

Section 2.2600 Source Testing

2.2602 General Provisions on Test Methods and Procedures

- (a) The owner or operator of a source shall perform any required test at his own expense.
- (b) The final test report shall describe the training and air testing experience of the person directing the air test.
- (c) The owner or operator of the source shall arrange for air emission testing protocols to be provided to the Director prior to air pollution testing. Testing protocols are not required to be pre-approved by the Director prior to air pollution testing. The Director shall review air emission testing protocols for pre-approval prior to testing if requested by the owner or operator at least 45 days before conducting the test.
- (d) Any person proposing to conduct an emissions test to demonstrate compliance with an applicable standard shall notify the Director at least 15 days before beginning the test so that the Director may at his option observe the test.
- (e) For compliance determination, the owner and operator of the source shall provide:
 - (1) sampling ports, pipes, lines, or appurtenances for the collection of sampling and data required by the test procedures;
 - (2) scaffolding and safe access to the sample and data collection locations; and
 - (3) light, electricity, and other utilities required for sample and data collection.
- (f) Unless otherwise specified in the applicable permit or during the course of the protocol review, the results of the tests shall be expressed in the same units as the emission limits given in the rule for which compliance is being determined.
- (g) The owner or operator of the source shall arrange for controlling and measuring the production rates during the period of air testing. The owner or operator of the source shall ensure that the equipment or process being tested is operated at the production rate that best fulfills the purpose of the test. The individual conducting the emission test shall describe the procedures used to obtain accurate process data and include in the test report the average production rates determined during each testing period.
- (h) The final air emission test report shall be submitted to the Director not later than 30 days after sample collection. The owner or operator may request an extension to submit the final test report. The Director shall approve an extension request if he finds that the extension request is a result of actions beyond the control of the owner or operator.
- (j) The Director may authorize the Division of Air Quality to conduct independent tests of any source subject to a rule in this Subchapter to determine the compliance status of that source or to verify any test data submitted related to that source. Any test conducted by the Division of Air Quality using the appropriate testing procedures described in this Section has precedence over all other tests.

*History Note: Authority G.S. 143-215.3(a)(1); 143-215.65; 143-215.66; 143-215.107(a)(5);
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2.2603 **Testing Protocol**

(a) Testing protocols shall include:

- (1) an introduction explaining the purpose of the proposed test, including identification of the regulations and permit requirements for which compliance is being demonstrated and the allowable emission limits;
- (2) a description of the facility and the source to be tested;
- (3) a description of the test procedures (sampling equipment, analytical procedures, sampling locations, reporting and data reduction requirements, and internal quality assurance and quality control activities);
- (4) any modifications made to the test methods referenced in the protocol; and
- (5) a description of how production or process data will be documented during testing.

(b) The tester shall not deviate from the protocol unless the tester documents the deviation.

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2.2604 Number of Test Points

(a) Method 1 of Appendix A of 40 CFR Part 60 shall be used to select a suitable site and the appropriate number of testing points for the following situations:

- (1) particulate testing,
- (2) volatile organic compounds,
- (3) velocity and volume flow rate measurements,
- (4) testing for acid mist or other pollutants that occur in liquid droplet form,
- (5) any sampling for which velocity and volume flow rate measurements are necessary for computing final test results, or
- (6) any sampling that specifies isokinetic sampling.

(b) Method 1 of Appendix A of 40 CFR Part 60 shall be used as written with the following clarifications:

- (1) Testing installations with multiple breechings may be accomplished by testing the discharge stack(s) to which the multiple breechings exhaust. If the multiple breechings are individually tested, then Method 1 shall be applied to each breeching individually.
- (2) If test ports in a duct are less than two diameters downstream from any disturbance (fan, elbow, change in diameter, or any other physical feature that may disturb the gas flow) or less than one-half diameter upstream from any disturbance, the acceptability of the test location shall be determined by the Director before the test and after his review of technical economic factors.

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2.2605 Velocity and Volume Flow Rate

Method 2 of Appendix A of 40 CFR Part 60 shall be applied as written and used concurrently with any test method in which velocity and volume flow rate measurements are required.

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2.2606 Molecular Weight

(a) With the exceptions allowed Paragraph (b), Method 3 of Appendix A of 40 CFR Part 60 shall be applied as written and used concurrently with any test method when necessary to determine the molecular weight of the gas being sampled by determining the fraction of carbon dioxide, oxygen, carbon monoxide, and nitrogen.

(b) The grab sample technique may be substituted using instruments such as Bacharach Fyrite™ with the following restrictions:

- (1) Instruments such as the Bacharach Fyrite™ may only be used for the measurement of carbon dioxide.
- (2) Repeated samples shall be taken during the emission test run to account for variations in the carbon dioxide concentration. At least four samples shall be taken during a one-hour test run, but as many as necessary shall be taken to produce a reliable average.
- (3) The total concentration of gases other than carbon dioxide, oxygen, and nitrogen shall be less than one percent.

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2.2607 Determination of Moisture Content

Method 4 of Appendix A of 40 CFR Part 60 shall be applied as written and used concurrently with any test method requiring determination of gas moisture content.

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2.2608 Number of Runs and Compliance Determination

Each test (excluding fuel sampling) shall consist of three repetitions or runs of the applicable test method. For determining compliance with an applicable emission standard, the average of results of all repetitions applies. On a case-by-case basis, compliance may be determined using the arithmetic average of two run results if the Director determines that an avoidable and unforeseeable event happened beyond the owner's or operator's or tester's control and that a third run could not be completed.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.65; 143-215.66; 143-215.107(a)(5); Eff. June 1, 2008.

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2.2610 **Opacity**

(a) Method 9 of Appendix A of 40 CFR 60 shall be used to show compliance with opacity standards when opacity is determined by visual observation.

(b) Method 22 Appendix A of 40 CFR 60 shall be used to determine compliance with opacity standards when such standards are based upon the frequency of fugitive emissions from stationary sources as specified in the applicable regulation or by permit condition.

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2.2612 Nitrogen Oxide Testing Methods

(a) Combustion sources not required to use continuous emissions monitoring to demonstrate compliance with nitrogen oxide emission standards shall demonstrate compliance with nitrogen oxide emission standards using Method 7 or Method 7E of Appendix A of 40 CFR Part 60.

(b) Method 20 of Appendix A of 40 CFR Part 60 shall be used to demonstrate compliance with nitrogen oxide emissions standards for stationary gas turbines.

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2.2613 Volatile Organic Compound Testing Methods

(a) For surface coating material, such as paint, varnish, stain, and lacquer, the volatile matter content, water content, density, volume of solids, and weight of solids shall be determined by Method 24 of Appendix A of 40 CFR Part 60.

(b) For printing inks and related coatings, the volatile matter and density shall be determined by Method 24A of Appendix A of 40 CFR Part 60.

(c) For solvent metal cleaning equipment, the following procedure shall be followed to perform a material balance test:

- (1) clean the degreaser sump before testing;
- (2) record the amount of solvent added to the tank with a flow meter;
- (3) record the weight and type of workload degreased each day;
- (4) at the end of the test run, pump out the used solvent and measure the amount with a flow meter; also, estimate the volume of metal chips and other material remaining in the emptied sump;
- (5) bottle a sample of the used solvent and analyze it to find the percent that is oil and other contaminants; the oil and solvent proportions may be estimated by weighing samples of used solvent before and after boiling off the solvent; and
- (6) compute the volume of oils in the used solvent. The volume of solvent displaced by this oil along with the volume of makeup solvent added during operations is equal to the solvent emissions.

(d) For bulk gasoline terminals, emissions of volatile organic compounds shall be determined by the procedures set forth in 40 CFR 60.503.

(e) For organic process equipment, leaks of volatile organic compounds shall be determined by Method 21 of Appendix A of 40 CFR Part 60. Organic process equipment includes valves, flanges and other connections, pump and compressors, pressure relief devices, process drains, open-ended valves, pump and compressor seal system degassing vents, accumulator vessel vents, access door seals, and agitator seals.

