

REGULATION 1.05 Compliance with Emission Standards and Maintenance Requirements

Air Pollution Control District of Jefferson County Jefferson County, Kentucky

Relates To: KRS Chapter 77 Air Pollution Control

Pursuant To: KRS Chapter 77 Air Pollution Control

Necessity and Function: KRS 77.180 provides that the Air Pollution Control Board may make and enforce all needful orders, rules, and regulations necessary or proper to accomplish the purposes of KRS Chapter 77. This regulation establishes the conditions for compliance with emissions standards.

SECTION 1 Compliance with Emission Standards

- 1.1 Compliance with emission standards in these regulations, other than opacity standards, VOC, and capture efficiency standards, shall be determined by performance tests required by Regulations 2, 5, 6 or 7.
- 1.2 For affected facilities not required to conduct performance tests pursuant to these regulations, compliance with emission standards, other than opacity standards, shall be determined by engineering calculations based upon data obtained by District personnel.

SECTION 2 Opacity Standards

- 2.1 Compliance with opacity standards in this regulation shall be determined by conducting observations in accordance with the reference method as defined in Regulation 1.02. 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. The owner or operator shall meet the burden of proving that the instrument used at the time of the alleged violation meets performance specifications as required by the District, has been properly maintained and calibrated, and that the resulting data have not been tampered with in any way.
- 2.2 The opacity standards set forth in these regulations shall apply at all times except during periods of start-up, shutdown, malfunction, and as otherwise provided in the applicable standard.

SECTION 3 Capture Efficiency Protocols

The following procedures shall be followed to determine VOC capture efficiency as necessary for determining compliance in all coating regulations in Regulations 6 and 7:

- 3.1 For purposes of this Section, the following definitions and abbreviations apply:
- 3.1.1 "Capture" means the containment or recovery of emissions from a process for direction into a duct which may be exhausted through a stack or sent to a control device.
 - 3.1.2 "Capture system" means all equipment including, but not limited to, hoods, ducts, fans, booths, ovens, dryers, etc., that contain, collect and transport an air pollutant to a stack or control device.
 - 3.1.3 "Capture efficiency" means the weight per unit time of VOC entering a capture system and delivered to a stack or control device divided by the weight per unit time of total VOC generated by a source of VOC, expressed as a percentage.
 - 3.1.4 "Control device" means equipment such as an incinerator or carbon adsorber used to reduce, by destruction or removal, the amount of air pollutants in an air stream prior to discharge to the ambient air.
 - 3.1.5 "Control system" means a combination of one or more capture systems and control devices working in concert to reduce discharges of pollutants to the ambient air.
 - 3.1.6 "Destruction or removal efficiency" means the amount of VOC destroyed or removed by a control device expressed as a percent of the total amount of VOC entering the control device.
 - 3.1.7 "Gas/gas method" means either of two methods for determining capture which rely only on gas phase measurements. One method requires construction of a temporary enclosure (TTE) to assure all would-be fugitive emissions are measured while the other method uses a room or building which houses the emission source as an enclosure.
 - 3.1.8 "Hood" means a partial enclosure or canopy for capturing and exhausting, by means of a draft, the organic vapors or other fumes rising from a coating process or other source.
 - 3.1.9 "Liquid/gas method" means either of two methods for determining capture which require both gas phase and liquid phase measurements and analysis. One liquid/gas method requires construction of a temporary enclosure; the other uses the building or room which houses the facility as an enclosure.
 - 3.1.10 "Overall emission reduction efficiency" means the weight per unit time of VOC removed or destroyed by a control device divided by the weight per unit time of VOC generated by a source, expressed as a percentage. The overall emission reduction efficiency is the product of the capture efficiency and the control device destruction or removal efficiency.
 - 3.1.11 "F" means the mass of VOC leaving the process as gaseous fugitive emissions.
 - 3.1.12 "G" means the mass of VOC captured and delivered to a control device.
 - 3.1.13 "L" means the mass of VOC input to the process in liquid form.
 - 3.1.14 "PTE" means a permanent total enclosure which contains a process that emits VOC and meets the specifications given in Procedure T in section 3.5.

