

**PROPOSED AMENDED RULE 2012 PROTOCOL-  
ATTACHMENT C**

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**QUALITY ASSURANCE AND QUALITY CONTROL  
PROCEDURES**

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**ATTACHMENT C****QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES****A. Quality Control Program**

Develop and implement a quality control program for the continuous emission monitoring systems and their components. As a minimum, include in each quality control program a written plan that describes in detail complete, step-by-step procedures and operations for each of the following activities:

**1. Calibration Error Test Procedures**

Identify calibration error test procedures specific to the CEMS that may require variance from the procedures used during certification (for example, how the gases are to be injected, adjustments of flow rates and pressures, introduction of reference values, length of time for injection of calibration gases, steps for obtaining calibration error, determination of interferences, and when calibration adjustments should be made).

**2. Calibration and Linearity Adjustments**

Explain how each component of the CEMS will be adjusted to provide correct responses to calibration gases, reference values, and/or indications of interference both initially and after repairs or corrective action. Identify equations, conversion factors, assumed moisture content, and other factors affecting calibration of each CEMS.

**3. Preventative Maintenance**

Keep a written record of procedures, necessary to maintain the CEMS in proper operating condition and a schedule for those procedures.

**4. Audit Procedures**

Keep copies of written reports received from testing firms/laboratories of procedures and details specific to the installed CEMS that were to be used by the testing firms/laboratories for relative accuracy test audits, such as sampling and analysis methods. The testing firms/laboratories shall have received approval from the District by going through the District's laboratory approval program.

5. Record Keeping Procedures

Keep a written record describing procedures that will be used to implement the record keeping and reporting requirements.

Specific provisions of Section A-3 and A-5 above of the quality control programs shall constitute specific guidelines for facility personnel. However facilities shall be required to take reasonable steps to monitor and assure implementation of such specific guidelines. Such reasonable steps may include periodic audits, issuance of periodic reminders, implementing training classes, discipline of employees as necessary, and other appropriate measures. Steps that a facility commits to take to monitor and assure implementation of the specific guidelines shall be set forth in the written plan and shall be the only elements of Section A-3 and A-5 that constitute enforceable requirements under the written plan, unless other program provisions are independently enforceable pursuant to other requirements of the NO<sub>x</sub> protocols or District or federal rules or regulations.

**B. FREQUENCY OF TESTING**

There are three situations which will result in an out-of-control period. These include failure of a calibration error test, failure of a relative accuracy test audit, and failure of a BIAS test, and are detailed in this subdivision. Data collected by a CEMS during an out-of-control period shall not be considered valid.

The frequency at which each quality assurance test must be performed is as follows:

1. Periodic Assessments

For each monitor or CEMS, perform the following assessments on each day during which the unit combusts any fuel or processes any material (hereafter referred to as a "unit operating day"), or for a monitor or a CEMS on a bypass stack/duct, on each day during which emissions pass through the bypass stack or duct. These requirements are effective as of the date when the monitor or CEMS completes certification testing.

a. Calibration Error Testing Requirements for Pollutant Concentration Monitors and O<sub>2</sub> Monitors

Test, record, and compute the calibration error of each NO<sub>x</sub> pollutant concentration monitor and O<sub>2</sub> monitor at least once on each unit operating day, or for monitors or monitoring systems on bypass stacks/ducts on each day that emissions pass through the bypass stack or duct. Conduct calibration error checks, to the extent practicable, approximately 24 hours apart. Perform the daily calibration error test according to the procedure in Paragraph B.1.a.ii. of this Attachment.

