RULE 2012 PROTOCOL
CHAPTER 4

PROCESS UNITS - PERIODIC REPORTING AND RULE 219 EQUIPMENT

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CHAPTER 4 - PROCESS UNITS PERIODIC REPORTING AND RULE 219 EQUIPMENT

Process units are one or more pieces of equipment which are listed in Table 1-C. The process units emissions are reported quarterly as shown in Table 4-A and based primarily on fuel consumption or operating time in conjunction with an emission factor. The requirements and procedures for an emission factor and election conditions for an alternative emission factor or concentration limit shall apply to process units. For equipment designated as exempt from permit in Rule 219 emissions shall be determined according to the methodology specified in this Chapter 4, subdivision F.

Process units and equipment exempt from permit as designated in Rule 219 may share fuel meters if each equipment has the same emission factor. This chapter also includes the equations describing the methods used to calculate NO_X process unit emissions and the reporting procedures. The interim reporting period does not apply to process units since existing fuel metering equipment or timers shall be used starting January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

A. MONITORING, REPORTING, AND RECORDKEEPING REQUIREMENTS

1. The category-specific starting emission factor found in Table 1 of Rule 2002 - Allocations for Oxides of Nitrogen (NO_x) and Sulfur (SO_x) shall be used for quantifying quarterly mass emissions for a NO_X process unit.

2. The Facility Permit holder of a process unit may request a category-specific emission rate that is reliable, accurate, and representative for purposes of calculating NO_X emissions. The emission rate shall be determined based on the source testing protocol specified in Chapter 5. The Facility Permit holder of a process unit may apply for a concentration limit for purposes of calculating NO_X emissions.

3. The Facility Permit holder of a process unit shall calculate the mass emissions according to the methodology specified in Paragraph 4.B.2. (totalizing fuel meters) or 4.B.3.a. (timers).

4. The Facility Permit holder of each NO_X Process Unit shall use a totalizing fuel meter or timer as applicable, as specified in the Facility Permit for each NO_X process unit to measure and report the variables listed in Tables 4-A and 4-B, respectively, for each NO_X process unit.

5. Fuel flow measuring devices used for obtaining stack flow in conjunction with F-factors shall be tested, when required, as installed for relative accuracy using reference methods to determine stack flow.

   a. The relative accuracy of the fuel flow meter must be determined using District reference Methods 1-4 and a three-run relative accuracy audit (RAA) at normal operating load. The accuracy of the fuel flow measuring system must be determined using the following equation:

   $$A = (C_m - C_a)/C_a \times 100\% \quad \text{(Eq. 15a)}$$

   where:

   A = accuracy of the fuel flow meter (%)

C_m = average flow rate response (scfh)

C_a = average reference method flow rate (scfh)

The value of fuel flow meter accuracy, as defined in Eq. 15a, shall be less than or equal to 15%.

b. Other acceptable alternatives to the above procedures used to determine the relative accuracy of the facility fuel flow meter or stack flow meter are listed under Chapter 3, Subdivision H.

6. Fuel meters and/or timers have to be non-resettable and tamper-proof. They have to have seals installed by the meter/timer manufacturer to prove the integrity of the measuring device.

Meters which are unsealed for maintenance or repairs shall be resealed by an authorized manufacturers representative.

7. The Facility Permit holder of each NO_x process unit shall monitor, report, and maintain the following records on a quarterly basis:

a. Type and quantity of fuel burned, in units of millions of standard cubic feet per quarter (mmscf per quarter) for gaseous fuels or thousand gallons per quarter (mgal per quarter) for liquid fuels, expressed to at least three significant figures; or

b. Total hours of operation; and

c. Production/Processing/Feed rate.

8. The Facility Permit holder of each NO_x process unit shall also provide any other data necessary for calculating the emission rates of nitrogen oxides as determined by the Executive Officer.

