) system and one RT 305 for each long term gas (LTGS) monitoring system used during the quarter or reporting period.

For a group of LME units served by a common pipe (or supply tank), you must define a LTOL or LTGS monitoring system in the monitoring plan (RT 510) for the pipe or tank. In both cases (i.e., for common pipe or tank), the pipe or tank ID number must begin with a "CP" prefix (e.g., CP001). If two or more common pipes or tanks of different fuel types supply the same group of LME units, you must

define a separate LTOL or LTGS system in RT 510 for each pipe or tank. If two or more pipes or tanks supply the same type of fuel to a group of LME units, you may represent it as a single LTOL or LTGS system in RT 510.

Field Descriptions and Instructions

Monitoring System ID (10). Report the monitoring system ID for the long term fuel flow system, as defined in RT 510.

Type of Fuel (13). Report the type of fuel combusted using the following uppercase codes:

BFG	Blast Furnace Gas
BUT	Butane (if measured as a gas)
CDG	Coal Derived Gas
COG	Coke Oven Gas
DGG	Digester Gas
DSL	Diesel Oil
LFG	Landfill Gas
LPG	Liquefied Petroleum Gas (if measured as a gas)
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
PDG	Producer Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRP	Propane (if measured as a gas)
RFG	Refinery Gas
SRG	Unrefined Sour Gas

If more than one type of fuel is combusted, you must measure the fuel using separate fuel flow systems and report more than one RT 305 for the reporting period.

Quarter or Reporting Period (16). Report the quarter or reporting period for which measurements were taken using the following codes, as described below:

1, 2, 3, or 4	Entire quarter
2A	April only
2S	May and June only

LME Acid Rain Units, NOT Subject to Subpart H

If you use long term fuel flow to determine emissions, measure and report long term fuel flow for each quarter and indicate the quarter for which data are reported using codes 1 through 4.

LME Units, Subject to Subpart H

If you are required to report on a year-round basis, measure and report long term fuel flow for quarters 1, 3, and 4. Indicate the quarter for which data are reported using codes 1, 3, or 4. If you report on an ozone season-only basis, measure and report long term fuel flow for quarter 3, but not for quarters 1 and 4.

For quarter two, if you are required to report on a year-round basis, measure long term fuel flow for the month of April (not in the ozone season) and report the result using the code 2A. For both year-round reporters and ozone season-only reporters, measure long term fuel flow for May and June (in the ozone season) and report the result using the code 2S.

Year (18). Report the calendar year for which measurements were taken and reported.

Quarterly or Reporting Period Fuel Flow (22). Report the total fuel flow recorded for the quarter or reporting period. If you measure in units other than those listed in the instructions for column 32 (Units of Measure for Fuel Flow), convert the reading to allowable units by using conversion equations.

Instructions for Using Billing Records

- If you have daily billing records, then use the daily fuel usage to apportion the fuel flow on a daily basis to hours within the ozone season or quarter beginning on the first operating day of the ozone season or quarter and ending on the last operating day of the ozone season or quarter.

  Example 1. If a billing period starts on June 15 and ends on July 16 and the bill includes daily usage, use the daily quantities to determine which fuel was combusted during June (attributed to the second quarter) and which fuel was combusted during July (attributed to the third quarter).

- If the bill does not specify daily fuel usage, apportion fuel based on unit output, as reported in columns 22 or 28 of RT 360.

  Example 2. If the billing period starts on June 15 and ends on July 16 and the bill only has total fuel combusted during the period, apportion the fuel into June and July based on the unit output for the billing period. Thus, if 75% of the unit output between June 15 and July 16 occurred during June, then apportion 75% of the total fuel into June and 25% into July.

- It is the responsibility of the owner/operator to obtain all necessary billing records in time to ensure timely quarterly report submissions.

Instructions for Using Tank Drop Measurements

- For year-round reporting, measure the tank volume (the beginning and ending long term fuel flow (LTFF) measurement) within no more than 48 hours of the beginning or end of a quarter.

  Example 3. If you measure the level of oil in a tank on December 30 or 31 or on January 1 or 2, use this measurement (compared to the baseline value at the beginning of the quarter) to calculate the amount of fuel combusted during the quarter (even if the measurement was taken in January). Use this measurement as the baseline for determining the amount of fuel combusted during the next quarter. When apportioning heat input based on unit output only, use output from the beginning and end of the quarter, not the output corresponding to the beginning and end of the actual measurement period.

- Perform as many measurements as necessary to accurately determine fuel usage during the measurement period. The Agency recommends performing measurements before and after fuel is added to a tank unless you know the exact volume of fuel added to the tank.

- If a unit operated for only a very short period or used only a very limited amount of fuel during a quarter or reporting period so that a tank drop measurement will not yield an accurate estimate of the fuel combusted during the quarter, use the unit's maximum rated heat input for each hour of operation during that quarter.

Instructions for Using Certified Fuel Flowmeters

- When a certified Appendix D fuel flowmeter is used for long term fuel flow purposes, you are required to record hourly fuel flow rates. You must also submit RT 540 (fuel flowmeter data) and must submit the results of all periodic fuel flowmeter quality assurance tests (RTs 624, 627, 628, 629, and 630, as applicable). However, reporting of hourly fuel flow rate information is not required. Therefore, do not report RTs 302 and 303 for low mass emissions units.

- Use the recorded hourly fuel flow rates, fuel usage times (if available) and the density of the fuel (if needed) to determine the total mass or volume (as applicable) of each type of fuel combusted during the reporting period. Then, use Equation LM-2 or LM-3 in § 75.19, as appropriate, to calculate the heat input from each type of fuel combusted during the reporting period. Add together all of the reporting period heat input values for all fuels, according to Equation LM-4. Then, apportion the total heat input for the reporting period to each operating hour in the period, using Equations LM-5 through LM-8A (as applicable) replacing the term "quarter" with the term "reporting period."

- When calculating the total mass or volume of fuel combusted, if hourly fuel usage times are not available, use a value of 1.00 for each operating hour in the reporting period.

- If any fuel flowmeter data are missing for any hour(s) in the reporting period, you must provide substitute data for those hours, using either: (1) the load-based missing data procedures in Appendix D (if these procedures are programmed in the DAHS); or (2) the maximum system fuel flow rate in column 20 of RT 540).

Units of Measure for Fuel Flow (32). Report the units of measure in which you are reporting fuel flow using one of the following uppercase codes:

GAL	Gallons
LB	Pounds
SCF	Standard Cubic Feet

Gross Calorific Value (37). Report the heat content or gross calorific value (GCV) of the fuel from Table LM-5 of § 75.19 or the highest GCV recorded in the previous calendar year from fuel sampling and analysis according to the procedures of Appendix D to Part 75.

If you measure in units other than those listed in the instructions for column 47 (GCV Units of Measure), convert to an allowable unit by using appropriate conversion equations.

Gross Calorific Value Units of Measure (47). Report the units of measure for GCV using one of the following uppercase codes:

BTU/GAL	Btu Per Gallon
BTU/LB	Btu Per Pound
BTU/SCF	Btu Per Standard Cubic Feet

Total Heat Input (55). Calculate and report the total heat input measured by the long term fuel flow system for the quarter or reporting period using the appropriate heat input formula from § 75.19 (as defined in RT 520). If this system is the only long term fuel flow system used for the unit or group of units, apportion this heat input to the unit operating hours in the quarter (or reporting period) in RT 360, using the appropriate equation in § 75.19. If two or more long term fuel flow systems are used during the quarter or reporting period, sum the total heat input values from all systems before apportioning heat input to the unit operating hours.

For a single Acid Rain Program LME unit which is not part of a group of LME units, the total heat input values in RT 305, column 55 for all long term fuel flow systems used during the quarter must equal the quarterly unit heat input value reported in column 82 of RT 301.

For a group of Acid Rain Program LME units served by one or more common pipes or tanks, you must report both RT 305 and RT 301 under each common pipe (or tank) ID number. For each common pipe or tank ID, the total heat input reported in column 55 of RT 305 must equal the quarterly heat input reported in column 82 of RT 301.

(16) RT 307: Cumulative NO_x Mass Emissions Data (ARP Low Mass Emissions Units or Subpart H Units Only)

For each reporting period, submit RT 307 for each Subpart H stack, unit (including LME units), and pipe ID included in the quarterly report.

For Acid Rain Subpart H units, report RTs 301 and 307.

For non-Acid Rain Subpart H units, report RTs 307 but do not report RT 301.

For Acid Rain Program low mass emissions (LME) units not subject to Subpart H, report SO_2 mass emissions, CO_2 mass emissions, heat input, average NO_x emission rate and operating hours in RT 301. In RT 307, report only the information in columns 1 through 27 and the NO_x mass emissions information in columns 67 through 76, for the purpose of documenting compliance with the applicable NO_x emission threshold.

For a summary of which fields to report based on program applicability and use of the low mass emissions (LME) provisions, see Table 7 below. Note that for Acid Rain Program units, cumulative annual heat input and operating hours are not reported in RT 307. Rather, these values are reported in RT 301.

Table 7
SUMMARY OF RT 307 REPORTING REQUIREMENTS

Applicable Programs	LME?	Report RT 307?	RT 307 Fields to Report								
			NO_x Tons		Heat Input		Operating Hours		Annual Values		
			Rpt Period (18)	OS (28)	Rpt Period (38)	OS (48)	Rpt Period (58)	OS (62)	NO_x Tons (67)	HI (77)	Op Hrs (87)
ARP-only	No	N	N/A								
ARP-only	Yes	Y	Y	N	N	N	N	N	Y	N	N
ARP + SUBH	No	Y	Y	Y	Y	Y	Y	Y	Y	N	N
ARP + SUBH	Yes	Y	Y	Y	Y	Y	Y	Y	Y	N	N
SUBH-only	No	Y	Y	Y	Y1	Y1	Y	Y	Y2	Y3	Y2
SUBH-only	Yes	Y	Y	Y	Y1	Y1	Y	Y	Y2	Y3	Y2

Y1 - Unless exempted by State SIP
Y2 - If reporting year-round
Y3 - If reporting year-round, unless exempted by State SIP

Common Stacks or Pipes. For a simple common stack or pipe (two or more units served by one stack or pipe), the heat input for the stack or pipe must equal the sum of the heat inputs for the units associated with the stack or pipe. This applies to reporting period heat input, cumulative ozone season

heat input, and (if applicable) cumulative annual heat input. Do not apportion NO_x mass emissions to the individual units. Submit a RT 307 for the common stack or pipe and submit an additional RT 307 for each unit associated with the common stack or pipe.

Example # 1: If CS1 is a monitored common stack serving Units 1 and 2, report three RTs 307, one for Stack CS1, one for Unit 1, and one for Unit 2. In RT 307 for CS1, report the heat input and NO_x mass, as measured at the common stack, and the operating hour information for the common stack. In the RTs 307 for Units 1 and 2, report only the individual unit heat input in mmBtu (as derived from the heat input rates and operating times in the unit-level RTs 300) and the operating hour information. Do not report unit-level NO_x mass emissions in the RTs 307 for Units 1 and 2. If you are affected by Subpart H only and are not required to report heat input, follow these instructions but leave the heat input fields blank.

Example # 2: For a group of low mass emissions units (Units 1, 2 and 3) served by a common pipe and using long term fuel flow to quantify heat input, report RTs 307 and 301 for the common pipe and individual units, as follows:

- If the units are in the Acid Rain Program but are not Subpart H units, report only the quarterly and cumulative annual NO_x mass emissions in a separate RT 307 for each of the three units. Do not report RT 307 for the common pipe. In a separate RT 301, report for each unit the quarterly and cumulative SO_2 mass emissions, CO_2 mass emissions, heat input, average NO_x emission rate, and unit operating hours. Submit RT 301 for the common pipe, but report only the quarterly and cumulative heat input—leave all of the emissions data fields and operating hour fields blank.

- If Units 1, 2, and 3 are non-Acid Rain, Subpart H units, do not report any RTs 301. Instead, report one RT 307 for each unit and one RT 307 for the common pipe. In each unit-level RT 307, report only the reporting period values and the appropriate cumulative values of NO_x mass emissions, heat input, and operating hours. In the RT 307 for the common pipe, report only the reporting period values and the appropriate cumulative values of heat input. If data are reported year-round, the "appropriate" cumulative values are the ozone season and annual values. If data are reported on an ozone season-only basis, the appropriate cumulative values are the ozone season values.

- If Units 1, 2, and 3 are affected units under both the Acid Rain Program and Subpart H, report both RT 301 and RT 307 for each unit and for the common pipe. In each unit-level RT 307, report only the reporting period and cumulative ozone season values of NO_x mass emissions, heat input, and operating hours. In the RT 307 for the common pipe, report only the appropriate reporting period and ozone season cumulative values of heat input. Report the cumulative annual heat input and cumulative annual operating hours in the RT 301 for each unit. In the RT 301 for the common pipe, report only the cumulative annual heat input.

Multiple Stacks or Pipes. For some units, there are multiple stacks or ducts (with installed CEMS) leading from the unit. In other cases, there are multiple pipes (with installed fuel flowmeters) associated with the unit (e.g., a combined cycle turbine with duct burner using Appendix E). For these configurations, each reported emission or heat input value for the unit must equal the sum of the corresponding emission or heat input values reported for the individual stacks or pipes.

For example, if MS1A and MS1B are multiple stacks associated with Unit 1, report three RTs 307, one for Unit 1, one for Stack MS1A and one for Stack MS1B. RT 307 for Unit 1 would include the sum of heat input, and the operating hour information for Unit 1. Do not report unit level NO_x mass emissions in RT 307 for Unit 1. RTs 307 for MS1A and MS1B would include the heat inputs, the NO_x mass emissions measured at the individual stack locations and the operating hour information for each stack. If the unit is affected by Subpart H only and you are not required to report heat input for the unit, follow these instructions but leave the heat input fields blank.

Complex Stacks. A complex stack situation exists where a unit's emissions are measured at more than one stack location and where at least one of these stack locations is a common stack shared with one or more other units. For the purposes of heat input accounting, the sum of the heat inputs for all units associated with all stacks in a complex configuration must equal the sum of the stack heat inputs for all the stacks. Do not apportion NO_x mass emissions to the individual units in complex configurations.

For example, if emissions from Units 1, 2, and 3 are measured at CS1 and are also measured during bypass hours at CS2, the sum of the heat inputs for Units 1, 2, and 3 must equal the sum of the heat inputs for CS1 and CS2. The RTs 307 for CS1 and CS2 must contain the heat inputs and NO_x mass emissions measured at the stack locations and the operating hour information. RTs 307 for Units 1, 2, and 3 must contain the apportioned heat inputs and the operating hour information; do not report NO_x mass emissions in the unit level RTs 307. If you are affected by Subpart H only and are not required to report heat input, follow these instructions but leave the heat input fields blank.

Report data for all units and stacks involved in a complex configuration in a single quarterly report file. In this quarterly report file, report only one RT 307 for each individual unit, regardless of the number of stacks to which the unit discharges its emissions.

Field Descriptions and Instructions

Date of Report Generation (10). Report the calendar date on which the quarterly report was created.

Reporting Period NO_x Tons Emitted (18). Report the sum of the actual NO_x mass emissions for the reporting period (calendar quarter) using Equation F-27 in Appendix F of Part 75. Use the values reported in RT 328 (for Subpart H) or RT 360 (for low mass emissions units) in this equation. Round and report the sum to one decimal place.

Cumulative Ozone Season NO_x Tons Emitted (28). Report the NO_x mass emissions for the ozone season through the end of the reporting quarter. For the first quarter report, report zero or leave this field blank. For the second quarter report the total NO_x mass emissions for May and June. For the third quarter report, report the total NO_x mass emissions from May through September. For the fourth quarter, report again the total NO_x mass emissions from May through September. Round and report the sum to one decimal place.

For Acid Rain Program low mass emissions units not subject to Subpart H, leave this field blank.

Reporting Period Heat Input (38). For non-LME Subpart H units (whether Acid Rain or non-Acid Rain affected) for each hour in the reporting period, calculate the hourly heat input by multiplying the hourly heat input rate reported in column 36 of RT 300 for the unit, stack, or pipe, by the corresponding operating time in column 18 of RT 300. Report the sum of these calculated heat input values. Round and report the result to one decimal place.

For low mass emissions units subject to Subpart H, report the sum of the actual heat input values reported in RT 360 for the current reporting period (see also the instructions for RT 305).

For Acid Rain low mass emissions units not subject to Subpart H, leave this field blank.

For non-Acid Rain Subpart H units that use NO_x concentration times stack flow as the primary methodology to calculate NO_x mass emissions, you may leave this field blank, unless reporting of heat input is required for allocation purposes.

Cumulative Ozone Season Heat Input (48). If required to do so by State or federal regulations or by the State regulatory agency, calculate the cumulative heat input for the ozone season. For each hour in the ozone period, calculate the hourly heat input by multiplying the hourly heat input rate reported in column 36 of RT 300 for the unit, stack, or pipe, by the corresponding operating time in column 18 of RT 300. Report the sum of these calculated heat input values. Round and report the sum to one decimal place.

For low mass emissions units subject to Subpart H, report the sum of the actual heat input values reported in RT 360 for the ozone period (see also the instructions for RT 305).

For Acid Rain low mass emissions units not subject to Subpart H, leave this field blank.

For the first quarter report, report zero or leave this field blank. For the second quarter report, report the total heat input for May and June. For the third quarter report, report the total heat input from May through September. For the fourth quarter, report again the total heat input from May through September.

For non-Acid Rain Subpart H units that use NO_x concentration times stack flow as the primary methodology to calculate NO_x mass emissions you may leave this field blank, unless reporting of heat input is required for allocation purposes.

Total Reporting Period Operating Hours (58). Report the number of hours in which the unit or stack operated during the reporting period. Count each partial hour as a whole hour.

For Acid Rain low mass emissions units not subject to Subpart H, leave this field blank.

Cumulative Ozone Season Operating Hours (62). Report the cumulative number of hours in which operation occurred during the ozone season through the end of the reporting quarter. For the first quarter report, report zero or leave this field blank. For the second quarter report, the sum will include the operating hours for May and June. For

the third quarter report, this will include the operating hours from May through September. Count each partial hour as a whole hour. For the fourth quarter, report again the cumulative ozone season operating hours from May through September.

For Acid Rain low mass emissions units not subject to Subpart H, leave this field blank.

Cumulative Annual NO_x Tons Emitted (67). For each unit, stack, or pipe that reports NO_x mass emissions on a year-round basis, sum the annual NO_x mass emissions reported for the year. Round and report this sum to one decimal place. In Quarter 1, the reporting period total NO_x tons reported in column 18 must be the same as the cumulative annual tons reported in column 67. In subsequent quarters, add the total NO_x tons emitted in the current quarter to the cumulative annual NO_x tons reported in column 67 of the previous quarter's report to obtain the new value of the cumulative annual NO_x tons emitted. Round and report to one decimal place.

If you report NO_x mass emissions only during the ozone season, leave this field blank.

Cumulative Annual Total Heat Input (Non-Acid Rain Subpart H) (77). For non-Acid Rain Subpart H units reporting on a year-round basis, report this field if your State or EPA requires heat input data for allocation or other purposes. For each hour in the year, calculate the hourly heat input by multiplying the hourly heat input rate reported in column 36 of RT 300 for the unit, stack, or pipe by the corresponding operating time in column 18 of RT 300. Report the sum of these calculated heat input values.

For Subpart H units reporting on an ozone season only basis, leave this field blank. For non-Acid Rain Subpart H units that use NO_x concentration times stack flow as the primary methodology to calculate NO_x mass emissions, leave this field blank, unless reporting of heat input is required for allocation purposes.

Cumulative Annual Unit/Stack/Pipe Operating Hours (Non-Acid Rain Subpart H) (87). For all non-Acid Rain Subpart H units, stacks, or pipes reporting operating data on a year-round basis, sum the number of hours in which the unit, stack, or pipe operated during the year-to-date. Count each hour of partial operation as a single hour. If you report NO_x mass emissions only during the ozone season, leave this field blank.

(17) **RT 310: SO_2 Mass Emissions Data (ARP)**

For each Acid Rain Program unit or stack with an SO_2 CEMS, report the calculated SO_2 emission rate in RT 310, for each operating hour (or partial operating hour), with one exception: do not report RT 310 for hours in which only gaseous fuel is combusted, if you account for SO_2 mass emissions during those hours using the provisions of § 75.11(e)(2), in lieu of operating and recording data from the SO_2 monitoring system. If you calculate the hourly SO_2 mass emission rate from a quality-assured SO_2 concentration and a quality-assured stack flow rate (including hours in which data from a like-kind replacement SO_2 analyzer are reported in RT 200), you must report data in all fields of RT 310, except for column 35.

If you monitor SO_2 mass emission rate and report RT 310 at a common stack, do not apportion the SO_2 mass emission rate measured at the common stack to the individual units (i.e., do not report any additional RTs 310 under the associated unit IDs).

If, for a particular unit, you monitor SO_2 mass emission rate at multiple stacks (or ducts), do not report the combined SO_2 mass emission rate for the unit (i.e., do not report any unit-level RTs 310).

Field Descriptions and Instructions

SO_2 Mass Emission Rate for the Hour (18). This value is derived using the quality-assured, unadjusted stack flow reported in RT 220, column 29, and the quality-assured, unadjusted SO_2 concentration reported in RT 200, column 29, in conjunction with the appropriate equation in Appendix F to Part 75. Report this field in lb/hr. Round to one decimal place.

Leave this field blank if substitute data value(s) are reported in either RT 200, column 35 (for SO_2 concentration) or in RT 220, column 39 (for flow rate), or both. During such hours, the unadjusted SO_2 mass emission rate cannot be calculated because the unadjusted SO_2 concentration in RT 200, column 29 or the unadjusted flow rate in RT 220, column 29 (or both) will be blank.

If you calculate the hourly SO_2 mass emission rate using Equation F-1 or F-2 in Appendix F to Part 75, leave this field blank if the unadjusted SO_2 concentration reported in RT 200, column 29 is blank and if any of the following occurs for a particular hour: (1) a 2.0 ppm default SO_2 concentration value is reported in RT 200, column 35 during combustion of a very low-sulfur gaseous fuel; or (2) a default high range value of 200% of the MPC is used in the calculation of the hourly average SO_2 concentration reported in RT 200, column 35; or (3) a full-scale exceedance value of 200% of the range is used in the calculation of the hourly average SO_2 concentration reported in RT 200, column 35.

Leave this field blank for any hour in which only natural gas is combusted and the hourly SO_2 mass emission rate is calculated from a CEMS-derived heat input rate and a default SO_2 emission rate, using Equation F-23 in Appendix F to Part 75 (see § 75.11(e)(1)).

Leave this field blank for hours in which you calculate SO_2 emission rate using data provided by a reference method backup monitoring system, either for SO_2 concentration or stack flow rate (or both).

SO_2 Mass Emission Rate During Unit Operation Based on Adjusted Values (25). This value is normally derived using the bias-adjusted stack flow reported in RT 220, column 39, and the bias-adjusted SO_2 concentration reported in RT 200, column 35, in conjunction with the appropriate equation in Appendix F to Part 75. However, for an hour in which only natural gas is combusted, the value may be calculated from a CEMS-derived heat input rate and a default SO_2 emission rate using Equation F-23 (see § 75.11(e)(1)). Report data in this field in lb/hr. Round to one decimal place.

Formula ID From Monitoring Plan for Hourly SO_2 Emissions (32). Report the formula ID from RT 520 that is used for the SO_2 hourly emissions rate calculation.

Total SO_2 Mass Emissions for the Hour (Optional) (35). If you choose to report this field, report total SO_2 mass emissions in pounds, rounded to one decimal place.

(18) **RT 313: SO_2 Mass Emissions Alternative Estimation Parameters for Oil (ARP)**

For Acid Rain units using Appendix D, for each hour in which any type of oil is burned, report RT 313 (and the corresponding RT 302 for that type of oil). Do not report this RT for non-Acid Rain Subpart H units.

Field Descriptions and Instructions

Monitoring System ID (10). There is a one-to-one correspondence for each hourly fuel flow rate record in RT 302 and the estimated SO_2 emissions associated with the fuel, reported in RT 313. Report the same system ID in RTs 313 and 302 for each hour.

For hours in which the fuel flow rate is missing, either report the primary fuel flow system ID in both RT 302 and 313 or leave the system ID blank in both RTs.

Sulfur Content of Oil Sample Used to Calculate SO_2 Mass Emission Rate (21). Report the sulfur content of the oil sample. If percent sulfur is measured to the nearest hundredth you may report the actual value using two decimal places.

Use Table D-4 in Appendix D to Part 75 to determine what value you should report in this field.

Code for Method of Oil Sampling [Reserved] (26). This field has been replaced by the field in column 44. Leave this field blank.

Missing Data Flag for Sulfur Content [Reserved] (29). This field has been replaced by the field in column 44. Leave this field blank.

SO_2 Mass Emission Rate From Oil During Oil Combustion (30). Report the SO_2 mass emission rate in lb/hr calculated using Equation D-2 from Appendix D to Part 75, rounded to one decimal place.

Total SO_2 Mass Emissions From Oil (Optional) (37). Report the total SO_2 mass emissions (in lb) using the rounded SO_2 mass emission rate from oil reported in column 30 multiplied by the fuel usage time during the hour in RT 302 column 52, rounded to one decimal place. This is an optional field.

Type of Sulfur Sampling and Value Used in Calculations (44). Report the derivation of the sulfur content value using one of the following codes:

1	Actual Measured Value from Oil Composite Sample
2	Actual Measured Value from Oil Tank Sample
3	Highest Daily Sample in 30 Daily Samples

4	Highest Sampled Value in Previous Calendar Year from Oil Tank Sampling (or a higher sampled value, superseding the assumed value)
5	Highest Sampled Value in Previous Calendar Year from As Delivered Sample (or a higher sampled value, superseding the assumed value)
6	Maximum Value Allowed by Contract (or a higher tank sample value, superseding the assumed value)
7	Maximum Value Allowed by Contract (or a higher sampled value, superseding the assumed value)
8	Missing Data (Maximum Potential Value for missing data or emergency fuel from Table D-6)
9	Actual Measured Value from a Daily Sample

(19) RT 314: SO_2 Mass Emissions Alternative Estimation Parameters for Gas (ARP)

For Acid Rain units using Appendix D, for each hour in which any type of gas is burned, report RT 314 (and the corresponding RT 303). Do not report this RT for non-Acid Rain Subpart H units.

Field Descriptions and Instructions

Monitoring System ID (10). There is a one-to-one correspondence for each hourly fuel flow rate record in RT 303 and the estimated SO_2 mass emissions associated with the fuel reported in RT 314. Report the same system ID as for the RT 303 on which the SO_2 calculation is based.

For hours in which fuel flow is missing, either report the primary fuel flow system ID in both RT 303 and 314 or leave the system ID blank in both RTs.

Sulfur Content of Gas Sample Used to Calculate SO_2 Mass Emission Rate (21). Report the sulfur content of the gaseous sample in grains/100 scf. Use Table D-5 in Appendix D to determine the correct value. If you report using a default SO_2 emission rate, leave this field blank. If the sulfur content for any sample(s) is 0.04 grains/100 scf or less, contact EPA for further reporting guidance.

Missing Data Flag for Sulfur Content [Reserved] (29). This field has been replaced by the field in column 52. Leave this field blank.

Default SO_2 Emission Rate (30). If pipeline natural gas is combusted, report the default SO_2 emission rate for natural gas of 0.0006 lb/mmBtu for pipeline natural gas. If you calculate a default emission rate using Equation D-1h, report the default rate in this column.

SO_2 Mass Emission Rate From Gas During Gas Combustion (37). If you report a default SO_2 emission rate in column 30, calculate and report the SO_2 mass emission rate using the default SO_2 emission rate and the hourly heat input rate reported in RT 303 using Equation D-5 from Appendix D.

If you report the sulfur content of the gas in column 21 of this record, calculate and report SO_2 mass emission rate by using the sulfur content reported in column 21 and the hourly volumetric flow rate of gas flow reported in RT 303. Use Equation D-4 from Appendix D.

Total SO_2 Mass Emissions From Gas (Optional) (45). Report the total SO_2 mass emissions (lbs) using the SO_2 mass emission rate reported in column 37 multiplied by the fuel usage time reported in RT 303, column 52. This is an optional field.

Type of Sulfur Sampling and Value Used in Calculations (52). Report the derivation of the sulfur content value using one of the following codes:

0	Actual Measured Hourly Average Sample from GCH
3	Highest Daily Sample in 30 Daily Samples
5	Highest Sampled Value in Previous Calendar Year from As Delivered Sample (or a higher sampled value, superseding the assumed value)
7	Maximum Value Allowed by Contract (or a higher sampled value, superseding the assumed value)
8	Maximum Potential Value from Table D-6 for missing data or emergency fuel
9	Actual Measured Value from Daily Sample
10	Actual Measured Value from Most Recent Shipment or Lot

If you report a default SO_2 emission rate in column 30, leave this field blank.

(20) **RT 320: NO_x Emission Rate Data**

If you use a NO_x-diluent system to measure NO_x emission rate, report RT 320 for each hour (or partial hour) in which the unit or stack operates. For hours in which the unit or stack did not operate, do not report RT 320.

For Subpart H units that do not have a Part 75 requirement to report NO_x emission rate, do not report RT 320 for hours in which you report NO_x mass emissions as NO_x concentration times stack flow rate.

If you monitor NO_x emission rate and report RT 320 at a common stack, do not apportion the NO_x emission rate measured at the common stack to the individual units (i.e., do not report any additional RTs 320 under the associated unit IDs).

If, for a particular unit, you monitor NO_x emission rate at multiple stacks (or ducts), calculate the weighted hourly emission rate for the unit, but do not report those hourly unit level values (i.e., do not report any unit-level RTs 320). Do report the quarterly and cumulative unit-level NO_x emission rate in RT 301 for the unit (see instructions for RT 301).

Field Descriptions and Instructions

Monitoring System ID (10). Report the monitoring system ID for the NO_x-diluent monitoring system that is providing quality-assured data for the hour.

For missing data hours, leave this field blank. This includes hours in which the flue gases are discharged through an unmonitored bypass stack.

If either: (1) a default high range NO_x concentration value of 200% of the MPC is reported in RT 201 due to a full-scale exceedance of the low range; or (2) a value of 200% of the range is reported in RT 201 during a full-scale exceedance of the high range, report the ID number of the NO_x-diluent monitoring system which is in use at the time of the full-scale exceedance.

Percent Monitor Data Availability for NO_x Emission Rate Calculations (21). Report the percent monitor data availability for all hours unless missing data are substituted. You may report percent monitor data availability for hours in which missing data are substituted, but this is optional.

F-factor Converting NO_x Concentrations to Emission Rates (26). Report the F-factor used to calculate NO_x emission rate for the hour. For missing data hours, this field may be blank. The instructions for RT 520 contain a table of the standard F-factors.

Average NO_x Emission Rate for the Hour (36). Calculate and report to three decimal places the NO_x emission rate based on the measured data reported in RTs 201, 210 (or 211), and 212 (or 531), as applicable. For hours in which you use missing data procedures leave this field blank, including hours in which the flue gases are discharged through an unmonitored bypass stack.

If you use Equation 19-3 or 19-5 to determine NO_x emission rate, you must use modified Equation 19-3D or 19-5D (as applicable) instead of Equation 19-3 or 19-5, for hours in which you use the diluent cap (see Table 14 in the RT 520 instructions).

Adjusted Average NO_x Emission Rate for the Hour (42). For each hour in which you report NO_x emission rate in column 36, apply the appropriate adjustment factor (1.000 or bias adjustment factor (BAF)) to the rounded average NO_x emission rate and report the adjusted NO_x emission rate for the hour, rounded to three decimal places. For each hour in which you substitute and report missing data, report the appropriate substitute data value , including hours in which the flue gases are discharged through an unmonitored bypass stack, and you report the maximum potential NO_x emission rate (MER). Do <u>not</u> leave this field blank.

If a full-scale exceedance of the low NO_x range occurs and you use a default high range value of 200% of the MPC in the calculation of the hourly average NO_x concentration reported in RT 201, or if a full-scale exceedance of the high NO_x range occurs and you use a value of 200% of the range in the calculation of the hourly average NO_x concentration reported in RT 201, use the reported NO_x concentration in conjunction with the quality-assured diluent concentration for the hour to calculate and report the NO_x emission rate.

These hours are treated as quality-assured monitor operating hours; they are included in missing data lookback and are treated as available hours for percent monitor data availability calculations.

If a diluent concentration is unavailable during an hour in which a full scale exceedance of the NO_x analyzer occurs or an hour in which the default high range value is used, the NO_x emission rate for the hour is considered to be missing. In that case, do not report RT 201 for this hour and do not report RT 210 or 211 (unless the RT 210 or 211 is needed for heat input rate determination), since the NO_x emission rate cannot be calculated; instead, report the maximum potential NO_x emission rate (MER) in this field, and use an MODC of 25.

Load Range or Operational Bin Number (48). For a load-based unit, report the load range for each operating hour. For non load-based units (e.g., cement kilns, refinery process heaters), if operational bins are used for missing data purposes, report the operational bin number. If the operational bin is indeterminable for a particular hour, report "00". If operational bins are not used, leave this field blank.

Formula ID From Monitoring Plan for Hourly NO_x Emission Rate (50). Report the appropriate formula ID from RT 520 for the NO_x emission rate calculation. If you report an MODC of 14 (use of diluent cap) in column 53, you must report a formula ID for the hour. For missing data hours you may leave this field blank or continue to report the formula ID in use before the missing data period.

Method of Determination Code (53). Report one of the following method of determination codes (MODC) to identify the monitoring system or missing data procedure used to report hourly NO_x emission rate. Report an MODC of 14 when the diluent cap value for CO_2 or O_2 is used in place of the measured value reported in RT 210 or 211. Also, be sure that you register the diluent cap value for the unit in RT 531.

For full-scale exceedances of a NO_x analyzer, EPA requires reporting of an MODC reflecting the monitoring system in use during the exceedance or reporting of an MODC of 25 if the diluent concentration normally reported in RT 210 or 211 is not quality-assured. Therefore, during full-scale exceedances, when 200% of MPC or 200% of range is reported for NO_x concentration in RT 201 and is used in conjunction with a quality-assured diluent gas concentration to calculate the NO_x emission rate, report the MODC code associated with the monitoring system that is in use at the time of the full-scale exceedance (for example, report 01 if the primary NO_x-diluent monitoring system is in use). If a full-scale exceedance of the NO_x analyzer occurs and no quality-assured diluent gas concentration for the hour is available, report an MODC of 25 for that hour. Manual entry of MODC "21" is permitted.

01	Primary Monitoring System
02	Redundant Backup or Regular Non-redundant Backup Monitoring System
03	Approved Part 75 Alternative Monitoring System
04	Reference Method Backup System
05	Part 75 Approved Parametric Method
06	Average Hour Before/Hour After

07	Average Hourly Rate, Initial Missing Data
08	90th Percentile Value in Load Range in Lookback Period
09	95th Percentile Value in Load Range in Lookback Period
10	Maximum Hourly Rate in Load Range in Lookback Period
11	Average Hourly Rate in Load Range in Lookback Period
12	Unit or Stack Maximum Emission Rate (MER)
14	Diluent Cap (If the cap is replacing a CO_2 measurement it should be 5.0% for boilers and 1.0% for turbines; if it is replacing an O_2 measurement it should be 14.0% for boilers and 19.0% for turbines.)
21	Zero NO_x Emission Rate, Calculated Using a Negative NO_x Concentration Replaced with Zero
22	NO_x Emission Rate calculated from a certified NO_x monitor at the control device inlet, when the outlet NO_x monitor is unavailable and proper operation of the emission controls is not verified. These hours are included in missing data lookback and are treated as available hours for percent availability calculations.
23	Maximum Potential NO_x Emission Rate, When Flue Gases are Routed Through an Unmonitored Bypass Stack. These hours are considered to be missing data hours.
25	Maximum Potential NO_x Emission Rate (MER). Use only when a NO_x concentration full-scale exceedance occurs and the diluent monitor is unavailable.
54	Other Quality-assured Methodologies Approved Through Petition by EPA (if data are submitted for the Acid Rain Program). These hours are included in missing data lookback and are treated as unavailable hours for percent availability calculations.
55	Other Substitute Data Approved Through Petition by EPA (if data are submitted for the Acid Rain Program). These hours are not included in missing data lookback and are treated as unavailable hours for percent availability calculations.

EPA has reserved codes 01 through 55. Codes 56 through 99 may be used by vendors and companies for other purposes; do not report these codes in a quarterly report. MODCs of 30 and 31 were defined in EDR v2.0 for OTC NBP units only and are not allowed for Acid Rain or Subpart H reporting.

(21) RT 321: NO_x Emission Rate Alternative Estimation Parameters for Oil [Replaced]

This record type was retired December 31, 1995. RT 323 replaced RT 321.

(22) RT 322: NO_x Emission Rate Alternative Estimation Parameters for Natural Gas [Replaced]

This record type was retired December 31, 1995. RT 324 replaced RT 322.

(23) RT 323: NO_x Emission Rate Alternative Estimation Parameters for Oil and Gas

Report RT 323 if your unit always uses a consistent mix of fuels and you performed Appendix E testing on this unit for this mix of fuels. Report the average NO_x emission rate for a unit in RT 323. If you performed Appendix E testing separately for each fuel, report NO_x emission rate in RTs 324 and 325.

Field Descriptions and Instructions

Monitoring System ID (10). Report the monitoring system ID for the NO_x monitoring system defined in RT 510 for Appendix E. This system should contain only a DAHS component.

Parameters Status Flag (21). Report one of the following codes:

E	Emergency Fuel
N	Operating Parameter is Outside of Normal Limits
U	Uncontrolled Hour
W	Operation Above Highest Tested Heat Input Rate Point on the Curve
X	Operating Parameter Data Missing or Invalid
Y	Designated Operational and Control Equipment Parameters Within Normal Limits
Z	Operation Below Lowest Tested Heat Input Rate Point on the Curve

Use the applicable Appendix E missing data procedures for any hour in which an "N," "X," or "W" is reported. Also use Appendix E missing data routines when a required Appendix E retest is not completed by its due date. Use fuel-specific NO_x MER for any hour in which "E" or "U" is reported. For more information about these codes, see the instructions for RT 324 below.

Average NO_x Emission Rate for the Hour (22). Identify the appropriate segment of the heat input rate/NO_x emission rate curve reported in RT 560. Determine the hourly NO_x emission rate for the unit using the appropriate curve segment. This includes hours in which you report "N" in column 21 and apply the standard missing data procedure in section 2.5.2 of Appendix E. Report this rate to three decimal places.

For hours in which you report "W", "U", or "E" in column 21, report the appropriate substitute NO_x emission rate value in this field, to three decimal places (see Appendix E, sections 2.5.2.1, 2.5.2.2, and 2.5.2.3).

Average NO_x Emission Rate for the Hour (Oil) [Reserved] (28). This field is reserved. Leave this field blank.

Average NO_x Emission Rate for the Hour (Gas) [Reserved] (34). This field is reserved. Leave this field blank.

Segment ID of Correlation Curve (40). Report the segment ID from RT 560 for the correlation curve for a consistent mix of fuels used to determine the NO_x emission rate for the hour. Leave this field blank if you report "W", "U", or "E" in column 21.

(24) **RT 324: NO_x Emission Rate Estimation Based on Appendix E**

Submit RT 324 for each hour or partial hour of operation of each Appendix E unit. If more than one type of fuel is combusted during an hour, submit one RT 324 for each type of fuel burned. When more than one type of fuel is combusted during an hour, also submit RT 325 for that hour.

Field Descriptions and Instructions

NO_x Monitoring System ID (10). Report the monitoring system ID for the NO_x system defined in RT 510 for Appendix E. This system should only contain a DAHS component. If Appendix E curves have been derived separately for each fuel type, then, whenever the fuels are co-fired, report a separate, unique NO_x monitoring system ID number in each RT 324 for the hour. When emergency fuel is combusted, if you do not have a separate correlation curve for the fuel, leave this field blank.

Fuel Flow Monitoring System ID (13). Identify the OILV, OILM, or GAS monitoring system ID used to measure fuel flow for the hour. EPA uses this fuel measurement to determine the heat input rate that is the basis for the heat input rate/NO_x emission rate correlation. If the fuel flow monitoring system was in missing data during the hour and you left blank the monitoring system ID in RT 302 or RT 303, leave this field blank. When emergency fuel is combusted, if you do not have a certified fuel flowmeter system for the emergency fuel, also leave this field blank.

Parameters Status Flag (24). Report one of the following codes:

E	Emergency Fuel
N	Operating Parameter is Outside of Normal Limits
U	Uncontrolled Hour
W	Operation Above Highest Tested Heat Input Rate Point on the Curve
X	Operating Parameter Data Missing or Invalid
Y	Designated Operational and Control Equipment Parameters Within Normal Limits
Z	Operation Below Lowest Tested Heat Input Rate Point on the Curve

When to Report "E"

Report an "E" for the parameter status flag if the unit burned an emergency fuel during the hour, and you do <u>not</u> have a separate correlation curve for the emergency fuel. For these hours, report the fuel-specific NO_x MER in column 25.

When to Report "N"

Report an "N" for the parameter status flag if a unit operating parameter is outside of normal limits. For example, report an "N" when excess O_2 exceeds by more than 2.0% the

excess O_2 value recorded at the same operating heat input rate during the last NO_x emission rate test.

Use missing data procedures from Appendix E for any hour in which an "N" is indicated. These procedures require you to substitute the highest tested NO_x emission rate on the curve for the fuel.

Note: If fuel flow rate and gross calorific value data which are reported in RTs 302 or 303 are missing, use the missing data procedures in Appendix D, not Appendix E.

When to Report "U"

For units with add-on NO_x controls only. Report a "U" for the parameter status flag if any parameter used to verify proper operation of the emission controls is outside of normal limits (or the control equipment is not functioning). For these hours, report the fuel-specific NO_x MER in column 25.

When to Report "W"

Report a "W" for the parameter status flag if the hourly heat input rate is higher than the maximum heat input rate correlated on the curve. Use the missing data procedures in section 2.5.2.1 of Appendix E when this occurs. During your next periodic or quality assurance/quality control related testing, test under conditions more representative of your maximum potential heat rate. If possible, use the new maximum heat input rate as the highest heat input point during the next test.

When to Report "X"

For missing or invalid excess O_2 or other operating parameter data, report a parameter status flag value of "X" in column 24 and report the highest NO_x emission rate on the curve for the fuel. This indicates that the hour is not demonstrated to be within the specified limits in Section 2.3 of Appendix E, but it also is not demonstrated to be outside the specified limits. (Note that the use of the "X" flag is optional, you may choose instead to treat these hours as out of spec.) Hours marked with a flag of "N" count towards the 16 consecutive unit operating hours before retesting is required, while hours marked with a flag of "X" do not count for this purpose. In either case, the data count against the availability of data where the unit operates within the parameters. If the data availability falls below 90.0%, the Agency may require retesting.

When to Report "Z"

Report a "Z" in the parameter status flag if the hourly heat input rate is below the lowest heat input rate. In this case it is not necessary to verify that the operational parameters are within any specified limits. Report the same NO_x emission rate recorded during testing at the lowest heat input rate.

Average NO_x Emission Rate for the Hour for Fuel Type (25). Using the appropriate segment of the heat input rate/NO_x emission rate curve, determine the hourly NO_x

emission rate for the unit. This includes hours in which you report "N" in column 24 and apply the standard missing data procedure in section 2.5.2 of Appendix E. Report this rate in lb/mmBtu to three decimal places.

For hours in which you report "W", "U", or "E" in column 24, report the appropriate substitute NO_x emission rate value in this field, to three decimal places (see Appendix E, sections 2.5.2.1, 2.5.2.2, and 2.5.2.3).

NO_x Mass Emission Rate for the Hour for Fuel Type (Subpart H) (31). Calculate and report the hourly NO_x mass emission rate associated with this type of fuel (based on the type of fuel reported in the associated RT 302 or 303 for the hour). Round and report in pounds per hour to two decimal places.

Segment ID of Correlation Curve (42). Report the segment ID from RT 560 for the corresponding segment of the correlation curve used to determine NO_x emission rate for the hour. Leave this field blank if you report "W", "U" or "E" in column 24.

Flag to Indicate Multiple or Single Fuel Types Combusted (45). If you use Appendix E to determine NO_x emission rate, you must indicate for each hour whether more than one type of fuel was burned during the hour. Report an "S" for hours during which the unit combusted only one type of fuel. Report an "M" for hours during which the unit combusted multiple fuels.

(25) **RT 325: NO_x Emission Rate Estimation Based on Appendix E for Multiple Fuel Hours**

Report RT 325 for every hour in which more than one type of fuel is combusted and for which two or more RTs 324 were reported in the same hour for a unit or pipe.

Field Descriptions and Instructions

Average NO_x Emission Rate for All Fuels During Multiple Fuel Hours (18). Using Equation E-2 from Appendix E to Part 75, calculate and report the average NO_x emission rate for the unit for the hour. This average rate is derived from the NO_x emission rates reported in column 25 of the RTs 324, heat input rates reported in column 45 of the corresponding RTs 302 and 303, and fuel usage times reported in column 52 of the corresponding RTs 302 or 303 for each fuel. Report in lb/mmBtu, rounded to three decimal places.

(26) **RT 328: NO_x Mass Emissions (Subpart H)**

Except for low mass emissions (LME) units, submit RT 328 for each unit, stack or pipe at which NO_x mass emissions are measured or estimated, for every hour in the reporting period that the unit or stack operates. However, if there are no hours of operation for a given unit or stack in a reporting period, it is not necessary to report hourly RTs 328 for that unit or stack.

For LME units, use RT 360 to report hourly NO_x mass emissions. Do <u>not</u> report RT 328.

If you monitor NO_x mass emissions and report RT 328 at a common stack, do not apportion the NO_x mass emissions measured at the common stack to the individual units (i.e., do not report any additional RTs 328 under the associated unit IDs).

If, for a particular unit, you monitor NO_x mass emissions at multiple stacks (or ducts), do not report the combined hourly NO_x mass emissions for the unit (i.e., do not report any unit-level RTs 328). Do not report the quarterly and cumulative unit-level NO_x mass emissions in RT 307 (see instructions for RT 307).

Field Descriptions and Instructions

Unit Operating Time (18). Report the fraction of the clock hour during which the unit combusted any fuel (or the fraction of the clock hour during which the stack or pipe was used). You may use any equal increments from hundredths (0.01 hr.) to quarters (0.25 hr.) of an hour.

NO_x Mass Emission Rate During Unit Operation (Optional) (22). This is an optional field. If you elect to use it, report the NO_x mass emission rate in pounds per hour. Round to one decimal place.

If it is not possible to determine a single NO_x mass emission rate for the hour (for example, if two fuels were combusted for different portions of the hour and you are using Appendix E and NO_x mass emissions for each fuel was reported in RT 324), leave this field blank.

Total NO_x Mass Emissions for the Hour (32). Report the total hourly NO_x mass emissions in pounds for the hour. Round to one decimal place. Do not leave this field blank.

Formula ID from Monitoring Plan for Total NO_x Mass (42). Report the formula ID from RT 520 which is used to calculate total NO_x mass emissions for this hour. Do not leave this field blank.

NO_x Methodology for the Hour (45). Report one of the following uppercase codes to indicate the calculation methodology used to report NO_x mass emissions during the hour:

AE-GAS	Appendix E Gas Curve
AE-MIX	Appendix E Mixed Fuels (consistent fuel combination)
AE-MUL	Appendix E Multiple Fuels (from single fuel curves)
AE-OIL	Appendix E Oil Curve
NOXM-AMS	NO_x Concentration (Part 75, Subpart E, AMS) and Stack Flow
NOXM-CEMS	NO_x Concentration and Stack Flow
NOXR-AMS	NO_x Emission Rate AMS (Part 75, Subpart E, AMS)
NOXR-BYS	NO_x Emission Rate Based on NO_x MER for Unmonitored Bypass Stack
NOXR-CEMS	NO_x Emission Rate CEMS

Use Table 8 to determine which EDR record types are used to calculate NO_x mass emissions for each NO_x methodology code.

Heat Input Rate Methodology for the Hour (55). Indicate the measurement methodology used to determine the heat input rate that was used to calculate NO_x mass emissions for the hour. Report one of the following uppercase codes:

CEMS	Diluent and Stack Flow CEMS
AMS	Alternative Monitoring System Approved Under Part 75, Subpart E
FF-GAS	Appendix D Gas Flow
FF-MIX	Appendix D Mixed Fuel
FF-OIL	Appendix D Oil Flow

Leave blank if heat input rate is not reported for the hour. Note that the code FF-MIX should be used both for hours in which two or more different fuels are co-fired and hours when two or more different fuels are combusted separately.

Table 8
EDR RECORD TYPES USED FOR NO_x MASS CALCULATIONS
(BASED ON RT 328 NO_X METHODOLOGY FIELD)

NO_x Methodology Code	Expected NO_x Hourly Records	Expected HI/Flow Hourly Records Used for NO_x Mass Calculations	Expected Record for Unit Operating Time (UOT)/Fuel Usage Time	Other/Comments
AE-GAS	RT 324, column 25	RT 300, column 36	RT 300, column 18	
AE-MIX	RT 323, column 22	RT 300, column 36	RT 300, column 18	For Appendix E testing of fuel mixture only (one curve)
AE-MUL	RT 324, column 25	RT 302, column 45 and RT 303, column 45	RT 302, column 52 and RT 303, column 52	
AE-OIL	RT 324, column 25	RT 300, column 36	RT 300, column 18	
NOXM-CEMS	RT 201, column 32 RT 212, column 24 or RT 531, column 14 for moisture content	RT 220, column 39	RT 300, column 18	Also need RT 520 formula
NOXR-BYS	RT 530, column 30 for NO_x MER	RT 300, column 36	RT 300, column 18	For unmonitored bypass stacks only
NOXR-CEMS	RT 320, column 42	RT 300, column 36	RT 300, column 18	

(27) RT 330: CO_2 Mass Emissions Data (ARP)

For any operating hour (or partial hour) for each unit, stack, or pipe at which emissions are monitored or estimated on an hourly basis, report CO_2 mass emission rate in RT 330.

If you monitor CO_2 mass emission rate and report RT 330 at a common stack, do not apportion the CO_2 mass emission rate measured at the common stack to the individual units (i.e., do not report any additional RTs 330 under the associated unit IDs).

If, for a particular unit, you monitor CO_2 mass emission rate at multiple stacks (or ducts), do not report the combined CO_2 mass emission rate for the unit (i.e., do not report any unit-level RTs 330).

Field Descriptions and Instructions

CO_2 Mass Emission Rate for the Hour (18). If you are using CEMS, this value is derived using the bias adjusted stack flow reported in column 39 of RT 220, and the unadjusted CO_2 concentration reported in RT 202, column 24, in conjunction with the appropriate equation in Appendix F to Part 75.

For oil-fired or gas-fired units using Appendix G, this value is calculated using gas or oil fuel flow and Equation G-4 from Appendix G to Part 75. During hours in which multiple fuels are burned, calculate the CO_2 mass emissions (tons/hr) for each fuel separately using Equation G-4 and then use Equation G-4A (see Table 18, in the RT 520 instructions) to determine the combined CO_2 mass emission rate for the hour. Report the combined hourly CO_2 mass emission rate (tons/hr) in RT 330.

Report this field in tons per hour, rounded to one decimal place.

Formula ID from Monitoring Plan for Hourly CO_2 Mass Emission Rate (28). Report the formula ID from RT 520 that is used to calculate actual CO_2 mass emission rate for this hour. Do not leave this field blank.

Method of Determination Code [Reserved] (31). This field has been reserved in EDR v2.1 because of changes to the missing data procedures applicable to CO_2 concentration reported in RT 202. Leave this field blank.

Total CO_2 Mass Emissions for the Hour (Optional) (33). This is an optional field. If you elect to use it, report the total CO_2 mass emissions for the hour in tons. Round to one decimal place.

Use of Diluent Cap Value for CO_2 Calculation for This Hour (CEMS only) (43). If you elect to substitute a maximum or minimum diluent cap value for hours in which the measured diluent is above or below the specified cap value, indicate the use of the diluent cap by reporting "Y." Leave this field blank for all hours in which the diluent cap is not used or is not relevant.

(28) RT 331: CO_2 Mass Emissions Estimation Parameters (ARP)

If you estimate CO_2 mass emissions using Appendix G Fuel Sampling and Analysis (FSA) and Equation G-1, you must report daily CO_2 mass emissions in RT 331 for the unit or pipe. This value is the total mass emissions for the day, not a daily rate.

Field Descriptions and Instructions

Total Daily Combustion-Related CO_2 Mass Emissions Adjusted for CO_2 Retained in Flyash (16). This field applies only to coal-fired units and is optional. If you adjust the CO_2 mass emissions for carbon content of the flyash, report the adjusted value, in tons. Round to one decimal place. If you elect not to make an adjustment for the carbon content of the flyash, leave this field blank.

Total Daily Sorbent-Related CO_2 Mass Emissions (26). This field is only for units with add-on SO_2 emission controls. Report data in this field in tons. Round to one decimal place. If this field is not applicable, leave it blank.

Total Daily CO_2 Mass Emissions (36). Report the total CO_2 mass emissions for the day in tons. Round to one decimal place.

(29) RT 360: Hourly Emissions Data for Qualifying Low Mass Emissions (LME) Units (LME Only)

If you use the low mass emissions (LME) methodology under § 75.19, report RT 360 for every hour for every unit operating quarter, in the same manner as RT 300 is reported for non-LME units. For non-Acid Rain Subpart H units, your State regulation may allow you to qualify for reporting only during the ozone season.

Field Descriptions and Instructions

Unit Operating Time (18). If you use maximum heat input for each hour, report the fraction of the clock hour during which the unit combusted any fuel (or the fraction of the clock hour during which the stack or pipe was used). You may use any equal increments from hundredths (0.01 hr.) to quarters (0.25 hr.) of an hour.

If you use long term fuel flow to determine heat input, report "1.00" for each hour in which operation occurred, whether the unit operated for a full or partial hour.

Report a unit operating time of "0.00" in RT 360 for any clock hour in which the unit did not operate in a unit operating quarter.

Gross Unit Load During Unit Operation (22). This field is required for units that use megawatts to apportion long term heat input to each operating hour. Report total unit output for the hour in megawatts. If steam load is reported starting in column 28, do not report gross unit load.

Steam Load (28). This field is required for units that use steam load to apportion long term heat input to each operating hour. Report steam load in 1000 lb/hr. It is not necessary to correct steam load for standard temperature and pressure; use steam load at measured temperature and pressure (see Part 75, Appendix C, Section 2.2.1). If gross unit load is reported in column 22, do not report steam load.

Total Hourly Heat Input (From All Fuels) (34). Report the total heat input for the hour (mmBtu) from combustion of all fuels. This will either be the maximum hourly heat input rate multiplied by operating time or will be an apportioned value determined from long term fuel flow measurements and unit load.

Fuel Type (41). Identify the type of fuel combusted in the hour using one of the following uppercase codes:

BFG	Blast Furnace Gas
BUT	Butane (if measured as a gas)
CDG	Coal Derived Gas
COG	Coke Oven Gas
DGG	Digester Gas
DSL	Diesel Fuel
LFG	Landfill Gas
LPG	Liquefied Petroleum Gas (if measured as a gas)
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
PDG	Producer Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRP	Propane (if measured as a gas)
RFG	Refinery Gas
SRG	Unrefined Sour Gas

If multiple fuels are burned in the hour, report the fuel used to determine mass emissions (i.e., of all the fuels burned in that hour, report the fuel with the highest SO_2, CO_2, and/or NO_x emission factors in Tables LM-1, LM-2, and LM-3 of § 75.19). If records are missing as to which fuel was burned in the hour, report the fuel with the highest SO_2, CO_2, and/or NO_x emission factors of all of the fuels capable of being burned in the unit.

SO_2 Mass Emissions (ARP) (44). Report the estimated pounds of SO_2 emitted during that hour determined using the provisions of § 75.19 (c)(4)(i).

NO_x Mass Emissions (50). Report the estimated pounds of NO_x emitted during that hour determined using the provisions of § 75.19(c)(4)(ii).

CO_2 Mass Emissions (ARP) (56). Report the estimated tons of CO_2 emitted during that hour determined using the provisions of § 75.19 (c)(4)(iii) .

Control Status (65). For units that use a fuel and unit-specific default NO_x emission rate and have NO_x controls, indicate the status of the NO_x emissions controls at the unit for the hour using the following uppercase codes:

C	Controls Operating Properly
U	Unit Controls Not Operating or Not Operating Properly

If the unit is uncontrolled, leave this field blank.

If the NO_x controls either did not operate or did not operate properly during the hour, use the rate for uncontrolled emissions for the hour as defined in Table 29 in RT 531 (which corresponds to Table LM-2 in § 75.19) to calculate NO_x mass emissions for the hour.

NO_x Methodology for the Hour (66). Report one of the following uppercase codes to indicate the measurement methodology used to report NO_x mass emissions during the hour:

NOXG	Generic Default NO_x Emission Rate, from Table LM-2
NOXU	Fuel-and-Unit-specific NO_x Emission Rate

Report "NOXG" if you use the generic default NO_x emission rate from Table LM-2 as the primary NO_x methodology.

If, for an uncontrolled or a controlled unit, you use a fuel-and-unit-specific NO_x emission rate determined from emission testing as the primary NO_x methodology (or, for units with SCR or SNCR, if you use an emission rate of 0.15 lb/mmBtu):

- If the unit is uncontrolled, report "NOXU".
- For units with NO_x emission controls (e.g., water injection, SCR, SNCR, dry low-NO_x technology, etc.), report "NOXU" for any hour in which the control status reported in column 65 is "C" and report "NOXG" for any hour in which the reported control status is "U".