For units with more than one span range, perform the daily calibration error test on each scale that has been used since the last calibration error test. For example, if the emissions concentration has not exceeded the low-scale span range since the previous calendar day, the calibration error test may be performed on the low-scale only. If, however, the emissions concentration has exceeded the low-scale span range since the previous calibration error test, perform the calibration error test on both the low- and high-scales

i. Design Requirements for Calibration Error Testing of NO<sub>x</sub> Concentration Monitors and O<sub>2</sub> Monitors

Design and equip each NO<sub>x</sub> concentration monitor and O<sub>2</sub> monitor with a calibration gas injection port that allows a check of the entire measurement system when calibration gases are introduced. For extractive and dilution type monitors, all monitoring components exposed to the sample gas, (for example, sample lines, filters, scrubbers, conditioners, and as much of the probe as practical) are included in the measurement system. For in situ type monitors, the calibration must check against the injected gas for the performance of all electronic and optical components (for example, transmitter, receiver, analyzer).

Design and equip each pollutant concentration monitor and O<sub>2</sub> monitor to allow daily determinations of calibration error (positive or negative) at the zero-level (0 to 20 percent of each span range) and high-level (80 to 100 percent of each span range) concentrations.

ii. Calibration Error Test for NO<sub>x</sub> Concentration Monitors and O<sub>2</sub> Monitors

Measure the calibration error of each NO<sub>x</sub> concentration analyzer and O<sub>2</sub> monitor once each day according to the following procedures:

If any manual or automatic adjustments to the monitor settings are made, conduct the calibration error test in a way that the magnitude of the adjustments can be determined and recorded.

Perform calibration error tests at two concentrations: (1) zero-level and (2) high level. Zero level is 0 to 20 percent of each span range, and high level is 80 to 100 percent of

each span range. All calibration gases used during certification tests and quality assurance and quality control activities shall be NIST/EPA approved standard reference materials (SRM), certified reference materials (CRM), or shall be certified according to “EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards,” September 1997, EPA 600/R-97/121 or any subsequent version published by EPA.

Introduce the calibration gas at the gas injection port as specified above. Operate each monitor in its normal sampling mode. For extractive and dilution type monitors, pass the audit gas through all filters, scrubbers, conditioners, and other monitor components used during normal sampling and through as much of the sampling probe as practical. For in situ type monitors, perform calibration checking all active electronic and optical components, including the transmitter, receiver, and analyzer. Challenge the NO<sub>x</sub> concentration monitors and the O<sub>2</sub> monitors once with each gas. Record the monitor response from the data acquisition and handling system. Use the following equation to determine the calibration error at each concentration once each day:

$$CE = \frac{|R-A|}{S} \times 100 \quad (\text{Eq. C-1})$$

Where:

CE = The percentage calibration error based on the span range

R = The reference value of zero- or high-level calibration gas introduced into the monitoring system.

A = The actual monitoring system response to the calibration gas.

S = The span range of the instrument

b. Calibration Error Testing Requirements for Stack Flow Monitors

Test, compute, and record the calibration error of each stack flow monitor at least once within every 14 calendar day period during which at anytime emissions flow through the stack; or for monitors or monitoring systems on bypass stacks or ducts, at least once within every 14 calendar day period during which at anytime emissions flow through the bypass stack or duct. Introduce a zero reference value to the transducer or transmitter. Record flow monitor output from the data acquisition and handling systems before and after any adjustments. Calculate the calibration error using the following equation:

$$CE = \frac{|R - A|}{S} \times 100 \quad (\text{Eq. C-2})$$

Where:

CE = Percentage calibration error based on the span range

R = Zero reference value introduced into the transducer or transmitter.

A = Actual monitoring system response.

S = Span range of the flow monitor.

c. Interference Check for Stack Flow Monitors

Perform the daily flow monitor interference checks specified in Paragraph B.1.c.i. of this Attachment at least once per operating day (when the unit(s) operate for any part of the day).

i. Design Requirements for Flow Monitor Interference Checks

Design and equip each flow monitor with a means to ensure that the moisture expected to occur at the monitoring location does not interfere with the proper functioning of the flow monitoring system. Design and equip each flow monitor with a means to detect, on at least a daily basis, pluggage of each sample line and sensing port, and malfunction of each resistance temperature detector (RTD), transceiver, or equivalent.

