

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

AIR POLLUTION CONTROL REGULATION NO. 11

PETROLEUM LIQUIDS MARKETING AND STORAGE



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PETROLEUM LIQUIDS MARKETING AND STORAGE

11.1 Definitions

Unless otherwise expressly defined in this section, the terms used in this regulation shall be defined by reference to the Rhode Island Air Pollution Control General Definitions Regulation. As used in this regulation, the following terms shall, where the context permits, be construed as follows:

- 11.1.1 **"Petroleum liquids"** means crude oil, condensate and any finished or intermediate products manufactured or extracted in a petroleum refinery whose true vapor pressure is greater than 1.52 psia (10.5 kilo pascals) at 69°F.
- 11.1.2 **"Bulk gasoline terminal"** means a gasoline storage facility which receives gasoline from refineries primarily by pipeline, railroad tank car, ship, or barge, and delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by tank truck; and has a daily throughput of more than 20,000 gallons of gasoline.
- 11.1.3 **"Bulk gasoline plant"** means a gasoline storage and distribution facility with an average daily throughput of 20,000 gallons or less but greater than 4,000 gallons which receives gasoline from bulk terminals by trailer transport or railroad tank car, stores it in tanks, and subsequently dispenses it via account trucks to local farms, businesses, and service stations.
- 11.1.4 **"Gasoline"** means any petroleum distillate having a Reid vapor pressure of more than 4.0 psia as determined by ASTM Method D323. This term includes but is not limited to mixtures of alcohols and gasoline.
- 11.1.5 **"Splash filling"** means the filling of a tank truck or stationary storage tank through a pipe or hose whose discharge opening is above the surface level of the liquid in the tank being filled.
- 11.1.6 **"Bottom filling"** means the filling of a tank truck or stationary storage tank through an opening that is flush with the tank bottom.
- 11.1.7 **"Submerged filling"** means the filling of a tank truck or stationary tank

through a submerged fill pipe whose discharge opening is entirely submerged when the pipe normally used to withdraw liquid from the tank can no longer withdraw any liquid.

- 11.1.8 **"Submerged fill pipe"** means any fill pipe the discharge opening of which is entirely submerged when the liquid level is six inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean any fill pipe the discharge of which is entirely submerged when the liquid level is 18 inches or twice the diameter of the fill pipe, whichever is greater, above the bottom of the tank.
- 11.1.9 **"Vapor balance system"** means a combination of pipes or hoses which create a closed system between the vapor spaces of an unloading vessel and a receiving vessel such that vapors displaced from the receiving vessel are transferred to the vessel being unloaded.
- 11.1.10 **"Owner"** means any person who has legal or equitable title to the gasoline storage vessel at a facility.
- 11.1.11 **"Operator"** means any person who leases, operates, controls or supervises a facility at which gasoline is dispensed.
- 11.1.12 **"Gasoline dispensing facility"** means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage vessels.
- 11.1.13 **"Daily throughput"** means the average amount of gasoline that a bulk gasoline terminal or plant dispenses in a day from that facility and is defined as the thirty day rolling average throughput of the facility. This is used to determine applicability, not compliance.
- 11.1.14 **"Vapor tight"** means the condition where a combustible gas detector does not detect a leak of volatile organic materials when the probe of this meter is held parallel to the flow of volatile organic materials from the leak source.
- 11.1.15 **"Leak"** means a meter reading from a combustible gas detector greater or equal to 100 percent lower explosive limit as propane.
- 11.1.16 **"Vapor"** means those components of gasoline that have been volatilized to the gaseous phase from the liquid phase.
- 11.1.17 **"External floating roof"** means a storage vessel cover in an open top tank consisting of a double deck or pontoon single deck which rests upon and is supported by the petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank wall.

- 11.1.18 **"Liquid-mounted seal"** means a primary seal mounted in continuous contact with the liquid around the circumference of the tank between the tank wall and the floating roof.
- 11.1.19 **"Vapor-mounted seal"** means a primary seal mounted so there is a 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.
- 11.1.20 **"Best extent possible"** means there shall be no reading at 2.5 centimeters from any potential leak source, greater than or equal to 100% of the lower explosive limit, LEL, measured as propane, as detected by a combustible gas detector using the test procedure described in Appendix B of the EPA document entitled "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems" (EPA-450/2-78-051).
- 11.1.21 **"Substantially modified"** means a modification of an existing gasoline dispensing facility which involves the addition, repair, replacement, or reconditioning of stationary storage tanks. Any excavation at an existing gasoline dispensing facility which has the potential to affect the integrity or pitch of any Stage II vapor return, manifold or vent piping is also considered a substantial modification.
- 11.1.22 **"Stage II vapor collection and control system"** means a system which collects gasoline vapors displaced from motor vehicle gasoline tanks during refueling and which routes the vapors to a stationary storage tank.
- 11.1.23 **"Monthly throughput"** means the amount of gasoline that a gasoline dispensing facility dispenses in a month. This amount is used to determine applicability, not compliance.
- 11.1.24 **"Vacuum assist system"** means a Stage II vapor collection and control system which employs a pump, blower or other vacuum inducing device to collect and/or process gasoline vapors.
- 11.1.25 **"Corporate or commercial fleets"** means vehicles used for business purposes which are owned by corporations, governments, universities or other organizations.
- 11.1.26 **"Onboard Refueling Vapor Recovery" or ORVR** means a vehicle emission control system that captures fuel vapors from the vehicle gas tank during refueling.