B. EMISSION CALCULATION FOR REPORTING DATA

1. Quarterly Mass Emissions for Interim Periods

Pursuant to Rule 2012 (f) (1), between January 1, 1994 and December 31, 1994 for Cycle 1 facilities, and between July 1, 1994 and June 30, 1995 for Cycle 2 facilities, the monthly emission of each process unit shall be calculated and recorded according to:

$$E_{ip} = \sum_{j=1}^{r} d_j \times EF_{sj} \qquad \text{(Eq.22)}$$

where:

E_{ip} = The quarterly mass emission of nitrogen oxides for interim period (lb/quarter).

d_j = The quarterly fuel usage for each type of fuel recorded as mmscf/quarter or mgal/quarter).

EF_{sj} = The starting emission factor used to calculate unit emissions in the initial allocation, as specified in Table 1 of Rule 2002 - Allocations for Oxides of Nitrogen (NO_X) and Sulfur (SO_X) (lb/mmscf, lb/mgal).

r = The number of different types of fuel consumed per quarter.

j = Each type of fuel.0

Example calculation: Boiler burning natural gas, rated 6 mmBtu/hr, in compliance with Rule 1146
starting year 1994
Emission factor = 49.18 lb/mmscf
Quarterly fuel usage = 1.1 mmscf per quarter

E_{ip} = (49.18) x (1.1)
= 54.1 lb/quarter

Applicable emission factor is also found in Volume II - Supporting Documentation, Appendix II-F - Methodology for NO_x and SO_x Starting and Ending Allocation Factors, Table 2-4 - Startpoint 1994 Emission Factors for Nitrogen Oxides.

2. Totalizing Fuel Meter-Based Emission Calculation

The Facility permit holder shall use an emission factor shown in Table 1 of Rule 2002 or in Table 3-D or an approved equipment-specific or category-specific emission rate for each affected NO_x Process Unit to calculate the quarterly emissions according to:

$$E_k = \sum_{j=1}^{r} d_j \times EF_j \quad \text{(Eq.23)}$$

or

$$E_k = \sum_{j=1}^{r} d_j \times V_j \times ER_j \quad \text{(Eq.24)}$$

where:

E_k = The quarterly emissions of nitrogen oxides (lb/quarter).

d_j = The quarterly fuel usage for each type of fuel recorded by the fuel totalizer (mmscf/quarter or mgal/quarter)

EF_j= The emission factor specified in Table 1 of Rule 2002 - Allocations for Oxides of Nitrogen (NO_X) and Sulfur (SO_X) or specified in Table 3-D (lb/mmscf, lb/mgal). The emission factor found in Table 1 of Rule 2002 may or may not include the appropriate control efficiency.

V_j = The higher heating value of each type of fuel (mmBtu/mmscf or mmBtu/mgal) determined by the Facility Permit holder or assigned from Table 3-D.

ER_j = The equipment-specific or category-specific emission rate; fuel-specific emission rate requested by the Facility Permit holder (lb/mmBtu).

r = The number of different types of fuel consumed per month.

3. Timer-Based Emission Calculations

a. If the NO_x process unit is equipped with a timer, the quarterly fuel usage shall be estimated according to Eq. 25, 26 27, and 28 and the quarterly emissions for each affected NO_x process unit shall be calculated according to Eq. 23 and 24.

If the NO_x process unit does not measure fuel with a totalizing fuel meter, the quarterly fuel consumption for each affected equipment shall be estimated according to:

$$d = d_{pu} \times (H/H_{pu}) \quad \text{(Eq.25)}$$

where:

d = The estimated quarterly fuel consumption of an affected NO_x process unit without a dedicated fuel meter (mmscf/quarter or mgal/quarter).

d_{pu} = The quarterly fuel consumption of all NO_x process units at the facility (mmscf/quarter or mgal/quarter).

H = The quarterly heat input of an affected equipment without a dedicated fuel meter (mmBtu/quarter).

H_{pu} = The quarterly heat input of all NO_x process units at the facility (mmBtu/quarter).

