

VIII. Petroleum Processing and Refining

VIII.A. Wastewater (Oil/Water) Separators

VIII.A.1. Definitions

VIII.A.1.a. "Forebays" mean the primary sections of a wastewater separator.

VIII.A.1.b. "Wastewater (oil/water) separator" means any device or piece of equipment which utilizes the difference in density between oil and water to remove oil and associated chemicals from water, or any device, such as a flocculation tank, clarifier, etc., which removes petroleum derived compounds from wastewater.

VIII.A.2. The owner or operator of any wastewater (oil/water) separators at a petroleum refinery shall:

VIII.A.2.a. Equip the forebays and separator sections of the wastewater separators with one or more of the following emission control devices, ensuring that such device is properly installed, in good working order and properly maintained:

VIII.A.2.a.(i) a solid cover with all openings sealed and the liquid contents totally enclosed.

VIII.A.2.a.(ii) a pontoon-type or double-deck type floating roof, or internal floating cover. The floating roof or cover must rest on the surface of the liquid contents and be equipped with a closure seal or seals to close the space between the edge of the floating roof (or cover) and the wall(s) of the compartment.

VIII.A.2.a.(iii) a vapor recovery system consisting of a vapor gathering device capable of collecting the volatile organic compound vapors discharged and a vapor disposal device capable of processing such volatile organic vapors so as to prevent their emission into the atmosphere.

VIII.A.2.a.(iii)(A) Control devices shall meet the applicable requirements, including recordkeeping, of Subsections IX.A.3.a,b,c, and e, and IX.A.8.a and b.

VIII.A.2.a.(iii)(B) The applicable EPA reference methods 1 through 4, and 25, of 40 CFR Part 60 shall be used to determine the efficiency of control devices.

VIII.A.2.b. Equip all openings in covers, separators, and forebays with lids or seals such that the lids or seals are in the closed position at all times except when in actual use. Access for gauging and sampling shall be minimized.

VIII.B. Emissions from Petroleum Refineries

VIII.B.1. Definitions

VIII.B.1.a. "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.

VIII.B.1.b. "Turnaround" means the procedure of shutting a refinery unit down after a run to do necessary maintenance and repair work and then putting the unit back on stream.

VIII.B.2. Process unit turnarounds

The owner or operator of a petroleum refinery shall develop and submit to the Division for approval a detailed procedure for minimization of volatile organic compound emissions during process unit turnaround. As a minimum, the procedure shall provide for:

VIII.B.2.a. Depressurization venting of the process unit or vessel to a vapor recovery system, or to a flare or firebox which assures at least 90% combustion efficiency;

VIII.B.2.b. No emission of volatile organic compounds from a process unit or vessel until its internal pressure is 17.2 psia or less; and

VIII.B.2.c. Recordkeeping of the following items. Records shall be kept for at least two years and shall be made available to the Division for review upon request.

VIII.B.2.c.(i) Every date that each process unit is shut down,

VIII.B.2.c.(ii) The approximate vessel volatile organic compound concentration when the volatile organic compounds were first discharged to the atmosphere, and

VIII.B.2.c.(iii) The approximate total quantity of volatile organic compounds emitted to the atmosphere.

VIII.B.3. Venting of blowdown systems and safety pressure relief valves

All blowdown systems, process equipment vents, and pressure relief valves shall be vented to a vapor recovery system, or to a flare or firebox which assures at least 90% combustion efficiency.

VIII.B.4. Vacuum-Producing Systems

VIII.B.4.a. The owner or operator of any vacuum-producing system at a petroleum refinery shall not permit the emission of any noncondensable volatile organic compounds from the condensers, hot wells or accumulators of the system. This emission limit shall be achieved by:

VIII.B.4.a.(i) Venting the noncondensable vapors to a flare or other combustion device, or,

VIII.B.4.a.(ii) Compressing the vapors and adding them to the refinery fuel gas.

VIII.B.5. All sampling, testing, and measuring ports, hatches, and access openings shall be kept in a closed sealed position except during actual sampling or access.

VIII.B.6. Control devices shall meet the applicable requirements, including recordkeeping, of Subsections IX.A.3.a, b, c, and e, and IX.A.8.a and b.

VIII.B.7. The applicable EPA reference methods 1 through 4, and 25, of 40 CFR Part 60, shall be used to determine the efficiency of control devices.

VIII.C. Petroleum Refinery Equipment Leaks

VIII.C.1. Definitions

For the purpose of this subsection, the following definitions apply:

VIII.C.1.a. "Accessible Component" means a component which can be reached, if necessary, by safe and proper use of portable ladders such as are acceptable to OSHA, as well as by built-in ladders and walkways. "Accessible" also includes components which can be reached by the safe use of an extension on the monitoring probe.