- 3.1.15 "TTE" means a temporary total enclosure which is built around a process that emits VOC and meets the specifications given in Procedure T.
- 3.1.16 "BE" means a building or room enclosure that contains a process that emits VOC. If a BE is to serve as a PTE or TTE, the appropriate requirements given in Procedure T must be met.
- 3.2 Applicability
- 3.2.1 The requirements of section 3.3 shall apply to all regulated VOC-emitting processes employing a control system except as provided below.
- 3.2.2 If a source installs a PTE that meets EPA specifications and which directs all VOC to a control device, the capture efficiency is assumed to be 100%, and the source is exempt from the requirements described in section 3.3. The EPA specifications to determine whether a structure is considered a PTE are given in Procedure T. This does not exempt a source from performance of any control device efficiency testing required under these or any other regulations. In addition, a source must demonstrate that all criteria for a PTE are met during the testing for control efficiency.
- 3.2.3 If a source uses a control device designed to collect and recover VOC, e.g. carbon adsorber, an explicit measurement of capture efficiency is not necessary if the conditions given below are met. The overall control of the system can be determined by directly comparing the input liquid VOC (L) to the recovered liquid VOC. The general procedure for use in this situation is given in 40 CFR §60.433 with the following additional restrictions:
- 3.2.3.1 The source must be able to equate solvent usage with solvent recovery on a 24-hour (daily) basis rather than a 30-day weighted average as given in 40 CFR §60.433. This must be done within 72 hours following each 24-hour period. In addition, one of the following two criteria must be met:
- 3.2.3.1.1 The solvent recovery system, i.e., capture and control system, must be dedicated to a single process line e.g., one process line venting to a carbon adsorber system, or
- 3.2.3.1.2 If the solvent recovery system controls multiple process lines, the source must be able to demonstrate that the overall control (i.e., the total recovered solvent VOC divided by the sum of liquid VOC input to all process lines venting to the control system) meets or exceeds the most stringent standard applicable for any process line venting to the control system.
- 3.3 Specific Requirements
- 3.3.1 The capture efficiency of a process line shall be measured using one of the five protocols given in section 3.3.3.
- 3.3.2 Any error margin associated with a test protocol may not be incorporated into the results of a capture efficiency test.

3.3.3 The five specific capture efficiency protocols are discussed in sections 3.3.3.1 through 3.3.3.5. Any affected source must use one of these protocols to measure capture efficiency unless a suitable alternative protocol is approved by the District and EPA as a SIP revision.

3.3.3.1 Gas/gas method using TTE. The EPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T. The capture efficiency equation to be used for this protocol is:

$$CE = \frac{G_w}{G_w + F_w}$$

where:

CE = capture efficiency, decimal fraction.

G_w = mass of VOC captured and delivered to control device using a TTE.

F_w = mass of fugitive VOC that escapes from a TTE.

Procedure G.2 is used to obtain G_w . Procedure F.1 is used to obtain F_w . See section 3.5.

3.3.3.2 Liquid/gas method using TTE. The EPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T. The capture efficiency equation to be used for this protocol is:

$$CE = \frac{L - F}{L}$$

where:

CE = capture efficiency, decimal fraction.

L = mass of liquid VOC input to process.

F = mass of fugitive VOC that escapes from a TTE.

Procedure L is used to obtain L. Procedure F.1 is used to obtain F.

3.3.3.3 Gas/gas method using the building or room (BE) in which the affected source is located as the enclosure and in which G and F are measured while operating only in the affected facility. All fans and blowers in the building or room must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

$$CE = \frac{G}{G + FB}$$

where:

CE = capture efficiency, decimal fraction.

G = mass of VOC captured and delivered to a control device.

FB = mass of fugitive VOC escaping from building enclosure.

Procedure G.2 is used to obtain G. Procedure F.2 is used to obtain FB.

3.3.3.4

Liquid/gas method using the building or room (BE) in which the affected source is located as the enclosure and in which L and F are measured while operating only the affected facility. All fans and blowers in the building or room must be operating as they would under normal production. The capture efficiency equation to be used for this protocol is:

$$CE = \frac{L - FB}{L}$$

where:

CE = capture efficiency, decimal fraction.

L = mass of liquid VOC input to process.

FB = mass of fugitive VOC that escapes from building enclosure.

Procedure L is used to obtain L. Procedure F.3 is used to obtain FB.

3.3.3.5

Liquid/Gas method measuring the captured emission, G_w , and liquid input, L. This procedure should only be used when the capture efficiency for a coating line is expected to be less than 50% or if the measurement of capture efficiency cannot feasibly be performed in accordance with the other approved protocols. The capture equation to be used for this protocol is:

$$CE = \frac{G_w}{L}$$

where:

CE = capture efficiency, decimal fraction.

G_w = Mass of VOC captured and delivered to a control device.

L = Mass of liquid VOC input to coating line.

Procedure G.1 is used to obtain G_w . Procedure L or the alternative EPA Method 204F shall be used to determine L.

3.3.3.6

A capture efficiency test shall consist of at least three runs. Each run shall cover at least one complete production or processing cycle or shall be at least one hour in

duration. For automotive and truck surface coating operations, the sampling time shall be based on coating a minimum of three representative vehicles.