Example Calculation:

d_{pu}	=	1,587 mmscf/quarter
H	=	5,400 mmBtu/quarter
H_{pu}	=	27,000 mmBtu/quarter
d	=	d_{pu} x (H/H_{pu})
d	=	1,587 mmscf/qtr x (5,400 mmBtu/qtr ÷27,000 mmBtu/qtr)
d	=	317.4 mmscf/qtr

The quarterly fuel usage for all the NO_x process units at the facility (d_{pu}) shall be calculated according to:

$$d_{pu} = d_{fac} - (d_{large} + d_{major}) \quad \text{(Eq.26)}$$

where:

d_{fac} = The quarterly fuel usage of all major and large sources and NO_x process units at the facility (mmscf/quarter or mgal/quarter).

d_{major} = The quarterly fuel usage of all major NO_x sources at the facility (mmscf/quarter or mgal/quarter).

d_{large} = The quarterly fuel usage of all large NO_x sources at the facility (mmscf/quarter or mgal/quarter).

Example Calculation:

d_{fac}	=	174 mmscf/quarter
d_{major}	=	126 mmscf/quarter
d_{large}	=	30 mmscf/quarter
d_{pu}	=	d_{fac} - (d_{large} + d_{major})
d_{pu}	=	174 - (126 + 30)
d_{pu}	=	18 mmscf/quarter

The quarterly heat input of all the NO_x process units at the facility (H_{pu}) shall be calculated according to:

$$H_{pu} = \sum_{i=1}^{n} (R_i \times T_i) \quad \text{(Eq.27)}$$

where:

R_i = The maximum rated fuel capacity of a NO_x process unit (mmBtu/hr).

T_i = The quarterly accumulated operation hours for a NO_x process unit (hrs/quarter).

n = The total number of NO_x process units at the facility.

Example Calculation:

R_1 = 3.5 mmBtu/hr
R_2 = 2.7 mmBtu/hr
T_1 = 480 hr/quarter
T_2 = 120 hr/quarter

$$H_{pu} = \sum_{i=1}^{2} (R_i \times T_i)$$

H_{pu} = (3.5 x 480) + (2.7 x 120)
H_{pu} = 2004 mmBtu/quarter

The maximum rated heat input capacity of all NO_x process units shall be in units of mmBtu/hr. Since internal combustion engines are usually rated in units of brake horse power, the maximum rated heat input capacity of an engine shall be computed as follows:

R = 0.002545 x bhp / eff (Eq.28)

where:

R = The maximum rated heat input capacity

eff = The manufacturer's rated efficiency @LHV x (LHV/HHV)

= 0.25, if not provided by the operator

bhp = The manufacturer's rated shaft output in brake horse power

Example Calculation:

eff = 0.25
bhp = 75 bhp
R = 0.002545 x bhp / eff
R = 0.002545 x 75/.25
R = 0.7635 mmBtu/hr

If gas turbines are rated in kilowatts, the rating shall be converted to mmBtu/hr by applying the manufacturer's heat rate (in mmBtu/kw-hr). If the manufacturer's heat rate is not available, a default value of 15,000 Btu/kw-hr shall be used.

Example Calculation:

Quarterly natural gas fuel usage for an ICE with maximum rated bhp of 90 bhp, 0.25 eff and a boiler rated at 4 mmBtu/hr is being served by one fuel meter reading 10.5 mmscf. The compliance emission rate of both ICE and boiler is 0.3 lb/mmBtu.

