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Series of 2007

SUBJECT : GUIDELINES ON THE REQUIREMENTS FOR CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) AND OTHER ACCEPTABLE PROTOCOLS, THEREBY MODIFYING AND CLARIFYING CERTAIN PROVISIONS OF SECTION 5, RULE X OF DAO 2000-81 AND OTHER RELATED PROVISIONS

Section 1: Preamble

Section 5, Rule X and Section 5(a)(3) of Rule XXV of the Implementing Rules and Regulations of Republic Act No. 8749 (DAO 2000-81) requiring Continuous Emission Monitoring Systems (CEMS) for stationary sources, is hereby clarified and modified to allow the use of parametric or predictive methods approved by EMB and for the installation (if required) of the same, and for operation and data reporting thereof.

Section 2: Definition

Refer to Republic Act No. 8749 and DAO 2000-81 for all other terms not defined herein.

- 1) "Air Pollution Source" refers to any plant, equipment or installation in any trade, business or establishment which generates, emits or disposes air emissions.
- 2) "Air Pollution Control Installation" refers to any equipment, facility, device or other means which effectively prevents or reduces emissions.
- 3) "Alternative Method for Audit" refers to a CEMS or a system quarterly audit, which is specified in the Performance Specifications for each pollutant. The alternative audit shall be subject to approval by the Bureau.
- 4) "Alternative Monitoring System" refers to a system or a component of a system designed to provide direct or indirect data of mass emissions per time period, pollutant concentrations or volumetric flow as having the same precision, reliability, accessibility and timeliness as the data provided by a certified CEMS or certified CEMS component. As used in this definition "system" may refer to a procedure, protocol or program.
- 5) "Calendar Quarter" refers to any of the following four time periods during each year: January 1 to March 31; April 1 to June 30; July 1 to September 30; and October 1 to December 31. *APK*

- 6) "Capacity Factor" refers to either the ratio of the unit's actual output times the actual annual hours of operation to the unit's name plate capacity times 8,760 hours; or the ratio of a unit's annual heat input times the actual annual hours of operation to the unit's maximum design heat input times 8,760 hours.
- 7) "Continuous Emissions Monitoring System" (CEMS) refers to the equipment stipulated in the DAO 2000-81 used to sample, analyze, measure, and provide, by any means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system), a permanent record of relevant regulated pollutant emissions or stack gas volumetric flow rate.
- 8) "MSMEs" refer to Micro, Small, Medium Enterprises as defined by the Philippine law.
- 9) "Parametric Emission Monitoring System" refers to a mathematical model that predicts the gas concentration in a stack based on a set of operating data such as but not limited to fuel flow rate, temperature, stack excess oxygen, pressure, heat input, fuel analysis and others without requiring the CEMS specified under USEPA 40 CFR Part 60 Appendix B or equivalent.
- 10) "Predictive Emission Monitoring System" refers to a system that determines the gas concentration or mass emission rate based on process data and generates an output proportional to the gas concentration or emission rate without requiring the CEMS specified under USEPA 40 CFR Part 60 Appendix B or equivalent.
- 11) "Continuous Opacity Monitoring System" (COMS) refers to the equipment used to sample, measure, analyze, and provide, with readings taken at least once every 5 minutes, a permanent record of opacity or transmittance. The following components are included in the continuous opacity monitoring system: opacity monitor and an automated data acquisition and handling system.
- 12) "Discharger" refers to owner or person having charge, management or control of a facility to which this Order applies.
- 13) "Emissions" refers to air pollutants exhausted from a unit or source into the atmosphere, as measured, recorded, and reported to the Department by the designated representative and as determined by the Department through the Bureau, in accordance with the submission of self monitoring reports.
- 14) "Peaking Unit" refers to:
 1. a unit that has an average capacity factor of not more than 10 percent during the previous three calendar years and a capacity factor of not more than 20 percent in each of those calendar years;
 2. for purposes of this Order, a unit may initially qualify as a peaking unit provided it must meet the criteria in paragraph (1) of this definition each year in order to continue to qualify as a peaking unit. If such unit fails to meet such criteria for a given year, the unit no longer qualifies as a peaking unit starting January 1 after the year for which the criteria were not met. If a unit failing to meet the

