

Chapter NR 420

**CONTROL OF ORGANIC COMPOUND EMISSIONS FROM
PETROLEUM AND GASOLINE SOURCES**

NR 420.01	Applicability; purpose	NR 420.045	Motor vehicle fueling
NR 420.02	Definitions	NR 420.05	Petroleum refinery sources
NR 420.03	Storage of petroleum liquids		
NR 420.04	Transfer operations and associated equipment		

NR 420.01 Applicability; purpose. (1) **APPLICABILITY.** This chapter applies to all petroleum and gasoline air contaminant sources and to their owners and operators.

(2) **PURPOSE.** This chapter is adopted under ss. 144.31 and 144.38, Stats., to categorize organic compound emissions from petroleum and gasoline sources into a separate organic compound air contaminant source category and to establish emission limitations for this category of sources in order to protect air quality.

History: Cr. Register, September, 1986, No. 369, eff. 10-1-86; am. Register, February, 1990, No. 410, eff. 3-1-90.

NR 420.02 Definitions. The definitions in this section apply to the terms used in chs. NR 420 to 425. In addition, the definitions in chs. NR 400 and 419 apply to the terms used in this chapter.

(1) "Accumulator" means the reservoir of a condensing unit receiving the condensate from the condenser. This includes hot wells.

(5) "Average monthly storage temperature" means an arithmetic average calculated for each calendar month, or portion thereof if storage is for less than a month, from bulk petroleum liquid storage temperatures determined at least once every 7 days.

(6) "Bottom filling" means the filling of a tank truck or stationary storage tank through an opening that is flush with or near the tank bottom.

(8) "Bulk gasoline terminal" means a gasoline storage facility which receives gasoline from refineries primarily by pipeline, ship, or barge, and delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by tank truck.

(8m) "California air resources board certified" means a vapor recovery system or system component that has been certified by the California air resources board pursuant to section 41954 of the California health and safety code.

(9) "Component" means, for purposes of petroleum refineries, any piece of equipment at a refinery which has the potential to leak VOCs. These pieces of equipment 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 pieces of equipment are valves which have no external controls, such as in-line check valves.

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

(11) "Condenser" means any heat transfer device used to liquefy vapors by removing their latent heats of vaporization. Such devices include, but are not limited to, shell and tube, coil, surface, or contact condensers.

(13) "Crude petroleum" means a naturally occurring mixture which consists of hydrocarbons; or sulfur, nitrogen and oxygen derivatives of hydrocarbons, and which is liquid at standard conditions.

(14) "Custody transfer" means the transfer of produced crude petroleum or condensate, after processing or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

(15) "Delivery vessel" means a tank truck or trailer or a railroad tank car equipped with a storage tank used for the transport of gasoline from sources of supply to stationary storage tanks of bulk gasoline plants or gasoline dispensing facilities.

(16) "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.

(17) "Forebays" means the primary sections of a wastewater separator.

(18) "Fuel gas" means any gas which is generated by a petroleum refinery process unit or by a petroleum liquid transfer operation and which is combusted, or any gaseous mixture of such gas and natural gas which is combusted.

(20) "Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks.

(21) "Gaseous service" means petroleum refinery equipment which processes, transfers or contains a VOC or mixture of VOCs in the gaseous phase.

(22) "Leaking component" means any component at a petroleum refinery which has a VOC concentration exceeding 10,000 ppm when tested in the manner approved by the department.

(23) "Liquid-mounted seal" means a primary floating roof seal mounted in continuous contact with the liquid in a liquid organic compound storage tank between the tank wall and the floating roof around the internal circumference of the tank.

(24) "Liquid service" means petroleum refinery equipment which processes, transfers or contains a VOC or mixture of VOCs in the liquid phase.

(24m) "Liquid tight" means having a liquid leak rate not exceeding 0.10 gallons per hour when measured with a $\pm 5\%$ accuracy.

(25) "Lower explosive limit" or "LEL" means the lower limit of flammability of a gas or vapor at ordinary ambient temperatures expressed as percent propane in air by volume.

- a. The results of inspections conducted under subds. 5. and 6.; and
- b. The information required under sub. (3).