ICE = 90 bhp Boiler= 4 mmBtu/hr
Fuel meter reading = d_{pu} = 10.5 mmscf

I.C.E.
R = 0.002545 x 90/.25 = 0.916 mmBtu/hr
t = 3 hr/day x 7 days/wk. x 4 wk./mo. x 3 mo/qtr = 252 hr/qtr
H_{ice} = R x t = 0.916 x 252 = 230.8 mmBtu/ quarter

Boiler
H_{boiler} = 4 mmBtu/hr x 24 hr./day x 7 day/wk. x 4 wk./mo. x 3 mo/qtr
H_{boiler} = 8064 mmBtu/quarter
H_{pu} = 230.8 + 8064 = 8294.8 mmBtu/qtr

$d_{ice} = d_{pu} \times (H_{ice}/H_{pu})$
= 10.5 mmscf/qtr x (230.8/8294.8)
= .298 mmscf/qtr

$d_{boiler} = d_{pu} \times (H_{boiler}/H_{pu})$
= 10.5 mmscf/qtr x (8064/8294.8)
= 10.2 mmscf/qtr

$E_{ice} = d_{ice} \times V \times ER_c$
= 1050 mmBtu/mmscf x 0.30 lb/mmBtu x .298 mmscf/qtr
= 93.87 lb/qtr
$E_{boiler} = d_{boiler} \times V \times ER_c$
= 10.2 mmscf/qtr x 1050 mmBtu/mmscf x 0.3 lb/mmBtu
= 3213 lb/qtr

$E = E_{ice} + E_{boiler}$ = 93.87 + 3213 lb/qtr = 3307 lb/qtr

4. Concentration Limit based Emissions Calculations

When the Facility Permit holder elects to use the concentration limit, the quarterly mass emission shall be calculated and recorded according to one of the following equations:

a. Use the F-factor approach for oxygen except in cases where enriched oxygen is used, non-fuel sources of carbon dioxide are present (e.g., lime kilns and calciners), or the oxygen content of the stack gas is 19 percent or greater. Process units that are permitted to demonstrate compliance using the procedures in Rule 2012, Appendix A, Chapter 5, Subdivision H shall use the following equation to calculate and record nitrogen oxides mass emission rate even if the oxygen stack gas is 19 percent or greater. The following equation shall be used to calculate and record nitrogen oxides mass emission rate:

$$E_k = PPMV_{O2} \quad [20.9/(20.9 - b)] \times 1.195 \times 10^{-7} \times \sum_{j=1}^{r} (F_{dj} \times d_j \times V_j) \qquad \text{(Eq.28a)}$$

where:

E_k = The quarterly mass emission of nitrogen oxides (lb/quarter).

$PPMV_{O2}$ = The RECLAIM concentration limit as listed in the Facility Permit. (ppmv) and based on standardized oxygen concentration in the exhaust stream.

b = The standard concentrations of oxygen as listed in the Facility Permit or as found in Table 3-F. (%).

r = The number of different types of fuel.

j = Each type of fuel.

$F_{d\,j}$ = The oxygen-based dry F factor for oxygen for each type of fuel, the ratio of the dry gas volume of the products of combustion to the heat content of the fuel (dscf/mmBtu) specified in 40 CFR Part 60, Appendix A, Method 19.

d_j = The quarterly fuel usage for each type of fuel recorded by the fuel totalizer (mmscf per quarter or mgal per quarter).

V_j = The higher heating value of the fuel for each type of fuel found in Table 3-D (mmBtu/mmscf or mmBtu/mgal) or determined by a continuous analyzer.

The product (d_j x V_j) shall have units of mmBtu per quarter (mmBtu/quarter).

For non-standard fuels that are not listed in 40 CFR Part 60, Appendix A, Method 19, a constant F-factor and heating value may be used if the Facility Permit holder demonstrates to the Executive Officer that the natural gas, fuel oil, or other fuels have stable F-factors and gross heating values. A stable F-factor or gross heating

value is defined as not varying by more than + or - 2.5% from the proposed constant value. For the fuels listed in 40 CFR 60, Appendix A, Method 19, Table 19-1, the F-factors are assumed to be stable at the value cited in Table 19-1. Any F-factor cited in Regulation XX shall supersede the F-factor in Table 19-1. For fuels not listed in the citations above, but which the Facility Permit holder demonstrates that the source-specific F-factor meets the same stability criteria, periodic reporting of F-factor may be accepted and the adequacy of the frequency of analyses shall be demonstrated by the Facility Permit operator such that the probability that any given analysis will differ from the previous analysis by more than 5% (relative to the previous analysis) or less than 5%. Analysis records shall be maintained, including all charts and laboratory notes.

