

Chapter NR 420

CONTROL OF ORGANIC COMPOUND EMISSIONS FROM
PETROLEUM AND GASOLINE SOURCES

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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 .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.

(28) "Petroleum liquid" means crude petroleum, petroleum, condensate and any finished or intermediate products manufactured or extracted in a petroleum refinery or in a facility which produces oils from tar sands, shale, coal or 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 D323-89, incorporated by reference in ch. NR 484.

(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 ch. NR 484.

(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 or 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 ch. NR 484, 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, clarifer, 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 D97-87, incorporated by reference in ch. NR 484.

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.

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 D396-89a, gas turbine fuel oils numbers 2-GT through 4-GT as specified in ASTM D2880-89, or diesel fuel oils numbers 2-D and 4-D as specified in ASTM D975-89a. These ASTM standards are incorporated by reference in ch. NR 484.

(b) Storage vessels for the crude petroleum or condensate stored, processed or treated at a drilling and production facility outside a standard metropolitan statistical area 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) Underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.

(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 their equivalents.

(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 its equivalent.

(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

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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 such temperature if:

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; or

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 Publication 2517, 3rd edition, incorporated by reference in ch. NR 484, in accord with this paragraph. This procedure is dependent upon determination of the average monthly storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the department requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, that Reid vapor pressure may be used. For other liquids, supporting analytical data shall be made available on request to the department when typical Reid vapor pressure is used.

(4) **EQUIPMENT MAINTENANCE.** (a) *Applicability.* In addition to the vessels identified in sub. (1) this subsection applies to all storage vessels for petroleum liquids of more than 7,571 liter (2,000 gallon) capacity.

(b) *Requirements.* No person may place, hold or store in a storage vessel any petroleum liquid which has a true vapor pressure as stored greater than 10.5 kPa (1.52 psia) unless:

1. Any tank surface exposed to the rays of the sun is painted and maintained white so as to prevent excessive temperature and vapor pressure increases; and

2. The seals of any floating roof are maintained so as to minimize emissions; and

3. All gauging and sampling devices are vapor-tight except when gauging or sampling is taking place.

(5) **FIXED ROOF VESSELS.** (a) *Applicability.* This subsection applies, subject to the provisions of s. NR 425.03, to all fixed roof storage vessels with capacities greater than 151,412 liters (40,000 gallons) with the exception of those having capacities less than 1,600,000 liters (416,000 gallons) used to store crude petroleum and condensate prior to custody transfer.

(b) *Storage requirements.* No owner or operator of a fixed roof storage vessel to which this subsection applies may permit such storage vessel to

be used for storing any petroleum liquid which has a true vapor pressure as stored greater than 10.5 kPa (1.52 psia), unless:

1. The vessel has been retrofitted with an internal floating roof equipped with a closure seal, or seals, to close the space between the roof edge and tank wall; or

2. The vessel has been retrofitted with equally effective alternative control, approved by the department; and

3. The vessel is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials; and

4. All openings, except stub drains, are equipped with covers, lids, or seals such that:

a. The cover, lid or seal is in the closed position at all times except when in actual use; and

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

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

5. Routine inspections are conducted through roof hatches at monthly intervals during the ozone season; and

6. A complete inspection of cover and seal is conducted whenever the tank is emptied, though not more frequently than at 6 month intervals nor less frequently than at 8 year intervals; and

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

a. The results of inspections conducted under subs. 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 ves-

sels 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).

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.

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:

a. An adsorber, absorption, refrigeration or condensation system; or
b. A vapor collection system which directs all vapors to a fuel gas system; or

c. A control system demonstrated to have control efficiency equivalent to or greater than subpar. a. or b. and approved by the department; and

2. All displaced vapors and gases are vented only to the vapor control system; and

3. A means is provided to prevent liquid drainage from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected; and

4. All loading and vapor lines are equipped with fittings which make vapor-tight connections and which close automatically when disconnected.

(c) *Emission limitation.* The vapor control system required under par. (b) 1 may not allow mass emissions of VOCs from control equipment to exceed 80 milligrams per liter (4.7 grains per gallon) of gasoline loaded.

(d) *Operating requirements.* The vapor collection system and the gasoline loading equipment shall be designed and operated in a manner that prevents:

1. Gauge pressure from exceeding 4.5 kPa (18 inches of H₂O) and vacuum from exceeding 1.5 kPa (6 inches of H₂O) in the gasoline tank truck;

2. A reading equal to or greater than 100% of the LEL at 2.5 centimeters from all points on the perimeter of a potential leak source;

3. Avoidable visible liquid leaks during loading or unloading operations.

(e) *Repair deadline.* Provisions shall be made to repair and retest a vapor collection or control system that exceeds the limits of par. (d) 2 within 15 days.

