

**SUBCHAPTER 39. EMISSION OF VOLATILE ORGANIC COMPOUNDS (VOCs)
IN NONATTAINMENT AREAS AND FORMER NONATTAINMENT AREAS**

PART 7. SPECIFIC OPERATIONS

52:100-39-41. Storage, loading and transport/delivery of VOCs [AMENDED]

252:100-39-41.1. Gasoline vapor leak detection method by combustible gas detector [NEW]

252:100-39-41. Storage, loading and transport/delivery of VOCs

(a) **Storage of VOCs in vessels with storage capacities greater than 40,000 gallons.** Each vessel with a capacity greater than 40,000 gal (151 m³) which stores gasoline or any VOC shall be a pressure vessel capable of maintaining working pressures that prevent the loss of VOC vapor or gas to the atmosphere or shall be equipped with one or more of the following vapor control devices .

(1) An external floating roof, that consists of a pontoon-type or double-deck type cover or a fixed roof with an internal-floating cover. The cover shall rest on the surface of the liquid contents at all times (i.e. off the leg supports), except during initial fill, when the storage vessel is completely empty, or during refilling. When the cover is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible. The floating roof shall be equipped with a closure seal, or seals, to close the space between the cover edge and vessel wall. Floating roofs are not appropriate control devices if the VOCs have a vapor pressure of 11.1 psia (76.6 kPa) or greater under actual conditions. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place. Closure seals for fixed roof vessels with an internal-floating cover shall meet the requirements of 252:100-39-30(c)(1)(B)(i) and (ii). Closure seals for vessels with external floating roofs shall meet the requirements of 252:100-39-30(c)(1)(B)(i), (ii), and (iii).

(2) A vapor-recovery system that consists of a vapor-gathering system capable of collecting 90 percent by weight or more of the uncontrolled VOCs that would otherwise be emitted to the atmosphere and a vapor-disposal system capable of processing VOCs to prevent emissions in excess of 6.68×10^{-4} lb/gal (80 mg/l) of VOCs transferred . All vessel gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(3) Other equipment or methods that are of equal efficiency for purposes of air pollution control may be used

when approved by the Division Director and in concert with federal guidelines.

(b) Storage of VOCs in vessels with storage capacities of 400-40,000 gallons .

(1) Each gasoline or other VOC storage vessel with a nominal capacity greater than 400 gal (1.5 m³) and less than 40,000 gal (151 m³) shall be equipped with a submerged fill pipe or be bottom filled.

(2) The displaced vapors from each storage vessel with an average daily throughput of 30,000 gal (113,562 l) or greater which stores gasoline or other VOCs shall be processed by a system that has a total collection efficiency no less than 90 percent by weight of total VOCs in the vapors.

(A) The vapor recovery system shall include :

(i) a vapor-tight return line from the storage vessel to the delivery vessel and a system that will ensure that the vapor return line is connected before gasoline or VOCs can be transferred into the storage vessel; or,

(ii) other equipment that has a total collection efficiency no less than 90 percent by weight of the total VOCs in the displaced vapor if approval is obtained from the Division Director prior to start of construction.

(B) The requirements for vapor collection of displaced vapors shall not apply to operations that are not major sources.

(c) Loading of VOCs.

(1) Each VOC loading facility with an annual throughput of 120,000 gal (454,249 l) or greater or storage capacity greater than 10,000 gal (38 m³) shall be equipped with a vapor-collection and/or disposal system .

(2) While VOCs are loaded through the hatches of a transport vessel, a pneumatic, hydraulic or mechanical means shall be provided to ensure a vapor-tight seal at the hatch.

(3) A means shall be provided to prevent VOC drainage from the loading device when it is removed from the transport vessel, or to accomplish complete drainage before removal.

(4) When loading is by means other than hatches, all loading and vapor lines shall be equipped with fittings that make vapor-tight connections and which close automatically when disconnected.

(5) The vapor collection and/or disposal portion of the system shall consist of one or more of the elements listed in 252:100-39-41(c) (5)(A) through 252:100-39-42(c) (5)(C) in addition to bottom loading or submerged fill of transport vessels . Storage vessels at service stations and bulk plants may be used for intermediate storage prior to recovery/disposal of vapors as specified in 252:100-39-

41(c)(5)(A) through 252:100-39-41(c)(5)(C) if they are designed to prevent the release of vapors during use.

(A) An absorption/adsorption system or condensation system that has a minimum recovery efficiency of 90 percent by weight of all the VOC vapors and gases entering such disposal system .

(B) A vapor handling system which directs all vapors to a fuel gas incineration system with a minimum disposal efficiency of 95 percent .

(C) Other equipment that has at least a 90 percent efficiency, provided plans for such equipment are approved by the Division Director.

(6) Subsection 252:100-39-41(c) shall apply to any facility that loads VOCs into any transport vessel designed for transporting VOCs.

(d) **Transport/delivery.**

(1) The vapor-laden delivery vessel shall meet one of the following requirements .