For non-standard fuels that are not listed in 40 CFR Part 60, Appendix A, Method 19 and do not satisfy the criteria for constant F-factor and heating value, the fuels must be analyzed on a continuous basis using gas chromatographs or other continuous technique that is approved by the Executive Officer. The continuous technique employed shall be capable of providing at a minimum a reading every fifteen-minute period.

b. If the F-factor approach for oxygen can not be used, use the F-factor approach for carbon dioxide as specified in 40 CFR Part 60, Appendix A, Method 19, except in cases where the carbon dioxide concentration is less than one volume percent dry, non-fuel sources of carbon dioxide are present (e.g., lime kilns and calciners), or non-metered sources of fuel are present (e.g., afterburners). The following equation shall be used to calculate and record nitrogen oxides mass emission rate:

$$E_k = PPMV_{CO2} \times (100/\%CO_2) \times 1.195 \times 10^{-7} \times \sum_{j=1}^{r} (F_{cj} \times d_j \times V_j) \quad \text{(Eq.28b)}$$

Where:

E_k = The quarterly mass emission of nitrogen oxides (lb/quarter).

$PPMV_{CO2}$ = The RECLAIM concentration limit as listed in the Facility Permit (ppmv) and based on standardized carbon dioxide concentration in the exhaust stream.

$\%CO_2$ = The standard concentrations of stack gas carbon dioxide as listed in the Facility Permit.

r = The number of different types of fuel.

j = Each type of fuel.

F_{cj} = The carbon dioxide-based dry F factor for carbon dioxide for each type of fuel, the ratio of the dry gas volume of the products of combustion to the

heat content of the fuel (dscf/mmBtu) specified in 40 CFR Part 60, Appendix A, Method 19.

d_j = The quarterly fuel usage for each type of fuel recorded by the fuel totalizer (mmscf per quarter or mgal per quarter).

V_j = The higher heating value of the fuel for each type of fuel found in Table 3-D (mmBtu/mmscf or mmBtu/mgal) or determined by a continuous analyzer.

For non-standard fuels that are not listed in 40 CFR Part 60, Appendix A, Method 19, a constant F-factor and heating value may be used if the Facility Permit holder demonstrates to the Executive Officer that the natural gas, fuel oil, or other fuels have stable F-factors and gross heating values. A stable F-factor or gross heating value is defined as not varying by more than + or - 2.5% from the proposed constant value. For the fuels listed in 40 CFR 60, Appendix A, Method 19, Table 19-1, the F-factors are assumed to be stable at the value cited in Table 19-1. Any F-factor cited in Regulation XX shall supersede the F-factor in Table 19-1. For fuels not listed in the citations above, but which the Facility Permit holder demonstrates that the source-specific F-factor meets the same stability criteria, periodic reporting of F-factor may be accepted and the adequacy of the frequency of analyses shall be demonstrated by the Facility Permit operator such that the probability that any given analysis will differ from the previous analysis by more than 5% (relative to the previous analysis) or less than 5%. Analysis records shall be maintained, including all charts and laboratory notes.

For non-standard fuels that are not listed in 40 CFR Part 60, Appendix A, Method 19 and do not satisfy the criteria for constant F-factor and heating value, the fuels must be analyzed on a continuous basis using gas chromatographs or other continuous technique that is approved by the Executive Officer. The continuous technique employed shall be capable of providing at a minimum a reading every fifteen-minute period.

c. If the F-factor approach for carbon dioxide can not be used, the nitrogen oxides mass emission rate shall be determined based on actual monthly stack flow rate from a continuous stack flow monitor and concentration limit at stack conditions as listed in the Facility Permit. The mass emission rate shall be determined by the following equation:

$$E_k = PPMV_{ST} \times 1.195 \times 10^{-7} \times \sum_{j=1}^{N} F_j \qquad \text{(Eq. 28c)}$$

where:

E_k = The quarterly mass emission of nitrogen oxides (lb/quarter).