(f) *Precautions.* Sources to which this subsection applies may not:

1. Allow gasoline to be discarded in sewers or stored in open containers, s. NR 419.04 notwithstanding; nor

2. Allow the pressure in the vapor collection system to exceed the tank truck or trailer pressure relief settings.

(g) *Truck sticker.* No person may load gasoline into any tank truck or trailer from any bulk gasoline terminal unless the tank truck displays a current sticker demonstrating that the truck is in compliance with sub. (4).

(2) BULK GASOLINE PLANTS. (a) *Applicability.* Subject to the provisions of s. NR 425.03, this subsection applies to the loading and storage facilities of all bulk gasoline plants which have a 3 year average annual throughput of 1,330,000 liters (350,000 gallons) of gasoline or more; to the unloading, loading, and storage facilities of all bulk gasoline plants which have a 3 year average annual throughput of 3,800,000 liters (1,000,000 gallons) of gasoline or more; and to all delivery vessels involved in such loading or unloading operations, with the following exceptions:

1. The loading or unloading of stationary storage tanks with a capacity of 2,176 liters (575 gallons) or less, notwithstanding s. NR 439.10.

2. Bulk plant unloading facilities, the delivery vessels receiving gasoline from bulk plants, and the operation of transferring gasoline from bulk plant to delivery vessel when the transfer takes place outside the counties of Brown, Calumet, Dane, Dodge, Door, Fond du Lac, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago or when the gasoline is delivered exclusively to facilities exempted from the requirements of sub. (3) by sub. (3) (a) 1, 2, 3, 4, 5 or 6. However, this subsection does apply if gasoline is transferred during the ozone season to a delivery vessel whose last previous delivery was to a gasoline dispensing facility (either inside or outside of Wisconsin) which is required to have a vapor balance system.

(b) *Equipment requirements for bulk plants.* No owner or operator of a bulk gasoline plant may permit stationary storage tanks to load or unload gasoline unless each tank is equipped with a vapor balance system as described under par. (e) and approved by the department; and

1. Each tank is equipped with a submerged fill pipe approved by the department; or

2. Each tank is equipped with a fill line whose discharge opening is flush with or near the bottom of the tank.

(c) *Equipment requirements for delivery vessels.* No owner or operator of a bulk gasoline plant or delivery vessel may permit the gasoline transfer operations regulated under this subsection unless each delivery vessel in-

involved in such operations is equipped with a vapor balance system as described under par. (e) and approved by the department; and

1. Equipment is available at the bulk gasoline plant to provide for the submerged filling of each delivery vessel; or
2. Each delivery vessel is equipped for bottom filling; and
3. After October 1, 1981, the tank truck displays a current sticker demonstrating that the truck is in compliance with sub. (4).

(d) *Transfer requirements.* No owner or operator of a bulk gasoline plant or delivery vessel may permit the transfer of gasoline unless:

1. Submerged or bottom filling is used; and
2. The vapor balance system is in good working order and is connected and operating; and
3. Delivery vessel hatches are closed at all times during transfer operations; and
4. There are no leaks in the delivery vessels' pressure-vacuum relief valves and hatch covers, nor in the delivery vessel tanks or stationary storage tanks or associated vapor and liquid lines during loading or unloading; and

5. The pressure relief valves on stationary storage tanks and delivery vessels are set to release at no less than 4.8 kPa (0.7 psig), or the highest possible pressure consistent with state or local fire codes or the national fire prevention association guidelines.

(e) *Vapor balance system.* Vapor balance systems required under pars. (b) and (c) shall include vapor space connections on the stationary storage tank and on the delivery vessel with connecting pipe or hose. These connections are required either for loading of the bulk plant storage tank only or for both loading and unloading, as indicated in par. (a). Both sides of all junctions shall be equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of organic compound vapors.

(f) *Operating requirements.* The vapor collection system and the gasoline loading equipment shall be designed and operated in a manner that prevents:

1. Gauge pressure from exceeding 4.5 kPa (18 inches of H₂O) and vacuum from exceeding 1.5 kPa (6 inches of H₂O) in the gasoline tank truck;
2. A reading equal to or greater than 100% of the LEL at 2.5 centimeters from all points on the perimeter of a potential leak source;
3. Avoidable visible liquid leaks during loading or unloading operations.

(g) *Repair deadline.* Provisions shall be made to repair and retest a vapor collection or control system that exceeds the limits of par. (f) 2. within 15 days.

(h) *Precautions.* Notwithstanding s. NR 419.04, no owner or operator of a bulk gasoline plant may permit gasoline to be spilled, discarded in sewers or stored in open containers.