criteria in paragraph 1 of this definition initially qualified as a peaking unit under this definition, the unit may qualify as a peaking unit for a subsequent year only if the designated representative submits the data required to demonstrate to the satisfaction of the Department that the paragraph (1) of this definition are met, or will in the future be met, through one of the following submissions:

- a) projected production output; or
- b) projected energy requirement in case of fossil fuel-fired power plants.

15) "Relative Accuracy Test Audit" (RATA) refers to an annual audit conducted to determine CEMS compliance to Section 6 (h) of this Order.

16) "Time-sharing" refers to a single set of analyzers cycling between measuring emissions from multiple stacks and connected to a single data acquisition system.

Section 3. Coverage

A. CEMS and COMS

1). Pursuant to Section 5 (a) (3) of Rule XXV of DAO 2000-81, the existing major industries with individual sources having the potential to emit at least 750 tons/year any of the regulated pollutants listed Section 4 of Rule IX of DAO 2000-81 measured after a pollution control installation are required to install continuous emissions monitoring system (CEMS) and continuous opacity monitoring system (COMS).

Sources exceeding 750 tons/year of particulate matter must install a COMS for opacity. The opacity measurements shall not exceed the applicable standard of 20% as measured by COMS averaged over a rolling six-minute period subject to the exceptions stated in Section 2 (b) of Rule XXV of DAO 2000-81.

2) New and modified sources, with a potential to emit at least 750 tons per year for each applicable pollutant listed in Section 4, Rule IX of DAO 2000-81 must install a CEMS for that parameter.

3) Industries engaged in emission trading or averaging are required to install CEMS for that parameter.

B. Predictive or Parametric Emissions Monitoring System (PEMS)

1) All sources with potential to emit more than 100 tons/year but less than 750 tons after the air pollution control installation may utilize a PEMS. Provided that sources with existing CEMS/COMS have the option to continue CEMS/COMS operation or shift to PEMS subject to the approval of the Bureau.

Section 4. Exemptions

The following air emission sources/facilities are exempted from Section 3 (A) and (B):

1. Standby, emergency, seasonal, and intermittently operating facilities that operate less than 500 hours per year. Provided that

these sources may be subject to third party monitoring or other means as approved by EMB. Considerations shall be afforded to MSMEs.

2. MSME facilities or support facilities that are dedicated to the operation of such MSMEs such as but not limited to own-power generating plant.
3. Refinery flares, as well as flares for volatile organic compounds, unless a specific provision requires CEMS or an alternate System for volatile organic compounds is required by EMB-Central Office and/or its Regional Offices, under certain circumstances that warrants its installation and operation.

Section 5: Criteria or Specifications When CEMS/COMS is Required

The requirements and criteria or specifications for CEMS when required and for each applicable pollutant emitted by a given source shall apply, but not limited to the following:

Pollutant	Criteria or Specifications
Opacity	USEPA 40 CFR Part 60 Appendix B, Performance Specification 1
Sulfur Oxides and Nitrogen Oxides	USEPA 40 CFR Part 60 Appendix B, Performance Specification 2
Carbon Dioxide and Oxygen	USEPA 40 CFR Part 60 Appendix B, Performance Specification 3
Carbon Monoxide	USEPA 40 CFR Part 60 Appendix B, Performance Specification 4 or 4A
Hydrogen Sulfide	USEPA 40 CFR Part 60 Appendix B, Performance Specification 7

Predictive or Parametric emissions monitoring systems can be used, provided that audits and/or calibration of such system shall be carried at least annually. The audit procedures for the PEMS are subject to approval of the Bureau.

