

Title 33
ENVIRONMENTAL QUALITY

Part III. Air

Chapter 21. Control of Emission of Organic Compounds

Subchapter A. General

§2121. Fugitive Emission Control

A. Applicability. This regulation is applicable to equipment in petroleum refineries, natural gas processing plants, the synthetic organic chemical manufacturing industry (SOCMI), the methyl tertiary butyl ether (MTBE) manufacturing industry, and the polymer manufacturing industry that contains any of the following components that are intended to operate in VOC service 300 hours or more during the calendar year:

- a. pumps;
- b. compressors;
- c. pressure relief devices;
- d. open-ended valves or lines;
- e. process drains;
- f. valves;
- g. agitators;
- h. instrumentation systems; and
- i. connectors.

B. Fugitive Emission Control Requirements

1. No component specified for monitoring under Subsection C of this Section shall be allowed to leak organic compounds exceeding 10,000 parts per million by volume (ppmv), as defined in LAC 33:III.111, when tested by Method 21 "Determination of Volatile Organic Compound Leaks" in 40 CFR Part 60, Appendix A, as incorporated by reference at LAC 33:III.3003. Any regulated component observed leaking by sight, sound, or smell must be repaired according to Paragraph B.3 of this Section, regardless of the leak's concentration. This includes instrumentation system leaks and flange and connection leaks found per Subparagraph C.3.b of this Section, pump and compressor seal leaks found during the weekly visual inspections, and other regulated components found leaking.

B.2. – C.3.a. ...

b. Monitor immediately with a leak detection device any component that appears to be leaking on the basis of sight, smell, or sound. This includes flanges and connectors, instrumentation systems, and pump and compressor seals observed during the weekly visual inspections, and any other regulated components that appear to be leaking. In lieu of monitoring, the operator may elect to implement actions as specified in Paragraph B.3 of this Section.

c. Any valve that is designated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of Clauses C.1.b.ii and iv and C.2.b.ii of this Section if the valve:

- i. has no external actuating mechanism in contact with the process fluid (e.g., diaphragm valves, sealed bellows valves);
- ii. is operated with emissions less than 500 ppm above background as measured in accordance with this Section; and
- iii. is tested for compliance with Clause C.3.c.ii of this Section initially upon designation and annually thereafter.

C.4. – F.4. ...

G. Definitions. Terms used in this Section are defined in LAC 33:III.111 of ~~these regulations~~ with the exception of those terms specifically defined ~~below~~ as follows:

* * *

Instrumentation System—a group of equipment components used to condition and convey a sample of the process fluid to analyzers and instruments for the purpose of determining process operating conditions (e.g., composition, pressure, flow). Valves and connectors are the predominant types of equipment used in instrumentation systems; however, other types of equipment may also be included in these systems. Only valves nominally 0.5 inch and smaller and connectors nominally 0.75 inch and smaller in diameter are considered instrumentation systems for the purposes of these regulations. Valves greater than nominally 0.5 inch and connectors greater than nominally 0.75 inch associated with instrumentation systems are not considered part of instrumentation systems and must be monitored individually.

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§2122. Fugitive Emission Control for Ozone Nonattainment Areas and Specified Parishes

A. Applicability

1. This regulation is applicable to each process unit at petroleum refineries, natural gas processing plants, the synthetic organic chemical manufacturing industry (SOCMI), the methyl tertiary butyl ether (MTBE) manufacturing industry, and

the polymer manufacturing industry that contains any of the following components that are intended to operate in VOC service 300 hours or more during the calendar year:

- a. pumps;
- b. compressors;
- c. pressure relief devices;
- d. open-ended valves or lines;
- e. process drains;
- f. valves;
- g. agitators;
- h. instrumentation systems; and
- i. connectors.

2. – 6.d. ...

B. Definitions. Terms used in this Section are ~~used as~~ defined in LAC 33:III.111 with the exception of those terms specifically defined ~~below~~ as follows:

* * *

Instrumentation System—a group of equipment components used to condition and convey a sample of the process fluid to analyzers and instruments for the purpose of determining process operating conditions (e.g., composition, pressure, flow). Valves and connectors are the predominant types of equipment used in instrumentation systems; however, other types of equipment may also be included in these systems. Only valves nominally 0.5 inch and smaller and connectors nominally 0.75 inch and smaller in diameter are considered instrumentation systems for the purposes of these regulations. Valves greater than nominally 0.5 inch and connectors greater than nominally 0.75 inch associated with instrumentation systems are not considered part of instrumentation systems and must be monitored individually.