Design and equip each differential pressure flow monitor to provide (1) an automatic, periodic backpurging (simultaneously on both sides of the probe) or equivalent method of sufficient force and frequency to keep the probe and lines sufficiently free of obstructions on at least a daily basis to prevent sensing interference, and (2) a means to detecting leaks in the system at least on a quarterly basis (a manual check is acceptable).

Design and equip each thermal flow monitor with a means to ensure on at least a daily basis that the probe remains sufficiently clean to prevent velocity sensing interference.

Design and equip each ultrasonic flow monitor with a means to ensure on at least a daily basis that the transceivers remain sufficiently clean (for example, backpurging the system) to prevent velocity sensing interference.

d. Recalibration

Adjust the calibration, at a minimum, whenever the calibration error exceeds the limits of the applicable performance specification for the NO<sub>x</sub> monitor, O<sub>2</sub> monitor or stack flow monitor to meet such specifications. Repeat the calibration error test procedure following the adjustment or repair to demonstrate that the corrective actions were effective. Document the adjustments made.

e. Out-of-Control Period – Calibration Test

An out-of-control period occurs when the calibration error of an NO<sub>x</sub> concentration monitor exceeds 5.0 percent based upon the span range value, when the calibration error of an O<sub>2</sub> monitor exceeds 1.0 percent O<sub>2</sub>, or when the calibration error of a flow monitor exceeds 6.0 percent based upon the span range value, which is twice the applicable specification. The out-of-control period begins with the hour of completion of the failed calibration error test and ends with the hour of completion following an effective recalibration. Whenever the failed calibration, corrective action, and effective recalibration occur within the same hour, the hour is not out-of-control if 2 or more valid readings are obtained during that hour as required by Chapter 2, Subdivision B, Paragraph 5.

An out-of-control period also occurs whenever interference of a flow monitor is identified. The out-of-control period begins with



the hour of the failed interference check and ends with the hour of completion of an interference check that is passed.

f. Data Recording

Record and tabulate all calibration error test data according to the month, day, clock-hour, and magnitude in ppm, DSCFH, and percent volume. Program monitors that automatically adjust data to the calibrated corrected calibration values (for example, microprocessor control) to record either: (1) the unadjusted concentration or flow rate measured in the calibration error test prior to resetting the calibration, or (2) the magnitude of any adjustment. Record the following applicable flow monitor interference check data: (1) sample line/sensing port pluggage, and (2) malfunction of each RTD, transceiver, or equivalent.

2. Semi-annual Assessments

a. For each CEMS, perform the following assessments once semi-annually thereafter, as specified below for the type of test. These semi-annual assessments shall be completed within six months of the end of the calendar quarter in which the CEMS was last tested for certification purposes (initial and recertification) or within three months of the end of the calendar quarter in which the District sent notice of a provisional approval for a CEMS, whichever is later. Thereafter, the semi-annual tests shall be completed within six months of the end of the calendar quarter in which the CEMS was last tested. For CEMS on bypass stacks/ducts, the assessments shall be performed once every two successive operating quarters in which the bypass stacks/ducts were operated. These tests shall be performed after the calendar quarter in which the CEMS was last tested as part of the CEMS certification, as specified below for the type of test.

Relative accuracy tests may be performed on an annual basis rather than on a semi-annual basis if the relative accuracies during the previous audit for the NO<sub>x</sub> pollutant concentration monitor, flow monitoring system, and NO<sub>x</sub> emission rate measurement system ~~are~~ are 7.5 percent or less.

b. For CEMS on any stack or duct through which no emissions have passed in two or more successive quarters, the semi-annual assessments must be performed within 14 unit operating days after emissions pass through the stack/duct.

c. The due date for a semi-annual or annual assessment of a major source may be postponed to within 14 unit operating days from the first re-firing of the major source if the major source is physically incapable of being operated and all of the following are met:

i. All fuel feed lines to the major source are either disconnected or opened and either flanges or equivalent sealing devices are placed at both ends of the disconnected or opened lines, and

ii. The fuel meter(s) for the disconnected or opened fuel feed lines are maintained and operated and associated fuel records showing no fuel flow are maintained on site.