11.2 Storage of Petroleum Liquids - Fixed Roof Tanks

11.2.1 Prohibitions and Requirements

11.2.1.1 No person shall place, store or hold in any stationary vessel, reservoir, or other container of more than 40,000 gallons capacity any petroleum liquids unless such tank reservoir or other container is a pressure tank capable of maintaining working pressures sufficient at all times to prevent vapor or gas loss to the outdoor atmosphere unless:

- (a) the source utilizes an internal floating roof equipped with a closure seal, or seals, to close the space between the roof edge and tank wall such that:
 - (1) the cover must float uniformly on the liquid;
 - (2) there is no accumulated liquid on the cover, and;
 - (3) the seal is intact and uniformly in place around the circumference of the cover between the cover and tank wall, or
- (b) the source utilizes an alternative control device that is at least 95% effective at reducing or recovering VOC emissions, approved by the Director, and
- (c) the source is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials, and
- (d) where applicable, all openings, except stub drains, are equipped with covers, lids, or seals such that:
 - (1) the cover, lid, or seal is in the closed position at all times except when in actual use, and
 - (2) automatic bleeder vents are closed at all times except when the roof is being floated off or being landed on the roof leg supports, and
 - (3) 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

- (e) routine visual inspections of the internal floating roof and the primary and secondary seals are conducted through roof hatches on an annual basis , and
- (f) a complete visual inspection of the internal floating roof, the primary and secondary seals, gaskets, slotted membranes and sleeve seals is conducted whenever the tank is emptied or once every ten years, whichever is more frequent, or
- (g) the source utilized a vapor recovery system consisting of a device capable of collecting the vapor from volatile organic liquids and gases so as to prevent their emissions to the outdoor atmosphere. All tank gauging and sampling devices shall be gas tight except when gauging or sampling is taking place.

11.2.2 Records

11.2.2.1 Records are to be maintained at the facility by the owner or operator of a source defined in Subsection 11.2.1.1 and shall include:

- (a) Reports of the results of inspections conducted under Subsections 11.2.1.1 (e) and 11.2.1.1 (f).
- (b) Records of daily throughput quantities, types of volatile petroleum liquids, average monthly storage temperature, and true vapor pressure of the stored liquid.
- (c) Records for both scheduled and unscheduled maintenance.

11.2.2.2 Records cited in Subsection 11.2.2.1 shall be maintained for a period of three (3) years and shall be accessible for review by the Director or personnel designated by the Director.

11.3 Bulk Gasoline Terminals

11.3.1 This section will apply to bulk gasoline terminals and appurtenant equipment necessary to load and unload the tank trucks, railroad tank cars or trailer compartment. If a source is ever considered a bulk terminal because it surpasses the daily throughput under the definition in 11.1.2 of this

regulation, it is always subject to this regulation even if it goes below the daily throughput.

11.3.2 Prohibitions

- 11.3.2.1 No person shall load or unload gasoline into any tank trucks, railroad tank cars, or trailers from any bulk gasoline terminal unless the above-mentioned vessels are equipped with a vapor balance system, and
- (a) the bulk gasoline terminal is equipped with a vapor control system properly installed, maintained and in good working order, in operation and that prevents emissions to the atmosphere from exceeding 0.30 grams per gallon (80 grams/1000 liters) of gasoline loaded over any 6 hour period as determined by 11.3.5.1. The vapor collection and processing equipment must be designed and operated to prevent gauge pressure in the tank truck from exceeding 18 inches of water and prevent vacuum from exceeding 6 inches of water, and
 - (b) a connecting pipe or hose from the loading rack to the delivery vessel is equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of volatile organic materials to the best extent possible, and
 - (c) a vapor space connection on the tank truck, railroad tank car, or trailer equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of volatile organic materials to the best extent possible.
 - (d) the bulk gasoline terminal is equipped with a vapor control system, capable of complying with paragraph (a) of this section, properly installed, in good working order, in operation and consistent with one of the following:
 - (1) an adsorber or condensation system which processes and recovers at least 90 percent by weight of all vapors and gases from the equipment being controlled; or,
 - (2) a vapor collection system which directs all vapor to

fuel gas system and reduces emissions by at least 90 percent; or,

- (3) a control system determined to be equally effective and approved by the Director.

11.3.2.2 Sources affected under Section 11.3 may not:

- (a) allow gasoline to be discarded in sewers or stored in open containers or handled in any manner that would result in evaporation, nor
- (b) allow the pressure in the vapor collection system to exceed the tank truck or trailer pressure relief settings.

11.3.2.3 All pumps and compressors handling gasoline shall have mechanical seals or other equipment for the purposes of air pollution control as approved by the Director and EPA. The seals or other equipment, when tested by a combustible gas detector at 2.5 centimeters from any potential leak points, shall give no reading of greater than 100% of the lower explosive limit, measured as propane.

11.3.2.4 The emergency venting of vessels covered by Subsection 11.3.2.2 shall be in accordance with the federal DOT specifications for cargo tanks and tank cars authorized to carry hazardous materials. Emergency venting shall not be considered a violation.