(6) EXTERNAL FLOATING ROOF VESSELS. (a) *Applicability.* This subsection applies, subject to the provisions of s. NR 425.03 (4) or (5), to all storage vessels equipped with external floating roofs having capacities greater than 151,412 liters (40,000 gallons) with the exception of:

1. Storage vessels having capacities less than 1,500,000 liters (396,270 gallons) used to store crude petroleum and condensate prior to custody transfer.
2. Storage vessels used to store waxy, heavy pour crude petroleum.
3. Storage vessels used solely for petroleum liquids with a true vapor pressure of less than 10.5 kPa (1.52 psia).
4. Storage vessels used solely for petroleum liquids with a true vapor pressure of less than 27.6 kPa (4.0 psia), and which are of welded construction, and presently possess a metallic-type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid filled type seal, or equally effective alternative control, approved by the department.
5. Storage vessels of welded construction, equipped with metallic-type shoe primary seal which has a secondary seal from the top of the shoe seal to the tank wall.

(b) *Storage requirements.* No owner or operator of a storage vessel equipped with an external floating roof to which this subsection applies may permit such storage vessel to be used for storing any petroleum liquid unless:

1. The vessel has been fitted with a continuous secondary seal extending from the floating roof to the tank wall, or the vessel has been fitted with an equally effective alternative control, approved by the department; and
2. The vessel is maintained such that all seal closure devices meet the following requirements:
 - a. There are no visible holes, tears, or other openings in the seal or any seal fabric or material;
 - b. The seal or seals are intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall; and
 - c. For vapor-mounted seals, the accumulated area of gaps exceeding 0.32 cm (1/8 in) in width between the secondary seal and tank wall may not exceed 21.2 cm² per meter (1.00 in² per foot) of tank diameter; and
3. All openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves, are:
 - a. Equipped with covers, seals, or lids kept in the closed position except when in actual use; and
 - b. Equipped with projections into the tank which remain below the liquid surface at all times; and

4. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and

5. Rim vents are set to open only when the roof is being floated off the leg supports or at the manufacturer's recommended setting; and

6. Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers which cover at least 90% of the area of the opening; and

7. Routine visual inspections are conducted of all seals and seal closure devices at monthly intervals during the ozone season; and

8. The secondary seal gap of vapor-mounted seals is measured annually, in a manner approved by the department; and

9. Records are maintained and retained for a minimum of 2 years that shall include:

a. The results of inspections conducted under subds. 7 and 8; and

b. The information required under sub. (3) (a) and (b) (intro.).

(7) EXTERNAL FLOATING ROOF VESSELS WITH NO SECONDARY SEAL REQUIREMENT. (a) *Applicability.* This subsection applies to all storage vessels with capacities greater than 151,412 liters (40,000 gallons) equipped with external floating roofs operating without secondary seals or their approved equivalent pursuant to sub. (6) (a) 1 to 4.

(b) *Recordkeeping.* The owner or operator of a petroleum liquid storage vessel with an external floating roof not covered under sub. (6) but containing a petroleum liquid with a true vapor pressure greater than 7.0 kPa (1.0 psia), shall maintain and retain for at least 2 years records of the average monthly storage temperature, the type of liquid, throughput quantities and the maximum true vapor pressure for all petroleum liquids with a true vapor pressure greater than 7.0 kPa (1.0 psia).

(8) ALTERNATIVE CONTROL. Any alternative control method approved by the department under sub. (2), (5) (b) 2 or (6) (b) 1 shall be submitted to, and will not become effective for federal purposes until approved by, the administrator of the U.S. environmental protection agency or designee as a source-specific revision to the department's state implementation plan for ozone.

History: Renum. from NR 154.13 (2) (a) and am. Register, September, 1986, No. 369, eff. 10-1-86; am. (1) (intro.), (4) (b) (intro.) (5) (a), (b) (intro.) and 7. b., (6) (a) (intro.), (b) (intro.) and 2. c. and (7) (a), Register, February, 1990, No. 410, eff. 3-1-90; am. (1) (a) and (3) (c), Register, May, 1992, No. 437, eff. 6-1-92; am. (1) (e), (2) (a) and (b), (5) (b) 6., cr. (8), Register, December, 1993, No. 456, eff. 1-1-94.

NR 420.04 Transfer operations and associated equipment. (1) BULK GASOLINE TERMINALS. (a) *Applicability.* This subsection applies, subject to the provisions of s. NR 425.03, to all bulk gasoline terminals and the associated equipment necessary to load tank truck or trailer compartments.

(b) *Vapor control system.* No person may load gasoline into any tank trucks or trailers from any bulk gasoline terminal unless:

1. The bulk gasoline terminal is equipped with a vapor control system which is properly installed, in good working order, in operation and consisting of one of the following: