Chapter NR 420

CONTROL OF ORGANIC COMPOUND EMISSIONS FROM PETROLEUM AND GASOLINE SOURCES

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 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 chs. NR 420 to 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 D323-90, incorporated by reference in s. NR 484.10.

(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, 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 D97-87, incorporated by reference in s. NR 484.10.

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.**

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 D396-92, 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 D975-92a. These ASTM standards are incorporated by reference in s. NR 484.10.

(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 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 s. NR 484.11, 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 or at least every 5 years, whichever is more frequent; and

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

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 cm^2 per meter (1.00 in^2 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; am. (1) (a), (3) (c), Register, February, 1995, No. 470, eff. 3-1-95; **am. (1) (b), Register, December, 1995, No. 480, eff. 1-1-96.**

NR 420.035 Gasoline storage tank vent pipes. (1) APPLICABILITY AND EXEMPTIONS. (a) *Applicability.* Except as provided in par. (b), this section applies to all stationary gasoline storage tanks at a gasoline dispensing facility with a total stationary storage tank capacity of 2000 gallons or more located in Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha county.

(b) *Non-highway fuel use exemption.* This section does not apply to any gasoline dispensing equipment that is used exclusively for fueling marine vessels, aircraft or snowmobiles.

(2) VAPOR CONTROL REQUIREMENTS. (a) No owner or operator of a gasoline dispensing facility described in sub. (1) (a) may permit gasoline to be transferred from either a gasoline delivery vessel to a stationary storage tank, or from a stationary storage tank to a motor vehicle fuel tank, unless the owner or operator has installed a pressure vacuum valve on the stationary gasoline storage tank vent pipe.

(b) The owner or operator of a gasoline dispensing facility subject to par. (a) shall ensure that each pressure vacuum valve installed on a storage tank vent pipe is certified by the California air resources board under section 41954 of the California health and safety code, and is maintained in good working order.

(3) COMPLIANCE SCHEDULE. (a) The owner or operator of a gasoline dispensing facility subject to sub. (2) on August 1, 1994 shall install a pressure vacuum valve on each stationary gasoline storage tank vent pipe by March 31, 1995.

(b) The owner or operator of an existing gasoline dispensing facility previously exempt from the vapor control requirements of sub. (2) because its gasoline storage tank capacity was less than 2000 gallons shall install a pressure vacuum valve on each stationary gasoline storage tank vent pipe not later than 120 days after the exemption level is exceeded, making sub. (2) applicable.

(c) The owner or operator of a gasoline dispensing facility on which construction was commenced after August 1, 1994 and which is subject to the vapor control requirements of sub. (2) shall install a pressure vacuum valve on each stationary gasoline storage tank vent pipe before the tank is first filled with gasoline.

History: Cr. Register, July, 1994, No. 463, eff. 8-1-94; am. (2) (b), Register, December, 1995, No. 480, eff. 1-1-96.

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; 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 H_2O) and vacuum from exceeding 1.5 kPa (6 inches of H_2O) 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 unloading, loading, and storage facilities of all bulk gasoline plants which have an average daily throughput of 15,000 liters (4,000 gallons) of gasoline or more on a 30-day rolling average; and to all delivery vessels involved in such loading or unloading operations, except as provided in subds. 1. and 2. Any plant that becomes or is subject to this subsection shall remain subject to this subsection even if its throughput later falls below the applicability thresholds. The requirements of pars. (b) to (g) do not apply to the following:

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, the requirements of pars. (b) to (g) do 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 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 H_2O) and vacuum from exceeding 1.5 kPa (6 inches of H_2O) 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 subds. 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 capable of recovering at least 90% by weight of the organic compounds in the displaced vapor or an equally effective alternative control method approved by the department. Any alternative control method approved by the department under this subdivision 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.

(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 H_2O) and vacuum from exceeding 1.5 kPa (6 inches of H_2O) 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 premises 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 H_2O) in 5 minutes when pressurized to a gauge pressure of 4.5 kPa (18 inches of H_2O)

or evacuated to a gauge pressure of 1.5 kPa (6 inches of H_2O) during the test required in subd. 4. a.; and

c. A vessel failing to meet the requirements of subd. 4. 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, including all data collected during 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; am. (1) (b) 1. b., (2) (a) (intro.), (3) (c) 2., (4) (c) 1. c., r. (1) (b) 1. c. and (3) (c) 3., Register, December, 1993, No. 456, eff. 1-1-94; **am. (2) (a) (intro.) and 2., Register, December, 1995, No. 480, eff. 1-1-96.**

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 except as specified in pars. (b) to (d).