Heat Input Methodology for the Hour (76). Report one of the following uppercase codes to indicate the measurement methodology used to determine the heat input value used to calculate mass emissions during the hour:

LTFF	Long Term Fuel Flow
MHHI	Maximum Hourly Heat Input Capacity

Base Load or Peak Load Hour (86). For a combustion turbine that operates principally at base load (or at a set point temperature) but is capable of operating at a higher peak load (or higher internal operating temperature), indicate for each operating hour whether operation was a base load (B) or peak load (P).

B	Unit operated at base load or set point temperature

P Unit operated at peak load or higher internal operating temperature

For non-operating hours, leave this field blank.

C. **Monitoring Plan Records**

Submit a complete set of monitoring plan records as part of your initial monitoring plan submission, with the certification application and in each quarterly report. These records will typically remain the same from quarter to quarter. The following instructions describe each record type which comprise the EDR portions of a monitoring plan.

To ensure the completeness and quality of monitoring plan data, EPA has developed and released the Monitoring Data Checking Software (MDC) on the Acid Rain Home Page: (URL:www.epa.gov/airmarkets/cems/mdc/htm). EPA strongly recommends that you use this software to evaluate and correct any inconsistencies and omissions before submitting the monitoring plan data to EPA. EPA also uses this software to analyze monitoring plan data and provide feedback to sources.

(1) **RT 500: Unit Definition Table [Retired]**

This record type was retired December 31, 1995. RT 502 replaced RT 500.

(2) **RT 501: Stack/Pipe Header Definitions Table [Retired]**

This record type was retired December 31, 1995. RT 503 replaced RT 501.

(3) **RT 502: Unit Definition Table [Retired]**

This record type has been retired and must not be submitted for a reporting period after March 31, 2000. RTs 504, 505, 585, 586 and 587 replaced RT 502.

(4) **RT 503: Stack/Pipe Header Definition Table**

This record type is only required if you measure emissions from (or fuel to) a unit in more than one location or in a location shared by more than one unit. For a single unit exhausting to a single stack (or receiving fuel from pipes) not shared with any other unit, use the unit ID to report all emissions data and do not report this record type.

Type of Stacks and Pipes

Common Stacks. If a stack serves more than one unit and emissions are monitored at that stack, you must define it as a "common stack" for reporting purposes. Assign a common stack ID beginning with the prefix "CS" followed by up to four alphanumeric characters and submit a RT 503 for each unit associated with the stack.

For example, if Units 1 and 2 share a common stack CS001, submit two RTs 503 in the same file: one defining the relationship between stack CS001 and Unit 1, and the other defining the relationship between stack CS001 and Unit 2. Note that except for the unit ID, all values in all RTs 503 for the same common stack should be identical.

Common Pipes. If a fuel pipe serves more than one unit and fuel flow is monitored at that common pipe header, you must define it as a "common pipe" for reporting purposes. Assign a pipe ID beginning with the prefix "CP" followed by up to four additional alphanumeric characters and submit a RT 503 for each unit served by the common pipe header.

Multiple Ducts or Stacks. A multiple stack defines two or more ducts or stacks in which CEMS are located for a single unit; it also defines any additional monitoring location(s) for a single unit which is also monitored at a common stack or common pipe. If a unit has a CEMS located in more than one duct or stack from the unit, assign a multiple stack ID to each monitoring location. Assign a stack ID beginning with the prefix "MS" followed by up to four alphanumeric characters. Submit RT 503 for each multiple stack associated with a unit.

For example, if Unit 3 has two ducts with installed CEMS, ducts MS3A and MS3B, submit two RTs 503 in the same file: one defining the relationship between duct MS3A and Unit 3, and the other defining the relationship between duct MS3B and Unit 3.

As a second example, if Unit 2 can either exhaust through a monitored common stack, CS001, or through a monitored bypass stack, the bypass stack ID must begin with "MS" (e.g., MS2). Submit a RT 503 defining the relationship between Unit 2 and MS2 and a separate RT 503 defining the relationship between Unit 2 and CS001.

Multiple Pipes. If you have a combined cycle peaking unit with a combustion turbine and duct burner for which: (1) Appendices D and E are used; and (2) fuel flow is measured separately for the turbine and duct burner, define multiple pipes for each fuel flowmeter location. Assign a pipe ID beginning with the prefix "MP" followed by up to four alphanumeric characters. Consult with the EPA Clean Air Markets Division or your State agency prior to your initial monitoring plan submission if your facility has this configuration.

Example RT 503 for Multiple and Common Stacks

Example #1: Common Stack Serving Two Units

Record Type (1)	Stack/Pipe ID (4)	Stack/Pipe Description/Name (10)	Unit ID for Associated Unit (30)
503	CS001	Common Stack 1 & 2	1
503	CS001	Common Stack 1 & 2	2

Example #2: Multiple Stacks for One Unit

Record Type (1)	Stack/Pipe ID (4)	Stack/Pipe Description/Name (10)	Unit ID for Associated Unit (30)
503	MS1A	Unit 1 Stack A	1
503	MS1B	Unit 1 Stack B	1

Field Descriptions and Instructions

Stack/Pipe ID (4). The stack or pipe ID must begin with "CS," "CP," "MS," or "MP." Always left-justify this field.

Stack/Pipe Description or Name (10). This is the unique name given to the stack or pipe.

Unit ID for Associated Unit (30). To identify units in the stack or pipe relationship, use the unit ID in the program inventory, or as required in the National Allowance Database (NADB) or other allowance tracking purposes. The unit ID should be consistent for all submissions that are made to meet program requirements. This unit ID should be left-justified beginning at column 30.

Submission Status [Reserved] (36). This field has been reserved. Leave this field blank.

Maximum Hourly Gross Load in Megawatts [Reserved] (37). This field has been replaced by RT 535, column 12. Leave this field blank.

Maximum Hourly Gross Steam Load [Reserved] (43). This field has been replaced by RT 535, column 12. Leave this field blank.

Activation Date (49). For a stack or pipe existing prior to the date that the unit became subject to the applicable program, report either the date emissions first went through the stack or the program effective date for data reporting. For a stack or pipe that becomes operational after the program participation date (as defined in column 24 of RT 505), report the actual date on which emissions first exit the stack or fuel is combusted at the pipe or stack location from a "commercially operational unit."

Retirement Date (55). Report the actual date the stack or pipe was last used for emissions measurement or estimation purposes. Do not report estimated dates in this field. For active stacks or pipes, leave the retirement date blank.

Bypass Stack Flag (61). Report "B" for any stack that is a bypass stack; leave blank for all non-bypass stacks. Leave this field blank for all pipes.

Air Quality Modeling Information (62 through 78)

(1) For a common stack (CS) configuration, (where emissions are monitored), report the stack exit height, base elevation, and inside cross-sectional area (CSA) at the flue exit. If the common stack has a stack flow monitoring system, also report the inside cross-sectional area at the flow monitor location. Repeat the same information in each RT 503 for the common stack.

(2) For multiple stack (MS) configurations:

(a) If the monitors are located on the stacks, report the height, elevation and CSA information for each stack.

(b) If the monitors are located at breechings or ducts rather than on the stack, report the stack exit height, base elevation and inside cross-sectional area information in columns 62 through 74 for the exhaust stack, but in column 75, report the inside CSA at the flow monitor location in the ductwork.

(3) For common pipe (CP) and multiple pipe (MP) configurations, leave columns 62 through 78 blank. Report the air quality modeling information for these units in RT 504, column 36 through 52.

Stack Exit Height Above Ground Level (62). Report the height in feet of the stack exit above ground level.

Ground Level Elevation Above Sea Level (66). Report the number of feet above sea level at ground level.

Inside Cross-sectional Area at Flue Exit (71). Report the inside cross-sectional area (in square feet) of the stack at the flue exit.

Inside Cross-sectional Area at Flow Monitor Location (75). For any stack or duct with a stack flow monitor installed, report the inside cross-sectional area (in square feet) of the stack or duct at the flow monitor location.

(5) **RT 504: Unit Information**

Provide one RT 504 for each unit in the file. Do not provide RT 504 with a stack or pipe ID; this is a unit-specific record type.

Field Descriptions and Instructions

Unit Type (10). Identify the type of boiler or combustion unit using the following uppercase codes:

Boilers

AF	Arch-fired boiler
C	Cyclone boiler
CB	Cell burner boiler
CFB	Circulating fluidized bed boiler
DB	Dry bottom wall-fired boiler
DTF	Dry bottom turbo-fired boiler
DVF	Dry bottom vertically-fired boiler
OB	Other boiler
S	Stoker
T	Tangentially-fired
WBF	Wet bottom wall-fired boiler
WBT	Wet bottom turbo-fired boiler
WVF	Wet bottom vertically-fired boiler

Turbines

CC	Combined cycle
CT	Combustion turbine
ICE	Internal combustion engine
OT	Other turbine

Others

KLN	Cement kiln
PRH	Refinery process heater

If you have a unit type other than those shown above, contact EPA.

Maximum Hourly Heat Input Capacity (13). Report the design heat input capacity for the unit or the highest hourly heat input rate observed in the past five years, whichever is greater. If the unit has been derated, report the derated hourly heat input value. For combined cycle units, the reported value should reflect the maximum heat input of the unit and the supplemental duct burner, combined (unless in agreement with EPA you have defined the duct burner as a separate unit). For units using the low mass emissions methodology, enter the maximum rated hourly heat input as defined in § 72.2 or modified according to § 75.19(c)(2)(i).

Date of First Commercial Operation (20). Report the date the unit first operated for commercial purposes. If this date preceded the applicable program effective date, you may provide an approximate date. For example, units listed in the National Allowance Database (NADB) may use the year and month reported for the "boiler on line date" in that database as the date of first commercial operation. If this is a new unit which began operation after the initial program effective date, enter the actual date on which the unit became operational. If the unit has not yet become commercially operational, leave the date blank. Do not leave this field blank in any electronic certification application or quarterly report submittal.

Unit Retirement Date (28). Report the date the unit permanently ceased operation and retired. If the unit has not retired, leave this field blank.

Air Quality Modeling Information (36 through 52)

Report air quality modeling information in the record type for the following types of units:

- Units that monitor or estimate and report any emissions on a unit basis;
- Units that are part of a common pipe (CP) or multiple (MP) configuration and use Appendix D estimation procedures for heat input, CO_2 or SO_2. For these units, determine the stack height, elevation and inside cross- sectional area of the stack through which emissions are discharged to the atmosphere. This can be a single unit stack or stack serving more than one unit. If the unit emits through more than one stack, report information for the stack typically associated with higher emissions for the unit.

For units that measure and report all emissions at a common stack (CS) or multiple stack (MS), leave columns 36 through 52 blank and provide air quality modeling information in RT 503, columns 62 through 78.

Stack Exit Height Above Ground Level (36). Report the height in feet of the stack exit above ground level.

Ground Level Elevation Above Sea Level (40). Report the number of feet above sea level at ground level.

Inside Cross-sectional Area at Flue Exit (45). Report the inside cross-sectional area (in square feet) of the stack at the flue exit.

Inside Cross-sectional Area at Flow Monitor Location (49). For any unit with a stack flow monitor installed, report the inside cross-sectional area (in square feet) at the primary flow monitor location.

Non Load-Based Unit Identifier (53). If the unit does not produce electrical or steam load (e.g., cement kilns, refinery process heaters, etc.), report "Y" in this field. For all other units, leave this field blank.

(6) **RT 505: Program Indicator for Report**

Submit at least one RT 505 for each unit represented in the file. This record type identifies the unit and the reporting requirements for which the file has been submitted. Do not submit RT 505 for regulatory programs that apply to the unit but that are not relevant to the submission. If you submit data from a unit to meet the requirements of more than one program, submit one RT 505 for each program. For each unit order the records alphabetically by program code.

Field Descriptions and Instructions

Program/Reporting Requirements for Which EDR is Submitted (10). Report one code in uppercase to indicate the program and reporting requirements applicable to the unit. If more than one program code applies, report the second code in a second RT 505 for the unit. The applicable codes are:

ARP	Acid Rain Program
OTC-SUBH	Former OTC NO_x Budget Program Unit, Now Using Reporting Consistent with 40 CFR Part 75, Subpart H and EDR v2.2. (This includes new units that never reported in EDR v2.0 but were affected by the OTC program and were required to hold 2002 allowances.)
SUBH	Unit in a NO_x Trading Program Consistent with the Requirements of 40 CFR Part 75, Subpart H

Acid Rain units subject to NO_x mass emissions reporting should use either the code "SUBH" or "OTC-SUBH" (for Acid Rain Units that were also in the OTC NO_x Budget Program) in a second RT 505.

Unit Classification (20). Report the classification of the unit for the program, using one of the following codes:

<u>Acid Rain Program Units</u>

P1	Phase I Unit (listed in 1990 CAA Amendments)
P2	Phase II Unit (including new units)
OP	Opt-in Unit
RE	Retired Unit
NA	Non-affected Unit

<u>Subpart H Units</u>

B	Budget Unit
NB	Non-budget Unit: a unit that is not subject to the requirements of a NO_x mass trading program but for which monitoring plan information must be submitted because the unit shares a common stack or pipe with a NO_x budget unit at which mass emissions are measured under a NO_x trading rule.
OP	Opt-in Unit: a unit that you elect to include in a NO_x trading program.
RE	Retired Unit: a unit that has formally and permanently ceased operation and is not subject to the emissions monitoring requirements.

Reporting Frequency (22). Report one of the following uppercase codes to indicate the frequency reports are submitted for the unit:

OS	Ozone Season Reporting (second and third quarters)
Q	Quarterly Reporting (four quarters)

Program Participation Date (24). Report the date on which a unit is required to begin monitoring and reporting emissions data under the applicable program.

For former OTC NO_x Budget Program units using the "OTC-SUBH" code (see column 10 instructions, above), report the date on which you began to use Subpart H monitoring methods and to report data consistent with EDR v2.1 or 2.2:

- For OTC sources that switched from EDR v2.0 to EDR v2.1 or 2.2 at the start of the 2002 ozone season, the appropriate date is either April 1, 2002 (if the source reports data on a year-round basis) or May 1, 2002 (if the source reports data only during the ozone season).

- For OTC sources that began using EDR v2.1 prior to the 2002 ozone season, the appropriate date is the first day of the calendar quarter in which EDR v2.1 was first used.

For Subpart H units located in states where the SIP requires NO_x mass and heat input monitoring and reporting to begin on May 1, 2003, the program participation date is April 1, 2003 (for sources that submit EDR reports year-round), and May 1, 2003 (for sources that report on an ozone season-only basis).

For Subpart H units located in states where the SIP requires NO_x mass and heat input monitoring and reporting to begin on May 1, 2004, but the source elects to begin monitoring and reporting NO_x mass and heat input data on May 1, 2003, the program participation date is April 1, 2003 for sources that submit EDR reports year-round, and May 1, 2003 for sources that report on an ozone season-only basis.

For Subpart H units located in state where the SIP required NO_x mass and heat input monitoring and reporting to begin May 1, 2004, the program participation date is April 1, 2004 for sources that submit EDR reports year-round, and May 1, 2004 for sources that report on an ozone season-only basis.

State Regulation Code (Subpart H) (32). Report a code for the State regulation under which the report is required. States will provide guidance on the appropriate codes for each State and regulation. For Acid Rain units not subject to Subpart H reporting, leave this field blank.

State or Local Regulatory Agency Code (Subpart H) (42). Report the four character code or abbreviation for the State or local air pollution agency that has regulatory responsibility for the unit and program. For Acid Rain units not subject to Subpart H reporting, leave this field blank.

(7) RT 506: EIA Cross Reference Information

Use this record to provide information to EPA on the identifiers used to report data to the Energy Information Administration (EIA) for affected units. This information allows EPA to use information reported to EIA, in conjunction with emissions data reported to EPA, to improve air quality modeling and air quality impact research tools. For each unit, report one or more RTs 506 to identify the EIA boiler and flue exit ID reported in Form 767 for each emission monitoring location defined in the monitoring plan. This record is also used to identify units for which Form 767 is not submitted. For new units, submit RT 506 for the first year of operations indicating the EIA identifiers which will be used in that year or indicating in column 30 that you will not report to EIA for this unit.

Field Descriptions and Instructions

Unit ID (4). For each unit for which emissions are monitored, submit at least one RT 506 to identify the EIA ID or to indicate that Form 767 has never been submitted (and is not required).

Acid Rain or Subpart H Monitoring Location ID (10). Identify a monitoring location for emissions reporting under the Acid Rain Program or Subpart H. For example, if you monitor and report emissions at a common or multiple stack or pipe, the Acid Rain or Subpart H monitoring location would be the stack or pipe ID. If you monitor and report using a unit ID for all parameters, report only one RT 506 and use the unit ID as the "Acid Rain Monitoring Location." If you monitor and report at multiple locations (for example two multiple stacks) submit two RTs 506, one for each monitoring location. If you monitor and report for one parameter at a common stack and another parameter using the unit ID, report two RTs 506.

EIA Boiler ID (16). For each unit and monitoring location, identify the EIA Boiler ID used to report information to EIA on Form 767, Schedule II (Plant Configuration), Line 1. For most Acid Rain units, the EIA ID should be the same as the Acid Rain Program unit ID, originally published by EPA in NADB. Leave this field blank if you report "N" in column 30.

EIA Flue ID (21). For each unit and monitoring location, identify the EIA Flue ID used to report information to EIA on Form 767, Schedule II (Plant Configuration), Line 7 and Schedule VIII (Stack and Flue Information - Design Parameters), Line 1. If you list more than one flue ID on Schedule II, report a RT 506 for each flue. Do not report multiple flue IDs in this field. Leave this field blank if you report "N" in column 30.

EIA Reporting Year (26). Report the year for which this EIA identifier was first used. For most units the EIA information will not change from year to year. Leave this field blank if you report "N" in column 30. If the original year of reporting was prior to 1986, you may report 1985 for the reporting year.

EIA Reporting Indicator (30). If you do not report to EIA on Form 767 for a unit, indicate this by reporting a "N." Otherwise, leave this field blank.

[Reserved] (31). This field, previously used to report the facility ID, has been reserved.

EIA Facility Number (37). For each unit identify the EIA Facility ID. Leave this field blank if you report "N" in column 30.

RT 506 Examples

(a) One Single Unit (1), Emitting through a Single Flue

RT	Unit ID	Acid Rain or Subpart H Monitoring Location	EIA Boiler ID	EIA Flue ID	EIA Reporting Year	
506	1	1	1	1	1996	
506	2	2				N

(b) Two Single Units, Sharing Common Flue, But Measuring and Reporting Emissions as Single Units

If emissions from Unit 1 and 2 are separately monitored under the Acid Rain Program as single units but emit through a shared stack (not defined for Acid Rain reporting purposes):

RT	Unit ID	Acid Rain or Subpart H Monitoring Location	EIA Boiler ID	EIA Flue ID	EIA Reporting Year	
506	1	1	1	1	1996	
506	2	2	2	1	1996	

(c) Two Units, Sharing Common Stack

If measuring and reporting of emissions occurs at the shared common stack:

RT	Unit ID	Acid Rain or Subpart H Monitoring Location	EIA Boiler ID	EIA Flue ID	EIA Reporting Year	
506	1	CS1	1	1	1996	
506	2	CS1	2	1	1996	

(d) One Unit Measures and Reports as Multiple Ducts, but Emits though a Single Stack

RT	Unit ID	Acid Rain or Subpart H Monitoring Location	EIA Boiler ID	EIA Flue ID	EIA Reporting Year	
506	1	MS1A	1	1	1996	
506	1	MS1B	1	1	1996	

(e) One Unit Measures and Reports SO_2 at a Bypass Stack and Main Stack, But Measures and Reports NO_x at the Unit Level Using Appendix E

RT	Unit ID	Acid Rain or Subpart H Monitoring Location	EIA Boiler ID	EIA Flue ID	EIA Reporting Year	EIA Reporting Indicator
506	1	CSM001	1	1	1996	
506	1	CSB001	1	2	1996	
506	1	1	1	1	1996	
506	1	1	1	2	1996	

(f) Three Units in a Complex Configuration

Unit 1 emits through bypass stack CS001, Unit 3 emits through bypass stack CS002, Unit 2 emits through either bypass stack CS001 or CS002. Each unit can emit through the any of three flues in the main scrubber stack. Each flue is monitored separately and defined in the Part 75 monitoring plan as a separate common stack (CSS1, CSS2, CSS3).

RT	Unit ID	Acid Rain or Subpart H Monitoring Location	EIA Boiler ID	EIA Flue ID	EIA Reporting Year	EIA Reporting Indicator
506	1	CS001	1	1	1996	
506	1	CSS1	1	3	1996	
506	1	CSS2	1	4	1996	
506	1	CSS3	1	5	1996	
506	2	CS001	2	1	1996	
506	2	CS002	2	2	1996	
506	2	CSS1	2	3	1996	
506	2	CSS2	2	4	1996	
506	2	CSS3	2	5	1996	
506	3	CS002	3	2	1996	
506	3	CSS1	3	3	1996	
506	3	CSS2	3	4	1996	
506	3	CSS3	3	5	1996	

(8) RT 507: Capacity Factor or Fuel Usage Data to Qualify as a Peaking Unit or Acid Rain Program Gas-fired Unit

For any year or ozone season in which a unit qualifies as a peaking or gas-fired unit, submit RT 507 documenting the capacity or fuel usage of the unit during a three year period. "Peaking unit" is defined in 40 CFR 72.2 for an annual basis and is described in 40 CFR 75.74(c)(11) for an ozone season basis. "Gas-fired" is defined in 40 CFR 72.2. Do this for any regulatory purpose (i.e., either for the selection of monitoring methodology, exemption from multi-load testing, or frequency of on-going QA/QC activities). Submit ozone season data in RT 507 for non-Acid Rain Subpart H units that qualify as peaking units for any regulatory purpose.

If you qualify both as a peaking unit and as a gas-fired unit, submit two RTs 507 documenting each qualification separately.

Include RT 507 in each quarterly report submission. In the first quarterly report submitted each year (i.e., in either the first calendar quarter report (for year-round reporters) or in the second calendar quarter report (for sources that report data only in the ozone season), update the record to include capacity factor or fuel usage data for the previous calendar year (or the previous ozone season).

If, after evaluating the capacity factor or fuel usage data for a particular reporting year, the unit no longer qualifies as a peaking or gas-fired unit, submit RT 507 with the first quarterly report for the following year or ozone season, to indicate that the peaking or gas-fired unit status has been lost.

You may initially qualify as a gas-fired or peaking unit by using historical data or projected data. You may also use a combination of historical and projected data. However, to maintain peaking unit or gas-fired unit status, you must report actual capacity factor or fuel usage data for each subsequent year. Thus, if your basis for qualifying in the first reporting year is three years of projections, you may not requalify in the second reporting year based solely on projections. The qualifying data for the second reporting year must include the actual capacity factor or fuel usage data from the first reporting year.

A unit may also qualify as a gas-fired unit if the pattern of fuel usage changes, and if 720 hours of unit operating data are provided to demonstrate this (see paragraph (3)(ii)(B) of the definition of "gas-fired" in § 72.2). A statement from the designated representative is required in this case, projecting the new fuel usage pattern to be permanent. If you initially qualify as a gas-fired unit using the 720 hour demonstration, you must submit actual fuel usage data from that point on, in order to maintain gas-fired unit status.

If a unit has previously qualified as a peaking or gas-fired unit but has lost that status and you wish to re-establish peaking or gas-fired status, the unit may <u>only</u> requalify based on three years of actual historical data. The use of projections is disallowed in such cases (see § 72.2, paragraph (4) of "gas-fired" definition and paragraph (3) of the "peaking unit" definition).

(a) **Qualifying Using Historical and/or Projected Data**

Provide three years of historical percent capacity factor or fuel usage information using projected data as provided for in the definitions of gas-fired and peaking unit in § 72.2. For a non-Acid Rain Subpart H unit reporting on an ozone season basis, provide ozone season capacity factor information for the period from May 1 through September 30 of each year. Year 1 should be the earliest year for which data are reported (for example, if all historical data are being used, year 1 would be three years before the current calendar year or, if all projected data were being used, year 1 would be the current calendar year). Similarly, year 3 should be the last year for which data are reported (for example, if all historical data are being used, year 3 would be one year before the current calendar year or if all projected data were being used, year 3 would be two years after the current calendar year).

Calculate the three year average annual capacity factor or percentage of the annual heat input (HI) from the combustion of gaseous fuel, by averaging the percent capacity factor (or percent of HI from gaseous fuel) for the three years of data provided. For example, if a unit has operated for three years at 6.0%, 10.0% and 12.0% annual capacity factor, report these values to one decimal place in columns 19, 29 and 39, respectively. Report the average of these three values rounded to one decimal place (9.3%) in column 44.

In column 51, report the appropriate code to indicate whether you are qualifying based on three years of historical data, three years of projections, or a combination of historical data and projections (see Table 9 below).

Table 9
EXAMPLE DATA FOR QUALIFICATION BASED ON HISTORICAL AND PROJECTED DATA

Initial Qualifying Methodology	Data Reported in RT 507							
	Current Year (col 10)	Year 1 (col 14)	Type* (col 18)	Year 2 (col 24)	Type* (col 28)	Year 3 (col 34)	Type* (col 38)	Code (col 51)
Actual Historical Data	2000	1997	A	1998	A	1999	A	3HD
	2001	1998	A	1999	A	2000	A	3HD
	2002	1999	A	2000	A	2001	A	3HD
Projected Data	2000	2000	P	2001	P	2002	P	3PR
	2001	2000	A	2001	P	2002	P	1HD
	2002	2000	A	2001	A	2002	P	2HD
	2003	2000	A	2001	A	2002	A	3HD
Combination of Actual Historical Data and Projected Data	2001	2000	A	2001	P	2002	P	1HD
	2002	2000	A	2001	A	2002	P	2HD
	2003	2000	A	2001	A	2002	A	3HD

* A = Actual historical data; P = Projected data

(b) Qualifying as "Gas-fired" Using Alternative Method

In accordance with paragraph (3)(ii)(B) of the "gas-fired" definition in § 72.2, you may provide 720 hours of unit operating data to initially qualify as a gas-fired unit, if the designated representative certifies that the pattern of fuel usage has permanently changed. A unit is classified as gas-fired as of the date on which the results of the 720-hour demonstration are submitted to the Administrator (see paragraph (3)(iii) of "gas-fired" definition). The 720 hour demonstration data qualifies a unit as gas-fired from the date on which you submit the results of the demonstration until the end of that same calendar year. For the next year, you must submit actual, historical fuel usage data from the previous year (beginning with the date on which you first qualified as gas-fired) to verify that you met the fuel usage requirements for the first reporting year. For example, if you qualify based on the 720 hour demonstration as of June 30, 2000, then, in 2001, you must submit historical data for the time interval from June 30, 2000 through December 31, 2000 (labeled as year 1). In 2002, you would submit historical data for 2000 (labeled as year 1) and 2001 (labeled as year 2). In 2003, you would submit historical data for 2000, 2001, and 2002, labeled as year 1, year 2, and year 3, respectively (see Table 10, below).

In column 51 of RT 507, report the appropriate code to indicate the manner in which the unit qualifies as gas-fired for the reporting year.

Table 10
EXAMPLE OF GAS-FIRED QUALIFICATION BASED ON UNIT OPERATING DATA

Initial Qualifying Methodology	Data Reported in RT 507							
	Current Year (col 10)	Year 1 (col 14)	Type (col 18)	Year 2 (col 24)	Type (col 28)	Year 3 (col 34)	Type (col 38)	Code (col 51)
Qualifying Based on 720 Hours of Unit Operating Data	2000	2000	D**	2001	P	2002	P	720
	2001	2000	A	2001	P	2002	P	1HD
After the first year, you must provide available historical data.	2002	2000	A	2001	A	2002	P	2HD
	2003	2000	A	2001	A	2002	A	3HD

** Initial qualification based on 720 hours of unit operating data

Field Descriptions and Instructions

Current Calendar Year or Ozone Season (10). Report the current year or ozone season. This is the year or ozone season for which peaking unit capacity or fuel usage data are provided to qualify for a regulatory exception from a requirement (or to indicate that peaking unit or gas-fired unit status has been lost).

Ozone Season or Years 1 - 3 (14, 24, 34). Report the calendar year or season represented by Year 1, etc.

Ozone Season or Years 1 - 3 Type (18, 28, 38). Report "A" to indicate that the data for the year or season are actual percent capacity or fuel usage; report "P" to indicate projected capacity or fuel usage. Report "D" to indicate qualification as gas-fired based on 720 hours of unit operating data.

Ozone Season or Years 1 - 3 Percent Capacity Factor for Peaking Units or Percent Heat Input from Gaseous Fuel (19, 29, 39). Report historical and/or projected data for percent capacity factor or for percent heat input from gaseous fuel, for three years or three ozone seasons.

Three Ozone Season or Year Average Annual Capacity for Peaking Units or Percent Heat Input From Gaseous Fuel (44). Report the average percent capacity factor or the average percent of heat input from gaseous fuel for three years or ozone seasons.

Type of Qualification (49). Report "PK" to identify the data submitted as annual peaking unit capacity factor. Report "SK" to identify the data submitted as ozone season

capacity factor. Report "GF" to identify the data submitted as percent of heat input from gaseous fuel.

Method of Qualifying as a Peaking Unit or as a Gas-fired Unit Per § 72.2 (51). For the current reporting year of ozone season, indicate the method used to verify that a unit qualifies as a gas-fired unit or as a peaking unit as defined in § 72.2 using one of the following uppercase codes:

3PR	Three Years of Projected Capacity Factor or Fuel Usage Data
1HD	One Year of Historical Data and Two Years of Projections
2HD	Two Years of Historical Data and One Year of Projections
3HD	Three Years of Historical Data
720	720 Hour Initial Demonstration (Gas-fired Unit Qualification Only)
PSL	Peaking Unit Status Lost; Unit Exceeded a Required Capacity Factor
GSL	Gas-fired Unit Status Lost; Unit Failed to Meet the Minimum Required Percentage of Heat Input from Gaseous Fuel

(9) **RT 508: Subpart H Reporting Schedule (Subpart H)**

Submit one RT 508 for each unit, stack, and/or pipe in the file only when there is going to be a change in reporting frequency for the unit, stack, and/or pipe.

For Subpart H units that are also subject to the Acid Rain Program or to a State program that requires year-round reporting for your units, you must report year-round and may not use this record type.

For units subject only to Subpart H for which you are not required to report on a year-round basis under a State program, you may elect to submit reports either for the ozone season (second and third quarters only) or year-round (all four quarters). See § 75.74 for more detailed information about your reporting options and requirements (63 FR 57511-57512 and 64 FR 28627-28630).

Any change in reporting frequency takes effect at the beginning of the next calendar year. If you are making the change from reporting in the ozone season to reporting year-round, you are not required to submit a fourth quarter report in the calendar year you elect to make the change. Your next required submission would be the first quarter of the next calendar year. Conversely, if you are changing your reporting frequency from year-round to ozone season, you are not required to report a first quarter report in the calendar year following when you elect to make the change. Your next required submission would be the second quarter, at the start of the ozone season for the next calendar year.

Regardless of which method you choose, the reporting frequency must be the same for any stack or pipe and its associated units.

<u>Instructions for Changing from Ozone Season Reporting to Year-round Reporting</u>

- Report a RT 508 in your third quarter report.
- In column 10, enter the new reporting frequency as "Q" (quarterly). Do not change the reporting frequency reported in RT 505 in the third quarter report. The reporting frequency

in RT 505 must be changed in the first report submitted under the new reporting frequency (first quarter).

- In column 12, enter the beginning date of the new reporting frequency (i.e., January first of the next calendar year).

- Submit your next quarterly report for the first quarter of the next calendar year.

Instructions for Changing from Year-round Reporting to Ozone Season Reporting

- Report a RT 508 in your fourth quarter report.

- In column 10, enter the new reporting frequency as "OS" (ozone season). Do not change the reporting frequency reported in RT 505 in the fourth quarter report. The reporting frequency in RT 505 must be changed in the first report submitted under the new reporting frequency (second quarter).

- In column 12, enter the beginning date of the new reporting frequency (i.e., May first of the next calendar year).

- Submit your next quarterly report for the second quarter (start of the ozone season) of the next calendar year.

Field Descriptions and Instructions

New Reporting Frequency (10). Enter the new reporting frequency as quarterly ("Q") (year-round) or ozone season ("OS"). Do not change the reporting frequency indicated in RT 505, column 20 until you actually begin reporting using the new reporting schedule indicated in RT 508, column 10. RT 505 indicates the reporting requirements under which you are currently reporting.

Begin Date of New Reporting Frequency (12). Report the year, month, and day on which reporting will conform to the requirements associated with the new reporting schedule indicated in column 10. For any RT 508 you submit to change the reporting frequency from ozone season to year-round, the begin date must be January 1 (whether or not you operate or intend to operate your unit on that date). For any RT 508 you submit to change the reporting frequency from year-round to ozone season, the begin date must be May 1 (whether or not you operate or intend to operate your unit on that date).

End Date of Reporting Schedule [Reserved] (20). This field is reserved. Leave this field blank.

Flag for Year-round Reporting Required by State [Reserved] (28). This field is reserved. Leave this field blank.

The following are examples of how RT 508 should appear in your quarterly report to indicate a change in reporting frequency.

Changing From Ozone Season-only Reporting to Year-round Reporting

RT	STACK/UNIT/ PIPE ID	REPORTING FREQUENCY	BEGIN DATE	RESERVED	
508	1	Q	20010101	[Blank]	[Blank]

For the change to be effective, you must submit RT 508 in the third quarter report. You cannot change your reporting frequency from ozone season-only to year-round for the upcoming calendar year after September 30.

Changing From Year-round Reporting to Ozone Season-only Reporting

RT	STACK/UNIT/ PIPE ID	REPORTING FREQUENCY	BEGIN DATE	RESERVED	RESERVED
508	1	OS	20010501	[Blank]	[Blank]

For the change to be effective, you must submit RT 508 in the fourth quarter report. You cannot change your reporting frequency from year-round to ozone season-only for the upcoming calendar year after the submission deadline for the third quarter report.

(10) RT 510: Monitoring Systems/Analytical Components Table

(a) Defining a Monitoring System

For CEMS methodologies, a monitoring system is any combination of analytical components, sensors, and data software components for which a relative accuracy is specified (e.g., SO_2 monitoring system, flow monitor, NO_x-diluent monitoring system, NO_x concentration system, CO_2 concentration system, or moisture system). For monitoring methodologies based on fuel flow metering, a monitoring system consists of the fuel flowmeter component(s) and the software component(s) needed to calculate and report hourly fuel flow for a unit or common pipe for a particular fuel. A monitoring system for an Appendix E NO_x/heat input rate correlation curve consists of the software component used to estimate NO_x emissions.

For low mass emissions units do not define monitoring systems and do not report this record type unless long term fuel flow monitoring systems are used to measure fuel flow and heat input.

Monitoring systems are comprised of the actual, physical components that are installed or will be installed for a unit, pipe, or stack where the measurement equipment is installed.

- **Parameter**. Each monitoring system either directly measures a specific emissions parameter (for example, NO_x emission rate) or provides a parameter necessary for calculating emissions (for example, pollutant concentration, stack flow, moisture, mass oil flow, or heat input rate).

- **Hardware Components.** Most monitoring systems include one or more monitoring or measurement hardware components. Identify the primary analytical component(s) as part of the monitoring system. For a dilution-extractive system, the dilution probe may be included.

- **DAHS Components (Software and Hardware).** Identify the software component(s) of the Data Acquisition and Handling System (DAHS) for each monitoring system. Any software program which calculates emissions or heat input rate, or implements missing data substitution algorithms or quarterly reporting functions should be included as a DAHS software component in all relevant monitoring systems. Identify the programmable logic controller (PLC) or automated data logger (DL) as a system component if it performs any of those functions.

  For example, software or hardware components that perform the following functions do not have to be identified as part of the DAHS:

  -- Calculation of RATA results and generation of RTs 610 through 616
  -- Calculation of flow-to-load results (that are merged with the final quarterly report)
  -- Record operating parameters (that are merged with the final quarterly report)
  -- Generation of monitoring plan record types

While these components do not have to be identified in the monitoring plan, you must identify them in either the data flow diagram under § 75.53(c)(5)(iii) and/or the quality assurance plan under Appendix B to Part 75.

(b) **Types of Systems**

The following types of systems may be defined and used:

- **SO_2 Concentration System**. This monitoring system is used in the Acid Rain Program to measure SO_2 concentration. It is used in conjunction with a flow monitoring system to determine hourly SO_2 mass emission rates in lb/hr. The system consists of an SO_2 pollutant concentration monitor and a DAHS software component.

- **Flow Monitoring System**. This monitoring system is used to measure stack flow rate in standard cubic feet per hour (scfh). The flow rate is used to calculate heat input rate and/or SO_2, CO_2, and/or NO_x mass emissions. At a minimum, the system is comprised of a flow monitor and DAHS software. For flow monitors, identify a single component as representative of the control unit of the monitor.

  If the <u>average</u> of two or more flow monitors will be used to determine the hourly flow value, identify each separate flow monitor as a component in the primary flow system. If each monitor alone will be used as a redundant backup flow system, define each redundant backup system containing the single flow monitor. For example, you may install flow monitors Component A and Component B on a single stack. If the average value from Components A and B will be reported as the hourly flow value, then the primary flow system ("P01") would include both Component A and Component B along with the DAHS. You may also create a redundant backup flow system ("B01") consisting of Component A and the DAHS and a redundant backup system ("B02") consisting of Component B and the DAHS. Any redundant backup monitoring system must meet the initial certification and ongoing quality assurance requirements for a redundant backup monitoring system.

- **NO_x-diluent System**. This monitoring system is used to determine NO_x emission rate in lb/mmBtu. It is comprised of a NO_x concentration monitor, CO_2 or O_2 diluent monitor, and DAHS software.

- **CO_2 or O_2 System**. A CO_2 monitoring system is used either: (1) to measure percent CO_2 for determination of heat input and the calculation of CO_2 mass emissions (ARP units, only); or (2) exclusively to determine hourly heat input rate (in conjunction with a flow monitoring system). An O_2 monitoring system is used exclusively for hourly heat input rate determination.

  A CO_2 or O_2 system is comprised of a CO_2 or O_2 analyzer and DAHS software. If you use Equation 14A or 14B to convert a measured O_2 value to CO_2 for purposes of determining hourly CO_2 mass emissions for an Acid Rain unit, define a CO_2 monitoring system containing an O_2 component and DAHS software.

- **Moisture System**. This system is used to measure hourly percent moisture for the calculation of hourly heat input rate, NO_x emission rate, NO_x mass emissions, CO_2 mass emissions, or SO_2 mass emissions, if an hourly moisture adjustment is required because component monitors use different moisture bases. A moisture system may be comprised of a moisture sensor and DAHS software or one or more dry and wet basis oxygen analyzers and DAHS software. One of these oxygen analyzers may also be a component of the NO_x-diluent system described above. If you own or operate a unit with a wet scrubber you may also use a moisture system comprised of a temperature sensor and a moisture look-up table. This type of system is represented by a single DAHS software component (note that this is the same DAHS component that is listed as a component of the other monitoring systems at the unit or stack).

- **NO_x Concentration System.** This monitoring system is used to determine NO_x concentration, and is used in conjunction with a separately certified flow monitoring system to calculate NO_x mass emissions. It is comprised of a NO_x concentration monitor and DAHS software. This type of system is used for Subpart H units only.

- **Opacity System.** This monitoring system is used to determine the opacity of emissions. It is comprised of a continuous opacity monitor (COM) and DAHS software.

- **GAS System**. This monitoring system measures gas flow rate in 100 standard cubic feet per hour. Gas flow rate is used to calculate SO_2 and CO_2 mass emissions and/or heat input rate. At a minimum, this system is comprised of a gas fuel flow meter and DAHS software.

- **OILV System**. This monitoring system measures hourly volumetric oil flow rate. Oil flow rate is used to calculate SO_2 and CO_2 mass emissions and/or heat input rate. At a minimum, it is comprised of an oil fuel flow meter and DAHS software.

- **OILM System**. This monitoring system measures hourly mass of oil combusted in pounds per hour. Oil flow rate is used to calculate SO_2 or CO_2 mass emissions and/or heat input rate. At a minimum, it is comprised of an oil fuel flow meter and DAHS software.

- **Appendix E NO_x System**. This monitoring system is used to determine NO_x emission rate in lb/mmBtu based on a NO_x/heat input rate correlation curve derived from emission testing.

The system is comprised of only a single DAHS software component (note that this is the same DAHS component that is listed as a component of the other monitoring systems at the unit or pipe). Appendix E systems are associated with a unit or multiple pipe, not with a common stack. If separate NO_x/heat input rate correlation curves are derived for oil and gas, you must: (a) define a separate Appendix E monitoring system for each type of fuel, having a unique system ID number; and (b) during co-fired hours, report a separate RT 324 under each monitoring system ID.

- **Long Term Gas System or Long Term Oil System (Low Mass Emissions Units Only).** These monitoring systems measure fuel flow during the ozone season on a long term (non-hourly) basis. The systems are comprised of DAHS software and the Appendix D or billing fuel flowmeters or other relevant components. These systems are used in conjunction with a default or unit-specific, fuel-specific NO_x emission rate for low mass emissions units.

- **Part 75 Alternative Monitoring System (AMS)**. This monitoring system is used in lieu of one of the monitoring systems described in Part 75. It is comprised of components defined in a petition approved as meeting the requirements of Subpart E of Part 75. You must receive approval from EPA before reporting with this kind of system.

(c) Additional Information for OILM, OILV, and GAS Systems

Each oil or gas system must include at least one fuel flowmeter hardware component (component type GFFM, BGFF, OFFM, or BOFF). You may also include auxiliary components (for example temperature and pressure sensors and transmitters), but the simplest possible representation of the fuel flowmeter (i.e., one component to represent each fuel flowmeter) is recommended. Each oil and gas system must also include a DAHS component to record and calculate fuel flow and heat input and to perform missing data substitutions.

If different types of oil (or gas) are burned in one unit, you must define a separate oil (or gas) system for each type of fuel combusted in the unit.

The oil (or gas) system for the unit or common pipe must include all fuel flowmeters that are necessary to determine net fuel flow for one type of fuel. For example, if net oil flow is measured by using one flowmeter for the main fuel line to the unit and subtracting the value measured by the flowmeter on the return fuel line, the system must include both the main and return flowmeters as separate components of the same system. If more than one pipe supplies the same type of fuel to a unit and separate fuel flowmeters are installed on each of the pipes (e.g., for a combined cycle turbine with a duct burner), include all the flowmeters measuring that one fuel as separate components of the same system, whenever possible.

Do not include components associated with oil or gas sampling methodologies, unless you are using a gas chromatograph to determine the sulfur content or heat content of gas on an hourly basis. For a gas chromatograph, include it as a component in each gas system for which it is providing hourly readings.

(d) Rotation of Fuel Flowmeters for Quality Assurance Purposes

If you maintain a group of similar fuel flowmeters for a facility or utility and rotate installation at different units to facilitate removal of meters for accuracy testing, include each of the rotated fuel flowmeters as a separate component of the fuel flow system in RT 510 for each unit or pipe. Identify all of the possible fuel flowmeters by manufacturer, model and serial number. At any given time, EPA will assume that one (or more) of the fuel flowmeters listed in the plan is installed and operating at the unit or pipe. If you install a different fuel flowmeter, update the monitoring plan to include the new component. There is no limit on the number of fuel flowmeters that can be included in a system for a unit or pipe or the number of units that can be part of a rotational schedule.

For example, at Unit 1, OILV system 100 might include eight fuel flowmeters, 001 through 008 each of which are turbine meters of the same make and model. However, each fuel flowmeter has a unique serial number. At Unit 2, there is an OILV system 100 which includes the same list of eight fuel flowmeters. For the first quarter of 1997, components 001 and 002 are installed at Unit 1 as the main supply and return OFFMs; at Unit 2 components 003 and 004 are installed. In December 2000, the utility removes components 001 and 002 from Unit 1 to perform laboratory accuracy tests and installs components 005 and 006 in their place. Components 001 and 002 are tested and returned to the facility. At Unit 2, components 003 and 004 are removed and replaced by components 001 and 002. This approach allows the utility to remove the instruments and perform accuracy tests with minimal loss of data and without making any changes to the monitoring plan for these units.

In the formulas reported in RT 520 to calculate heat input rate, SO_2, and CO_2 emissions, reference the monitoring system ID and a fuel flowmeter component ID for any one of the component meters. It is not necessary to change the formulas when the fuel flowmeter components are switched.

(e) LME Units Using Long-term Fuel Flow at a Common Pipe

For a group of LME units served by a common pipe (or supply tank), you must define a LTOL or LTGS monitoring system for the pipe or tank. In both cases (i.e., for common pipe or tank), the pipe or tank ID number must begin with a "CP" prefix (e.g., CP001). If two or more common pipes or tanks of <u>different</u> fuel types supply the same group of LME units, you must define a separate LTOL or LTGS system in RT 510 for each pipe or tank. If two or more pipes or tanks supply the <u>same</u> type of fuel to a group of LME units, you may represent it as a single LTOL or LTGS system.

(f) Changing System Definitions and Recertification Events

If you must make changes to key data fields and/or add, change, or delete key components of a system after that system has been provisionally certified and used to report emissions, recertification testing may be required. If it is necessary to make such changes and you are unsure of what testing or other requirements may be associated with that change, consult with EPA or the applicable State agency.

Field Descriptions and Instructions

Component ID (10). Assign unique three character alphanumeric IDs to each component at a stack, pipe, or unit. Do not repeat a component ID for different components at the same unit, pipe, or stack, even if they are associated with different monitoring systems. If a component is part of two or more systems for the same stack, pipe, or unit, list the

component in each system using the same unique component ID you have assigned to it. For example, an O_2 monitor could be listed as a component in the NO_x emissions rate system and as a component in a moisture system. Each time it is listed, the O_2 monitor would have the same component ID. Do not reuse a component ID at a particular stack, pipe, or unit when the component is retired or no longer in use at that stack, pipe, or unit.

If you have DAHS software that is installed on one computer that processes data from multiple hardware components, assign that DAHS installation a single component ID and include it as a component of each monitoring system with which it is associated. If you have the same type of software installed on separate computers or processors, assign a unique component identification number (and serial number (optional)) to each installation.

If a dual range analyzer is used for both high and low scale measurements, either: (1) define the high scale and low scale as separate components in the system and submit two component records with different component IDs (and the same system ID); or (2) use a single component ID to represent both scales and use a component type code of "SO2A," "NOXA," "CO2A," "O2WA," or "O2DA" for dual range analyzers or auto-ranging analyzers.

If a like-kind replacement analyzer is used as part of the primary monitoring system, use "LK" as the first two characters of the three character component ID, followed by either a number or letter (for example, LK1, LK2, LKA, LKB, etc.).

Monitoring System ID (13). Assign unique three character alphanumeric IDs to each monitoring system at a stack, pipe, or unit. Do not repeat a system ID for a given stack, pipe, or unit. However, the same system numbering scheme may be used for different units, stacks, or pipes at the same facility.

Status (16). Report "A" when adding a new entry, "C" when correcting a previous entry, "D" when deleting a previous entry, or "U" when resubmitting an unchanged entry. For the initial submission, this column will include "A" for all entries.

If you are deleting an entire system, submit all complete RTs 510 for the system with a "D" in the status field. Also include the date on which the system ID was last used to report data in column 108. See directions for column 108 below.

If you are deleting a single component and replacing it with a different component, report a "D" in the status field for the component no longer in use. Submit a second RT 510 for the new component being added to the system. The replacement component record should contain an "A" as the status. Use a different component ID. Report RT 556 to indicate the quality-assured status of data from the system because of this change, per RT 556 instructions and Part 75 requirements.

Note: Do not delete a system or component in the middle of a calendar quarter if the system of component is used to report data in that quarter. Rather, use status code "C", as explained in detail, below.

A status of "A," "C," and/or "D" should only be reported for the quarter in which the change occurred. When "A" or "C" is reported for any 510 records in the current quarter, the status for these records in the next quarter's report should be changed to "U," provided that the information stays the same. For example, if an SO_2 system was added in the first quarter, the status reported for each component of the system is "A." The status for each component of the same system must be changed to "U" for the second quarter. Note that there is one exception to this, i.e., when status code "C" is used to "close out" a monitoring system. This occurs when a system is used to report data for part of a calendar quarter and then is permanently taken out of service at a later date within the quarter. In this case, you should report a status code of "C" for the system and indicate in column 108 the last date that the system was used to report data. Then, in the next quarterly report, use status code "D" to delete the monitoring system. When a "D" status is reported for any 510 records in the current quarter, do not report these records in any subsequent quarterly report submittal.

System Parameter Monitored (17). Report one of the following uppercase codes to indicate the pollutant or parameter measured by the system. This code should be identical for each component associated with a unique system ID. For example, for a NO_x-diluent system, containing NO_x concentration, CO_2, and DAHS components, all three components must be identified with a system parameter monitored of "NOX."

CO2	CO_2 Concentration System (ARP)
FLOW	Stack Flow System
GAS	Gas Fuel Flow System
H2O	Moisture System
LTGS	Long Term Gas Fuel Flow System (LME)
LTOL	Long Term Oil Fuel Flow System (LME)
NOX	NO_x Emission Rate System
NOXC	NO_x Concentration System (Subpart H)
O2	O_2 Concentration System
OILV	Volumetric Oil Fuel Flow System
OILM	Mass of Oil Fuel Flow System
OP	Opacity System (ARP)
SO2	SO_2 Concentration System (ARP)

Primary/Backup Designation (21). Report one of the following uppercase codes for all component records for the monitoring system.

B	Non-redundant Backup. A non-redundant backup system (B) is a "cold" backup or portable monitoring system, having its own probe, sample interface and analytical components.
DB	Data Backup. A data backup system is comprised of the analytical components contained in the primary monitoring system (or in a redundant backup system), but includes a backup DAHS component.
P	Primary

RB Redundant Backup. A redundant backup (RB) monitoring system is operated and maintained by meeting all the program QA/QC requirements.

RM Reference Method Backup. A reference method (RM) monitoring system is a monitoring system which is operated as a reference method pursuant to the requirements of Appendix A to Part 60.

CI Certified Monitoring System at the Inlet to an Emission Control Device.

Use code "CI" only for units with add-on SO_2 or NO_x emission controls. Specifically, the use of a "CI" monitoring system is limited to the following circumstances:

- If the unit has an exhaust configuration consisting of a monitored main stack and an unmonitored bypass stack, and you elect to report SO_2 data from a certified monitoring system located at the control device inlet (in lieu of reporting maximum potential concentration) during hours in which the flue gases are routed through the bypass stack; or

- If the outlet SO_2 or NO_x monitor is unavailable and proper operation of the add-on emission controls is not verified, and you elect to report data from a certified SO_2 or NO_x monitor at the control device inlet in lieu of reporting MPC or MER values. However, note that for the purposes of reporting NO_x emission rate, this option may only be used if the inlet NO_x monitor is paired with a diluent monitor and represented as a NO_x -diluent monitoring system in RT 510. The existing diluent monitor on the stack may be used for this purpose, or a second diluent monitor may be installed at the control device inlet.

Except for fuel flow monitoring systems or systems containing like-kind replacement components, a system should not contain any components that are not used when the system is being used to monitor and report data. For example, do not include backup DAHS software as an additional DAHS component of a primary system. If you have defined primary SO_2 system 101, consisting of a SO_2 concentration monitor (component ID S01) and a DAHS software installation (component ID D01), and you also have a second installation of that DAHS software, you should define a Data Backup (DB) SO_2 system 102 consisting of the same SO_2 concentration monitor (component S01) and the second DAHS installation, defined as component D02.

Component Type Code (23). This field indicates the function of the particular component, not the value reported by the system as a whole. For example, each system will have at least one DAHS component, and a NO_x-diluent system will include a diluent component that is either type "CO2" or "CO2A," type "O2D," "O2DA," "O2W," or "O2WA." Report one of the following uppercase codes for component type:

For CEMS Systems

Note that "O2" is no longer a valid component type code.

CO2 CO_2 Concentration

CO2A	Auto-ranging or Dual Range CO_2 Analyzer
CO2H	High Scale CO_2 Concentration
CO2L	Low Scale CO_2 Concentration
FLOW	Stack Flow Analyzer
H2O	Percent Moisture (Continuous Moisture Sensor, only)
NOX	NO_x Concentration (Single Scale or Range)
NOXA	Auto-ranging or Dual Range NO_x Analyzer
NOXH	High Scale NO_x Concentration
NOXL	Low Scale NO_x Concentration
O2D	O_2 Concentration-Dry Measurement
O2DA	Auto-ranging or Dual Range O_2 Analyzer - Dry Measurement
O2DH	High Scale O_2 Concentration - Dry Measurement
O2DL	Low Scale O_2 Concentration - Dry Measurement
O2W	O_2 Concentration - Wet Measurement
O2WA	Auto-ranging or Dual Range O_2 Analyzer - Wet Measurement
O2WD	O_2 Concentration - Wet and Dry Measurement (Single Analyzer)
O2WH	High Scale O_2 Concentration - Wet Measurement
O2WL	Low Scale O_2 Concentration - Wet Measurement
OP	Opacity Measurement
PRB	Probe
SO2	SO_2 Concentration (Single Scale or Range)
SO2A	Auto-ranging or Dual Range SO_2 Analyzer
SO2H	High Scale SO_2 Concentration
SO2L	Low Scale SO_2 Concentration

For OILV, OILM, or LTOL Systems

BOFF	Billing Oil Fuel Flowmeter
DP	Differential Pressure Transmitter/Transducer
OFFM	Oil Fuel Flowmeter
PRES	Pressure Transmitter/Transducer
TEMP	Temperature Transmitter/Transducer
TANK	Oil Supply Tank

For low mass emissions (LME) units using the long term fuel flow option to quantify unit heat input, report "TANK" if you use oil tank drop measurements, report "BOFF" if you rely on fuel usage records, and report "OFFM" if you use a certified Appendix D fuel flowmeter.

For GAS or LTGS Systems

BGFF	Billing Gas Fuel Flowmeter
CALR	Calorimeter
DP	Differential Pressure Transmitter/Transducer
FLC	Flow Computer
GCH	Gas Chromatograph
GFFM	Gas Fuel Flowmeter

PRES	Pressure Transmitter/Transducer
TEMP	Temperature Transmitter/Transducer

For LME units using the long term fuel flow option to quantify unit heat input, report "BGFF" if you rely on fuel usage records, and report "GFFM" if you use a certified Appendix D fuel flowmeter.

For All Types of Systems

DAHS	Data Acquisition and Handling System
DL	Data Logger or Recorder
PLC	Programmable Logic Controller

Sample Acquisition Method (27). Report the appropriate concentration/diluent codes, operational principle (volumetric flow codes), or type of fuel flowmeter (fuel flowmeter type codes). If a sample acquisition method is not applicable to the component type (e.g., for a DAHS component), leave this field blank. For LME units using long-term fuel flow, leave this field blank unless you use a certified fuel flowmeter to quantify heat input.

If you enter the letter "O" (Other) to identify the method or principle, submit a brief description of the method in RTs 910. Clearly identify the information with the system ID (column 13) and component ID (column 10).

Report one of the following uppercase codes:

For CEMS

DIL	Dilution
DIN	Dilution In-stack
DOU	Dilution Out-of-stack
EXT	Dry Extractive
IS	In Situ
ISP	Point/Path in Situ
ISC	Cross Stack in Situ
O	Other
WXT	Wet Extractive (includes O2WD components)

For Volumetric Stack Flow CEMS

DP	Differential Pressure
O	Other
T	Thermal
U	Ultrasonic

For Fuel Flowmeter Types

COR	Coriolis
DP	Differential Pressure (e.g., Annubar)
NOZ	Nozzle
O	Other
ORF	Orifice
PDP	Positive Displacement
T	Thermal Mass Flowmeter
TUR	Turbine
U	Ultrasonic
VEN	Venturi
VTX	Vortex

Manufacturer (30). Report the name or commonly used acronym for the manufacturer or developer of the component. This field is limited to 20 characters. Do not use this field to identify the unit or location of the component.

If you have developed software in-house, use an abbreviation that clearly identifies the utility or operating company responsible for the software development. Use the same abbreviation or name for all units and sources using the software.

For LME units using long-term fuel flow, leave this field blank unless you use a certified fuel flowmeter to quantify heat input.

Model/Version (55). Report the model of any hardware component or the version number of a software component. This field is limited to 15 characters.

For LME units using long-term fuel flow, leave this field blank unless you use a certified fuel flowmeter to quantify heat input.

Serial Number (70). Report the serial number for each component. For hardware or analytical components the serial number should be unique and should allow identification of the instrument or device in the field. Serial numbers are optional for DAHS software components and billing fuel flowmeters. If you choose to assign one, it must be unique to the software installation. This field is limited to 20 characters.

For flow monitors, provide a single component serial number that represents the control unit of the monitor.

For LME units using long-term fuel flow, leave this field blank unless you use a certified fuel flowmeter to quantify heat input.

Provisional Certification Date [Reserved] (90). This field has been reserved. Leave this field blank.

Provisional Certification Time [Reserved] (96). This field has been reserved. Leave this field blank.

First Date System Reported Data (100). Report the date on which data of any kind (i.e., certification test data or emissions data) were first reported under the monitoring system ID. This date must be the same for all RTs 510 associated with the monitoring system.

For example, if you did initial certification testing of System 100 in June, 2001, the date in this field should be the start of the earliest test conducted, e.g., 6/3/2001. Even if you later recertify the system, as long as you keep System ID 100, the First Date System Reported Data should be kept as 6/3/2001. Also note that this date must be the same for all components of the system.