(3) **GASOLINE DISPENSING FACILITIES.** (a) *Applicability.* Subject to the provisions of s. NR 425.03, this subsection applies to gasoline dispensing facilities, to the delivery vessels used to bring these facilities the gasoline which they dispense, and to the operation of transferring gasoline to the dispensing facilities with the following exceptions:

1. Gasoline dispensing facilities which are supplied exclusively by bulk gasoline plants whose unloading operations are exempted from the requirements of sub. (2) by sub. (2) (a) 1.

2. Gasoline dispensing facilities located outside the counties of Brown, Calumet, Dane, Dodge, Door, Fond du Lac, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago.

3. Delivery vessels used exclusively to supply exempt gasoline dispensing facilities or used exclusively for the transfer operations exempted under subs. 4. to 6.

4. Transfers made to storage tanks of gasoline dispensing facilities equipped with floating roofs or their equivalent which have been approved by the department.

5. Transfers made to any stationary storage tank at a gasoline dispensing facility with a capacity of 7,580 liters (2,000 gallons) or less which is in place on or before August 1, 1979.

6. Transfers made to any stationary storage tank at a gasoline dispensing facility with a capacity of 2,176 liters (575 gallons) or less which is installed after August 1, 1979.

(b) *Vapor control requirements.* No owner or operator of a gasoline dispensing facility and no owner of a gasoline storage tank at such a facility may transfer or cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank not excluded under par. (a) unless:

1. The storage tank is equipped with a submerged fill pipe, and

2. The vapors displaced from it by filling are processed by a vapor control system in accordance with par. (c), and

3. After October 1, 1981, the tank truck displays a current sticker demonstrating that the truck is in compliance with sub. (4).

(c) *Vapor control system.* The vapor control system required by par. (b) shall include one or more of the following:

1. A vapor balance system with a vapor-tight vapor return line from the storage tank to the delivery vessel and a system that will ensure the vapor line is connected before gasoline can be transferred into the storage tank; or

2. A refrigeration-condensation system or equivalent capable of recovering at least 90% by weight of the organic compounds in the displaced vapor; or

3. A system demonstrated to have control efficiency equivalent to or greater than that provided under subd. 1 or 2 and approved by the department.

(d) *Operating requirements.* The vapor collection system and the gasoline loading equipment shall be designed and operated in a manner that prevents:

1. Gauge pressure from exceeding 4.5 kPa (18 inches of H₂O) and vacuum from exceeding 1.5 kPa (6 inches of H₂O) in the gasoline tank truck;
2. A reading equal to or greater than 100% of the LEL at 2.5 centimeters from all points on the perimeter of a potential leak source;
3. Avoidable visible liquid leaks during loading or unloading operations.

(e) *Delivery vessel unloading.* The operator of a delivery vessel may not commence transfer of gasoline to any gasoline dispensing facility equipped with a vapor balance system pursuant to par. (c) 1 without first properly connecting the vapor return line. The delivery vessel shall be designed, maintained and operated to be vapor tight at all times that it is vapor-laden.

(f) *Delivery vessel refilling.* During the ozone season, vapor-laden delivery vessels shall be refilled in Wisconsin only at:

1. Bulk gasoline terminals complying with sub. (1); or
2. Bulk gasoline plants equipped with a vapor balance system for unloading as described in sub. (2) (e).

(g) *Control equipment installation and maintenance.* Each owner of a gasoline storage tank or delivery vessel shall:

1. Install all necessary control systems and make all necessary process modifications in accordance with sub. (3) (b), (c), (d) and (e); and
2. Repair, replace or modify any worn out or malfunctioning component or element of design, and keep such records as may be requested in writing by the department relating to the repair, replacement or modification of any component or element of design of the control system.
3. Repair and retest a vapor collection or control system that exceeds the limits of par. (d) 2 within 15 days.

(h) *Control equipment operating and maintenance instructions.* Each owner of a gasoline storage tank shall provide written instructions to the operator of the gasoline dispensing facility describing necessary operating and maintenance procedures and procedures for prompt notification of the owner in case of any malfunction of the control system.

(i) *Control system operation and maintenance requirements.* Each operator of a gasoline dispensing facility shall:

1. Maintain and operate the control system in accordance with the specifications and the operating and maintenance procedures specified by the owner; and
2. Promptly notify the owner of the control system of any scheduled maintenance or of any malfunction requiring replacement or repair of major components of the system; and

3. Keep on the premise a copy of the instructions provided pursuant to par. (h) and make these instructions available to an authorized representative of the department on request; and

4. Maintain such records on maintenance and malfunction as may be requested in writing by the department; and

5. Maintain gauges, meters, or other specified testing devices in proper working order.

(4) GASOLINE DELIVERY VESSELS. (a) *Applicability.* This subsection applies, with compliance deadlines in accord with the compliance schedules for subs. (1) to (3), to all gasoline delivery vessels except those exempted from vapor balance system installations under subs. (2) (a) and (3) (a) 3.

