

BACT FOR FUGITIVE EMISSIONS OF HYDROCARBONS

As a condition of this permit, the applicant will develop and implement a plan to control fugitive emissions of hydrocarbons from the proposed facility. A detailed written description of the plan must be made available upon request by the Regional Administrator. Moreover, the plan must be fully implemented within 180 days following initial plant startup. As a minimum, the plan will include the following work practice and equipment specifications:

1. A leak detection and repair program will be implemented to reduce emissions from equipment leaks. The following specifications, criteria, and requirements will be built into the monitoring program.
 - a) Within 180 days of initial plant startup all components will be monitored for leaks with a VOC detection device. In addition, periodic monitoring of specific components will be performed according to the following frequencies.
 - i) monitor with a VOC detection device at least once every 365 days:
 - open ended pipes which have been fitted with closure devices in accordance with Part 4 of this section, and
 - process drains (if a leak is detected, the equipment causing the organic discharge to the stream will be identified and repaired).
 - ii) Monitor with a VOC detection device at least once every 90 days:
 - valves in gas service,
 - compressors and other components with rotating shafts in gas service,
 - reciprocating compressors and all other components with reciprocating shafts in gas service,
 - safety relief valves in gas service,
 - safety relief valves in liquid service which are shielded such that visual inspection cannot identify leaks, and
 - seal oil degassing vents.

- iii) Monitor visually at least once every seven days:
 - valves in liquid service,
 - pumps and other components with rotating shafts in liquid service,
 - reciprocating pumps and other components with reciprocating shafts in liquid service, and
 - safety relief valves in liquid service.

- b) The instrumentation and procedures used in the monitoring program will conform to or be the equivalent of the test method in Appendix B of the document, Control of Volatile Organic Compound Leaks from Refinery Equipment (EPA-450/2-78-036).

- c) A leak will be defined as emission of VOC to the atmosphere as a result of
 - i) the dripping of liquid volatile organic compounds, and/or
 - ii) the detection of 10,000 ppm by volume measured as hexane at the surface of (or as close as possible to) the potential source with a portable VOC detection instrument.

- d) All leaks will be repaired within five calendar days of the time they are located. Repair of a component is defined as:
 - i) No dripping of liquid volatile organic compounds, and
 - ii) No concentration of volatile organic compounds in excess of 1,000 ppm by volume measured as hexane within one centimeter of the leak source with a portable VOC detection instrument.

- e) Records will be kept of each leak detected and the subsequent maintenance performed on that leak. One way to comply with this requirement is to keep a survey log as is described in Section 6.3.2 of the document referenced in Part (b) above. Whatever system is used, records will contain sufficient information to identify specific components within the plant. Records will be maintained for a period of at least two years. In addition, when a leak is found an easily identifiable waterproof tag bearing the date the leak was located will be affixed to the components. This tag will remain until the leak is repaired.

- f) All components in the service of VOC within the plant, except flanges, will be made readily distinguishable from components not in VOC service. This can be accomplished with an identifiable marking of some kind.

 - g) Reports on the results of the leak detection and repair program will be submitted to the Regional Administrator within 60 days of each anniversary of initial plant startup. As a minimum this report will include a discussion of the total number and type of leaks repaired and a detailed description of leaks which were not repaired within the five day time limit. The latter will include sufficient detail to enable tracing the identity of each leak to the plant records kept in accordance with the preceding requirement (e). In addition to the annual reports, brief quarterly reports, listing all leaks not repaired during the five day limit, will be submitted to the Regional Administrator within 15 days of the end of of each 90 day period following initial plant startup. The fourth quarterly report can be incorporated into the annual report.
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- 2. Compressors, pumps and other components with rotating shafts will be equipped with double mechanical seals.

 - 3. Safety relief valves handling VOC will be fitted with rupture discs in the lines which precede them such that the relief valves are in series with and follow the rupture discs, or
safety relief valves in gas service handling VOC will be vented to a flare, recovery, or some other means of control and safety relief valves in liquid service handling VOC will be equipped with catch basins or some other device which directs liquids discharged during process upsets back to the process, to a control device or to disposal. No more than ten percent by weight of the material discharged from each safety relief valve will be emitted to the atmosphere.

 - 4. Open ended pipes will be equipped with caps, plugs; blind flanges, second valves or other closure devices which will be removed or opened only while the pipe is in use.