Last Date System Reported Data (108). If you retire or permanently deactivate a system, report the date the system ID was last used. This date must be the same for all RTs 510 associated with the monitoring system. Do not submit emissions data using this system ID after this date. For active systems, leave this field blank.

(11) **RT 520: Formula Table**

In RT 520, provide the formulas that will be used to calculate required data from primary monitoring systems defined in RT 510. It is not necessary to define formulas referencing backup monitoring systems if the backup monitoring systems measure on the same monitor basis for the same parameter and therefore would use the same formulas as the primary system.

RT 520 formulas are used for three primary purposes:

- To verify that the formulas selected are appropriate to the monitoring approach and reflect a thorough understanding of emissions calculations and the use of appropriate variables;
- To provide the basis for formula verification to ensure that the DAHS software calculates emissions and selected values accurately; and
- To verify hourly calculations in quarterly reports. To facilitate the use of formulas in ETS, it is necessary for companies to provide formulas in clear, simple and consistent formats.

(a) **Required Formulas**

Depending on the monitoring methodologies and component types in use, include in your monitoring plan one or more of the following formulas in the Tables in Section (c), below.

- **For CEMS Based Methodologies**

  -- SO_2 mass emission rate (ARP)
  -- NO_x emission rate
  -- NO_x mass emissions (Subpart H)
  -- CO_2 concentration (ARP, if using O_2 monitor)
  -- CO_2 mass emission rate (ARP)
  -- Heat input rate
  -- F-factor proration calculation for mixed fuels (if elected)

- -- Flow-weighted or heat input-weighted NO_x emission rate formulas for multiple stacks using two primary NO_x systems
- -- Moisture formulas for moisture systems using O_2 wet and dry readings
- -- Flow formulas for all flow systems containing two flow monitors

- **For Fuel Flow Based Methodologies**

  - -- SO_2 mass emission rate (ARP)
  - -- CO_2 mass emission rate (ARP)
  - -- Heat input rate
  - -- Mass of oil formulas for OILV measurements (ARP)
  - -- Net fuel flow formulas for systems with more than one flowmeter
  - -- F-factor proration calculation for mixed fuels (if elected)

Do not provide formulas representing the default heat input rate or default NO_x emission rate for a unit or stack. Do not include quarterly, seasonal or cumulative summation formulas. Formulas are not required for low mass emissions units.

Do not report formulas representing Appendix E NO_x correlation curve segments in RT 520. Report the segments in RTs 560.

(b) **Referencing Other Formulas**

In certain circumstances a value that is used in one formula is actually derived from another formula. The use of pro-rated F-factors (described below) is an example. This value should be represented in the formula by the ID number of the formula from which it is derived. Any intermediate-level formula that is referred to in another formula must also be included in RTs 520.

Whenever you create a formula based on an equation defined in 40 CFR Part 75, Appendices D through G, or 40 CFR Part 60, Appendix A, Method 19, replace each variable in the equation with a reference to a single constant, primary component/system ID, or with a formula ID (unless it represents a value obtained from an independent source, such as through fuel sampling and analysis). If you need to represent a single variable as a mathematical expression, create a separate formula for that expression, and then refer to that expression in the original formula by this second formula's ID.

Example 1: If you determine flow by using two flow monitors to calculate an average flow value, you should create a separate formula to calculate the average flow value, and then refer to this formula ID in the emissions formulas that require a flow value.

Example 2: If you determine fuel flow by using two flowmeters, one that measures the flow of fuel from the fuel source and one that measures the return flow, create a separate formula that calculates the flow of the fuel consumed (by subtracting the return flow from the source flow). Refer to this formula ID in the formulas for heat input rate.

Example 3: If you need to measure moisture but do not use a moisture sensor to determine this value directly, you will have to calculate moisture. In this case, create a separate formula for calculating moisture, and then refer to this formula ID in the emissions formulas that require the moisture value.

(c) F-factors and F-factor Formulas

Heat input rate, NO_x emission rate, and SO_2 emission rate formulas based on CEMS require the inclusion of a specific F-factor based on the fuel being combusted. Unless you provide and use an F-factor proration formula, provide fuel and F-factor specific formulas for each fuel that will be combusted at the affected unit or stack. If a combination of fuels may be combusted within any given hourly period, two options for calculating emissions are available: (1) use the highest F-factor, or (2) use a pro-rated F-factor. Calculate pro-rated F-factors using the appropriate formulas in 40 CFR Part 75, Appendix F. If a pro-rated F-factor formula is used, include it in RTs 520.

See Table 11 below for a summary of the standard F-factors.

Field Descriptions and Instructions

Submission Status (10). Report "A" for a new formula, "U" for an unchanged formula, "C" for a corrected formula, or "D" for an inactive or deleted formula.

A status of "A," "C," and/or "D" should only be reported for the quarter in which the change occurred. When "A" or "C" is reported for any 520 records in the current quarter, the status for these records in the next quarter's report should be changed to "U," provided that the information stays the same. For example, if an SO_2 formula was added in the first quarter, the status reported for the formula is "A." The status for the same formula must be changed to "U" for the second quarter. When a "D" status is reported for any 520 records in the current quarter, it is not necessary to report these records in any subsequent quarterly report submittal.

Formula ID (11). Assign a unique three character formula ID for each formula defined at a unit, stack, or pipe. If a facility includes a common stack, pipe header, or multiple stack, assign unique formula IDs across all related units and stacks.

Do not reuse formula IDs if you have changed component types (e.g., from dry extractive to wet dilution systems) and have therefore changed the type of formula in use. EPA relies on the accuracy of the formula code to verify hourly emissions calculations.

Parameter Monitored (14). Report the parameter representing the pollutant or parameter calculated by the formula. Use the following uppercase codes:

CO2	CO_2 Concentration or Mass Emission Rate (ARP)
FC	Carbon Based F-factor
FD	Dry F-factor
FGAS	Net Gas Flow Rate to Unit/Pipe
FLOW	Net Stack Gas Volumetric Flow Rate
FOIL	Net Oil Flow Rate to Unit/Pipe
FW	Wet F-factor
H2O	Percent Moisture
HI	Heat Input Rate
NOX	NO_x Emission Rate
NOXM	NO_x Mass Emissions

OILM	Mass of Oil
SO2	SO_2 Mass Emissions or Mass Emission Rate (ARP)
SO2R	SO_2 Emission Rate when equation D-1h is used (ARP)

Formula Code (18). Report the formula code of the formula that appears in Tables 11 through 23 and in 40 CFR Part 75, Appendices D through G (or, if appropriate, in 40 CFR Part 60, Appendix A, Method 19) that is applicable to the parameter and the types of monitoring components. Tables 12 through 23 provide summaries of the primary formulas used to calculate SO_2, CO_2, and NO_x emissions, moisture and heat input rate using CEMS, and fuel flowmeter methodologies. Table 24 gives the standard units of measure for the various parameters in the formulas. For moisture monitoring systems comprised of wet and dry oxygen analyzers, see Table 16, Equations M-1 and M-1K. For net fuel flow and average stack flow formulas, see Table 23. For sources with a wet/dry O_2 monitor, distinguish the wet and dry values by annotating the formula. All formula codes must be entered exactly as they are presented in Tables 12 through 23. This includes the use of dashes and capital letters.

For example, report "F-1" (from Table 13) if you are using the equation for converting measurements of SO_2 concentration and flow rate on a wet basis to SO_2 in lb/hr. Report "F-5" (from Table 15) if you are using the equation from Method 19, Appendix A, 40 CFR Part 60 for converting measurements of NO_x concentration and O_2 diluent on a dry basis to NO_x emission rate in lb/mmBtu. In the second example, formula code "19-1" could have been used instead of "F-5," since Equation 19-1 in Method 19 is identical to Equation F-5 in Appendix F to Part 75.

Table 11
F-FACTOR REFERENCE TABLE

F-factor is the ratio of the gas volume of all the products of combustion (less water) to the heat content of the fuel. F_c-factor is the ratio of the gas volume of the CO_2 generated to the heat content of the fuel (see Part 75, Appendix F, Section 3.3).

Option 1: Fuel-Based Constants

Fuel		F-factor (dscf/mmBtu)	F_c-factor (scf CO_2/mmBtu)	F_w-factor (wscf/mmBtu)
Coal	Anthracite	10,100	1,970	10,540
	Bituminous (or Sub-bituminous)	9,780	1,800	10,640
	Lignite	9,860	1,910	11,950
Gas	Natural Gas	8,710	1,040	10,610
	Propane	8,710	1,190	10,200
	Butane	8,710	1,250	10,390
Oil	Oil	9,190	1,420	10,320
Waste	Municipal Solid Waste	9,570	1,820	---
Wood	Bark	9,600	1,920	---
	Wood Residue	9,240	1,830	---

F-7A	$F = \frac{3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O)}{GCV} \times 10^6$	F = Dry-basis F-factor (dscf/mmBtu) F_c = Carbon-based F-factor (scf CO_2/mmBtu) F_w = Wet-basis F-factor (wscf/mmBtu) %H,%N,%S, %C, %O,%H_2O = Content of element, percent by weight, as determined on the same basis as the gross calorific value by ultimate analysis of the fuel combusted using ASTM D3176-89 for solid fuels, ASTM D1945-91 or ASTM D1946-90 for gaseous fuels, as applicable GCV = Gross calorific value (Btu/lb) of fuel combusted determined by ASTM D2015-91 for solid and liquid fuels or ASTM D1826-88 for gaseous fuels, as applicable GCV_w = Calorific value (Btu/lb) of fuel combusted, wet basis
F-7B	$F_c = \frac{321 \times 10^3 \times (\%C)}{GCV}$	
19-14	$F_w = \frac{5.57(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O) + 0.21(\%H_2O)}{GCV_w} \times 10^6$	
F-8*	$F = \sum_{i=1}^{n} X_i F_i$	F = Dry-basis F-factor (dscf/mmBtu) F_c = Carbon-based F-factor (scf CO_2/mmBtu) n = Number of fuels being combusted F_i,$(F_c)_i$ = Applicable F or F_c factor for each fuel type X_i = Fraction of total heat input derived from each type of fossil fuel
	$F_c = \sum_{i=1}^{n} X_i (F_c)_i$	

* This formula should be used for affected units that combust combinations of fossil fuels or fossil fuels and wood residue. For affected units that combust a combination of fossil and non-fossil fuels, the selected F-factor must receive State or EPA approval.

Table 12
SO_2 EMISSION RATE FORMULA REFERENCES

Monitoring Methodology	CEMS		Oil Fuel Flowmeter	Gas Fuel Flowmeter Other Gas	Gas Fuel Flowmeter PNG	Gas Fuel Flowmeter Natural Gas
Moisture Basis* (RT 510, Start Column 27)	WET	DRY				
Appropriate Hourly Formulas (Part 75, Appendices D&F)	F-1	F-2	D-2	D-4	D-5	D-1H

* IS, IS/P, IS/C, D/IN, D/OUT, DIL, WXT - wet; EXT - dry. Exceptions are possible. Check with vendor if uncertain.

Table 13
SO_2 EMISSION FORMULAS

Code	Formula	Where:
F-1	$E_h = K \times C_h \times Q_h$	E_h = Hourly SO_2 mass emission rate (lb/hr) K = 1.660×10^{-7} for SO_2 ((lb/scf)/ppm) C_{hp} = Hourly average SO_2 concentration (ppm (dry)) C_h = Hourly average SO_2 concentration (ppm (stack moisture basis)) Q_h and Q_{hs} = Hourly average volumetric flow rate (scfh (stack moisture basis) $\%H_2O$ = Hourly average stack moisture content (%by volume)
F-2	$E_h = K \times C_{hp} \times Q_{hs} \times \frac{100 - \%H_2O}{100}$	
D-1h	$ER = \frac{2.0}{7000} \times 10^6 \times \frac{S_{total}}{GCV}$	ER = Default SO_2 emission rate for natural gas (or "other" gaseous fuel) combustion (lb/mmBtu) S_{total} = Total sulfur content of gaseous fuel (grains/100 scf) GCV = Gross calorific value of the gas (Btu/100 scf) 2.0 = Ratio of lb SO_2/lb S 7000 = Conversion of grains/100 scf to lb/100 scf 10^6 = Conversion of Btu to mmBtu
D-2	$SO2_{rate-oil} = 2.0 \times OIL_{rate} \times \frac{\%S_{oil}}{100.0}$	$SO2_{rate-oil}$ = Hourly mass emission rate of SO_2 emitted from combustion of oil (lb/hr) OIL_{rate} = Mass rate of oil consumed per hour during combustion (lb/hr) $\%S_{oil}$ = Percent sulfur by weight measured in oil sample 2.0 = Ratio of lb SO_2 to lb S
D-3	$OIL_{rate} = V_{oil-rate} \times D_{oil}$	OIL_{rate} = Mass rate of oil consumed per hr (lb/hr) $V_{oil-rate}$ = Volume rate of oil consumed per hr, measured (scf/hr, gal/hr, barrels/hr, or m^3/hr) D_{oil} = Density of oil, measured (lb/scf, lb/gal, lb/barrel, or lb/m^3)
D-5	$SO2_{rate} = ER \times HI_{rate}$	$SO2_{rate}$ = Hourly mass emission rate of SO_2 from combustion of gaseous fuel (lb/hr) ER = SO_2 emission rate from Appendix D, Section 2.3.1.1 or Appendix D, Section 2.3.2.1.1 to Part 75 (lb/mmBtu) HI_{rate} = Hourly heat input rate of a gaseous fuel, calculated using procedures in Appendix D, Section 3.4.1 to Part 75 (mmBtu/hr)

(cont.)

Table 13
SO_2 EMISSION FORMULAS (cont.)

Code	Formula	Where:
F-23	$E_h = ER \times HI$	E_h = Hourly SO_2 mass emission rate (lb/hr) ER = Applicable SO_2 default emission rate from Appendix D, Section 2.3.1.1, or Appendix D, Section 2.3.2.1.1 to Part 75 (lb/mmBtu) HI = Hourly heat input rate, determined using a certified flow monitor and diluent monitor, according to Appendix F, Section 5.2 (mmBtu/hr)
D-12	$M_{SO2-hr} = \sum_{all-fuels} SO2_{rate-i} t_i$	M_{SO2-hr} = Total mass of SO_2 emissions from all fuels combusted during the hour (lb) $SO2_{rate-i}$ = SO_2 mass emission rate for each type of gas or oil fuel combusted during the hour (lb/hr) t_i = Time each gas or oil fuel was combusted for the hour (fraction of an hour)

Table 14
NO_X EMISSION RATE FORMULA REFERENCE TABLE

Monitoring System Type		NO_x Emission Rate (CO_2 Diluent)				NO_x Emission Rate (O_2 Diluent)			
Moisture Basis	NO_x	DRY	DRY	WET	WET	DRY	DRY	WET	WET
	CO_2	DRY	WET	DRY	WET				
	O_2					DRY	WET	DRY	WET
Appropriate Hourly Formulas		19-6	19-9	19-8	19-7	19-1	19-5 or 19-5D	19-4	19-2, 19-3, or 19-3D

* IS, IS/P, IS/C, D/IN, D/OUT, DIL, WXT - wet; EXT - dry. Exceptions are possible. Check with vendor if uncertain.

Use of the Diluent Cap With Equations 19-3, 19-5, F-14B, and F-17

When using the diluent cap with Equations 19-3, 19-5, F-14B, and F-17 it is possible to have unrepresentative or negative results if the percent moisture is high. To avoid this problem, the Agency has developed special variations of these equations for use with the diluent cap. For any hour in which the diluent cap is used in place of Equations 19-3, 19-5, F-14B, and F-17, use the variations of these equations with the diluent cap in the following manner:

- If you use Equation 19-3 for NO_x emission rate, use Equation 19-3D for any hour in which you use the diluent cap.
- If you use Equation 19-5 for NO_x emission rate, use Equation 19-5D for any hour in which you use the diluent cap.
- If you use Equation F-14B to determine percent CO_2 from percent O_2, use Equation F-14D for any hour in which you use the diluent cap.

- If you use Equation F-17 for heat input, use Equation F-17D for any hour in which you use the diluent cap.

Include these formulas in RT 520 of your monitoring plan and report the formula ID in the appropriate hourly record type whenever the diluent cap is used.

Table 15
NO_X EMISSION RATE FORMULAS (LB/MMBTU)

Code	Formula	Where:
19-1 (F-5)	$E = K \times C_d \times F_d \times \frac{20.9}{20.9 - \%O_{2_d}}$	Formulas should be multiplied by the conversion factor "K" (if C_d or C_w is in ppm). FROM TO MULTIPLY BY "K" ppm NO_x lb/scf **K = 1.194 X 10^{-7}** E = Emission rate (lb/mmBtu) C_d = Pollutant concentration (ppm, dry basis) C_w = Pollutant concentration (ppm, wet basis) F_d = Dry-basis F-factor (dscf/mmBtu) F_c = Carbon-based F-factor (scf CO_2/mmBtu) F_w = Wet-basis F-factor (wscf/mmBtu) B_{wa} = Moisture fraction of ambient air (default value 0.027) $\%H_2O$ = Moisture content of effluent gas O_{2_d} = Oxygen diluent concentration (percent of effluent gas, dry basis) O_{2_w} = Oxygen diluent concentration (percent of effluent gas, wet basis) $O_{2_{def}}$ = Default diluent cap O_2 value (14.0% for boilers, 19.0% for combustion turbines) CO_{2_d} = Carbon dioxide diluent concentration (percent of effluent gas, dry basis) CO_{2_w} = Carbon dioxide diluent concentration (percent of effluent gas, wet basis)
19-2	$E = K \times C_w \times F_w \times \frac{20.9}{20.9\ (1 - B_{wa}) - \%O_{2_w}}$	
19-3*	$E = K \times C_w \times F_d \times \frac{20.9}{20.9 \times \left[\frac{100 - \%H_2O}{100}\right] - \%O_{2_w}}$	
19-3D*	$E = K \times C_w \times F_d \times \frac{20.9}{20.9 \times \left[\frac{100 - \%H_2O}{100}\right] - \%O_{2_{def}} \times \left[\frac{100 - \%H_2O}{100}\right]}$	
19-4*	$E = K \times \frac{(C_w \times F_d)}{(100 - \%H_2O) \div 100} \times \frac{20.9}{(20.9 - \%O_{2_d})}$	
19-5*	$E = \frac{20.9 \times K \times C_d \times F_d}{20.9 - \left[\%O_{2_w} \div \left(\frac{100 - \%H_2O}{100}\right)\right]}$	
19-5D	$E = K \times C_d \times F_d \times \frac{20.9}{20.9 - \%O_{2_{def}}}$	
19-6	$E = K \times C_d \times F_c \times \frac{100}{\%CO_{2_d}}$	
19-7 (F-6)	$E = K \times C_w \times F_c \times \frac{100}{\%CO_{2_w}}$	
19-8*	$E = K \times \frac{(C_w \times F_c)}{(100 - \%H_2O) \div 100} \times \frac{100}{\%CO_{2_d}}$	
19-9*	$E = K \times C_d \times \left[\frac{100 - \%H_2O}{100}\right] \times F_c \times \frac{100}{\%CO_{2_w}}$	

* Note that [(100 - % H2O/100] may also represented as (1 - B_{ws}), where B_{ws} is the proportion by volume of water vapor in the stack gas stream.

Table 16
MOISTURE FORMULAS*

Code	Formula	Where:
M-1	$\%H_2O = \frac{(O_{2_d} - O_{2_w})}{O_{2_d}} x\ 100$	$\%H_2O$ = Percent Moisture O_{2_d} = Oxygen diluent concentration (percent of effluent gas, dry basis) O_{2_w} = Oxygen diluent concentration (percent of effluent gas, wet basis)
M-1K	$\%H_2O = \frac{(O_{2d} - O_{2w})}{O_{2d}} x\ 100$, as adjusted[1]	

* Please contact the EPA Clean Air Markets Division for the assigned code for other moisture formulas.
[1] Using a K-factor or other mathematical algorithm, per Appendix A, Section 6.5.7(a).

Table 17
CO_2 FORMULA REFERENCE TABLE

Monitoring Method	CO_2 Concentration (O_2 CEMS)		CO_2 Mass Emissions (Fuel Sampling)	CO_2 Mass Emissions (Gas-fired Units)	CO_2 Concentration (CO_2 CEMS)	
Moisture Basis* (RT 510, Start Column 27)	WET	DRY			WET	DRY
Appropriate Formulas (Part 75, Appendices F, G)	F-14B or F-14D & F-11	F-14A & F-2	G-1, 2, 3 or 5 (App. G, 2.1, 3.1)	G-4, G-4A	F-11	F-2

* IS, IS/P, IS/C, D/IN, D/OUT, DIL, WXT - wet; EXT - dry. Exceptions are possible. Check with vendor if uncertain.

Table 18
CO_2 MASS EMISSION RATE FORMULAS

Code	Formula	Where:
F-2	$E_h = K \times C_{hp} \times Q_{hs} \times \frac{100 - \%H_2O}{100}$	E_h = Hourly CO_2 mass emissions (tons/hr) K = 5.7 x 10^{-7} for CO_2 ((tons/scf)/%CO_2) C_{hp} = Hourly average, CO_2 concentration (% CO_2, dry basis) Q_{hs} = Hourly average volumetric flow rate (scfh, wet basis) %H_2O = Hourly average stack moisture content (% by volume)
F-11	$E_h = K \times C_h \times Q_h$	E_h = Hourly CO_2 mass emission rate (tons/hr) K = 5.7x10^{-7} for CO_2 ((tons/scf)/%CO_2) C_h = Hourly average CO_2 concentration (%CO_2, wet basis) Q_h = Hourly average volumetric flow rate (scfh, wet basis)
F-14A	$CO_{2d} = 100 \times \frac{F_c}{F} \times \frac{20.9 - O_{2d}}{20.9}$	CO2d = Hourly average CO_2 concentration (percent by volume, dry basis) F = Dry-basis F-factor (dscf/mmBtu) F_c = Carbon-based F-factor (scf CO_2/mmBtu) 20.9 = Percentage of O_2 in ambient air O_{2d} = Hourly average O_2 concentration (percent by volume, dry basis)
F-14B	$CO_{2w} = \frac{100}{20.9} \times \frac{F_c}{F} \times \left[20.9\left(\frac{100 - \%H_2O}{100}\right) - O_{2W}\right]$	CO_{2w} = Hourly average CO_2 concentration (percent by volume, wet basis) F = Dry-basis F-factor (dscf/mmBtu) F_c = Carbon-based F-factor (scf CO_2/mmBtu) 20.9 = Percentage of O_2 in ambient air O_{2W} = Hourly average O_2 concentration (percent by volume, wet basis) %H_2O = Moisture content of gas in the stack (%)
F-14D	$CO_{2W} = \frac{100}{20.9} \times \frac{F_c}{F} \times \left(\frac{100 - \%H_2)}{100}\right) \times \left(20.9 - O_{2-def}\right)$	CO_{2w} = Hourly average CO_2 concentration (percent by volume, wet basis) F = Dry-basis F-factor (dscf/mmBtu) F_c = Carbon-based F-factor (scf CO_2/mmBtu) 20.9 = Percentage of O_2 in ambient air $O_{2\text{-def}}$ = Default diluent cap O_2 value (14.0% for boilers, 19.0% for combustion turbines) %H_2O = Moisture content of gas in the stack (%)
G-1	$W_{CO_2} = \frac{\left(MW_c + MW_{O_2}\right) \times W_c}{2000 MW_c}$	W_{CO_2} = CO_2 emitted from combustion (tons/day) MW_c = Molecular weight of carbon (12.0) MW_{O_2} = Molecular weight of oxygen (32.0) W_c = Carbon burned (lb/day) determined using fuel sampling and analysis and fuel feed rates*

(cont.)

Table 18
CO_2 MASS EMISSION RATE FORMULAS (cont.)

Code	Formula	Where:
G-2	$W_{NCO2} = W_{CO2} - \frac{MW_{CO2}}{MW_c} \times \left(\frac{A\%}{100}\right) \times \left(\frac{C\%}{100}\right) \times W_{COAL}$	W_{NCO2} = Net CO_2 mass emissions discharged to the atmosphere (tons/day) W_{CO2} = Daily CO_2 mass emissions calculated by Equation G-1 (tons/day) MW_{CO2} = Molecular weight of carbon dioxide (44.0) MW_c = Molecular weight of carbon (12.0) A% = Ash content of the coal sample (percent by weight) C% = Carbon content of ash (percent by weight) W_{COAL} = Feed rate of coal from company records (tons/day)
G-3	$W_{NCO2} = .99 \times W_{CO2}$	W_{NCO2} = Net CO_2 mass emissions from the combustion of coal discharged to the atmosphere (tons/day) .99 = Average fraction of coal converted into CO_2 upon combustion W_{CO2} = Daily CO_2 mass emissions from the combustion of coal calculated by Equation G-1 (tons/day)
G-4	$W_{CO_2} = \frac{F_c \times H \times U_f \times MW_{CO_2}}{2000}$	W_{CO_2} = CO_2 emitted from combustion (tons/hr) F_c = Carbon-based F-factor, 1,040 scf/mmBtu for natural gas; 1,420 scf/mmBtu for crude, residual, or distillate oil and calculated according to the procedures in Section 3.3.5 of Appendix F to Part 75 for other gaseous fuels H = Hourly heat input rate (mmBtu/hr) U_f = 1/385 scf CO_2/lb-mole at 14.7 psi and 68 °F MW_{CO_2} = Molecular weight of carbon dioxide (44.0)
G-4A	$CO2_{unit} = \frac{\sum_{all-fuels} CO2_{fuel} t_{fuel}}{t_{unit}}$	$CO2_{unit}$ = Unit CO_2 mass emission rate (tons/hr) $CO2_{fuel}$ = CO_2 mass emission rate calculated using Equation G-4 for a single fuel (tons/hr) t_{fuel} = Fuel usage time t_{unit} = Unit operating time
G-5	$SE_{CO_2} = W_{CaCO_3} \times F_u \times \frac{MW_{CO_2}}{MW_{CaCO_3}}$	SE_{CO_2} = CO_2 emitted from sorbent (tons/day) W_{CaCO_3} = Calcium carbonate used (tons/day) F_u = 1.00, the calcium to sulfur stoichiometric ratio MW_{CO_2} = Molecular weight of carbon dioxide (44) MW_{CaCO_3} = Molecular weight of calcium carbonate (100)

(cont.)

Table 18
CO_2 MASS EMISSION RATE FORMULAS (cont.)

Code	Formula	Where:
G-6	$SE_{CO_2} = F_u \frac{W_{SO_2}}{2000} \frac{MW_{CO2}}{MW_{SO_2}}$	SE_{CO_2} = CO_2 emitted from sorbent (tons/day) MW_{CO_2} = Molecular weight of carbon dioxide (44) MW_{SO_2} = Molecular weight of sulfur dioxide (64) W_{SO_2} = Sulfur dioxide removed (lb/day) based on applicable procedures, methods, and equations in § 75.15 F_u = 1.00, the calcium to sulfur stoichiometric ratio

* Collect at least one fuel sample during each week that the unit combusts coal, one sample per each shipment or delivery for oil and diesel fuel, and one fuel sample for each delivery for gaseous fuels in lots, for each daily or hourly gas sample for gaseous fuel that is required to be sampled daily or hourly for gross calorific value under Section 2.3.4.1 or 2.3.4.2 of Appendix D to Part 75. Collect coal samples from a location in the fuel handling system that provides a sample representative of the fuel bunkered or consumed during the week. Determine the carbon content of each fuel sampling using one of the following methods: ASTM D3178-89 or ASTM D5373-93 for coal; ASTM D5291 "Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants," ultimate analysis of oil, or computations based upon ASTM D3238-90 and either ASTM D2502-87 or ASTM D2503-82 (Reapproved 1987) for oil; and computations based on ASTM D1945-91 or ASTM D1946-90 for gas. Use daily fuel feed rates from company records for all fuels and the carbon content of the most recent fuel sample under this section to determine tons of carbon per day from combustion of each fuel. (All ASTM methods are incorporated by reference under § 75.6.) Where more than one fuel is combusted during a calendar day, calculate total tons of carbon for the day from all fuels.

Table 19
HEAT INPUT FORMULA REFERENCE TABLE

Monitor Type		Flow Monitor (Wet) and Diluent CEM				Fuel Flow and Fuel Sampling		
						Combusting Oil		Combusting Gas
Moisture Basis*	CO_2	WET	DRY			MASS	VOL	
	O_2			WET	DRY			
Appropriate Formulas (Part 75, Appendices D & F)		F-15	F-16	F-17 or F-17D	F-18	D-8 (F-19)	D-3 and D-8 (F-19)	D-6 (F-20)

* IS, IS/P, IS/C, D/IN, D/OUT, DIL, WXT - wet; EXT - dry. Exceptions are possible. Check with vendor if uncertain.

Table 20
HEAT INPUT FORMULAS

Code	Formula	Where:
D-15	$HI_{hr} = \sum_{all-fuels} HI_{rate-i} t_i$	HI_{hr} = Total heat input from all fuels combusted during the hour (mmBtu) $HI_{rate-hr}$ = Heat input rate from all fuels combusted during the hour (mmBtu/hr) HI_{rate-i} = Heat input rate for each type of gas or oil combusted during the hour (mmBtu/hr) t_i = Time each gas or oil fuel was combusted for the hour (fuel usage time) (fraction of an hour) t_u = Operating time of the unit
D-15A	$HI_{rate-hr} = \frac{\sum_{all-fuels} HI_{rate-i} t_i}{t_u}$	
F-15	$HI = Q_w \times \frac{1}{F_c} \times \frac{\%CO_{2w}}{100}$	HI = Hourly heat input rate (mmBtu/hr) Q_w, Q_h = Hourly average volumetric flow rate (scfh, wet basis) F_c = Carbon-based F-factor (scf/mmBtu) F = Dry basis F-factor (dscf/mmBtu) $\%CO_{2w}$ = Hourly concentration of CO_2 (percent CO_2, wet basis) $\%CO_{2d}$ = Hourly concentration of CO_2 (percent CO_2, dry basis) $\%O_{2w}$ = Hourly concentration of O_2 (percent O_2, wet basis) $\%O_{2d}$ = Hourly concentration of O_2 (percent O_2, dry basis) $\%H_2O$ = Hourly average moisture of gas in the stack (%) O_{2def} = Default diluent cap O_2 value (percent O_2, wet basis) (14.0% for boilers, 19.0% for combustion turbines)
F-16	$HI = Q_h \times \left[\frac{100-\%H_2O}{100F_c}\right]\left[\frac{\%CO_{2d}}{100}\right]$	
F-17	$HI = Q_W \times \frac{1}{F} \times \frac{[(20.9/100)(100-\%H_2O)-\%O_{2w}]}{20.9}$	
F-17D	$HI = Q_W \times \frac{1}{F} \times \frac{\left(\frac{100-\%H_2O}{100}\right)(20.9-\%O_{2_{def}})}{20.9}$	
F-18	$HI = Q_w \times \left[\frac{(100-\%H_2O)}{100F}\right]\left[\frac{(20.9-\%O_{2d})}{20.9}\right]$	
D-8** (F-19V)	$HI_{rate-oil} = OIL_{rate} \times \frac{GCV_{oil}}{10^6}$	$HI_{rate-oil}$, = Hourly heat input rate from combustion of oil (mmBtu/hr) OIL_{rate}, = Rate of oil consumed (lb/hr for Eq. D-8 or gal/hr for Eq. F-19V) GCV_{oil}, = Gross calorific value of oil (Btu/lb for Eq. D-8 or Btu/gal for Eq. F-19V) 10^6 = Conversion of Btu to mmBtu

(cont.)

Table 20
HEAT INPUT FORMULAS (cont.)

Code	Formula	Where:
F-19	$HI_o = M_o \times \frac{GCV_o}{10^6}$	HI_o = Hourly heat input rate from combustion of oil (mmBtu/hr) M_o , = Mass rate of oil consumed per hour (lb/hr) GCV_o, = Gross calorific value of oil (Btu/lb) 10^6 = Conversion of Btu to mmBtu
D-6	$HI_{rate-gas} = \frac{GAS_{rate} \times GCV_{gas}}{10^6}$	$HI_{rate-gas}$, HI_g = Hourly heat input rate from combustion of gaseous fuel (mmBtu/hr) GAS_{rate}, Q_g = Average volumetric flow rate of fuel (100 scfh) GCV_{gas} GCV_g = Gross calorific value of gaseous fuel (Btu/100 scf)* 10^6 = Conversion of Btu to mmBtu
F-20	$HI_g = \frac{(Q_g \ x \ GCV_g)}{10^6}$	

** For non-Acid Rain Subpart H units, if you have a volumetric oil flowmeter, you may use Equation D-8 on a volumetric basis, rather than a mass basis. If you use this option, represent the Equation as F-19V in your monitoring plan.

Table 21
APPORTIONMENT AND SUMMATION FORMULAS

Code	Formula	Where:
F-21A	$HI_i = HI_{CS}\left(\frac{t_{CS}}{t_i}\right)\left[\frac{MW_i \ t_i}{\sum_{i=1}^{n} MW_i \ t_i}\right]$	HI_i = Heat input rate for a unit (mmBtu/hr) HI_{CS} = Heat input rate at the common stack or pipe (mmBtu/hr) MW_i = Gross electrical output (MWe) t_i = Operating time at a particular unit t_{CS} = Operating time at common stack or pipe n = Total number of units using the common stack or pipe i = Designation of a particular unit
F-21B	$HI_i = HI_{CS}\left(\frac{t_{CS}}{t_i}\right)\left[\frac{SF_i \ t_i}{\sum_{i=1}^{n} SF_i \ t_i}\right]$	HI_i = Heat input rate for a unit (mmBtu/hr) HI_{CS} = Heat input rate at the common stack or pipe (mmBtu/hr) n = Number of stacks or pipes SF_i = Gross steam load (flow) (lb/hr) t_i = Operating time at a particular unit t_{CS} = Operating time at common stack or pipe n = Total number of units using the common stack or pipe i = Designation of a particular unit

(cont.)

Table 21
APPORTIONMENT AND SUMMATION FORMULAS (cont.)

Code	Formula	Where:
F-21C	$HI_{Unit} = \frac{\sum_{s=1}^{n} HI_s \, t_s}{t_{Unit}}$	HI_{Unit} = Heat input rate for a unit (mmBtu/hr) HI_s = Heat input rate for each stack or duct (mmBtu/hr) t_{Unit} = Operating time for the unit t_s = Operating time for a particular stack or duct s = Designation of a particular stack or duct n = Total number stacks, ducts
F-21D	$HI_i = HI_{CP} \left(\frac{t_{CP}}{t_i} \right) \left[\frac{FF_i \, t_i}{\sum_{i=1}^{n} FF_i \, t_i} \right]$	HI_i = Heat input rate for a unit (mmBtu/hr) HI_{CP} = Heat input rate at the common pipe (mmBtu/hr) FF_i = Fuel flow rate to a particular unit (appropriate units) t_i = Operating time at a particular unit (hr) t_{CP} = Operating time at common pipe (hr) n = Total number of units using the common pipe i = Designation of a particular unit
F-25	$HI_{CS} = \frac{\sum_{u=1}^{p} HI_u \, t_u}{t_{CS}}$	HI_u = Hourly average heat input rate for a unit (mmBtu/hr) HI_{CS} = Hourly average heat input rate at the common stack (mmBtu/hr) p = Number of units t_u = Operating time at a particular unit t_{CS} = Operating time at common stack u = Designation of a particular unit

Table 22
NO_X MASS EMISSIONS FORMULAS (POUNDS)

Code	Formula	Where:
N-1 (F-26)*	$M_{NOx_h} = K \times C_{h_w} \times Q_h \times t_h$	M_{NOx_h} = Hourly NO_x mass emissions (lbs) K = 1.194 x 10^{-7} for NO_x ((lb/scf)/ppm) C_{h_d} = Hourly average, NO_x concentration (ppm (dry)) C_{h_w} = Hourly average, NO_x concentration, stack moisture basis (ppm (wet)) Q_h = Hourly average volumetric flow rate (scfh) $\%H_2O$ = Hourly average stack moisture content (% by volume) $M_{NOx_{fuel1}}$ = NO_x mass emissions from fuel 1 (lbs) $M_{NOx_{fuel2}}$ = NO_x mass emissions from fuel 2 (lbs) HI_h = Hourly average heat input rate (mmBtu/hr) t_h = Unit/stack operating time (hour or fraction of an hour) $E_{(NOx)_h}$ = Hourly average NO_x emission rate (lb/mmBtu)
N-2 (F-26)*	$M_{NOx_h} = K \times C_{h_d} \times Q_h \times \frac{(100-\%H_2O)}{100} \times t_h$	
N-3	$M_{NOx_h} = M_{NOx_{fuel1}} + M_{NOx_{fuel2}}$	
F-24	$M_{NOx_h} = E_{(NOx)h} \times HI_h \times t_h$	

* Equations N-1 and N-2 are equivalent to Equation F-26 in Appendix F to Part 75 (see Appendix F, Sections 8.2 and8.3). The right-hand side of Equation F-26 is E_h x t_h, where E_h is the hourly NO_x mass emission rate, in lb/hr and t_h is the unit or stack operating time, in hours. For purposes of program implementation, use codes N-1 and N-2 in RT 520, rather than F-26. The use of separate equation codes (i.e., N-1 and N-2) for wet and dry-basis NO_x measurements is preferable to using a single code (F-26), which does not indicate the moisture basis of the NO_x readings.

Table 23
MISCELLANEOUS FORMULA CODES

Code	Parameter	Description
N-GAS	FGAS	Net Gas fuel flow rate (100 scfh)
N-OIL	FOIL	Net Oil fuel flow rate (scf/hr, gal/hr, barrels/hr, or m^3/hr)
X-FL	FLOW	Average hourly stack flow rate (scfh). (To calculate the average of two or more primary flow monitors, for example, two ultrasonic monitors in an X-pattern.)
SS-1A	SO2	Total hourly SO_2 mass emissions from the affected unit(s) in a subtractive stack configuration (lb)
SS-1B	SO2	Hourly SO_2 mass emissions from a particular affected unit in a subtractive stack configuration (lb)
SS-2A	NOXM	Total hourly NO_x mass emissions from the affected unit(s) in a subtractive stack configuration (lb)
SS-2B	NOXM	Hourly NO_x mass emissions from a particular affected unit in a subtractive stack configuration (lb)
SS-2C	NOXM	Hourly NO_x mass emissions from a particular affected unit in a subtractive stack configuration (lb)

(cont.)

Table 23
MISCELLANEOUS FORMULA CODES (cont.)

Code	Parameter	Description
SS-3A	HI	Total hourly heat input for the affected unit(s) in a subtractive stack configuration (mmBtu)
SS-3B	HI	Hourly heat input rate for a particular affected unit in a subtractive stack configuration (mmBtu/hr)
NS-1	NOX	Hourly NO_x apportionment for NO_x affected units in a subtractive stack configuration (lb/mmBtu)
NS-2	NOX	Hourly NO_x apportionment for NO_x affected units using simple NO_x apportionment (lb/mmBtu)

Table 24
STANDARD UNITS OF MEASUREMENT

Parameter	Units
CO_2 and O_2 (as reported in RTs 210 and 211)	percent CO_2 or O_2
Stack Flow Rate (as reported in RT 220)	scfh
Gas Flow Rate (as reported in RT 303)	100 scf/hr
Moisture (as reported in RT 212)	percent H_2O
Mass Oil Flow Rate (as reported in RT 302)	lb/hr
NO_x Concentration (as reported in RT 201)	ppm
SO_2 Concentration (as reported in RT 200)	ppm
Volumetric Oil Flow Rate (as reported in RT 302)	scfh, gal/hr, m^3/hr, barrels/hr

Formula Text (23). Report in this 200 character field a representation of the formula, replacing its variables with the appropriate references to monitoring system IDs, component IDs, other formulas, and constants. Enter the formula in the order of calculation and with the constants as they appear in the tables above and operators as they appear in Table 25. If necessary, use parentheses; do not use brackets.

- **Component/System References**. Refer to systems as "S#(001-002)" where 001-002 is the component ID-system ID from RT 510, columns 10 and 13. This symbol represents the measurement value in the appropriate standard units of measurement for the parameter already adjusted for bias (if appropriate), temperature, and pressure. The following table lists the standard units of measurement assumed to be represented by each type of system.

- **Formula References**. Refer to other formulas as "F#(001)" where 001 is the Formula ID for another formula in RTs 520.

- **Constants**. You must also include any constants, such as unit conversion factors, fuel factors, etc., that are required for the calculation. Do not perform any intermediate calculations on the constants; your formula should have the same format as the equation in 40 CFR Part 60 or Part 75 upon which it is based. Represent each constant as it is represented in

Part 75 or Method 19. If your DAHS software uses other equivalent constants or performs the calculations in an order different from the regulations, demonstrate that these calculations are equivalent to those in RTs 520 as part of the formula verification required for certification.

Table 25
RT 520 REPRESENTATIONS FOR ELECTRONIC REPORTING

Operation or Variable	Recommended Representation	Example
Addition	+	MW_1 + MW_2
Subtraction	-	100 - S#(001-001)
Multiplication	*	S#(001-001) * S#(002-001)
Division	/	100 / S#(001-001)
Exponential power	**	1.66 * 10 ** -7
Subscript	Underscore	MW_1 = MW_1
Fraction of Heat Input from Fuel	X_<fuel>	X_oil
Gross Electrical Output	MW_<unit>	MW_1
Gross Steam Load (Flow)	SF_<unit>	SF_1
Hourly Emissions	E_h	E_h
Operating Time	T_<unit/stack>	T_CS1

Example Formulas

Example #1: NO_x Emission Rate Calculation for Coal-fired Unit. Assume you have a bituminous coal-burning unit with a primary NO_x system (assigned ID# 001) containing the following components, identified in RT 510:

NO_x Analyzer: Component ID# 100; Sample Acquisition Method: Dilution
CO_2 Analyzer: Component ID# 200; Sample Acquisition Method: Dilution

Submit RT 520 for the formula to compute the NO_x emission rate. Report the formula ID 001 at column 11. At column 14, report the parameter "NOX." Referring to the appendices to 40 CFR Part 75, note that the NO_x emission rate should be determined by using Equation F-6. Report "F-6" in the field for formula code at column 18. Record the actual formula in the field for formula text at column 23. According to 40 CFR Part 75, Appendix F, Equation F-6 is defined as follows:

$$E = K \times C_w \times F_c \times \frac{100}{\%CO_{2_w}}$$

(Equation F-6)

Report the formula as it is defined in Equation F-6, replacing its variables with the appropriate constants and references to the appropriate primary monitoring system and component IDs. In this example, the conversion factor K for NO_x is equal to 1.194 x 10^{-7} lb/scf/ppm, the F_c factor for bituminous coal is equal to 1800 scf CO_2/mmBtu, and the symbols S#(100-001) and S#(200-001) refer to the concentration of NO_x (in ppm) and CO_2 (in percent) measured by the two monitors in the same primary NO_x system. The entry in column 23 for F#(001) would appear as follows:

E−h = 1.194 * 10-7 * S#(100-001) * 1800 * (100/S#(200-001))**

Example #2: NO_x Emission Rate Calculation for Coal and Oil-fired Unit. Assume you have the same monitoring system described in example #1 above, except that two different fuels will be combusted: bituminous coal and oil. You may choose to include two formulas: one to be used when coal is combusted, and one to be used when oil is combusted. The formula for oil will have a different formula ID, and it will contain the appropriate F_c factor for oil. In this example, you could create a formula #002, that would appear as follows:

E−h = 1.194 * 10-7 * S#(100-001) * 1420 * (100/S#(200-001))**

If you intend to burn coal and oil simultaneously, you have two options:

- Use the formula with the highest F_c factor -- in this case formula #001, the formula for coal; or

- Instead of calculating two separate NO_x formulas, use a pro-rated F_c factor. To do this, first create a formula for the pro-rated factor in RT 520. Assign this formula a unique formula ID, for example, formula ID "003." In column 14, report the parameter "FC" for carbon-based F-factor. In column 18, report the appropriate formula code. Referring to the appendices in 40 CFR Part 75, note that the pro-rated F_c factor is determined by using Equation F-8. Report "F-8" in column 18. Then report the actual formula in the field for formula text at column 23. Equation F-8 is defined as follows:

$$F_c = \sum_{i=1}^{n} X_i \times (F_c)_i$$

(Equation F-8)

Report the formula as it is defined in Equation F-8, replacing the summation notation with the actual references to various fuels that will be combusted. In this example, report 1800 and 1420 as the F_c factors for coal and oil respectively, and X_{coal} and X_{oil} to represent the fraction of total heat input derived from coal and oil respectively. The entry beginning in column 23 would therefore appear as follows:

Fc = (X(coal) * 1800) + (X(oil) * 1420)

Then report a formula for the NO_x emission rate calculation. This formula will be similar to the other NO_x formulas, except that it will have a different formula ID, and it will contain a reference to the previously defined formula for the pro-rated F_c factor. In this example, you could create a formula ID #004, that would appear as follows:

Eh = 1.194 * 10-7 * (S#(100-001) * F#(003) * (100/S#(200-001)**

The notation F#(003) is the reference to formula ID #003 that computes the pro-rated F_c factor.

Example #3: Heat Input Apportionment Formulas for Common Stacks. Assume you have two Acid Rain units (boilers 1 and 2) sharing a common stack. Formula ID #100 calculates hourly heat input for the stack. You must calculate and report hourly heat input for each of the two units. To do this, apportion the heat input at the common stack as a ratio of the load from each unit to the load from all of the units at the stack. In this example, create RTs 520 for Unit 1 and for Unit 2 containing unit heat input apportionment formulas. For Unit 1, assign formula ID #101. Report the parameter "HI" for heat input. Report F-21A as the equation code. Assuming you use gross electrical output (in megawatts) as the equivalent of load, your formula in column 23 would appear as follows:

HI_1 = (F#(100) * T_CS1/T_1) * MW_1 * T_1 /(MW_1 * T_1 + MW_2 * T_2)

F#(100) represents the heat input formula for the common stack; T_CS1, T_1 and T_2 represent the hourly operating time for the common stack, Unit 1 and Unit 2, respectively; MW_1 and MW_2 represent the gross electrical output for Units 1 and 2, respectively. Create a second, similar formula record for the hourly heat input for Unit 2.

Example #4: Appendix D Heat Input Formula for Oil-Fired Unit. For an oil-fired unit, you may report heat input using the hourly fuel flow rate and heat content. Assume you have recorded in RT 510 a volumetric oil flow monitoring system (assigned System ID# 200), which included the following components:

Flowmeter Measuring Main Oil Flow (in bbl/hr): Component ID# 001
Flowmeter Measuring Return Oil Flow (in bbl/hr): Component ID# 002

Create RT 520 for the formula to calculate the net volumetric flow rate of oil. First assign a formula ID # and report it in column 11 (for example, formula ID # "200"). In column 14, report the parameter "FOIL." In column 18, report formula code N-OIL. Report the formula in column 23. Since the flow of the consumed oil is determined by subtracting the return flow from the flow of oil from the source, the entry in column 23 would appear as follows:

Net Oil Flow Rate = S#(001-200) - S#(002-200)

Add another RT 520 to calculate the mass of oil consumed per hour. Assign and report a formula ID # (for example, formula ID # "201"). Report the parameter "OILM" in column 14. In the Table above, Equation D-3 is used to calculate the mass of oil consumed per hour from the volumetric flow of oil consumed. Report "D-3" in column

18. Report the actual formula in column 23. According to Appendix D, Equation D-3 is defined as follows:

$$OIL_{rate} = V_{oil-rate} \times D_{oil}$$

(Equation D-3)

Report the formula as it is defined in Equation D-3, replacing the variable for volumetric oil flow with the appropriate reference. In this example, the symbol F#(200) refers to the previously entered formula that calculated the volumetric flow of oil consumed. For formula ID #201, the entry in column 23 would appear as follows:

MASS_oil = F#(200) * DENSITY_oil

Please note that you do not have to replace the variable indicating the density of the oil, if this value is not a constant and it is not measured by a specific monitoring system component.

Example #5: Heat Input Rate Summation Formulas for Multiple Stacks. Assume that you have one unit (boiler 1) which has two multiple stacks (MS1 and MS2). Formula ID #100 calculates hourly heat input rate for MS1 and Formula ID #200 calculates hourly heat input rate for MS2.

You must calculate and report hourly heat input rate at the unit level. To do this, sum the heat input rates from the multiple stacks adjusted for stack operating time. In this example create RT 520 for Unit 1. Assign formula ID #102. Report the parameter "HI" for heat input rate. Report F-21C as the formula code. Your formula in column 23 would appear as follows:

HI_1 = (F#(100)*T_MS1 + (F#(200) * T_MS2)/T_1

F#(100) represents the heat input rate formula for multiple stack MS1; F#(200) represents the heat input rate formula for multiple stack MS2; T_MS1, T_MS2 and T_1 represent the operating times for multiple stacks 1 and 2 and Unit 1, respectively, and HI_1 represents the total heat input rate for Unit 1.

(12) **RT 530: Span Table**

RT 530 contains information on the span and range values associated with the continuous emission monitors installed a unit or stack and the time period in which these values are effective.

If you use a CEMS methodology you must include RT 530 for each parameter (e.g., NOX, SO2, CO2, O2, or FLOW) that is measured using CEMS. Note that for units that combust more than one type of fuel, the maximum potential concentration (MPC) and maximum potential emission rate (MER) values reported in RT 530 are based solely on the fuel that produces the highest pollutant concentration or emission rate. Therefore, if you elect to use one of the fuel-specific missing data options in § 75.33, 75.16(c)(3), or 75.17(d)(2), you must, in addition to reporting the "conventional" MPC or MER values in RT 530, report fuel-specific maximum potential values (one for each type of fuel), using RT 531.

For Appendix E units, use RT 530 to report the fuel-specific maximum potential NO_x emission rates (MERs) required for Appendix E missing data purposes. Report the MER for gas combustion using a parameter code of "GNOX". For oil combustion, report the MER using a parameter code of "ONOX".

Submit records for all spans in use at that unit or stack during the testing or reporting period. If the span value changes during the quarter, submit two RTs 530 for that parameter: one reflecting the span value prior to the change (with the date of the change in the deactivation date field) and one reflecting the new span value (with the date of the change in the activation date field).

If SO_2, NO_x, CO_2, or O_2 emission concentrations vary such that dual ranges are required (e.g., due to fuel switching or emission controls), provide separate RTs 530 for the low scale and high scale values.

If you elect to use a default high range value (200% of MPC for SO_2 or NO_x) instead of a dual range or separate high scale monitor for hours requiring high scale readings, submit both high scale and low scale span records, but in the high scale record, only report data in start columns 1 through 15, column 17 (the MPC), column 30 (the NO_x MER, if NO_x is the parameter), columns 68 and 74 (the activation date and hour of the default high range value), column 84 (indicator that default high range option is used), and column 85 (the default high range value of 200% of MPC).

Field Descriptions and Instructions

Parameter Monitored (10). Identify the parameter monitored at the unit or stack using the following uppercase codes:

CO2	CO_2 Concentration (%)
FLOW	Stack Flow (SCFH)
GNOX	NO_x MER for Gas Appendix E Missing Data Purposes
NOX	NO_x Concentration (ppm)
O2	O_2 Concentration (%)
ONOX	NO_x MER for Oil for Appendix E Missing Data Purposes
SO2	SO_2 Concentration (ppm) (ARP)

Scale (14). For SO_2, NO_x, CO_2, or O_2, report either "H" to indicate high scale or "L" to indicate low scale. Do not leave this field blank for these parameters.

There is only a single scale (H) of values for flow rate. Do not leave this field blank for flow.

Leave the scale blank for GNOX and ONOX records.

Method for Calculating MPC/MEC/MPF (15). For SO_2, NO_x, and flow, report the method used to determine the maximum potential (or expected) concentration (or flow rate) using the appropriate uppercase codes.

F	Formula (SO_2, flow rate, and low-scale NO_x only)
HD	Historical Data
TR	Test Results
TB	Table of Constants from Part 75 or Default Values from Part 75 (e.g., 800 ppm NO_x for coal-firing)

OL	Other Limit
GS	Low Scale Default for SO_2 for Gas Units
PL	NO_x MEC based on permit limit
ME	NO_x MPC based on manufacturer's estimate of uncontrolled emissions

If you use Equations A-1a or A-1b from Appendix A to Part 75 or historical data to determine maximum potential flow (MPF), submit documentation with your original hardcopy monitoring plan submission and retain the supporting information in your files.

Leave the method blank for O_2, GNOX, and ONOX records.

Table 25 summarizes the recommended methods for determining MPC/MEC/MPF.

MPC/MEC/MPF (17). For NO_x or SO_2, report either the maximum potential concentration (MPC) or the maximum expected concentration (MEC) in ppm, as follows. If a single, high-scale monitor range is used, report the MPC. For dual-span units, report the MPC in a high-scale RT 530 and report the MEC in a second, low-scale RT 530. This applies whether two monitor ranges are used or whether the default high range option is used.

For flow rate, report the maximum potential flow rate in units of standard cubic feet per hour (scfh) on a wet basis.

For CO_2, enter a default MPC value of 14.0% CO_2 for boilers and 6.0% CO_2 for turbines, unless the MPC is determined based on historical data (use a code of "TB" in column 15 if the default value is reported). If historical data are used (720 hours, minimum), report the highest %CO_2 value observed in the historical lookback period as the MPC.

For O_2 (for all units), leave this field blank.

For GNOX or ONOX records, report the NO_x concentration used to calculate NO_x MER.

Table 26
CRITERIA FOR MPC/MEC/MPF DETERMINATIONS

Parameter	Scale	Method Used to Determine MPC/MEC/MPF	Selection Criteria	Method Code
NO_x	High	800 or 1600 ppm, as applicable	For coal-fired units	TB
		400 ppm	For oil- or gas-fired units	TB
		2000 ppm	Cement kilns	TB
		500 ppm	Process heaters burning oil	TB
		200 ppm	Process heaters burning only gaseous fuels	TB
		Historical CEM Data	For initial determination or for changes in MPC as described in Section 2.1.2.5 of Appendix A	HD
		Other Constant Values from App. A, Tables 2-1 and 2-2	If historical data not available by boiler type and fuel	TB
		Test Results	If historical data not available	TR
		Other, including other State/federal requirements	As justified	OL
		Manufacturer's estimate of uncontrolled emissions	For initial MPC determination, principally for new units	ME
	Low	Equation A-2	For units with emission controls	F
		Historical CEM Data	For initial determination or for changes in MEC as described in Section 2.1.2.5 of Appendix A	HD
		Other, including other State/federal requirements	As justified	OL
		Test Results	If available	TR
		Permit limit	For initial MEC determination, principally for new units	PL
FLOW	N/A	Equation A-3a and Equation of Continuity*	Based on $\%CO_2$	F
		Equation A-3b and Equation of Continuity*	Based on $\%O_2$	F
		Historical Data	For changes in MPF, as described in Section 2.1.4.3 of Appendix A	HD
		Test Results	If available	TR
SO_2	High	Equation A-1a	Based on $\%CO_2$	F
		Equation A-1b	Based on $\%O_2$	F
		Historical CEM Data	For initial determination or for changes in MPC as described in Section 2.1.1.5 of Appendix A	HD

(cont.)

Table 26
CRITERIA FOR MPC/MEC/MPF DETERMINATIONS (cont.)

Parameter	Scale	Method Used to Determine MPC/MEC/MPF	Selection Criteria	Method Code
		Test Results	If available	TR
		Other, including other State/federal requirements	As justified	OL
	Low	Equation A-2	For units with emission controls	F
		Historical CEM Data	For initial determination or for changes in MEC as described in Section 2.1.1.5 of Appendix A	HD
		≤200 ppm (span value)	For units burning only very low sulfur fuel (as defined in § 72.2)	GS
		Other, including other State/federal requirements	As justified	OL

* The maximum potential flow rate (MPF) is calculated using the Equation of Continuity: MPF = 60 x MPV x A_s. In this equation, MPV is the maximum potential velocity (from Equation A-3a or A-3b or from test results), in units of wet, standard feet per minute, and A_s is the cross-sectional area of the stack at the flow monitor location.

Maximum Potential NO_x Emission Rate (30). If you use a NO_x emission rate CEMS you must calculate and report a maximum potential NO_x emission rate (MER), based on the MPC value for each unit or stack for use with missing data procedures. Also report the fuel-specific NO_x MER values in GNOX and ONOX records for use with Appendix E.

Calculate NO_x MER on a unit or stack basis by using one of the following formulas and values.

$$E = K \times C_d \times F_d \times \frac{20.9}{20.9 - \%O_{2_d}}$$

(Equation F-5)
Where:

C_d = NO_x concentration (dry) (use MPC as reported in column 17)
F_d (dscf/mmBtu) = Dry basis F-factor used for the unit in RTs 520
$\%O_{2_d}$ = Maximum oxygen concentration during normal operating conditions, <u>or</u> use the diluent cap value of 14.0% O_2 for boilers and 19.0% O_2 for turbines <u>or</u> if MPC is derived from historical data, you may use the O_2 reading recorded at the hour of the MPC

$$E = K \times C_w \times F_c \times \frac{100}{\%CO_{2_w}}$$

(Equation F-6)
Where:

C_w = NO_x concentration (wet) (use MPC as reported in column 17)

F_c (scf CO_2/mmBtu)	=	Carbon-based F-factor used for the unit in RTs 520
$\%CO_{2_w}$	=	Minimum carbon dioxide concentration during normal operating conditions, <u>or</u> use the diluent cap value of 5.0% CO_2 for boilers and 1.0% CO_2 for turbines <u>or</u> if MPC is derived from historical data, you may use the CO_2 reading recorded at the hour of the MPC

Please note that for NO_x MER calculated using an F-6 equation you should use the <u>minimum</u> $\%CO_2$ value or for an F-5 equation the <u>maximum</u> $\%O_2$ value (under normal operating conditions). Alternatively, the appropriate diluent cap value may be used in the MER calculation or, if the MPC is derived from historical CEM data, you may use the diluent gas concentration recorded at the hour of the MPC.