11.3.3 Records

11.3.3.1 Records shall be maintained at the facility by the owner or operator of a bulk gasoline terminal and shall include:

- (a) Records of daily throughput quantities of gasoline.
- (b) Records for both scheduled and unscheduled maintenance of the vapor control system that is described in Subsection 11.3.2.1 (a).

11.3.3.2 Records cited in Subsection 11.3.3.1 should be maintained for a period of three years and should be accessible for review by the Director or personnel designated by the Director.

11.3.4 Compliance

- 11.3.4.1 Compliance Schedules - All persons owning or controlling sources as described in Subsection 11.3.1 shall achieve compliance with Subsection 11.3.1 (a) through (c) not later than 1 July 1981 in accordance with the following schedule:
- (a) Not later than 1 January 1980 - submit final plans, specifications and maintenance schedules of equipment to be used to prevent gasoline vapor loss to the atmosphere and to comply with Subsections 11.3.2.1 (a), (b) and (c) to the Director for approval in accordance with Section 23-23-5 (j) of the General Laws of 1956, as amended, and Air Pollution Control Regulation 9.
 - (b) Not later than 1 March 1980 - award all necessary contracts for the implementation of the approved plans and specifications.
 - (c) not later than 1 October 1980 - submit a progress report to the Director on the expected delivery date of all capital equipment ordered to comply with Subsection 11.3.2.1 (a) through (c).
 - (d) Not later than 1 March 1981 - initiate any construction, modification and/or installation required by the approved plans and specifications.
 - (e) Not later than 1 July 1981 - complete any actions described in Subsection 11.3.4.1 (d).
- 11.3.4.2 The achievement of Items (b), (d) and (e) of Subsection 11.3.4.1 will be reported in writing within five (5) days to the Director.
- 11.3.4.3 All records and reports will include supporting documentation as appropriate.

11.3.5 Compliance Test Methods

- 11.3.5.1 Compliance with the emission limitations set forth in Section 11.3 shall be determined by using the procedures, compliance averaging times (6 hours), and test methods which are detailed in 40 CFR 60.503 or any other method approved by the Director and EPA.

11.4 Bulk Gasoline Plants

- 11.4.1 This regulation will apply to the unloading, loading and storage facilities of all bulk gasoline plants and all tank trucks delivering or receiving gasoline at bulk gasoline plants. If a source is ever considered a bulk plant because it surpasses the daily throughput under the definition in 11.1.3 of this regulation, it is always subject to this regulation even if it goes below the daily throughput.

11.4.2 Prohibitions

- 11.4.2.1 No owner or operator of a bulk gasoline plant, tank truck, railroad tank car or trailer may permit the loading or unloading of account trucks, tank trucks, railroad tank cars or trailers at a bulk gasoline plant unless each account truck, tank truck, railroad tank car, or trailer is equipped with a vapor balance system as described in subsection 11.4.2.2 and approved by the Director, and
- (a) equipment is available at the bulk gasoline plant to provide for the submerged filling of each tank truck, railroad tank car or trailer, or
 - (b) each tank truck, railroad tank car or trailer is equipped for bottom filling.
- 11.4.2.2 Vapor balance systems required under Subsection 11.4.2.1 shall prevent the release of volatile organic material to the atmosphere to the best extent possible and shall consist of the following major components:
- (a) a vapor space connection on the stationary storage tank equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of volatile organic material to the best extent possible, and
 - (b) a connecting pipe or hose equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of volatile organic material to the best extent possible, and
 - (c) a vapor space connection on the tank truck, railroad tank car or trailer equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of volatile organic

material to the best extent possible.

- 11.4.2.3 No owner or operator of a bulk gasoline plant may permit gasoline to be spilled, discarded in sewers, stored in open containers or handled in any other manner that would result in evaporation.

11.4.3 Records

- 11.4.3.1 Records shall be maintained at the facility by the owner or operator of a bulk gasoline plant and shall include:
- (a) records of daily throughput quantities of gasoline,
 - (b) records for both scheduled and unscheduled maintenance of vapor balance equipment as described in Subsection 11.4.2.2.
- 11.4.3.2 Records cited in Subsection 11.4.3.1 should be maintained for a period of three (3) years and should be accessible for review by the Director or personnel designated by the Director.

11.4.4 Compliance

- 11.4.4.1 Compliance Schedules - All persons owning or controlling sources as described in Subsection 11.4.1 shall register with the Director no later than three (3) months after the effective date of this regulation. Compliance schedules will be negotiated on a case-by-case basis.
- 11.4.5 Compliance Test Methods - Compliance with the emission limitations set forth in Section 11.4 shall be determined by using the procedures and test methods which are detailed in Appendices B and C of EPA publication entitled Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems, Guideline Series Publication No. EPA-450/2-78-051 (OAQPS No. 1.2-119).

11.5 Gasoline Service Station Stage I Vapor Controls

- 11.5.1 This section will apply to all gasoline dispensing facilities with the following exceptions:
- (a) Stationary gasoline storage vessels of less than 550 gallons capacity used exclusively for the fueling of implements of husbandry, provided the containers are equipped with submerged fill pipes, or

- (b) Stationary storage vessels located at a gasoline dispensing facility with a capacity of less than 2000 gallons which is in place before 1 July 1979, or
- (c) any stationary storage vessels located at a gasoline dispensing facility with a capacity of 250 gallons or less which is installed after the effective date of this regulation.
- (d) Any gasoline dispensing facility that is solely serviced by account trucks owned or under the control of bulk gasoline plants that are exempt from Section 11.4 of this regulation.
- (e) Any gasoline dispensing facility with an annual throughput of 120,000 gallons or less, a rolling 30 day throughput of less than 10,000 gallons, certified by the Division. The owner/operator of the affected facility shall submit tax records, sales slips or any other material to certify the quantity of the rolling 30 day throughput is less than 10,000 gallons for the most recent calendar year. A request for exemption certification shall be made to the Division no later than 1 May 1981.