VIII.C.1.b. "Component" means any piece of equipment, which has the potential to leak volatile organic compounds when tested in the manner described in Paragraph 3. These sources include, but are not limited to, pumping seals, compressor seals, seal oil degassing vents, pipeline valves, flanges and other connections, pressure relief devices, process drains, and open ended pipes. Excluded from these sources are valves which are not externally regulated.

VIII.C.1.c. "Gaseous Service" means equipment which processes, transfers or contains a volatile organic compound or mixture of volatile organic compounds in the gaseous phase.

VIII.C.1.d. "In Heavy VOC Liquid Service" means that the piece of equipment is not in gaseous service or in light VOC liquid service.

VIII.C.1.e. "In Light Liquid VOC Service" Equipment is in light liquid service if the following conditions apply:

VIII.C.1.e.(i) the true vapor pressure of one or more of the components is greater than 0.3 kPa at 20°C. True vapor pressures may be obtained from standard reference texts or may be determined by ASTM D-2879.

VIII.C.1.e.(ii) the total concentration of the pure components have a true vapor pressure greater than 0.3 kPa at 20°C, is equal to or greater than 20 percent by weight; and

VIII.C.1.e.(iii) the fluid is a liquid at operating conditions.

VIII.C.1.f. "Refinery Unit" means a set of components which are a part of a basic process operation, such as, distillation, hydrotreating, cracking, or reforming of hydrocarbons.

VIII.C.1.g. "Water Draw" means a routinely used valve or system employing a valve which allows non-VOC material (usually water) to be separated from VOC.

VIII.C.2. Provisions for Specific Processes

VIII.C.2.a. The owner or operator of a petroleum refinery complex subject to this regulation shall:

VIII.C.2.a.(i) Develop a monitoring program consistent with the provisions in Paragraph 3.

VIII.C.2.a.(ii) Conduct a monitoring program consistent with the provisions in Subparagraph 4.a.

VIII.C.2.a.(iii) Record all leaking components which have a voc concentration exceeding 10,000 ppm when tested according to Paragraph 3., and place an identifying tag on each component consistent with the provisions in clause 4.a.(iii).

VIII.C.2.a.(iv) Repair and retest leaking components, as defined in clause (iii) above, as soon as possible, but no later than fifteen (15) days after the leak is found, excepting those specified in (v) and (vi) below

VIII.C.2.a.(v) Identify all leaking components (as defined in clause (iii) above), which cannot be repaired until the unit is shut down for turnaround, and repair and retest as in clause (iv) when the unit is back on stream.

VIII.C.2.a.(vi) When a component leak cannot be fixed within fifteen (15) working days solely because parts are not available, the following shall be noted in an "awaiting parts log:"

VIII.C.2.a.(vi)(A) component identification and tag number

VIII.C.2.a.(vi)(B) date part was ordered

VIII.C.2.a.(vi)(C) date part was received

VIII.C.2.a.(vi)(D) date repair was made

VIII.C.2.b. Except for safety pressure relief valves, no owner or operator of a petroleum refinery shall install or operate a valve at the end of a pipe or line containing volatile organic compounds unless the pipe or line is sealed with a second valve, a blind flange, a plug, or a cap. The sealing device may be removed only when a sample is being taken or when the valve is otherwise in use.

VIII.C.2.c. The Division, at its discretion, may require early unit turnaround based on the number and severity of tagged leaks awaiting turnaround provided:

VIII.C.2.c.(i) The requirement does not exceed reasonable available control technology due to cost per ton of emissions reduction achieved by the early turnaround or other reasonable analysis.

VIII.C.2.c.(ii) The Division provides the owner or operator of a petroleum refinery with written notification at least 180 days before requiring an early turnaround. The owner or operator will have 30 days from the date of the Division's notification to contest the requirement by submitting a demonstration that the requirement is beyond reasonable available control technology. If no demonstration is made, it will be assumed the requirement is reasonable. If a demonstration is submitted by the owner or operator, the Division will either approve the demonstration or disapprove the demonstration with a justification regarding the disapproval within 30 days of the date the demonstration is submitted to the Division.

VIII.C.2.c.(iii) The requirement is not contested by the owner or operator. Should the requirement be contested, the requirement for early unit turnaround will be delayed until 180 days after the demonstration discussed in item (ii) above is disapproved by the Division.

VIII.C.2.d. Piping valves and pressure relief valves in gaseous VOC service shall be marked in some manner that will be readily obvious to both refinery personnel performing monitoring and the Division, to identify them as components which are monitored quarterly.