Report maximum NO_x emission rate only for high-scale NO_x span, ONOX and GNOX records. In all other RTs 530 leave this field blank.

Span Value in Units of Daily Calibration (36). Report the span value determined according to the requirements of Part 75. If you are using a default high range value for SO_2 or NO_x, leave this field blank in the high scale RT 530.

For SO_2 and NO_x, high-scale span values must be between 100% and 125% of the maximum potential concentration, rounded up to the next highest multiple of 100 ppm (or rounded up to the next 10 ppm if 125% of MPC is less than 500 ppm). Low-scale span values must be between 100% and 125% of MEC, rounded upward to the next highest multiple of 10 ppm.

For flow rate, the span value in column 36 is the calibration span value and must be reported in the units used for daily calibrations. To determine the calibration span value for monitors that are not calibrated in units of inches of H_2O, first convert the maximum potential velocity (MPV) from units of wet standard feet per minute (wsfpm) to the units used for daily calibration. Multiply the result by a factor no less than 1.00 and no more than 1.25 and round up, retaining at least two significant figures.

For DP-type flow monitors that are calibrated in units of inches of H_2O, select a value between 100% and 125% of the MPV. Then convert that value from units of wsfpm to units of wet actual feet per second (wafps). Then use Equation 2-9 in EPA Reference Method 2 (40 CFR 60, Appendix A) to convert the actual velocity to an equivalent delta-P value in inches of H_2O. Retain at least two decimal places in the delta-P value. In performing these calculations, the values of stack temperature, stack pressure, stack gas molecular weight and the pitot tube coefficient may be estimated based on the results of previous emission testing.

For CO_2 and O_2, report the appropriate percentage, to the nearest $1\%CO_2$ or O_2, not ppm.

Full Scale Range in Units of Daily Calibration (49). For SO_2, NO_x, CO_2, O_2, and flow rate, report the full-scale range in the units used for daily calibrations. Select the range such that the majority of the readings obtained during normal operation of the monitor are between 20 and 80 percent of full-scale. See Section 2.1 of Appendix A to Part 75 for allowable exceptions to this guideline. The full-scale range must be greater than or equal

to the span value. If you are using a default high range value for SO_2 or NO_x, leave this field blank in the high scale RT 530.

Daily Calibration Units of Measure (62). Report the units of calibration span value in column 36. For SO_2 and NO_x, report "PPM." For CO_2 or O_2, report "%." For flow, report one of the following uppercase codes to indicate the units used to report and perform daily calibrations based on span. If you are using a default high range value for SO_2 or NO_x, leave this field blank in the high scale RT 530.

ACFH	Actual Cubic Feet Per Hour
ACFM	Actual Cubic Feet Per Minute
AFPM	Actual Feet Per Minute
INH2O	Inches of Water
KACFH	Thousand Actual Cubic Feet Per Hour
KACFM	Thousand Actual Cubic Feet Per Minute
KAFPM	Thousand Actual Feet Per Minute
KSCFH	Thousand Standard Cubic Feet Per Hour
KSCFM	Thousand Standard Cubic Feet Per Minute
KSFPM	Thousand Standard Feet Per Minute
MACFH	Million Actual Cubic Feet Per Hour
MSCFH	Million Standard Cubic Feet Per Hour
SCFH	Standard Cubic Feet Per Hour
SCFM	Standard Cubic Feet Per Minute
SFPM	Standard Feet Per Minute
AMSEC	Actual Meters Per Second
SMSEC	Standard Meters Per Second

Span Effective Date and Hour (68, 74). Report the date and time that the current span value (i.e., the value in column 36) was first used to test the CEMS or to measure emissions. For the initial certification of a monitoring system, this means that the span effective date will precede the date of provisional certification--except when the conditional data validation procedures of § 75.20 (b)(3) are applied to initial certification. If you have elected to use a default high range value for SO_2 or NO_x, report the date on which the default high range was implemented in the DAHS.

Span Inactivation Date and Hour (76, 82). Leave these fields blank unless a span change was made during the reporting quarter. If the span value has been changed, submit two RTs 530.

In the first RT 530, report the last date and hour that the previous span value was used. If you have discontinued the use of a default high range value for SO_2 or NO_x in favor of using a span value, report in the first RT 530 the last date and hour on which the default high range was in use.

In the second RT 530, report the date and hour on which the new span value became effective. If you are changing from a span value to a default high range value for SO_2 or NO_x, report the date and hour on which the default high range was implemented in the DAHS.

Dual Spans Required (84). For SO_2, NO_x, CO_2, or O_2, if a dual range analyzer is required, indicate this and/or the monitoring approach used for the secondary scale, using one of the following uppercase codes:

D	Two CEMS Ranges Installed
O	Dual Range Required/Use of Optional Default High Range Value Elected (SO_2 and NO_x only)

If you elect to install and operate two CEMS ranges, include code D in both the high and low scale records for the parameter. If you elect to use a default high range value for all hours in which a high range SO_2 or NO_x CEM would be required, indicate this by reporting the letter "O" in column 84 for both the high and low scale records for the parameter.

Default High Range Value (85). Report the actual default value in this field in the high scale record for the parameter if you report code "O" in column 84. The default high range value must be 200% of the maximum potential concentration reported in column 17. Report this value only in the high scale record for the parameter.

For the parameters CO2, O2, FLOW, GNOX, or ONOX leave this field blank.

Flow Rate Span Value in SCFH (90). For the parameter FLOW, report the flow rate span value, which is the product of the MPF (from column 17) and a factor no less than 1.00 and no greater than 1.25. This factor must be the same one that was used to determine the calibration span value. Round the flow rate span value upward to the next highest 1000 scfh.

Flow Rate Full Scale Value in SCFH (99). For the parameter FLOW, report the actual full-scale range value expressed in units of scfh. The flow rate full-scale range value must be greater than or equal to the flow rate span value.

(13) **RT 531: Maximums, Minimums, Defaults, and Constants**

Submit RT 531 to register various maximum values, minimum values, defaults and constants which are used in the Part 75 emissions and heat input calculations or in the missing data routines. Submit one record for each fuel type and parameter combination to define the applicable emission factor, moisture content, maximum potential value, or diluent cap to be used as described below.

Situations Requiring Submission of RT 531

Use RT 531 to provide the following information:

- Fuel-specific maximum potential SO_2 or NO_x concentrations (MPCs), maximum potential NO_x emission rates (MERs), or maximum potential flow rates (MPFs), for units using fuel-specific CEMS missing data option under § 75.33.

- Fuel-specific maximum potential SO_2 or NO_x concentrations or maximum potential NO_x emission rates, for units with add-on emission controls and unmonitored bypass stacks, if

the fuel-specific MPC or MER is reported during hours when the flue gases are routed through the bypass stack (see §§ 75.16 (c)(3) and 75.17 (d)(2)).

- Generic defaults for NO_x, SO_2, and CO_2 emission rates (lb/mmBtu) for low mass emissions units.

- Fuel and unit-specific NO_x, SO_2, and CO_2 emission rate defaults for low mass emissions (LME) units.

- Generic NO_x emission rate defaults for low mass emissions units with NO_x controls. Use this value when the controls are not operating.

- Default values used to define maximum rated hourly heat input rate (mmBtu/hr) used by a low mass emissions unit. This must be the same value reported in column 13 of RT 504.

- Default moisture values from § 75.11(b), used to estimate stack moisture content for wood or coal-fired units.

- Site-specific default moisture percentages, approved by petition under § 75.66.

- Default SO_2 emission rates for gaseous fuel combustion, for units with SO_2 monitors which use Equation F-23 and either 0.0006 lb/mmBtu (for pipeline natural gas) or (for natural gas or "other" gaseous fuel) a site-specific default SO_2 emission rate, calculated using Equation D-1h, to determine SO_2 mass emissions (see § 75.11(e)(1)).

- Diluent cap value based on boiler type (required only if you use the cap value for data reporting).

- Maximum or minimum potential moisture percentage (required only if you monitor moisture continuously or use a moisture look-up table). Use for missing data purposes.

- Minimum potential O_2 used for missing data purposes.

- Default minimum fuel flow rate (see Part 75 Policy Manual Question 25.21).

Situations Not Requiring Submission of RT 531

Do <u>not</u> use RT 531 for the following information:

- Values for CO_2 or O_2 used to calculate the maximum potential velocity (MPV), which is used to determine the flow rate span value. Submit the information to support flow span calculations in hardcopy with the initial monitoring plan (and store on site). Do not report this information electronically in the EDR.

- Maximum potential NO_x emission rate (MER) values for oil and gas combustion, for Appendix E units (these MER values are defined in RT 530, using "GNOX" and "ONOX" parameters).

- Values used during hours of scale exceedances (unless required by the State).

- Maximum oil and gas fuel flow rate (already defined in RT 540).
- Maximum potential (or maximum expected) SO_2, NO_x, CO_2, or flow rate values, for units using the standard (*non-fuel-specific*) CEMS missing data routines in § 75.33. (These maximum potential and expected values are defined in RT 530.)
- Default high range value for SO_2 or NO_x (already defined in RT 530).
- Default SO_2 emission rates for Acid Rain Program units that use Appendix D to account for SO_2 mass emissions from the combustion of gaseous fuel. For these units, report the default SO_2 emission rates in RT 314.
- Appendix D density and GCV values for oil and gas. These values are defined in RTs 302 and 303.

Field Descriptions and Instructions

Parameter (10). Report the parameter for which a default or maximum value is defined in the record using the following uppercase codes:

Low Mass Emissions Parameters

CO2G	CO_2 Default Emission Factor, from Table 31 (lb/mmBtu)
MHHI	Maximum Rated Hourly Heat Input Rate (mmBtu/hr)
NOXG	NO_x Default Emission Factor, from Table 29 (lb/mmBtu)
NOXU	Fuel and Unit-specific NO_x Emission Rate (lb/mmBtu)
SO2G	SO_2 Default Emission Factor, from Table 30 (lb/mmBtu)
SO2U	Fuel and Unit-specific SO_2 Default Emission Factor, for Combustion of "Other" Gaseous Fuel, Calculated Using Equation D-1h (lb/mmBtu)
CO2U	Fuel and Unit-specific CO_2 Default Emission Factor, for Combustion of "Other" Gaseous Fuel (ton/mmBtu)

Note: Report "NOXU" in the following cases: (1) for fuel-and-unit specific NO_x emission rates obtained by testing; and (2) for the maximum potential NO_x emission rate, if that value is reported in the interval from the first hour of use of the LME methodology until the hour of completion of fuel-and-unit specific NO_x emission rate testing (see § 75.19 (a)(4)).

Moisture Default Parameter

H2O	Hourly Percent Moisture Content(% H2O)

Diluent Cap Parameter

O2X	Maximum % Oxygen
CO2M	Minimum % CO2

SO_2 Emission Rate Parameters for Gaseous Fuels

SO2G	SO_2 Generic Default Emission Factor for Pipeline Natural Gas (lb/mmBtu)
SO2U	Fuel and Unit-Specific Default Emission Factor for Natural Gas or for "Other" Gaseous Fuel, Calculated Using Equation D-1h (lb/mmBtu)

Note: The above parameters apply only to units with installed SO_2 monitors, if Equation F-23 is used to quantify SO_2 mass emissions during hours when only gaseous fuel is combusted (see § 75.11 (e)(1)).

Other Parameters (Subject to EPA Approval of Petition)

MNHI	Minimum Heat Input Rate (mmBtu/hr)
MNNX	Minimum NO_x Emission Rate (lb/mmBtu)

Other Parameters (Not Subject to EPA Approval of Petition)

MNOF	Minimum Oil Flow Rate
MNGF	Minimum Gas Flow Rate

Missing Data or Maximum for Unmonitored Bypass Stack

H2OM	Minimum Potential % Moisture
H2OX	Maximum Potential % Moisture
O2M	Minimum Potential % Oxygen
SO2X	Fuel-Specific Maximum Potential SO_2 Concentration (ppm)
NOCX	Fuel-Specific Maximum Potential NO_x Concentration (ppm)
NORX	Fuel-Specific Maximum Potential NO_x Emission Rate (lb/mmBtu)
FLOX	Fuel-Specific Maximum Potential Flow Rate (scfh)

Value of Default, Maximum, Minimum, or Constant (14). Report the value to be used to the number of decimal places consistent with the EDR.

If the parameter is "SO2G" or "SO2U", leave the field blank and report the SO_2 default in column 65. Column 65 contains the proper number of decimal places (4) for reporting default SO_2 emission rates for gaseous fuels, whereas this field does not.

For a CO_2 diluent cap value, report 5.0% for a boiler or 1.0% for a combustion turbine. For an O_2 diluent cap value, report 14.0% for a boiler or 19.0% for a turbine.

For the maximum potential moisture percentage, report the site-specific value derived from 720 or more hours of historical data. For the minimum potential moisture percentage, either report a default value of 3.0% H_2O or a site-specific value obtained from 720 or more hours of historical data.

Tables 27 and 28 provide the fuel-specific moisture default values for coal-fired and wood-burning units. Table 27 provides minimum default moisture values that are used in all emission and heat input rate calculations requiring moisture corrections, except for calculation of NO_x emission rates using Equation 19-3, 19-4, or 19-8 from EPA Method

19 in Appendix A to 40 CFR 60. If Equation 19-3, 19-4, or 19-8 is used to calculate NO_x emission rate, use the appropriate maximum default moisture value from Table 28.

Table 27
FUEL-SPECIFIC MINIMUM DEFAULT MOISTURE VALUES FOR SO_2, NO_X OR HEAT INPUT RATE CALCULATIONS

Fuel	Minimum Moisture Default Value
Anthracite Coal	3.0%
Bituminous Coal	6.0%
Sub-bituminous Coal	8.0%
Lignite Coal	11.0%
Wood	13.0%

Table 28
FUEL-SPECIFIC MAXIMUM DEFAULT MOISTURE VALUES FOR NO_X EMISSION RATE CALCULATIONS

Fuel	Maximum Moisture Default Value
Anthracite Coal	5.0%
Bituminous Coal	8.0%
Sub-bituminous Coal	12.0%
Lignite Coal	13.0%
Wood	15.0%

Table 29 contains the NO_x emission factors for qualifying low mass emissions units, which are based on the boiler type (as reported in RT 504) and the primary fuel combusted. Unit and fuel-specific NO_x emission rates may be determined for low mass emissions units by emission testing, in lieu of using the defaults in Table 29.

Table 29
NO_x EMISSION FACTORS (LB/MMBTU)
FOR LOW MASS EMISSIONS UNITS

Boiler Type	Fuel Type	
Turbine	Gas	0.7
	Oil	1.2
Boiler	Gas	1.5
	Oil	2

Table 30 contains the Part 75 SO_2 emission factors for low mass emissions units which are based only on the primary fuel combusted.

Table 30
SO_2 EMISSION FACTORS (LB/MMBTU)
FOR LOW MASS EMISSIONS UNITS

Fuel Type	
Pipeline Natural Gas (as defined in § 72.2)	0.0006
Natural Gas	0.06
Residual Oil or Other Oil	2.1
Diesel Fuel	0.5

Table 31 contains fuel-specific CO_2 emission factors for low mass emissions units.

Table 31
CO_2 EMISSION FACTORS (TON/MMBTU)
FOR LOW MASS EMISSIONS UNITS

Fuel Type	CO_2 Emission Factors
Natural Gas	0.059
Oil	0.081

Units of Measure (27). Identify the units of the default value using the uppercase codes in Table 32 below.

Table 32
UNITS OF MEASURE CODES BY PARAMETER

Code	Description	Parameter (Col 10)
%H2O	Percent Moisture	H2O, H2OM, H2OX
LBMMBTU	Pounds Per Million Btu	MNNX, NOXG, NOXU, SO2G, SO2U, NORX
MMBTUHR	Million Btu Per Hour	MHHI, MNHI
TNMMBTU	Tons Per Million Btu	CO2G, CO2U
%CO2	Percent CO_2	CO2M
%O2	Percent O_2	O2X, O2M
SCFH	Standard Cubic Feet Per Hour	MNOF, FLOX
PPM	Parts per million	SO2X, NOCX
GALHR	Gallons of Oil Per Hour	MNOF
BBLHR	Barrels of Oil Per Hour	MNOF
M3HR	Cubic Meters of Oil Per Hour	MNOF
LBHR	Pounds of Oil Per Hour	MNOF
HSCF	Hundred SCF of Gas Per Hour	MNGF

Purpose or Intended Use (34). Identify the purpose or intended use of the value for reporting and emissions measurement using the following uppercase codes:

DC Diluent Cap Value
DM Default Minimum Fuel Flow Rate
F23 SO_2 Emission Rate Default for Use in Equation F-23
LM Low Mass Emissions Unit Default
LMB Low Mass Emission Unit Default for Base Load Hours
LMP Low Mass Emissions Default for Peak Load Hours
MD Missing Data (including maximum values reported for unmonitored by pass stack hours)
PM Primary Measurement Methodology

Use the codes LMB and LMP only for Low Mass Emissions units required to report separate rates for base load and peak load hours (See §75.19(c)(1)(iv)(c)(9)).

Type of Fuel (37). Identify the type of fuel associated with the default using one of the following uppercase codes.

For maximum rated heat input rate, maximum or minimum potential moisture or O_2 values, or diluent cap values, report "NFS."

Types of Fuel for Defining LME Defaults

BFG	Blast Furnace Gas
BUT	Butane (if measured as a gas)
CDG	Coal Derived Gas
COG	Coke Oven Gas
DGG	Digester Gas
DSL	Diesel Oil
LFG	Landfill Gas
LPG	Liquefied Petroleum Gas (if measured as a gas)
NFS	Non-fuel Specific (for MHHI)
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
PDG	Producer Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRP	Propane (if measured as a gas)
RFG	Refinery Gas
SRG	Unrefined Sour Gas

Types of Fuel for Defining Moisture Defaults for ARP and Subpart H Units

ANT	Anthracite Coal
BT	Bituminous Coal
CRF	Coal Refuse (culm or gob)
LIG	Lignite
SUB	Sub-bituminous Coal
W	Wood

Types of Fuel for SO_2 Emission Rate Default for Use in Equation F-23

NNG	Natural Gas
PNG	Pipeline Natural Gas

Types of Fuel for Fuel-Specific CEMS Missing Data

BFG	Blast Furnace Gas
BUT	Butane (if measured as a gas)
C	Coal
CDG	Coal Derived Gas
COG	Coke Oven Gas
COF	Co-fired Fuels
CRF	Coal Refuse (culm or gob)
DGG	Digester Gas
DSL	Diesel Oil
LFG	Landfill Gas
LPG	Liquefied Petroleum Gas (if measured as a gas)

NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
OSF	Other Solid Fuel
PDG	Producer Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRP	Propane (if measured as a gas)
PRS	Process Sludge
R	Refuse
RFG	Refinery Gas
SRG	Unrefined Sour Gas
W	Wood
WL	Waste Liquid

Types of Fuel for Fuel-Specific MPC or MER Reporting (Bypass Stack Operating Hours)

BFG	Blast Furnace Gas
BUT	Butane (if measured as a gas)
C	Coal
CDG	Coal Derived Gas
COG	Coke Oven Gas
CRF	Coal Refuse (culm or gob)
DGG	Digester Gas
DSL	Diesel Oil
LFG	Landfill Gas
LPG	Liquefied Petroleum Gas (if measured as a gas)
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
OSF	Other Solid Fuel
PDG	Producer Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRP	Propane (if measured as a gas)
PRS	Process Sludge
R	Refuse
RFG	Refinery Gas
SRG	Unrefined Sour Gas
W	Wood
WL	Waste Liquid

Indicator for Use for Controlled/Uncontrolled Hours (40). If the value is used only for controlled or uncontrolled hours, indicate this using a "C" or "U," as appropriate. If the use of the value is not related to the control status of the unit, report "A" for any hour.

Source of Value (41). Report the means of selecting or determining the Maximum, Minimum, or Constant value using the following uppercase codes for the parameters reported in column 10:

Code	Source of Value Description	Parameter
APP	Approved (Petition)	MNNX, MNHI, H2O
DATA	Historical or Other Relevant Data	O2M, H2OM, H2OX, FLOX, SO2X, NOCX, NORX, NOXU
DCPD	Diluent Cap Default from Part 75	CO2M, O2X
LME	Low Mass Emissions Generic Default Emission Factor	CO2G, SO2G, NOXG
MC	Moisture Constant from Part 75	H2O
NPC	Nameplate Capacity (heat input rate only)	MHHI
TEST	Unit/Stack Testing	NOXU, FLOX, SO2X, NOCX, NORX
SAMP	Fuel Sampling	SO2G, SO2U, CO2U, SO2X
CONT	Contract Maximum	SO2G
DEF	Default Value	SO2G, H2OM, H2OX, MNOF, MNGF, SO2X, NOCX, NORX

Note: Report code "DATA" in this field if you report the maximum potential NO_x emission rate in the interval from the first hour of use of the LME methodology until the hour of completion of fuel-and-unit specific NO_x emission rate testing (see § 75.19 (a)(4)).

Value Effective Date and Hour (45, 53). Report the date and hour on which you began use of this default for purposes of reporting data of any kind (i.e., certification test data or emissions data) for the program.

Value No Longer Effective Date and Hour (55, 63). Report the date and hour on which the value was changed or after which it will no longer be used. Submit a second RT 531 with an effective date and hour to report a new value.

For values currently in use, leave this date blank.

SO_2 Emission Factor (ARP) (65). For Acid Rain Program units that either: (a) use Equation F-23, as described in § 75.11 (e)(1); or (b) use the low mass emissions methodology in § 75.19 to quantify SO_2 mass emissions, report the SO_2 emission factor appropriate for the type of fuel combusted in the unit.

For Units Using Equation F-23:

- For pipeline natural gas combustion, report 0.0006 lb/mmBtu;
- For natural gas combustion, report the default SO_2 emission rate (lb/mmBtu) calculated using Equation D-1h;
- For "other" gaseous fuels that qualify under section 2.3.6 of Appendix D to use a default SO_2 emission rate, report the emission rate (lb/mmBtu), calculated using Equation D-1h.

For LME Units:

- Report the appropriate generic default SO_2 emission factor from Table 30, for fuel oil, pipeline natural gas, or natural gas.
- For "other" gaseous fuels, report the fuel and unit-specific SO_2 default emission rate derived from the 720-hour demonstration under section 2.3.6 of Appendix D.

For defaults not associated with SO_2 emission factors, leave this field blank.

(14) **RT 535: Unit and Stack Operating Load Data**

Report this record type for each unit, stack, or pipe at which load-based missing data procedures are applied, (i.e., for units, stacks, or pipes with installed flow monitors, and/or NO_x-diluent CEMS, and/or NO_x concentration CEMS, and/or fuel flowmeters). RT 535 establishes the maximum hourly operating load, which is used to create load ranges for missing data purposes for the load-based missing data procedures.

For units that do not produce electrical or steam load (e.g., cement kilns, refinery process heaters, etc.), RT 535 is required only if the owner or operator of the unit has, according to section 6.5.2 (e) of Appendix A, provided a technical justification in the monitoring plan for an exemption from 3-load flow RATA testing, and the justification is found to be acceptable by the permitting authority.

Field Descriptions and Instructions

Unit/Stack/Pipe ID (4). Submit one RT 535 for each unit ID, common stack ID, multiple stack ID, common pipe ID, and multiple pipe ID at which load-based missing data procedures are applied (whether for stack flow rate, NO_x emission rate, NO_x concentration or fuel flow rate).

Load Units (10). Identify the type of load information reported in this record using one of the following uppercase codes:

MW	Electrical Capacity (in megawatts)
ST	Steam (in units of 1000 lbs/hr)

For units that do not produce electrical or steam load, leave this field blank.

Maximum Hourly Gross Load (12). Define the maximum load associated with the unit, stack or pipe at full capacity.

For boilers (including units with multiple stack exhaust configurations), this value is based on one of the following: (1) the nameplate capacity; (2) the nameplate capacity as derated; or (3) a value higher than nameplate, if the unit or stack historically operates at levels exceeding nameplate.

For common stack (or common pipe) configurations, the maximum load will be the highest sustainable combined operating load for the units serving the common stack (or pipe).

For multiple stack (or pipe) configurations, report one RT 535 for each stack (or pipe), indicating the maximum hourly gross load for the associated unit in column 12 of each record.

For combustion turbines, determine the maximum hourly gross load according to the guidelines in Question 18.7 in the Part 75 Policy Manual.

For units that do not produce electrical or steam load, leave this field blank.

Reserved (18). This field, which was previously used only by units in the OTC NO_x Budget Program, has been reserved.

Exemption From Three-Level Flow RATAs (19). For peaking units and bypass stacks, which qualify for an exemption from performing 3-load flow RATAs without any special petition or justification (only single-load flow RATAs are required), report one of the following uppercase codes to indicate the basis on which you qualify:

B	Bypass Stack
P	Peaking Unit

For units that receive an exemption from 3-level flow RATA testing based on an approved petition under § 75.66 or (for non load-based units) based on acceptance by the permitting authority of a technical justification provided in the monitoring plan, report one of the following codes:

S	Only single-level flow RATAs are required, based on EPA or State approval of a petition or technical justification
2	Two-level flow RATAs are required for initial certification, recertification and routine quality-assurance, based on EPA or State approval of a petition or technical justification

If you must routinely perform multi-load RATA testing for flow or, if this field is not applicable (because there are no flow monitoring systems at the unit or stack), leave this field blank.

Also leave this field blank if, in a particular calendar year, you qualify for a single-load flow RATA under Part 75 because the unit has operated at a single load level for ≥ 85.0% of the time since the last annual flow RATA. You must use RT 695 to claim the exemption from multi-load flow testing for that year.

Leave this field blank for common pipe (CP) and multiple pipe (MP) configurations.

(15) **RT 536: Range of Operation and Normal Operating Load or Level**

Submit RT 536 in each quarterly report for each unit, multiple stack or common stack with installed CEMS. For a peaking unit, fill in columns 1 through 21 only.

Also submit RT 536 (columns 1 through 21, only) in each quarterly report for a unit, common pipe or multiple pipe, if the optional quarterly fuel flow-to-load test in Section 2.1.7 of Appendix D to Part 75 is used to quality assure a fuel flowmeter installed at the unit or pipe location.

RT 536 defines the upper and lower boundaries of the "range of operation" for the unit (or units, for a common stack or pipe). For units that produce electrical or steam load, the range of operation extends from the minimum safe, stable operating load to the maximum sustainable load, and provides the basis for defining the low, mid, and high operating load levels. For non load-based units (e.g., cement kilns, refinery process heaters, etc.), the range of operation extends from the minimum potential stack gas velocity, in ft/sec (or, alternatively, from 0.0 ft/sec) to the maximum potential velocity.

RT 536 is also used to report the results of an analysis of historical load data for the unit or stack, as described in Part 75 (see Section 6.5.2.1(c) of Appendix A). The results of the historical load data analysis provide the basis for: (1) defining the normal operating load level (or levels) for the unit or stack; (2) determining the two appropriate load levels at which to conduct annual 2-load flow RATAs; (3) determining, for multi-load flow RATAs, the two appropriate load levels at which to calculate bias adjustment factors, when a normal load bias test is failed; and (4) determining the appropriate load level at which to conduct the quarterly flow-to-load ratio test. Note that for peaking units, the historical load data analysis is not required.

Non load-based units are exempted from the historical load data analysis in section 6.5.2.1 (c) of Appendix A. For these units, the most frequently-used operating levels and the normal operating level(s) are determined by the owner or operator, using sound engineering judgment, based on operating experience with the unit and knowledge of the industrial process.

For new or newly-affected units, in the initial monitoring plan submittal, use the best available estimates of the upper and lower boundaries of the range of operation and determine the normal load (or operating level) and the two most frequently-used load (or operating) levels based on the anticipated manner of operating the unit. Report the date of submittal of the initial monitoring plan or the date on which commercial operation of the unit begins (whichever is earlier) as the activation date in column 27.

Update the information in RT 536 when the manner of operating the unit(s) changes significantly and a new historical load data analysis is performed (or, for non load-based units, a new engineering assessment is made) which shows that the normal load(s) (or operating levels) and/or the two most frequently-used load (or operating) levels have also changed. In that case, submit two RTs 536 for the quarter in which the new data analysis (or, for non load-based units, the new engineering assessment) was performed, (i.e., one RT 536 to inactivate the results of the previous load data analysis or engineering

assessment and one RT 536 to activate the results of the new load data analysis or engineering assessment).

Field Descriptions and Instructions

Upper Boundary of Range of Operation (10). For units that produce electrical or steam load, report the upper boundary of the range of operation, either in units of megawatts or 1000 lb/hr of steam, as appropriate. The upper boundary of the range of operation must be equal to or less than the maximum hourly gross load reported in column 12 of RT 535.

For single units (including units that have a multiple stack exhaust configuration), report the maximum sustainable load, which is the higher of: (1) the nameplate capacity of the unit (less any physical or regulatory deratings); or (2) the highest sustainable load, based on a minimum of four representative quarters of historical operating data.

For a common stack (or pipe), report the sum of the maximum sustainable loads of all units using the stack (or pipe) as the upper boundary of the range of operation. If that combined load is unattainable in practice, report the highest sustainable combined load, based on a minimum of four representative quarters of historical operating data.

For a multiple stack (or pipe) configuration, report one RT 536 for each stack (or pipe), indicating the maximum sustainable load for the associated unit in column 10 of each record.

For non load-based units, report the upper boundary of the range of operation in terms of stack gas velocity (ft/sec), as described in section 6.5.2.1(a) of Appendix A.

Lower Boundary of Range of Operation (16). For units that produce electrical or steam load, report the lower boundary of the range of operation, either in units of megawatts or 1000 lb/hr of steam, as appropriate.

For single units (including units that have a multiple stack exhaust configuration), report the minimum safe, sustainable load for the unit.

For a common stack (or pipe), report the lowest safe, sustainable load for any of the units using the stack (or pipe) as the lower boundary of the range of operation. Alternatively, for frequently operated units discharging to a common stack (or using a common pipe), you may report the sum of the minimum safe, stable loads of the units serving the common stack (or pipe) as the lower boundary of the operating range.

For a multiple stack (or pipe) configuration, report one RT 536 for each stack (or pipe), indicating the minimum safe, stable load for the associated unit in column 16 of each record.

For non load-based units, report the lower boundary of the range of operation in terms of stack gas velocity (ft/sec), as described in section 6.5.2.1(a) of Appendix A.

Two Most Frequently-used Load or Operating Levels (22). Based on the results of the historical load data analysis described in section 6.5.2.1(c) of Appendix A (for units that produce electrical or steam load), or, based on knowledge of the unit and operating experience with the industrial process (for non load-based units), report the two load (or operating) levels ("L," "M," or "H") that are used the most frequently. Separate the reported load (or operating) levels with a comma (i.e., "L,M"). For non load-based units that operate only at one level, report this operating level in column 22, and leave columns 23 and 24 blank.

For peaking units, leave this field blank.

Designated Normal Load or Operating Level (25). For units that produce electrical or steam load, based upon the results of the historical load data analysis described in section 6.5.2.1(c) of Appendix A, designate and report the most frequently-used load level ("L," "M," or "H") as the "normal" load level. For all SO_2, NO_x, and flow RATAs conducted at the designated normal load, a bias test is required.

For non load-based units, designate the normal operating level based on knowledge of the unit and operating experience with the industrial process.

For peaking units, leave this field blank.

Second Designated Normal Load or Operating Level (Optional) (26). For units that produce electrical or steam load, based upon the results of the historical load data analysis, you may elect to designate and report the second most frequently-used load level as an additional normal load level. If you select this option, perform a bias test for all SO_2, NO_x, and flow RATAs conducted at this load level.

For non load-based units, you may designate a second normal operating level, based on knowledge of the unit and operating experience with the industrial process.

For peaking units, leave this field blank.

Date of Historical Load Data Analysis or Operating Level Determination (Activation Date) (27). For units that produce electrical or steam load, report the year, month and day of the historical load data analysis (see sections 6.5.2.1 (c) and (d) of Appendix A) that defines the range of operation, the two most frequently-used load levels, and the normal load level(s). There is one exception to this: for the initial load analysis at a particular unit or stack, report the activation date as the first day of the quarter in which the data analysis is performed (i.e., Jan 1, Apr 1, July 1 or Oct 1, as applicable), rather than the actual date of the analysis, unless the two dates are the same.

Once the operating range and normal load level(s) have been established, Part 75 does not require you to repeat the historical load analysis unless a significant change in the manner of unit operation occurs, which may result in a re-designation of the operating range and/or the normal load level(s) and/or the two most frequently-used load levels. At least two quarters of representative data are required to document that such a change in unit operation has occurred.

If, however, you elect to repeat the load analysis periodically, e.g., prior to each annual RATA, in order to confirm that nothing has changed (even though this is not required by the regulation), do not change the activation date unless the new data analysis shows that a re-designation of the operating range and/or the normal load and/or the two most frequently-used load levels is necessary.

For non load-based units, report the date on which the determination of the operating range, the most frequent operating level(s), and the normal operating level(s) is made.

For peaking units, leave this field blank.

Inactivation Date (35). For units that produce electrical or steam load, report an inactivation date only when a new historical load data analysis is performed which indicates that either the range of operation and/or the two most frequently-used load levels and/or the normal load level has changed. When this occurs, submit one RT 536 with the results of the previous load data analysis and report the inactivation date in this field. Submit a second RT 536 with the results of the new load data analysis, leaving this field blank. The inactivation date is the day before the activation date of the new RT 536, in column 27.

For non load-based units, report an inactivation date only when a change in the manner of unit or process operation results in a change in the operating range and/or the most frequently-used operating levels, and/or the designated normal operating level(s). Should this occur, submit two RT 536, one to inactivate the old information, and one to activate the new information, as described immediately above for load-based units.

If the operating range, the two most frequently-used load levels and the normal load level have not changed, leave this field blank.

For peaking units, leave this field blank.

(16) **RT 540: Fuel Flowmeter Data**

Report information on all fuel flowmeter systems in RT 540. Do not use this record to report data on individual components. Report one RT 540 for each GAS, OILV, OILM, LTOL, or LTGS system in RT 510, except as noted below.

For systems comprised of multiple fuel flowmeters using different methods of calibration, report multiple RTs 540 for the system, indicating the calibration method for each flowmeter in column 38 in the subsequent records. All information in the other fields of the multiple RTs 540 will be the same.

Field Descriptions and Instructions

Parameter Monitored (13). Report the parameter measured by the system using one of the following uppercase codes:

GAS	Gas System
LTGS	Long Term Gas Fuel Flow (LME)
LTOL	Long Term Oil Fuel Flow (LME)

OILV	Volumetric Oil Fuel Flow
OILM	Mass of Oil Fuel Flow

Type of Fuel (17). Report the type of fuel measured by the system using one of the following uppercase codes:

DSL	Diesel Oil
LPG	Liquefied Petroleum Gas (if measured as a gas)
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas

Maximum System Fuel Flow Rate (20). Report the maximum fuel flow rate for the system. This maximum fuel flow rate is needed for missing data purposes. If the system is comprised of main supply and return components, calculate the net system maximum fuel flow rate assuming that the main supply is operating at the maximum potential fuel flow rate, as defined in section 2.4.2.1 of Appendix D, and that the return flow rate is zero. For a combined cycle turbine with a duct burner, if the fuel flowmeter system includes both the turbine and duct burner flowmeter components, report the sum of the maximum potential fuel flow rates of the component flowmeters.

Units of Measure for Maximum Fuel Flow Rate (30). Report the units of measure for fuel flow rate provided by the system using one of the following uppercase codes:

<u>Volumetric Flow of Oil</u>

SCFH	Standard cubic feet per hour
GALHR	Gallons per hour
BBLHR	Barrels per hour
M3HR	Cubic meters per hour

<u>Mass of Oil</u>

LBHR	Pounds per hour

<u>Gas flow</u>

HSCF	100 standard cubic feet per hour

Source of Maximum Rate (35). Report either "URV" to indicate that the maximum rate is based on the upper range value, or "UMX" to indicate that the maximum rate is determined by the rate at which the unit can combust fuel.

Initial Accuracy Test Method (38). Identify the initial accuracy test methods for the fuel flow meters. If you use an accuracy test method other than those identified in Part 75, submit this information with your monitoring plan.

AGA3	Certification by Design, in Accordance with AGA Report No. 3
AGA7	Certification by Design, in Accordance with AGA Report No. 7
API	American Petroleum Institute Method Listed in Appendix D, Section 2.1.5.1
ASME	For any ASME Method Listed in Appendix D, Section 2.1.5.1
ILMM	In-line (on-site) Comparison Against a Master Meter
LCRM	Laboratory Comparison Against a Reference Meter
NIST	NIST-traceable Method, Approved by Petition Under § 75.66
ISO	International Organization for Standardization Method Listed in Appendix D, Section 2.1.5.1

For uncertified billing meters, you may leave this field blank.

Ongoing Calibration Method [Reserved] (49). This field has been reserved. Leave this field blank.

Submission Status (60). Report "A" when adding a new entry, "C" when correcting a previous entry, "D" when deleting a previous entry, or "U" when resubmitting an unchanged entry.

(17) RT 550: Reasons for Monitoring System Downtime or Missing Parameter (Optional)

Report this record type to identify the reasons for any periods in which data are missing or unavailable during the reporting period. If more than one reason is relevant because there are primary and backup monitoring systems installed and certified, report multiple RTs 550, one for each system. This record is optional beginning in the first quarter following the effective date of the 1999 Part 75 rule revisions.

Field Descriptions and Instructions

Parameter (10). For each record identify the parameter for which data are missing using the following codes:

CO2	CO_2 Concentration
FLOW	Stack Flow
GAS	Gas
H2O	Moisture
NOX	NO_x Emission Rate
NOXC	NO_x Concentration
O2	O_2 Concentration
OILM	Mass of Oil
OILV	Volumetric Flow of Oil
SO2	SO_2 Concentration

Do not leave this field blank.

Monitoring System ID (14). Report the monitoring system ID for the system that was not able to provide data. Do not report the component ID in this field, even if the problem

is caused by a specific component in the system. If a problem such as DAHS failure causes data from all primary and backup systems for a pollutant to be unavailable and you report the cause using Reason Code 1, 2, 3, 4, 5, or 6 in column 33, you may leave the monitoring system ID blank.

Begin Date and Hour of Missing Data Period (17, 23). Report the beginning date and hour of the missing data period.

End Date and Hour of Missing Data Period (25, 31). Report the end date and hour of the missing data period. Leave this field blank if the missing data period continued beyond the reporting date for this reporting period. Report the same RT 550 again with the actual end date and hour in the report for the reporting period in which this occurs.

Missing Data Reason Code (33). Use the following codes to categorize reasons for missing data.

1	DAHS Hardware Failure
2	DAHS Software Failure
3	DAHS Maintenance/Upgrade
4	PLC Hardware Failure
5	PLC Software Failure
6	PLC Maintenance/Upgrade
7	Out-of-Control: Calibration Test
8	Out-of-Control: Linearity Check
9	Out-of-Control: RATA
10	Monitor Off Line for Calibration
11	Monitor Off Line for Linearity Check
12	Routine Maintenance
13	Analyzer Failure
14	Probe Failure
15	Sample Transport System Failure
16	Erratic Analyzer Response
17	Electrical Failure
18	Lightning
19	Range Exceeded
20	QA/QC Activities
21	Fuel Flowmeter Failure
22	Out-of-control: Fuel Flowmeter Calibration
23	Sampling Failure
24	Sample Loss or Contamination
25	Interference Check Failure
26	Leak Check Failure
99	Other (Describe)

Do not leave this field blank.

Missing Data Description (35). If the reason code adequately characterizes the event, leave the reason description field blank. If you reported the missing data code as "99," you must describe the reason in this field.

Corrective Action Description (110). Provide a brief description of the actions taken to address the reason for the missing data.

Similarly, if the corrective action is self-evident (such as conducting a successful daily calibration), leave this field blank.

(18) **RT 555: Monitoring System Recertification Events (OTC NBP)**

RT 555 has been replaced by RT 556 for ARP or Subpart H units.

(19) **RT 556: Monitoring System Recertification, Maintenance, or Other Events**

In the normal course of maintaining and operating monitoring systems you may need to replace or repair various components or change the type of equipment or software installed to measure and report emissions. This may occur unexpectedly during normal operation or may be done according to a maintenance schedule or prior to scheduled quality assurance tests (e.g., linearity checks and RATAs). Diagnostic testing and in some instances certification or recertification testing is required when such repairs, component replacements, or equipment changes are made.

Use RT 556 to report certification, recertification and maintenance events and the status of any required certification, recertification, or diagnostic testing. Typical certification, recertification and maintenance events include:

- Replacement of an entire continuous emission monitoring system;
- Change-outs of analytical or other monitoring system components;
- DAHS vendor changes or software version upgrades;
- Changing of the polynomial coefficient(s) or K factor(s) of a flow monitor or moisture monitoring system;
- Modification to the flue gas handling system or unit operation that significantly changes the flow or concentration profile;
- Probe location change, for gas monitoring systems;
- Flow monitor location change; and
- Other system modifications that require one or more tests, as determined in accordance with the EPA policy or through consultation with EPA Regional Office and Headquarters staff.

RT 556 describes the particular certification, recertification or maintenance event, indicates which quality assurance tests are required, and (if applicable) defines any time period(s) during which the monitoring system was unable to provide quality-assured data, pending the outcome of the required

quality assurance tests. Data are considered quality-assured when all of the required QA tests have been successfully completed. When "conditional" data validation is used, it must be done in accordance with procedures in § 75.20(b)(3), prior to completing all of the required certification, recertification or diagnostic testing. Under § 75.20(b)(3), the conditionally valid data status begins when a probationary calibration error test is passed. If the required QA tests are then completed in a timely manner, with no failures, the conditionally valid data are considered to be quality-assured, back to the hour of completion of the probationary calibration error test.

Regarding recertifications, note that, with one exception (i.e., changing of the polynomial coefficient(s) or K factor(s) of a flow monitor or moisture monitoring system) the definition of a "recertification event" is limited to those non-routine changes to a monitoring system or process which require either: (1) RATA(s); (2) fuel flowmeter accuracy testing; (3) a full QA sequence of transmitter tests and primary element inspections (for orifice, nozzle and venturi-type fuel flowmeters); or (4) regeneration of an Appendix E NO_x correlation curve. Submittal of a formal recertification application is required only for recertification events.

Note that when a monitoring system is replaced, a new, unique system ID is assigned and the new system must be tested for certification. When an analyzer is replaced in a previously certified system, if a new system ID is assigned, this is also considered to be a certification event. If the old system ID is retained, it is considered to be a recertification event (see Part 75 Policy Manual Question 13.4 for further guidance).

Report RT 556 as follows:

- Whenever recertification testing or diagnostic testing is required as a result of changes made to a previously-certified monitoring system (or as the result of changes in the manner of operating the process).

- When a monitoring system is replaced with a new system (having a new system ID) and is tested for certification.

- When the conditional data validation procedures described in § 75.20(b)(3) are applied to the initial certification testing of the CEM systems on a new (or newly-affected) unit.

- When the conditional data validation procedures of § 75.20(b)(3) are used for a routine quality assurance RATA or linearity check (see Sections 2.2.3(b)(3) and 2.3.2(b)(3) of Appendix B).

- If a routine quality assurance test is done for the dual purposes of routine QA and recertification (see Part 75, Appendix B, Section 2.4).

- For the required linearity checks of non-redundant backup monitors and "like-kind replacement" analyzers, when these monitors are brought into service (see § 75.20(d)(2)(iii)).

- When the polynomial coefficients or K-factor(s) of a flow monitor or moisture monitoring system are changed, triggering an unscheduled RATA requirement.

- When a change from a non-CEMS-based monitoring methodology to a CEMS methodology occurs (e.g., changing from Appendix E to a CEMS for NO_x), and the conditional data validation procedures of § 75.20(b)(3) are applied during the CEMS certification process.

Do not report RT 556

- For the initial certification of the monitoring systems for a new unit or for a newly-affected unit, if the conditional data validation procedures described in § 75.20(b)(3) are not applied during the CEMS certification process.

- For the routine periodic quality assurance tests required under Appendices B, D, and E of Part 75, except when conditional data validation is used.

- If the only diagnostic test required for a particular event is a calibration error test.

- When a change from a CEMS-based monitoring methodology to a non-CEMS methodology occurs (e.g., switching from an SO_2 CEMS to Appendix D, or changing from a NO_x CEMS to Appendix E). In such cases, simply use RT 585 to indicate changes in monitoring methodology. However, if the opposite occurs, (i.e., changing from a non-CEMS-based methodology to CEMS), report RT 556 if the conditional data validation procedures of § 75.20(b)(3) are applied during the CEMS certification process.

RT 556 must provide a complete record of each certification, recertification or maintenance event, the tests required, the date(s) and time(s) of any out-of-control periods, and the date and time of successful completion of the required tests. If the time period extending from the hour of the change to the monitoring system to the hour of completion of the required tests spans two or more quarters, a RT 556 must be submitted in each successive quarterly report until closure is obtained. For instance, if a change made to a CEMS requires a RATA and the RATA is not completed by the end of the quarter in which the change to the system occurs, then, for that quarter, complete columns 1 through 30 of RT 556. If conditional data validation is used complete also columns 31 through 40 and 51. Leave columns 41 and 49 (date and hour of completion of required tests) blank. If the RATA is passed in the next quarter, submit RT 556 with the report for that quarter, containing the same information in columns 1 through 30 that was reported in the previous quarterly report. Then, to provide closure for this event, complete columns 41 and 49 of RT 556 and leave column 51 blank.

If, for a Subpart H unit, you submit electronic quarterly reports only for the ozone season (for the second and third calendar quarters (see § 75.74(c))), final resolution of all conditionally valid data recorded during the ozone season is required no later than the deadline for submitting the third quarter emissions report, either by using missing data substitution or by completing the required QA test(s). In some cases, resubmittal of the emissions report for the second quarter may be required to fully resolve conditionally valid data for the ozone season (see §§ 75.74(c)(3)(xi) and (xii)).

Field Descriptions and Instructions

Component ID (10). Report the component ID subject to recertification/diagnostic testing, if a specific component is involved. If the event is system, not component specific, leave this field blank.

Monitoring System ID (13). Report the monitoring system ID for the system affected by the event. Do not leave this field blank for any event codes except for 1, 2, 3 (DAHS recertification events), or 700 (LME changes). If a new monitoring system ID is assigned (e.g., when an entire monitoring system is replaced or when an analyzer in a previously certified monitoring system is replaced) report the new system ID number in this field.

Event Code (16). Report one of the following codes. If there is no applicable event code, use the code "99" for "Other" and provide a brief description of the event in RT 910.

1	DAHS Vendor Change
2	DAHS Version Upgrade
3	DAHS Failure
99	Other
100	Gas Analyzer Replacement
110	Gas Analyzer Probe Replacement
120	Gas Monitoring System Complete Replacement
125	Initial Certification (Gas Monitoring System)
130	Gas Monitoring System Probe Relocation
140	Temporary Use of a Like-kind Replacement Non-redundant Backup Analyzer
150	Temporary Use of a Regular Non-redundant Backup Monitoring System
160	Changes to the Mathematical Algorithm or K-factor(s) of a Moisture Monitoring System
170	Change to the Span Value of a Gas Monitor
180	Critical Orifice Replacement
200	For Gas and/or Flow CEMS, Modification to the Flue Gas Handling System or Unit Operation that Significantly Changes the Flow or Concentration Profile
300	Flow Monitor Complete Replacement
301	Changes to the Polynomial Coefficients or K-factor(s) of a Flow Monitor
302	Flow Monitor Transducer Replacement
305	Initial Certification (Flow Monitor)
310	Other Major Flow Monitor Component Replacement
311	Flow Monitor Relocation
312	Unresolved Flow-to-load or GHR Test Failure
400	Fuel Flowmeter Replacement
401	Fuel Flowmeter Transmitter/Transducer Replacement
402	Fuel Flowmeter Primary Element Replacement
410	Unresolved Fuel Flow-to-load or GHR Test Failure

501	For Appendix E Systems, Modifications to the Flue Gas Handling System or Unit Operation that Significantly Changes the Flow or Concentration Profile Requiring a Retest Under Appendix E to Part 75 to Re-establish the NO_x Correlation Curve
502	For Appendix E Units, Exceeding the Excess O_2 Level
503	For Appendix E Units, Exceeding the Water to Fuel or Steam to Fuel Rates
504	For Appendix E Units, Exceeding Other QA/QC Parameters
600	Opacity Monitor Complete Replacement
610	Opacity Monitor Transceiver Replacement
620	Opacity Monitor Transceiver Factory Rebuild
630	Opacity Monitor Relocation
700	For a Low Mass Emissions (LME) Unit, a Change to the Unit or to the Fuel Supply or Manner of Unit Operation, Requiring Redetermination of the Unit-specific, Fuel-specific NO_x Emission Rate

Code for Required Test (19). Report one of the following codes to designate which specific tests are required for the specific event which occurred.

1	3-load RATA, 7-day Calibration Error Test
2	Normal Load RATA, 7-day Calibration Error Test, Linearity Check, Cycle Time Test
3	3-load RATA, 7-day Calibration Error Test, DAHS Verification
4	Normal Load RATA, 7-day Calibration Error Test, Linearity Check, Cycle Time Test, DAHS Verification
5	Normal Load RATA
6	3-load Flow RATA
7	2-load Flow RATA
8	Normal Load RATA, Linearity Check
9	Linearity Check
10	Linearity Check, 7-day Calibration Error Test
12	Normal Load RATA, Linearity Check, Cycle Time Test
13	Normal Load RATA, 7-day Calibration Error Test, Cycle Time Test
14	7-day Calibration Error Test, Cycle Time Test
15	Normal Load RATA, 7-day Calibration Error Test
16	Normal Load RATA, Cycle Time Test
17	Linearity Check, Cycle Time Test
18	7-day Calibration Error Test
19	Cycle Time Test
20	DAHS Verification (Formulas)
21	DAHS Verification (Missing Data Routines)
22	DAHS Verification (Formulas and Missing Data)
23	DAHS Verification (Formulas and Missing Data), Daily Calibration Error Test
24	Off-line Calibration Demonstration
25	Off-line Calibration Demonstration, 7-day Calibration Error Test
26	Abbreviated Stack Flow-to-load Ratio Test

40	Angle of View, Angle of Projection, Mean Spectral Response, Response Time, Calibration Drift Test, Stack Exit Correction Factor
42	Stack Exit Correction Factor
51	Fuel Flowmeter Accuracy Test
52	Fuel Flowmeter Transmitter Test, Primary Element Inspection
53	Fuel Flowmeter Transmitter Test
54	Primary Fuel Flowmeter Element Inspection
55	Abbreviated Fuel Flow-to-load Test
75	Retest of the Appendix E NO_x Correlation Curve
76	Re-determination of the Unit-specific, Fuel-specific NO_x Emission Rate for a Low Mass Emissions (LME) Unit
99	Other (Note that Recertification Application May Be Required)

Date and Hour of Event (21, 29). Report (if applicable) the date and hour at which the monitoring system is deemed to be out-of-control (unable to provide quality-assured data) as a result of changes made to the system.

For DAHS upgrades and failures, report (if applicable) the date and hour when the monitoring system(s) associated with the DAHS are deemed out-of-control (unable to provide quality-assured data).

If there is no out-of-control period associated with a particular event, report in columns 21 and 29 the date and hour of the beginning of the event. This date and hour must precede the date and hour of commencement of the required diagnostic or recertification tests. Consider the following examples:

(1) For certifications and recertifications triggered by the replacement of a monitoring system or an analyzer, report in columns 21 and 29 the date and hour on which the replacement monitoring system or analyzer is first installed.

(2) For the initial certification of monitoring systems on new (or newly-affected) units, use the following guideline. Report a date and hour that predates, but is close in time to, the commencement date and hour of the certification testing. If you use the conditional data validation procedures of § 75.20(b)(3), the beginning date and hour of the certification event must precede the date and hour of the probationary calibration error test.

(3) When a DAHS is replaced or the DAHS software version is upgraded, and the old and new platforms or software versions are run in parallel (so that there may be a smooth transition from the old to the new, with no monitoring system out-of-control periods associated with the DAHS replacement or upgrade), report in columns 21 and 29 the date and hour at which the new DAHS platform or software version first begins to be run in parallel with the old platform or version. Submit the RT 556 with the electronic report for the calendar quarter in which data reporting with the new DAHS or upgraded software version begins.

Beginning of Conditionally Valid Period (Probationary Calibration Error Test) Date/Hour (31, 39). For gas CEMs or flow monitoring systems only, whenever you use the conditional data validation procedures of § 75.20(b)(3), report the date and hour that a

probationary calibration error test was successfully completed according to the provisions of § 75.20(b)(3). Data are conditionally valid from that date and hour until all required tests are passed, provided that all tests are passed in succession, within the allotted window of time, with no failures.

Note that in most instances, the allotted time for completing the required tests will be as specified in § 75.20(b)(3)(iv). However, for the initial certification of the CEMS installed on a new (or a newly affected) unit, the timelines in § 75.20(b)(3)(iv) are superseded by the certification window provided in the applicable regulation (e.g., the timeline specified in § 75.4(b) -- see also sections 6.2(a), 6.4(a), and 6.5(f)(1) in Part 75, Appendix A).

If the conditional data validation procedures in § 75.20(b)(3) are not used, leave these fields blank. Also, for excepted monitoring systems under Appendices D or E to Part 75, leave these columns blank.

Date and Hour That Last Test Is Successfully Completed (41, 49). Report the date and hour in which the last required certification, recertification or diagnostic test was successfully completed.

Leave these fields blank if the required tests have not been successfully completed by the end of the quarter.

Except for Subpart H units for which you report data on an ozone season-only basis, when the conditional data validation procedures of § 75.20(b)(3) are used and the required QA tests have not been completed successfully by the end of the quarter, leave the date and hour in columns 41 and 49 blank and report the emissions data from the monitoring system as conditionally valid, using the flag in column 51. For ozone season-only reporters, you may only use the conditional data flag in the second quarter emissions report.

Note that for year-round reporters, the final status of all conditionally valid data for each calendar year must be resolved in the annual compliance certification report required under § 72.90 (see § 75.20(b)(3)(ix)). For ozone season-only reporters, as previously noted above, resolution of all conditionally valid data is required by the deadline for submitting the third quarter emissions report.

If the required certification, recertification or diagnostic tests are successfully completed after the end of a particular quarter but before the quarterly report deadline, you may submit the results with the current quarterly report so that the use of a conditional data flag is unnecessary. In such cases, report in columns 41 and 49 the date and hour in which the last test is successfully completed, even though this date is after the end of the current reporting quarter.

If you complete the required tests in a subsequent quarter, submit a RT 556 in the electronic report for that quarter, to provide closure of the event. In columns 1 through 30 of this RT 556, report information identical to that reported in columns 1 through 30 of the original RT 556 for the event. In columns 41 and 49, indicate the date and hour of completion of the required tests, and leave column 51 blank.

For more information on reporting conditionally valid data, see Section III.D.

Indicator That Conditionally Valid Data Were Reported at End of Quarter (51). For gas or flow monitoring systems only, report a "C" if data from the monitoring systems are conditionally valid at the end of the quarter. This would occur if an event occurs and you performed a successful probationary calibration error test in the current quarter, but did not complete all of the required tests by either the end of the quarter or before the quarterly report deadline. Do not report a "C" if data that were conditionally valid during the quarter were then subsequently validated by the successful completion of all required tests. Ozone season-only reporters may not use this flag in the third quarter emissions report. Full resolution of all conditionally valid data recorded during the ozone season is required prior to submitting the third quarter report.

For excepted monitoring systems under Appendices D or E to Part 75, leave this column blank.

(20) **RT 560: Appendix E NO_x Correlation Curve Segments**

If you use Appendix E methodology to determine hourly NO_x emission rate for a unit, submit one set of RTs 560 for each fuel-specific correlation curve derived from the four-load emission testing described in section 2.1 of Appendix E. (See also the instructions for RTs 650 through 653.) Include the RTs 560 in each quarterly report.

For a typical Appendix E test, the following four RTs 560 must be submitted, each one representing a segment of the correlation curve:

- One record (load level zero) representing the segment of the correlation curve below the minimum heat input level represented by the lowest operating level; and

- Three records representing segments joining the test results from the adjacent operating levels that were tested. If you performed more than four levels of testing there should be one segment record for each additional operating level.

Order these records within the record type by operating level in ascending order (0 - 4+). The graph below (Illustration 4) represents the relationship of operating level test data in RT 651 and segments defined in RT 560. The reporting of segments in this record type replaces the requirement to report formulas representing these segments in RT 520. Appendix E formulas are <u>not</u> required in RT 520.

