MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

PART 11. CONTINUOUS EMISSION MONITORING

R 336.2101 Continuous emission monitoring, fossil fuel-fired steam generators.

Rule 1101. (1) Except as specified in R 336.2199, the owner or operator of any fossil fuel-fired steam generator that has an annual average capacity factor of more than 30%, as reported to the federal power commission for calendar year 1974, or as otherwise determined by the department, shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of all of the following:

(a) Opacity, if the generator has more than 250,000,000 Btu's per hour heat input, unless gaseous fuel is the only fuel burned, or unless oil or a mixture of gas and oil are the only fuels burned and the source is able to comply with the applicable particulate matter and opacity standards without utilization of particulate matter collection equipment, and where the source has never been found from any administrative or judicial proceedings to be in violation of the applicable visible emission standard.

(b) Sulfur dioxide, if the generator has a per hour heat input of more than 250,000,000 Btu's and if sulfur dioxide emission control equipment has been installed.

(c) Nitrogen oxides if the generator has a per hour heat input of more than 1,000,000,000 Btu's, is subject to a nitrogen oxides emission standard, and is located in an air quality control region that has been determined by the administrator of the United States environmental protection agency to require a control strategy for nitrogen oxides, unless the owner or operator demonstrates, by source emission compliance tests, that the source emits nitrogen oxides at levels 30% or more below the applicable nitrogen oxide emission standard.

(d) Oxygen or carbon dioxide percentage, if measurement of oxygen or carbon dioxide in the flue gas is required to convert either sulfur dioxide or nitrogen oxides continuous emission monitoring data to units of the applicable emission standard.

(2) The owner or operator of any source subject to subrule (1) of this rule shall complete the installation and performance tests of the equipment required by subrule (1) of this rule and shall begin monitoring and recording within 18 months of the effective date of this rule.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 2002 MR 5, Eff. Mar. 19, 2002.

R 336.2102 Continuous emission monitoring; sulfuric acid-producing facilities.

Rule 1102. (1) Except as provided in R 336.2199, the owner or operator of any sulfuric acid plant having a production capacity of more than 300 tons per day, the production capacity being expressed as 100% acid, shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of sulfur dioxide for each sulfuric acid-producing facility within such plant.

(2) The owner or operator of any source subject to the provisions of subrule (1) shall complete the installation and performance tests of the equipment required by subrule (1) and shall begin monitoring and recording within 18 months from the effective date of this rule.

History: 1979 ACS 1, Eff. Jan. 19, 1980.

R 336. 2103 Continuous emission monitoring, fluid bed catalytic cracking unit catalyst regenerators at petroleum refineries.

Rule 1103. (1) Except as provided in R 336.2199, the owner or operator of any fluid bed catalytic cracking unit catalyst regenerator at a petroleum refinery having a per day fresh feed capacity of more than 20,000 barrels shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of opacity.

(3) The owner or operator of any source subject to the provisions of subrule (1) shall complete the installation and performance tests of the equipment required by subrule (1) and shall begin monitoring and recording within 18 months from the effective date of this rule.

History: 1979 ACS 1, Eff. Jan. 19, 1980.

R 336. 2150 Performance specifications for continuous emission monitoring systems.

Rule 1150. (1) The monitoring equipment required by R 336.2101, R 336.2102, and R 336.2103 shall be demonstrated by the owners or operators of the monitoring equipment to meet all of the following performance specifications:

(a) Continuous monitoring systems for measuring opacity shall comply with performance specification 1 of appendix B to 40 C.F.R. part 60 (2000).

(b) Continuous monitoring systems for measuring nitrogen oxides shall comply with performance specification 2 of appendix B to 40 C.F.R. part 60 (2000).

(c) Continuous monitoring systems for measuring sulfur dioxide shall comply with performance specification 2 of appendix B to 40 C.F.R. part 60 (2000).

(d) Continuous monitoring systems for measuring oxygen shall comply with performance specification 3 of appendix B to 40 C.F.R. part 60 (2000).

(e) Continuous monitoring systems for measuring carbon dioxide shall comply with performance specification 3 of appendix B to 40 C.F.R. part 60 (2000).

(2) The performance specifications set forth in subrule (1) of this rule are adopted by reference. Copies of the performance specifications may be inspected at the Lansing office of the air quality division of the department of environmental quality. A copy of title 40 of the Code of Federal Regulations, part 60, appendix B, may be obtained from the Department of Environmental Quality, Air Quality Division, P.0. Box 30260, Lansing, Michigan 48909-7760, at a cost as of the time of adoption of this rule of $66.00. A copy may also be obtained from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954, at a cost as of the time of adoption of this rule of $66.00, or on the United States government printing office internet web site at http://www.access.gpo.gov.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 1989 MR 4, Eff. Apr. 20, 1989; 2002 MR 5, Eff. Mar. 19, 2002.