11.5.2 Prohibitions

- 11.5.2.1 Except as provided in Subsection 11.5.1, no person may transfer or cause or allow the transfer of gasoline from any delivery vessel into any stationary storage vessel unless the stationary storage vessel is equipped with a submerged fill pipe and the vapors displaced from the storage vessel during filling are processed by a Stage I vapor control system in accordance with Subsection 11.5.2.2.
- 11.5.2.2 The vapor control system required by Subsection 11.5.2.1 shall include one or more of the following:
 - (a) A vapor tight line from the storage vessel to the delivery vessel and a system that will ensure that vapors will be transferred from the storage vessel to the delivery vessel to include the following systems:
 - (1) Installation of a vent pipe restrictive device to include a vent pipe cape having an orifice of 1/2 inch to 3/4 inch ID, and
 - (2) The vapor tight line from the storage vessel to the

delivery vessel must be equipped with interlocking connections which will prevent fuel delivery unless the vapor line is connected.

- (b) A refrigeration-condensation system or equivalent designed to recover or process vapors that prevents emissions of volatile organic compounds to the atmosphere from exceeding 0.30 grams per gallon (80.0 grams/1000 liters) of gasoline loaded, or
- (c) A system demonstrated to have control efficiency equivalent to or greater than provided under Subsection 11.5.2.2 (a) and (b) and approved by the Director and EPA.

11.5.2.3 The vapor-laden delivery vessel shall be subject to the following conditions:

- (a) The delivery vessel must be designed and maintained to be vapor tight at all times, and
- (b) The vapor-laden delivery vessel may be re-filled only at:
 - (1) bulk gasoline terminals complying with Section 11.3, or
 - (2) bulk gasoline plants complying with Section 11.4.

11.5.2.4 Each owner of a gasoline storage vessel and gasoline delivery vessel covered by Subsection 11.5.2.1 shall:

- (a) purchase and install all necessary control systems and make all necessary process modifications to comply with Subsections 11.5.2.2 and 11.5.2.3, and
- (b) provide instructions to the operator of the gasoline dispensing facility utilizing a vapor control system as required in Subsection 11.5.2.2 (b) describing necessary maintenance Operations and procedures for prompt notification of the owner in case of any malfunctions of the control system, and
- (c) repair, replace or modify any worn out or malfunctioning component or element of design.

11.5.2.5 Each operator of a gasoline dispensing facility covered by Subsection 11.5.2.2 shall:

- (a) maintain and operate the control system in accordance with the specifications and the operating and maintenance procedures specified by the owner, and
- (b) promptly notify the owner of the control system of any schedule maintenance or malfunction requiring replacement or repair of major components in the system.

11.5.3 Records

11.5.3.1 The operator shall maintain gauges, meters, or other specified equipment in proper working order. The operator of a gasoline dispensing facility covered by Subsection 11.5.2.2(b) shall maintain records at the facility and shall include:

- (a) the scheduled date for maintenance or the date a malfunction was detected, and
- (b) the date the need for maintenance or malfunction of major system components was reported to the owner, and
- (c) the date the maintenance was performed or the malfunction corrected by either the operator or the owner.
- (d) records of daily throughput quantities.

11.5.3.2 Records cited in Subsection 11.5.3.1 shall be maintained for a period of three (3) years and should be accessible for review by the Director or personnel designated by the Director.

11.5.4 Compliance

11.5.4.1 Compliance Schedule - All persons owning or controlling gasoline delivery vessels or gasoline storage vessels as described in Subsections 11.5.2.1, 11.5.2.2 and 11.5.2.3 shall achieve compliance with Subsection 11.5.2.4 not later than 1 July 1981 and shall achieve compliance with this subsection in accordance with the following schedule:

- (a) No later than three (3) months after the effective date of this regulation all persons owning gasoline delivery or storage vessels shall submit to the Director the following information:
 - (1) The number of storage or delivery vessels that are controlled by said person,
 - (2) The number of storage or delivery vessels that would currently comply with the regulations,
 - (3) The approximate yearly throughput of gasoline from each gasoline dispensing facility.
- (b) Not later than 1 October 1979 submit final plans, specifications and maintenance schedules of equipment used to prevent gasoline vapor loss to the atmosphere and used to comply with Subsection 11.5.2.4 to the Director for approval in accordance with Section 23-23-5 (j) of the General Laws of 1956, as amended.
- (c) Not later than 1 January 1980 award all necessary contracts for implementation of the approved plans and specifications.
- (d) Not later than 1 March 1980 initiate any construction, modification and/or installation required by the approved plans and specifications.
- (e) Submit to the Director on 1 October 1980 a progress report of the activities required by Subsection 11.5.4.1 (d).

11.5.4.2 The achievement of Item (c) of Subsection 11.5.4.1 shall be reported in written form within five (5) days to the Director.