(A) The delivery vessel must be designated and operated to be vapor tight except when sampling, gauging, or inspecting .

(B) The delivery vessel must be equipped and operated to deliver the VOC vapors to a vapor recovery/disposal system.

(2) No owner or operator shall allow a delivery vessel to be filled at a facility unable to receive displaced VOC vapors nor service vessels unable to deliver displaced vapors except for vessels and facilities exempted in 252:100-39-41(b) and 252:100-39-41(c).

(3) Testing of the tank trucks for compliance with the vapor tightness requirements must be consistent with Appendix "B" EPA Guideline Series Document, "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems," EPA 450/2-78-051, or an equivalent method as determined by the Division Director.

(e) **Additional requirements for Tulsa County.**

(1) **Applicability.** This subsection applies only in Tulsa County.

(2) **Storage of VOCs.**

(A) **2,000 - 40,000 gallons capacity.** Each storage vessel with a nominal capacity greater than 2,000 gal (7.6 m³) and less than 40,000 gal (151 m³) that stores gasoline or other VOCs or each storage vessel located at a facility that dispenses more than 120,000 gal/yr of gasoline or other VOCs, in addition to being equipped with a submerged fill pipe or being bottom loading, shall be equipped with a vapor control system. The vapor control system shall have an efficiency of no less than 90 percent by weight of the VOCs contained in the displaced vapors and shall be equipped with

a pressure relief valve in the atmospheric vent system which maintains a pressure of 16 oz/in.² and 1/2 oz/in.² vacuum. The vapor recovery system shall include one or more of the following.

(i) A vapor-tight return line from the storage vessel to the delivery vessel and a system that will ensure that the vapor return line is connected before gasoline or VOCs can be transferred into the storage vessel (i.e., popped connectors from the storage vessel to the delivery vessel.).

(ii) A float vent valve assembly installed in the vapor return/vent line on new and existing dual point installations; however, for coaxial installations on existing stations, a vent sleeve extending 6 in. (15 cm) below the top of the vessel will be allowed. Sleeves may be equipped with a 1/16 in. (0.16 cm) air bleed hole.

(iii) A vapor recovery line with a cross-sectional area that is at least half of the cross-sectional area of the liquid delivery line.

(iv) Other equipment that has a total collection efficiency no less than 90 percent by weight of the total VOCs in the displaced vapor if approved by Division Director prior to start of construction.

(B) **Applicability.**

(i) Any vessel with a capacity greater than 2,000 gal (7.6 m³) or any vessel located at a facility that dispenses more than 120,000 gal/yr (454,249 l/yr) shall be and will always remain subject to 252:100-39-41(e)(2). (effective February 12, 1990)

(ii) Exemptions to 252:100-39-41(e)(2) may be granted if the owner or operator shows to the satisfaction of the Division Director that the vessel is used exclusively for agricultural purposes.

(C) **Emission testing.** If emission testing is conducted, the appropriate test methods selected from EPA Methods 1 through 4, 18, 21, 25, 25A and 25B shall be utilized.

(D) **Compliance.** Compliance with 252:100-39-41(e)(2) shall be accomplished by the owner or operator of affected facilities by December 31, 1986.

(E) **Certification.** The owner or operator of a facility shall obtain, by whatever means practicable, certification from the owner or operator of the transport/delivery vessels that all deliveries of gasoline or other VOCs made to their 400-gallon to 40,000-gallon storage facility located in Tulsa County shall be made by transport/delivery vessels that comply with the requirements contained in 252:100-39-41(e)(4). Compliance with 252:100-39-41(e)(2) shall be accomplished by owners or operators of

affected facilities no later than December 31, 1990.
(Effective February 12, 1990)

(3) **Loading of VOCs.** In addition to those requirements contained in 252:100-39-41(c), stationary loading facilities shall be checked annually in accordance with EPA Test Method 21, Leak Test. Leaks greater than 5,000 ppmv shall be repaired within 15 days. Facilities shall retain inspection and repair records for at least two years.

(4) **Transport/delivery vessel requirements.** In addition to the requirements contained in 252:100-39-41(d), facilities located in Tulsa County must meet the following requirements.

(A) **Maintenance.**

(i) The delivery vessel must be maintained so that it is vapor tight except when sampling, gauging, or inspecting. These activities shall not occur while the vehicle is loading or unloading or is in a pressurized state.

(ii) The delivery vessel must be equipped, maintained, and operated to receive vapors from sources identified in 252:100-39-41(b)(1) and 252:100-39-41(b)(2) and retain these and all other vapors until they are delivered into an authorized vapor recovery/disposal system.

(iii) Vessels with defective equipment such as boots, seals, and hoses, or with other deficiencies that would impair the vessels' ability to retain vapors or liquid shall be repaired within 5 days.

(iv) The certified testing facility must certify to the approving agency that the proper testing and repairs have occurred in accordance with 252:100-39-41(e)(4)(B)(i). The vessel must also display on the rear panel a tag showing the date of the pressure test.