This paragraph applies separately for each unrelated, independent event. For any hour that fuel flow records are not available to verify no fuel flow, NOx emissions shall be calculated using the maximum valid hourly emissions from the last 30 days of operation.

Prior to re-starting operation of the major source, the Facility Permit Holder shall: (1) provide written notification to the District no later than 72 hours prior to starting up the source, (2) start the CEMS no later than 24 hours prior to the start-up of the major source, and (3) conduct and pass a Cylinder Gas Analysis (CGA) prior to the start-up of the major source. The emissions data from the CEMS after the re-start of operations is considered valid only if the Facility Permit Holder passes the CGA test. Otherwise, for a non-passing CGA, the CEMS data is considered invalid until the semi-annual or annual assessment is performed and passed. As such, NOx emissions shall be calculated using the maximum valid hourly emissions from the last 30 days of operation commencing with the hour of start up and continuing through the hour prior to performing and passing the semi-annual or annual assessment.

d. An electrical generating facility that either only operates under a California Independent System Operator (Cal ISO) contract or is owned and operated by a municipality may postpone the due date for a semi-annual or annual assessment of a major source to the next calendar quarter provided that the facility shows:

i. The semi-annual or annual assessment was scheduled to be performed during the first 45 days of the calendar quarter in which the assessment was due;

ii. The assessment was not completed due to lack of adequate operational time; and

iii. A CGA was conducted and passed within the calendar quarter when the assessment was due.

ea. Relative Accuracy Test Audit

Perform relative accuracy test audits and bias tests semi-annually and no less than 3 months apart for each NO<sub>x</sub> pollutant concentration monitor, stack gas volumetric flow rate measurement systems, and the NO<sub>x</sub> mass emission rate measurement system in accordance with Chapter 2, Subdivision B, Paragraphs 10, ~~Chapter 2, Subdivision B, Paragraph 11, and Chapter 2, Subdivision B, Paragraph 12, and 18.~~ The relative accuracy of the pollutant concentration monitor and the mass emission rate measurement system shall be less than or equal to 20.0 percent, and the relative accuracy of the stack gas volumetric flow rate measurement system shall be less than or equal to 15.0 percent. For monitors on bypass stacks/ducts, perform relative accuracy test audits once every two successive bypass operating quarters in accordance with Chapter 2, Subdivision B, Paragraphs 2.B.10, 2.B.11, and 2.B.12, and 18.

fb. Out-of-Control Period – Relative Accuracy Test Audit

An out-of-control period occurs under any of the following conditions: (1) The relative accuracy of an NO<sub>x</sub> pollutant concentration monitor or the NO<sub>x</sub> emission rate measurement system exceeds 20.0 percent; (2) the relative accuracy of the flow rate monitor exceeds 15.0 percent; or (3) failure to conduct a relative accuracy test audit by the due date for a semi-annual assessment. The out-of-control period begins with the -hour of completion of the failed relative accuracy test audit and ends with the hour of completion of a satisfactory relative accuracy test audit.

ge. Out-of-Control Period – BIAS Test

An out-of-control period occurs if all the following conditions are met:

- i. Failure of a bias test as specified in Attachment B of this Appendix;

- ii. The CEMS is biased low relative to the reference method (i.e. Bias Adjustment Factor (BAF), as determined in Attachment B of this Appendix, is greater than 1); and
- iii. The Facility Permit holder does not apply the BAF to the CEMS data.

The out-of-control period begins with the hour of completion of the failed bias test audit and ends with the hour of completion of a satisfactory bias test.

hd. Alternative Relative Accuracy Test Audit

- i. The Facility Permit holder of a major source, that has received written approval from the Executive Officer as an intermittently operated source, may postpone the due date for a semi-annual assessment to the end of the next calendar quarter if the Facility Permit holder:
  - I. operated the source no more than 240 cumulative operating hours and no more than 72 consecutive hours during the calendar quarter when a semi-annual assessment is due; and
  - II. conducted a relative accuracy test audit on the CEMS serving the source during the previous four calendar quarters and meeting the accuracy criteria as set forth under Subparagraph B.2.ea.; and
  - III. conducted an alterative relative accuracy test audit on the CEMS serving the source during the calendar quarter when a semi-annual assessment is due and meeting the criteria specified under Clause B.2.hd.iii.