$PPMV_{ST}$ = The concentration limit at stack condition as listed in the Facility Permit (ppmv).

F_j = Total quarterly stack flow rate (scf/quarter) of stack j.

N = Number of exhaust stacks.

For systems that record hourly exhaust flow rate data, the total quarterly stack flow rate shall be determined by the following equation:

$$F_j = \sum_{i=1}^{M} H_{ij} \qquad \text{(Eq. 28d)}$$

F_j = Total quarterly stack flow rate (scf/quarter) of stack j.

H_{ij} = Hourly stack flow rate (scf/hour) of stack j.

M = Total number of hours for the quarter.

Whenever valid stack flow rate data is not obtained for an hour, the Facility Permit holder shall calculate substitute data using the missing data procedures applicable to flow as set forth in Appendix A, Chapter 3, Subdivision K, Paragraph 2.

C. TOTAL QUARTERLY EMISSIONS CALCULATION FOR ALL NO_x PROCESS UNITS AT THE FACILITY

The quarterly NO_x emissions of all NO_x process units at the facility shall be estimated according to:

$$E = \sum_{i=1}^{n} E_i \qquad \text{(Eq.29)}$$

$$E_i = \sum_{j=1}^{m} E_j \qquad \text{(Eq. 30)}$$

where:

E = The total quarterly emissions for all NO_x process units

E_i = The quarterly emission of each NO_X process unit (lb/quarter)

E_j = The quarterly emission of each NO_x process unit per type of fuel (lb/quarter)

i = Each type of affected NO_x process unit

j = Each type of fuel

m = The total number of fuels consumed for each affected NO_x process unit per quarter

n = The total number of NO_x process units at the facility.

Example Calculation:

E_1 = 163.8 lb/quarter
E_2 = 78 lb/quarter
E_3 = 120 lb/quarter

$$E = \sum_{i=1}^{n} E_i = 163.8 + 78 + 120$$

E = 361.8 lb/quarter

D. REPORTING PROCEDURES

1. The emissions data in any facility with an RTU shall be reported to Central Station Computer at the end of any quarter and the data shall be computed to determine the quarterly total emissions for each source using Equations 22 through 28 as appropriate.

2. The total fuel usage data for all NO_x process units in any facility without an RTU shall be recorded in a format approved by the Executive Officer and submitted to the District as part of the Quarterly Certified Report required by Rule 2004.

3. The Facility Permit holder of NO_x process units shall maintain daily records of operation hours or quarterly usage rate for each NO_x process unit.

4. Any changes made in type of fuel used and rated capacity for each source shall be recorded by the Facility Permit holder.

5. The Facility Permit holder of any NO_x process unit that opts to monitor at the large source monitoring level shall meet the requirements set forth in "Chapter 3 Large Sources - Continuous Process Monitoring System (CPMS)".

E. FUEL METER SHARING

1. A single totalizing fuel meter shall be allowed to measure the cumulative fuel usage for more than one equipment provided that each equipment elects for the same emission rate or emission factor as specified in the Facility Permit and that any equipment in a process unit does not use the annual heat input in order to be categorized from a large source to a process unit.

2. One or more equipment in a process NO_x unit shall be allowed to share the fuel totalizing meter with the equipment in a process NO_x unit provided that each equipment elects for the same emission rate or emission factor as specified in the Facility Permit.

3. Fuel meter sharing for the interim period shall be allowed for those equipment in a process unit with the same emission rate or emission factor.

