

COMMONWEALTH OF VIRGINIA
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION

9 VAC 5 CHAPTER 40.
EXISTING STATIONARY SOURCES.

PART II.
Emission Standards.

ARTICLE 11.
Emission Standards for Petroleum Refinery Operations (Rule 4-11).

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9 VAC 5-40-1340. Applicability and designation of affected facility.

A. The affected facilities in petroleum refineries to which the provisions of this article apply are: each petroleum catalytic cracking unit, each petroleum refinery component, each vacuum producing system, each wastewater separator, and each process unit turnaround.

B. The provisions of this article apply throughout the Commonwealth of Virginia.

9 VAC 5-40-1350. Definitions.

A. For the purpose of these regulations and subsequent amendments or any orders issued by the board, the words or terms shall have the meaning given them in

subsection C of this section.

B. As used in this article, all terms not defined here shall have the meaning given them in 9 VAC 5 Chapter 10 (9 VAC 5-10-10 et seq.), unless otherwise required by context.

C. Terms defined.

"Condensate" means a hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature or pressure or both and remains liquid at standard conditions.

"Crude oil" means a naturally occurring mixture which consists of any combination of hydrocarbons, sulfur, nitrogen or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.

"Firebox" means the chamber or compartment of a boiler or furnace in which materials are burned, but does not mean the combustion chamber of an incinerator.

"Gasoline" means any petroleum distillate having a Reid vapor pressure of four pounds per square inch or greater.

"Hot well" means the reservoir of a condensing unit receiving the warm condensate from the condenser.

"Petroleum liquids" means crude oil, condensate, and any finished or intermediate products manufactured or extracted in a petroleum refinery.

"Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants or other products through distillation of petroleum or through redistillation, cracking, rearrangement or reforming of unfinished petroleum derivatives.

"Petroleum refinery component" means any petroleum refinery component that could potentially leak volatile organic compounds to the atmosphere. Such components include, but are not limited to, pump seals, compressor seals, seal oil degassing vents, pipeline valves, flanges and other connections, pressure relief devices process drains and open ended pipes.

"Refinery fuel gas" means any gas which is generated by a petroleum refinery process unit and which is combusted, including any gaseous mixture of natural gas and fuel gas.

"Turnaround" means the procedure of shutting a refinery unit down after a run to do necessary maintenance and repair work and putting the unit back on stream.

"Vacuum producing system" means any reciprocating, rotary or centrifugal blower or compressor, or any jet ejector or device that takes suction from a pressure below atmospheric and discharges against atmospheric pressure.

"Wastewater separator" means any single or multiple compartment equipment which is designed to physically separate and remove any volatile organic compound floating on or entrained or contained in water entering such equipment from such water prior to outfall, drainage or recovery of such water.

9 VAC 5-40-1360. Standard for particulate matter.

No owner or other person shall cause or permit to be discharged into the atmosphere from any petroleum catalytic cracking unit any particulate emissions in excess of 0.05% of the rate of catalyst recirculation within the unit.

9 VAC 5-40-1370. Standard for sulfur dioxide.

No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any sulfur dioxide emissions in excess of an in-stack concentration of 2,000 ppm by volume.

9 VAC 5-40-1380. Standard for hydrogen sulfide.

No owner or other person shall cause or permit to be discharged into the atmosphere from any refinery process gas stream any hydrogen sulfide emissions in excess of a concentration of 15 grains per 100 cubic feet of gas without burning or removing H₂S in excess of this concentration, provided that sulfur dioxide emissions in the burning operation meet the requirements of 9 VAC 5-40-1370.

9 VAC 5-40-1390. Standard for volatile organic compounds.

A. Vacuum producing systems.

1. No owner or other person shall use or permit the use of a vacuum producing system unless such system is equipped with a vapor control system that will remove, destroy or prevent the discharge into the atmosphere of at least 95% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subdivision A 1 of this section by use of methods in 9 VAC 5-40-1400 A will be acceptable to the board.

B. Wastewater separators.

1. No owner or other person shall use or permit the use of any wastewater separator unless such separator is equipped with a vapor control system that

will remove, destroy or prevent the discharge into the atmosphere of at least 95% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subdivision B 1 of this section by use of methods in 9 VAC 5-40-1400 B will be acceptable to the board.

C. Process unit turnarounds.

1. No owner or other person shall conduct or permit the conduct of a process unit turnaround unless such unit is equipped with a vapor control system that will remove, destroy or prevent the discharge into the atmosphere of at least 95% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subdivision C 1 of this section by use of methods in 9 VAC 5-40-1400 C will be acceptable to the board.

D. The provisions of this section apply only to sources of volatile organic compounds in volatile organic compound emissions control areas designated in 9 VAC 5-20-206.