Section 6. Installation of CEMS When Required

For purpose of this Order, the following requirements shall apply:

- 1) Installation and operation of CEMS/COMS for each applicable pollutant shall meet the criteria or specifications provided Section 5 hereof. Any deviation shall be subject to approval by the Bureau. Prior to installation of CEMS/COMS, the following shall be submitted to the Bureau:
 - a) Site location of the sampling port;
 - b) Technical description of the monitoring instrument (design specifications, sampling probe, conditioning system, softwares, flow rate measurement etc.);
 - c) Description of the data acquisition systems (DAS). It may be as flexible as needed depending on the availability and capability of the owner or operator. Capable of interfacing with any DENR communication system;

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- d) Information and drawings with regard to monitor specifications;
 - e) Brochures and operations manual;
 - f) A schedule of testing for certification of the system; and
 - g) Quality assurance and quality control plan (as described in 40 CFR Part 60 Appendix F).
- 2) All owners or operators of existing systems already in place prior to the promulgation of DAO 2000-81 and the issuance of this Order, shall configure these systems that do not meet the criteria in Section 5 hereof within 2 years from the approved of this DAO subject to agreement by the Bureau and the operator (or discharger) to conform and meet such criteria or specifications.
 - 3) Where several units whose emissions are discharged to the atmosphere through a single stack, a single CEMS or an acceptable equivalent system may be installed on that stack provided that by the use of relevant operating parameters, the unit specific emissions can be apportioned respectively.
 - 4) When CEMS is required, time-sharing may be adopted subject to the approval of the Bureau.
 - 5) When CEMS is required, quality assurance and quality control procedures shall comply with 40 CFR Part 60 Appendix F (Quality Assurance Procedures). Each CEMS shall be audited and conducted in accordance to 40 CFR Part 60 Appendix F.
 - 6) Relative Accuracy Test Audit (RATA) must be performed annually by industries in the presence of EMB personnel. A thirty (30) day notice should be presented to EMB prior to the conduct of audit.
 - 7) Calibration gases shall be subject to audit or relative accuracy audit test every quarter. Other alternative quarterly audits may be used as approved by EMB.
 - 8) The discharger shall notify the Bureau if any changes are made to any part of the CEM system, including its Quality Assurance and Quality Control Plan.
 - 9) The Director and the Regional Director shall be notified of any CEMS malfunction that lasts longer than seven (7) consecutive days.

Section 7. File of Records

Owners or operators subject to the provisions of DAO 2000-81 shall maintain for a period of at least five (5) years a record in permanent form suitable for EMB inspection. The record shall be made available upon EMB request and shall include the following:

1. occurrence and duration of any start-up, shut-down or malfunction in the operation of any source or control facility; and



- audits, performance testing, evaluations, calibration checks, adjustments and maintenance of any continuous emission monitors that have been installed pursuant to Rule IX Section 5 of DAO 2000-81.

Section 8. Reporting

Owners or operators shall submit a written report for each calendar quarter to the EMB Central Office and Regional Office. The report shall be part of the Quarterly Self-Monitoring Report and is due on the 15th day following the end of the calendar quarter and shall include the following:

- time intervals, date and magnitude of excess emissions, nature and cause of the excess, corrective actions taken and preventive measures adopted.
- averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant/source category in question.
- time and date for each period during which the continuous monitoring system was inoperative and the nature of system repairs and adjustments, in cases CEMS/COMS is required.
- the measurements shall comply with at least 75% data capture rate to become valid.

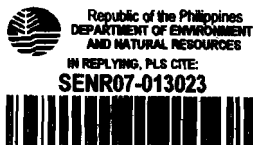
Section 9. Separability Clause

All orders, circulars and instructions inconsistent herewith are hereby repealed or amended accordingly.

Section 10. Effectivity

This Order shall take effect fifteen (15) days from the date of its publication in at least two newspapers of general circulation.


ANGELO T. REYES
Secretary



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