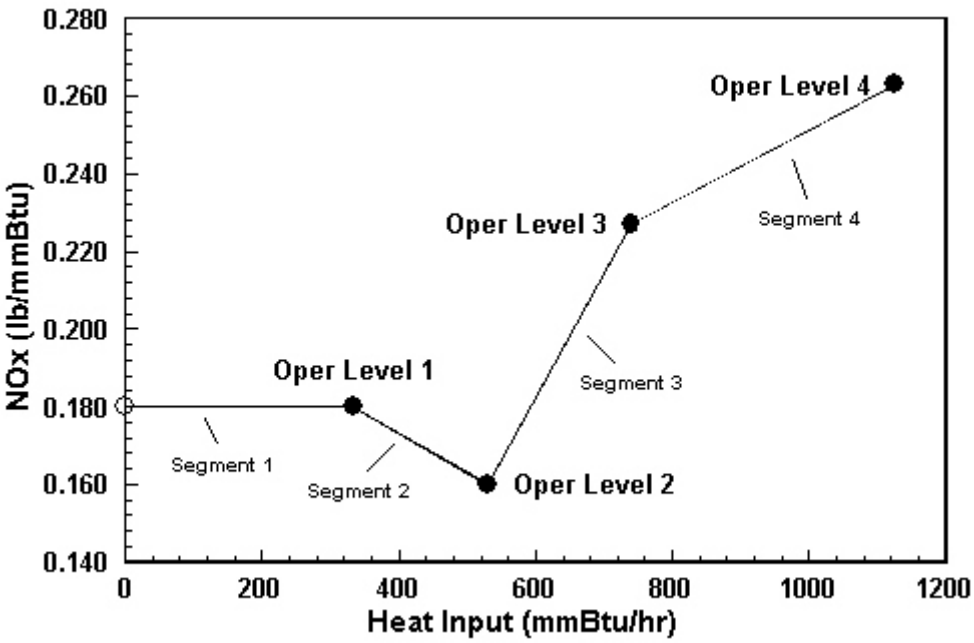
Field Descriptions and Instructions

Operating Level (20). For the lowest segment, report an operating level of "0" (zero). For all other segments, report the operating level associated with the lower bound of the curve segment (<u>e.g.</u>, in Illustration 4, operating level "1" is associated with segment 2).

Segment ID (22). For each segment of the curve, assign and report a unique segment ID consisting of three alphanumeric characters.

NO_x Monitoring System ID (25). Report the monitoring system ID for the Appendix E NO_x emission rate system that was certified and that you use to report NO_x emission rate data.

Illustration 4
EXAMPLE NO_x CORRELATION CURVE SEGMENTS



Heat Input #1 (Low) (28). For operating level 0 (zero), the low heat input rate value should be zero. For all other segments, the low heat input rate value is the heat input rate associated with the operating level for the record, as reported in RT 651. (For example, in segment 2 above, the low heat input rate is 330 mmBtu/hr.)

Heat Input #2 (High) (35). For the highest operating level the high heat input rate value is the highest heat input rate tested. For all other records, the high heat input rate is the heat input rate value reported in RT 651 for the next operating level. (For example, in segment 2 above, the high heat input rate value is 530 mmBtu/hr.)

NO_x Rate #1 (42). For operating level zero, both NO_x Rate #1 and NO_x Rate #2 are the NO_x emission rate reported in column 23 for operating level 1 in RT 651. For all other operating levels, NO_x Rate #1 should be the NO_x emission rate reported in RT 651 associated with the operating level for the record. (For example, in segment 2 above, NO_x Rate #1 is 0.180 lb/mmBtu.)

NO_x Rate #2 (48). For operating level zero, NO_x Rate #2 is the NO_x emission rate reported in column 23 for operating level 1 in RT 651. For all other operating levels, NO_x Rate #2 should be the NO_x emission rate reported in RT 651 associated with the next operating level for the record. (For example, in segment 2 above, NO_x Rate #2 is 0.160 lb/mmBtu.)

Type of Fuel (54). Report in this field the type of fuel used during Appendix E testing using the following codes:

DSL	Diesel Oil
LPG	Liquefied Petroleum Gas
MIX	Mixture
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
PDG	Producer Gas
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas

Reserved (57). This field was used only by units in the OTC NO_x Budget Program, and therefore has been reserved.

(21) **RT 585: Monitoring Methodology Information**

Submit one or more RTs 585 for each unit to define the monitoring approaches used to measure or estimate emissions. This record type is unit-specific; therefore, do not report RTs 585 for any common or multiple stack IDs or pipe IDs. Submit a RT 585 for each pollutant or parameter measured as required by the applicable program.

For example, if CS1 is a common stack for Units 1 and 2, report two sets of RTs 585: one set for Unit 1, and one set for Unit 2. For Acid Rain units, each set of RTs 585 should have separate RTs 585 for parameters SO2, NOXR, CO2, HI, and OP, and, if applicable, H2O. As another example, if MS1A and MS1B are multiple stacks for Unit 1, report one set of RTs 585 for Unit 1.

If you use several methodologies or combination of methodologies, either as a backup or to address different fuels, submit multiple RTs 585.

If you are required to correct for moisture when calculating emissions or heat input rate, report a RT 585 for moisture (parameter H2O) to define the methodology used to determine hourly moisture for emissions calculations. If you are using a moisture default from Part 75, identify the fuel type in column 24 as C (Coal) or W (Wood). If you use a different moisture default that was approved by petition, identify the fuel type in column 24 as NFS (Non fuel specific).

Where Subpart H and Acid Rain Program requirements overlap or are identical, duplicative reporting of RT 585 is <u>not</u> required (<u>e.g.</u>, if Appendix E is used to determine the NO_x emission rate for both Acid Rain and Subpart H purposes, submit <u>one</u> RT 585 for the parameter NOXR).

If you change methodologies for a parameter during the reporting period, submit two RTs 585 for the parameter: one indicating the date on which the use of the previous methodology was discontinued and one indicating the date on which the replacement methodology begins.

For Acid Rain Program Units: Refer to Table 33, below. For all Acid Rain units, except for units using the low mass emissions (LME) methodology under § 75.19, submit separate RTs 585 for parameters SO2, NOXR, CO2, HI, and OP, and, if applicable, H2O. Submit an additional RT 585 for

parameter NOXM if the unit is also subject to Subpart H and if you use a NO_x concentration system and stack flow monitor as either the primary or secondary methodology for determining NO_x mass emissions.

If a unit which has an SO_2 monitor combusts both high sulfur fuel (e.g., coal or oil) and natural gas, and uses a default SO_2 emission rate and Equation F-23 for hours in which natural gas is combusted (see § 75.11(e)(1)), define two RTs 585 for parameter SO2: one with a monitoring methodology code of "CEM" in column 14 and fuel type code of "NFS" (Non-fuel Specific) in column 24 and one with the methodology code of "F23" in column 14 and fuel type code of "PNG" or "NNG" in column 24. You should also report two RTs 587 for this unit: one for the higher sulfur fuel and one for natural gas.

For a unit with SO_2 or NO_x emission controls and a bypass stack, if the owner or operator elects not to monitor at the bypass stack and to report the MPC or MER when the flue gases are routed through the bypass stack (see 75.16 (c) and 75.17 (d)), report one or more additional RTs 585 for the parameter "SO2", "NOXR" or "NOXM" (as applicable). Use the following guidelines:

- Report one additional RT 585, using a methodology code of "BYMAX" if a single MPC or MER value (i.e., the value from RT 530) is reported for all bypass hours, and the SO_2 or NO_x MPC or MER value is determined in the usual manner according to Part 75, Appendix A (i.e., based on the fuel with the highest sulfur content or the fuel that produces the highest NO_x emission rate).

- Report one additional RT 585 if you elect to report the fuel-specific MPC or MER during bypass hours. Report a methodology code of "BYMAXFS" in RT 585, column 14, if the MPC or MER values reported during bypass hours are fuel-specific. Define all fuel-specific MPC and MER values in RT 531.

If a unit is exempted from opacity monitoring requirements because it is gas-fired or diesel-fired, report a fuel type code of "PNG," "NNG," or "DSL" in column 24. If the unit has a wet scrubber and is exempted from installing a COMS because it has entrained water droplets in the effluent, report a fuel type code of "NFS" in column 24.

For Acid Rain Program Low Mass Emissions (LME) Units: Refer to Table 34, below. Submit separate RTs 585 for parameters SO2, NOXR, CO2, HI, and OP. For parameters SO2, NOXR, CO2, if you combust more than one type of fuel, submit a RT 585 for each fuel type. For parameter HI, submit more than one RT 585 if you use the long-term fuel flow option and combust more than one type of fuel.

For Non-Acid Rain Subpart H Units: Refer to Table 35, below. For all non-Acid Rain Subpart H units, except for units using the low mass emissions (LME) methodology under § 75.19:

- If you calculate NO_x mass emissions by determining NO_x emission rate and heat input rate, submit two RTs 585, one for NO_x emission rate (NOXR) and one for heat input rate (HI);

- If you use a NO_x concentration CEMS times stack flow to determine NO_x mass emissions either as a primary or backup methodology, submit a RT 585 to identify this NO_x mass emissions methodology (NOXM); and

- If applicable, submit RT 585 for moisture (H2O).

For Non-Acid Rain Subpart H Low Mass Emissions (LME) Units: Refer to Table 36, below. Submit RTs 585, to describe the methodology for NO_x emission rate (NOXR) and to describe the methodology for heat input (HI). For parameters NOXR, if you combust more than one type of fuel, submit a RT 585 for each fuel type. For parameter HI, submit more than one RT 585 if you use the long-term fuel flow option and combust more than one type of fuel.

Field Descriptions and Instructions

Use Tables 33 through 36 below, in conjunction with the general instructions above, to provide the appropriate information in each RT 585. Select the appropriate table based on the programs applicable to the unit (e.g., use Table 34 for an Acid Rain low mass emissions (LME) unit).

Parameter (10). Report the parameter for which the monitoring methodology applies using one of the codes listed in the first column of the appropriate table below.

Monitoring Methodology (14). Report one of the methodology codes listed in the third column of the appropriate table below to describe the methodology used to monitor the parameter.

Type of Fuel Associated with Methodology (24). Report the code for the type of fuel associated with the methodology or value. Select one of the applicable fuel codes in the fifth column of the appropriate table below. These codes are defined as follows:

C	Coal
CRF	Coal Refuse (culm or gob)
DSL	Diesel Oil
LPG	Liquefied Petroleum Gas
NFS	Non-fuel Specific
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
OSF	Other Solid Fuel
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRS	Process Sludge
R	Refuse
W	Wood
WL	Waste Liquid

Primary/Secondary Methodology Indicator (27). Indicate whether you intend to use this methodology as a primary or secondary (backup) methodology for the unit, parameter and type of fuel by reporting the following uppercase codes:

P	Primary
S	Secondary

Missing Data Approach for Methodology (28). Report the approach used for the methodology to determine substituted values during periods of missing data as indicated below:

SPTS	Standard Part 75 Missing Data Procedures -- i.e., the Normal, *Non Fuel-Specific* CEMS procedures in § 75.33 or § 75.74(c)(7) (for non-ARP, Subpart H units that report on an ozone season-only basis), or the Standard Appendix D Missing Data Procedures, or the Standard Fuel-Specific Appendix E Missing Data Procedures.
REV75	Inverse Part 75 Missing Data Procedures for Moisture or O_2, Per § 75.36 or § 75.37
FSP75	Fuel-Specific Part 75 CEMS Missing Data Procedures in § 75.33. Use this code if: (a) you do not co-fire fuels; or (b) if, when fuels are co-fired, substitute data values for missing data lookbacks are drawn from the database for the fuel that produces the highest emissions or flow rate.
FSP75C	Fuel-Specific Part 75 CEMS Missing Data Procedures in § 75.33. Use this code if you co-fire fuels and if substitute data values for missing data lookbacks are drawn from a separate database for co-fired hours.
OZN75	Ozone Season vs. Non-Ozone Season NO_x CEMS Missing Data Procedures in § 75.34 (a)(2), for Subpart H units that report year-round
NLB	Non Load-Based Missing Data Procedures in §75.33 or Appendix D, Section 2.4.2.3—Operational Bins Not Used
NLBOP	Non Load-Based CEMS Missing Data Procedures in § 75.33—Using Operational Bins or Appendix D, Section 2.4.2.3—Approved Petition to Use Operational Bins
NA	Not Applicable

For all LME codes and the code for opacity use "NA."

Methodology Start Date (34). Report the actual date on which the methodology was first used to determine emissions or heat input rate for the unit. This date must precede or coincide with the date of any certification testing associated with the methodology, but should not predate the installation date of the monitoring system(s). For opacity, report the same starting date as for emission reporting, whether you are exempted from opacity monitoring or not.

Methodology End Date (42). Report the actual date on which the methodology was last used to determine emissions or heat input rate for the unit. If the methodology is currently in use, either as a primary or secondary methodology, leave this field blank.

If you change methodologies either at the beginning of a reporting period or during a reporting period, submit one RT 585 for the methodology which was previously used, indicating the last day on which the methodology was used. Report a second RT 585 for the new methodology. In the second record, leave this field blank.

Table 33
ACID RAIN PROGRAM METHODOLOGIES AND PARAMETERS

Parameter Code (Col 10)	Parameter Description	Methodology Code (Col 14)	Methodology Description	Acceptable Fuel Codes (Col 24)
SO2	SO_2 Emissions	CEM	Continuous Emission Monitoring	NFS
		BYMAX	MPC for Highest-Sulfur Fuel (Control Device Bypass Hours)	NFS
		BYMAXFS	Fuel-Specific MPC (Control Device Bypass Hours)	NFS
		F23	Use of Default SO2 Emission Rate and CEMS For HI	NNG, PNG
		AMS	Approved Alternative Monitoring	As approved
		GFF	Gas Fuel Flow per Appendix D	LPG, NNG, OGS, PNG, PRG
		OFF	Oil Fuel Flow per Appendix D	DSL, OIL, OOL
NOXR	NO_x Emission Rate	AE	Appendix E	LPG, NNG, OGS, PNG, PRG, DSL, OIL, OOL
		CEM	Continuous Emission Monitoring	NFS
		BYMAX	MER for Highest NO_x Emitting Fuel (Bypass Stack Operating Hours)	NFS
		BYMAXFS	Fuel-Specific NO_x MER (Bypass Stack Operating Hours)	NFS
		AMS	Approved Alternative Monitoring	As approved

(cont.)

Table 33
ACID RAIN PROGRAM METHODOLOGIES AND PARAMETERS (cont.)

Parameter Code (Col 10)	Parameter Description	Methodology Code (Col 14)	Methodology Description	Acceptable Fuel Codes (Col 24)
CO2	CO_2 Emissions	CEM	Continuous Emission Monitoring	NFS
		FSA	Fuel Sampling and Analysis (if Equation G-1 or G-2 is used)	C, DSL, LPG, NFS, NNG, OGS, OIL, OOL, PNG, PRG, PRS, R, CRF, OSF, WL
		AMS	Approved Alternative Monitoring	As approved
		GFF	Gas Fuel Flow per Appendix D (if Equation G-4 is used)	LPG, NNG, OGS, PNG, PRG
		OFF	Oil Fuel Flow per Appendix D (if Equation G-4 is used)	DSL, OIL, OOL
HI	Heat Input	CEM	Continuous Emission Monitoring	NFS
		AMS	Approved Alternative Monitoring	As approved
		GFF	Gas Fuel Flow per Appendix D	LPG, NNG, OGS, PNG, PRG
		OFF	Oil Fuel Flow per Appendix D	DSL, OIL, OOL
OP	Opacity	COM	Continuous Opacity Monitor	NFS
		EXP	Exempted	PNG, NNG, DSL, NFS
H2O	Moisture	MMS	Continuous Moisture Sensor	NFS
		MDF	Moisture Default	C, W, NFS
		MTB	Moisture Look-up Table	NFS
		MWD	Wet/dry O_2 Analyzers	NFS
NOXM	NO_x Mass Emissions	CEM	NO_x Concentration Times Stack Flow	NFS
		BYMAX	MPC for Highest NO_x Emitting Fuel (Bypass Stack Operating Hours)	NFS
		BYMAXFS	Fuel-Specific NO_x MPC (Bypass Stack Operating Hours)	NFS
		AMS	Approved Alternative Monitoring	As approved

Table 34
ACID RAIN PROGRAM LOW MASS EMISSIONS (LME) METHODOLOGIES AND PARAMETERS

Parameter Code (Col 10)	Parameter Description	Methodology Code (Col 14)	Methodology Description	Acceptable Fuel Codes (Col 24)
SO2	SO_2 Emissions	SO2G	Generic SO_2 Default Value	DSL, NNG, OIL, OOL, PNG
		SO2U	Fuel and Unit-Specific SO_2 Default Value	OGS, PRG
NOXR	NO_x Emission Rate	NOXG	Generic NO_x Emission Rate Default	DSL, NNG, OIL, OOL, PNG
		NOXU	Unit and Fuel-Specific NO_x Emission Rate	DSL, NNG, OIL, OOL, PNG, PRG, OGS
CO2	CO_2 Emissions	CO2G	Generic CO_2 Default Value	DSL, NNG, OIL, OOL, PNG
		CO2U	Fuel and Unit-Specific CO_2 Default Value	OGS, PRG
HI	Heat Input	LTFF	Long Term Fuel Flow	DSL, NNG, OIL, OOL, PNG
		MHHI	Maximum Rated Hourly Heat Input	NFS
OP	Opacity	COM	Continuous Opacity Monitoring	NFS
		EXP	Exempted	NNG, PNG, DSL, NFS

Table 35
NON-ACID RAIN SUBPART H METHODOLOGIES AND PARAMETERS

Parameter Code (Col 10)	Parameter Description	Methodology Code (Col 14)	Methodology Description	Acceptable Fuel Codes (Col 24)
NOXR	NO_x Emission Rate	AE	Appendix E	LPG, NNG, OGS, PNG, PRG, DSL, OIL, OOL
		CEM	Continuous Emission Monitoring	NFS
		BYMAX	MER for Highest NO_x Emitting Fuel (Bypass Stack Operating Hours)	NFS
		BYMAXFS	Fuel-Specific NO_x MER (Bypass Stack Operating Hours)	NFS
		AMS	Approved Alternative Monitoring	As approved
HI	Heat Input	CEM	Continuous Emission Monitoring	NFS
		AMS	Approved Alternative Monitoring	As approved
		GFF	Gas Fuel Flow Per Appendix D	LPG, NNG, OGS, PNG, PRG
		OFF	Oil Fuel Flow Per Appendix D	DSL, OIL, OOL
		EXP	Exempted from heat input monitoring under State SIP or by special petition	NFS
NOXM	NO_x Mass Emissions	CEM	NO_x Concentration times Stack Flow	NFS
		BYMAX	MPC for Highest NO_x Emitting Fuel (Bypass Stack Operating Hours)	NFS
		BYMAXFS	Fuel-Specific NO_x MPC (Bypass Stack Operating Hours)	NFS
		AMS	Approved Alternative Monitoring	As approved
H2O	Moisture	MMS	Continuous Moisture Sensor	NFS
		MDF	Moisture Default	C, W, NFS
		MTB	Moisture Look-up Table	NFS
		MWD	Wet/dry O_2 Analyzers	NFS

Table 36
NON-ACID RAIN SUBPART H LOW MASS EMISSIONS (LME) METHODOLOGIES AND PARAMETERS

Parameter Code (Col 10)	Parameter Description	Methodology Code (Col 14)	Methodology Description	Acceptable Fuel Codes (Col 24)
NOXR	NO_x Emission Rate	NOXG	Generic NO_x Emission Rate Default	DSL, NNG, OIL, OOL, PNG
		NOXU	Unit and Fuel-Specific NO_x Emission Rate	DSL, NNG, OIL, OOL, PNG, PRG, OGS
HI	Heat Input	LTFF	Long Term Fuel Flow	DSL, NNG, OIL, OOL, PNG, PRG, OGS
		MHHI	Maximum Rated Hourly Heat Input	NFS

(22) RT 586: Control Equipment Information

Report one or more RTs 586 to define the types of SO_2, NO_x, and particulate control equipment in place or planned for each unit. Do not report RTs 586 for any parameter (SO_2, NO_x or particulate) for which the unit is uncontrolled. Also, do not report RT 586 for a parameter if emissions of that parameter are controlled by limiting production or by switching fuels.

This record type is unit-specific; do not report RTs 586 for any common or multiple stack ID or pipe ID. If a common stack serving two units contains a control device, report this information for each of the units associated with the common stack.

Field Descriptions and Instructions

Parameter (10). Report the parameter to be controlled using one of the following uppercase codes:

SO2 Sulfur Dioxide
NOX Nitrogen Oxides
PART Particulates (Opacity)

Control Equipment Code (14). Report the type of controls using the following uppercase codes:

NO_x Controls

CM	Combustion Modification/Fuel Reburning
DLNB	Dry Low NO_x Premixed Technology (Turbines only)
H2O	Water Injection (Turbines and Cyclone Boilers only)
LNB	Low NO_x Burner Technology (Dry Bottom Boilers only)
LNBO	Low NO_x Burner Technology with Overfire Air (Dry Bottom Boilers Only)
LNC1	Low NO_x Burner Technology with Close-coupled OFA (Tangentially fired units only)
LNC2	Low NO_x Burner Technology with Separated OFA (Tangentially fired units only)
LNC3	Low NO_x Burner Technology with Close-coupled and Separated OFA (Tangentially fired units only)
LNCB	Low NO_x Burner Technology for Cell Burners
NH3	Ammonia Injection
O	Other
OFA	Overfire Air
SCR	Selective Catalytic Reduction
SNCR	Selective Non-catalytic Reduction
STM	Steam Injection

SO_2 Controls

DA	Dual Alkali
DL	Dry Lime FGD
FBL	Fluidized Bed Limestone Injection
MO	Magnesium Oxide
O	Other
SB	Sodium Based
WL	Wet Lime FGD
WLS	Wet Limestone

Particulate Controls

B	Baghouse(s)
ESP	Electrostatic Precipitator
WS	Wet Scrubber
O	Other
C	Cyclone

Primary/Secondary Controls Indicator (20). Report whether you intend to use the control methodology as a primary or secondary (backup) methodology for the unit by using the following uppercase codes:

P	Primary
S	Secondary

Original Installation (21). For each parameter, report the letter "O" to indicate that the control equipment was installed and operational as part of the original unit design. If the control equipment was not part of the original unit design, leave this field blank.

Controls Install Date (22). If the control equipment was not part of the original installation, report the approximate date on which controls were installed or will be installed at the unit. Leave this field blank if it is not applicable.

Controls Optimization Date (30). If the control equipment was not part of the original installation, report the approximate date on which optimization of the control equipment was completed and the equipment fully operational at the unit. If there was no optimization period, leave this field blank.

Controls Retirement Date (38). Report the date on which the control equipment was removed or retired from the unit. Leave this field blank if the control equipment is still in use.

Seasonal Controls Indicator (46). For Subpart H units, if the NO_x control equipment is used only during the ozone season, report an "S" in this field. Otherwise, leave this column blank.

(23) **RT 587: Unit Fuel Type**

Submit RT 587 for each type of fuel burned at each unit. This is a unit-specific record type, therefore do not report RT 587 for common or multiple stack IDs or pipe IDs. This record is used to indicate the primary, secondary, emergency, and startup fuels combusted by each unit, to report changes in the types of fuels combusted and to indicate when such changes occurred. (RT 587 replaces columns 55 and 95 of RT 502.)

Field Descriptions and Instructions

Fuel Types Combusted (10). Report one of the following uppercase codes to indicate the types of fuel combusted by the unit:

C	Coal
CRF	Coal Refuse (culm or gob)
DSL	Diesel Oil
LPG	Liquefied Petroleum Gas
NNG	Natural Gas
OGS	Other Gas
OIL	Residual Oil
OOL	Other Oil
OSF	Other Solid Fuel
PNG	Pipeline Natural Gas (as defined in § 72.2)
PRG	Process Gas
PRS	Process Sludge
R	Refuse
W	Wood
WL	Waste Liquid

Diesel oil is defined in § 72.2 as low sulfur fuel oil of grades 1-D or 2-D, as defined by ASTM D-975-91, grades 1-GT or 2-GT, as defined by ASTM D2880-90a, or grades 1 or 2, as defined by ASTM D396-90. By those definitions (specifically ASTM D396-90) and

for the purposes of this Program, kerosene is considered a subset of diesel oil and therefore should be identified with the code DSL. If your fuel does not qualify as one of these types, do not report the code DSL.

Fuel Type Start Date (13). Report the first date on which the unit combusted this fuel type (or the best available estimate if the exact date is not known). The fuel type start date must precede or coincide with the date of any monitoring system certifications while combusting the fuel.

Fuel Type End Date (21). If the combustion of this fuel type has been permanently discontinued at this unit, report the last date on which this fuel type was combusted at the unit. If not applicable, leave this field blank.

Primary/Secondary/Emergency/Startup Fuel Indicator (29). Report whether the fuel type listed in column 10 is the primary fuel (as defined in § 72.2), a backup (secondary) fuel, a startup fuel, or an emergency fuel for this unit using the following uppercase codes:

E	Emergency
I	Ignition (Startup)
P	Primary
S	Backup (Secondary)

Ozone Season Fuel Switching Flag (30). If fuel switching (to a secondary fuel or fuels) is used for seasonal control of ozone, report "S" in this field for the secondary fuel(s) record(s). Otherwise leave this field blank.

Demonstration Method to Qualify for Monthly Fuel Sampling for GCV (31). Report the method used to demonstrate that a unit using Appendix D qualifies for monthly GCV fuel sampling (see section 2.3.5 of Appendix D) using one of the following uppercase codes:

GHS	720 Hours of Data Using Hourly Sampling
GGC	720 Hours of Data Using an On-line Gas Chromatograph
GOC	720 Hours of Data Using an On-line Calorimeter

For units that have not performed this demonstration, leave this field blank.

Demonstration Method to Qualify for Daily or Annual Fuel Sampling for %S (ARP) (34). Report the method used to demonstrate that an Acid Rain unit using Appendix D qualifies for daily or annual % sulfur sampling (see section 2.3.6 of Appendix D) using one of the following uppercase codes:

SHS	720 Hours of Data Using Manual Hourly Sampling
SGC	720 Hours of Data Using On-line Gas Chromatograph

For units that have not performed this demonstration, leave this field blank.

D. **Quality Assurance and Certification Data Reporting**

All certification, recertification, and periodic quality assurance tests that affect data validation must be reported in EDR format in a quarterly report. Report the appropriate test data and results for each primary monitoring system, each redundant backup monitoring system, and each non-redundant backup system used to report data during the quarter.

Do not report tests that are discontinued because of non-CEMS related equipment failures, such as unit outages or reference method failures. Also do not report the results of trial runs and gas injections that meet the acceptance criteria in § 75.20(b)(3)(vii)(E), which are part of the process of optimizing the performance of a CEMS. The results of these tests are not used to establish the validity of hourly emissions data. All completed, passed tests, all completed, failed tests, all tests which are discontinued (aborted) because of CEMS failures, and all trial runs and gas injections that do not meet the acceptance criteria in § 75.20(b)(3)(vii)(E) must be reported.

For initial certification and recertification, submit CEMS test data or LME qualification data to the Administrator in electronic format in the appropriate quarterly report, as described below, and also as a separate submittal as part of the initial certification application (within 45 days of completing all required tests) or as part of the recertification application (within 45 days of completing all recertification tests). For recertifications and required diagnostic tests, submit a corresponding RT 556 in the quarterly report. Also submit a corresponding RT 556 for routine RATAs and linearity checks, if the conditional data validation procedures in § 75.20(b)(3) are used.

Submit the results of all required quality assurance, certification, diagnostic, and recertification tests as part of the electronic quarterly report for the calendar quarter in which the tests are completed. There are three exceptions:

- For new units, where the initial certification tests are completed prior to the program participation date, submit data for all certification tests in the first quarterly report;

- When a recertification or diagnostic test period continues past the end of the current quarter and the recertification or diagnostic tests are completed within the first 30 days of the next quarter (i.e., in time to be submitted in the quarterly report for the current quarter). If the tests are failed, replace conditionally valid data with substitute data and thereby avoid a resubmission. If the tests are passed, report the data as quality-assured, and thereby avoid having to use a conditional data flag ("C") in RT 556, column 51; and

- For a Subpart H unit for which you report data only during the ozone season, when required QA tests are done outside of the ozone season (between October 1 of the previous year and April 30 of the current year) which affect data validation in the current ozone season. Submit the results of these QA tests in the quarterly report for the second calendar quarter of the current year, or with the third quarter report, if the second quarter is a non-operating quarter (see § 75.74(c)(6)(v)).

To ensure the completeness and quality of quality assurance data, EPA has developed and released the Monitoring Data Checking Software (MDC) on the Clean Air Markets Division Home Page: (URL:www.epa.gov/airmarkets/cems/mdc/htm). EPA strongly recommends that you use this software to evaluate and correct any inconsistencies and omissions before submitting the quality assurance tests data

to EPA. EPA also uses this software to analyze quality assurance test data and provide feedback to the source.

(1) RT 600: 7-day Calibration Error Test Data and Results

Report all 7-day calibration error tests performed for initial certification, recertification, or diagnostic purposes, using RTs 600. For each day of the 7-day test, report the results of the zero and upscale gas injections (or flow reference signals) in RT 600.

If a component is part of two systems report the 7-day calibration error test twice, once for each system using the appropriate system IDs. For example, for a diluent monitor used as part of a CO_2 monitoring system and a NO_x-diluent system, report CO_2 7-day calibration test twice. Report one set of RTs 600, using the CO_2 system ID and the CO_2 component ID and the other set of RTs 600 using the NO_x-diluent system ID and the diluent component ID.

For moisture monitoring systems consisting of wet and dry-basis O_2 monitors, report two 7-day calibration tests only if the wet and dry readings are obtained from two different analyzers.

For flow monitoring systems comprised of two flow components, perform and report 7-day calibration tests for each flow component in the system.

For dual range monitors, perform and report 7-day calibration tests at each range of the instrument.

Field Descriptions and Instructions

Instrument Span (24). Report the appropriate span value from RT 530, column 36, corresponding to the parameter monitored and the span scale ("L" or "H") reported in column 24. Do not leave this field blank.

Reference Value (37). Report the certified (tag) value of the reference calibration gas, in ppm (for SO_2 and NO_x) or in $\%CO_2$ or $\%O_2$ (for CO_2 and O_2). For flow monitors, report the value of the reference signal, in the appropriate units. See the instructions for column 62 in RT 230.

Measured Value (50). Report the response of the gas analyzer to the reference calibration gas, in ppm (for SO_2 and NO_x) or in $\%CO_2$ or $\%O_2$ (for CO_2 and O_2). For flow monitors, report the response of the monitor to the reference signal.

Results (Calibration Error or $|R - A|$) (63). For the normal (concentration analyzer) calibration error (CE) specification, report the results as the absolute value of the difference between the reference value and the measured value (i.e., $|R - A|$, as a percentage of the instrument span). If the alternative low-emitter or diluent specification is used, report the result as $|R - A|$ in terms of ppm (for SO_2 and NO_x) or in terms of $\%CO_2$ or $\%O_2$. If the calculated calibration error meets the standard specification, report the result as a percentage of the span even though the result would also pass the alternative specification. Only when the result does not pass the standard specification, but does meet the alternative specification, should you report the absolute value of the difference.

For low-span DP-type flow monitors using the alternate calibration error specification: (1) report "0.0" in this field if the value of $|R - A|$ is ≤ 0.01 inches of water; or (2) report "0.1" in this field if the value of $|R - A|$ is > 0.01 , but ≤ 0.10 inches of water; or (3) if the value of $|R - A|$ is > 0.10 inches of water, report the result to the nearest 0.1 in. H_2O.

Alternative Performance Specification (APS) Flag (68). Report whether the test result was determined using a normal specification ("0" (zero)) or the alternative performance specification "1" allowed under Part 75.

Appendix A to Part 75 specifies that the calibration error of an O_2 or CO_2 monitor is always expressed in percent O_2 or CO_2, rather than as a percentage of span. This is considered to be the "normal" calibration error specification and should have a "0" flag in RTs 230 and 600. The alternate performance specification flag in these record types applies only to SO_2 and NO_x pollutant concentration monitors at facilities that are low-emitters of those pollutants.

Reference Signal or Calibration Gas Level (69). For each day of the 7-day calibration error test, reference gas injections or signal levels are required at two levels. The same two gas levels or signals must be used for all days of the test. Indicate "Z" if the reference gas injected or signal is a zero-level check (0 to 20% of span) and "H" if a high-level calibration gas (80 to 100% of span) or a high-level flow monitor signal (50 to 70% of span) is used. A mid-level calibration gas (50 to 60% of span) may be used in lieu of the high-level gas. If a mid-level gas is used, report "M" in this column.

Span Scale (70). Report whether the component (or the range of the instrument) tested is high ("H") or ("L") low scale. If the monitoring system component only measures at a single instrument range, enter "H" or leave this field blank.

Test Number (71). For each set of 7-day calibration error records which comprise a single test, assign a unique test number for the system and component. You may reuse the test number for different systems and components. You may also reuse the test number for the same monitoring system, provided that the tests are performed and reported in different quarters. If you submit data for an incomplete or aborted test, assign and report a test number. If you submit hardcopy information on a test in a certification report or submit other information about the test to EPA or a State agency, refer to the system and component IDs, the test number, and test time period (quarter and year). Do not leave this field blank.

(Note: If a single component ID is used to represent a dual-range analyzer (i.e., if a component type code of "SO2A," "NOXA," "CO2A," "O2DA," or "O2WA" is assigned to the analyzer in column 23 of RT 510), use two different test numbers for the low and high scale tests when reporting 7-day calibration error tests of the low and high ranges in the same EDR submittal).

Reason for Test (73). Report the purpose of the test using one of the following uppercase codes:

C	Initial Certification
D	Diagnostic
R	Recertification

Do not leave this field blank.

(2) **RTs 601 and 602: Linearity Check Data and Results**

Report all linearity checks performed for initial certification, recertification, ongoing quality assurance or diagnostic purposes using RTs 601 and 602. Use RT 601 to report the results of each calibration gas injection. Use RT 602 to report the results for the set of injections at each gas level (low, mid, and high). Linearity checks are required to be performed with the unit in operation. Therefore, do not report RTs 601 and 602 for non-operating quarters.

If your gas monitors are configured such that injection of calibration gases forces all of the analyzers into the calibration mode, when you perform a linearity check on one monitor you may (e.g., if you use tri-blend calibration gases) cause simultaneous (unscheduled) linearity checks of the other analyzers to be done. You do not have to report the results of these unscheduled linearity tests as long as they meet the linearity error specifications. However, if the results of these unscheduled tests indicate that a monitoring system is out-of-control, you must report the results and consider it to be a failed linearity check.

If you report data on a year-round basis, a linearity check of each gas monitor is required in each QA operating quarter (i.e., a calendar quarter with $\geq$ 168 unit or stack operating hours) for routine quality assurance.

For Subpart H units or stacks for which you report data only in the ozone season (only in the second and third quarters), linearity checks are required both inside and outside of the ozone season. Pre-ozone season linearity checks are required under § 75.74(c)(2)(i) and may be done any time between October 1 of the previous year and April 30 of the current year. Linearity checks are also required in the second and third calendar quarters, if those quarters qualify as QA operating quarters. Note that for the second calendar quarter, only the unit operating hours in the months of May and June are considered when determining whether that quarter is a QA operating quarter (see § 75.74(c)(3)(ii)).

For dual-span units, a linearity check is required only on the range(s) used during the quarter.

For an SO_2 or NO_x monitor with a span value of 30 ppm or less, linearity checks are not required.

If a calendar quarter is not a QA operating quarter; or if for a dual-span unit, a particular monitor range was not used during the quarter, you may claim a linearity check exemption for that quarter, subject to certain limitations (see RT 698 instructions). If an SO_2 or NO_x monitor has a span value of $\leq$ 30 ppm, you may claim an on-going linearity test exemption for that quarter (see RT 698 instructions).

Report all completed and aborted linearity tests that affect data validation. For a Subpart H unit or stack for which you report data only in the ozone season, report the results of all pre-ozone season linearity checks that affect data validation in the current ozone season, in the quarterly report for the

second calendar quarter of the current year (or with the third quarter report, if the second quarter is a non-operating quarter).

An aborted test is treated as a failed test if the test is discontinued due to a monitor failure, and the results must be reported, with one exception. For ozone season-only reporters, an aborted pre-ozone season linearity check need not be reported if a subsequent linearity check is passed prior to the start of the current ozone season.

It is not necessary to report or to treat as a failed test a linearity check which is discontinued because of a failure which is unrelated to instrument performance, such as a power outage, unit outage, or calibration gas problem. It is not necessary to report the results of trial gas injections that are part of the process of optimizing the performance of a monitor, when the injections meet the acceptance criteria in § 75.20(b)(3)(vii)(E). For discontinued tests and trial injections that do not affect data validation, record the results as part of the official test log and maintain records on-site (or at an alternative location known to the regulatory agency if on-site storage is not feasible).

If a component is part of two systems, report the linearity twice, once for each system using the appropriate system/component IDs. For example, for a diluent monitor used as part of a CO_2 monitoring system and a NO_x-diluent system, report CO_2 linearity test twice. Report one set of RTs 601 and 602, using the CO_2 system ID and the CO_2 component ID and another set using the NO_x-diluent system ID and the diluent component ID.

Submit one RT 601 for each gas injection in each reported linearity check. For completed tests for normal span levels, there will generally be nine RTs 601 and three RTs 602.

If you report more than the nine required gas injections as part of a test because of State test requirements, report all injections using the same test number. EPA will evaluate only the last three injections at each level, as indicated by the date and time of the injection. Prior injections will be disregarded in the calculation of results. Calculate and report results using only these injections.

If a required linearity test is not completed by the end of the quarter in which it is due, a 168 unit/stack operating hour grace period is allowed to perform the test.

For Subpart H units or stacks for which you report data only in the ozone season, a 168 unit/stack operating hour grace period is conditionally allowed, when the required pre-ozone season linearity check is not completed by April 30th (see § 75.74(c)(2)(i)(D)(*1*)). However, grace periods are not allowed for the linearity checks required inside the ozone season (in the second and third calendar quarters) (see § 75.74(c)(3)(ii)).

To claim a grace period for a missed linearity test, follow the applicable instructions under RT 699.

Field Descriptions and Instructions for RT 601

Date and Time (16, 22). Report the date and time of each gas injection. Because gas injections are sequential and cannot be simultaneous, the time of each gas injection must be unique for each analyzer. Gas injections at each level must be performed sequentially, so that two gas injections are never performed successively at the same level for the same analyzer.

Instrument Span (26). Report the span of the component. The span value must be the same as the span value reported in RT 530 for the unit or stack effective on the date and hour of the linearity check. The span value must be the same for each of the gas injections.

Reference Value (39). Report the certified (tag) value of the reference calibration gas for each injection. The reference value must be in units of ppm for NO_x and SO_2 and in $\%CO_2$ or $\%O_2$ for diluent gases.

Measured Value (52). Report the instrument measurement value to the number of decimal places required for hourly measured data reported in the EDR. For example, report NO_x or SO_2 concentration to one decimal place.

Calibration Gas Level (65). Report the calibration gas level associated with the gas injection as either "L," "M," or "H." For high level injections the calibration gas concentration must be 80 to 100% of the span reported in column 25; for mid level, 50 to 60% of span; and for low level, 20 to 30% of span.

Span Scale (66). Report whether the test is for a high or low scale span by reporting either "H" or "L." If the unit or stack only measures at a single instrument range, enter "H" or leave this field blank.

Test Number (67). For each set of linearity records that comprise a single test at either high or low scale, assign and report a unique test number for the system and component. Use this same test number in RT 602 to report the results at each gas level.

(Note: If a single component ID is used to represent a dual-range analyzer (i.e., if a component type code of "SO2A," "NOXA," "CO2A," "O2DA," or "O2WA" is assigned to the analyzer in column 23 of RT 510), use two different test numbers for the low and high scale tests when reporting linearity checks of the low and high ranges in the same EDR submittal.)

If you submit data for an incomplete or aborted test, assign and report a test number to the reported RTs 601.

You may reuse the test number for different systems and components. You may also reuse the test number for the same monitoring system, provided that the tests are performed and reported in different quarters.

If you submit hardcopy information for this test in a certification or recertification report or submit other information about the test to EPA or the State agency, refer to the system ID, component ID, test number, and test time period.

Do not leave this field blank.

Indicator of Aborted Test (69). Leave this field blank unless the linearity test was aborted. If you abort the linearity check without completing all required gas injections, report an "A" in column 69 for each of the gas injections associated with the test. The

monitoring system is considered out-of-control when a linearity test is aborted due to a problem with the CEMS. Do not report RT 602 for an aborted test.

Field Descriptions and Instructions for RT 602

Date (16). Report the date of the linearity test. If the test period spans two or more calendar days, report the date on which the test is completed.

Instrument Span (22). Report the span of the component. The span value should be the same as the span value reported in RT 530, column 36, for the unit or stack as effective on the date and hour of the linearity check. The span value and span scale in each RT 602 must be the same as the span value (and scale) for each of associated gas injections reported in RTs 601.

Mean of Reference Values (35). Calculate and report the mean or average of the reference values for the specified calibration gas level.

Mean of Measured Values (48). Calculate and report the mean or average of the measured values for the specified calibration gas level.

Results (Linearity Error or | R - A |) (61). Calculate and report the linearity error for each calibration gas level using Equation A-4 of Part 75, Appendix A, Section 7.1. Alternatively, calculate the result | R - A |, as provided in Part 75, Appendix A, Section 3.2. If the calculated linearity error meets the standard specification, report the result as a percentage of the reference gas tag value even though the result would also pass the alternative specification. Only when the result does not pass the standard specification, but does meet the alternative specification, should you report the absolute value of the difference.

Alternative Performance Specification (APS) Flag (66). If you calculate the results using the alternative performance specification in Section 3.2 of Appendix A to Part 75, report a "1" in this field. For all other tests report "0" (zero). Do not leave this field blank.

Calibration Gas Level (71). Report the calibration gas level associated with the results as either "L" (low), "M" (mid), or "H" (high). Do not leave this field blank.

Span Scale (72). Report whether the test is for a high scale or low scale span value by entering either "H," "L," or blank (for single range analyzer only) consistent with the scale indicated in RTs 601.

Test Number (73). Report the test number used for the set of gas injections in the corresponding set of RTs 601 (i.e., for nine RTs 601 and three RTs 602). Do not leave this field blank.

Reason for Test (75). Report the purpose of the test using one or more of the following uppercase codes:

C	Initial Certification
D	Diagnostic
G	Periodic Quality Assurance Test Performed in Grace Period
Q	Periodic Quality Assurance
R	Recertification

If more than one code applies, submit a two-letter code (for example, "RQ" for a linearity check performed as a recertification test and to meet the quarterly linearity requirement). Do not leave this field blank.

(3) **RT 603: Flow Leak Check Results**

Report in RT 603 all leak checks performed for differential pressure stack flow monitors. For units or stacks for which you report data on a year-round basis, a leak check is required in each QA operating quarter. If a calendar quarter is not a QA operating quarter, a leak check exemption for that quarter may be claimed using RT 698. If a leak check is not completed by the end of the quarter in which it is due, a 168 unit/stack operating hour grace period is allowed to complete the test (see RT 699 instructions).

For Subpart H units or stacks for which you report data only in the ozone season, leak checks are required only during the ozone season (in the second and third calendar quarters), if those quarters qualify as QA operating quarters. Note that for the second calendar quarter, only the unit operating hours in the months of May and June are considered when determining whether that quarter is a QA operating quarter (see § 75.74(c)(3)(iv)).

Do <u>not</u> report RT 603 for non-operating quarters.

Field Descriptions and Instructions

Status (24). Report the outcome of the test using the following uppercase codes:

F	Fail
P	Pass

Reason for Test (29). Report the purpose of the test using one or more of the following uppercase codes:

D	Diagnostic
G	Periodic Quality Assurance Test Performed in Grace Period
Q	Periodic Quality Assurance

If more than one code applies, submit a two-letter code (for example, "DQ" for a test performed as a diagnostic test and to meet the quarterly leak check requirement). Do not leave this field blank.

(4) RT 605: Reference Data for Flow-to-load Ratio or Gross Heat Rate Evaluation

For units or stacks for which you report data on a year-round basis, this record type and its companion RT 606 are required in each QA operating quarter (a quarter with ≥ 168 unit or stack operating hours), for units or stacks with flow monitoring systems. For a non-QA operating quarter, do not report RT 605 or RT 606. Instead, report RT 698 to claim an exemption from the flow-to-load ratio test for that quarter.

Units that do not produce electrical or steam load (e.g., cement kilns) are exempted from the requirement to perform flow-to-load testing.

For each primary and each redundant backup flow monitoring system, an evaluation of the flow-to-load ratio or the gross heat rate (GHR) is required in each QA operating quarter. Only flow rate data actually reported to EPA are to be included in the data evaluation. Do not analyze data recorded by redundant backup flow monitors unless the data are reported in RT 220 as part of the official data record.

For Subpart H units or stacks for which you report data only in the ozone season, flow-to-load ratio tests are only required during the ozone season. Therefore, for such units or stacks, report RTs 605 and 606 only for the second and third calendar quarters, if those quarters are QA operating quarters (see § 75.74(c)(3)(iii)).

In order to perform the quarterly flow-to-load or GHR evaluation, determine R_{ref}, a reference value of the flow-to-load ratio, or $(GHR)_{ref}$, a reference value of the GHR. The value of R_{ref} (or $(GHR)_{ref}$) is derived from data collected during a normal-load flow RATA. Update the baseline R_{ref} or $(GHR)_{ref}$ value each time that a normal-load flow RATA is conducted. RT 605 is used to report the current value of R_{ref} or $(GHR)_{ref}$, derived from the results of the most recent normal load flow RATA. When two load levels are designated as normal in RT 536, derive a separate reference flow-to-load ratio or GHR value for each normal load level, and report the appropriate RT(s) 605 as described below in the corresponding instructions for RT 606.

For common stacks, the reference flow-to-load ratio or GHR is derived from the stack flow rate and the combined unit loads for the units serving the stack. Thus, report one RT 605 for each common stack under the flow monitoring system associated with the common stack. For example, if CS1 is a common stack serving Units 1 and 2, report one RT 605 for CS1 under the flow monitoring system ID associated with common stack CS1.

For multiple stack configurations, you may determine the reference flow-to-load ratio or GHR on a combined basis or an individual stack basis, i.e., either:

- Derive a single reference ratio or GHR value from the sum of the flow rates in the individual stacks and the unit load, and report the reference value multiple times (i.e., once under each flow monitoring system ID associated with each of the stacks). For example, if MS1A and MS1B are multiple stacks for Unit 1, report two RTs 605: one for multiple stack MS1A and one for MS1B, under the flow monitoring system ID associated with each of the multiple stacks; or

- Calculate a separate reference ratio for each stack at the time of the normal load flow RATA, using the average reference method flow rate and the average unit load during the RATA. If you used this method, report "S" in column 63 (see field description below).

Field Descriptions and Instructions

Monitoring System ID (10). Report the system ID of the flow monitoring system.

Reference Flow RATA End Date and Time (13, 21). Report the ending date and time of the most recent passing normal load flow RATA for this monitoring system.

Test Number (25). Report the test number associated with the most recent passing normal load flow RATA.

Average Gross Unit Load (27). Report L_{avg}, the average gross unit load during the most recent normal load flow RATA (RT 610, column 64), in megawatts or 1000 lb/hr of steam, as appropriate.

For common stacks, report the combined load for all units that were operating during the RATA.

For multiple stack configurations, if you perform the flow-to-load test on an individual stack basis, determine L_{avg} by summing the gross unit load values for all of the normal-load flow RATA runs and dividing the result by the total number of RATA runs. If you perform the flow-to-load test on a combined basis, determine L_{avg} by summing the gross unit load values for all of the normal-load flow RATA runs and dividing the result by the total number of RATA runs for all of the stacks (e.g., for two 9-run RATAs performed on stacks MS1 and MS2, add the load values for all 18 RATA runs and divide the result by 18).

Operating Level (33). Report the operating load level during the most recent normal load flow RATA (RT 611 column 116). Except for peaking units, the load level must be "L," "M," or "H." For peaking units, the load level must be "N."

Average Reference Method Flow Rate During Reference Flow RATA (34). Report the arithmetic mean of the flow rates (in scfh) measured by EPA Reference Method 2 (or its allowable alternatives) during the most recent normal load flow RATA (RT 611, column 48). For a multiple stack configuration, if you perform the test on a combined basis, calculate the mean reference method flow rate for the unit by summing the mean reference method flow rates measured during the flow RATAs at the individual stacks.

Reference Flow/Load Ratio (44). If you used the flow-to-load methodology, calculate and report R_{ref}, the reference value of the flow-to-load ratio, as follows. Divide the average reference method flow rate from column 34 by the reference RATA load in column 27 and multiply the result by 10^{-5}. Round the ratio to two decimal places.

If you used the gross heat rate (GHR) methodology for the quarterly flow monitor evaluation(s), leave this field blank.

Average Hourly Heat Input Rate During RATA (50). If you used the gross heat rate (GHR) methodology, use the appropriate equation from Appendix F to Part 75 to calculate $(\text{Heat Input})_{avg}$, the average hourly heat input during the most recent normal load flow RATA. In the Appendix F equation, use the average hourly CO_2 concentration

recorded during the RATA test period and the average reference method flow rate from column 34, above. Report this average hourly heat input rate, rounded to one decimal place.

If you used the flow-to-load methodology for the quarterly flow monitor evaluations, leave this field blank.

Reference Gross Heat Rate (GHR) Value (57). If you used the gross heat rate (GHR) methodology, calculate and report $(GHR)_{ref}$, the reference value of the gross heat rate, as follows. Divide the average hourly heat input from column 50 by the reference RATA load from column 27 and multiply the result by 1000. The units of the GHR will be either Btu/kw-hr or Btu/lb of steam.

If you used the flow-to-load methodology for the quarterly flow monitor evaluations, leave this field blank.

Separate Reference Ratios Calculated For Each Multiple Stack (63). If you have a separate flow monitoring system at each multiple stack and elect to calculate separate reference ratios for each stack, report "S." Otherwise, leave this field blank.

(5) **RT 606: Quarterly Flow-to-load Ratio or Gross Heat Rate Check**

This record type is required only for units or common stacks with flow monitoring systems. RT 606 summarizes the results of the quarterly flow-to-load ratio or gross heat rate quality assurance test required under Section 2.2.5 of Appendix B to Part 75. Submit RT 606 only for QA operating quarters. For a non-QA operating quarter, do not report RT 606. Rather, report RT 698 to claim an exemption from the flow-to-load ratio test for that quarter.

Units that do not produce electrical or steam load (e.g., cement kilns) are exempted from the requirement to perform flow-to-load testing.

For units or stacks for which you report data on a year-round basis, submit one RT 606 for each QA operating quarter, for each primary flow monitoring system and for each redundant backup flow monitoring system. For Subpart H units or stacks for which you report data only in the ozone season, report RTs 606 only for the second and third calendar quarters, if those quarters are QA operating quarters.

Note that for multiple stack configurations, if you elect to perform the data analysis on a combined basis, rather than for each individual stack, you will obtain only a single test result, since the flow-to-load ratio or GHR analysis is done at the unit level, not at the stack level. Therefore, you must report this same test result multiple times (i.e., once under each flow monitoring system ID associated with each of the multiple stacks).

When two load levels are designated as normal in RT 536, perform the quarterly flow-to-load ratio or GHR evaluation at the higher load level if sufficient data are available for the analysis. Otherwise, perform the evaluation at the lower load level. If the test is performed at the higher load level, report RTs 605 and 606 only for that load level. If there are insufficient data available at the higher load level and the test is done at the lower load level, report RTs 605 and 606 for both load levels, indicating a test result of "P" or "F" (as appropriate) for the lower load level in column 25 of RT 606, and

indicating a test result of "E" or "N" (as appropriate) for the higher load level in column 25 of RT 606. If there are insufficient data at both load levels, report RTs 605 and 606 for both load levels, indicating a test result of "E" or "N" (as appropriate) for both load levels in column 25 of RT 606.

Field Descriptions and Instructions

Monitoring System ID (10). Report the system ID of the flow monitoring system on which the flow-to-load ratio or GHR test is performed.

Calendar Quarter and Year (13). Report the quarter and year for which the flow-to-load ratio or GHR data analysis is performed (this will be the same as the quarter and year reported in RT 100).

Test Basis Indicator (18). Report whether you used the flow-to-load or gross heat rate methodology for the quarterly data analysis using the following uppercase codes:

H	Gross Heat Rate
Q	Flow-to-load Ratio

Leave this field blank if you report a results code of "E" or "N" in column 25.

Bias Adjusted Flow Rates Used (19). Report whether bias-adjusted flow rate values have been used in the quarterly flow-to-load ratio data analysis ("Y" or "N"). All flow-to-load ratios or GHRs must be calculated in a consistent manner (i.e., using unadjusted flow rates in all calculations or using bias-adjusted flow rates in all calculations).

Do not leave this field blank unless you report a results code of "E" or "N" in column 25.

Average Absolute % Difference Between Reference Ratio (or GHR) and Hourly Ratios (or GHR Values) (20). Report the value of E_f, which is the arithmetic average of the absolute percent differences between the reference flow-to-load ratio (or reference GHR) and the individual hourly flow-to-load ratios (or hourly GHRs) used in the data analysis. Leave this field blank if you report a results code of "E" or "N" in column 25.

Result (25). If, for a particular flow monitor, the value of E_f is within the applicable limit in Section 2.2.5 of Appendix B to Part 75, report the result as "P" (pass).

If E_f is not within the applicable limit, report the result as "F" (fail).

Report the result as "N" if a flow-to-load analysis is not required for the monitoring system because there were fewer than 168 hours of quality-assured flow rate data recorded by the monitoring system during the quarter at loads within ±10% of L_{avg} (the average load during the most recent normal load flow RATA). A test result of "N" may be due to infrequent unit operation or infrequent usage of a flow monitoring system (e.g., a redundant backup flow monitoring system which is used for less than 168 hours in a quarter).

Report the test result as "E" if fewer than 168 hours of quality-assured flow rate data remain for analysis, after excluding hourly flow rate data from the analysis for the allowable reasons described in columns 30 through 53 of RT 606.

Number of Hours Used in Quarterly Flow-to-load or GHR Analysis (26). Report the number of hours of quality-assured flow rate data that were used for the flow-to-load or GHR evaluation of the flow monitoring system. A minimum of 168 hours of quality-assured flow rate data are required. Leave this field blank or report zero if you report a results code of "E" or "N" in column 25.

Number of Hours Excluded for Different Type of Fuel (30). Report the number of hours (if any) of flow rate data excluded from the flow-to-load or GHR analysis because the fuel combusted was different than the fuel combusted during the reference flow RATA. A fuel is considered different if it is in a different state of matter (solid, liquid, or gas) from the fuel burned during the RATA or if the fuel is a different classification of coal (e.g., bituminous versus sub-bituminous). Also, for units that co-fire different types of fuel, if the reference RATA was done while co-firing, then hours in which a single fuel was combusted may be excluded from the data analysis (and vice-versa for co-fired hours, if the reference RATA was done while combusting only one type of fuel). Leave this field blank or report zero if you are not claiming any excluded hours for this reason or if you report a results code of "N" in column 25.

Number of Hours Excluded for Load Ramping Up or Down (34). Report the number of hours (if any) of flow rate data excluded from the data analysis because of ramping (i.e., the hourly load differed by more than ±15% from the load during the previous or subsequent hour). Leave this field blank or report zero if you are not claiming any excluded hours for this reason or if you report a results code of "N" in column 25.

Number of Hours Excluded for Scrubber Bypass (38). For units with wet scrubbers, report the number of hours (if any) of flow rate data excluded from the data analysis because the scrubber was entirely bypassed. Leave this field blank or report zero if you are not claiming any excluded hours for this reason or if you report a results code of "N" in column 25.

Number of Excluded Hours Preceding a Normal Load Flow RATA (42). If a normal load flow RATA of the monitoring system was performed and passed during the quarter, you may exclude all flow rate data recorded by the monitoring system prior to completion of the RATA from the flow-to-load or GHR analysis. Report the number of hours (if any) of flow rate data excluded for this reason. Leave this field blank or report zero if you are not claiming any excluded hours for this reason or if you report a results code of "N" in column 25.

Number of Excluded Hours Preceding a Successful Diagnostic Test, Following a Documented Monitor Repair, or Following a Major Component Replacement (46). If a documented repair or major flow monitor component replacement occurred during the quarter to correct a problem with the flow monitoring system accuracy, and if a subsequent abbreviated flow-to-load test was passed in accordance with Section 2.2.5.3 of Appendix B to Part 75 to verify that the monitoring system was generating accurate data, you may exclude all flow rate data recorded by the monitoring system prior to completion

of the abbreviated flow-to-load test from the flow-to-load or GHR analysis. Report the number of hours (if any) of flow rate data excluded for this reason. Leave this field blank or report zero if you are not claiming any excluded hours for this reason or if you report a results code of "N" in column 25.

Number of Hours Excluded for Flue Gases Discharging Simultaneously Through a Main Stack and Bypass Stack (50). For a unit with a main stack and a bypass stack (e.g., a unit with a wet scrubber), report the number of hours (if any) of flow rate data excluded from the flow-to-load or GHR analysis because flue gases were flowing through both stacks simultaneously. Leave this field blank or report zero if you are not claiming any excluded hours for this reason or if you report a results code of "N" in column 25.

(6) **RTs 610 and 611: Relative Accuracy Test Audit (RATA) and Bias Test Data and Results**

Report the results of all relative accuracy tests performed for initial certification, recertification or ongoing quality assurance using RTs 610 and 611. RT 610 reports the results of each run. RT 611 reports the relative accuracy for the load level. Follow the rounding conventions discussed in Section II.C.(7)(d).

For units or stacks for which you report data on a year-round basis, for routine quality assurance, a RATA of each CEMS is required either semiannually (i.e., once every two QA operating quarters) or annually (i.e., once every four QA operating quarters), depending on the relative accuracy percentage obtained in the previous RATA. If a calendar quarter is not a QA operating quarter, a RATA deadline extension of one quarter may be claimed. Part 75 also allows extension of SO_2 RATA deadlines based on the type of fuel combusted during the quarter and provides conditional RATA exemptions in certain instances. (Refer to the RT 697 instructions for details.) If a required RATA is not completed by the end of the quarter in which it is due, a 720 unit/stack operating hour grace period is allowed to perform the test. To claim a grace period for a missed RATA, follow the applicable instructions under RT 699.