E. The provisions of this section do not apply to sources using petroleum liquids with a vapor pressure less than 1.5 pounds per square inch absolute under actual storage conditions or, in the case of loading or processing, under actual loading or processing conditions. (Kerosene and fuel oil used for household heating have vapor pressures of less than 1.5 pounds per square inch absolute under actual storage conditions; therefore, kerosene and fuel oil are not subject to the provisions of this section when used or stored at ambient temperatures).

9 VAC 5-40-1400. Control technology guidelines.

A. Vacuum producing system. The control system should either vent noncondensable vapors to a firebox, incinerator or compress the vapors and add them to the refinery fuel gas. The associated hot wells should be covered and equipped with a vapor control system that incinerates the vapors.

B. Wastewater separators. The control system should consist of one of the following:

1. A solid cover with all openings sealed and totally enclosing the liquid contents of that compartment;

2. A floating pontoon or double-deck type cover, equipped with closure seals to enclose any space between the cover's edge and compartment wall; or

3. Any system of equal or greater control efficiency to the system in subsection B 1 or 2 of this section, provided such system is approved by the board.

C. Process unit turnaround. The units should be depressurized to a flare, fuel gas system or to some other combustion device before being opened for inspection or maintenance. Such units should be depressurized to five psi or below before venting to the atmosphere.

9 VAC 5-40-1410. Standard for visible emissions.

The provisions of Article 1 (9 VAC 5-40-60 et seq.) of this chapter (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

9 VAC 5-40-1420. Standard for fugitive dust/emissions.

A. The provisions of Article 1 (9 VAC 5-40-60 et seq.) of this chapter (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

B. For petroleum refineries located in volatile organic compound emission control areas designated in 9 VAC 5-20-206, the following requirements apply:

1. When any petroleum refinery component within the refinery complex is found to be leaking, the owner shall make every reasonable effort to repair the leak within 15 days. A leaking component is defined as one which has a volatile organic compound concentration exceeding 10,000 parts per million (ppm) when testing using procedures acceptable to the board.

2. Compliance with the above emission standard shall be determined based upon monitoring, records and reporting conducted by the owner using procedures acceptable to the board.

3. Any time a valve is located at the end of a pipe or line containing volatile organic compounds, the end of the line shall be sealed with a second valve, a blind flange, a plug or a cap. This sealing device may be removed only when the line is in use (i.e., when a sample is being taken). This requirement does not apply to safety pressure relief valves.

9 VAC 5-40-1430. Standard for odor.

The provisions of Article 2 (9 VAC 5-40-130 et seq.) of this chapter (Emission Standards for Odor, Rule 4-2) apply.

9 VAC 5-40-1440. Standard for toxic pollutants.

The provisions of Article 3 (9 VAC 5-40-160 et seq.) of this chapter (Emission Standards for Toxic Pollutants, Rule 4-3) apply.

9 VAC 5-40-1450. Compliance.

The provisions of 9 VAC 5-40-20 (Compliance) apply.

9 VAC 5-40-1460. Test methods and procedures.

The provisions of 9 VAC 5-40-30 (Emission Testing) apply.

9 VAC 5-40-1470. Monitoring.

A. The provisions of 9 VAC 5-40-40 (Monitoring) apply.

B. Unless otherwise approved by the board, owners of process units specified in subsection C of this section shall install, calibrate, maintain and operate systems for continuously monitoring and recording specified emissions in accordance with 9 VAC 5-40-40 and 9 VAC 5-40-41.

C. Catalyst regenerators for fluid bed catalytic cracking units of greater than 20,000 barrels per day fresh feed capacity at petroleum refineries shall be monitored for opacity.

D. The continuous monitoring system shall be spanned at 60, 70 or 80% opacity.

9 VAC 5-40-1480. Notification, records and reporting.

A. The provisions of 9 VAC 5-40-50 (Notification, Records and Reporting) apply.

B. For the purpose of reports required under 9 VAC 5-40-50 C, periods of excess emissions that shall be reported are defined as any one-hour period during which there are two or more six-minute periods when the average opacity exceeds 20%.

9 VAC 5-40-1490. Registration.

The provisions of 9 VAC 5-20-160 (Registration) apply.

9 VAC 5-40-1500. Facility and control equipment maintenance or malfunction.

The provisions of 9 VAC 5-20-180 (Facility and Control Equipment Maintenance or Malfunction) apply.

9 VAC 5-40-1510. Permits.

A permit may be required prior to beginning any of the activities specified below and the provisions of 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) and 9 VAC 5 Chapter 80 (9 VAC 5-80-10 et seq.) may apply. Owners contemplating such action should contact

the appropriate regional office for guidance.

1. Construction of a facility.
2. Reconstruction (replacement of more than half) of a facility.
3. Modification (any physical change to equipment) of a facility.
4. Relocation of a facility.
5. Reactivation (restart-up) of a facility.

HISTORICAL NOTES:

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