(f) For determination of solvent in filter waste (muck and distillation waste) in accordance with MCAPCO Regulation 2.0912 – “General Provisions on Test Methods and Procedures” the tester shall derive the quantity of volatile organic compounds per quantity of discarded filter muck. The procedure to be used in making this determination is the test method described by the American National Standards Institute’s “Standard method of Test for Dilution of Gasoline-Engine Crankcase Oils” (ASTM 322-67 or IP23/68) except that filter muck is to be used instead of crankcase oil.

(g) For sources of volatile organic compounds not covered under the methods specified in Paragraphs (b) through (e) of this Regulation, one of the applicable test methods in Appendix M in 40 CFR Part 51 or Appendix A in 40 CFR Part 60 shall be used to determine compliance with volatile organic compound emission standards.

(h) Compounds excluded from the definition of volatile organic compound under MCAPCO Regulation 2.0901 – “Definitions” shall be treated as water.

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2.2614 Determination of VOC Emission Control System Efficiency

- (a) The provisions of this Rule are applicable to any test method employed to determine the collection or control efficiency of any device or system designed, installed, and operated for the purpose of reducing volatile organic compound emissions.
- (b) The following procedures shall be used to determine efficiency:
- (1) The volatile organic compound containing material shall be sampled and analyzed using the procedures contained in this Section.
 - (2) Samples of the gas stream containing volatile organic compounds shall be taken simultaneously at the inlet and outlet of the emissions control device.
 - (3) The efficiency of the control device shall be expressed as the fraction of total combustible carbon content reduction achieved.
 - (4) The volatile organic compound mass emission rate shall be the sum of emissions from the control device and emissions not collected by the capture system.
- (c) Capture efficiency performance of volatile organic compound emission control systems shall be determined using the EPA recommended capture efficiency protocols and test methods as described in the EPA document, EMTIC GD-035, "Guidelines for Determining Capture Efficiency."
- (d) The EPA document, EMTIC GD-035, "Guidelines for Determining Capture Efficiency" cited in this Rule is hereby incorporated by reference including any subsequent amendments or editions. A copy of this reference materials may be obtained free of charge via the Internet from the EPA TTN website at <http://www.epa.gov/ttn/emc/guidlnd.html>.

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2.2615 Determination of Leak Tightness and Vapor Leaks

(a) Leak Testing. One of the following test methods from the EPA document “Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection System,” EPA-450/2-78-051, published by the U.S. Environmental Protection Agency, December 1978, shall be used to determine compliance with MCAPCO Regulation 2.0932 – “Gasoline Truck Tanks and Vapor Collection Systems”:

- (1) The gasoline vapor leak detection procedure by combustible gas detector described in Appendix B of EPA-450/2-78-051 shall be used to determine leakage from gasoline truck tanks and vapor control systems.
- (2) The leak detection procedure for bottom-loaded truck tanks by bag capture method is described in Appendix C of EPA-450/2-78-051 shall be used to determine the leak tightness of truck tanks during bottom loading.

(b) Annual Certification. The pressure-vacuum test procedures for leak tightness of truck tanks described in Method 27 of Appendix A of 40 CFR Part 60 shall be used to determine the leak tightness of gasoline truck tanks in use and equipped with vapor collection equipment. Method 27 of Appendix A of 40 CFR Part 60 is changed to read:

- (1) 8.2.1.2 “Connect static electrical ground connections to tank.”
- (2) 8.2.1.3 “Attach test coupling to vapor return line.”
- (3) 16.0 No alternative procedure is applicable.

(c) Copies of Appendix B and C of the EPA document, “Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection System,” EPA-450/2-78-051, cited in this Regulation, are hereby incorporated with subsequent amendments and editions by reference and are available on the North Carolina’s Division of Air Quality Website <http://daq.state.nc.us/enf/sourcetest>.

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