F. RULE 219 EQUIPMENT

1. Emission Determination And Reporting Requirements

a. The Facility Permit holder shall determine the emissions for one or more equipment exempt under Rule 219 and report the emissions on a quarterly basis as part of the Quarterly Certified Emissions Report Certification of Emissions required by Rule 2004. The Facility Permit holder shall be allowed to use the existing fuel totalizer, the monthly fuel billing statement, or any other equivalent methodology to estimate their fuel usage for a quarterly period.

b. Quarterly reporting periods shall start on January 1, 1994 for Cycle 1 Facilities and July 1, 1994 for Cycle 2 facilities.

c. The Facility Permit holder of each equipment shall maintain the quarterly fuel usage data for all equipment exempt under Rule 219 for three years. Such data shall be made available to District staff upon request.

d. The fuel usage for equipment exempt under Rule 219 may be used in conjunction with fuel usage for process units provided that they have the same emission factor.

2. Emission Calculations

The Facility Permit holder shall determine NO_x emissions for equipment exempt under Rule 219 as follows :

$$E_{219} = \sum_{i=1}^{n} EFR_i \times d_i \qquad \text{(Eq.31)}$$

where:

E_{219} = The total emissions for equipment exempt under Rule 219 estimated over a quarterly period (lb/ per quarter).

EFR_i = The equipment-specific or category-specific emission factor for each equipment exempt under Rule 219 equipment. The emission factor can be found in Table 3-D (lb/mmscf or lb/mgal).

d_i = The equipment-specific or category-specific fuel usage (mmscf/ per quarter or mgal/ per quarter).

n = The number of equipment exempt under Rule 219.

G. SUBSTITUTE DATA PROCEDURES

1. For each process unit or process units using a common fuel meter, elapsed time meter, or equivalent monitoring device, the Facility Permit holder shall provide substitute data as described below whenever a valid quarter of usage data has not been obtained and recorded. Alternative data, based on a back-up fuel meter, elapsed time meter, or equivalent monitoring device, is acceptable for substitution if the Facility Permit holder can demonstrate to the Executive Officer that the alternative system is fully operational during meter down time and within + or - 2% accuracy. The substitute data procedures are retroactively applicable from the adoption date of the RECLAIM program.

2. Whenever data from the process monitor is not available or not recorded for the affected equipment or when the equipment is not operated within the parameter range specified in the Facility Permit, the Facility Permit holder shall calculate substitute data for each quarter, when valid data has not been obtained, according to the following procedures.

    a. For a missing data period less than or equal to one quarter, substitute data shall be calculated using the process unit(s) average quarterly fuel usage for the previous four quarters. If four quarters of data are not available, substitute data shall be calculated as if the facility has no records.

    b. For a missing data period greater than one quarter, substitute data shall be calculated using the process unit(s) highest quarterly fuel usage data for the previous four quarters. If four quarters of data are not available, substitute data shall be calculated as if the facility has no records.

    c. If the facility has no records, substitute data shall be calculated using 100% uptime during the substitution period and the process unit(s) maximum rated capacity and uncontrolled emission factor for each quarter of missing data.

    d. For a process monitor which uses a gas chromatograph or equivalent continuous method to continuously determine the F-factor and higher heating value of the fuel (Rule 2012, Appendix A, Chapter 4, Subdivision B.4.a.i), the Facility Permit holder shall use the stack gas flow rate missing data substitution procedure for

major sources (Rule 2011 or 2012, Appendix A, Chapter 2, Subdivision E.2).

TABLE 4-A

MEASURED VARIABLES FOR ALL NO_x PROCESS UNITS

EQUIPMENT	MEASURED VARIABLES
All NO_x process units	1. Fuel usage or exhaust flow rate (for sources with stack flow monitors) or processing/feed rate or operating time 2. Production rate (for sources permitted with emission rates corresponding to the measured variable);

TABLE 4-B

REPORTED VARIABLES FOR ALL NO_x PROCESS UNITS

EQUIPMENT	REPORTED VARIABLES
All NO_x process units	1. Quarterly mass emissions