3.4 Recordkeeping and Reporting

3.4.1 All affected facilities must maintain on file a copy of the capture efficiency protocols submitted to the District. All results of appropriate test methods and CE protocols must be reported to the District within 60 days of test date.

3.4.2 If any changes are made to capture or control equipment, the source is required to notify the District, in writing, of these changes and a new test may be required.

3.4.3 The source must notify the District 30 days prior to performing any capture efficiency and/or control efficiency tests.

3.4.4 A source utilizing a PTE must demonstrate that this enclosure meets the requirement given in Procedure T for a PTE during any testing of a control device.

3.4.5 A source utilizing a TTE must demonstrate that its TTE meets the requirement given in Procedure T for a TTE during testing of the control device. The source must also provide documentation that the quality assurance criteria for a TTE have been achieved.

3.5 Reference Procedures

Procedure G.1 - Captured VOC Emissions

Procedure G.2 -Captured VOC Emissions (Dilution Technique)

Procedure F.1 - Fugitive VOC Emissions from Temporary Enclosures

Procedure F.2 - Fugitive VOC Emissions from Building Enclosures

Procedure L - VOC Input

Procedure T-Criteria for and Verification of a Permanent or Temporary Total Enclosure referred to in Subsections 3.3.3.1¹ through 3.3.3.5¹, are incorporated into these regulations by reference. These procedures are found in 40 CFR Part 52 Subpart O Appendix B - VOM Measurement Techniques for Capture Efficiency. Appendix B is located at 55 Fed. Reg. 26887 (1990).

SECTION 4 Compliance with Volatile Organic Compounds Regulations

4.1 All sources emitting VOCs in quantities equal to or greater than 100 tons per year and all Control Technique Guidance (CTG) sources emitting VOCs in quantities of 25 tons or more per year or some lesser applicability amount as defined in the specific CTG regulation shall maintain daily records and calculations that demonstrate daily compliance with the VOC emission standards defined in the applicable portions of Regulation 6 or 7.

¹ The 11-18-92 version had incorrect citations for the capture efficiency protocols in section 3.3.3. These citations have been corrected.

- 4.1.1 Sources subject to the Control Technique Guidance Documents issued by EPA and embodied in Regulations (i.e. Regulations 6.12, 6.13, 6.16, 6.17, 6.18, 6.19, 6.23, 6.29, 6.30, 6.31, 6.33, 6.34, 6.35, portions of 7.02, 7.11, 7.12, 7.16, 7.17, 7.18, 7.52, 7.57, 7.58, 7.59, and 7.60) where the calculations and recordkeeping requirements are specifically defined in the applicable portions of Regulation 6 or 7, those requirements shall be met as required in those regulations.
- 4.1.2 Where the calculations and recordkeeping requirements are not specifically defined in the applicable portions of Regulations 6 and 7, the source shall propose calculations and record-keeping requirements to the District in accordance with the schedule listed below. Upon approval of the proposed calculations and recordkeeping requirements by the District, a copy of the proposal and the District's approval statement shall be retained with the sources operating permit. Sources that have an emissions standard (i.e., pounds of VOC per hour or pounds of VOC per gallon of coating) must retain daily records and perform calculations as necessary to demonstrate compliance with the daily emissions standard. Sources that have an equipment standard (i.e., floating roof tanks with double seals) must maintain good engineering practice inspection and maintenance records to demonstrate good faith in complying with the equipment standard.
 - 4.1.2.1 Sources subject to section 4.1.2 shall submit proposed calculations and record-keeping requirements to the District within 120 days of the effective date of this regulation. The District will comment on the sources proposal within an additional 60 days. After this 180 day period, the source shall begin daily recordkeeping and performing calculations for the purpose of validating and refining the accuracy of the proposed techniques. One year from the effective date of this regulation, the source shall attain daily compliance with the standards as required by this regulation.
 - 4.1.2.2 Sources that continue to have problems identifying accurate recordkeeping or define compliance problems after the compliance date in this section may petition for a Compliance Plan and Schedule Board Order as provided in Regulation 1.08.
- 4.2 Where it is not economically or technically feasible to determine emissions on a daily basis, alternative compliance periods may be accepted provided that:
 - 4.2.1 A SIP revision is prepared to allow the use of the alternative compliance period, and the SIP revision is submitted to and approved by EPA.

SECTION 5 Maintenance Requirements

At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the District which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspections of the source.

Adopted v1/4-19-72; effective 4-19-72; amended v2/6-13-79, v3/11-16-83, v4/5-15-91, v5/11-18-92.

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