(b) *Equipment requirements.* Except as provided under par. (a), the owner or operator of a gasoline delivery vehicle shall:

1. Provide for all gasoline delivery vessels to be equipped for gasoline vapor collection.

2. Provide for all loading and vapor lines to be equipped with fittings which make vapor-tight connections.

3. Equip vapor lines leading to the vapor space in the delivery vessel with fittings which close automatically when disconnected.

4. Demonstrate through the sticker required in subd. 5 that the gasoline delivery vessel is in compliance with the following provisions:

a. An annual pressure test shall be performed on the vessel according to the test methods and procedures specified in s. NR 439.06 (3) (d);

b. The vessel may not sustain a pressure change of more than 0.75 kPa (3 inches of H₂O) in 5 minutes when pressurized to a gauge pressure of 4.5 kPa (18 inches of H₂O) or evacuated to a gauge pressure of 1.5 kPa (6 inches of H₂O) during the test required in subpar. a.; and

c. A vessel failing to meet the requirements of subpar. b. shall be repaired and retested within 15 days.

5. Display a sticker near the department of transportation certification plate which:

a. Shows the date that the gasoline delivery vessel was last certified under subd. 4;

b. Shows the identification number of the gasoline delivery vessel.

6. Design and operate the gasoline loading and unloading equipment in a manner that prevents:

a. A reading equal to or greater than 100% of the LEL at 2.5 centimeters from all points on the perimeter of a potential leak source; and

b. Avoidable visible liquid leaks during loading or unloading operations.

7. Repair and retest, within 15 days, components exceeding the limits of subd. 6 a.

(c) *Pressure test records.* 1. Maintain for a period of 3 years from the recording date a log for each delivery vessel containing, at a minimum:

a. Company name and the date and location of the test required under par. (b) 4,

b. Delivery vessel identification number, and

c. The results of the test.

2. Annually submit to the department information as developed under par. (b) 4 b, and as recorded under subd. 1.

History: Renum. from NR 154.13 (3) (a) to (d) and am., Register, September, 1986, No. 369, eff. 10-1-86; am; (1) (c) and (f) (intro.), (2) (b) (intro.), (c) (intro.), (d) (intro.) and (h), (3) (b) (intro.) and (e), (4) (a), (b) 4. a. and b., (c) 1. a. and b. r. and recr. (4) (c) 1. c., r. (4) (c) 1. d. to f., Register, February, 1990, No. 410, eff. 3-1-90; correction in (2) (a) 1. and (c) (intro.) made under s. 13.93 (2m) (b) 7, Stats., Register, February, 1990, No. 410; am. (3) (d) (intro.), Register, May, 1992, No. 437, eff. 6-1-92; correction in (2) (a) 2. made under s. 13.93 (2m) (b) 7, Stats., Register, May, 1992, No. 437; am. (2) (a) 2. and (3) (a) 2., Register, January, 1993, No. 445, eff. 2-1-93.

NR 420.045 Motor vehicle fueling. (1) **APPLICABILITY AND EXEMPTIONS.**

(a) *Applicability.* This section applies to all gasoline dispensing facilities located in the counties of Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha which dispense more than 10,000 gallons of gasoline per month except as specified in pars. (b), (c) and (d).

(b) *Non-highway vehicle exemption.* The provisions of this section do not apply to any gasoline dispensing equipment that is used exclusively for fueling marine vehicles, aircraft or snowmobiles.

(c) *Throughput exemption.* A gasoline dispensing facility is exempt from the requirements of this section if the facility never dispenses greater than 10,000 gallons of gasoline per month, on average, for any 24 month period beginning with calendar years 1991 and 1992. The calculation of the average monthly quantity of gasoline dispensed at a facility may not include any period of time when the facility was non-operational. The owner or operator of such a gasoline dispensing facility shall comply with the reporting requirements of sub. (10).

(d) *Independent small business marketer exemption.* 1. A gasoline dispensing facility is exempt from the requirements of this section if all of the following criteria in this subdivision are met:

a. The gasoline dispensing facility never dispenses greater than 50,000 gallons of gasoline per month, on average, for any 24 month period beginning with calendar years 1991 and 1992. The calculation of the average monthly quantity of gasoline dispensed at a facility may not include any period of time when the facility was non-operational;

b. The owner of the facility complies with the reporting requirements in sub. (10); and

c. The owner of the facility is able to demonstrate to the satisfaction of the department that the owner is an independent small business marketer.

2. For purposes of this paragraph, an independent small business marketer of gasoline is a person engaged in the marketing of gasoline who would be required to pay for procurement and installation of vapor re-Register, January, 1993, No. 445