If any of the requirements under Subclauses B.2.hd.i.I, II and III is not met and the source did not have passing RATA during the calendar quarter when the semi-annual assessment is due, emissions from the source shall be determined pursuant to the Missing Data Procedures as specified under Rule 2012, Appendix A, Chapter 2, Subdivision E after the semi-annual assessment due date until the hour of completion of a satisfactory relative accuracy test audit.

- ii. The Facility Permit holder may submit a written request to designate a major source as an intermittently operated source provided the Facility Permit holder demonstrates that:
  - I. During any calendar quarter within the previous two compliance years, the source was operated no more than 240 cumulative operating hours and no more than 72 consecutive hours; or
  - II. During any calendar quarter within the next two compliance years, the source will be operated no more than 240 cumulative operating hours and no more than 72 consecutive hours.
- iii. An alternative relative accuracy shall consist of a Cylinder Gas Analysis (CGA) method as defined under 40 CFR, Part 60, Appendix F, combined with a flow accuracy verification. For sources equipped with stack flow monitors, the flow accuracy shall be verified by calibrating the transducers and transmitters installed on the stack flow monitors using procedures under Paragraph B.3 of this attachment. For sources equipped with fuel flow meters and no stack flow monitors, the flow accuracy shall be verified by calibrating the fuel flow meters either in-line or offline in accordance with the procedures outlined in 40CFR Part 75, Appendix D. Passing flow accuracy verification results that were obtained within the past 4 quarters may be used in lieu of performing a flow accuracy verification during the calendar quarter when a semi-annual assessment is due. The calculated accuracy for the analyzer responses for NO<sub>x</sub> and O<sub>2</sub> concentration shall be within 15 percent or 1 ppm, whichever is greater, as determined by the CGA method as defined under 40 CFR, Part 60, Appendix F. Successive alternative relative accuracy test audits shall be performed no less than 45 days apart.

### 3. Calibration of Transducers and Transmitters on Stack Flow Monitors

All transducers and transmitters installed on stack flow monitors must be calibrated every two operating calendar quarters, in which an operating calendar quarter is any calendar quarter during which at anytime emissions flow through the stack. Calibration must be done in accordance with Executive Officer approved calibration procedures that employ materials and equipment that are NIST traceable.

When a calibration produces for a transducer and transmitter a percentage accuracy of greater than  $\pm 1\%$ , the Facility Permit holder shall calibrate the transducer and transmitter every calendar operating quarter until a subsequent calibration which shows a percentage accuracy of less than  $\pm 1\%$  is achieved. An out-of-control period occurs when the percentage accuracy exceeds  $\pm 2\%$ . If an out-of-control period occurs, the Facility Permit holder shall take corrective measures to obtain a percentage accuracy of less than  $\pm 2\%$  prior to performing the next RATA. The out-of-control period begins with the hour of completion of the failed calibration error test and ends with the hour of completion of following an effective recalibration. Whenever the failed calibration, corrective action, and effective recalibration occur within the same hour, the hour is not out-of-control if two or more valid data readings are obtained during that hour as required by Chapter 2, Subdivision B, Paragraph 5, Subparagraph a.