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

(c) *Throughput exemption.* A gasoline dispensing facility is exempt from the requirements of subs. (2) to (9) 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 subs. (2) to (9) 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 recovery equipment under this section, unless the person meets one of the following criteria:

a. The person is a refiner;

b. The person controls, is controlled by, or is under common control with a refiner;

c. The person is directly or indirectly affiliated with a refiner or with a person who controls, is controlled by, or is under common control with a refiner (unless the sole affiliation is by means of a supply contract or an agreement or contract to use a trademark, trade name, service mark, or other identifying symbol or name owned by the refiner or any person); or

d. The person receives less than 50% of the person's annual income from refining or marketing of gasoline.

3. For the purpose of this paragraph, the term "refiner" does not include any refiner whose total refinery capacity, including the refinery capacity of any person who controls, is controlled by, or is under common control with, the refiner does not exceed 65,000 barrels per day.

4. For purposes of this paragraph, "control" of a corporation means ownership of more than 50% of the stock of the corporation.

(e) *Exceeding thresholds.* Any gasoline dispensing facility which exceeds an applicable gallons of gasoline per month threshold established in par. (c) or (d) for any 24 month period after calendar years 1991 and 1992 is subject to the requirements of subs. (2) to (9) and shall comply with the requirements of s. NR 425.035 for reporting throughput and for installing and beginning operation of a vapor recovery system.

(2) VAPOR CONTROL REQUIREMENTS. (a) No owner or operator of a gasoline dispensing facility may permit gasoline to be dispensed from a stationary storage tank to a motor vehicle fuel tank unless the owner or operator has

installed on the dispensing equipment a vapor recovery system which meets the requirements of subs. (3) and (4).

(b) If a tag or notice prohibiting operation has been placed on dispensing equipment under s. NR 494.04, no person may dispense gasoline from the dispensing equipment until the tag or notice is removed by or at the written direction of the department. No person may remove a tag or notice placed on dispensing equipment under s. NR 494.04 unless the department directs the person, in writing, to remove it. The owner or operator of the dispensing facility shall notify the department in writing that the dispensing equipment which was tagged has been repaired.

(3) APPROVAL OF VAPOR RECOVERY SYSTEMS. The department may approve the installation and operation of a vapor recovery system if it meets all of the following criteria:

(a) The type of vapor recovery system is certified by the California air resources board to achieve 95% vapor recovery;

Note: A vapor recovery system must have a vapor control system which meets the requirements of s. NR 420.04 (3) in order to be certified as 95% efficient by the California air resources board.

(b) The vapor recovery system uses only coaxial vapor recovery hoses;

(c) The vapor recovery system does not use remote check valves; and

(d) The vapor recovery system has been tested in accordance with sub. (7), and has been demonstrated to function properly in these tests.

(4) OPERATION REQUIREMENTS. An owner or operator of a gasoline dispensing facility shall do all of the following:

(a) Demonstrate proper functioning of the vapor recovery system in the most recent vapor recovery system tests required under sub. (7).

(b) Maintain the vapor recovery system such that it is free of any of the following defects:

1. Any component required to be used in the California air resources board system certification which is absent or disconnected;

2. A vapor recovery hose or return line which is crimped or flattened such that the vapor passage is blocked, torn such that vapors can escape, or malfunctioning such that the pressure drop through the vapor hose or return line exceeds by a factor of 2 or more the requirements in the California air resources board certification;

3. A nozzle boot which is torn in one or more of the following manners:

a. Triangular-shaped or similar tear ½ inch or more on a side, or a hole ½ inch or more in diameter.

b. Slit one inch or more in length.

4. Faceplate of flexible cone which is damaged in the following manner:

a. The capability of the faceplate to achieve a seal with a fill pipe interface is affected for one-fourth of the circumference of the faceplate.

b. Facecones which have more than one-fourth of the cone missing.

5. Nozzle shutoff mechanisms which malfunction in any manner;

6. Vapor processing unit which is inoperative or severely malfunctioning;

7. Vacuum producing device which is inoperative or severely malfunctioning;

8. Pressure/vacuum relief valves, vapor check valves or dry breaks which are inoperative;

9. Any vapor recovery equipment which is not liquid tight and vapor tight;

10. Any equipment defect identified in the California air resources board system certification as substantially impairing the effectiveness of the system in reducing air contaminants; and

11. Any other defect not specifically identified which may reduce by 10% or more the vapor recovery efficiency of the vapor recovery system.

(5) EMPLOYE TRAINING. (a) *Training requirement.* The owner or operator of a gasoline dispensing facility shall ensure that at least one employe of the gasoline dispensing facility receives department approved training. Department approved training shall consist of at least 6 hours of instruction which includes all of the following elements:

1. Purposes and effects of the vapor recovery system;

2. Equipment operation and functions specific to the vapor recovery system installed at the facility;

3. Maintenance schedules and procedures for maintaining the vapor recovery equipment installed at the facility;

4. Warranties applicable to the vapor recovery equipment;

5. Equipment manufacturer contacts including names, addresses and phone numbers, for parts and services; and

Note: This requirement may also be met if the trained employe is familiar with the names, addresses and phone numbers of company staff who are responsible for maintenance of the vapor recovery system.

6. The requirements of subs. (4) and (6) for operating and maintaining the vapor recovery system.

(b) *Training schedule.* The training required under par. (a) shall be completed according to the following schedule:

1. Initial training shall be completed within 45 days of the final compliance date specified in s. NR 425.035 (3) for the gasoline dispensing facility.

2. If the only employe who has received training under par. (a) terminates employment at the facility, training of another employe shall be completed no later than 45 days after the departure of the trained employe.

3. If the gasoline dispensing facility changes the type of vapor recovery system which is in use at the facility, new training or retraining of an employe under par. (a) shall be completed before startup of the new vapor recovery system.

(6) EQUIPMENT MAINTENANCE. (a) *Weekly inspections.* The owner or operator of a gasoline dispensing facility shall ensure that weekly equipment inspections are conducted. The weekly inspection shall include all of the following:

1. A visual inspection of refueling of motor vehicles to ensure that the flow shut-off mechanisms are working properly;

2. An inspection of all boots, hoses, facecones and faceplates for tears or rips;

3. A visual inspection of all dispensing equipment for any gasoline leaks; and

4. An inspection of all gasoline delivery nozzles for tightness and bends which may impede vapor recovery.

(b) *Marking of non-compliant equipment.* The owner or operator of a gasoline dispensing facility shall mark "out-of-service" and cease use of any dispensing equipment which has a defect listed in sub. (4) (b).

(c) *Equipment replacement.* The owner or operator of a gasoline dispensing facility shall replace any defective part of the dispensing equipment only with a part which is certified by the California air resources board for use in the vapor recovery system which is in use at the facility.

(7) COMPLIANCE TESTING. (a) *Vapor recovery balance systems.* The owner or operator of a gasoline dispensing facility which has installed a vapor recovery balance system shall test the vapor recovery system according to the following schedule:

1. Complete initial compliance testing prior to the final compliance date specified in s. NR 425.035 (3) for the gasoline dispensing facility. The testing shall include all of the following:

a. A leak test on the complete vapor recovery system; and

b. A liquid blockage and dynamic backpressure test on each vapor recovery nozzle.

2. Conduct an annual compliance test on the vapor recovery system within 60 days of the anniversary date of the initial compliance tests required under subd. 1. The annual testing shall include all of the following:

a. A leak test on the complete vapor recovery system; and

b. A dynamic backpressure test on each vapor recovery nozzle.

3. At intervals of 5 years after the initial compliance test required under subd. 1., the annual test required under subd. 2. shall include all the tests required under subd. 1.

(b) *Vapor recovery assist systems.* The owner or operator of a gasoline dispensing facility which has installed a vapor recovery assist system shall test the vapor recovery system according to the following schedule:

1. Complete initial compliance testing prior to the final compliance date specified in s. NR 425.035 (3) for the gasoline dispensing facility. The testing shall include all of the following:

a. A leak test on the vapor recovery system; and

b. A liquid blockage test on each vapor recovery nozzle.

2. Conduct an annual compliance test on the vapor recovery system within 60 days of the anniversary date of the initial compliance tests required under subd. 1. The annual testing shall consist of a leak test on the complete vapor recovery system.

3. At intervals of 5 years after the initial compliance test required under subd. 1., the annual test required under subd. 2. shall include all the tests required under subd. 1.

(c) *Testing procedures.* All testing required under this subsection shall be performed in accordance with ss. NR 439.06 (3) (i) and 439.07.

(8) RECORDKEEPING. The owner or operator of a gasoline dispensing facility shall maintain the records specified in this subsection in a manner acceptable to the department. Except as noted in pars. (e) and (f), these records shall be maintained on the facility premises for a minimum of 3 years and shall be made available upon request to an authorized department representative at any time during normal working hours. The records to be maintained are:

(a) Any and all department approvals or permits which are necessary for the operation of the facility or the vapor recovery system;

(b) A maintenance and inspection log which includes all of the following:

1. Name of the person who conducted the compliance inspection.

2. Date of the compliance inspection.

3. Identity of any part of the vapor recovery system which has a defect listed in sub. (4) (b).

4. Date of repair of the defective part; and

5. The manufacturer and manufacturer's identification number of any part used to replace any defective part.

(c) Results of the compliance tests required under sub. (7);

(d) All compliance records, including warnings and notices of violation, issued by the department;

(e) A permanent record which demonstrates that the training required under sub. (5) has been completed. This record shall consist of a document signed by the employe trained under sub. (5) which contains all of the following:

1. The name of the employe who received training;

2. The dates on which the employe received training;

3. A list of the areas in which the employe has received training; and

4. The amount of time, in hours, that the employe spent in receiving the training identified in subd. 3.; and

(f) The quantity of gasoline dispensed at the facility on a monthly basis. This record shall be made available to the department within 15 days of the receipt of a request for the record. This record is not required to be maintained on the facility premises.

(9) POSTING. The owner or operator of a gasoline dispensing facility shall post clear and legible instructions for the operation of the vapor recovery equipment on each dispenser. These instructions shall contain, at a minimum, the following elements:

(a) How to operate the vapor recovery nozzle.

(b) A warning to not top off the fuel tank.

(c) The phone number of a department representative to whom questions on the vapor recovery equipment may be directed.

(10) REPORTING. The owner or operator of a gasoline dispensing facility for which an exemption from the requirements of subs. (2) to (9) is claimed by use of sub. (1) (c) or (d), and which has at least 2000 gallons of stationary gasoline storage tank capacity, shall, beginning in 1993, submit an annual report to the department by March 1 of each year for gasoline dispensed during the preceding year. These annual reports shall contain, at a minimum, all of the following:

(a) The quantity of gasoline dispensed at the facility during each month of operation for the preceding calendar year; and

(b) Any period of time that the facility was non-operational during the preceding calendar year.

History: Cr. Register, January, 1993, No. 445, eff. 2-1-93; am. (1) (a), (c), (d) 1. intro., (c) and (10) (intro.), Register, December, 1995, No. 480, eff. 1-1-96.

NR 420.05 Petroleum refinery sources. (1) VACUUM PRODUCING SYSTEMS. (a) *Applicability.* This subsection applies, subject to the provisions of s. NR 425.03, to vacuum producing systems at petroleum refining sources.

(b) *Requirements.* The owner or operator of any vacuum producing systems at a petroleum refinery may not permit the emission of any noncondensible VOC, from the condensers or accumulators of the system. The control required by this paragraph shall be achieved by:

1. Piping the noncondensible vapors to an operating firebox or incinerator; or

2. Compressing the vapors and adding them to the refinery fuel gas.

(2) WASTEWATER SEPARATORS. (a) *Applicability.* This subsection applies, subject to the provisions of s. NR 425.03, to wastewater separators at petroleum refining sources.

(b) *Requirements.* The owner or operator of any wastewater (oil-water) separators at petroleum refinery shall:

1. Provide covers and seals approved by the department on all separators and forebays; and

2. 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.

(3) PROCESS UNIT TURNAROUNDS. (a) *Applicability.* This subsection applies to process unit turnarounds at petroleum refining sources.

(b) *Requirements.* The owner or operator of a petroleum refinery shall develop and submit to the department for approval a detailed procedure for minimizing VOC emissions during process unit turnaround. At a minimum, the procedure shall provide for:

1. Depressurization venting of the process unit or vessel to a flare, firebox or vapor recovery system which prevents release to the ambient air of at least 90% by weight of the VOCs vented; and

2. No emission of VOCs from a process unit or vessel until its internal pressure is 136 kPa (19.7 psia) or less; and

3. Recordkeeping of the following items during the ozone season:

a. Every date that each process unit or vessel is shut down; and

b. The approximate total quantity of VOCs emitted and the duration of the emission.

(4) FUGITIVE EMISSION SOURCES. (a) *Applicability.* This subsection applies to specific fugitive emissions sources at petroleum refineries.

(b) *Valve requirements.* The owner or operator of a petroleum refinery may not:

1. Install a valve at the end of a pipe or line containing VOCs unless:

a. The pipe or line is sealed with a second valve, a blind flange, a plug, or a cap; or

b. The valve is a safety pressure relief valve.

2. Operate a pipeline valve or pressure relief valve in gaseous service unless it is visibly marked.

(c) *Monitoring.* The owner or operator of a petroleum refinery shall:

1. Develop and submit to the department for approval a monitoring schedule for fugitive emission sources. At a minimum, the schedule shall provide for:

a. Yearly monitoring of all pump seals, pipeline valves in liquid service, and process drains;

b. Quarterly monitoring of all compressor seals, pipeline valves in gaseous service, and pressure relief valves in gaseous service; and

c. Routine visual inspection of all pump seals on a weekly basis.

2. Provide for the following actions to be performed immediately under the following circumstances:

a. Monitoring of any pump seals from which liquids are observed dripping;

b. Monitoring, subsequent to repair, of any component that had been found leaking; and

c. Visual inspection of the seating of any pressure relief valve after it has vented to the atmosphere.

3. Be exempt from the monitoring requirements of subds. 1. and 2. for:

a. A pressure relief device connected to an operating flare header, or vapor recovery device;

b. Inaccessible valves;

c. Storage tank valves; and

d. Valves not externally regulated.

4. Upon detection of a leaking component which is producing a VOC concentration in excess of 10,000 ppm at any point accessible to the monitoring device:

a. Affix a weatherproof and readily visible tag bearing an identification number and the date the leak is detected to the leaking component;

b. Include the leaking component on a written list of scheduled repairs within 24 hours;

c. Repair and retest the component within 15 days when this is possible without shutting down operations; and

d. Identify all leaking components which cannot be repaired until the unit is shut down for turnaround.

(d) *Reporting.* Beginning January 15, 1982, the owner or operator of a petroleum refinery shall submit quarterly reports to the department containing the following:

1. A statement attesting to performance of the monitoring program as approved under par. (c) 1.

2. The number of each type of components inspected and the total number of components found leaking.

3. Lists of all leaking components awaiting unit turnaround.

4. Lists of any additional leaking components detected but not repaired within 15 days.

5. Status of repair operations of leaking components.

(e) *Recordkeeping.* The owner or operator of a petroleum refinery shall maintain a leaking component monitoring log, for a period of 3 years from the recording date, containing at a minimum:

1. The name of the process unit where the component is located;

2. The type of component (e.g., valve, seal);

3. The composition of the stream on which the component is located;

4. The tag number of the component;

5. The date on which a leaking component is discovered;

6. The date on which a leaking component is repaired;

7. The date and instrument reading of the recheck procedure after a leaking component is repaired;

8. A record of the calibration of the monitoring instrument;

9. A list of leaks that cannot be repaired until turnaround; and

10. The total number of components checked in the last quarter and the total number of components found leaking.

History: Renum. from NR 154.13 (7) and am. (1) (a), (2) (a), (3) (a), (4) (a), (c) 1. (intro.) and (d) (intro.), Register, September, 1986, No. 369, eff. 10-1-86; am. (1) (b) (intro.), (4) (b) (intro.), (d) (intro.) and (e) (intro.), Register, February, 1990, No. 410, eff. 3-1-90; correction in (1) (a) made under s. 13.93 (2m) (b) 7, Stats., Register, August, 1990, No. 416; am. (3) (b) (intro.) and (4) (c) (intro.), Register, May, 1992, No. 437, eff. 6-1-92.