For Subpart H units or stacks for which you report data only in the ozone season, RATAs must be performed to quality-assure the NO_x mass emissions data recorded in the ozone season. Note that the QA operating quarter method of determining RATA deadlines and data validation status does not apply to these units or stacks. Instead, a successful RATA resulting in a semiannual (or annual) frequency validates data from a CEMS for two (or four) calendar quarters (not QA operating quarters) following the quarter in which the RATA is passed (see §§ 75.74(c)(2)(ii)(F) and (G) and § 75.74(c)(3)(vii)). The RATA grace period provisions in Section 2.3.3 of Appendix B also do not apply to these units or stacks. However, a grace period is conditionally allowed within the ozone season, when the data validation window from the previous RATA has expired prior to the start of the current ozone season (see § 75.74(c)(2)(ii)(H)). To claim this grace period, follow the applicable instructions under RT 699.

Report the results of all completed and aborted RATAs which affect data validation. For Subpart H units or stacks for which you report data only in the ozone season, report the results of all pre-ozone season RATAs which affect data validation in the current ozone season, in the quarterly report for the second calendar quarter of the current year (or in the third quarter report, if the second quarter is a non-operating quarter).

An aborted test is a RATA which is discontinued due to a monitor failure and is treated as a failed test. The results of aborted RATAs must be reported, with one exception. For ozone season-only

reporters, an aborted pre-ozone season RATA need not be reported if a subsequent RATA is passed prior to the start of the current ozone season. For an aborted RATA, report only RTs 610, using a run status flag of "9" in column 62 for each run. Do not report RT 611 for an aborted RATA.

It is not necessary to report or to treat as a failed test, a RATA which is discontinued because of a failure which is unrelated to instrument performance, such as a power outage, unit outage, unit stability problems or reference monitor failure. Also do not report the results of trial RATA runs that are part of the process of optimizing the performance of a monitor, when the injections meet the acceptance criteria in § 75.20(b)(3)(vii)(E). For trial runs that do not affect data validation, record the results as part of the official test log and maintain records on-site (or at an alternative location known to the regulatory agency if on-site storage is not feasible).

Field Descriptions and Instructions for RT 610

Monitoring System ID (10). Report the system ID. The monitoring system ID is an essential identifier for this record type. Relative accuracy tests are performed and reported only on a system basis. For example, the relative accuracy test for a NO_x-diluent monitoring system is performed only on a lb/mmBtu basis, not on an individual component basis.

Run Start and End Date and Time (13, 19, 23, 29). Report the precise start and end time for each individual run. Run times must not overlap.

Units of Measure (33). Report the units of measure in which the run results are reported using one of the following codes:

1	ppm
2	lb/mmBtu
3	scfh (wet basis)
4	$\%CO_2$
5	$\%O_2$
7	$\%H_2O$

Value from CEM System Being Tested (34). Report the measured value from the monitoring system being tested in the appropriate units for the run. Report these values to the same precision as is required for hourly data in the EDR (i.e., to the nearest 0.1 ppm, 0.1% CO_2, O_2, or H_2O, 0.001 lb/mmBtu or 1000 scfh, as applicable).

Value from Reference Method, Adjusted as Necessary for Moisture and/or Calibration Bias (47). Report the measured value from the reference method monitor to which the monitoring system is being compared. This value should reflect adjustment, as necessary, for moisture and/or calibration bias. Also report these values to the same precision as required for hourly data.

Run Number (60). Assign and report a run number to each measurement, beginning with the number "1" for each load level. Because all runs must be reported whether or not they are used to calculate the relative accuracy test, run numbers must be consecutive and in chronological order. Do not skip a run number.

RATA Run Status Flag (62). Report whether the run data were used to determine relative accuracy using one of the following codes:

0	Run Not Used in RATA Calculation
1	Run Used in RATA Calculation
9	Test Aborted

The code "9" was originally defined under the Acid Rain Program to indicate a test which was not used (either because the test was aborted or because a more favorable RATA result was obtained on a subsequent attempt). This code is no longer allowed for completed RATAs. The use of code "9" is reserved exclusively for aborted tests. Report all completed RATAs, whether passed or failed, using only run status flags of "1" or "0."

Operating Level (63). Report the load level at which the relative accuracy test was performed. For RATAs of monitoring systems installed on peaking units, report "N" in this field. For all other RATAs, use only the letters "L," "M," and "H" to indicate the operating level.

Use one of the following uppercase codes:

L	Low
M	Mid
H	High
N	Normal (for peaking units only)

Gross Unit Load or Average Velocity at Operating Level (64). For load-based units, report the load level in megawatts or steam load during each RATA run. The units for this value (either megawatts or steam in 1000 lb/hr) should be consistent with the units used to define load levels in RT 535 of the monitoring plan.

For units that do not produce electrical or steam load (e.g., cement kilns, refinery process heaters, etc.), report the average stack gas velocity at the operating level being tested. To determine the appropriate average velocity, first divide the range of operation (which is defined in RT 536 in terms of stack gas velocity) into low, mid and high operating levels, as described in section 6.5.2.1 (b) of Appendix A. Then, report the velocity at the midpoint of the tested level for each of the RATA runs (e.g., if the RATA is done at the "high" operating level and the high level extends from 40 to 60 ft/sec, report 50 ft/sec as the average velocity for each RATA run.

Do not leave this field blank and do not report zero in this field.

Test Number (70). Assign and report a test number to each set of relative accuracy runs which comprise a relative accuracy test. For all runs associated with all load levels of a multi-load flow or heat input RATA, assign and report a single, unique test number for the set of test records.

For example, assign the test number "1" to a normal load relative accuracy test for a NO_x-diluent system. If this test is aborted or fails and a new test is subsequently passed, assign

the test number "2" to the successful second test. For test number "2" there will be a minimum of nine RTs 610 (one for each run) and one RT 611 (with the test result).

For a 2-load flow RATA or a 3-load flow RATA assign the same test number to all the low, mid and high level runs (as applicable) of the test in RT 610 and assign this same test number to the corresponding RTs 611 that represent the results for each load level. For example, if a 3-load RATA was performed at low, mid and high load levels, a test number of "1" is assigned. Each RATA run at each of the three load levels will therefore have a test number of "1." The corresponding RT 611 for each of the three load levels will also have a test number of "1." The test number links together the three-load levels as a single "test." The test number also (when used in conjunction with the operating level) distinguishes each set of load-specific runs within the 3-load RATA.

You may use the same test number (e.g., "1") for RATAs of different monitoring systems in the same calendar quarter.

You may reuse the test number for the same monitoring system, provided that the tests are performed and reported in different quarters and files.

If you submit data for an incomplete, aborted test, assign and report a unique test number to the set of reported RTs 610.

If you submit hardcopy information on this test in a certification or recertification report or submit other information about the test to EPA or a State agency, refer to the monitoring system ID, the test number, and test time period.

Do not leave this field blank.

Field Descriptions and Instructions for RT 611

Monitoring System ID (10). Report the same monitoring system ID submitted in RT 610 for the test. Do not leave this field blank.

RATA End Date and Time (13, 19). Report the date and time of completion of the last run performed as part of the test, whether or not the run was used in the calculation.

Reference Method Used (23). Report the primary reference method(s) used to determine relative accuracy, using the codes below. Enter only one code per RATA.

Gas Monitoring System Reference Methods

(1) For gas monitoring system RATAs in which a single primary reference method from Appendix A of 40 CFR 60 is used (i.e., for RATAs of SO_2, CO_2, or NO_x concentration monitoring systems, RATAs of O_2 monitoring systems or moisture monitoring systems), report the number and letter associated with the primary reference method.

For gas monitoring system RATAs in which two primary reference methods are used (i.e., for NO_x-diluent monitoring system RATAs), indicate the numbers and letters of

the two primary methods, separated by a comma. Do not leave any blank spaces between the alphanumeric characters in the code.

Code	Commonly Used RATA Method(s)
6C	SO_2 RATA Using RM 6C
7E	NO_x Concentration System RATA Using RM 7E
3A	CO_2 or O_2 Monitoring System RATA Using RM 3A
4	Moisture Monitoring System RATA Using RM 4
7E,3A	NO_x-diluent Monitoring System RATA Using RM 7E and RM 3A
20	NO_x RATA Using RM 20

(2) For flow RATAs use one of the following uppercase codes (no other codes are acceptable):

Code	Commonly Used RATA Method(s)
2	Method 2, Without Wall Effects Adjustment
M2H	Method 2, With Measured Method 2H Wall Effects Adjustment
D2H	Method 2, With Default Method 2H Wall Effects Adjustment
2F	Method 2F, Without Wall Effects Adjustment
2G	Method 2G, Without Wall Effects Adjustment
2FH	Method 2F, With Method 2H Wall Effects Adjustment (either measured or default)
2GH	Method 2G, With Method 2H Wall Effects Adjustment (either measured or default)

Units of Measure (34). Report the units of measure in which the run results are reported using one of the following codes.

1	ppm
2	lb/mmBtu
3	scfh
4	$\%CO_2$
5	$\%O_2$
7	$\%H_2O$

Units of measure reported in RTs 611 must be consistent with the units reported for the test in RTs 610.

RATA Calculation Fields (35 through 110). Report the results of the relative accuracy test and interim values, as required and defined for the appropriate test method and in Part 75, Appendix A.

Bias Adjustment Factor at this Load Level (111). For each passed RATA report the bias adjustment factor (BAF) at each load level tested, as described below. Leave this field blank if the RATA is failed.

Load-level BAFs for Single-load RATAs:

(1) For RATAs of CO_2, O_2, or H_2O monitoring systems, always report a BAF of 1.000, since a bias test is not required for these systems.

(2) For RATAs of SO_2 and NO_x monitoring systems and for single-load flow RATAs, report 1.000 in this field if the bias test is passed and report the calculated BAF if the bias test is failed.

(3) For a unit that qualifies as a low emitter of SO_2 or NO_x (see Appendix B to Part 75, Section 2.3.1.2, paragraphs (e) and (f)), if the calculated BAF exceeds 1.111, you may either report the calculated BAF or a default value of 1.111 as the bias adjustment factor report the BAF that will actually be applied to the SO_2 or NO_x emissions data. That is, report either the calculated BAF or a default BAF of 1.111, whichever will be used in the emission calculations (see Section 7.6.5 of Appendix A to Part 75).

Load-level BAFs for a Multiple-load Flow RATA: Determine the appropriate BAF for each tested load level, as follows:

(1) For simplicity, EPA recommends that you perform a bias test and determine a BAF at all load levels tested. If you choose this option, report a load-level BAF of 1.000 if the bias test is passed and report the calculated load-level BAF if the bias test is failed.

(2) If you do not choose option (1) above, the minimum bias test and BAF reporting requirements are as follows:

- Perform a bias test at each tested load level ("L," "M," or "H") which is designated as a normal load in RT 536;
- If the bias test is passed, report a BAF of 1.000 for the load level;
- If a bias test is failed at any designated normal load, you must determine and report the load-level BAFs for the two most frequently-used load levels (as specified in RT 536, column 22).

Operating Level (116). Report the load level as "H," "M," "L," or "N," consistent with the load level reported in RT 610, column 63.

Average Gross Unit Load (or Average Velocity at Operating Level) (117). For load-based units, report the average gross unit load in megawatts or steam load for all runs used in the relative accuracy calculation for this load level. For units that do not produce electrical or steam load, report the average velocity in ft/sec at the tested operating level (see RT 610, column 64 instructions).

Indication of Normal Load (or Operating Level) (127). If a peaking unit is being tested, leave this field blank. Otherwise, if the load (or operating) level (i.e., "L," "M," or "H") at which the RATA is performed is designated as a normal load in column 25 or 26 of RT 536, report "N" in this field. This applies to both gas and flow RATAs. If the load

(or operating) level being tested is not designated as normal in RT 536, leave this field blank.

Alternative Performance Specification (APS) Flag (128). Report "0" for relative accuracy based on a determination of relative accuracy as a percentage of the mean of the reference method (RM) value. Report a "1" for relative accuracy determined by taking the absolute value of the difference between the RM and CEM mean values. The alternative relative accuracy specifications apply only to: (1) low-emitting SO_2, and NO_x monitoring systems; (2) CO_2 and O_2 monitoring systems; and (3) moisture monitoring systems.

Test Number (129). Report the test number assigned for this test, consistent with the instructions for RT 610.

Reason for RATA (131). Report the purpose of the test using one or more of the following uppercase codes:

C	Initial Certification
D	Diagnostic
G	Periodic Quality Assurance Test Performed in Grace Period
Q	Periodic Quality Assurance
R	Recertification

If more than one code applies, submit a two-letter code (e.g., "RQ" for a RATA test performed as a recertification test and to meet the annual RATA requirement, "QD" to indicate that a test is performed both for routine quality assurance and as a diagnostic). Do not leave this field blank.

Number of Load (or Operating) Levels Comprising Test (133). Report for all tests the number of load (or operating) level tests which are required for a successful RATA. For gas RATAs, report "1." For flow RATAs, report "1," "2," or "3," as appropriate. Do not leave this field blank.

System Bias Adjustment Factor for a Multiple-load (Multiple-Level) Flow RATA (134). This field applies only to multiple-load (or multiple-level) flow RATAs. If the flow monitoring system passed the relative accuracy test at all tested load (or operating) levels, report the BAF that will be applied to the subsequent data reported from the monitoring system. Determine the system BAF as follows:

(1) Report a system BAF of 1.000 if the bias test was passed at all load (or operating) levels designated as normal (see column 111 instructions, above); or

(2) Report the higher of the two BAFs calculated at the two most frequently used load (or operating) levels (as defined in RT 536, column 22), if the bias test was failed at any designated normal load (or operating) level.

If the monitoring system failed the relative accuracy test at any load (or operating) level or if you performed only a single-load (or single-level) flow RATA for the system, leave this field blank.

(7) RTs 614, 615, and 616: Reference Method Supporting Data for Flow RATA Tests

Submit RTs 614 and 615 only for flow RATAs in which: (1) Method 2F or 2G is used, without adjustment for wall effects; or (2) Method 2F or 2G is used, with adjustment for wall effects, in accordance with Method 2H; or (3) Method 2 is used and a calculated wall effects adjustment factor is determined by direct measurement using Method 2H and applied to each test run.

For Methods 2F and 2G, submit RT 614 and 615 only for the test runs that are actually used to calculate relative accuracy (i.e., runs flagged with a "1" in RT 610, column 62). One RT 614 is required per test run and one RT 615 is required for each Method 1 traverse point in each test run. For multi-load flow RATAs, submit RTs 614 and 615 for each load level tested.

For regular Method 2, submit RT 614 and 615 only for the run(s) in each flow RATA that are used to derive a calculated wall effects adjustment factor. One RT 614 is required for each of those runs and one RT 615 is required for each Method 1 traverse point in each of those runs. For multi-load flow RATAs, submit the required RTs 614 and 615 for each load level at which a calculated wall effects adjustment factor is determined.

Submit RT 616 only for flow RATAs in which regular Method 2 is used and a default wall effects adjustment factor (WAF) from Method 2H is applied to each test run. For multi-load flow RATAs, submit one RT 616 for each load level at which the default WAF is applied.

The reporting requirements for RTs 614, 615, and 616 are summarized in Table 37.

Table 37
SUMMARY OF EDR REPORTING REQUIREMENTS FOR RECORD TYPES 614, 615, and 616

Case No.	Case Description	Reference Method(s) Used	Reference Method Code RT 611: 23	Required EDR Record Types		
				610 / 611	614 / 615*	616
1	Method 2, with no wall effects adjustments	2	2	Y	N	N
2	Method 2 with default WAF	2 and 2H	D2H	Y	N	Y
3	Method 2 with calculated WAF	2 and 2H	M2H	Y	Y**	N
4	Method 2F, with no wall effects adjustments	2F	2F	Y	Y	N
5	Method 2F with calculated or default WAF	2F and 2H	2FH	Y	Y	N
6	Method 2G, with no wall effects adjustments	2G	2G	Y	Y	N
7	Method 2G with calculated or default WAF	2F and 2H	2GH	Y	Y	N

* When RTs 614 and 615 are required, report them only for RATA runs that are used in the relative accuracy calculations (i.e., run status flag in RT 610:62 = "1").

** For reference method code "M2H," report RTs 614 and 615 for a particular RATA run only if the run is both used in the relative accuracy calculations (i.e., run status flag in RT 610:62 = "1") and used to derive a calculated WAF.

Field Descriptions and Instructions for RT 614 (Run Level Data)

Monitoring System ID (10). Report the system ID for the flow monitoring system (from RT 510 of the monitoring plan) being tested for relative accuracy**.**

Test Number (13). Report the same test number as for the corresponding RT 610 for the test run.

Operating Level (15). Report the same operating level as in the corresponding RT 610 for the test run.

Run Number (16). Report the same run number as in the corresponding RT 610.

Run Start and End Date and Time (18, 26, 30, 38). Report the same run starting and ending date(s) and time(s) as reported in the corresponding RT 610.

Flow Rate Reference Method(s) Used (42). Report one of the following uppercase codes to indicate which flow rate reference method(s) from Appendix A to 40 CFR Part 60 were used for the test.

2F	Method 2F, Without Wall Effects Adjustment
2G	Method 2G, Without Wall Effects Adjustment
2FH	Method 2F, With Method 2H Wall Effects Adjustment (either measured or default)
2GH	Method 2G, With Method 2H Wall Effects Adjustment (either measured or default)
M2H	Method 2, With Measured Method 2H Wall Effects Adjustment

This code must be the same as the codes submitted in column 23 of RT 611. Note that codes "2" and "D2H" do not appear on the list above. Reporting of RT 614 is not required for those method codes.

Number of Traverse Points (45). Report the number of Method 1 traverse points used for the test run. If Method 2H is used to calculate a wall effects adjustment factor from the test data for this run, the number of traverse points must be at least 16.

Barometric Pressure (47). Report the barometric pressure, in inches of mercury, for the test run.

Stack Static Pressure (52). Report the stack static pressure, in inches of water, for the run. If P_g is negative, include the minus sign. Note that there is a "floating" decimal point in this field, to allow you to report negative pressures less than -9.9 inches of water. That is, you may report negative static pressures to one decimal place instead of two (e.g., -15.1 in. H_2O).

% CO_2/O_2 in Stack Gas, Dry Basis and CO_2/O_2 Reference Method (57, 62, 67). Report the dry-basis %CO_2 and %O_2 in the stack gas for the test run, in columns 57 and 62, respectively. Report in column 67 which reference method, 3 or 3A, was used to measure the diluent gas concentrations.

% Moisture in Stack Gas (71). Report the stack gas moisture percentage for the test run.

Stack Gas Wet and Dry Molecular Weight (76, 81). Report the molecular weight of the stack gas for the test run, on both a dry basis (column 76) and a wet basis (column 81). Use Equation 3-1 in Method 3 to calculate M_d and Equation 2-6 in Method 2 to calculate M_s.

Stack Diameter at Test Port Location (86). Report the stack diameter in feet at the test port location. For rectangular stacks or ducts, report the equivalent diameter, calculated as follows: determine the cross-sectional area of the rectangular duct, in ft^2; set this area equal to the area of a circle, ($1/4\ \pi\ d^2$); and solve for "d," the equivalent circular diameter (ft).

Stack or Duct Cross-sectional Area at Test Port (91). Report the cross-sectional area of the stack or duct in square feet at the test port location.

Average Velocity for Run, Not Accounting for Wall Effects (97). Report the average velocity for the test run in feet per second, without considering wall effects. The calculated average run velocity is the arithmetic average of the calculated point velocities at the Method 1 traverse points (i.e., the average of all of the velocity values reported in RT 615, column 81 for this test run).

Average Velocity for Run, Accounting for Wall Effects (103). If a wall effects adjustment factor *(WAF)* is to be derived using the data from this test run, report the average run velocity, considering wall effects. Calculate this value using the appropriate point velocity values from RT 615, columns 81 and 87, in Equation 2H-17 of Method 2H. If no wall effects adjustment factor is to be derived from the run data, leave this field blank.

Calculated Wall Effects Adjustment Factor *(WAF)* Derived from this Run (109). If the test data from this run are used to derive a wall effects adjustment factor *(WAF)* in accordance with Equation 2H-19 of Method 2H, calculate the *WAF* by dividing the adjusted velocity value in column 103 by the unadjusted velocity value in column 97 and report the result in column 109.

If the test data from this run are not used to derive a *WAF*, leave this field as blank or zero.

Report the calculated *WAF* result in this field even if a default *WAF* is applied to this run.

Calculated *WAF* Applied to All Runs of This RATA (115). If no wall effects adjustment is applied to the test runs of this RATA or if a default is *WAF* applied, leave this field as blank or zero. Otherwise, report the value of the calculated *WAF* applied to this test run and to all of the other runs of this RATA. The term "*WAF*" is defined in sections 12.2, 12.7.1, and 12.7.2 of Method 2H as "the wall effects adjustment factor that is applied to the average velocity, unadjusted for wall effects, in order to obtain the final wall effects-adjusted stack gas velocity....". Therefore, *WAF* may be either a default value (as discussed in the column 121 instructions), a WAF calculated from a single run (as discussed in the column 109 instructions), or an average value calculated from multiple single-run WAFs.

Note the following instances in which a WAF value reported in column 109 must be adjusted upward before using it to determine *WAF*: (1) If a WAF reported in column 109 is less than 0.9800 and was derived from a partial wall effects traverse (according to Section 8.2.2 of Method 2H), adjust the WAF value upward to 0.9800; and (2) If a WAF reported in column 109 is less than 0.9700 and was derived from a complete wall effects traverse (according to Section 8.2.3 of Method 2H), adjust the WAF value upward to 0.9700.

Default *WAF* Applied to All Runs of This RATA (121). If a default *WAF* is applied to this test run and to all of the other runs of this RATA, report the appropriate value from Method 2H. For brick and mortar stacks, use a default *WAF* of 0.9900. For all other

stacks, use a default *WAF* of 0.9950. If no wall effects adjustment is applied to the test runs of this RATA or if a calculated *WAF* is applied, leave this field as blank or zero.

Average Stack Flow Rate, Wet Basis, Adjusted if Applicable for Wall Effects (127). Report the average stack gas flow rate for the test run, in scfh (wet basis). If wall effects are not considered, calculate the average flow rate according to the applicable equation in Method 2, 2F or 2G, using the unadjusted average run velocity from column 97 of this record in the calculations. If wall effects adjustments are applied, however, first obtain the wall effects-adjusted average velocity by multiplying the calculated *WAF* from column 115 or the default *WAF* from column 121 of this record (as appropriate) by the unadjusted average velocity in column 97, in accordance with Equation 2H-21 of Method 2H. Then, following the provisions of section 12.7 in Method 2H, use the final wall effects-adjusted velocity, obtained from Equation 2H-21, in the applicable equation from Method 2, 2F, or 2G to calculate the wall effects-adjusted stack gas flow rate and report this adjusted flow rate in column 127. The flow rate value reported in column 127 must match the flow rate reported for this test run in RT 610, column 47.

Field Descriptions and Instructions for RT 615 (Traverse Point Level Data)

Monitoring System ID (10). Report the system ID for the flow monitoring system (from RT 510 of the monitoring plan) being tested for relative accuracy.

Test Number (13). Report the same test number as in the corresponding RT 610 for the test run.

Operating Level (15). Report the same operating level as in the corresponding RT 610 for the test run.

Run Number (16). Report the same run number as in the corresponding RT 610 for the test run.

Reference Method Probe Type (18). Report the type of probe employed in reference method using one of the following uppercase codes:

AS	Type S (automated)
DA	Prism-shaped 3-D Pitot (without thermocouple)
DAT	Prism-shaped 3-D Pitot (with thermocouple)
P	Prandtl
S	Type S (manual)
SPH	Spherical 3-D Probe

Probe ID (22). Report the permanent identification number engraved (or otherwise marked) on the probe being used to measure velocity at the traverse point.

Pressure Measurement Device Type (33). Report the type of pressure measurement device employed in reference method using one of the following uppercase codes:

ET	Electronic Manometer or Electronic Pressure Transducer
MG	Mechanical Pressure Gauge (e.g., Magnehelic® gauge)
MN	Fluid Manometer

Method 1 Traverse Point ID (35). Assign a unique alphanumeric designation to each of the Method 1 traverse points. Maintain the same point numbering scheme throughout the RATA. Do not leave any of the columns 35 through 37 blank. Use leading zeros to fill in, as necessary. For example, if the traverse points are numbered consecutively from 1 through 16, report them as "001," "002," "003," etc.

Probe or Pitot Velocity Calibration Coefficient (38). Report the value of the probe or pitot tube velocity calibration coefficient. For a Type-S or Prandtl pitot tube, this will be C_p. For a 3-dimensional probe, this will be the appropriate F_2 coefficient.

Date of Latest Probe or Pitot Tube Calibration (43). Report the year, month, and day of the latest successful wind tunnel calibration of the probe or pitot tube.

Average Velocity Differential Pressure at Traverse Point (51). Report the sight-weighted or integrated average velocity differential pressure, in inches of H_2O, recorded at the Method 1 traverse point, unless the data acquisition system provides a continuous readout of the square root of the differential pressure, in which case, leave this field blank. For Method 2 or 2G, report the average ΔP value. For a 3-dimensional probe, report the average value of $(P_1 - P_2)$.

Note: If you report the average differential pressure in this field, do not report data in column 56.

Average of Square Roots of Velocity Differential Pressures at Traverse Point (56). If the data acquisition system electronically provides an integrated average of the square roots of all differential pressure readings recorded at the Method 1 traverse point (rather than providing an average of the differential pressure values themselves), report the integrated average of the square roots. Otherwise, leave this field blank.

Note: If you report the integrated average of the square roots of the differential pressures in this field, do not report data in column 51.

Stack Temperature at Traverse Point (61). Report the stack temperature measured at the traverse point, in degrees Fahrenheit.

Exterior Method 1 Traverse Point Identifier (66). If the traverse point is one of the four Method 1 points closest to the stack wall and if this test run is used to determine a wall effects adjustment factor (WAF), report "W" in column 66. Otherwise, leave this field blank.

Number of Wall Effects Points Used to Derive Replacement Velocity (67). If a "W" is reported in column 66, indicating that the traverse point is an exterior Method 1 traverse point, report the number of wall effects points used to generate the replacement velocity at the traverse point. The total number of wall effects points reported in column 67 should include: (1) all 1-inch incremented points at which actual wall effects measurements were made; (2) all 1-inch incremented points at which actual wall effects measurements were not made, but for which the velocity obtained at a subsequent wall effects traverse point was used, as provided under Section 8.7.1.2 of Method 2H; and (3) the traverse point located at d_{rem} (as defined in Section 3.3 of Method 2H), if a velocity measurement was taken at that point.

Yaw Angle of Flow at Traverse Point (69). If Method 2 is used for the velocity traverse, leave this field blank. If Method 2F or 2G is used for the velocity traverse, report the measured yaw angle at the traverse point. If the yaw angle is negative, be sure to include the minus sign.

Pitch Angle of Flow at Traverse Point (75). If Method 2 or 2G is used for the velocity traverse, leave this field blank. If Method 2F is used for the velocity traverse, report the measured pitch angle of the traverse point. If the pitch angle is negative, be sure to include the minus sign.

Calculated Velocity at Traverse Point, Not Accounting for Wall Effects (81). Using the appropriate equation from Method 2, 2F, or 2G (as applicable), calculate the velocity at the traverse point, in actual ft/sec. Use the average differential pressure at the traverse point from column 51 of this record or the average of the square roots of the differential pressures from column 56 of this record (whichever is appropriate) in the calculations, along with the stack temperature from column 61 of this record and the supporting run-level information from columns 47 through 85 of RT 614. Round off the result to two decimal places. Do not adjust the calculated point velocity for wall effects.

Calculated Replacement Velocity at Traverse Point, Accounting for Wall Effects (87). Leave this field as blank or zero unless the traverse point is one of the four exterior Method 1 traverse points (indicated by a "W" in column 66). If a "W" is indicated in column 66, report the replacement point velocity for the traverse point, in actual ft/sec, corrected for wall effects in accordance with Equation 2H-15 of Method 2H (see also Form 2H-1 or Form 2H-2 and accompanying instructions in Method 2H).

Field Descriptions and Instructions for RT 616

Monitoring System ID (10). Report the ID of the flow monitoring system for which the RATA was performed.

Test Number (13). Report the test number as reported in the corresponding RTs 610/611.

Operating Level (15). Report the operating level as reported in the corresponding RTs 610/611.

RATA End Date and Time (16, 24). Report the end date and time as reported in the corresponding RT 611.

Default Wall Effects Adjustment Factor Used (28). Report the default wall effects adjustment factor ($\overline{WAF}$) applied to each run of the flow RATA for this operating level, in accordance with Method 2H. For brick and masonry stacks, use a default $\overline{WAF}$ of 0.9900. For all other stacks, use a default $\overline{WAF}$ of 0.9950.

(8) **RT 620: Cycle Time/Response Time Data and Results [Replaced]**

This record type was retired and replaced by RT 621.

(9) **RT 621: Cycle Time Test Data and Results**

The cycle time test is required for initial certification of a gas CEMS and may be required for recertification or as a diagnostic test. The cycle time test is not a required periodic quality assurance test under Appendix B to Part 75. Submit RT 621 only when a cycle time test of a gas monitoring system is required for initial certification, recertification, or diagnostic purposes. Perform the cycle time test according to the procedures under 40 CFR Part 75, Appendix A, Section 6.4. An upscale and a downscale cycle time test is required for each analyzer component of each gas monitoring system. Separate RTs 621 are required for the upscale and downscale tests for each analyzer component.

Field Descriptions and Instructions

Component ID (10). Report the component ID (from RT 510) of the gas analyzer being tested.

Monitoring System ID (13). Report the monitoring system ID (from RT 510) of the gas analyzer being tested. For time-sharing, each probe location should have a different monitoring system ID. In such cases, report separate RTs 621 for each time-shared monitoring system.

Date (16). Report the date on which the cycle time test was performed.

Start Time (22). Report the start of the cycle time test which was the hour and minute at which the calibration gas flow was stopped after obtaining a stable calibration gas reading (i.e., point "B" in Figure 6 in Section 6.4 of Appendix A to Part 75).

End Time (26). Report the end of the cycle time test which was the hour and minute at which 95.0% of the step change between the starting stable calibration gas value and the ending stable stack emissions value was achieved (see Figure 6 in Appendix A).

Component Cycle Time (30). Report the upscale or downscale cycle time (as appropriate) for the analyzer component being tested. For time-sharing, the same analyzer component can have different component cycle times, depending on which monitoring system (probe location) is being tested.

Stable Starting Monitor Value (32). Report the stable analyzer response to the calibration gas at the beginning of the cycle time test (see point B in Figure 6 in Appendix A).

Stable Ending Monitor Value (45). Report the final, stable analyzer response to the stack emissions (see point C in Figure 6 in Appendix A).

Calibration Gas Value (58). Report the certified tag value of the calibration gas used for the cycle time test.

Calibration Gas Level (71). If the upscale response of an analyzer was checked (i.e., from a zero-level calibration gas to stack emissions), report the calibration gas level as "Z." If the downscale response was tested (i.e., from a high-level calibration gas to stack emissions), report the calibration gas level as "H."

Total or System Cycle Time (72). For an SO_2 or CO_2 pollutant concentration monitor, report the longer of the upscale and downscale cycle times as the system cycle time. Therefore, even if the upscale and downscale component cycle times are different, both the upscale and downscale RTs 621 will have the same system cycle time. For NO_x-diluent monitoring systems, report the system cycle time as the longest component cycle time observed during any of the upscale or downscale tests of the pollutant and diluent analyzers. Therefore all four of the RTs 621 for the cycle time test of a NO_x-diluent monitoring system (i.e., the two upscale and two downscale test results) will have the same system cycle time. If time-sharing is used, determine the total cycle time as follows. Identify the longest component cycle time obtained for each of the time-shared systems. Add these longest component cycle times together and then add an appropriate amount of time (as determined by the CEMS manufacturer) to account for all purge cycles at the different probe locations, to obtain the total cycle time. Report this total cycle time in RT 621 as the system cycle time for each of the time-shared systems.

Reason for Test (74). Indicate the purpose of the test using one of the following uppercase codes:

C	Initial Certification
D	Diagnostic
R	Recertification

Do not leave this field blank.

Test Number (76). For each set of records which comprise a single test, assign a unique test number for the system and component. For SO_2 and CO_2 pollutant concentration monitors, two RTs 621 comprise a cycle time test of the monitoring system (i.e., the upscale and downscale test results). For NO_x-diluent systems, four RTs 621 comprise a system cycle time test (i.e., the upscale and downscale test results for each analyzer). You may reuse the test number for different systems and components. You may also reuse the test number for the same monitoring system, provided that the tests are performed and reported in different quarters. If you submit data for an incomplete or aborted test, assign and report a test number. If you submit hardcopy information on a test in a certification report or submit other information about the test to EPA or a State agency, refer to the

system and component IDs, the test number, and test time period (quarter and year). Do not leave this field blank.

Note: If a single component ID is used to represent a dual-range analyzer (i.e., if a component type code of "SO2A," "NOXA," "CO2A," "O2DA," or "O2WA" is assigned to the analyzer in column 23 of RT 510), use two different test numbers for the low and high scale cycle time tests when reporting low and high scale tests in the same EDR submittal. Also, for NO_x-diluent systems, when only the NO_x component or the diluent component (but not both) has two ranges, report under one test number the high range test of the dual-range component (i.e., upscale and downscale results) along with the upscale and downscale results obtained for the single-range component, and report under a second test number the low range test of the dual-range component (upscale and downscale results) along with the upscale and downscale results obtained for of the single-range component. If both the NO_x and diluent components have two ranges, report the high range tests of the two components (upscale and downscale results) together under one test number and report the low range tests of the two components together under a second test number.

(10) **RT 623: Qualifying Test for Off-line Calibration Error Tests**

To use an off-line daily calibration error check (a calibration error test performed during a period in which a unit is not operating) to validate CEMS data, a demonstration that the results of an off-line calibration are comparable to the results of an on-line calibration is required. Report the results of this demonstration in RT 623. For each off-line/on-line calibration demonstration, submit four records for each component analyzer in each monitoring system (two for the high (or mid) level calibration gas injections and two for the zero level injections). RT 623 serves as the official record that the required off-line/on-line calibration demonstration has been passed. Report RT 623 in each calendar quarter in which off-line calibrations are used to validate data. For simplicity, you may include RTs 623 in every quarterly report, whether or not an off-line calibration was performed during the quarter.

Field Descriptions and Instructions

Columns 1 through 72. See the instructions for these fields for RT 230.

Off-line/On-line Indicator (73). Identify calibrations performed during a non-operating hours with the code "OFF" and during operating hours with the code "ON." Do not leave this field blank.

Reason for Test (76). Indicate the purpose of the test using one of the following uppercase codes:

C	Initial Demonstration
D	Diagnostic

Do not leave this field blank.

Test Number (77). For each set of records which comprise a single test, assign a unique test number for the system and component. You may reuse the test number for different systems and components. You may also reuse the test number for the same monitoring system, provided that the tests are performed and reported in different quarters. Do not submit data for an incomplete or aborted test. If you submit hardcopy information on a test in a certification report or submit other information about the test to EPA or a State agency, refer to the system and component IDs, the test number, and test time period (quarter and year). Do not leave this field blank.

(11) RT 624: Other QA Activities

Use this record to report primary element inspections for orifice, venturi, and nozzle fuel flowmeters. Primary element inspections are required once every 12 calendar quarters; however, the optional fuel flow-to-load ratio test in Section 2.1.7 of Appendix D may be used to extend the interval between successive inspections up to 20 calendar quarters. Also use this record for tank drop accuracy tests performed on fuel flowmeters for qualifying low mass emissions (LME) units under § 75.19.

For a Subpart H unit, stack, or pipe for which you report data only in the ozone season, if a required primary element inspection is done outside the ozone season (from October 1 of previous year to April 30 of the current year) and is used to validate data in the current ozone season, report the results of the inspection in the quarterly report for the second calendar quarter of the current year (or in the third quarter report, if the second quarter is a non-operating quarter).

Do not report RT 624 for non-operating quarters.

Field Descriptions and Instructions

Parameter (16). Report the system parameter for the monitoring system tested.

Activity/Test Completion Date/Hour (20, 28). Report the date and hour in which the test was completed.

QA Test Activity Description (30). Report the type of test or other activity (for example, orifice inspection, etc.).

Test Result (50). Report whether the system or component passed ("P") or failed ("F") the test.

Reason for Test (51). Report the purpose of the test using the following uppercase codes:

C	Initial Certification
D	Diagnostic
Q	Periodic Quality Assurance
R	Recertification

If more than one code applies, submit a two-letter code (e.g., "RQ" for a test performed as a recertification test and to meet the periodic quality assurance requirement). Do not leave this field blank.

QA Test Code (53). Report the test code for this type of test or other activity.

01	Primary Element Visual Inspection for Orifice, Nozzle, and Venturi Types
02	Fuel Flowmeter/Tank Drop Accuracy Test (LME only)
03	Leak Check Performed on Moisture Sensors
04	PEMS daily calibration error test
05	Periodic check of PEMS accuracy with a portable analyzer
99	Other

(12) **RT 627: Fuel Flowmeter Accuracy Test**

Report fuel flowmeter accuracy test results in RT 627 if you calibrate the meter with a flowing fluid , i.e., if the flowmeter is calibrated in a laboratory or by an in-line calibration against a reference flowmeter. (See Sections 2.1.5.1 and 2.1.5.2 of Appendix D to Part 75.) Flowmeter accuracy tests are required once every four "fuel flowmeter QA operating quarters" (as defined in § 72.2); however, the optional fuel flow-to-load ratio test in Section 2.1.7 of Appendix D may be used to extend the interval between successive accuracy tests up to 20 calendar quarters. If fuel flowmeter components are rotated (as described in paragraph (d) of the RT 510 instructions), report the results of the accuracy test for rotated components only when they are re-installed for use, i.e., do not report accuracy test results if the meter is temporarily put into in storage after being recalibrated. A "fuel flowmeter QA operating quarter" is counted against a flowmeter only when the meter has been re-installed, not if it is in storage (see *Part 75 Policy Manual*, Questions 25.17 and 25.18).

For fuel flowmeter systems with multiple flowmeter components (e.g., a system with a main supply meter and a return meter, or a system consisting of multiple flowmeters supplying the same type of fuel to a unit, or a multicomponent system where different flowmeters are rotated in and out), report a separate RT 627 for each installed flowmeter component.

For a Subpart H unit or pipe for which you report data only in the ozone season, you must include all of the fuel flowmeter QA operating quarters in the entire year, when determining the deadline for the next accuracy test (see § 75.74(c)(4)). If the required flowmeter accuracy test for an ozone season-only reporter is done outside the ozone season (from October 1 of previous year to April 30 of current year) and is used to validate data in the current ozone season, report the results of the test in the quarterly report for the second calendar quarter of the current year (or in the third quarter report, if the second quarter is a non-operating quarter).

Do not report RT 627 for non-operating quarters.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). Report the component and monitoring system IDs for the fuel flowmeter being tested. If fuel flowmeters are rotated (as described in paragraph (d) of the introductory text to the RT 510 instructions), whenever a recalibrated flowmeter is reinstalled, report the ID number of the system into which the flowmeter is reinstalled. For a system with multiple flowmeter components, report a separate RT 627 for each installed flowmeter component

Test Completion Date and Hour (16, 24). Report the date and hour that all test runs were completed. For multiple-component systems, if the test completion dates and hours for the individual flowmeters are not the same, report the latest of these dates and hours.

Reinstallation Date and Hour (26, 34). For laboratory tests that were not performed in-line at the unit, report the date and hour that the fuel flowmeter was reinstalled. If in-line tests were performed, leave these fields blank.

Accuracy at Low Fuel Flow Rate (36). Report the accuracy as a percentage of upper range value, using Equation D-1 of Appendix D. Round to one decimal place.

Highest Accuracy at Mid Fuel Flow Rate (41). Report the accuracy as a percentage of upper range value, using Equation D-1 of Appendix D. Round to one decimal place. If accuracy testing is done at two or more mid-range fuel flow rates, report the highest accuracy from all of the mid-level test results in this field and do not report the other mid-level results.

Accuracy at High Fuel Flow Rate (46). Report the accuracy as a percentage of upper range value, using Equation D-1 of Appendix D. Round to one decimal place.

Test Method (51). Report the type of test using the following uppercase codes:

I	Inline Comparison at the Unit
L	Lab Comparison

Test Result (52). Report the test result using the following uppercase codes:

A	Aborted
F	Failed
P	Passed

Do not leave this field blank.

Test Number (53). Report a unique test number assigned to the test for the monitoring system and quarter/year. Do not leave this field blank.

(13) **RT 628: Accuracy Test for Orifice, Nozzle, or Venturi Type Fuel Flowmeters**

For orifice, nozzle, and venturi-type fuel flowmeters, submit RT 628 to report the results of transmitter or transducer accuracy tests performed under Section 2.1.6.1 of Appendix D to Part 75. Transmitter/transducer accuracy tests are required once every four "fuel flowmeter QA operating quarters" (as defined in § 72.2); however, the optional fuel flow-to-load ratio test in Section 2.1.7 of Appendix D may be used to extend the interval between successive accuracy tests up to 20 calendar quarters.

For a Subpart H unit or pipe for which you report data only in the ozone season, you must include all fuel flowmeter QA operating quarters in the entire year, when determining the deadline for the next accuracy test (see § 75.74(c)(4)). If the required accuracy test for an ozone season-only reporter is done outside the ozone season (from October 1 of previous year to April 30 of the current year) and is used to

validate data in the current ozone season, report the results of the test in the quarterly report for the second calendar quarter of the current year (or in the third quarter report, if the second quarter is a non-operating quarter).

Do not report RT 628 for non-operating quarters.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). Report the component and monitoring system IDs for the fuel flowmeter being tested. For the component ID, use the ID for component type GFFM, BGFF, OFFM, or BOFF.

Test Completion Date and Hour (16, 24). Report the date and hour that all test runs on all three transmitters (temperature, pressure, and differential pressure) were completed.

Accuracy Determination at Low Level (26). Report one of the following: (1) the highest accuracy for any of the three transmitters, obtained using Equation D-1a of Appendix D; (2) the sum of the accuracies of the three transmitters; or (3) the total fuel flowmeter accuracy, as determined using AGA Report No. 3 Uncertainty Guidelines. Round to one decimal place.

Accuracy Determination Methodology for Low Level (31). Report the method used to determine accuracy results for this level using one of the following uppercase codes:

ACT	Actual Accuracy for Individual Components (must be ≤ 1.0% of full scale to pass)
AGA3	Total Flowmeter Accuracy From AGA Report No. 3 Uncertainty Guidelines (must be ≤ 2.0% of upper range value to pass)
SUM	Sum of the Accuracy of All Components (must be ≤ 4.0% to pass)

Highest Accuracy Determination at Mid Level (35). Report one of the following: (1) the highest accuracy for any of the three transmitters, obtained using Equation D-1a of Appendix D; (2) the sum of the accuracies of the three transmitters; or (3) the total fuel flowmeter accuracy, as determined using AGA Report No. 3 Uncertainty Guidelines. If accuracy testing is done at two or more mid-level points, then, for Option 1, report the highest individual accuracy value from all of the mid-level tests of all three transmitters. If option (2) is used, first determine the highest accuracy for each of the three transmitters at all mid-level points tested. Then, take the sum of these three highest accuracy values. Round to one decimal place.

Accuracy Determination Methodology for Mid Level (40). Report the method used to determine accuracy results for this level using one of the following uppercase codes:

ACT	Actual Accuracy for Individual Components (must be ≤ 1.0% of full scale to pass)
AGA3	Total Flowmeter Accuracy from AGA Report No. 3 Uncertainty Guidelines (must be ≤ 2.0% of upper range value to pass)
SUM	Sum of the Accuracy of All Components (must be ≤ 4.0% to pass)

Accuracy Determination at High Level (44). Report one of the following: (1) the highest accuracy for any of the three transmitters, obtained using Equation D-1a of Appendix D; or (2) the sum of the accuracies of the three transmitters; or (3) the total fuel flowmeter accuracy, as determined using AGA Report No. 3 Uncertainty Guidelines. Round to one decimal place.

Accuracy Determination Methodology for High Level (49). Report the method used to determine accuracy results for this level using one of the following uppercase codes:

ACT	Actual Accuracy for Individual Components (must be ≤ 1.0% of full scale to pass)
AGA3	Total Flowmeter Accuracy from AGA Report No. 3 Uncertainty Guidelines (must be ≤ 2.0% of upper range value to pass)
SUM	Sum of the Accuracy of All Components (must be ≤ 4.0% to pass)

Test Result (53). Report the overall test result using the following upper case codes:

A	Aborted
F	Failed (accuracy requirement not met at one or more levels tested)
P	Passed (accuracy requirement met at all levels tested)

Do not leave this field blank.

Test Number (54). Report a unique test number to the test for the monitoring system and quarter/year. Do not leave this field blank.

(14) RT 629: Baseline Data for Fuel Flow-to-load Ratio or Gross Heat Rate Check for Fuel Flowmeters

If you elect to use the optional fuel flow-to-load ratio test provisions of Section 2.1.7 of Appendix D to Part 75 to extend the deadline for required fuel flowmeter accuracy tests, report RT 629 and its companion RT 630 for each operating quarter. According to the provisions of Section 2.1.7.1, this record type must be supported by at least 168 hours of baseline fuel flow-to-load ratio or gross heat rate (GHR) data.

The baseline data must be generated no more than four calendar quarters after the last successful flowmeter accuracy test was completed, unless flowmeters are rotated in and out of different systems and are temporarily kept in storage after being recalibrated. In the case where a meter is put into temporary storage, you may count the calendar quarter in which the flowmeter is reinstalled as the first quarter in the baseline data collection period.

For orifice, nozzle, and venturi fuel flowmeters, the baseline data must be generated no more than four calendar quarters after completion of the last full quality assurance sequence (i.e., flowmeter transmitter test and primary element inspection).

For units or pipes for which you report data on a year-round basis, report this record type for operating quarters in which the data collection for the baseline fuel flow-to-load ratio or GHR is in progress and for every subsequent operating quarter in which the optional fuel flow-to-load quality assurance test procedure is used for periodic quality assurance.

If you select the fuel flow-to-load ratio test option for a Subpart H unit or pipe for which you report data only in the ozone season, fuel flow-to-load ratio tests are required only during the ozone season. Therefore, for such units or pipes, report RT 629 only for the second and third calendar quarters, if those quarters are operating quarters (see § 75.74(c)(3)(v)).

Report RT 629 for each fuel flowmeter system that will be quality-assured using the baseline data. Do not report RT 629 for non-operating quarters. However, note that you must report RT 696 for all quarters (including non-operating quarters) in which you claim an accuracy test deadline extension (see RT 696 instructions).

For common pipe configurations, a single baseline fuel flow-to-load ratio or GHR is derived from the average common pipe fuel flow rate and the hourly loads for all units that received fuel from the common pipe. Thus, report only one RT 629 for the common pipe. For example, if CP1 is a common pipe for Units 1 and 2, report one RT 629 for CP1 under the fuel flowmeter system ID associated with common pipe CP1.

Field Descriptions and Instructions

Unit/Pipe ID (4). Report the unit or pipe ID associated with the fuel flowmeter system to be quality-assured.

Monitoring System ID (10). Report the system ID of the fuel flowmeter system to be quality-assured using the baseline data.

Completion Date and Hour of Most Recent Primary Element Inspection (13, 21). For orifice, nozzle, or venturi fuel flowmeters required to perform a visual inspection of the primary element as periodic quality assurance (under Section 2.1.6.6 of Appendix D), report the date and hour of the most recent primary element inspection. For all other types of fuel flowmeters, leave these fields as blank or zero.

Completion Date and Hour of Most Recent Flowmeter or Transmitter Accuracy Test (23, 31). For orifice, nozzle, and venturi fuel flowmeters required to perform a transmitter accuracy test as periodic quality assurance (under Section 2.1.6 of Appendix D), report the date and hour of the most recent transmitter accuracy test (according to Sections 2.1.6.1 through 2.1.6.5 of Appendix D). For all other fuel flowmeters, report the date and hour of the most recent flowmeter system accuracy test (according to Section 2.1.5.1 or 2.1.5.2 of Appendix D). For systems with multiple fuel flowmeter components, if the completion dates and hours of the accuracy tests of the individual component meters are different, report the latest of these dates in this field (see *Part 75 Policy Manual*, Question 25.19). When flowmeter components are rotated among different systems (as described in paragraph (d) of RT 510 introductory text), report the latest accuracy test completion date of any installed component, as the system accuracy test date.

Beginning Date and Hour of Baseline Period (33, 41). Report the date and hour of the first hour of operation of the fuel flowmeter after completion of the most recent accuracy test.

Completion Date and Hour of Baseline Period (43, 51). Report the last date and hour of data that was used as baseline data to develop the baseline fuel flow-to-load ratio or

baseline GHR. Note: there must be at least 168 hours of baseline data collected within four calendar quarters of the most recent flowmeter accuracy test or (for orifice, nozzle and venturi-type fuel flowmeters) within four calendar quarters of the most recent full QA test sequence, (i.e., transmitter accuracy tests and primary element inspection) in order to use the optional quality assurance procedures from Section 2.1.7 of Appendix D. If the baseline data period is still in progress, leave these fields and subsequent fields as blank or zero and skip to column 99.

Average Fuel Flow Rate (53). Report the hourly average fuel flow rate during unit operation measured by the fuel flowmeter system during the baseline period (i.e., Q_{base} from Equation D-1b in Section 2.1.7.1 of Appendix D). If you report the average hourly heat input rate in column 76, you may leave this field as blank or zero.

For a system with more than one fuel flowmeter for the identical type of fuel, you must determine the net hourly fuel flow rate for each hour in the baseline data collection period. The net fuel flow rate may represent the difference between the values measured for the main supply and recirculating fuel lines, or may represent the sum of fuel flow for two fuel flowmeters measuring the same type of fuel to the unit. For a combined cycle turbine with auxiliary firing (e.g., a duct burner), if the duct burner operates infrequently (i.e., < 25% of the unit operating hours, on average), you may establish the baseline for the fuel flowmeter system using the hours when only the combustion turbine is in operation. Add together all of the net hourly fuel flow rates and divide by the number of hours in the baseline data collection period to obtain Q_{base}.

Average Load (63). Report the average unit load during the baseline period (i.e., L_{avg} from Equation D-1c in Section 2.1.7.1 of Appendix D). For a common pipe, add together all of the hourly operating loads for all units that received fuel through the common pipe header during the baseline data collection period. Divide the result by the number of hours in the baseline data collection period to obtain L_{avg}. For a combined cycle turbine with auxiliary firing, if the duct burner operates infrequently and you establish the baseline using hours when only the turbine is in operation, use the corresponding hourly electrical outputs from the turbine to determine L_{avg}.

Baseline Fuel Flow-to-load Ratio (69). Report the baseline fuel flow-to-load ratio calculated as R_{base} from Equation D-1B in Section 2.1.7.1 of Appendix D. If you report the baseline GHR in column 83, you may leave this field as blank or zero.

Units of Fuel Flow-to-load (75). Report the code for the units of the baseline fuel-flow-to-load ratio. Codes 1 and 2 apply to gas combustion. Codes 3 and 4 apply to oil combustion. If column 69 (the baseline fuel flow-to-load ratio) is blank, leave this field as blank or zero.

1	100 scfh/MWe	4	(lb/hr)/klb per hour steam load
2	100 scfh/klb per hour of steam load	5	(gal/hr)/MWe
3	(lb/hr)/MWe	6	(gal/hr)/klb per hour of steam load

Report codes 5 and 6 only for non-Acid Rain Subpart H units using volumetric oil flowmeters.

Average Hourly Heat Input Rate (76). Report the average heat input rate for the baseline hours in mmBtu/hr. If you report the average fuel flow rate in column 53, you may leave this field as blank or zero.

Baseline GHR (83). Report the baseline value of the gross heat rate calculated as $(GHR)_{base}$ from Equation D-1C in Section 2.1.7.1 of Appendix D. If you provide the baseline fuel flow-to-load ratio in column 69, you may leave this field as blank or zero.

Units of Baseline GHR (89). Report the code for the units of the baseline GHR as follows:

1	Btu/kwh
2	Btu/lb of steam load

If column 83 (the baseline GHR) is blank (or zero) also leave this field blank (or zero).

Number of Hours Excluded Due to Co-firing or Combustion of a Different Fuel (90). If single-fuel combustion is the principal mode of operation, report the number of hours (if any) of fuel flow rate data excluded from the fuel flow-to-load or GHR analysis because the unit was co-firing different fuels. If co-firing is the principal mode of operation, report the number of single-fuel hours (if any) excluded from the data analysis. Leave this field as blank or zero if you are not claiming any excluded hours for this reason.

Number of Hours Excluded Due to Ramping (93). Report the number of hours from the baseline period excluded from the baseline data because they met the criteria of ramping hours in Section 2.1.7.1 of Appendix D. Leave this field as blank or zero if you are not claiming any excluded hours for this reason.

Number of Excluded Hours in Lower 25% of Range of Operation (96). Report the number of hours from the baseline period that were excluded from the baseline data because the unit load during the hour was in the lower 25.0% of the range of operation and was not considered normal. Leave this field as blank or zero if you are not claiming any excluded hours for this reason.

Flag Indicating Baseline Data Collection is in Progress and That Fewer Than Four Calendar Quarters Have Elapsed Since Quarter of the Last Flowmeter QA Test (99). If the baseline data collection period is still in progress, and fewer than four calendar quarters have elapsed since the quarter of the last successful fuel flowmeter accuracy test, report a "B" in column 99. For a flowmeter that was placed in temporary storage and subsequently reinstalled, report "B" if the baseline data collection period is in progress and fewer than four quarters have elapsed since the flowmeter was reinstalled. Otherwise, leave this field blank.

(15) RT 630: Quarterly Fuel Flow-to-load Test for Fuel Flowmeters

Report RT 630 every operating quarter, for units using the optional fuel flowmeter quality assurance provisions of Section 2.1.7 of Appendix D to Part 75 (i.e., the fuel flow-to-load ratio or GHR test) to extend the deadline for fuel flowmeter accuracy tests. Do not report RT 630 for non-operating quarters.

For units or pipes for which you report data on a year-round basis, you may claim a one quarter extension of the fuel flowmeter accuracy test deadline, using RT 696 to make the claim, as follows:

- For each quarter in which the fuel flow-to-load ratio or GHR test is performed and passed;
- For any quarter that does not meet the definition of a "fuel flowmeter QA operating quarter" in § 72.2 (because the data analysis is not required in a non-QA operating quarter);
- For any fuel flowmeter QA operating quarter in which there are insufficient data (< 168 hours) available to perform the fuel flow-to-load ratio or GHR analysis, after allowable data exclusions are claimed under Section 2.1.7.3 of Appendix D; or
- For any quarter in which the fuel flow-to-load ratio baseline data collection period is still in progress at the end of the quarter, and fewer than four calendar quarters have elapsed since the quarter of the last successful fuel flowmeter accuracy test.

For common pipe configurations, report only one RT 630 for the common pipe. For example, if CP1 is a common pipe for Units 1 and 2, report one RT 630 for CP1 under the fuel flowmeter system ID associated with common pipe CP1.

If a system contains more than one fuel flowmeter component (e.g., the main fuel flowmeter component and a return meter component or multiple fuel flowmeters feeding a single unit), you must submit a separate RT 630 for each flowmeter in the system, applying the result of the *system* fuel flow-to-load ratio test to each component. If fuel flowmeters are rotated among different systems (as described in paragraph (d) of the RT 510 introductory instructions), report RT 630 only for the installed flowmeter component(s).

For a combined-cycle combustion turbine (CT) with a duct burner, if the fuel flowmeters serving the CT and the duct burner are represented as components of a single fuel flowmeter monitoring system in RT 510, you may perform the fuel flow-to-load ratio test using only the turbine fuel flow rate and load, provided that the duct burner is used, on average, for ≤ 25% of the unit operating hours. If you perform the fuel flow-to-load ratio test in this way, submit separate RTs 630 for the CT and duct burner fuel flowmeter components, and apply the results of the test to each component flowmeter.

For a Subpart H unit or pipe for which you report data only in the ozone season, fuel flow-to-load ratio tests are required only during the ozone season. Therefore, for such units or pipes, report RT 630 only for the second and third calendar quarters, if those quarters are operating quarters (see § 75.74(c)(3)(v)). Fuel flowmeter accuracy test deadline extensions may be claimed for ozone season-only reporters, using RT 696, for the second and third calendar quarters, for the reasons described above. In addition, automatic test deadline extensions may be claimed for the calendar quarters outside the ozone

season (the fourth and first calendar quarters), since no fuel flow-to-load ratio tests are required in those quarters (see RT 696 instructions).

If a "B" is reported in column 99 of RT 629 (indicating that the baseline data collection period is still in progress), fill in only columns 1 through 20 and 27 of RT 630.

Field Descriptions and Instructions

Unit/Pipe ID (4). Report the unit or pipe ID associated with the fuel flowmeter system to be quality-assured.

Monitoring System ID (10). Report the system ID of the fuel flowmeter system to be quality-assured.

Component ID (13). Report the component ID of the fuel flowmeter to be quality-assured. If a system contains more than one fuel flowmeter component (e.g., the main fuel flowmeter component and a return meter component or multiple fuel flowmeters feeding a single unit), submit a separate RT 630 under each flowmeter component ID. If fuel flowmeter components are routinely rotated among this unit (or pipe) and other unit(s) (or pipe(s)) -- submit a RT 630 for each installed flowmeter component in the system.

Calendar Quarter and Year (16). Report the calendar quarter and year of data that is being quality assured (QYYYY).