* * *

C. Fugitive Emission Control Requirements

1. Leak Limitations

a. No component in petroleum refineries, SOCFI, MTBE, and polymer manufacturing industry shall be allowed to leak volatile organic compounds exceeding an instrument reading of 1,000 ppmv or greater for valves, connectors, instrumentation systems, pressure relief devices, and process drains; 5,000 ppmv for pumps and compressors; or 10,000 ppmv for agitators, as outlined in Subsection D of this Section, when tested by Method 21 (40 CFR Part 60, Appendix A, as incorporated by reference at LAC 33:III.3003).

b. No component in natural gas processing plants shall be allowed to leak volatile organic compounds exceeding an instrument reading ~~off~~ of 2,500 ppmv for valves, connectors, instrumentation systems, pressure relief devices, process drains, and open-ended valves and lines; 5,000 ppmv for pumps and compressors; or 10,000 ppmv for agitators, as outlined in Subsection D of this Section, when tested by

Method 21 (40 CFR Part 60, Appendix A, as incorporated by reference at LAC 33:III.3003).

C.1.c. – C.3. ...

4. Percent of leaking components at a process unit shall be determined for a test period as follows:

$$\% C_{lv} = [C_{lv}] / [C_{tv}] * 100\%$$

Eq. 1

where:

$\% C_{lv}$ = percent of a leaking components, where the component is the classification of valves, flangesd connectors, or pumps.

C_{lv} = number of valves, flangesd connectors, or pumps found leaking during the monitoring period.

C_{tv} = total number of valves, flangesd connectors, or pumps monitored during the period.

5. Total percent of leaking and unrepairable components shall be determined as follows:

$$\% C_{tlvp} = [C_{tlv}] / [C_{ttv} + C_{tuvp}] * 100\%$$

Eq. 2

where:

$\% C_{tlvp}$ = total percent of leaking and unrepairable valves, flangesd connectors, or pumps.

C_{tlv} = number of valves, flangesd connectors, or pumps found leaking or defined as unrepairable.

C_{ttv} = total number of valves, flangesd connectors, or pumps tested during the period.

C_{tuvp} = total number of valves, flangesd connectors, or pumps which were defined as unrepairable.

D. - D.1.c. ...

d. ~~Inspect weekly by visual, audible, and olfactory means, all flanges~~ Monitor all flangesd connectors in accordance with either Clause D.1.d.i or ii of this Section.

i. ~~Inspect all flangesd connectors weekly by visual, audible, and olfactory means.~~

ii. ~~Monitor all flangesd connectors four times per year (quarterly) using a leak detection device as follows.~~

(a). ~~Either two hundred or 10 percent, whichever is less, of the flangesd connectors shall be monitored each quarterly period in accordance with a written sampling plan.~~

(b). The sampling plan shall ensure that at least 66 percent of the flanges ~~sd connectors~~ monitored each quarterly period shall not have been previously monitored, until all flanges ~~sd connectors~~ within the process have been monitored.

e. Inspect weekly, by visual, audible, and olfactory means, all instrumentation systems.

ef. Records of the visual, audible, and olfactory inspections of connectors and instrumentation systems are not required unless a leak is detected.

2. – 3.a. ...

b. Monitor immediately with a leak detection device any component that appears to be leaking on the basis of sight, smell, or sound. This includes flanges and connectors, instrumentation systems, and pump and compressor seals observed during the weekly visual inspections, and any other regulated components that appear to be leaking. In lieu of monitoring, the operator may elect to implement actions as specified in Paragraph C.3 of this Section.

c. - d. ...

e. Any valve that is designated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of Clauses D.1.b.iii and v and D.2.b.ii of this Section if the valve:

i. has no external actuating mechanism in contact with the process fluid (e.g., diaphragm valves, sealed bellows valves);

ii. is operated with emissions less than 500 ppm above background as measured in accordance with this Section; and

iii. is tested for compliance with Clause D.3.e.ii of this Section initially upon designation and annually thereafter.

4. – 5. ...

E. Alternate Control Techniques. The monitoring schedule in Subsection D of this Section may be modified as follows:

1. – 1.f. ...

g. Existing equipment that has been monitored under LAC 33:III.2121 for fugitives at the leak definition of 10,000 ppmv can initially elect to use this alternate standard if the unit has data documented with the department by either January 1, 1996, or for the 12 months prior to becoming subject to this Section, with the department that indicates the percent of leaking valves (Eq. 1) is less than or equal to a 2.0 percent leak rate at 10,000 ppmv for the required time period.