(v) No owner or operator shall allow a delivery vessel to be filled at a facility unable to receive displaced VOCs nor service vessels unable to deliver displaced vapors except for vessels/facilities exempted in 252:100-39-41(b). Terminal owners shall not fill vessels that do not display a current tag.

(vi) Delivery vessels may be inspected by representatives of the DEQ in order to determine their state of repair. Such a test may consist of a visual inspection or a vapor test with vapors not to exceed 5,000 ppmv. Failure of a vapor test shall require the owner or operator to make the necessary repairs within 10 days. Failure to certify within 10 days of a vapor test that the necessary repairs have been made shall subject the owner or operator to sanctions. Upon certification of repairs, the vessel will be allowed to resume normal operation.

(B) **Testing requirements.**

(i) **Pressure test.**

(I) Delivery vessels, delivering or receiving gasoline must be tested one time per year for vapor tightness. The vapor tightness test must be consistent with Appendix "A" EPA Guideline Series Document, "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", EPA 450/2-78-051. Tests shall be performed by the owner or a transport service company. Test methods used to test these vessels by owners or testing companies must be approved for use by the Division Director.

(II) The vessel shall be considered to pass the test prescribed in 252:100-3941(e) (4)(B)(i)(I) when the test results show that the vessel and its vapor collection systems do not sustain a pressure change of more than 3 in. H₂O. There shall be no avoidable visible liquid leaks.

(ii) **Vapor test.** Testing of the tank trucks for compliance with vapor tightness requirements as required under 252:100-39-41(e)(4)(A)(vi) must be consistent with Appendix "B" EPA Guideline Series Document, "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", EPA 405/2-78-051, as modified for this purpose and contained in Section 252:100-43-15252:100-39-41.1. The requirements of 252:100-39-41(e) took effect December 15, 1988.

252:100-39-41.1. Gasoline vapor leak detection method by combustible gas detector

(a) **Principle.** A combustible gas detector is used to indicate any incidence of leakage from gasoline truck tanks and vapor control systems. This qualitative monitoring procedure is an enforcement tool to confirm the continuing existence of leak-tight conditions.

(b) **Definitions.** The following words and terms, when used in this Section, shall have the following meaning, unless the context clearly indicates otherwise:

(1) **"Truck tank"** means any container, including associated pipes and fittings, that is used for the transport of gasoline.

(2) **"Truck tank vapor collection equipment"** means any piping, hoses, and devices on the truck tank used to collect and route the gasoline vapors in the tank to the bulk terminal, bulk plant, or service station vapor control system.

(3) **"Vapor control system"** means any piping, hoses, equipment, and devices at the bulk terminal, bulk plant, or service station, which is used to collect, store, and/or process gasoline vapors.

(c) **Applicability.** The gasoline vapor leak detection procedure by combustible gas detector is applicable to

determining the leak-tightness of gasoline truck tanks during loading without taking the truck tank out of service. The method is applicable only if the vapor control system does not create back-pressure in excess of the pressure limits of the truck tank compliance leak test. For vapor control systems, this method is applicable to determining leak-tightness at any time.

(d) Apparatus and specifications.

(1) **Manometer.** Liquid manometer, or equivalent, capable of measuring up to 6250 pascals (25 inches H₂O) gauge pressure with +25 pascals (0.1 inch H₂O) precision shall be used.

(2) **Combustible gas detector.** A portable hydrocarbon gas analyzer with associated sampling line and probe having the following specification shall be used.

(A) **Safety.** The detector shall be certified as safe for operation in explosive atmospheres.

(B) **Range.** The minimum range for the detector shall be 0-100 percent of the lower explosive limit (LEL) as propane.

(C) **Probe diameter.** The sampling probe shall have an internal diameter of 0.625 cm (1/4 inch).

(D) **Probe length.** The probe sampling line shall be of sufficient length for easy maneuverability during testing.

(E) **Response time.** The response time for full-scale deflection shall be less than 8 seconds for detector with sampling line and probe attached.

(e) Test procedure.

(1) **Pressure.** Place a pressure tap in the terminal, plant, or service station vapor control system, as close as possible to the connection with the truck tank. Record the pressure periodically during testing.

(2) **Calibration.** Calibrate the combustible gas detector with 2.2 percent propane by volume in air for 100 percent LEL response.

(3) **Monitoring procedure.** During loading or unloading, check the periphery of all potential sources of leakage of the truck tank and of the terminal, plant, or service station vapor collection system with a combustible gas detector.

(A) **Probe distance.** The probe inlet shall be 2.5 cm from the potential leak source.

(B) **Probe movement.** Move the probe slowly (2.0 cm/second). If there is any meter deflection at a potential leak source, move the probe to locate the point of highest meter response.

(C) **Probe position.** As much as possible, the probe inlet shall be positioned in the path of (parallel to) the vapor flow from a leak.

(D) **Wind.** Attempt as much as possible to block the wind from the area being monitored.

(4) **Recording.** Record the highest detector reading and location for each incidence of leakage.