VIII.C.3. Testing and Monitoring Procedures

Testing and calibration procedures to determine compliance with this regulation shall be consistent with EPA reference method 21 of 40 CFR Part 60. The reference compound may be methane or hexane. A leak is defined as a reading of 10,000 ppmv of the reference compound.

VIII.C.4. Monitoring, Recordkeeping, Reporting

VIII.C.4.a. Monitoring

VIII.C.4.a.(i) The owner or operator of a petroleum refinery subject to this regulation shall conduct a monitoring program consistent with the following provisions:

VIII.C.4.a.(i)(A) Monitor yearly by the method referenced in Paragraph 3., above, all:

VIII.C.4.a.(i)(A)(1) Pump seals; and

VIII.C.4.a.(i)(A)(2) Piping valves in light liquid VOC service; and

VIII.C.4.a.(i)(A)(3) Process drains; and

VIII.C.4.a.(i)(A)(4) Heat-exchanger body flanges; and

VIII.C.4.a.(i)(A)(5) Other accessible flanges in VOC service.

VIII.C.4.a.(i)(A)(6) Components in heavy liquid VOC service are exempt from requirements of this sub-clause (A).

VIII.C.4.a.(i)(B) Monitor quarterly by the method referenced in Paragraph 3. above, all:

VIII.C.4.a.(i)(B)(1) Compressor seals; and

VIII.C.4.a.(i)(B)(2) Piping valves in gaseous service; and

VIII.C.4.a.(i)(B)(3) Pressure relief valves in gaseous service.

VIII.C.4.a.(i)(C) Monitor at least weekly by visual methods all pump seals.

VIII.C.4.a.(i)(D) Monitor within 24 hours with a VOC detector and make record of any component from which VOC liquids are observed leaking.

VIII.C.4.a.(i)(E) Components in heavy liquid VOC service shall be monitored by the method referenced in Paragraph 3. above within five days if evidence of a potential leak is found by visual, audible, olfactory, or any other detectable method.

VIII.C.4.a.(ii) Inaccessible valves and flanges shall be monitored annually or, as a minimum, at unit shutdown using the procedures of VIII.C.2.a.(v). Pressure relief devices which are connected to an operating flare header or vapor recovery device, storage tank valves, and valves that are not externally regulated are exempt from the monitoring requirements in Paragraph (i) of this section.

VIII.C.4.a.(iii) The owner or operator of a petroleum refinery, upon the detection of a leaking component as defined in clause 2.a.(iii), shall affix a weatherproof and readily visible tag, bearing an identification number and the date the leak is located, to the leaking component. This tag shall remain in place until the leaking component is repaired. In addition, the owner or operator shall log the leak (including those leaks immediately repaired), per the requirements of Regulation Number 7, Section VIII.C.4.b.(i)-(iii).

VIII.C.4.b. Recordkeeping

VIII.C.4.b.(i) The owner or operator of a petroleum refinery shall maintain a leaking components monitoring log which shall contain at a minimum, the following data:

VIII.C.4.b.(i)(A) The name of the process unit where the component is located.

VIII.C.4.b.(i)(B) The type of component (e.g., valve, seal).

VIII.C.4.b.(i)(C) The tag number of the component.

VIII.C.4.b.(i)(D) The date on which a leaking component is discovered.

VIII.C.4.b.(i)(E) The date on which a leaking component is repaired.

VIII.C.4.b.(i)(F) The date and instrument reading found during the recheck procedure subsequent to repairing a leaking component.

VIII.C.4.b.(i)(G) A record of the calibration of the monitoring instrument.

VIII.C.4.b.(i)(H) Those leaks that cannot be repaired until turnaround.

VIII.C.4.b.(i)(I) The total number of components checked and the total number of components found leaking.

VIII.C.4.b.(i)(J) The total number of components subject to Section VIII.C.2.a (v) which upon retest were still leaking as defined in Paragraph 3 above.

VIII.C.4.b.(ii) Copies of the monitoring log shall be retained by the owner or operator for a minimum of two (2) years after the date on which the record was made or report prepared.

VIII.C.4.b.(iii) Copies of the monitoring log shall be made available to the Division upon oral or written request.

VIII.C.4.c. Reporting

The owner or operator of a petroleum refinery, upon the completion of each yearly and/or quarterly monitoring procedure, shall:

VIII.C.4.c.(i) Submit a report to the Division by the 15th day of February, May, August, and November that lists all leaking components that were located during the previous three (3) calendar months (quarter), but not repaired within fifteen (15) working days, all leaking components awaiting unit turnaround, the total number of components inspected, and the total number of components found leaking.

VIII.C.4.c.(ii) Submit a signed statement with the report attesting to the fact that, with the exception to those leaking components listed in clause 4.b.(i)(H), all monitoring and repairs were performed as stipulated in the monitoring program.