**PROPOSED AMENDED RULE 2012 PROTOCOL-  
ATTACHMENT F**

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**DEFINITIONS**

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## DEFINITIONS

- (1) **AFTERBURNERS**, also called **VAPOR INCINERATORS**, are air pollution control devices in which combustion converts the combustible materials in gaseous effluents to carbon dioxide and water.
- (2) **ANNUAL PERMIT EMISSIONS PROGRAM (APEP)** is the annual facility permit compliance reporting, review, and fee reporting program.
- (3) **BOILER** should generally be considered as any combustion equipment used to produce steam, including a carbon monoxide boiler. This would generally not include a process heater that transfers heat from combustion gases to process streams, a waste heat recovery boiler that is used to recover sensible heat from the exhaust of process equipment such as a combustion turbine, or a recovery furnace that is used to recover process chemicals. Boilers used primarily for residential space and/or water heating are not affected by this section.
- (4) **BURN** means to combust any gaseous fuel, whether for useful heat or by incineration without recovery, except for flaring or emergency vent gases.
- (5) **BYPASS OPERATING QUARTER** means each calendar quarter that emissions pass through the bypass stack or duct.
- (6) **CALCINER** is a rotary kiln where calcination reaction is carried out between 1315 °C to 1480 °C.
- (7) **CEMENT KILN** is a device for the calcining and clinkering of limestone, clay and other raw materials, and recycle dust in the dry-process manufacture of cement.
- (8) **CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)** is the total equipment required for the determination of concentrations of air contaminants and diluent gases in a source effluent as well as mass emission rate. The system consists of the following three major subsystems:
  - (A) **SAMPLING INTERFACE** is that portion of the monitoring system that performs one or more of the following operations: extraction, physical/chemical separation, transportation, and conditioning of a sample of the source effluent or protection of the analyzer from the hostile aspects of the sample or source environment.
  - (B) **ANALYZERS**
    - (i) **AIR CONTAMINANT ANALYZER** is that portion of the monitoring system that senses the air contaminant and generates a signal output which is a function of the concentration of that contaminant.



- (ii) DILUENT ANALYZER is that portion of the monitoring system that senses the concentration of oxygen or carbon dioxide or other diluent gas as applicable, and generates a signal output which is a function of a concentration of that diluent gas.
  - (C) DATA RECORDER is that portion of the monitoring system that provides a permanent record of the output signals in terms of concentration units, and includes additional equipment such as a computer required to convert the original recorded value to any value required for reporting.
- (9) CONTINUOUS PROCESS MONITORING SYSTEM is the total equipment required for the measurement and collection of process variables (e.g., fuel usage rate, oxygen content of stack gas, or process weight). Such CPMS data shall be used in conjunction with the appropriate emission rate to determine NO<sub>x</sub> emissions.
- (10) CONTINUOUSLY MEASURE means to measure at least once every 15 minutes except during period of routine maintenance and calibration, as specified in 40CFR Part 60.13(e)(2).
- (11) DAILY means a calendar day starting at 12 midnight and continuing through to the following 12 midnight hour.
- (12) DIRECT MONITORING DEVICE is a device that directly measures the variables specified by the Executive Officer to be necessary to determine mass emissions of a RECLAIM pollutant and which meets all the standards of performance for CEMS set forth in the protocols for NO<sub>x</sub> and SO<sub>x</sub>.
- (13) DRYER is equipment that removes substances by heating or other processes.
- (14) ELECTRONICALLY TRANSMITTING means transmitting measured data without human alteration between the point/source of measurement and transmission.
- (15) EMISSION FACTOR is the value specified in Tables 1 (NO<sub>x</sub>) or 2 (SO<sub>x</sub>) of Rule 2002-Baselines and Rates of Reduction for NO<sub>x</sub> and SO<sub>x</sub>.
- (16) EMISSION RATE (ER) - is a value expressed in terms of NO<sub>x</sub> mass emissions per unit of heat input, and derived using the methodology specified in the "Protocol for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO<sub>x</sub>) Emissions" Chapter .
- (17) EXISTING EQUIPMENT is any equipment which can emit NO<sub>x</sub> at a NO<sub>x</sub> RECLAIM facility, for which on or before (Rule Adoption date) has:
  - (A) A valid permit to construct or permit to operate pursuant to Rule 201 and/or Rule 203 has been issued; or