2. ...

3. Alternate Standards for Flanged Connectors Subject to Clause D.1.d of this Section—Skip Period Leak Detection and Repair

a. An owner or operator may elect to comply with one of the alternative work practices specified in Clause E.3.b or Paragraph E.4 of this Section. However, the administrative authority* must be notified in writing before implementing one of the alternative work practices.

b. After four consecutive quarterly leak detection periods with the percent of leaking flanged connectors (Eq. 1) equal to or less than 1.0, an owner or operator may begin to skip three of the quarterly leak detection periods for the flanged connectors in gas/vapor and light liquid service.

c. If the percent of leaking flanged connectors (Eq. 1) is greater than 1.0, or the total percent of leaking and unrepairable flanged connectors (Eq. 2) is greater than 2.0, the owner or operator shall comply with the requirements as described in Subsection D of this Section but subsequently can again elect to use this Subsection when the requirements are met.

d. The percent of leaking flanged connectors (Eq. 1) shall be determined by dividing the sum of components found leaking during the current monitoring period by the total number of flanged connectors that were tested and multiplying the results by 100 percent.

e. An owner or operator must keep a record of the percent of flanged connectors found leaking during each leak detection period and the total percentage of leaking and unrepairable flanged connectors.

4. Alternative Standards for Flanged Connectors—Increased Monitoring Frequency. If the percent of leaking flanged connectors (Eq. 1) in a test period is greater than 1.0, or the total percent of leaking and unrepairable flanged connectors (Eq. 2) is greater than 2.0, then an increase in the frequency of monitoring may be required by the administrative authority*.

35. Alternate Standard for Batch Processes. As an alternate to complying with the requirements in Subsection D of this Section an owner or operator of a batch process in VOC service may elect to comply with one of the following alternative work practices. The batch product-process equipment shall be tested with a gas using the procedures specified in Subparagraph E.35.a of this Section or with a liquid as specified in Subparagraph E.35.b of this Section.

a. The following procedures shall be used to pressure test batch product-process equipment using a gas (e.g., air or nitrogen) to demonstrate compliance.

i. The batch product-process equipment train shall be pressurized with a gas to the operating pressure of the equipment. The equipment shall not be tested at a pressure greater than the pressure setting of the lowest relief valve setting.

ii. Once the test pressure is obtained, the gas source shall be shut off.

iii. The test shall continue for not less than 15 minutes, unless it can be determined in a shorter period of time that the allowable rate of pressure drop was exceeded. The pressure in the batch product-process equipment shall be measured after the gas source is shut off and at the end of the test period. The rate of

change in pressure in the batch product-process equipment shall be calculated using the following equation:

$$\frac{P}{t} = \frac{(P_f - P_i)}{(t_f - t_i)}$$

Eq. 3

where:

P/t = change in pressure, psia/hr.

P_f = final pressure, psia.

P_i = initial pressure, psia.

t_f - t_i = elapsed time, hours.

iv. The pressure shall be measured using a pressure measurement device (gauge, manometer, or equivalent) ~~which~~ that has a precision of ±2.5 millimeters (±0.05 psig) of mercury in the range of test pressure and is capable of measuring pressures up to the relief set pressure of the pressure relief device.

v. A leak is detected if the rate of change in pressure is greater than 6.9 kPa (1 psig) in one hour or if there is visible, audible, or olfactory evidence of fluid loss.

b. The following procedures shall be used to pressure test batch product-process equipment using a liquid to demonstrate compliance.

i. The batch product-process equipment train, or section of the train, shall be filled with the test liquid (e.g., water, alcohol). Once the equipment is filled, the liquid source shall be shut off.

ii. The test shall be conducted for a period of at least 60 minutes, unless it can be determined in a shorter period of time that the test is a failure.

iii. Each seal in the equipment being tested shall be inspected for indications of liquid dripping or other indications of fluid loss. If there are any indications of liquids dripping or of fluid loss, a leak is detected.

iv. If a leak is detected, it shall be repaired and the batch product-process equipment shall be retested before VOCs are fed to the equipment.

v. If the batch product-process equipment fails the retest or the second of two consecutive pressure tests, it shall be repaired as soon as practicable, but not later than 30 calendar days after the equipment is placed in VOC service.

F. –G.6. ...

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