R 336. 2151 Calibration gases for continuous emission monitoring systems.

Rule 1151. (1) For nitrogen oxide monitoring systems installed on fossil fuel-fired steam generators, the pollutant gas used to prepare calibration gas mixtures shall be nitric oxide.

(2) For sulfur dioxide monitoring systems installed on fossil fuel-fired steam generators or sulfuric acid plants, the pollutant gas used to prepare calibration gas mixtures shall be sulfur dioxide.

(3) Span and zero gases shall be traceable to national bureau of standards reference gases whenever these reference gases are available. Every 6 months from the date of manufacture, span and zero gases shall be reanalyzed by conducting triplicate analyses using the reference method in appendix A of 40 C.F.R. part 60 (July 1, 1978), as follows:

(a) For sulfur dioxide, use reference method 6.

(b) For nitrogen oxides, use reference method 7.

(c) For carbon dioxide and oxygen, use reference method 3. The gases may be analyzed at less frequent intervals if longer shelf lives are guaranteed by the manufacturer.

History: 1979 ACS 1, Eff. Jan. 19, 1980

R 336. 2152 Cycling time for continuous emission monitoring systems.

Rule 1152. (1) Continuous monitoring systems for measuring opacity shall complete a minimum of 1 cycle of sampling and analyzing for each successive 10-second period and 1 cycle of data recording for each successive 6-minute period.

(2) Continuous monitoring systems for measuring oxides of nitrogen, carbon dioxide, oxygen, or sulfur dioxide shall complete a minimum of 1 cycle of operation for each successive 15-minute period.

History: 1979 ACS 1, Eff. Jan. 19, 1980

R 336. 2153 Zero and drift for continuous emission monitoring systems.

Rule 1153. (1) The owner or operator of any continuous emission monitoring system required by this part shall do all of the following:

(a) Subject the instruments to the manufacturer's recommended zero and span check at least once daily, unless the manufacturer has recommended adjustments at shorter intervals, in which case such recommendations shall be followed.

(b) Adjust the zero and span whenever the 24-hour zero drift or 24-hour calibration drift limits of the applicable performance specifications in appendix B of 40 C.F.R. part 60 (July 1, 1978), are exceeded.

(c) Adjust continuous monitoring systems purchased prior to September 11, 1974, whenever the 24-hourr zero drift or the 24-hour calibration drift exceeds 10% of the applicable emission standard.

(2) Calibration gases used pursuant to subrule (1) shall meet the requirements of rule 1151.

History: 1979 ACS 1, Eff. Jan. 19, 1980

R 336. 2154 Instrument span for continuous emission monitoring systems.

Rule 1154. Instrument span shall be approximately 200% of the expected instrument data display output corresponding to the emission standard for the source.

History: 1979 ACS 1, Eff. Jan. 19, 1980

R 336. 2155 Monitor location for continuous emission monitoring systems.

Rule 1155. (1) The owner or operator of a source subject to the provisions of this part shall install the required continuous monitoring systems or monitoring devices such that representative measurements of emissions or process parameters from the affected facility are obtained.

(2) When the effluents from 2 or more affected facilities of similar design and operating characteristics are combined before being released into the atmosphere, the owner or operator of a source subject to the provisions of this part may install monitoring systems on the combined effluent. When the affected facilities are not of similar design and operating characteristics, or when the effluent from 1 affected facility is released into the atmosphere through more than 1 point, the owner or operator shall establish alternate procedures to implement the intent of these requirements subject to approval by the department.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 2002 MR 5, Eff. Mar. 19, 2002.

R 336. 2159 Monitor location for continuous emission monitoring systems.

Rule 1159. The department may provide approval for alternative monitoring systems that do not comply with the requirements of this part, if the owner or operator demonstrates both of the following:

(a) That an equivalent alternative emission monitoring system shall be implemented that satisfies the intent of the requirements of this part.

(b) That 1 of the following conditions exists:

(i) A continuous emission monitoring system that conforms with the requirements of this part will not provide an accurate determination of emissions.

(ii) The affected source is operated less than 1 month per year.

(iii) A continuous emission monitoring system that conforms with the requirements of this part cannot be installed due to physical limitations of the source.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 2002 MR 5, Eff. Mar. 19, 2002.

R 336. 2170 Monitoring data reporting and recordkeeping.

Rule 1170. (1) The owner or operator of any continuous emission monitoring system required by this part shall submit to the department, within 30 days of the end of a calendar quarter, a written report for each calendar quarter which shall include all of the following information:

(a) Excess emissions and the nature and cause of the excess emissions, if known, as follows:

(i) For opacity measurements, the report shall consist of the magnitude, in actual percent

opacity, of all 6-minute averages of opacity more than the applicable opacity standard for each hour of operation (all allowable exceptions are to be deducted before determining the excess averages of opacity). Average values shall be obtained by integration over the averaging period or by arithmetically averaging a minimum of 24 equally spaced, instantaneous opacity measurements per 6 minutes.