- (B) An application for a permit to construct or permit to operate has been deemed complete by the Executive Officer; or
- (C) An equipment which is exempt from permit per Rule 219 and is operating on or before (Rule Adoption date).
- (18)  $F_d$  FACTOR is the dry F factor for each fuel, the ratio of the dry gas volume of the products of combustion to the heat content of the fuel (dscf/10<sup>6</sup> Btu). F factors are available in 40 CFR Part 60, Appendix A, Method 19.
- (19) FLUID CATALYTIC CRACKING UNIT (FCCU) breaks down heavy petroleum products into lighter products using heat in the presence of finely divided catalyst maintained in a fluidized state by the oil vapors. The fluid catalyst is continuously circulated between the reactor and the regenerator, using air, oil vapor, and steam as the conveying media.
- (20) FURNACE is an enclosure in which energy in a nonthermal form is converted to heat.
- (21) GAS FLARE is a combustion equipment used to prevent unsafe operating pressures in process units during shut downs and start-ups and to handle miscellaneous hydrocarbon leaks and process upsets.
- (22) GAS TURBINES are turbines that use gas as the working fluid. It is principally used to propel jet aircraft. Their stationary uses include electric power generation (usually for peak-load demands), end-of-line voltage booster service for long distance transmission lines, and for pumping natural gas through long distance pipelines. Gas turbines are used in combined (cogeneration) and simple-cycle arrangements.
- (23) GASEOUS FUELS include, but are not limited to, any natural, process, synthetic, landfill, sewage digester, or waste gases with a gross heating value of 300 Btu per cubic foot or higher, at standard conditions.
- (24) HEAT VALUE is the heat generated when one lb. of combustible is completely burned.
- (25) HEATER is any combustion equipment fired with liquid and/or gaseous fuel and which transfers heat from combustion gases to water or process streams.
- (26) HIGH HEAT VALUE is determined experimentally by calorimeters in which the products of combustion are cooled to the initial temperature and the heat absorbed by the cooling media is measured.
- (27) HOT STAND-BY is the period of operation when the flow or emission concentration are so low they can-not be measured in a representative manner.

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- (28) INCINERATOR is equipment that consumes substances by burning.
- (29) INTERNAL COMBUSTION ENGINE is any spark or compression-ignited internal combustion engine, not including engines used for self-propulsion.
- (30) LIQUID FUELS include, but are not limited to, any petroleum distillates or fuels in liquid form derived from fossil materials or agricultural products for the purpose of creating useful heat.
- (31) MASS EMISSION OF NO<sub>x</sub> in lbs/hr is the measured emission rates of nitrogen oxides.
- (32) MAXIMUM RATED CAPACITY means maximum design heat input in Btu per hour at the higher heating value of the fuels.
- (33) MODEM converts digital signals into audio tones to be transmitted over telephone lines and also convert audio tones from the lines to digital signals for machine use.
- (34) MONTHLY FUEL USE REPORTS could be sufficed by the monthly gas bill or the difference between the end and the beginning of the calendar month's fuel meter readings.
- (35) NINETIETH (90TH) PERCENTILE means a value that would divide an ordered set of increasing values so that at least 90 percent are less than or equal to the value and at least 10 percent are greater than or equal to the value.
- (36) OVEN is a chamber or enclosed compartment equipped to heat objects.
- (37) PEAKING UNIT means a turbine used intermittently to produce energy on a demand basis and does not operate more than 1300 hours per year.
- (38) PORTABLE EQUIPMENT is an equipment which is not attached to a foundation and is not operated at a single facility for more than 90 days in a year and is not a replacement equipment for a specific application which lasts or is intended to last for more than one year.
- (39) PROCESS HEATER means any combustion equipment fired with liquid and/or gaseous fuel and which transfers heat from combustion gases to process streams.
- (40) PROCESS WEIGHT means the total weight of all materials introduced into any specific process which may discharge contaminants into the atmosphere. Solid fuels charged shall be considered as part of the process weight, but liquid gaseous fuels and air shall not.
- (41) RATED BRAKE HORSEPOWER (bhp) is the maximum rating specified by the manufacturer and listed on the nameplate of that equipment. If not available, then the rated brake horsepower of an internal combustion engine can be calculated by multiplying the maximum fuel usage per unit time, heating value of fuel, equipment

efficiency provided by the manufacturer, and the conversion factor (one brake horsepower = 2,545 Btu).