Test Basis Indicator (21). Report a "Q" if the quarterly analysis compares the hourly fuel flow-to-load ratios (using Equation D-1E in Section 2.1.7.2 of Appendix D). Report an "H" if the quarterly analysis compares the hourly gross heat rates (using Equation D-1F in Section 2.1.7.2 of Appendix D). Leave this field blank if you report a results code of "E," "B," or "N" in column 27.

Quarterly Average Absolute % Difference Between Baseline Ratio (or Baseline GHR) and Hourly Quarterly Ratios (or GHR Values) (22). Perform the quarterly analysis according to the provisions of Section 2.1.7.2 of Appendix D. If 168 hours of data are available, calculate and report the value of E_f using Equation D-1G.

Note: In the quarter in which the baseline data collection is completed, there must be at least 168 hours of data subsequent to completing baseline data collection in order to perform a fuel flow-to-load or GHR test for that quarter. Leave this field as blank or zero if you report a results code of "E," "B," or "N" in column 27.

Result (27). If the value of E_f is within the applicable limit in Section 2.1.7.2 of Appendix D, report "P" to indicate that the fuel flowmeter system passed the quarterly evaluation.

If the value of E_f is not within the applicable limit, report "F" to indicate that the fuel flowmeter system failed the quarterly evaluation (refer to Section 2.1.7.4 for the consequences of a failed fuel flow-to-load test).

If the quarter is not a fuel flowmeter QA operating quarter (if fewer than 168 hours of data were recorded in the quarter by the fuel flowmeter system to be tested), report "N."

If, after excluding hours of data according to the optional data exclusion provisions (see Section 2.1.7.3 of Appendix D), fewer than 168 hours of data remain for the quarter for the fuel flowmeter system to be tested, report "E."

If the baseline data collection period is still in progress at the end of the reporting quarter and fewer than four calendar quarters have elapsed since quarter of the last successful fuel flowmeter accuracy test (or since the quarter of reinstallation of the flowmeter—see RT 629, column 99 instructions), report "B."

Number of Hours Used in the Quarterly Data Analysis (28). Report the number of hours of quality-assured fuel flow rate data that were used for the fuel flow-to-load or GHR evaluation of the fuel flowmeter system. A minimum of 168 hours of quality-assured fuel flow rate data are required for the analysis. Leave this field as blank or zero if you report a results code of "E," "B," or "N" in column 27.

Number of Hours Excluded Due to Co-firing or Combustion of a Different Fuel (32). If single-fuel combustion is the principal mode of operation, report the number of hours (if any) of fuel flow rate data excluded from the fuel flow-to-load or GHR analysis because the unit was co-firing different fuels. If co-firing is the principal mode of operation, report the number of single-fuel hours (if any) excluded from the data analysis. Leave this field as blank or zero if you are not claiming any excluded hours for this reason or if you report a results code of "B" or "N" in column 27.

Number of Hours Excluded Due to Ramping (36). Report the number of hours (if any) of fuel flow rate data excluded from the data analysis because of ramping (i.e., the hourly load differed by more than ±15% from the load during either the hour before or the hour after). Leave this field as blank or zero if you are not claiming any excluded hours for this reason or if you report a results code of "B" or "N" in column 27.

Number of Excluded Hours in Lower 25% of Range of Operation (40). Report the number of hours (if any) of fuel flow rate data excluded from the data analysis because the unit load was in the lower 25.0% of the range of operation (from minimum safe, stable load to maximum sustainable load, as indicated in RT 536). This exclusion is not allowed if operation in this lower portion of the range is considered normal for the unit. Leave this field as blank or zero if you are not claiming any excluded hours for this reason or if you report a results code of "B" or "N" in column 27.

(16) RTs 630 and 631: Alternative Monitoring System Approval Petition Results and Statistics [Renumbered]

These record types were renumbered as RTs 640 and 641.

(17) RTs 640 and 641: Alternative Monitoring System Approval Petition Data, Results, and Statistics

RTs 640 and 641 are used to report data for a petition to use an alternative monitoring system under Subpart E of Part 75. If you plan to petition EPA under Subpart E, contact EPA to obtain directions for reporting this information.

(18) RT 645: Qualifying Data for Low Mass Emissions Units Excepted Methodology

You may use the low mass emissions (LME) methodology under § 75.19 for determining and reporting hourly SO_2, NO_x, and CO_2 emissions and heat input for each unit which qualifies as a LME unit. Record type 645 provides the initial evidence that a unit qualifies for LME status. However, unlike RT 507 (which is used to claim peaking unit or gas-fired unit status), RT 645 is not designed to be updated from year-to-year. Rather, on-going LME status is demonstrated by the cumulative SO_2 and NO_x mass emissions reported in the 300-level EDR records. In view of this, submit RT 645 only as follows: (1) as part of the certification application; and (2) in the quarterly report for the first quarter in which the low mass emissions excepted methodology is used to report data.

For Acid Rain units, use this record type to qualify as a low mass emissions unit by demonstrating that the unit emits no more than 25 tons of SO_2 and less than 100 tons of NO_x for each year during a three year period. If the unit is also subject to Subpart H, no more than 50 of the allowable annual tons of NO_x may be emitted during the ozone season. Therefore, for Subpart H, Acid Rain Units, you must submit two RTs 645, i.e., one to demonstrate that the unit meets the <100 tons per year NO_x emission criterion, and one to demonstrate that the unit emits no more than 50 tons of NO_x per ozone season.

For a non-Acid Rain Subpart H unit that reports data on an ozone season-only basis, use this record type to qualify as a low mass emissions unit by demonstrating that the unit emits no more than 50 tons of NO_x for each ozone season during a three-year period. For a non-Acid Rain Subpart H unit that reports data year-round, you must submit two RTs 645, as described in the preceding paragraph.

Both in the certification application and in the EDR report for the first quarter in which the excepted methodology is used (unless that quarter is a non-operating quarter), submit the annual measured/projected/estimated SO_2 and/or NO_x mass emissions for the three calendar years or ozone seasons immediately preceding the date of the certification application. Projections may be used, as necessary, for Year 1, Year 2, or Year 3 (or for Ozone Season 1, 2, or 3), when:

- Actual measured data (e.g., EDR reports) or reasonable estimates of actual emissions derived from other sources (e.g., Part 60 monitoring data, process operating data, fuel usage records, etc.) are not available (e.g., for a new unit); or

- One or more of the past three years is not representative of current unit operation (e.g., if controls were recently installed); or

- The owner or operator takes a Federally enforceable permit restriction on unit operating hours.

If the calendar quarter of the first LME report is a non-operating quarter, do not submit RT 645 with the EDR report for that quarter. Rather, submit RT 645 in the first subsequent unit operating quarter.

If only historical data are being used to qualify, Year 1 would be three years before the year of the application. If only projected data are being used, Year 1 would be the calendar year of the application. Similarly, if only historical data are being used, Year 3 would be one year before the calendar year of the application or if only projected data were being used, Year 3 would be two years after the year of the

application The appropriate calendar years for Ozone Seasons 1, 2, and 3 are determined in a similar manner.

If a qualifying LME unit emits more than the allowable number of tons of SO_2 or NO_x in a particular year or ozone season, the unit loses its LME status. Should this occur, the owner or operator must install and certify monitoring systems in a timely manner, as described in § 75.19. If LME status is lost, submit RTs 585 indicating changes in monitoring methodologies with the appropriate effective dates.

For more information on the default emission factors for low mass emissions units, see the instructions for submitting the appropriate defaults in RT 531. For information on emission testing of a group of identical LME units, refer to the RT 660 instructions.

Field Descriptions and Instructions

Calendar Year of Application (10). Report the calendar year for which the certification application for approval to use the low mass emissions excepted methodology was submitted. Note that for an existing affected unit switching to LME from another monitoring methodology, use of the LME methodology may not begin until the first operating hour of the next calendar year or ozone season following the date of the application.

Type of Qualification (14). Indicate the type of qualification using one of the following codes:

OS	Ozone Season
YR	Annual

If the unit is subject to both the Acid Rain Program and Subpart H, <u>or</u> if the unit is subject only to Subpart H, but reports data on a year-round basis, submit <u>two</u> RTs 645, one coded "YR", to demonstrate that the unit meets the < 100 tons per year NO_x emission criterion, and one coded "OS" to demonstrate that the 50 tons per year ozone season threshold is met.

Ozone Season or Years 1 - 3 (16, 40, 64). Report the three calendar years used for the measured, estimated or projected SO_2 and/or NO_x mass emissions.

Ozone Season or Years 1 - 3 Measured/Projected/Estimated NO_x Mass Emissions (20, 44, 68). Report the NO_x mass emissions for each of the three years or ozone seasons based on either measured or estimated NO_x mass emissions or projected NO_x mass emissions , as appropriate according to § 75.19. For Acid Rain-affected Subpart H units and for non-Acid Rain Subpart H units reporting on a year-round basis, report the annual NO_x mass emissions if the value reported in column 14 is "YR" and report the ozone season NO_x mass emissions if the value in column 14 is "OS". Round and report this value to one decimal place.

[Reserved] (24, 48, 72). These fields, which had required reporting of calculated NO_x emissions in addition to actual emissions, have been reserved.

Years 1 - 3 Measured/Projected/Estimated SO_2 Mass Emissions (ARP) (28, 52, 76). Report the SO_2 mass emissions for each of the three years based on either measured or estimated SO_2 mass emissions or projected SO_2 mass emissions, as appropriate according to § 75.19. Round and report this value to one decimal place. Leave this field blank for non-Acid Rain Subpart H units. Also leave this field blank for Acid Rain Subpart H units if the value reported in column 14 is "OS".

[Reserved] (32, 56, 80). These fields, which had required reporting of calculated SO_2 emissions in addition to actual emissions, have been reserved.

Years 1 - 3 Ozone Season or Annual Operating Hours (36, 60, 84). Report the number of unit operating hours (as defined in § 72.2) for each of the three years or ozone seasons.

(19) **RT 650: NO_x Emission Rate Correlation Test Data**

This record type can be used for two purposes: (1) for reporting Appendix E test results for oil and gas fired peaking units; and (2) for reporting the results of unit-specific, fuel-specific NO_x emission rate testing for LME units. Report only the results of full Appendix E or LME emission tests. If a test is aborted or if certain test runs are discarded as invalid, keep a record of this in the test log, but do not report partial tests or invalid runs in RT 650. The only acceptable reasons for aborting a test or discarding test runs are: (1) the reference test method was not used properly or malfunctioned; or (2) a problem with the unit or process prevented the test from being done at the load level or conditions specified in the regulation.

NO_x/Heat Input Correlation Curves

To establish a NO_x/heat input rate correlation curve based on Appendix E to Part 75, you must perform reference method testing at a minimum of four load levels. Report the test data from a minimum of three runs for each load level in RT 650. Report the test results reference method, test at each load level in RT 651. For each run at each load level reported in RT 650, also report the oil and/or gas combusted and the heat input associated with each fuel in RTs 652 and 653. Use the four RTs 651 to define the upper and lower bounds of each of the NO_x correlation curve segments reported in RTs 560. Assign a unique test number to the data and results and report this test number in all record types associated with the test.

Unit-specific, Fuel-specific NO_x Emission Rate Tests (LME Only)

To establish a unit-specific, fuel-specific NO_x emission rate for qualifying low mass emissions units under the Acid Rain Program or Subpart H, perform Appendix E reference method testing at each of the required load levels, as described above and as described in §§ 75.19 (c)(1)(iv)(A), (I) and (J). Report the results of each run in RTs 650. Indicate each test run used to calculate the highest 3-run average NO_x emission rate, by reporting an "H" in column 68 of the appropriate RT 650. Report only three records with this indicator; for all other records leave this field blank. Also report the highest three-run average in column 69. Do not report any RTs 651 for these tests. Assign a unique test number to the test and report this test number in each of the RTs 650 .

Field Descriptions and Instructions for RT 650

Monitoring System ID for Appendix E NO_x System (Appendix E Only) (10). Report the monitoring system ID for the NO_x Appendix E system defined in the monitoring plan. This system is comprised only of a DAHS component. For LME unit-default tests, leave this field blank.

Reference Method Run Start Date (13). Report the date on which the run started.

Reference Method Run Start Time (19). Report the precise start time for the run.

Reference Method Run End Date (23). Report the date on which the run ended.

Reference Method Run End Time (29). Report the precise end time for the run.

Reference Method Response Time (33). Report the response time according to Method 20 of Appendix A to Part 60 (if Method 20 is used—otherwise, leave blank) in seconds for the run. This value determines the sampling time for the run.

Value From Reference Method During Run (36). Report the reference method value for the run in NO_x pounds per mmBtu, rounded to three decimal places.

Run Number (44). Assign a run number to each run. You may assign run numbers either consecutively for each test (i.e., run numbers 1 through 12 for each of the three runs at four load levels) or for each load level within the test (i.e., 1 through 3 for the runs at each load level). At a minimum, runs must be numbered consecutively in time order within a load level. Within a load level, do not skip or repeat a run number.

Operating Level (46). Report the operating level for each set of runs using "1" as the indicator for the lowest level.

Type of Fuel Combusted (48). Report the type of fuel combusted during the test using the following uppercase codes:

A	Natural Gas
D	Diesel Oil
G	Other Gas
L	Liquefied Petroleum Gas
M	Mixture
N	Pipeline Natural Gas
O	Residual Oil
P	Process Gas
R	Producer Gas
X	Other Oil

Total Heat Input During the Run (49). For all Appendix E tests, report the total heat input in mmBtu for the time period of the run. This value should also be in reported in RT 652 or RT 653. For LME unit-specific, fuel-specific NO_x emission rate testing, leave this field blank.

[Reserved] (56). This field, previously used to report elapsed time, has been reserved. Leave this field blank.

Hourly Heat Input Rate During Run (59). For Appendix E runs, report the total heat input divided by the duration of the run (as calculated from the start and end times). For LME unit-specific, fuel-specific NO_x emission rate tests leave this field blank.

Test Number (66). For all runs which comprise an Appendix E or LME unit-default test at all load levels for a specific fuel, assign and report a unique test number for the set of test records.

For example, for a 4-load Appendix E test performed while combusting natural gas, assign the same test number "1" to each test run at each of the four load levels. In other words, all twelve records are assigned the same test number, "1". Also report this test number in column 51 of RT 651 (the summary of the test results), in column 60 of RT 653 (which provides supporting data for heat input from the fuel flow meter), and in column 18 of each of the RTs 560 used to define the correlation curve segments resulting from the test.

If you test the unit for gas and assign test number "1" to the twelve run records and then conduct a separate test for oil or a fuel mixture, you must assign a different unique test number to the test data for the second fuel.

You may use the same test number (e.g., "1") for Appendix E tests of different monitoring systems conducted in the same calendar quarter.

You may reuse the test number for the same monitoring system, provided that the tests are performed and reported in different quarters and files.

Flag to Indicate this Run Used to Calculate Highest 3-run NO_x Emission Rate Average at any Tested Load Level (LME Only) (68). If you performed unit-specific, fuel-specific NO_x emission rate tests to determine the highest NO_x emission rate, identify and flag the three runs that are used to determine the highest 3-run average NO_x emission rate at any tested load level by reporting an "H" in this field. Flag only these 3 runs. Leave this field blank for all other test runs.

NO_x Default Rate (Highest 3-run average) (LME Only)(69). Report the default NO_x emission rate for the LME unit as the highest 3-run average obtained at any tested load.

Base Load or Peak Load Test (LME Only) (75). If the LME unit is required to have separate default NO_x emission rates for base and peak load hours (see § 75.19(c)(1)(iv)(C)(9)), use the appropriate code to indicate whether the test was performed at base load or peak load and, if at base load, whether an additional test was performed at peak load.

B This test was performed at base load and an additional test was performed at peak load.

P This test was performed at peak load

A This test was performed at base load and the resulting NOx default rate will be multiplied by 1.15 to determine the NOx default rate for peak hours.

NO_x Default Rate for Peak Load Hours (LME Only) (76). If you reported an A in column 75, report the default rate for peak load hours in this field as the base-load emission rate from column 69 multiplied by 1.15. Otherwise, leave this field blank.

(20) **RT 651: NO_x Emission Rate Correlation Results**

For each Appendix E test, report the test results in RT 651. The number of RTs 651 required corresponds to the number of loads tested. For example, if the Appendix E tests were performed at four unique load levels, report four RTs 651. Do not report RT 651 for fuel-and-unit-specific tests of LME units.

Field Descriptions and Instructions

Monitoring System ID for Appendix E NO_x System (10). Report the monitoring system ID for the NO_x Appendix E system defined in the monitoring plan. This system is comprised of only a DAHS component.

Completion Date of Last Run in Level (13). Report the end date of the last run completed at the operating level.

Completion Time of Last Run in Level (19). Report the end time of the last run completed at the operating level.

Arithmetic Mean of Reference Method Values at This Level (23). Calculate and report the average NO_x emission rate (as reported in RT 650) from all runs at this operating level. Round the average to three decimal places.

F-factor Converting NO_x Concentrations to Emission Rates (31). Report the F-factor used to calculate the NO_x emission rate for the run. This F-factor should be consistent with the type of fuel combusted during the test.

Average Heat Input Rate at This Level (41). Calculate and report the average heat input rate from all runs at this operating level. Round to one decimal place.

Operating Level (48). Report the operating level represented by the data, using "1" as the lowest level.

Type of Fuel Combusted (50). Report the type of fuel combusted using the same fuel code represented in RT 650, column 48 for the test.

Test Number (51). Report the same test number as reported in RT 650, column 66 for test.

(21) RT 652: Heat Input from Oil Combusted During Test

For any Appendix E test used to establish a NO_x emission rate curve for use during hours in which oil is combusted, report a companion RT 652. RT 652 verifies the calculation of heat input during the run. There should be one RT 652 for each run reported in RT 650 when any of the fuel combusted was oil. Do not report RT 652 for LME unit tests.

Field Descriptions and Instructions

Monitoring System ID for Oil Fuel Flow System (10). Report the monitoring system ID for the certified OILV or OILM system used to measure the value or mass of oil combusted during the run. This monitoring system should be defined in the monitoring plan system data (RTs 510).

Run Start Date (13). Report the start date for the run as in the companion RT 650.

Run Start Time (19). Report the exact start time for the run as in the companion RT 650.

Run End Date (23). Report the end date for the run as in the companion RT 650.

Run End Time (29). Report the exact end time for the run as in the companion RT 650.

Run Number (33). Report the run number assigned to the run and reported in the corresponding RT 650.

Mass of Oil Combusted During Run (35). This value is either measured directly by a fuel flowmeter system or calculated from the volume of oil measured by a fuel flowmeter system. All values must be reported in units of pounds (oil mass), not as oil mass flow rate.

Use an equation similar to Equation D-3 to convert oil volume to mass (in lbs), where the density of the oil is determined by the applicable ASTM procedures in Part 75.

If you use oil volume and GCV to determine heat input for the run, leave this field blank.

Gross Calorific Value (GCV) of Oil (45). Report the heat content or gross calorific value (GCV) of the oil used to calculate heat input during the run. Report this value in units consistent with the units used to report the mass or volume of oil combusted as described below.

Heat Input From Oil During Run (55). Calculate and report the total heat input from oil by multiplying the heat content (GCV) of the fuel by either the oil mass or the oil volume combusted during the run. Report this value in units of mmBtu rounded to one decimal place.

Volume of Oil Combusted During Run (62). If the fuel flow system measures the volumetric flow of oil, report the volume of oil combusted during the run, as measured. If the fuel flow system measures mass of oil directly, leave this column blank.

Units of Measure for Volume of Oil (72). Report the units of measure used to measure volumetric flow using one of the following uppercase codes:

BBL	Barrels
GAL	Gallons
M3	Cubic meter
SCF	Standard cubic feet

If you calculate hourly heat input directly from the volumetric flow, be sure to use corresponding units for gross calorific value of the fuel.

Density of Oil (77). If you use volume of oil combusted, you may elect to sample the density of the oil and use the density to calculate the mass of oil during the run. However, it is not necessary to sample and report density for this purpose. If you elect not to use this option, you may leave this field blank.

Units of Measure for Density of Oil (85). If you sample and report density of the oil, report the units of measure for density using one of the following uppercase codes. Otherwise, leave this field blank. The units must correspond to the units of measure for oil volume.

Volume of Oil Units		Density of Oil Units	
BBL	Barrel	LBBBL	Pounds per barrel
GAL	Gallon	LBGAL	Pounds per gallon
M3H	Cubic meter	LBM3	Pounds per cubic meter
SCF	Standard cubic feet	LBSCF	Pounds per standard cubic feet

Test Number (90). Report the test number assigned and reported for the Appendix E test associated with this run.

Units of Measure for GCV (92). Report the units of measure for GCV which corresponds to the mass or volume of oil combusted and is used in the calculation of heat input during the run using one of the following uppercase codes.

BTUBBL	Btu per barrel
BTUGAL	Btu per gallon
BTULB	Btu per pound
BTUM3	Btu per cubic meter
BTUSCF	Btu per standard cubic feet

(22) **RT 653: Heat Input From Gas Combusted During Test**

For any Appendix E test used to establish a NO_x emission rate curve for use during hours in which gas is combusted, report a companion RT 653. This RT 653 verifies the calculation of heat input during the run. There should be one RT 653 for each run reported in RT 650 when any of the fuel combusted was gas. Do not report RT 653 for LME unit tests.

Field Descriptions and Instructions

Monitoring System ID for Gas Fuel Flow System (10). Report the monitoring system ID for the certified GAS system used to measure the volume of gas combusted during the run. This monitoring system should be defined in the monitoring plan system data (RTs 510).

Run Start Date (13). Report the start date for the run as in the companion RT 650.

Run Start Time (19). Report the exact start time for the run as in the companion RT 650.

Run End Date (23). Report the end date for the run as in the companion RT 650.

Run End Time (29). Report the exact end time for the run as in the companion RT 650.

Volume of Gas Combusted During Run (33). This value is the gas measured directly by a gas fuel flowmeter system during the run. All values must be reported in units of 100 standard cubic feet (gas volumes), not as gas volumetric flow rates).

Gross Calorific Value of Gas (43). Report the heat content or gross calorific value (GCV) of the gas from the appropriate sample to calculate heat input during the run. Report this value in Btu per 100 scf.

Heat Input From Gas During Run (53). Calculate and report the total heat input from gas by multiplying the heat content (GCV) of the fuel by the volume of gas combusted. Report this value in units of mmBtu rounded to one decimal place.

Test Number (60). Report the test number assigned and reported for the Appendix E test associated with this run.

(23) **RT 660: Requirements and Results for Unit Group Testing (LME Units Only)**

If you perform representative tests for a group of identical low mass emisions (LME) units, to determine unit-specific defaults, report the required RTs 650, as described above for each test associated with the identical unit group.

In addition, submit a RT 660 for each unit that is part of the identical unit group, indicating whether or not testing was performed at that unit. If the identical units are required to have separate default NO_x emission rates for base and peak load hours (see § 75.19(c)(1)(iv)(C)(9)), submit two RTs 660 for each unit: one to report the base load rate and one to report the peak load rate. Use the flag in column 66 to indicate which rate is being reported.

Include RTs 660 in group ID, ORISPL code and unit ID order at the bottom of the quarterly report or certification file. For each identical unit in the group, the full set of RTs 660 must be included in each quarterly report.

Field Descriptions and Instructions

Group ID (4). Assign and report a group ID, beginning with the letters "GP" and followed by the ORIS code or facility ID of one of the units in the group. If a single facility has more than one group, begin each group ID with the letter "G" followed by a unique one digit number for the group (and then the ORIS code). This will ensure that the group ID number is unique. Do not leave this field blank.

Each group ID should be associated with a set of units and the group of tests performed to establish the default rate for these units. If you retest one or more units (potentially affecting the default rate for the group) assign a new unique group ID and resubmit the entire set of RTs 660 in each quarterly report for all units in the group.

ORIS Code (or Facility ID), Plant Name, Unit ID (12, 18, 38). Include identifying information for each unit in the group. There will be one RT 660 for each unit, including the unit identified in column 4. Do not leave these fields blank.

Test Status (44). Indicate whether a test was performed for the unit identified in this record by reporting one of the following uppercase codes:

AE	Appendix E Testing
NT	No Testing Performed

Test Date for Unit (46). If tests are performed at the unit, report the date on which the testing was completed. If no tests were performed, leave this field blank.

Default Rate from Identical Unit Testing (54). If the purpose of the tests is to establish a unit-specific, fuel-specific NO_x emission rate, report the resulting rate to three decimal places. The unit-specific, fuel-specific NO_x emission rate is the highest of the default rates from all tests performed for the group.

[Reserved] (60). This field, which had previously identified the purpose of the identical group testing, has been reserved.

Type of Fuel (62). Report the type of fuel combusted using the same fuel code represented in RT 650, column 48 for the test.

[Reserved] (63). This field, which had previously been used only by OTC sources, has been reserved.

Base-Peak Load Indicator (66). For combustion 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), fuel and unit-specific NO_x emission rate testing may be done either: (1) at base load only (with a 1.15 multiplier applied to the tested emission rate during peak load hours); or (2) at both base load and peak load.

If the units in the identical group of turbines are not of this type, leave this field blank.

If the units in the group are of this type, then submit two RTs 660 for each unit: one to define the base load default rate and one to define the peak load default rate. Indicate whether the rate in column 54 is for base or peak load conditions, using the appropriate code below.

B	Value in column 54 applies to base load hours
P	Value in column 54 applies to peak load hours

(24) **RT 695: Single-load or Single-level Flow RATA Claim**

Record type 695 does not apply to flow monitors installed on peaking units or bypass stacks, since only single-load RATAs are required for these monitors. RT 695 also does not apply if an exemption from multiple-load flow RATAs has been granted by EPA or by the permitting agency, either in response to a petition under § 75.66 or to a technical justification submitted in the monitoring plan under section 6.5.2 (e) of Appendix A.

For all other load-based units (or stacks) with stack flow monitoring systems, Section 2.3.1.3(c) of Appendix B to Part 75 allows you to perform the required annual flow RATA at a single-load (low, mid or high) instead of conducting a multiple-load RATA if the unit (or stack) has operated at one load level for ≥ 85.0% of the time since the last annual flow RATA**.** Whenever you use this provision of Appendix B, submit RT 695 to document that the unit (or stack) qualifies for a single-load flow RATA. RT 695 summarizes the historical load data for the unit (or stack) since the last annual flow RATA. Submit a separate RT 695 for each flow monitoring system for which a single-load flow RATA claim is made. Submit the RT(s) 695 in the same quarterly report as the single-load flow RATA(s).

Units that do not produce electrical or steam load and report data on a year-round basis may submit single-level flow RATA claims in the manner described in the preceding paragraph, except that the words "single-load" and "load level" are replaced, respectively, with the words "single-level" and "operating level".

Note that this option to claim single-load (or single-level) flow RATAs is not available to Subpart H units or stacks for which you report data on an ozone season-only basis, instead of year-round. For such units or stacks, two-load flow RATAs are required for routine quality-assurance, and three-load RATAs are required for initial certification, at least once every five years thereafter, and whenever the polynomial coefficients or K-factor(s) of the flow monitor are changed (see § 75.74(c)(2)(ii)(C)).

Field Descriptions and Instructions

Monitoring System ID (10). Report the identification number of the flow monitoring system for which the single-load RATA claim is being made.

End Date of Last Annual Flow RATA (13). Report the year, month and day of completion of the last annual flow RATA for the monitoring system. If the last annual flow RATA was a multi-load (or multi-level) RATA, report the date on which testing of the last load (or operating) level was completed. This date is the beginning of the historical load (or operating level) data collection period that is used to make the single-load flow RATA claim. Alternatively, you may use the first day of the calendar quarter in which the last annual flow RATA was performed as the beginning of the data collection period.

End Date of Historical Load Data Collection Period (21). Report the year, month and day of the end of the historical load (or operating level) data collection period used to make the single-load (or single-level) flow RATA claim. This date must be no more than 21 days prior to the date of commencement of the current annual flow RATA. Alternatively, if you begin the data collection period on the first day of the quarter of the last annual flow RATA, you may use the last day of the calendar quarter immediately preceding the quarter of this year's flow RATA as the end date of the data collection period.

Historical Percent Usage of Low Load or Operating Level (29). Based on the results of the historical load (or operating level) data analysis, report the percentage of the time that the unit (or stack) operated at the low load (or operating) level (0 to 30.0% (inclusive) of the range of operation) in the historical data collection period.

Historical Percent Usage of Mid Load or Operating Level (34). Based on the results of the historical load (or operating level) data analysis, report the percentage of the time that the unit (or stack) operated at the mid load (or operating) level (> 30.0% and ≤ 60.0% (of the range of operation) in the historical data collection period. .

Historical Percent Usage of High Load or Operating Level (39). Based on the results of the historical load (or operating level) data analysis, report the percentage of the time that the unit (or stack) operated at the high load (or operating) level (> 60.0% of the range of operation) in the historical data collection period.

Load or Operating Level for the Single-load (or Single-level) Flow RATA (44). Indicate the load (or operating) level (L, M, or H) at which the claimed single-load (or single-level) flow RATA will be performed. The percent usage of the selected load (or operating) level in the historical data collection period. must be greater than or equal to 85.0%.

(25) **RT 696: Fuel Flowmeter Accuracy Test Extension**

Submit RT 696 to claim all allowable extensions of fuel flowmeter accuracy test deadlines. Test deadlines may only be extended one quarter at a time. Therefore, you must submit RT 696 for every calendar quarter, including non-operating quarters, for as long as the deadline continues to be extended. Note that if you are using the optional fuel flow-to-load ratio test in Section 2.1.7 of Appendix D to extend the accuracy test deadline, you must submit RT 696 in addition to RTs 629 and 630.

Do not submit an extension claim for a non-operating quarter with the quarterly report for that quarter. Rather, submit the claim in the next required reporting quarter in which the unit operates.

For units or pipes for which you report data on a year-round basis, a one quarter extension of the fuel flowmeter system accuracy test deadline may be claimed for: (1) any quarter which does not qualify as a "fuel flowmeter QA operating quarter" (as defined in § 72.2), including non-operating quarters; (2) any quarter in which the optional fuel flow-to-load ratio test in Section 2.1.7 of Appendix D is performed and passed; or (3) any quarter in which fewer than 168 hours of fuel flowmeter data are available for the fuel flow-to-load ratio test, after allowable data exclusions are taken under Section 2.1.7.3 of Appendix D; or (4) any quarter in which the baseline data collection period for the fuel flow-to-load ratio test is still

in progress, and fewer than four calendar quarters have elapsed since the quarter of the last successful fuel flowmeter accuracy test.

For a Subpart H unit or pipe for which you report data only in the ozone season and for which you do not use the optional fuel flow-to-load ratio methodology in Section 2.1.7 of Appendix D, a one-quarter extension of the fuel flowmeter accuracy test deadline may be claimed for any calendar quarter of the year, for reason (1) in the previous paragraph. When the optional fuel flow-to-load ratio methodology is used, accuracy test deadline extensions may be claimed for reasons (1), (2), (3), or (4) above, for the quarters inside the ozone season (the second and third calendar quarters), and automatic deadline extensions may be claimed for the calendar quarters outside the ozone season (the fourth and first calendar quarters), since no fuel flow-to-load ratio tests are required in those quarters.

When claiming an accuracy test deadline extension for a unit or pipe that reports data on a year-round basis, submit RT 696 in the quarterly report for the quarter in which the monitoring system qualifies for the extension (except as noted below for ozone season-only reporters and for non-operating quarters). For instance, if the accuracy test deadline is December 31, 2000 and if, in the second quarter of 2000 the unit combusts the fuel measured by the flowmeter for only 100 hours, an extension of the test deadline could be claimed because the second quarter is not a "fuel flowmeter QA operating quarter," as defined in § 72.2. To claim the extension, submit RT 696 with the second quarter, 2000 quarterly report. In this example, the new deadline for the accuracy test would be March 31, 2001.

For a Subpart H unit or pipe for which you report data only in the ozone season, claim an accuracy test deadline extension as follows: (1) for the second and third calendar quarters, submit RT 696 in the quarterly report for the quarter in which the monitoring system qualifies for the extension; and (2) for the quarters outside the ozone season (the fourth quarter of the previous year and the first quarter of the current year), submit the necessary RTs 696 in the quarterly report for the second calendar quarter of the current year (or, if the second quarter is a non-operating quarter, submit the RTs 696 in the next required reporting quarter in which the unit operates).

There is a limit to the extension of accuracy test deadlines. A deadline may not be extended beyond the end of the twentieth calendar quarter following the quarter in which the last accuracy test was performed.

If a unit does not operate during a required reporting quarter and you intend to claim an extension for that quarter, submit RT 696 in the quarterly report for the first required reporting quarter in which you resume operation of the unit (see Section II.C.14 of these instructions). If a unit does not operate for two or more consecutive required reporting quarters you should submit separate RTs 696 for <u>each</u> non-operating required reporting quarter.

For year-round reporters, the term "required reporting quarter" refers to any of the four calendar quarters in the year; for ozone season-only reporters it refers only to the second and third calendar quarters.

Field Descriptions and Instructions

Monitoring System ID (10). Report the system ID for which an accuracy test deadline extension is being claimed.

Date of Last Accuracy Test (13). Report the date on which a successful accuracy test for the system was last performed. Do not leave this field blank.

Accuracy Test Expiration Date Without Extension (21). Report the projected deadline for the next required accuracy test. Do not leave this field blank.

The date in column 21 will always be the last day in a particular calendar quarter. If an extension of the original projected test deadline was claimed in one or more previous quarters, the date reported in this field must reflect those previous extensions. For example, if the original projected test deadline was June 30, 2000 and a RT 696 was submitted in the previous quarter, extending the projected deadline to September 30, 2000, report September 30, 2000 as the "accuracy test expiration date without extension" when making an extension claim this quarter.

Accuracy Test Expiration Date with Extension (29). Report the date on which the accuracy test will expire with the claimed extension. This date will *always* be the last day in the calendar quarter following the expiration date reported in column 21. Do not leave this field blank.

Type of Extension (37). Report one of the following the appropriate codes for the type of extension claimed.

1 Extension because calendar quarter was not a fuel flowmeter QA operating quarter (fuel flow rate data were recorded by the flowmeter system for fewer than 168 hours)

2 Extension claimed because fuel flow-to-load ratio test was performed and passed this quarter (see Section 2.1.7 of Appendix D)

3 Extension claimed because the baseline data collection period for the fuel flow-to-load ratio test is still in progress, and fewer than four calendar quarters have elapsed since quarter of the last successful fuel flowmeter accuracy test

4 Extension claimed because fewer than 168 hours of fuel flowmeter data remained for fuel flow-to-load ratio analysis, after allowable data exclusions were taken under Section 2.1.7.3 of Appendix D

5 Extension claimed for the first or fourth calendar quarter of the year, for a unit reporting data on an ozone season-only basis, and using the fuel flow-to-load ratio test to extend the flowmeter accuracy test deadline. Fuel flow-to-load ratio testing is not required outside the ozone season for this source.

Quarter and Year (39). Report the quarter and year for which the exemption is claimed (QYYYY).

(26) **RT 697: RATA Deadline Extension or Exemption**

Submit RT 697 to claim all allowable extensions of RATA deadlines and all on-going or conditional RATA exemptions. RATA deadlines may only be extended one quarter at a time, and RATA

exemptions must be claimed one quarter at a time. Therefore, you must submit RT 697 for every calendar quarter, including non-operating quarters, for as long as the deadline continues to be extended or the exemption continues to be claimed.

The allowable RATA extensions and exemptions described in RT 697 (see codes 1 through 5 under the column 37 instructions, below) may be claimed by any qualifying source that reports data on a year-round basis. However, for Subpart H units or stacks for which you report data only in the ozone season, none of the RATA deadline extensions apply. Only the conditional RATA exemption for non-redundant backup monitors (code 5) may be claimed. For ozone season-only reporters, RATA deadline extensions may not be claimed using code 1, because the RATA deadlines for these sources are determined on a calendar quarter basis, rather than a QA operating quarter basis. Also, RATA extensions and exemptions using codes 2, 3, and 4 apply only to SO_2 monitors, and are not appropriate for ozone season-only reporters, since for these sources you report only NO_x mass emissions, not SO_2 emissions.

There is a limit to the extension of RATA deadlines. A RATA deadline may not be extended beyond the end of the eighth calendar quarter following the quarter in which the last RATA was performed. Therefore, if the reporting quarter is the eighth calendar quarter since the quarter of the last RATA, a deadline extension cannot be claimed.

When claiming a RATA deadline extension, submit RT 697 in the quarterly report for the quarter in which the monitoring system qualifies for an extension (except as noted below for non-operating quarters). For instance, if the RATA deadline is the end of the fourth calendar quarter of 2000 and in the first quarter, 2000, the unit operates only 100 hours (i.e., the first quarter is not a QA operating quarter), submit RT 697 with the first quarter, 2000, quarterly report, in order to claim an allowable RATA deadline extension until first quarter, 2001.

If the unit does not operate for one or more consecutive quarters and you would like to claim a RATA deadline extension, do not submit RT 697 with the quarterly report(s) for the non-operating quarter(s). Instead, submit RT 697 for each of the non-operating quarter(s) in the quarterly report from the first quarter in which you resume operation of the unit (see Section II.C.14 of these instructions).

For on-going and conditional RATA exemptions, submit RT 697 for each quarter, including non-operating quarters, for as long as the exemption continues to be claimed. Also submit RT 697 when any previously claimed RATA-exempt status is lost. However, do not submit an exemption claim for a non-operating quarter with the quarterly report for that quarter. Rather, submit the claim in the next required reporting quarter in which the unit operates.

For year-round reporters, the term "required reporting quarter" refers to any of the four calendar quarters in the year, and for ozone season-only reporters it refers only to the second and third calendar quarters.

Field Descriptions and Instructions

Monitoring System ID (10). Report the system ID of the primary or redundant backup monitoring system for which a RATA deadline extension, exemption or loss of exemption is being claimed. Do not leave this field blank.

Date of Last RATA (13). Leave this field blank if no previous RATA exists because the system has maintained a RATA exemption. Otherwise, report the date on which a successful RATA of the system was last performed.

RATA Expiration Date Without Extension (21). Report the projected deadline for the next required RATA. If you are claiming an exemption from RATA requirements (code 3, 4, or 5), leave this field blank.

The date in column 21 will always be the last day in a particular calendar quarter. If an extension of the original projected RATA deadline was claimed in one or more previous quarters, the date reported in this field must reflect those previous extensions. For example, if the original projected RATA deadline was June 30, 2000 and a RT 697 was submitted in the previous quarter, extending the projected deadline to September 30, 2000, report September 30, 2000 as the "RATA expiration date without extension" when making an extension claim this quarter.

RATA Expiration Date With Extension (29). Report the date on which the RATA will expire with the claimed extension. Report in this field only if an extension of a RATA deadline is being claimed. This date will *always* be the last day in the calendar quarter following the expiration date reported in column 21.

Type of RATA Extension or Exemption Claimed or Lost (37). Report the appropriate code (1 through 9), that describes the type of RATA extension or exemption claimed or lost.

1 RATA Deadline Extension Claimed for the Monitoring System Identified in Column 10. There were fewer than 168 unit or stack operating hours this quarter. Since this is not a "QA operating quarter," the RATA deadline is moved forward by one calendar quarter.

2 SO_2 RATA Deadline Extension Claimed. Only very low sulfur fuel (as defined in § 72.2) was combusted this quarter.

This code applies to units that combust both very low sulfur fuel and higher-sulfur fuel(s) as primary and backup fuels and account for SO_2 emissions with an SO_2 monitor. This code does not apply to units for which the higher-sulfur fuel is used only as an emergency backup fuel or for short-term testing. Code 2 may be used to claim a one quarter extension of the SO_2 RATA deadline, if very low sulfur fuel is the only fuel combusted in the unit(s) during the quarter and if no more than eight calendar quarters have elapsed since the quarter in which the last SO_2 RATA was performed.

3 Ongoing SO_2 RATA Exemption Claimed. Only very low sulfur fuel (as defined in § 72.2) was combusted this quarter.

Codes 3 and 6 apply only to units that combust very low sulfur fuel exclusively (as certified by the designated representative) and which account for SO_2 emissions with an SO_2 monitoring system. Submit RT 697 each quarter to claim continued RATA-exempt status for the SO_2 monitor. If higher sulfur fuel is burned in the

unit and the on-going SO_2 RATA-exempt status is lost, enter code 6 in this field in lieu of 3.

4 Conditional SO_2 RATA Exemption Claimed. Year-to-date usage of fuel with a sulfur content higher than very low sulfur fuel is less than 480 hours.

Codes 4 and 7 apply only to units that: (1) combust very low sulfur fuel as the primary fuel; (2) use higher sulfur fuel only as emergency backup fuel or for short-term testing; and (3) use an SO_2 monitoring system to account for SO_2 emissions. Such units are entitled to an exemption from SO_2 RATAs, provided that the annual usage of higher sulfur fuel is 480 hours or less. Submit RT 697 each quarter to claim a continued SO_2 RATA exemption, by certifying that the year-to-date usage of higher sulfur fuel has not exceeded 480 hours. If the annual higher sulfur fuel usage exceeds 480 hours and the SO_2 RATA-exempt status is lost, report code 7 in this field in lieu of 4.

5 Conditional RATA Exemption Claimed. Year-to-date usage of a regular non-redundant backup monitoring system at this unit/stack is $\leq$ 720 hours and fewer than 8 full quarters have elapsed since last RATA.

This code applies only to regular non-redundant backup monitoring systems (i.e., systems that have their own separate probes and sample interfaces). If such a system is used for 720 hours or less per year at a particular unit or stack and if fewer than eight quarters have elapsed following the quarter in which the last RATA of the system was performed at that location, no RATA is required. Submit RT 697 for each quarter in which the non-redundant backup system is used for data reporting, to certify that the year-to-date usage of the system at that location has not exceeded 720 hours and that fewer than eight quarters have elapsed since the last RATA. If the year-to-date usage (or current ozone season usage, for ozone season-only reporters) of the system exceeds 720 hours or if eight quarters have elapsed following the quarter of the last RATA, the RATA-exempt status is lost. If this occurs, report code 8 in this field in lieu of 5.

6 Ongoing SO_2 RATA Exemption Lost. Fuel with a sulfur content higher than very low sulfur fuel as defined in § 72.2 combusted this quarter. Note that when on-going SO_2 RATA-exempt status is lost, you may still qualify for a conditional SO_2 RATA exemption. If so, you may claim that status by submitting a second RT 697 with code "4" reported in this field.

7 Conditional SO_2 RATA Exemption Lost. Year-to-date usage of fuel with a sulfur content higher than very low sulfur fuel as defined in § 72.2 exceeded 480 hours. When conditionally-exempt status is lost, this triggers an SO_2 RATA requirement (see § 75.21(a)(7)).

8 Conditional RATA Exemption Lost. Year-to-date usage (or current ozone season usage, for ozone season-only reporters) of a regular non-redundant backup monitoring system exceeded 720 hours at this unit or stack. When conditionally-exempt status is lost, this triggers a RATA requirement for the non-redundant backup monitoring system (see § 75.20(d)(2)(v)).

9 Exemption From Performing Single-Load RATA at Normal Load. Due to unusual circumstances, you have requested and obtained permission from EPA to perform a required single-load RATA at a load level other than the normal load designated in RT 536. EPA recommends that you document in RT 910 the date on which permission to test at a non-normal load was obtained.

Year-to-date Hours Usage of Fuel with Sulfur Content Higher Than Very Low Sulfur Fuel (39). If you claim a conditional SO_2 RATA exemption under code 4, report the cumulative number of hours in the current calendar year in which fuel with a sulfur content higher than very low sulfur fuel as defined in § 72.2 has been combusted. Otherwise, leave this field blank.

Year-to-date Hours of Regular Non-redundant Backup CEMS Use at This Unit/Stack (43). For each regular non-redundant backup monitoring system used to report data during the quarter and for which a conditional RATA exemption is being claimed under code 5, report (as applicable) the cumulative number of hours for which the non-redundant backup system has been used at this same unit/stack location in the current calendar year. Otherwise, leave this field blank.

Quarter and Year (47). Report the quarter and year for which the extension or exemption is claimed (QYYYY).

(27) **RT 698: Quarterly QA Test Exemption Claim**

For units or stacks for which you report data on a year-round basis, Part 75 requires the following quarterly tests to be performed for routine quality assurance: (1) linearity checks of all gas monitors are required in each QA operating quarter; (2) a leak check of each differential pressure-type flow monitor is required in each QA operating quarter; and (3) a flow-to-load ratio test is required in each QA operating quarter for each flow monitor.

For Subpart H units or stacks for which you report data only in the ozone season (in the second and third quarters), pre-ozone season linearity checks are required under § 75.74(c)(2)(i). These checks may be done any time between October 1 of the previous year and April 30 of the current year. In addition, linearity checks and (if applicable) leak checks of DP-type flow monitors are required during the ozone season (in the second and third calendar quarters), if those quarters qualify as QA operating quarters (see RT 601, 602, and 603 instructions), and flow-to-load ratio tests (if applicable) are required in the second and third calendar quarters, if those quarters are QA operating quarters.

Part 75 allows exemptions from these quarterly QA test requirements in the following instances. These exemptions may be claimed using RT 698:

(A) For units or stacks for which you report data on a year-round basis:

(1) Linearity check, leak check, and flow-to-load ratio test exemptions may be claimed for any operating quarter that does not qualify as a QA operating quarter (the unit or stack operates for less than 168 hours);

(2) A linearity check exemption may be claimed for a particular monitor range (e.g., the high or low range of a dual-span unit) if the range is not used during the quarter;

(3) For SO_2 and NO_x span values of 30 ppm or less, an on-going linearity check exemption may be claimed; and

(4) For complex exhaust configurations, an on-going flow-to-load ratio test exemption may be claimed if approved by petition to the Administrator under § 75.66 and Section 7.8 of Appendix A to Part 75.

(B) For Subpart H units or stacks for which you report data only in the ozone season, the same quarterly QA test exemptions as described in paragraph (A), above, may be claimed, for the required reporting quarters (the second and third calendar quarters).

For ozone season-only reporters, you may not claim an exemption from the required pre-ozone season linearity check unless your unit qualifies for the on-going exemption described in (B), above (i.e., for an SO_2 or NO_x span value $\leq$ 30 ppm). Note that a 168 unit/stack operating hour grace period is conditionally allowed when the pre-ozone season linearity check is not completed by April 30th (see § 75.74(c)(2)(i)(D)(*1*) and the RT 699 instructions).

If you elect to claim an exemption from the quarterly linearity test, leak check or flow-to-load ratio test requirement for a particular quarter, or if you have received an on-going exemption from the quarterly flow-to-load or GHR test by an approved petition, submit RT 698. Submit the record in the quarter for which the exemption is claimed (except as noted below for non-operating quarters). For example, if a linearity check would be due by December 31, 2000, submit RT 698 in the fourth quarter 2000 quarterly report.

Quarterly QA test exemptions must be claimed one quarter at a time. Therefore, you must submit RT 698 for every calendar quarter, including non-operating quarters, for which an exemption is claimed. However, do not submit an exemption claim for a non-operating quarter with the quarterly report for that quarter. Instead, submit the claim in the next required reporting quarter in which the unit operates. Note that if the unit operates for < 168 hours in a quarter and if, for a particular monitor, a valid grace period claim (RT 699) is submitted which covers the entire quarter, it is not necessary to submit RT 698 for that monitor for that quarter.

For year-round reporters, the term "required reporting quarter" refers to any of the four calendar quarters in the year, and for ozone season-only reporters it refers only to the second and third calendar quarters.

For units or stacks for which you report data on a year-round basis, linearity check exemptions for a particular monitor or range may only be claimed for three consecutive calendar quarters following the quarter in which the last linearity check was performed, except for the low span SO_2 and NO_x monitor exemption (see code "4" under "Basis for Exemption" below), which is an on-going exemption. If the reporting quarter is the fourth calendar quarter since the quarter of the last linearity test, a linearity test must be completed either within the reporting quarter or within a 168 unit operating hour grace period following the end of the reporting quarter (see Section 2.2.3(f) of Appendix B). When the grace period is used, a grace period claim (RT 699) must be submitted.

For Subpart H units or stacks for which you report data only in the ozone season, the provisions in Section 2.2.3(f) of Appendix B, pertaining to the minimum frequency of linearity checks and to grace periods, are inapplicable. Rather, for these units and stacks, linearity checks must be done both outside and within the ozone season, at the frequency specified in § 75.74(c)(2)(i) and § 75.74(c)(3)(ii). Grace periods are conditionally allowed for the required pre-ozone season linearity checks, but not for the linearity checks required within the ozone season (see § 75.74(c)(2)(i)(D)(*1*) and § 75.74(c)(3)(ii)).

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). Submit a record for each affected component and monitoring system ID for which an exemption is claimed. For a flow monitoring system with two or more component monitors (e.g., an "X-pattern" configuration), report only one RT 698, under the monitoring system ID, and leave the component ID blank.

Basis for Exemption (16). Report the reason for the exemption using one of the following codes:

1	Fewer than 168 Unit/Stack Operating Hours in Quarter (not a QA operating quarter)
2	Analyzer Range Not Used During Calendar Quarter (dual span only)
3	Flow-to-load Test Exemption, by Approved Petition
4	SO_2 or NO_x monitor span value $\leq$ 30 ppm

Type of Test (17). If a linearity test exemption is claimed, report "L" in this field. If a quarterly flow-to-load test exemption is claimed, report "F." If a leak check exemption is claimed for a differential pressure-type flow monitor, report "K."

Quarter and Year (18). Report the quarter and year for which the exemption is claimed (QYYYY).

Span Scale (23). If a linearity test exemption is claimed, indicate whether the exemption is for the low or high measurement scale. If it is for the low scale, report "L." If it is for the high scale, either leave blank or report "H." Leave blank for all flow-to-load test or leak check exemptions.

(28) **RT 699: QA Test Extension Claim Based on Grace Period**

If you elect to claim a grace period extension of a QA test deadline, submit a RT 699 to claim the test deadline extension. For units or stacks for which you report data on a year-round basis, the allowable grace period for a linearity check or a leak check is 168 unit or stack operating hours after the end of the quarter in which the check was required. For a RATA, the allowable grace period is 720 unit or stack operating hours after the expiration of the RATA deadline.

For Subpart H units or stacks for which you report data only in the ozone season, the length of the allowable grace periods is the same as for year-round reporters (168 unit or stack operating hours for linearity checks and 720 unit or stack operating hours for RATAs). However, for these sources, the grace period begins with the first unit operating or stack operating hour in the current ozone season (the first operating hour on or after May first) and ends either: (a) on the date and hour of completion of the

required QA test; (b) on the date and hour at which the maximum allowable number of operating hours in the grace period is reached; or (c) at the end of the third calendar quarter, whichever of these dates and hours occurs first.

In contrast with the grace periods allowed for year-round reporters, grace periods for Subpart H units or stacks for which you report data only in the ozone season are allowed only when linearity checks and RATAs required prior to the current ozone season are not completed by April 30th, and only if certain conditions are met. These conditions are: (1) that a linearity check or RATA (as applicable) was passed on or after January first of the previous calendar year; and (2) that the unit or stack on which the monitor is located operated for fewer than 336 hours during the previous ozone season (see §§ 75.74(c)(2)(i)(D)(*1*) and 75.74(c)(2)(ii)(H)(*1*)). If a source does not meet conditions (1) and (2) above and cannot qualify for a grace period, the conditional data validation provisions of § 75.20(b)(3) may be still be used, subject to certain restrictions (see § 75.74(c)(3)(vi)).

When a grace period begins and ends in a single calendar quarter, submit RT 699 in the quarterly report for the quarter containing the grace period. For example, if the linearity test is due by December 31, 1999, but is actually completed in a grace period in the first quarter of 2000, submit a RT 699 in the first quarter 2000 quarterly report. Note that RT 699 must also be submitted when the allowable grace period expires in the reporting quarter, without the required QA test having been completed (this serves as a claim of data validity during the grace period).

For units or stacks for which you report data year-round, when a grace period spans two or more calendar quarters (e.g., for an infrequently-operated unit), submit RTs 699 for each operating quarter, starting with the quarter in which the grace period begins (the first operating quarter after the QA test deadline (see column 17 instructions, below)) and ending either with the quarter in which the grace period expires or the quarter in which the required QA test is completed, whichever occurs first. If any non-operating quarters occur during this time span, do not report RT 699 for those quarters (no data validation claim is required for a non-operating quarter).

For Subpart H units or stacks for which you report data only in the ozone season, if the grace period begins in the second quarter and ends in the third quarter, submit RTs 699 for both quarters. If the second quarter is a non-operating quarter and the grace period begins and ends in the third quarter, submit RT 699 only for the third quarter.

Field Descriptions and Instructions

Component and Monitoring System ID (10, 13). Submit a record for each affected test, identifying it by component and monitoring system ID for linearity or leak tests and by system ID only for relative accuracy tests.

Type of Test (16). Report the type of test affected using one of the following codes:

K	Leak Check
L	Linearity
R	RATA

Beginning of Grace Period (17). Report the date on which the grace period begins. This will be the date of the first unit or stack operating hour in a required reporting quarter, after expiration of the QA test deadline. For year-round reporters, the QA test

deadline will always expire at the end of a calendar quarter. For ozone season-only reporters, since grace periods apply only to required pre-ozone season linearity checks and RATAs, the QA test deadline will always expire at the last hour of the day on April 30th.

For year-round reporters, the term "required reporting quarter" refers to any of the four calendar quarters in the year, and for Subpart H sources that report data only in the ozone season it refers only to the second and third quarters.

Date and Hour of Completion of Required QA Test (25, 33). If the required QA test is completed in the reporting quarter, within the grace period, report the date and hour in which the test was completed. If the test was not completed within the allowable grace period and the grace period expired within the reporting quarter, leave these fields blank. Also leave these fields blank if, at the end of the quarter, the QA test has not been completed and the grace period has not yet expired.

Number of Unit/Stack Operating Hours From Beginning of Grace Period to Completion of QA Test or Maximum Allowable Grace Period (35). Leave this field blank if, at the end of the reporting quarter, the required QA test has not been completed and the grace period has not yet expired. If the QA test was completed in the reporting quarter, within the grace period, report the number of unit or stack operating hours (as defined in § 72.2) from the beginning of the grace period until the hour of completion of the QA test. If the required QA test was not completed within the grace period, and the grace period expired within the reporting quarter, report the maximum allowable grace period (720 or 168 unit or stack operating hours, as applicable) to claim data validity during the grace period. When the required QA test is not completed by the end of the grace period, the monitoring system is considered out-of-control in the first hour following the expiration of the grace period.

Date and Hour of End of Grace Period (38, 46). If, at the end of the reporting quarter, the grace period has not yet expired and the QA test has not yet been completed, leave these fields blank. Otherwise, report the date and hour within the reporting quarter on which the grace period ended or expired. If you report data on a year-round basis, this will either be the date and hour within the grace period on which the required test was passed or the date and hour on which the maximum allowable number of operating hours was reached, and the grace period expired. For Subpart H sources that report data only in the ozone season, there is one additional possibility for the third calendar quarter. If, at the end of the third quarter, the maximum number of allowable operating hours in the grace period have not yet elapsed and the required QA test has not yet been completed, report the last hour in the third quarter as the end of the grace period.

E. **Electronic Compliance Certification Records**

The RTs 900-level enable electronic versions of the DR/ADR/AAR/AAAR signature, certification statements, and other cover letter information to be directly included in the electronic quarterly report.

For Acid Rain units, RTs 900 and 901 are an optional replacement for the hardcopy DR/ADR signature required to accompany a quarterly report submission. However, if RTs 900 and 901 are not included with an Acid Rain quarterly report file, then a hardcopy cover letter with, at a minimum, the

DR/ADR certification statement and signature must be submitted to EPA. Although it is not required, EPA strongly encourages the use of RTs 900 and 901, rather than hard copy cover letters.

For Subpart H units, RTs 940 and 941 are an optional replacement for the hardcopy AAR/AAAR signature required to accompany a quarterly report submission. However, if RTs 940 and 941 are not included with a Subpart H unit quarterly report file, then a hardcopy cover letter with, at a minimum, the AAR/AAAR certification statement and signature must be submitted to EPA. Although it is not required, EPA strongly encourages the use of RTs 940 and 941, rather than hard copy cover letters.

For units subject to both the Acid Rain Program and Subpart H, owners and operators are strongly encouraged (but not required) to designate the same person as DR (for the Acid Rain Program) and as AAR (for Subpart H). Designating the same person for these responsibilities facilitates, among other things, the submission and certification of electronic reporting of quarterly reports. When a quarterly report is submitted electronically, only one representative is authorized by EPA to submit a data file directly to the mainframe. If the DR and the AAR are not the same, EPA requires both the DR and the AAR to submit a statement to the EPA granting authorization to the other representative to electronically submit the quarterly reports for which they are jointly responsible. If the DR and AAR sign the joint certification statement, RTs 900, 901, 940, and 941 can be contained in the quarterly report. If the DR and AAR do not sign and submit the authorization statement, either the DR or AAR may submit the quarterly report (and use the appropriate certification records to certify the submittal) while the certifying official not submitting the quarterly report must submit to EPA a signed hard copy certification letter each quarter. EPA will contact the AAR and DR if they are required to provide the joint authorization statement and have not completed it.

