Chapter NR 420

CONTROL OF ORGANIC COMPOUND EMISSIONS FROM PETROLEUM AND GASOLINE SOURCES

Note: Corrections made under s. 13.93 (2m) (b) 6. and 7., Stats., Register, December, 1996, No. 492.

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. 285.11, 285.13 and 285.17, 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 contained in chs. NR 400 and 419 apply to the terms used in this chapter. In addition, the following definitions apply to the terms used in this chapter and chs. NR 421 and 425:

(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 ±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.

(26) "Noncondensibles" means gases and vapors from processes that are not condensed with the equipment used in those processes.

(27) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, coal and coke.

(29) "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, extraction or reforming of unfinished petroleum derivatives.

(29m) "Process gas" means any gas generated by a petroleum refinery process unit except fuel gas and process upset gas as defined in this section.

(29p) "Process upset gas" means any gas generated by a petroleum refinery process unit as a result of startup, shutdown, upset or malfunction.

(30) "Refinery process unit" means any segment of a petroleum refinery in which a specific processing operation is conducted.

(31) "Reid vapor pressure" means the absolute vapor pressure of volatile crude petroleum and volatile nonviscous petroleum liquids except liquefied petroleum gases as determined by ASTM D323−08, incorporated by reference in s. NR 484.10 (6).

(32) "Splash filling" means the filling of a tank truck or stationary storage tank through a pipe or hose whose discharge opening is more than 15.2 centimeters (6 inches) above the bottom of the tank being filled.

(32m) "Top off" means to attempt to dispense more gasoline to a motor vehicle fuel tank after the vapor recovery dispensing nozzle has shut off.

(33) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute Publication 2517, *Evaporative Loss from External Floating Roof Tanks*, 3rd edition, February 1989, incorporated by reference in s. NR 484.11.

(34) "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.

(35) "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.

(36) "Vapor balance system" means a combination of pipes or hoses which create a closed system between the vapor spaces of an unloading tank and a receiving tank such that vapors displaced from the receiving tank are transferred to the tank being unloaded.

(37) "Vapor collection system" means, for the purpose of liquid organic compound transfer operations, a vapor transport system which uses direct displacement by the liquid loaded to force vapors from the tank into a vapor control system or vapor holding tank.

(38) "Vapor−mounted seal" means any primary floating roof seal mounted so that there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

(38m) "Vapor recovery assist system" means a vapor control system which employs a pump, blower or other vacuum inducing device to collect or process vapors generated during motor vehicle fueling operations.

(39) "Vapor recovery or control system" means a system that gathers organic compound vapors released during the operation of any transfer, storage, or process equipment and processes the vapors so as to prevent their emission into the ambient air.

(39m) "Vapor tight" means having the detection of less than 10,000 ppm hydrocarbon concentration, as determined by Method 21 in Appendix A of 40 CFR part 60, incorporated by reference in s. NR 484.04 (17), at a distance of one inch from the source.

(40) "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. This includes any device, such as a flocculation tank, clarifier, etc., which removes petroleum derived compounds from wastewater.

(41) "Waxy, heavy pour crude petroleum" means a crude petroleum with a pour point of 10°C (50°F) or higher as determined by ASTM D97−02, incorporated by reference in s. NR 484.10 (2).

History: Renum from NR 154 01, Register, September, 1986, No 369, eff 10−1−86; renum (2), (3), (4), (7) and (12) to be NR 419 02 (1), 400 02 (11m), (16e), (21m) and (26m), r (19), am (21), (29m) and (29p) renum from NR 420 02 (71) and (72), Register, February, 1990, No 410, eff 3−1−90; am (31), (33) and (41), Register, May, 1992, No 437, eff 6−1−92; cr (8m), (24m), (32m), (38m) and (39m), Register, January, 1993, No 445, eff 2−1−93; am (31), (33), (39m), (41), Register, February, 1995, No 470, eff 3−1−95; am (intro), renum (28) to be NR 419 02 (13), Register, December, 1995, No 480, eff 1−1−96; am (41), Register, December, 1996, No 492, eff 1−1−97; am (intro), (31) and (41), Register, October, 1999, No 526, eff 11−1−99; CR 02−146: am (31) and (41) Register October 2003 No 574, eff 11−1−03 correction in (33) and (39m) made under s 13 93 (2m) (b) 7 , Stats , Register October 2003, No 574; **CR 11−005: am. (31) Register January 2012 No. 673, eff. 2−1−12.**

NR 420.03 Storage of petroleum liquids. (1) APPLICABILITY The storage, recordkeeping and maintenance requirements of subs. (2), (3) and (4) apply to all storage vessels for petroleum liquids of more than 151,412 liter (40,000 gallon) capacity on which construction or modification is commenced after July 1, 1975, with the exception of:

(a) Storage vessels being used for number 2 through number 6 fuel oils as specified in ASTM D396−02, gas turbine fuel oils numbers 2−GT through 4−GT as specified in ASTM D2880−00, or diesel fuel oils numbers 2−D and 4−D as specified in ASTM D975−02. These ASTM standards are incorporated by reference in s. NR 484.10 (8), (13) and (40).

(b) Storage vessels for the crude petroleum or condensate stored, processed or treated at a drilling and production facility outside a metropolitan county prior to custody transfer.

(c) Pressure vessels which are designed to operate at pressures in excess of 104 kPa (15 psig) without emissions except under emergency conditions.

(d) Subsurface caverns or porous rock reservoirs.

(e) Horizontal underground storage tanks used to store JP−4 jet fuel.

(2) STORAGE REQUIREMENTS The owner or operator of any storage vessel to which this section applies shall store petroleum liquids as follows:

(a) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 10.5 kPa (1.52 psia) but not greater than 77 kPa (11.1 psia), the storage vessel shall be equipped with a floating roof, a vapor recovery system or an equally effective alternative control method approved by the department.

(b) If the true vapor pressure of the petroleum liquid, as stored, is greater than 77 kPa (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or an equally effective alternative control method approved by the department.

(3) RECORDKEEPING (a) *General records.* The owner or operator of any storage vessel to which this section applies shall, for each such storage vessel, maintain a file of each type of petroleum liquid stored, the typical Reid vapor pressure of each type of petroleum liquid stored and the dates of storage. Dates on which the storage vessel is empty shall be indicated.

(b) *Vapor pressure dependent records.* The owner or operator of any storage vessel to which this section applies shall, for each such storage vessel, determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at that temperature if one of the following applies:

1. The petroleum liquid has a true vapor pressure, as stored, greater than 3.5 kPa (0.51 psia) but less than 10.5 kPa (1.52 psia) and is stored in a vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents.

2. The petroleum liquid has a true vapor pressure, as stored, greater than 63 kPa (9.1 psia) and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent.

(c) *Vapor pressure determination.* The true vapor pressure shall be determined by application of the procedures in API Publi-