

CHAPTER 7017
MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY DIVISION
MONITORING AND TESTING REQUIREMENTS

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CONTINUOUS MONITORS

7017.1000 CONTINUOUS MONITORING.

Subpart 1. **Requirement.** The owner or operator of any emission facility, whether or not continuous monitoring is required by another rule, may be required to establish a continuous monitoring system, upon order of the commissioner, when in the commissioner's judgment other methods of measurement or calculation do not provide adequate information on the level or variation of emissions to assure compliance with applicable regulations.

Subp. 2. **Monitoring system specifications.** Any owner or operator of an emission facility who is required by applicable rule or by order of the commissioner to install a continuous monitoring system shall install a system which meets the following performance evaluations:

A. Continuous monitoring systems for measuring opacity of emissions shall comply with Performance Specification 1.

B. Continuous monitoring systems for measuring nitrogen oxides emissions shall comply with Performance Specification 2.

C. Continuous monitoring systems for measuring sulfur dioxide emissions shall comply with Performance Specification 2.

D. Continuous monitoring systems for measuring the oxygen content or carbon dioxide content of effluent gases shall comply with Performance Specification 3.

Subp. 3. **Performance evaluation.** The agency or the commissioner may order any owner or operator who has installed a continuous monitoring system to conduct performance evaluations of the system. The performance evaluations shall be conducted under such conditions as the agency or the commissioner may impose.

Subp. 4. **Old monitoring systems.** Any owner or operator of an emission facility who installed or entered into a binding contract to purchase a specific continuous monitoring system prior to September 11, 1974, may be exempt from meeting the performance evaluations set forth in subpart 2 provided the following requirements are met:

A. Continuous monitoring systems for measuring opacity of emissions shall be capable of measuring emission levels within ± 20 percent of the correct value with a confidence level of 95 percent. The calibration error test and associated calculation procedures set forth in Performance Specification 1 shall be used for demonstrating compliance with this specification.

B. Continuous monitoring systems for measurement of nitrogen oxides or sulfur dioxide shall be capable of measuring emission levels within ± 20 percent of the correct value with a confidence level of 95 percent. The calibration error test, the field test for accuracy (relative), and associated operating and calculation procedures set forth in Performance Specification 2 shall be used for demonstrating compliance with this specification. All continuous monitoring systems installed under this item shall be upgraded or replaced with new continuous monitoring systems which comply with the performance evaluations set forth in subpart 2 by September 11, 1979.

Subp. 5. **Zero and span drift.** Owners or operators who are required to install continuous monitoring systems shall check the zero and span drift at least once daily in accordance with the method prescribed by the manufacturer of such systems unless the manufacturer

recommends adjustments at shorter intervals, in which case such recommendations shall be followed. The zero and span shall, as a minimum, be adjusted whenever the 24-hour zero drift or 24-hour calibration drift limits of the performance specifications in Performance Specification 1, 2, or 3, whichever is applicable, are exceeded. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero or span drift adjustments except that for systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds four percent opacity. Unless otherwise approved by the agency, the following procedures, as applicable, shall be followed:

A. For extractive continuous monitoring systems measuring gases, minimum procedures shall include introducing applicable zero and span gas mixtures into the measurement system as near the probe as is practical. Span and zero gases certified by their manufacturer to be traceable to National Bureau of Standards reference gases shall be used whenever these reference gases are available. The span and zero gas mixtures shall be the same composition as specified in Performance Specification 1, 2, or 3, whichever is applicable. Every six months from date of manufacture, span and zero gases shall be reanalyzed by conducting triplicate analyses with Reference Method 6 for SO₂, Reference Method 7 for NO_x, and Reference Method 3 for O₂ and CO₂, respectively. The gases may be analyzed at less frequent intervals if longer shelf lives are guaranteed by the manufacturer.

B. For nonextractive continuous monitoring systems measuring gases, minimum procedures shall include upscale check(s) using a certified calibration gas cell or test cell which is functionally equivalent to a known gas concentration. The zero check may be performed by computing the zero value from upscale measurements or by mechanically producing a zero condition.

C. For continuous monitoring systems measuring opacity of emissions, minimum procedures shall include a method of producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photodetector assembly.

Subp. 6. Operation requirements. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

A. All continuous monitoring systems for measuring opacity of emissions shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive ten-second period.

B. All continuous monitoring systems, except those old systems installed under subpart 4, for measuring oxides of nitrogen, sulfur dioxide, carbon dioxide, or oxygen shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

All old continuous monitoring systems installed under subpart 4 for measuring oxides of nitrogen, sulfur dioxide, carbon dioxide, or oxygen shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive one-hour period.

Subp. 7. Location of system. All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable performance specifications shall be used.

Subp. 8. Combined or separated emissions. When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install

applicable continuous monitoring systems on each separate effluent unless the installation of fewer systems is approved by the agency.

Subp. 9. Monitoring data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six-minute averages except that a one minute averaging period as described in part 7017.2000, subpart 7, item B shall be used in the event an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period. Opacity averages shall be calculated from all equally spaced consecutive 15 second (or shorter) data points in the applicable averaging period. For systems other than opacity, the data shall be reduced to one hour averages, which shall be computed from four or more data points equally spaced over each one hour period.

Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this subpart. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or nonreduced form (e.g. ppm pollutant and percent O₂ or lb of pollutant/million Btu). All excess emissions shall be converted into units of the standard using the conversion procedures specified in the applicable regulation. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the regulation to specify the applicable standard (e.g. rounded to the nearest one percent opacity).

Subp. 10. Exceptions. Upon written application by an owner or operator, the commissioner may approve alternatives to any monitoring procedures or requirements including, but not limited to, the following:

A. Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases.

B. Alternative monitoring requirements when the affected facility is infrequently operated.

C. Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.

D. Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.

E. Alternative methods of converting pollutant concentration measurements to units of the standards.

F. Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.

G. Alternatives to the A.S.T.M. test methods or sampling procedures specified by any rule.

H. Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1 but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The commissioner may require that such demonstration be performed for each affected facility.

I. Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities are released to the atmosphere through more than one point.

Statutory Authority: *MS s 116.07 subd 4*

History: *L 1987 c 186 s 15; 17 SR 1279; 18 SR 614*

7017.1010 INCORPORATION OF MONITORING REQUIREMENTS BY REFERENCE.

Subpart 1. New Source Performance Standards. Code of Federal Regulations, title 40, part 60.13, as amended, entitled "Monitoring Requirements," is adopted and incorporated by reference.

Subp. 2. **National Emissions Standards for Hazardous Air Pollutants.** Code of Federal Regulations, title 40, part 61.14, as amended, entitled "Monitoring Requirements," is adopted and incorporated by reference.

Subp. 3. **Submission to commissioner.** All requests, reports, applications, and other communications to the administrator pursuant to subparts 1 and 2 must be submitted to the commissioner.

Statutory Authority: *MS s 116.07*

History: *18 SR 580*

PERFORMANCE TESTS

7017.2000 PERFORMANCE TESTS.

Subpart 1. **Testing requirements.** The agency or the commissioner may order the owner or operator of an emission facility to conduct or have conducted performance tests to determine the characteristics and amount of emissions of air contaminants from any affected facility.

Subp. 2. **Test method.** Unless another method is specified in an applicable rule, any owner or operator required to conduct performance tests shall utilize the following methods:

- A. Method 1 for sample and velocity traverses;
- B. Method 2 for stack gas velocity and volumetric flow rate;
- C. Method 3 for gas analysis for carbon dioxide, excess air, and dry molecular weight;
- D. Method 4 for moisture in stack gases;
- E. Method 5 for concentration of particulate matter and associated moisture content;

F. Method 6 for concentration of sulfur dioxide;

G. Method 7 for concentration of nitrogen oxides;

H. Method 8 for concentration of sulfuric acid mist and sulfur dioxide;

I. Method 9 for opacity;

J. Method 10 for concentration of carbon monoxide;

K. Method 11 for concentration of hydrogen sulfide;

L. Method 101—Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (Air Streams), Method 102—Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (Hydrogen Streams), or Method 105—Reference Method for Determination of Mercury in Wastewater Treatment Sewage Sludges, set forth in Code of Federal Regulations, title 40, part 61, appendix B, whichever is applicable, for mercury emissions; and

M. Method 103—Beryllium Screening Method or Method 104—Reference Method for Determination of Beryllium Emissions from Stationary Sources, set forth in Code of Federal Regulations, title 40, part 61, appendix B, whichever is applicable.

Subp. 3. **Alternative test methods.** In lieu of the test method described in subpart 2, the commissioner may:

A. specify or approve minor changes in the Reference Method set forth in subpart 2 or the applicable rule;

B. approve the use of an equivalent method; or

C. approve the use of an alternative method the results of which the commissioner has determined to be adequate for indicating whether an affected facility is in compliance.

Subp. 4. **Testing conditions.** Performance tests shall be conducted under such conditions as the commissioner shall specify. The owner or operator shall make available to the commissioner such records as may be necessary to determine the conditions of the performance tests. Operations during periods of start-up, shutdown, and malfunction shall not constitute representative conditions of performance tests unless otherwise specified in an applicable regulation.

Subp. 5. **Test runs.** Each performance test shall consist of three separate runs using the applicable test method. However, the commissioner reserves the right to require more than

three runs under unusual circumstances. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the commissioner's approval, be determined using the arithmetic of the results of the two other runs.

Subp. 6. Notification. The owner or operator shall notify the commissioner not less than 30 days prior to conducting any performance tests, unless a shorter time is accepted by the commissioner.

Subp. 7. Opacity. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the owner or operator shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

The opacity standards set forth in a regulation shall apply at all times except during periods of start-up, shutdown, malfunction, and as otherwise provided in the applicable standard.

Paragraph 2.5 of Method 9 (data reduction) is amended to read as follows, and this language shall be used whenever Method 9 is referenced in the rules:

A. 2.5 Data reduction. Except as provided in item B, opacity shall be determined as an average of 24 consecutive observations recorded at 15-second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. Record the average opacities on a record sheet.

B. In the event that an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period, determine the opacity as an average of four consecutive observations recorded at 15-second intervals. Determine the number of minutes in any one-hour period that the opacity exceeds a given opacity and record this information.

Subp. 8. Agency tests. Upon order of the agency or the commissioner, the owner or operator of an emission facility shall allow the agency, or any authorized employee or agent of the agency, to enter upon the premises of the owner or operator for the purposes of conducting performance tests. The owner or operator shall provide performance testing facilities which will enable the agency or its agents or employees to conduct performance tests. Such performance testing facilities shall include:

- A. sampling ports adequate for test methods applicable to such facility;
- B. safe sampling platform(s);
- C. safe access to sampling platform(s); and
- D. utilities for sampling and testing equipment.

Subp. 9. Additional requirements. The owner or operator shall meet any other requirements imposed by the agency or the commissioner in ordering the running of the performance tests.

Statutory Authority: *MS s 116.07 subd 4*

History: *L 1987 c 186 s 15; 17 SR 1279; 18 SR 614*