The seven record types for certification are:

Record Type	Description
900	Acid Rain Program Part 75 Certification and DR/ADR Signature
901	Acid Rain Program Part 72 Certification Statement, verbatim
910	Cover Letter Text, File Specific (Optional)
920	Cover Letter Text, Not File Specific (Optional)
940	Subpart H Certification and AAR/AAAR Signature
941	Subpart H Certification Statement, verbatim
999	Contact Person Information (Optional)

(1) RT 900: Part 75 Certification Statement and Designated Representative Signature (ARP)

Each quarterly report should contain only one RT 900, containing the applicable Part 75 certification statement and signature. RT 900 identifies (by last name, first name, and middle initial) the DR or ADR responsible for signing the cover letter, and also indicates the signature date. RT 900 also contains one of three codes (CERTIFY, CERTIFY CONTROLLED, or CERTIFY DEFERRED) to identify the appropriate Part 75 certification statement required for the quarterly report:

(a) For most reports that contain data for certified units, the code "CERTIFY" is appropriate. This code is also appropriate for a report submitted for a unit that did not operate during the quarter. Use this code unless another code applies.

(b) If the quarterly report contains data for a stack or unit with add-on emission controls, then the code "CERTIFY CONTROLLED" is appropriate to indicate that the designated representative certifies that for all hours where data are substituted following the provisions of § 75.34(a)(1), that the add-on emission controls were operating within the range of parameters listed in the monitoring plan and that the substitute values recorded during the quarter do not systematically underestimate SO_2 or NO_x emissions and that the controls were operating properly during any periods of missing data.

(c) While owners and operators of affected units that are shut down on their compliance deadline do not have to begin reporting until required to do by the applicable rule deadline (see Section C.(13) on "Data Reporting Requirements for Uncertified Units"), data for a deferred unit can optionally be reported at any time on or after the compliance deadline that would have been applicable to them if they had been operating. If data for a deferred unit are reported, even though it is not yet certified and is still not operating, continue to report in every quarter until you notify EPA that the unit has been retired. If the owner or operator of a unit in this circumstance chooses to report, he or she should use the code "CERTIFY DEFERRED."

A footnote for RT 900 contains the certification text represented by each certification code.

(2) RT 901: Part 72 Certification Statement (ARP)

Submit RTs 901 to include the Acid Rain Program Part 72 verbatim certification statement:

I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Make sure that the text for each line does not go beyond column 73 (beginning at column 6 and ending at column 67). Each RT 901 contains a number (in columns 4 and 5) indicating which of the lines of certification text is contained in that record, followed by that line of the certification text (verbatim) as shown in the following example for the first line of the certification statement:

Example RT 901

```
90101I am authorized to make this submission on behalf of the owners
90102 and operators of the affected source.
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(3) RT 910: Cover Letter Text, File-specific (Optional)

RT 910 allows for electronic reporting of cover letter information which would otherwise be provided in a hardcopy cover letter. RT 910 can be used to report information that is specific to the quarterly report for any Program. An example of an issue that may be outlined in RT 910 is if the DR uses a code of 999 (other) in column 16 of RT 556 to describe a monitoring system certification event.

The DR can use the RT 910 to provide an additional explanation about the event. If the DR/AAR is requesting permission to deviate from the requirements of the Acid Rain Program, the DR/AAR should send that petition under separate cover.

RT 910 is optional; if you do not need to report any additional, file-specific information, only include RTs 900 and 901 (Acid Rain Program) and/or RTs 940 and 941 (Subpart H) in the quarterly report. You may include as many RTs 910 as necessary to convey additional information. In the last RT 910, include the word "END" to indicate that this is the last record in the set.

(4) RT 920: Cover Letter Text, Not File-specific (Optional)

RT 920 allows for electronic reporting of cover letter information that would otherwise be provided in a hardcopy cover letter. RT 920 can be used to report information that is not specific to the quarterly report (use RT 910 to report information that directly relates to the quarterly report).

RT 920 is optional; if you do not need to report any additional information that is not specific to the quarterly report only include RTs 900 and 901 (Acid Rain Program) and/or RTs 940 and 941 (Subpart H) in the quarterly report. Include as many RTs 920 as necessary to convey additional information that is not specific to the quarterly report. In the last RT 920, include the word "END" to indicate that this is the last record in the set.

(5) RT 940: Subpart H Certification Statement and Authorized Account Representative Signature

For Subpart H units, each quarterly report should contain only one RT 940, containing the applicable program certifications and signatures. RT 940 identifies (by last name, first name, and middle initial) the AAR or AAAR responsible for signing the cover letter, and also indicates the signature date. RT 940 also contains one of three codes (CERTIFY, CERTIFY CONTROLLED, or CERTIFY DEFERRED) to identify the appropriate certification statement required for the quarterly report:

(a) For most reports that contain data for certified units, the code "CERTIFY" is appropriate. This code is also appropriate for a report submitted for a unit that did not operate during the quarter. Use this code unless another code applies.

(b) If the quarterly report contains data for a stack or unit with add-on emission controls, then the code "CERTIFY CONTROLLED" is appropriate.

(c) "CERTIFY DEFERRED" may be reported for a non-operating, affected unit that is not yet certified under Subpart H.

A footnote for RT 940 contains the certification text represented by each of these three certification codes, see the footnote pertaining to RT 940.

(6) RT 941: Subpart H General Certification Statement

Submit RT 941 to include the appropriate Subpart H verbatim certification statement. Ask your State for the exact text of the certification statement. Make sure that the text for each line does not go beyond column 73 (beginning at column 6 and ending at column 67). Each RT 941 contains a number (in columns 4 and 5) indicating which of the lines of certification text is contained in that record, followed by

that line of the certification text (verbatim) as shown in the following example for the first line of the certification statement:

Example RT 941

94101 I am authorized to make this submission on behalf of the owners
94102 and operators of the affected source.

(7) RT 999: Contact Person Record (Optional)

This optional record can be used to identify a contact person (including the DR, ADR, AAR, AAAR, Environmental Manager or CEMS contact) who can respond to questions regarding the quarterly report. It also provides a place to update contact information, (i.e., phone or e-mail address information).

APPENDIX A:
GUIDELINES FOR PREPARATION OF EDR SUBMITTALS

I. INTRODUCTION

Under the Acid Rain Program and Subpart H there are three principal types of electronic reports which must be submitted in EDR format. These are: (1) monitoring plan submittals; (2) certification and recertification applications; and (3) quarterly emissions reports. This appendix explains which EDR record types are associated with each type of submittal. The "basic" or essential record types for each type of submittal are presented in Section II and supplementary tables are provided in Section III, which give additional record types that must be reported for specific monitoring methodologies. The guidelines in Sections II and III apply to all affected units except for units that qualify to use the low mass emissions (LME) unit methodology under § 75.19. EDR reporting guidelines for LME units are presented in Section IV of this appendix.

II. BASIC ELEMENTS OF AN EDR SUBMITTAL

A. Monitoring Plans

The following record types are the basic elements of a monitoring plan submittal:

Table A
BASIC MONITORING PLAN RECORD TYPES

Record Type	Description	Program Applicability and Comments
100	Facility Identification	ARP, Subpart H
503	Stack and Pipe Definition	ARP, Subpart H for certain configurations. See Table D below.
504	Unit Information	ARP, Subpart H
505	Program Indicator for Report	ARP, Subpart H
506	EIA Cross reference Information	ARP, Subpart H
535	Unit and Stack Operating Load Data	ARP, Subpart H Required for any unit, stack or pipe using load-based missing data procedures, either for NO_x, stack flow rate or fuel flow rate
585	Monitoring Methodology Information	ARP, Subpart H
586	Control Equipment Information	ARP, Subpart H (if emission controls are present). See Table D below.
587	Unit Fuel Type	ARP, Subpart H
Other 5XX Records	--	See Tables A-1 through A-13 below for additional 500-level records that may be required for specific monitoring methodologies.
9XX Records	--	RTs 900, 901, 910, 920, 940, 941, and 999 are optional. Hardcopy cover letters and certification statements may be submitted in lieu of these records.

B. Certification or Recertification Application

The following record types are the basic elements of a certification or recertification application submittal. Note that a certification or recertification application includes the basic monitoring plan elements from Section II.A, plus the results of the required certification or recertification tests.

Table B
CERTIFICATION AND RECERTIFICATION BASIC RECORD TYPES

Record Type	Description	Program Applicability and Comments
100	Facility Identification	ARP, Subpart H
503	Stack and Pipe Definition	ARP, Subpart H for certain configurations. See Table D below.
504	Unit Information	ARP, Subpart H
505	Program Indicator for Report	ARP, Subpart H
506	EIA Cross reference Information	ARP, Subpart H
535	Unit and Stack Operating Load Data	ARP, Subpart H Required for any unit, stack or pipe using load-based missing data procedures, either for NO_x, stack flow rate or fuel flow rate.
585	Monitoring Methodology Information	ARP, Subpart H
586	Control Equipment Information	ARP, Subpart H (if emission controls are present). See Table D below.
587	Unit Fuel Type	ARP, Subpart H
Other 5XX Records	--	See Tables A-1 through A-13 below for additional 500-level records that may be required for specific monitoring methodologies.
6XX Records	--	Submit the results of all QA tests required for certification or recertification in the appropriate 600-level records. See Tables A-1 through A-13 below.
900	Certifications	ARP Hard copy certification may be provided in lieu of this record type.
901	Certifications	ARP Hard copy certification may be provided in lieu of this record type.
910	Comments	ARP, Subpart H
920	Comments	ARP, Subpart H
940	Certifications	Subpart H Hard copy certification may be provided in lieu of this record type.
941	Certifications	Subpart H Hard copy certification may be provided in lieu of this record type.
999	Contact Information	ARP, Subpart H

C. Quarterly Emissions Report

The following record types are the basic elements of a quarterly emissions report submittal. Note that a quarterly emissions report includes the basic monitoring plan elements from Section II.A, plus additional information.

Table C
QUARTERLY EMISSIONS REPORT RECORD TYPES

Record Type	Description	Program Applicability and Comments
100	Facility Identification	ARP, Subpart H
101	Record Types Submitted	ARP, Subpart H (Optional)
102	Facility Location and Identification Information	ARP, Subpart H
2XX Records	--	For units with CEMS, report hourly emission data in the appropriate 200-level records. See Tables A-1 through A-7b, below.
300	Operating Data	ARP, Subpart H Report one RT 300 for each hour for each unit stack or pipe location except for units, stacks or pipes which did not operate during the entire quarter.
301	Quarterly Cumulative Emissions Data	ARP
307	Cumulative NO_x Mass Emissions Data	Subpart H
328	NO_x Mass Emissions	Subpart H
Other 3XX Records	--	Other 300-level records are required for specific monitoring methodologies. See Tables A-1 through A-13, below for details.
503	Stack and Pipe Definition	ARP, Subpart H for certain configurations. See Table D below.
504	Unit Information	ARP, Subpart H
505	Program Indicator for Report	ARP, Subpart H
506	EIA Cross Reference Information	ARP, Subpart H
535	Unit/Stack Operating Load Data	ARP, Subpart H Report for any unit, stack or pipe using load-based missing data procedures, either for NO_x, stack flow rate or fuel flow rate.
585	Monitoring Methodology Information	ARP, Subpart H
586	Control Equipment Information	ARP, Subpart H (if emission controls are present). See Table D below.
587	Unit Fuel Type	ARP, Subpart H
Other 5XX Records	--	See Tables A-1 through A-13, below for additional 500-level records that may be required for specific monitoring methodologies.
6XX Records	--	Submit the results of all QA tests required for certification, recertification and on-going quality assurance in the appropriate 600-level records. See Tables A-1 through A-13.
900	Certifications	ARP Hard copy certification may be provided in lieu of this record type.
901	Certifications	ARP Hard copy certification may be provided in lieu of this record type.
910	Comments	ARP, Subpart H
920	Comments	ARP, Subpart H
940	Certifications	Subpart H Hard copy certification may be provided in lieu of this record type.
941	Certifications	Subpart H Hard copy certification may be provided in lieu of this record type.
999	Contact Information	ARP, Subpart H

D. Required Records for All Reports Based on Operational Configuration

The following records are required for all types of EDR submittals, if certain operational configurations (i.e., control equipment, pipes, or stacks) exist.

Table D
RECORD TYPES REQUIRED FOR SPECIFIC OPERATIONAL CONFIGURATIONS

Record Type	Description	Program Applicability and Comments
503	Stack and Pipe Definition	ARP, Subpart H If a unit is monitored at a common stack or pipe (a stack or pipe serving more than one unit) or has multiple stacks or pipes (where emissions are measured at more than one stack exit or fuel source), you must define these monitoring locations in RTs 503 in every EDR submission.
586	Control Equipment Information	ARP, Subpart H If a unit has NO_x, SO_2 or particulate control equipment, you must submit one RT 586 for each type of controls installed.

III. SUPPLEMENTARY TABLES

Tables A-1 through A-13, below, identify additional EDR record types that are either required or optional for specific monitoring methodologies. Use these tables in conjunction with Section II of this Appendix (Basic Elements of an EDR Submittal) to ensure that all of the essential information is reported in each monitoring plan submittal, each certification or recertification application and each quarterly emissions report.

A. Determining Applicable Program Requirements

To determine which additional methodology-specific EDR record types to report for a unit or facility, you must first identify the program(s) under which the unit is regulated. There are three possibilities:

(1) EPA Acid Rain Program (ARP only);
(2) ARP and Subpart H State NO_x mass trading program (ARP and Subpart H); or
(3) Subpart H State NO_x mass trading program (Subpart H only)

Once you have determined the program applicability for a unit, use Table A-1 to determine which pollutant and parameter information must be reported under the applicable program(s).

Table A-1
REQUIRED POLLUTANT AND PARAMETER INFORMATION BY PROGRAM

Program Applicability	SO_2 Mass Emissions	CO_2 Mass Emissions	NO_x Mass Emissions	NO_x Emission Rate	Heat Input	Opacity
ARP Only	Required	Required	§ 75.19 LME units only	Required	Required	Required
ARP and Subpart H	Required	Required	Required	Required	Required	Required
Subpart H Only	Not required	Not required	Required	Required only for units using NO_x emission rate and heat input rate to determine NO_x mass emissions	Required only for units using NO_x emission rate and heat input rate to determine NO_x mass emissions, or if required by a State rule.	Not Required

B. Determining the Available Monitoring Methodologies

For each applicable pollutant or parameter from Table A-1, determine the monitoring methodology to be used. Table A-2 summarizes the allowable monitoring methodologies for various pollutants and parameters. A parenthetical statement at the end of each listed methodology option indicates which of the remaining tables in this section (i.e., Tables A-3 through A-13) must be consulted to determine the appropriate EDR record types to report.

Table A-2
ALLOWABLE MONITORING METHODOLOGIES

Pollutant or Parameter	Monitoring Methodology Options
SO_2 Mass Emissions	1. SO_2 concentration CEMS and stack flow monitor (use Tables A-3 and A-6 and, if moisture correction is necessary, Tables A-7a through A-7d) 2. Appendix D, fuel flowmeter and fuel sampling (use Table A-10) 3. Default SO_2 emission rate and heat input rate from a flow monitor and a diluent CEMS, under § 75.11(e)(1) (use Table A-6 and either Table A-6a or Table A-4a, as applicable) 4. Low mass emissions methodology under § 75.19 -- for qualifying units (use Table A-14 in Section IV)
CO_2 Mass Emissions	1. CO_2 concentration CEMS and stack flow monitor (use Tables A-5, A-6, and, if moisture correction is necessary, Tables A-7a through A-7d) 2. Appendix G (use Table A-12) 3. Low mass emissions methodology under § 75.19 -- for qualifying units (use Table A-14 in Section IV)

(cont.)

Table A-2
ALLOWABLE MONITORING METHODOLOGIES (cont.)

Pollutant or Parameter	Monitoring Methodology Options
NO_x Mass Emissions	1. NO_x concentration CEMS and stack flow monitor (Use Tables A-4a and A-6, and, if moisture correction is necessary, Tables A-7a through A-7d) 2. NO_x emission rate determined using a NO_x-diluent CEMS and heat input rate determined using a flow monitor and diluent CEMS (use Tables A-4a and A-6, and, if moisture correction is necessary, Tables A-7a through A-7d) 3. NO_x emission rate determined using a NO_x-diluent CEMS and heat input rate determined using a fuel flowmeter and the procedures of Appendix D (use Tables A-4a, if moisture correction is necessary, Tables A-7a through A-7d, and Tables A-10 and A-11). 4. NO_x emission rate determined using Appendix E and heat input rate determined using a fuel flowmeter and the procedures of Appendix D (for peaking units only) (use Tables A-10 and A-11) 5. Low mass emissions methodology under § 75.19 -- for qualifying units (use Table A-14 in Section IV)
NO_x Emission Rate	1. NO_x-diluent CEMS with F-factor (use Table A-4a and, if moisture correction is necessary, Tables A-7a through A-7d) 2. Appendix E NO_x correlation curve for qualifying peaking units (use Table D-11) 3. Low mass emissions methodology under § 75.19 -- for qualifying units (use Table A-14 in Section IV)
Heat Input	1. Stack flow monitor, diluent monitor, and F factor (use Tables A-6 and either Table A-4a or A-6a, as applicable) 2. Appendix D fuel flowmeter and fuel GCV sampling (use Table A-10) 3. Low mass emissions methodology under § 75.19 -- for qualifying units (use Table A-14 in Section IV)
Opacity	Continuous opacity monitor (COM) (use Table A-8)

C. Interpreting Tables A-3 Through A-13

In Tables A-3 through A-13, below, the first column in each table identifies the record type. The second column gives a brief description of the record type.

The third, fourth, and fifth columns indicate whether the record type must be reported for a particular type of submittal. The third column header, "MP," refers to monitoring plan submittals. The fourth column header, "CT," stands for certification or recertification applications. The fifth column header, "QT," refers to quarterly emissions report submittals. The letter codes in columns 3 through 5 are defined as follows:

Y This record type is required for this type of submittal (monitoring plan, certification/recertification application or quarterly emissions report)

N This record type is not appropriate for this type of submittal.

O This record type is appropriate, but optional for this type of submittal.

A This record type <u>may</u> be required for this submittal. If any doubt exists as to the need to submit this record type, consult the appropriate EDR instructions.

T This record type is required each time a quality assurance test (<u>e.g.</u>, a RATA or linearity check) is performed.

UA This record type must be updated each year or ozone season to demonstrate continuing qualification for or compliance with various rule provisions (e.g., peaking unit status).

Column 6 in each table lists the programs applicable to the record type. The information in this column indicates whether a certain record type is required for the Acid Rain Program, (ARP), or for Subpart H NO_x mass emission reporting (Subpart H), or both. Column 6 also provides brief reporting instructions for certain record types.

Once you have determined which record types have to be submitted, read the general reporting instructions and the column-specific instructions for those record types to ensure that the data elements in each record type are properly reported and that each record type is reported for the appropriate number of hours or situations and under the appropriate unit or stack ID(s).

D. Reporting Data for an SO_2 CEMS

Table A-3 describes record types required for an Acid Rain Program unit or stack at which a SO_2 concentration monitor and a flow monitor are used to determine SO_2 mass emissions. This Table describes record types applicable to the SO_2 CEMS only. To determine SO_2 mass emissions also requires a flow monitor (see Table A-6). If SO_2 concentration is measured on a dry basis, a moisture monitoring system or an appropriate moisture default value must be used to correctly calculate SO_2 mass emissions (see Tables A-7a through A-7d).

Table A-3
RECORD TYPES FOR SO_2 CEMS METHODOLOGY

Record Type	Description	MP	CT	QT	Program Applicability and Comments
200	SO_2 Concentration Data	N	N	Y	ARP
230	Daily Calibration Test Data and Results	N	N	Y	ARP
310	SO_2 Mass Emissions Data	N	N	Y	ARP
507	Data to Qualify as a Peaking Unit	A	A	A	ARP To claim exemption from 7-day calibration error test
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP See RT 510 instructions.
520	Formula Table	Y	Y	Y	ARP Report SO_2 mass emission formula.
530	Span Table	Y	Y	Y	ARP Report span value(s) for SO_2.

(cont.)

Table A-3
RECORD TYPES FOR SO_2 CEMS METHODOLOGY (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
536	Range of Operation, Normal Load and Load Usage	Y	Y	Y	ARP Required for any unit or common stack with CEMS.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP Report RT 556 for recertifications, diagnostic tests and whenever the conditional data validation procedures of § 75.20(b)(3) are applied.
600	7-Day Calibration Error Test Data and Results	N	Y	T	ARP Report for each 7-day cal error test performed for certification or recertification.
601	Linearity Check Data	N	Y	T	ARP Report RTs 601 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
602	Linearity Check Results	N	Y	T	ARP Report RTs 602 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
610	RATA and Bias Test Data	N	Y	T	ARP Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.
611	RATA and Bias Test Results	N	Y	T	ARP Report RT 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.
621	Cycle Time Test Data and Results	N	Y	T	ARP Report RT 621 each time a cycle time test is performed for certification or recertification.
623	Qualifying Test for Off Line Calibration Demonstration	N	N	A	ARP Report when off-line calibrations are used to validate emission data.
697	RATA Deadline Extension or Exemption	N	N	A	ARP Report when claiming a RATA deadline extension or a RATA exemption. (See instructions.)
698	QA Test Quarterly Exemption	N	N	A	ARP Report when claiming a quarterly linearity test exemption under Part 75, Appendix B, Section 2.2.1.
699	QA Test Extension Based on Grace Period	N	N	A	ARP Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3 or when claiming a linearity test deadline extension under Appendix B, Section 2.2.4.

E. Reporting Data for a NO_x Emission Rate System

Table A-4a describes record types required for a unit or stack at which NO_x emission rate is monitored with a NO_x-diluent CEMS. A NO_x-diluent CEMS is comprised of a NO_x concentration monitor and a diluent (O_2 or CO_2) monitor. This type of system is used to determine NO_x emission rate. Depending upon the equation used to calculate the NO_x emission rate, a moisture correction may be necessary (see Tables A-7a through A-7d).

Under Subpart H, the NO_X concentration component of a NO_x-diluent system may be used with a flow monitor to determine NO_X mass emissions, in which case duplicate reporting of RT 201 is required (see instructions for RT 201). The diluent component of a NO_x-diluent system may also be used to determine heat input rate, moisture or CO_2 mass emissions. In cases where the diluent monitor is used for multiple purposes carefully review the reporting instructions to determine if multiple RTs 210 or 211 are required. Note that the following record types listed in this table must be reported separately for the NO_x and diluent component monitors: RTs 230, 510, 530, 600, 601, 602, 621, 623, 698, and 699 (linearity check grace period, only).

Table A-4a
RECORD TYPES FOR NO_X-DILUENT CEMS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
201	NO_x Concentration Data	N	N	Y	ARP, Subpart H
210 or 211	CO_2 Concentration Data or O_2 Concentration Data	N	N	Y	ARP, Subpart H Report RT 210 or 211, depending on the type of diluent monitor used.
230	Daily Calibration Test Data and Results	N	N	Y	ARP, Subpart H Report separate RTs 230 for the NO_x concentration monitor and the diluent monitor.
320	NO_x Emission Rate Data	N	N	Y	ARP, Subpart H
507	Data to Qualify as a Peaking Unit	A	A	A	ARP, Subpart H To claim exemption from 7-day calibration error test
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP, Subpart H See RT 510 instructions.
520	Formula Table	Y	Y	Y	ARP, Subpart H Report NO_x emission rate formula used.
530	Span Table	Y	Y	Y	ARP, Subpart H Report span value(s) for NO_x and diluent (CO_2 or O_2).
536	Range of Operation, Normal Load and Load Usage	Y	Y	Y	ARP, Subpart H Required for any unit or common stack with CEMS.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type

(cont.)

Table A-4a
RECORD TYPES FOR NO_X-DILUENT CEMS (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP, Subpart H Report for recertifications, diagnostic tests and whenever the conditional data validation procedures of §75.20(b)(3) are applied.
600	7-Day Calibration Error Test Data and Results	N	Y	T	ARP, Subpart H Report for each 7-day cal error test performed for certification or recertification.
601	Linearity Check Data	N	Y	T	ARP, Subpart H Report RTs 601 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
602	Linearity Check Results	N	Y	T	ARP, Subpart H Report RTs 602 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
610	RATA and Bias Test Data	N	Y	T	ARP, Subpart H Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.
611	RATA and Bias Test Results	N	Y	T	ARP, Subpart H Report RT 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.
621	Cycle Time Test Data and Results	N	Y	T	ARP, Subpart H Report RT 621 each time a cycle time test is performed for certification or recertification.
623	Qualifying Test for Off Line Calibration Demonstration	N	N	A	ARP, Subpart H Report when off-line calibrations are used to validate emission data.
697	RATA Deadline Extension or Exemption	N	N	A	ARP, Subpart H Report when claiming a RATA deadline extension or a RATA exemption. (See instructions.)
698	QA Test Quarterly Exemption	N	N	A	ARP, Subpart H Report when claiming a quarterly linearity test exemption under Part 75, Appendix B, Section 2.2.1.
699	QA Test Extension Based on Grace Period	N	N	A	ARP, Subpart H Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3 or when claiming a linearity test deadline extension under Appendix B, Section 2.2.4.

F. Reporting Data from a NO_x Concentration Monitoring System

Table A-4b describes record types required for Subpart H units or stacks at which a NO_x concentration monitor and a flow rate monitoring system (see Table A-6) are used to determine NO_x mass emissions. If NO_x concentration is measured on a dry basis, a moisture correction will be needed (see Tables A-7a through A-7d). The NO_x concentration CEMS may also be used to determine NO_x emission rate as part of a NO_x-diluent system (see Table A-4a).

Table A-4b
RECORD TYPES FOR NO_X CONCENTRATION CEMS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
201	NO_x Concentration Data	N	N	Y	Subpart H
230	Daily Calibration Test Data/Results	N	N	Y	Subpart H
507	Data to Qualify as a Peaking Unit	A	A	A	Subpart H To claim exemption from 7-day calibration error test
510	Monitoring Systems Analytical Components Table	Y	Y	Y	Subpart H See RT 510 instructions.
520	Formula Table	Y	Y	Y	Subpart H Report NO_x mass emission formula.
530	Span Table	Y	Y	Y	Subpart H Report span value(s) for NO_x.
536	Range of Operation, Normal Load and Load Usage	Y	Y	Y	Subpart H Required for any unit or common stack with CEMS.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	Subpart H Report RT 556 for recertifications, diagnostic tests and whenever the conditional data validation procedures of § 75.20(b)(3) are applied.
600	7-Day Calibration Error Test Data and Results	N	Y	T	Subpart H Report for each 7-day cal error test performed for certification or recertification.
601	Linearity Check Data	N	Y	T	Subpart H Report RTs 601 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
602	Linearity Check Results	N	Y	T	Subpart H Report RTs 602 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
610	RATA and Bias Test Data	N	Y	T	Subpart H Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.
611	RATA and Bias Test Results	N	Y	T	Subpart H Report RT 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.
623	Qualifying Test for Off Line Calibration Demonstration	N	N	A	Subpart H Report when off-line calibrations are used to validate emission data.

(cont.)

Table A-4b
RECORD TYPES FOR NO_X CONCENTRATION CEMS (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
697	RATA Deadline Extension or Exemption	N	N	A	Subpart H Report when claiming a RATA deadline extension or a RATA exemption. (See instructions.)
698	QA Test Quarterly Exemption	N	N	A	Subpart H Report when claiming a quarterly linearity test exemption under Part 75, Appendix B, Section 2.2.1.
699	QA Test Extension Based on Grace Period	N	N	A	Subpart H Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3 or when claiming a linearity test deadline extension under Appendix B, Section 2.2.4.

G. Reporting Data for a CO_2 CEMS

Table A-5 summarizes record types required for Acid Rain Program units or stacks at which a CO_2 CEMS and a flow monitoring system (see Table A-6) are used to determine CO_2 mass emissions. If CO_2 concentration is measured on a dry basis, a moisture monitoring system or an appropriate moisture default value must be used to correctly calculate CO_2 mass emissions (see Tables A-7a through A-7d). Note that when a CO_2 CEMS is used for CO_2 mass emissions and also for diluent purposes there will be some duplication of reporting. Carefully review the instructions to determine the appropriate reporting of all record types.

Table A-5
RECORD TYPES FOR CO_2 CEMS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
202	CO_2 Concentration	N	N	Y	ARP
211	O_2 Concentration Data	N	N	Y	ARP Report only if hourly oxygen concentration values and Equation F-14a or F-14b are used to determine hourly CO_2 concentration.
230	Daily Calibration Test/Results	N	N	Y	ARP
330	CO_2 Mass Emissions Data	N	N	Y	ARP
507	Data to Qualify as a Peaking Unit	A	A	A	ARP To claim exemption from 7-day calibration error test

(cont.)

Table A-5
RECORD TYPES FOR CO_2 CEMS (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP See RT 510 instructions.
520	Formula Table	Y	Y	Y	ARP Report CO_2 mass emission formula.
530	Span Table	Y	Y	Y	ARP Report span value(s) for CO_2 or O_2.
536	Range of Operation, Normal Load, and Load Usage	Y	Y	Y	ARP Required for any unit or common stack with CEMS
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP Report RT 556 for recertifications, diagnostic tests and whenever the conditional data validation procedures of § 75.20(b)(3) are applied.
600	7-Day Calibration Error Test Data and Results	N	Y	T	ARP Report for each 7-day cal error test performed for certification or recertification.
601	Linearity Check Data	N	Y	T	ARP Report RTs 601 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
602	Linearity Check Results	N	Y	T	ARP Report RTs 602 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
610	RATA and Bias Test Data	N	Y	T	ARP Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.
611	RATA and Bias Test Results	N	Y	T	ARP Report RT 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.
621	Cycle Time Test Data and Results	N	Y	T	ARP Report RT 621 each time a cycle time test is performed for certification or recertification.
623	Qualifying Test for Off Line Calibration Demonstration	N	N	A	ARP Report when off-line calibrations are used to validate emission data.
697	RATA Deadline Extension or Exemption	N	N	A	ARP Report when claiming a RATA deadline extension or a RATA exemption. (See instructions.)
698	QA Test Quarterly Exemption	N	N	A	ARP Report when claiming a quarterly linearity test exemption under Part 75, Appendix B, Section 2.2.1.
699	QA Test Extension Based on Grace Period	N	N	A	ARP Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3 or when claiming a linearity test deadline extension under Appendix B, Section 2.2.4.

H. Reporting Data for a Stack Flow Monitoring System

Table A-6 describes record types required for units or stacks at which a flow monitor is used to continuously measure the stack gas volumetric flow rate.

Table A-6
RECORD TYPES FOR FLOW MONITORING SYSTEMS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
220	Volumetric Flow Data	N	N	Y	ARP, Subpart H
230	Daily Calibration Test Data and Results	N	N	Y	ARP, Subpart H
231	Flow Daily Interference Check Results	N	N	Y	ARP, Subpart H
507	Data to Qualify as a Peaking Unit	UA	A	UA	ARP, Subpart H Report RT 507 if exemption from multi-load flow RATAs is claimed or if exemption from 7-day calibration error test is claimed, because the unit qualifies as a peaking unit.
510	Monitoring Systems/ Analytical Components Table	Y	Y	Y	ARP, Subpart H See RT 510 instructions.
520	Formula Table	Y	Y	Y	ARP, Subpart H
530	Span Table	Y	Y	Y	ARP, Subpart H Report both a calibration span value and a flow rate span value.
536	Range of Operation, Normal Load, and Load Usage	Y	Y	Y	ARP, Subpart H Required for any unit or common stack with CEMS.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP, Subpart H Report RT 556 for recertifications, diagnostic tests and whenever the conditional data validation procedures of § 75.20(b)(3) are applied.
600	7-Day Calibration Error Test Data and Results	N	Y	T	ARP, Subpart H Report RTs 600 each time a 7-day cal error test is performed for certification or recertification.
603	Flow Leak Check Results	N	Y	T	ARP, Subpart H Required for differential pressure type flow monitors
605	Reference Data for Flow-to-Load Ratio or Gross Heat Rate Evaluation	N	N	A	ARP, Subpart H Report RT 605 each quarter, unless exempted by an approved petition under Section 7.8 of Appendix A.
606	Quarterly Flow-to-Load Ratio or Gross Heat Rate Check	N	N	A	ARP, Subpart H Report each quarter, unless exempted by an approved petition under Section 7.8 of Appendix A.

(cont.)

Table A-6
RECORD TYPES FOR FLOW MONITORING SYSTEM (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
610	RATA and Bias Test Data	N	Y	T	ARP, Subpart H Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.
611	RATA and Bias Test Results	N	Y	T	ARP, Subpart H Report RTs 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.
614	Reference Method Supporting Data for Flow RATA Tests	N	A	A	ARP, Subpart H Report to support the use of Methods 2F and 2G and whenever a wall effects factor is calculated using Method 2H.
615	Reference Method Supporting Data for Flow RATA Tests	N	A	A	ARP, Subpart H Report to support the use of Methods 2F and 2G and whenever a wall effects adjustment factor (WAF) is calculated using Method 2H.
616	Reference Method Supporting Data for Flow RATA Tests	N	A	A	ARP, Subpart H Report to support the use of Method 2 when a default WAF is used in accordance with Method 2H.
623	Qualifying Test for Off Line Calibration Demonstration	N	N	A	ARP Report when off-line calibrations are used to validate emission data.
695	Single Load Flow RATA Claim	N	N	A	ARP, Subpart H Report when using the provisions of Appendix B, Section 2.3.1.3(c) to claim a single load annual flow RATA.
697	RATA Deadline Extension or Exemption	N	N	A	ARP, Subpart H Report when claiming a RATA deadline extension or a RATA exemption. (See instructions.)
698	QA Test Quarterly Exemption	N	N	A	ARP, Subpart H Report when claiming a quarterly leak check exemption for a DP-type monitor under Part 75, Appendix B, Section 2.2.2 or when claiming an exemption from flow-to-load ratio testing under Section 7.8 of Appendix A.
699	QA Test Extension Based on Grace Period	N	N	A	ARP, Subpart H Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3 or when claiming a leak check deadline extension under Appendix B, Section 2.2.4.

I. Reporting Data for a Diluent Monitor Used for Heat Input Rate Only

Table A-6a describes record types necessary to support a diluent monitor used in conjunction with a flow monitoring system to determine hourly heat input rate but is not used to determine NO_x emission rate. Depending upon the equation used to calculate the heat input rate, a moisture correction may be necessary (see Tables A-7a through 7d).

[Note: If the same diluent monitor is used for determining both heat input rate and the NO_x emission rate, disregard this Table and report only the records required under Table C-4 for the NO_x-diluent CEMS.]

Table A-6a
RECORD TYPES FOR DILUENT MONITORS USED FOR HEAT INPUT RATE ONLY

Record Type	Description	MP	CT	QT	Program Applicability and Comments
210 or 211	CO_2 Concentration Data O_2 Concentration Data	N	N	Y	ARP, Subpart H Report RT 210 or 211, depending on the type of diluent monitor used.
230	Daily Calibration Test Data and Results	N	N	Y	ARP, Subpart H
507	Data to Qualify as a Peaking Unit	A	A	A	ARP, Subpart H To claim exemption from 7-day calibration error test
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP, Subpart H See RT 510 instructions.
520	Formula Table	Y	Y	Y	ARP, Subpart H Report heat input rate formula used.
530	Span Table	Y	Y	Y	ARP, Subpart H Report span value for the diluent CEMS.
536	Range of Operation, Normal Load, and Load Usage	Y	Y	Y	ARP, Subpart H Required for any unit or common stack with CEMS.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP, Subpart H Report RT 556 for recertifications, diagnostic tests and whenever the conditional data validation procedures of § 75.20(b)(3) are applied.
600	7-Day Calibration Error Test Data and Results	N	Y	T	ARP, Subpart H Report for each 7-day cal error test performed for certification or recertification.
601	Linearity Check Data	N	Y	T	ARP, Subpart H Report RTs 601 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
602	Linearity Check Results	N	Y	T	ARP, Subpart H Report RTs 602 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
610	RATA and Bias Test Data	N	Y	T	ARP, Subpart H Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.

(cont.)

Table A-6a
RECORD TYPES FOR DILUENT MONITORS USED FOR HEAT INPUT RATE ONLY (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
611	RATA and Bias Test Results	N	Y	T	ARP, Subpart H Report RT 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.
621	Cycle Time Test Data and Results	N	Y	T	ARP, Subpart H Report RT 621 each time a cycle time test is performed for certification or recertification.
623	Qualifying Test for Off Line Calibration Demonstration	N	N	A	ARP, Subpart H Report when off-line calibrations are used to validate emission data.
697	RATA Deadline Extension or Exemption	N	N	A	ARP, Subpart H Report when claiming a RATA deadline extension or a RATA exemption (See instructions).
698	QA Test Quarterly Exemption	N	N	A	ARP, Subpart H Report when claiming a quarterly linearity test exemption under Part 75, Appendix B, Section 2.2.1.
699	QA Test Extension Based on Grace Period	N	N	A	ARP, Subpart H Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3 or when claiming a linearity test deadline extension under Appendix B, Section 2.2.4.

J. Reporting Moisture Data

Tables A-7a through A-7d below summarize reporting for the four different methods of determining hourly stack gas moisture content. Moisture corrections are required in the following situations:

- When SO_2, NO_x, and CO_2 mass emissions are determined using a wet-basis stack flow monitor and an SO_2, NO_x, or CO_2 pollutant concentration monitor that measures on a dry basis (see Equations F-2 and F-14b from Appendix F of 40 CFR Part 75 and Equation N-2 in the (RT 520 instructions); or

- When heat input rate is determined using Equation F-16, F-17, or F-18 from Appendix F of 40 CFR Part 75; or

- When NO_x emission rate is determined using Equation 19-3, 19-4, 19-5, 19-8, or 19-9 from Method 19 in Appendix A of 40 CFR Part 60.

(1) Reporting for Wet/Dry O_2 CEMS

Table A-7a describes record types required for units or stacks at which wet and dry-basis O_2 monitors are used to determine moisture. Note that certain record types are required for both the wet and dry oxygen monitors.

Table A-7a
RECORD TYPES FOR WET/DRY O_2 CEMS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
211	O_2 Concentration Data	N	N	Y	ARP, Subpart H Report separate RTs 211 for the readings from the wet and dry oxygen monitors.
212	Moisture Data	N	N	Y	ARP, Subpart H
230	Daily Calibration Test Data and Results	N	N	Y	ARP, Subpart H Report only one RT 230 if the wet and dry O_2 readings are obtained by a single analyzer.
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP, Subpart H See RT 510 instructions.
520	Formula Table	Y	Y	Y	ARP, Subpart H Report moisture formula M-1.
530	Span Table	Y	Y	Y	ARP, Subpart H Report span value(s) for O_2.
536	Range of Operation, Normal Load, and Load Usage	Y	Y	Y	ARP, Subpart H Required for any unit or common stack with CEMS.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP, Subpart H Report RT 556 for recertifications, diagnostic tests and whenever the conditional data validation procedures of § 75.20(b)(3) are applied.
600	7-Day Calibration Error Test Data and Results	N	Y	T	ARP, Subpart H Report for each 7-day cal error test performed for certification or recertification.
601	Linearity Check Data	N	Y	T	ARP, Subpart H Report RTs 601 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
602	Linearity Check Results	N	Y	T	ARP, Subpart H Report RTs 602 each time a linearity check is performed for certification, recertification or for on-going QA/QC.
610	RATA and Bias Test Data	N	Y	T	ARP, Subpart H Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.
611	RATA and Bias Test Results	N	Y	T	ARP, Subpart H Report RT 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.

(cont.)

Table A-7a
RECORD TYPES FOR WET/DRY O_2 CEMS (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
621	Cycle Time Test Data and Results	N	Y	T	ARP, Subpart H Report RT 621 each time a cycle time test is performed for certification or recertification.
623	Qualifying Test for Off Line Calibration Demonstration	N	N	A	ARP, Subpart H Report when off-line calibrations are used to validate emission data.
697	RATA Deadline Extension or Exemption	N	N	A	ARP, Subpart H Report when claiming a RATA deadline extension or a RATA exemption. (See instructions.)
698	QA Test Quarterly Exemption	N	N	A	ARP, Subpart H Report when claiming a quarterly linearity test exemption under Part 75, Appendix B, Section 2.2.1.
699	QA Test Extension Based on Grace Period	N	N	A	ARP, Subpart H Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3 or when claiming a linearity test deadline extension under Appendix B, Section 2.2.4.

(2) Reporting for Continuous Moisture Sensors

Table A-7b describes record types required for units or stacks at which a continuous moisture sensor is used to determine percent moisture.

Table A-7b
RECORD TYPES FOR CONTINUOUS MOISTURE SENSOR

Record Type	Description	MP	CT	QT	Program Applicability and Comments
212	Moisture Data	N	N	Y	ARP, Subpart H
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP, Subpart H See RT 510 instructions.
536	Range of Operation, Normal Load, and Load Usage	Y	Y	Y	ARP, Subpart H Required for any unit or common stack with CEMS.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP, Subpart H Report RT 556 for recertifications, diagnostic tests and whenever the conditional data validation procedures of § 75.20(b)(3) are applied.
610	RATA and Bias Test Data	N	Y	T	ARP, Subpart H Report RTs 610 each time a RATA is performed for certification, recertification or for on-going QA/QC.

(cont.)

Table A-7b
RECORD TYPES FOR CONTINUOUS MOISTURE SENSOR (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
611	RATA and Bias Test Results	N	Y	T	ARP, Subpart H Report RT 611 each time a RATA is performed for certification, recertification or for on-going QA/QC.
697	RATA Deadline Extension or Exemption	N	N	A	ARP, Subpart H Report when claiming a RATA deadline extension or a RATA exemption (See instructions).
699	QA Test Extension Based on Grace Period	N	N	A	ARP, Subpart H Report when claiming a RATA test deadline extension under Appendix B, Section 2.3.3.

(3) Reporting for Use of Default % Moisture

When a default moisture constant is used to account for the stack gas moisture content, report the value in RT 531 (see §§ 75.11(b) and 75.12). Do not report hourly RTs 212.

Table A-7c
RECORD TYPES FOR DEFAULT % MOISTURE

Record Type	Description	MP	CT	QT	Program Applicability and Comments
531	Maximums Minimums Defaults and Constants	Y	Y	Y	ARP, Subpart H Applies to coal and wood-fired units, only.

(4) Reporting for Use of Temperature and a Look-up Table

Report the record types in Table A-7d when a temperature sensor and a look-up table are used to determine % moisture. This method may only be used for saturated gas streams.

Table A-7d
RECORD TYPES FOR REPORTING % MOISTURE FOR SATURATED GAS STREAMS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
212	Moisture Data	N	N	Y	ARP, Subpart H
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP, Subpart H
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP, Subpart H Report RT 556 only for recertifications.

K. Reporting for Opacity Monitoring

Table A-8 describes the record types that are required to document compliance with the Acid Rain Program opacity monitoring requirements of § 75.14. Do not report hourly opacity readings in the quarterly report.

Table A-8
RECORD TYPES FOR OPACITY MONITORS

Record Type	Description	MP**	CT**	QT	Program Applicability and Comments
507	Data to Qualify as a Gas-fired Unit	UA	A	UA	ARP Report RT 507 only if an exemption from opacity monitoring is claimed because the unit qualifies as gas-fired.
510	Monitoring Systems Analytical Components Table	A	A	A	ARP Report RT 510 only if installation of an opacity monitor is required under § 75.14. See RT 510 instructions.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP Report RT 556 only for opacity monitor recertifications.

** Note: The results of opacity monitor certification and recertification tests are submitted only in hardcopy, to the State and Regional EPA offices, and are not submitted in EDR format.

L. Summary of Hourly Emissions and QA Reporting for CEMS

Table A-9 compares the hourly emissions data and quality-assurance reporting requirements for different types of CEMS. For more details on reporting from each type of monitoring system see Tables A-3 through A-7d above.

Table A-9
COMPARISON OF CEMS REPORTING

Record Type	Description	MP	CT	QT	Program Applicability by Monitoring System Type				
					SO_2	NO_x Conc	CO_2	FLOW	NO_x - diluent
200	SO_2 Concentration Data	N	N	Y	ARP	--	--	--	--
201	NO_x Concentration Data	N	N	Y	--	ARP SUBH	--	--	ARP SUBH
202	CO_2 Concentration Data	N	N	Y	--	--	ARP	--	--
210 or 211	CO_2 or O_2 Diluent Data	N	N	A	--	--	--	--	ARP SUBH
212	Moisture Data	N	N	A	ARP	ARP SUBH	ARP	--	ARP SUBH
220	Volumetric Flow Rate Data	N	N	A	--	--	--	ARP SUBH	--
230	Daily Calibration Error Test Data and Results	N	N	Y	ARP	ARP SUBH	ARP	ARP SUBH	ARP SUBH
231	Flow Interference Check	N	N	Y	--	--	--	ARP SUBH	--
310	SO_2 Mass Emissions Data	N	N	Y	ARP	--	--	--	--
320	NO_x Emission Rate	N	N	Y	--	--	--	--	ARP SUBH
330	CO_2 Mass Emissions Data	N	N	Y	--	--	ARP	--	--
600	7- Day Calibration Error Test Data and Results	N	Y**	T	ARP Cert/ Recert	ARP SUBH Cert/ Recert	ARP Cert/ Recert	ARP SUBH Cert/ Recert	ARP SUBH Cert/ Recert
601 - 602	Linearity Check	N	Y	T	ARP	ARP SUBH	ARP	--	ARP SUBH
603	Leak Check	N	Y	T	--	--	--	ARP SUBH	--
605 - 606	Reference and Quarterly Data for Flow-to-Load Ratio Test	N	Y	T	--	--	--	ARP SUBH	--
610 - 611	RATA and Bias Test Data	N	Y	T	ARP	ARP SUBH	ARP	ARP SUBH	ARP SUBH
614 - 616	Supporting Data for Flow RATAs	N	Y	T	--	--	--	ARP SUBH	--

(cont.)

Table A-9
COMPARISON OF CEMS REPORTING (cont.)

Record Type	Description	MP	CT	QT	Program Applicability by Monitoring System Type				
					SO_2	NO_x Conc.	CO_2	FLOW	NO_x - diluent
621	Cycle Time Test Data and Results	N	Y	T	ARP Cert/ Recert	ARP SUBH Cert/ Recert	ARP Cert/ Recert	ARP SUBH Cert/ Recert	ARP SUBH Cert/ Recert
623	Qualifying Test for Off Line Calibration Demonstration	N	A	A	ARP	ARP SUBH	ARP	ARP SUBH	ARP SUBH
697	RATA Deadline Extension or Exemption	N	N	A	ARP	ARP SUBH	ARP	ARP SUBH	ARP SUBH
698	Quarterly QA Test Exemption	N	N	A	ARP	ARP SUBH	ARP	ARP SUBH	ARP SUBH
699	QA Test Extension Based on Grace Period	N	N	A	ARP	ARP SUBH	ARP	ARP SUBH	ARP SUBH

** Unless exempted (for peaking units and SO_2 or NO_x monitors with span values $\leq$ 50 ppm).

M. Reporting for Appendix D

Table A-10 summarizes the EDR reporting requirements for units using the procedures of Appendix D for hourly heat input rate determinations and for SO_2 mass emissions estimation.

Table A-10
RECORD TYPES FOR APPENDIX D

Record Type	Description	MP	CT	QT	Program Applicability and Comments
302, 303	Hourly Heat Input Rate	N	N	Y	ARP, Subpart H Must be paired with RT 313 or 314 when reporting SO_2 mass emissions.
313, 314	SO_2 Mass Emissions	N	N	Y	ARP Not required when using Appendix D to determine heat input rate only.
510	Monitoring System Analytical Systems Data	Y	Y	Y	ARP, Subpart H See RT 510 instructions.
520	Formula Table	Y	Y	Y	ARP, Subpart H Report the formulas used to calculate heat input and SO_2 mass emissions.

(cont.)

Table A-10
RECORD TYPES FOR APPENDIX D (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
530	Span Table	Y	Y	Y	ARP, Subpart H Report maximum NO_x emission rate in GNOX or ONOX span records for gas and oil respectively.
536	Range of Operation, Normal Load, and Load Usage	A	A	A	ARP, Subpart H Required if the optional fuel flow-to-load ratio methodology in Section 2.1.7 of Appendix D is used.
540	Fuel Flowmeter Data	Y	Y	Y	ARP, Subpart H Report a RT 540 for each fuel flowmeter monitoring system.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	A	A	ARP, Subpart H Report RT 556 only for fuel flowmeter recertifications and when an abbreviated fuel flow-to-load ratio diagnostic test is performed (see Section 2.1.7.4 of Appendix D).
624	Other QA Activities	N	A	A	ARP, Subpart H Report when visual inspection of orifice, nozzle or venturi flowmeters are performed.
627	Fuel Flowmeter Accuracy Test	N	A	T	ARP, Subpart H Report only for fuel flowmeters that are certified and quality assured by periodic accuracy tests according to Section 2.1.5.1 or 2.1.5.2 of Appendix D.
628	Fuel Flowmeter Accuracy Test for Orifice, Nozzle and Venturi Flowmeter	N	A	T	ARP, Subpart H Report only for orifice, nozzle and venturi-type flowmeters that are quality assured by periodic transmitter/transducer calibrations.
629	Fuel Flow-to-load Ration Test Baseline Data	N	N	A	ARP, Subpart H Report if quarterly fuel flow-to-load ratio test in Section 2.1.7 of Appendix D is used to extend fuel flowmeter accuracy test deadlines.
630	Quarterly Fuel Flow-to-load Ratio Test Results	N	N	A	ARP, Subpart H Report if quarterly fuel flow-to-load ratio test in Section 2.1.7 of Appendix D is used to extend fuel flowmeter accuracy test deadlines.
696	Fuel Flowmeter Accuracy Test Extension	N	N	A	ARP, Subpart H Use RT 696 to claim allowable extensions of fuel flowmeter accuracy test deadlines.

N. Reporting for Appendix E

Table A-11 summarizes the record types specific to reporting NO_x emission rate using the methodology under Appendix E of part 75. If you use this methodology, you must also report the

appropriate record types to support the use of a fuel flowmeter for heat input rate determination under Appendix D (see Table A-10).

Table A-11
RECORD TYPES FOR APPENDIX E

Record Type	Description	MP	CT	QT	Program Applicability and Comments
323	NO_x Emission Rate Alternative Estimation Parameters for Oil and Gas	N	N	A	ARD, Subpart H The use of this record type is limited to units that co-fire a consistent combination of fuels and perform Appendix E testing while combusting the fuel mixture.
324	NO_x Emission Rate Estimation Based on Appendix E	N	N	A	ARP, Subpart H Report RT 324 for units that combust a single fuel. Report two or more for units that combust multiple fuels (e.g., oil and gas) but perform Appendix E tests based on single fuel combustion.
325	NO_x Emission Rate Estimation Based on Appendix E for Multiple Fuel Hours	N	N	A	ARP, Subpart H For units that have separate NO_x emission rate-heat input rate correlation curves for each type of fuel combusted, use RT 325 to report a combined NO_x emission rate for any hour in which the unit combusts more than one type of fuel.
507	Data to Qualify as a Peaking Unit	UA	Y	UA	ARP, Subpart H To use Appendix E, the unit must qualify as a peaking unit.
510	Monitoring Systems Analytical Components Table	Y	Y	Y	ARP, Subpart H See RT 510 instructions.
550	Reason for Monitoring System Downtime or Missing Parameter	N	N	O	ARP, Subpart H Optional record type.
556	Monitoring System Recertification, Maintenance, or Other Events	N	N	T	ARP, Subpart H Report RT 556 only when Appendix E recertification tests are performed.
560	Appendix E NO_x Correlation Curve Segments	N	Y	Y	ARP, Subpart H Report RTs 560 for each NO_x correlation curve derived from Appendix E testing. Report this record type in lieu of providing formulas in RT 520.
650	NO_x Emission Rate Correlation Data	N	Y	T	ARP, Subpart H Report RT 650 for each Appendix E test run performed for certification, recertification or on-going quality assurance.
651	Appendix E NO_X Emission Rate Correlation Results	N	Y	T	ARP, Subpart H Report RT 651 for each Appendix E load level test for each certification, recertification or on-going quality test.
652	Oil Fuel Flow During Test	N	Y	T	ARP, Subpart H Report RT 652 for each Appendix E test run performed while combusting oil.
653	Gas Fuel Flow During Test	N	Y	T	ARP, Subpart H Report RT 653 for each Appendix E test run performed while combusting gas.

O. Reporting for Appendix G

Table A-12 summarizes the record types used when Appendix G of Part 75 is used to estimate CO_2 mass emissions. If you use a fuel flowmeter in conjunction with the Appendix G Methodology you must report the appropriate record types for the fuel flowmeter (see Table A-10, above).

Table A-12
RECORD TYPES FOR APPENDIX G

Record Type	Description	MP	CT	QT	Program Applicability and Comments
330	CO_2 Mass Emissions Data	N	N	Y	ARP Report RT 330 for hours in which Equation G-4 is used to determine hourly CO_2 mass emissions for gas-fired units.
331	CO_2 Mass Emissions Estimations Parameters	N	N	Y	ARP
520	Formula Table	Y	Y	Y	ARP Report CO_2 mass emission formula(s).

P. Other Records for Special Circumstances

Table A-13 describes record types used for special situations under the Acid Rain Program or Subpart H.

Table A-13
RECORD TYPES FOR SPECIAL SITUATIONS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
260, 261, 262	Reference Method Backup Data	N	N	A	ARP, Subpart H Report these record types when reference methods are used as backup monitors to obtain hourly emission data or flow rate data.
624	Other QA Activities	N	A	A	ARP, Subpart H Report RT 624 when non-standard QA activities are performed.

IV. REQUIRED REPORTING FOR LOW MASS EMISSIONS (LME) UNITS

Table A-14 includes all record types required for the low mass emissions (LME) methodology under § 75.19. To qualify to use the LME methodology, a unit must have less than 100 tons of NO_x mass emissions per year and $\leq$25 tons of SO_2 mass emissions per year. A non-Acid Rain Subpart H unit that reports data only for the ozone season may qualify for LME if the NO_x emissions do not exceed 50 tons of NO_x mass emissions per ozone season. Subpart H units that report data year-round may qualify for LME status if the NO_x mass emissions do not exceed 50 tons per ozone season, and are less than 100 tons per year.

Table A-14
RECORD TYPES FOR LOW MASS EMISSIONS UNITS

Record Type	Description	MP	CT	QT	Program Applicability and Comments
100	Facility Identification	Y	Y	Y	ARP, Subpart H
102	Facility Location and Identification Information	Y	Y	Y	ARP, Subpart H
301	Quarterly Cumulative Emissions Data	N	N	Y	ARP
305	Quarterly Heat Input from Long Term Fuel Flow Measurements for Qualifying Low Mass Emission Units	N	N	A	ARP, Subpart H Used only by units using the long term fuel flow methodology to determine hourly heat input.
307	Cumulative NO_x Mass Emissions Data	N	N	Y	ARP, Subpart H
360	Hourly Emissions Data for Low Mass Emissions Units	N	N	Y	ARP, Subpart H
503	Pipe header definition	A	A	A	ARP, Subpart H Report RT 503 for any unit which has a single long term fuel flow meter serving multiple units.
504	Unit Information	Y	Y	Y	ARP, Subpart H
505	Program Indicator for Report	Y	Y	Y	ARP, Subpart H
506	EIA Cross Reference Information	Y	Y	Y	ARP, Subpart H
507	Data to Qualify as a Gas-fired Unit	UA	UA	UA	ARP Report RT 507 only if an exemption from opacity monitoring is claimed because the unit qualifies as gas-fired per § 72.2.
508	Subpart H Reporting Frequency Change	A	A	A	Subpart H, only
510	Monitoring Systems/Analytical Components Table	A	A	A	ARP, Subpart H Required only for: (1) a unit using the long term fuel flow methodology; or (2) an ARP unit required to monitor opacity under § 75.14.
531	Maximums, Minimums, Defaults, and Constants	Y	Y	Y	ARP, Subpart H
536	Range of Operation and Normal Operating Load or Level	A	A	A	ARP, Subpart H
540	Fuel Flowmeter Data	A	A	A	ARP, Subpart H
556	Monitoring System Recertification, Maintenance, or Other Events	N	N	T	ARP, Subpart H Report RT 556 only: (1) when changes to the unit, emission controls or manner of operation require Appendix E testing to be performed, to re-determine the fuel-specific, unit-specific NO_x emission rate; or (2) for opacity monitor recertifications.
585	Monitoring Methodology Information	Y	Y	Y	ARP, Subpart H
586	Control Equipment Information	A	A	A	ARP, Subpart H
587	Unit Fuel Type	Y	Y	Y	ARP, Subpart H

(cont.)

Table A-14
RECORD TYPES FOR LOW MASS EMISSIONS UNITS (cont.)

Record Type	Description	MP	CT	QT	Program Applicability and Comments
629	Baseline Data for Fuel Flow-to-load Ratio or Gross Heat Rate Check for Fuel Flowmeters	A	A	A	ARP, Subpart H
630	Alternative Monitoring System Approval Petition Results and Statistics (Renumbered)	A	A	A	ARP, Subpart H
645	Qualifying Data for Low Mass Emission Units	A	A	A	ARP, Subpart H Submit only with initial monitoring plan, certification application, and first quarterly report.
650	NO_x Emission Rate Correlation Test Data	N	A	T	ARP, Subpart H Report RT 650 each time an Appendix E test is performed for the purpose of determining a fuel-specific, unit-specific NO_x emission rate. See RT 650 general instructions.
660	Identical Unit Testing	A	A	A	ARP, Subpart H Required only for units which perform identical unit testing. Submit RT(s) 660 for each unit in the group.
900	Certifications	N	N	O	ARP Hard copy certification may be provided in lieu of this record type.
901	Certifications	N	N	O	ARP Hard copy certification may be provided in lieu of this record type.
910	Comments	N	N	O	ARP, Subpart H
920	Comments	N	N	O	ARP, Subpart H
940	Certifications	N	N	O	Subpart H Hard copy certification may be provided in lieu of this record type.
941	Certifications	N	N	O	Subpart H Hard copy certification may be provided in lieu of this record type.
999	Contact Information	N	N	O	ARP, Subpart H