(ii) For gaseous measurements, the report shall consist of emission averages, in the units of the applicable standard, for each averaging period during which the applicable standard was exceeded.

(b) The date and time identifying each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of repairs or adjustments made.

(c) If the continuous monitoring system has not been inoperative, repaired, or adjusted, and if no excess emissions occurred, a statement attesting to this fact.

(2) The owner or operator of any continuous emission monitoring system required by this part shall maintain a file of all information reported in the quarterly reports and all other data collected, either by the continuous monitoring system or as necessary to convert monitoring data to the units of the applicable standard, for a minimum of 2 years from the date of collection of the data or submission of the reports.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 2002 MR 5, Eff. Mar. 19, 2002.

R 336. 2175 Data reduction procedures for fossil fuel-fired steam generators.

Rule 1175. (1) The owner or operator of a fossil fuel-fired steam generator that is subject to the provisions of this part shall convert gaseous emission monitoring data in parts per million to pounds per million Btu's using either of the following procedures:

(a) When the owner or operator elects to measure oxygen in the flue gases, the measurements of the pollutant concentration and oxygen concentration shall each be on a consistent basis (wet or dry). When measurements are on a dry basis, the following conversion procedure shall be used:

$$E = CF\left(\frac{20.9}{20.9 - \%O_2}\right)$$

(b) When the owner or operator elects to measure carbon dioxide in the flue gases, the measurements of the pollutant concentration and carbon dioxide concentration shall each be on a consistent basis (wet or dry) and the following conversion procedure shall be used:

$$E = CF\left(\frac{100}{\%O_2}\right)$$

(2) The values used in the equations in subrule (1) of this rule shall be derived as follows:

(a) "E" is the pollutant emission in pounds per million Btu's.

(b) "C" is the pollutant concentration in pounds per dry standard cubic foot determined by multiplying the average concentration, in parts per million, for each hourly period by 2.59×10^{-9} M pounds per dry standard cubic foot per part per million where M is the pollutant molecular weight in pounds per pound mole (M equals 64.07 for sulfur dioxide and 46.01 for oxides of

nitrogen).

(c) "% 0_2" or "% $C0_2$" is the oxygen or carbon dioxide volume, expressed as percent, determined with equipment required by R 336.2101.

(d) "F" or "F_c" is a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F) or a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted (F_c). Values of F and F_c are listed in the standards of performance for new stationary sources, 40 C.F.R. §60.45(f) (2000).

History: 1979 ACS 1, Eff. Jan. 19, 1980; 1989 MR 4, Eff. Apr. 20, 1989; 2002 MR 5, Eff. Mar. 19, 2002; Corrected 2004 MR 18, Oct. 15, 2004.

R 336. 2176 Data reduction procedures for sulfuric acid plants.

Rule 1176. The owner or operator of a sulfuric acid plant subject to the provisions of this part shall do both of the following:

(a) Establish a conversion factor 3 times daily according to the procedures in standards of performance for new stationary sources, 40 C.F.R. § 60.84(b) (July l, 1978).

(b) Multiply the conversion factor by the average sulfur dioxide concentration in the flue gases to obtain the average sulfur dioxide emissions in pounds per short ton.

History: 1979 ACS 1, Eff. Jan. 19, 1980.

R 336. 2189 Alternative data reporting or reduction procedures.

Rule 1189. The department may provide approval for alternative data reporting or reduction procedures that do not comply with the requirements of this part if the owner or operator demonstrates, to the satisfaction of the department, that the procedures are at least as accurate as the procedures identified in this part.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 2002 MR 5, Eff. Mar. 19, 2002.

R 336. 2190 Monitoring system malfunctions.

Rule 1190. The monitoring and reporting requirements of this part shall not apply during any period of monitoring system malfunction if the source owner or operator demonstrates both of the following to the satisfaction of the department:

(a) That the cause of the malfunction could not have been avoided by any course of action that could have reasonably been expected of the owner or operator.

(b) That the necessary repairs are being made as expeditiously as practicable.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 2002 MR 5, Eff. Mar. 19, 2002.

R 336. 2199 Exemptions from continuous emission monitoring requirements.

Rule 1199. The requirements of rules 1101, 1102, and 1103 do not apply to any of the following:

(a) A source subject to a new source performance standard promulgated in standards of performance for new stationary sources, 40 C.F.R. part 60 (July 1, 1978), pursuant to section 111 of the clean air act, as amended, 42 U.S.C. §7413.

(b) A source not subject to an applicable emission standard.

History: 1979 ACS 1, Eff. Jan. 19, 1980.