- (42) RATED HEAT INPUT CAPACITY is the heat input capacity specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity specified on the nameplate, the new maximum heat input shall be considered as the rated heat input capacity.
- (43) RECLAIM FACILITY is a facility that has been listed as a participant in the Regional Clean Air Incentives Market (RECLAIM) program.
- (44) REMOTE TERMINAL UNIT (RTU) is a data collection and transmitting device used to transmit data and calculated results to the District Central Station Computer.
- (45) RENTAL EQUIPMENT is equipment which is rented or leased for operation by someone other than the owner of the equipment.
- (46) SHUTDOWN is that period of time during which the equipment is allowed to cool from a normal operating temperature range to a cold or ambient temperature.
- (47) SOLID FUELS include, but are not limited to, any solid organic material used as fuel for the purpose of creating useful heat.
- (48) STANDARD GAS CONDITIONS are defined as one atmosphere of pressure and a temperature of 68 °F or 60 °F, provided that one of these temperatures is used throughout the facility and one atmosphere of pressure.
- (49) START-UP is that period of time during which the equipment is heated to operating temperature from a cold or ambient temperature.
- (50) SULFURIC ACID PRODUCTION UNIT means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans or acid sludge, but does not include facilities where conversion to sulfuric acid as utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.
- (51) TAIL GAS UNIT is a SO<sub>x</sub> control equipment associated with refinery sulfur recovery plant.
- (52) TEST CELLS are devices used to test the performance of engines such as internal combustion engine and jet engines.
- (53) TIMESHARING OF MONITOR means the use of a common monitor for several sources of emissions.

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- (54) TURBINES are machines that convert energy stored in a fluid into mechanical energy by channeling the fluid through a system of stationary and moving vanes.
  - (55) UNIT OPERATING DAY means each calendar day that emissions pass through the stack or duct.
  - (56) UNIVERSE OF SOURCES FOR NO<sub>x</sub> is a list of RECLAIM facilities that emit NO<sub>x</sub>.
  - (57) UNIVERSE OF SOURCES FOR SO<sub>x</sub> is a list of RECLAIM facilities that emit SO<sub>x</sub>.
  - (58) AP 42 is a publication published by Environmental Protection Agency (EPA) which is a compilation of air pollution emission rates used to determine mass emission.
  - (59) ASTM METHOD D1945-81 Method for Analysis of natural gas by gas chromatography.
  - (60) ASTM METHOD 2622-82 Test Method for sulfur in petroleum products (Xray Spectrographic method)
  - (61) ASTM METHOD 3588-91 method for calculating colorific value and specific gravity (relative density) of gaseous fuels.
  - (62) ASTM METHOD 4294-90 test method for sulfur in petroleum products by non-dispersive Xray fluorescence spectrometry.
  - (63) ASTM METHOD 4891-84 test method for heating value of gases in natural gas range by stoichiometric combustion.
  - (64) DISTRICT METHOD 2.1 measures gas flow rate through stacks greater than 12 inch in diameter.
  - (65) DISTRICT METHOD 7.1 colorimetric determination of nitrogen oxides except nitrous oxide emissions from stationary sources by using the phenoldisulfonic acid (pds) procedure or ion chromatograph procedures. Its range is 2 to 400 milligrams NO<sub>x</sub> (as NO<sub>2</sub> per DSCM).
  - (66) DISTRICT METHOD 100.1 is an instrumental method for measuring gaseous emissions of nitrogen oxides, sulfur dioxide, carbon monoxide, carbon dioxide, and oxygen.
  - (67) DISTRICT METHOD 307-91 laboratory procedure for analyzing total reduced sulfur compounds and SO<sub>2</sub>.

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- (68) EPA METHOD 19 is the method of determining sulfur dioxide removal efficiency and particulate, sulfur dioxide and nitrogen oxides emission rates from electric utility steam generators.
  - (69) EPA METHOD 450/3-78-117 air pollutant emission rate for Military and Civil Aircraft.

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