11.5.4.3 All records and reports will include supporting documentation as appropriate.

11.5.5 Compliance Test Methods

11.5.5.1 Compliance test methods to be used in Section 11.5 of this regulation will follow Appendix B - Gasoline Vapor Leak Detection Procedures by Combustible Gas Detector, which is detailed in the EPA document entitled Control of Volatile Organic

Compound Leaks from Gasoline Tank Trucks and Vapor
Collection Systems, EPA-450/2-78-051, OAQPS No. 1.2-119.

- 11.5.5.2 The compliance test method as described in Subsection 11.5.5.1 will be used to determine if a vapor-tight condition exists in:
- (a) the line from the storage vessel to the delivery vessel during gasoline transfer, as described in Subsection 11.5.2.2 (a), and
 - (b) the vapor-laden delivery vessel as described in Subsection 11.5.2.3 (a).

11.6 Storage of Petroleum Liquids: External Floating Roof Vessels

11.6.1 Prohibitions

- 11.6.1.1 No person shall place, store or hold gasoline in a storage tank having a capacity of 40,000 gallons or greater that is equipped with an external floating roof unless the vessel has been fitted with:
- (a) a continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal), or
 - (b) a closure or other device which controls volatile organic compound emissions by attaining or exceeding the requirements of Section 11.6.1.2 for a secondary seal required under this regulation and approved by the Director and EPA.
- 11.6.1.2 All seal closure devices must meet the following requirements:
- (a) There are no visible holes, tears or other openings in the seal(s) or seal fabric,
 - (b) The seal(s) is intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall, and
 - (c) For tanks having vapor mounted primary seals, the accumulated area of gaps exceeding 0.32 cm (1/8 in.) in width between the secondary seal and the tank wall shall not exceed 21.2 cm² per meter of tank diameter (1.0 in.2 per ft. of tank diameter), as determined by the method in

Subsection 11.6.4.3.

- 11.6.1.3 All openings in the external floating roof, except for automatic bleeder vents, rim space vents and leg sleeves, must:
- (a) be equipped with covers, seals or lids in the closed position except when the openings are in actual use, and
 - (b) provide projections below the liquid surface at all times.
- 11.6.1.4 Automatic bleeder vents must be closed at all times except when the roof is being floated off or being landed on the roof leg supports.
- 11.6.1.5 Rim vents shall be set to open when the roof is being floated off the leg supports or at the manufacturer's recommended setting.
- 11.6.1.6 Emergency roof drains shall be provided with slotted membrane fabric covers or equivalent covers which cover at least 90 percent of the area of the opening.

11.6.2 Inspection and Reporting Requirements

- 11.6.2.1 The owner or operator of a petroleum liquid storage vessel with an external floating roof subject to this regulation shall:
- (a) perform routine inspections semiannually in order to ensure compliance with Section 11.6 of this regulation and the inspection of the secondary seal gap,
 - (b) measure the secondary seal gap annually in accordance with Subsection 11.6.4.3 (a) and (b) when the floating roof is equipped with a vapor-mounted primary seal or liquid-mounted primary seal, except that measurements in riveted tanks shall not be made when the roof is floating at a level that places the secondary seal in contact with a horizontal rivet seam,
 - (c) maintain records at the facility of the results of the inspections required above for a period of three (3) years after an inspection,
 - (d) provide copies of all records under this section to the Director, upon verbal or written request, at any reasonable time.

- (e) Maintain records at the facility which report monthly throughput quantities, types of petroleum liquids stored, average monthly storage temperature, and true vapor pressures of the stored liquid.

11.6.3 Compliance Schedules

11.6.3.1 The owner or operator of a petroleum liquid storage vessel with an external floating roof subject to this regulation shall:

- (a) submit a schedule to the Director within three (3) months of the effective date of this regulation that contains the following elements:
 - (1) date when final plans for the emission control system are to be submitted, and
 - (2) date when contracts are to be awarded for the emission control system.
- (b) complete on-site construction or installation of the emission control equipment within ten (10) months of the effective date of this regulation, and
- (c) achieve final compliance within twelve (12) months of the effective date of this regulation.

11.6.3.2 The owner or operator subject to a compliance schedule of this section shall certify to the Director within five (5) days after the deadline for each increment of progress as to whether the required increment of progress has been met.

11.6.4 Testing and Monitoring

11.6.4.1 The owner or operator of any volatile organic compound source required to comply with Section 11.6 of this regulation shall demonstrate compliance by the methods of this section or an alternative method approved by the Director and EPA.

11.6.4.2 A person proposing to conduct a volatile organic compound emissions test shall notify the Director of the intent to test not less than fifteen (15) days before the proposed initiation of the tests so the Director may have the option to observe the test. The

notification shall contain the information required by, and be in a format approved by, the Director.

11.6.4.3 Compliance with Subsection 11.6.1.2 (c) of this regulation shall be determined by:

- (a) physically measuring the length and width of all gaps around the entire circumference of the secondary seal in each place where a 0.32 cm (1/8 in.) uniform diameter probe passes freely (without forcing or binding against the seal) between the seal and tank wall, and
- (b) summing the area of the individual gaps.

11.7 Reid Vapor Pressure

11.7.1 No person shall store, sell, or supply as fuel at or from bulk gasoline terminals and bulk gasoline plants a gasoline having a Reid Vapor Pressure greater than 9.0 pounds per square inch, except as specified in Subsection 11.7.2, during the period 1 May through 15 September of each year, beginning in 1989.