5. Cooling water in all non-contact condensers, heat exchangers and better heat transfer equipment in VOC service will be maintained at a pressure which exceeds the pressure of the VOC in the same piece of equipment by ten percent,
or
the total organic carbon content of cooling water will be monitored at the inlet to all cooling towers at least once every 90 days. If the organic content is found to exceed ten ppm by weight, the equipment which is leaking organics to the cooling water will be identified and repaired. Testing will be in accordance with the approved methods for total organic carbon outlined in 40 CFR 136.
6. Sampling ports and procedures will be designed to prevent any VOC emissions from purging sample lines and sample vessels. Also, samples of volatile organic chemicals will be disposed of properly following analysis. One way to comply with this requirement is to institute closed loop sampling and to incinerate samples following analysis.
7. Waste water separators will be equipped with sealed covers which totally enclose the compartment liquid contents. These can be solid, fixed roofs or floating roofs. Also, any gauging devices will include a projection into the liquid or some other device to eliminate the escape of vapors when the gauge is not in active service.
8. Vacuum systems will be equipped such that non-condensibles from hotwells, condensers, accumulators and other parts of the system are vented to a flare, an incinerator, a fire box, a flue gas system, a recovery system or some other means of control.
9. Pressurized process units handling VOC will be vented to a flare, or some other means of control during depressurization for unit maintenance. Controlled venting will continue until the vessel's internal pressure reaches the pressure drop across the control device or five psig, whichever is less.
10. Any tank truck or rail car loading facility having a throughput greater than 76,000 liters (20,000 gallons) per day of volatile organic compounds averaged over any 30-day period, will be equipped with a vapor

recovery system [ILLEGIBLE] vent gasses to at least 3447 pascals (0.5 psia).
Connections on vapor balance systems will be vapor tight.

11. Storage of volatile organic compounds will comply with the provisions of the proposed standards of performance for petroleum liquid storage vessels dated May 18, 1978 (proposed 40 CFR 60 Subpart Ka) with the exception that the capacity size cut-off will be 94,635 liters (25,000 gallons) instead of 151,416 liters (40,000 gallons) and the lower limit applicability on true vapor pressure will be 3.45 kilopascals (0.5 psia) instead of 10.35 kilopascals (1.5 psia). Also any uninsulated tank exterior surfaces exposed to the sun will be painted white. Furthermore, all fixed roof tanks not controlled by a vapor recovery system will be equipped with a conservation vent which will be inspected and maintained yearly to insure proper operation. Finally, all storage tanks with a capacity exceeding 3785 liters (1000 gallons), except pressure vessels and tanks with vapor recovery systems, will be equipped with permanent submerged fill pipes.

EXEMPTIONS

Specifically excluded from the requirements of BACT for Fugitive Emissions of Hydrocarbons are all pieces of equipment handling commercial natural gas.

Any component which has no potential to emit VOC to the atmosphere, is exempt from monitoring requirements. For example, a compressor which is totally enclosed and vented to a flare system or a safety relief valve which discharges to a flare system does not have to be monitored with a VOC detection device.

EQUIVALENT TECHNOLOGY

Any technology shown to the satisfaction of the Regional Administrator to be the equivalent of the work practices and equipment specifications in this section can be substituted, with the Regional Administrator's written permission, for the requirements of Parts 1 - 11.

DEFINITIONS

For the purposes of this section the following terms are defined.

- * Volatile Organic Compounds (VOC) are compounds of carbon

(excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, ethane, and methane) that have a true vapor pressure greater than 130 pascals (0.0188 pounds per square inch).

- * A Component is any piece of equipment capable of leaking VOC to the atmosphere which includes but is not limited to pumps, compressors, pipeline valves, safety relief valves, seal oil degassing vents, open ended pipes and process drains.
- * Open Ended Pipes are those which are preceded by valves or other closure devices capable of leaking VOC to the atmosphere. Exceptions are safety relief valves and bleeder valves in double block and bleeder valve systems.
- * Commercial Natural Gas is a mixture of gaseous hydrocarbons, chiefly methane, used as a fuel and obtained from a company licensed to dispense such gasses.
- * Gas Service for components is defined as the VOC being gaseous at the conditions that prevail in the facility during normal operations. Similarly, Liquid Service for components is defined as the VOC being liquid at the conditions which prevail during normal operations.
- * A cover on a waste water separator is considered to be sealed if the concentration within one centimeter of the lip or the surface of the tank does not exceed 10,000 ppm by volume measure as hexane with a VOC detection device. A fixed roof will be measure at the surfaces which join the roof to the walls of the compartment. A floating roof tank will be measured along the plane across the upper edge of the walls of the compartment.
- * Fugitive Emission are emissions of VOC due to equipment leaks, process upsets, sampling procedures, process turnarounds, and storage and transfer of materials. Also included in the definition of Fugitive Emissions are VOC emissions from wastewater separators and vacuum systems.