- (a) No person shall deliver gasoline having a Reid Vapor Pressure greater than 9.0 pounds per square inch to a gasoline dispensing facility during the period 1 May through 15 September of each year, beginning in 1989.
- (b) No gasoline dispensing facility shall receive gasoline having a Reid Vapor Pressure greater than 9.0 pounds per square inch during the period 1 May through 15 September of each year, beginning in 1989.

11.7.2 No person shall store, sell, or supply as fuel at or from bulk gasoline terminals and bulk gasoline plants a gasoline-ethanol blend containing at least 9% ethanol which has a Reid Vapor Pressure greater than 10.0 pounds per square inch during the period 1 May through 15 September of each year, beginning in 1989.

- (a) No person shall deliver a gasoline-ethanol blend containing at least 9% ethanol which has a Reid Vapor Pressure greater than 10.0 pounds per square inch to a gasoline dispensing facility during the period 1 May through 15 September of each year, beginning in 1989.
- (b) No gasoline dispensing facility shall receive a gasoline-ethanol blend containing at least 9% ethanol which has a Reid Vapor Pressure greater than 10.0 pounds per square inch during the period 1 May through 15 September of each year, beginning in 1989.

- 11.7.3 Sampling and testing of gasoline shall be in accordance with ASTM Method D323-82 or any equivalent method approved by the Director and EPA.

11.8 Tank Truck Certification and Vapor Collection Systems

- 11.8.1 This regulation shall apply to all gasoline tank trucks equipped for gasoline vapor collection.

11.8.2 Prohibitions

- 11.8.2.1 No person shall allow a gasoline tank truck to be filled or emptied unless the gasoline tank truck:
- (a) is tested annually according to the test procedure referenced in Section 11.8.4;
 - (b) sustains a pressure change of no more than .11 psi (3 inches of water) in five minutes when pressurized to a gauge pressure of .65 psi (18 inches of water) or evacuated to a gauge pressure of .22 psi (6 inches of water) during the testing required in Section 11.8.2.1 (a);
 - (c) is repaired by the owner or operator and retested within 15 days of testing if it does not meet the criteria of Section 11.8.2.1 (b);
 - (d) displays a sticker near the Department of Transportation Certification plate, which:
 - (1) shows the date the gasoline tank truck last passed the test required in Section 11.8.2.1(a);
 - (2) shows the identification number of the gasoline tank truck; and,
 - (3) expires not more than one year from the date of the leak tight test.
- 11.8.2.2 The owner or operator of a vapor collection system shall:
- (a) design and operate the vapor collection system and the gasoline loading equipment in a manner that prevents:

- (1) gauge pressure from exceeding .65 psi (18 inches of water) and a vacuum from exceeding .22 psi (6 inches of water) in the gasoline tank truck;
 - (2) a reading equal to or greater than 100% of the lower explosive limit, LEL, measured as propane, at 2.5 centimeters from any potential leak source when measured by the method referenced in Section 11.8.4 during the loading or unloading operations at gasoline dispensing facilities, bulk plants and bulk terminals;
 - (3) visible leaks during the loading and unloading operations at gasoline dispensing facilities, bulk plants and bulk terminals; and,
- (b) within 15 days , repair and retest a vapor collection, or control system that exceeds the limits in Section 11.8.2(a)(1).

11.8.2.3 The Director may, at any time, monitor a gasoline tank truck, vapor collection system, or vapor control system, by the method referenced in Section 11.8.4, to confirm continuing compliance with Sections 11.8.2.1 and 11.8.2.2.

11.8.3 Compliance Schedule

- 11.8.3.1 The owner or operator of a gasoline tank truck subject to this regulation must meet the following increments of progress:
- (a) Submit plans to the Director for operating and maintenance procedures to implement Sections 11.8.2 and 11.8.4 before January 15, 1990;
 - (b) Issue purchase orders for contracts for all needed test equipment before February 15, 1990;
 - (c) Commence certification of gasoline tank trucks before May 15, 1990, and;
 - (d) Complete initial certification of all gasoline tank trucks by June 1, 1990.

- 11.8.3.2 The owner or operator of a gasoline tank truck subject to a compliance schedule of this section shall certify to the Director within 5 days after the deadline for each increment of progress, whether the required increment of progress has been met.

11.8.4 Testing and Monitoring

- 11.8.4.1 The owner or operator of a gasoline tank truck subject to this regulation shall, at his own expense, demonstrate compliance with Section 11.8.2 by the methods of Section 11.8.4.3 or an alternative method approved by the Director and EPA. All tests shall be made by, or under the direction of, a person qualified by training and/or experience in the field of air pollution testing or tank truck maintenance and testing and/or experience in the use of a combustible gas detector in the field of air pollution.
- 11.8.4.2 The owner or operator of a gasoline tank truck subject to this regulation shall notify the Director in writing of the date and location of the certification test at least 10 days before the anticipated test date.
- 11.8.4.3 Test procedure to determine compliance with Section 11.8.2 must be consistent with the test procedure described in 40 CFR Part 60, Appendix A, Method 27.
- 11.8.4.4 Monitoring to confirm the continuing existence of leak tight conditions shall be consistent with the procedures described in Appendix B of the OAQPS Guideline Series document, "Control of Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems," EPA 450/2-78-051 or an alternative method approved by the Director and EPA.

11.8.5 Recordkeeping and Reporting

- 11.8.5.1 An owner or operator subject to section 11.8 shall maintain records of all certification testing and repairs. The records must identify the gasoline tank truck, vapor collection system, or vapor control system; the date of repair; and, if applicable, the type of repair and the date of retest. The records must be maintained in a legible, readily available condition for at least 2 years after the date of testing or repair was completed.

11.8.5.2 The records for certification tests required by Section 11.8.5.1 of this section, shall, as a minimum, contain:

- (a) the gasoline tank truck identification number;
- (b) the initial test pressure and the time of reading;
- (c) the final test pressure and the time of reading;
- (d) the initial test vacuum and the time of reading;
- (e) the final test vacuum and the time of reading;
- (f) at the top of each report page shall be the company name, and the date and location of the tests on that page; and,
- (g) name, address and title of person conducting the test.

11.8.5.3 Copies of all records and reports under this Section shall immediately be made available to the Director and/or EPA, upon verbal or written request, at any reasonable time.

11.9 Any equivalence approval required by EPA in this regulation will not be effective until approved as a single source revision to the State Implementation Plan.

11.10 Gasoline Dispensing Facilities - Stage II Vapor Controls

11.10.1 The requirements of this section shall apply to:

- (a) All gasoline dispensing facilities constructed or substantially modified after 15 November 1992.
- (b) All other gasoline dispensing facilities which have or have had a monthly throughput of greater than 10,000 gallons in any one month after November 1991.
- (c) The requirements in this section shall be presumed to apply to all gasoline dispensing facilities. It is the obligation of the person who owns, operates, leases, or controls a gasoline dispensing facility to demonstrate to the Department, in writing and with clear and convincing evidence, that the facility should be exempted from this regulation because its throughput has not exceeded 10,000 gallons in any month after November 1991. Any such exempted facility shall be required to comply with the recordkeeping

and reporting requirements specified in Subsections 11.10.3.1 and 11.10.3.9.

- (d) The requirements in this section shall not apply to gasoline dispensing facilities which dispense gasoline solely to marine vessels.
- (e) Facilities constructed or substantially modified after 15 November 1992 may submit to the Department, in writing, a request for an exemption to the requirements of this section. Exemption requests must demonstrate that monthly throughput has not exceeded 10,000 gallons in any month since November 1991 and will not exceed 10,000 gallons in any future month and that installation of a Stage II system at the facility is not technically and/or economically feasible and must include, at a minimum, the following information:
 - (1) The nature of the facility;
 - (2) The number of dispensers, hoses and nozzles at the facility;
 - (3) The number and volume of all gasoline storage tanks at the facility; and
 - (4) Gasoline throughput for the facility for every month for the two years preceding the request or, for new facilities, expected maximum monthly gasoline throughput.

Any facility that is granted an exemption by the Department pursuant to this subsection shall be required to comply with the recordkeeping and reporting requirements specified in Subsections 11.10.3.1 and 11.10.3.10.

- (f) Gasoline dispensing facilities that dispense fuel exclusively to rental cars or corporate or commercial fleets may submit to the Department, in writing, a request for an exemption to the requirements of this Subsection. Exemption requests must demonstrate that at least 95% of the vehicles fueled at the facility are and will continue to be equipped with an onboard refueling vapor recovery (ORVR) system.

Any facility that is granted an exemption by the Department pursuant to this Subsection shall be required to comply with the recordkeeping and reporting requirements specified in Subsections 11.10.3.1 and 11.10.3.10 and the Stage I requirements in Subsection 11.5.2 and to certify to the Department, upon request, that at least 95% of the vehicles fueled at the facility continue to be equipped with ORVR.

11.10.2 Prohibitions and Requirements

11.10.2.1 Any person who owns, leases, operates, or controls a gasoline dispensing facility, except those facilities meeting the specifications of Subsection 11.10.1(c) and those facilities that are granted an exemption by the Department pursuant to the provisions of Subsection 11.10.1(e), shall, according to the schedule provided in Subsection 11.10.4:

- (a) Install, at each gasoline dispensing pump, a Stage II vapor collection and control system that has been certified by the California Air Resources Board (CARB) as having a minimum control efficiency of 95 percent by weight and make any modifications to the facility necessary to properly operate the system. All hoses in the system shall be coaxial. The system may include aftermarket parts, provided that those parts have been certified by CARB.
- (b) All Stage II systems installed after 7 February 2001 must be certified according to CARB Vapor Recovery Certification Procedure CP-201, for underground storage tanks, or CP-205, for aboveground storage tanks, as adopted 12 April 1996, or by applicable certification procedures adopted by CARB subsequent to that date.
- (c) All Stage II vapor and vent piping shall be made of a nonmetallic rigid type material unless the CARB certification for that Stage II system specifies that another type of piping may be used.
- (d) Install pressure-vacuum (PV) vent valves on all Stage II systems. PV valve relief settings must be 3, plus or minus 0.5, inches of water column pressure and 8, plus or minus 2, inches water column vacuum, unless otherwise specified in the applicable CARB certification.
- (e) Ensure that, prior to the initial operation of the Stage II vapor collection and control system, at least one facility representative has attended a Stage II training session applicable to the Stage II system in place at that facility which has been approved by the Director and by EPA. At all times, at least one person who has attended a Stage II training session applicable to the Stage II system in

operation at the facility must be employed at the facility.

- (f) Conspicuously post operating instructions for dispensing gasoline using the vapor collection and control system on the front of each gasoline dispensing pump. Such instructions must include a warning not to attempt continued refueling after initial automatic shutoff. Instructions shall also include the telephone number of the Department and a request that inoperative control devices be reported.
- (g) Maintain the Stage II vapor collection and control system in proper operating condition as specified by the manufacturer and free of defects that would impair the effectiveness of the system, as defined by the state inspection criteria.
- (h) Visually inspect all aboveground parts of the Stage II vapor collection and control system once a week. Such an inspection must, at a minimum, include checking for: missing components; slits and tears in nozzle boots; face cone defects; flattened, kinked or torn hoses; and faceplate defects which hinder contact with the fill inlet area.
- (i) Remove from service any dispenser if:
 - (1) Any part of the Stage II vapor collection and control system associated with that dispenser fails a compliance test conducted by or ordered by the Department or is found to be defective during a Department inspection, or
 - (2) Any part of the Stage II vapor collection and control system associated with that dispenser is not operating properly, or
 - (3) Any part of the Stage II vapor collection and control system associated with that dispenser is found to be defective during a visual inspection performed in accordance with Subsection 11.10.2.1(h).

If the defect is in a single hose or nozzle on a multiproduct dispenser, only the nozzle associated with the defect must be removed from service.

Any dispenser removed from service on the basis of test results shall be kept out of service until it has been demonstrated by retesting that the dispenser is in compliance. Any dispenser removed from service in accordance with any other provision of this subsection shall be kept out of service until all defective or missing parts of the Stage II vapor collection and control system associated with the dispenser have been repaired or replaced.

- 11.10.2.2 Except as provided in Subsection 11.10.1, no person, owner, operator, or employee of a gasoline dispensing facility shall dispense or allow the dispensing of gasoline from a stationary storage vessel into any motor vehicle fuel tank unless that gasoline dispenser is equipped with a properly operating Stage II vapor collection and control system certified by the California Air Resources Board and that system has been determined to be installed correctly according to the tests specified in Subsection 11.10.3.3. Stage II systems that were certified according to a CARB certification procedure adopted after 12 April 1996 must be operated in accordance with the provisions of the applicable certification, including Enhanced Vapor Recovery provisions, if applicable.

11.10.3 Testing, Recordkeeping and Reporting Requirements

- 11.10.3.1 On or before 15 November 1992 and when requested by the Department, the owner or operator of any gasoline dispensing facility shall report the following information to the Department in writing:
- (a) Name and address of the facility,
 - (b) Name and address of owner or operator or other responsible individual,
 - (c) Number of nozzles used to dispense gasoline at the facility, and
 - (d) Monthly throughput for each of the previous 12 months.
- 11.10.3.2 At least thirty (30) days prior to the installation of a Stage II system, the person who owns, operates, leases, or controls the gasoline dispensing facility shall notify the Department in writing

of the expected date of initiation of installation of the underground piping and of the type and manufacturer of the Stage II equipment. Such notification shall not be deemed to be an approval by the Department of the equipment being installed, or as compliance with the requirements of this section.

- 11.10.3.3 The following tests must be conducted on any Stage II vapor collection and control system prior to initial operation of the system:
- (a) A Leak Test;
 - (b) A Liquid Blockage Test, which must be performed on every nozzle on the Stage II system;
 - (c) A Vapor Space Tie Test;
 - (d) A Ten Gallon per Minute Test;
 - (e) A Pressure Vacuum Vent Cap Test;
 - (f) For vacuum assist Stage II systems, an Air to Liquid Ratio (A/L) Test, which must be performed on every nozzle on the Stage II system. If more than one product is dispensed through a single nozzle, A/L testing must be performed on that nozzle for each product dispensed; and
 - (g) All additional tests specified in the CARB certification applicable to that Stage II system
- 11.10.3.4 The function of all Stage II vapor collection and control systems shall be retested prior to operation of the system after any major system modification. Testing shall include all tests listed in Subsection 11.10.3.3. A major system modification is considered to be the occurrence of any one of the following:
- (a) A modification which would cause the facility to be a substantially modified gasoline dispensing facility, as defined in Subsection 11.1.21 of this regulation,
 - (b) The repair or replacement of any part of an underground piping system attached to a stationary storage tank equipped with a Stage II system, excluding repairs which occur without excavation, or

- (c) The change from one certified Stage II system configuration to another.

11.10.3.5 The function of all Stage II vapor collection and control systems shall be retested periodically according to the following schedule:

- (a) A Leak test, a Vapor Space Tie Test, a Pressure Vacuum Vent Cap Test and a Ten Gallon per Minute Test shall be performed annually;
- (b) A Liquid Blockage Test shall be performed once every three years on every nozzle on the Stage II system;
- (c) An Air to Liquid Ratio Test shall be performed annually on all vacuum assist systems; and
- (d) All other tests required in the CARB certification applicable to that Stage II system shall be performed according to the frequency specified in that certification.

11.10.3.6 The Department may require a retest of the system any time that an inspection indicates that the vapor collection and control system may not be functioning properly.

11.10.3.7 The owner or operator of a facility shall notify the Department of the date that testing will be conducted at least seven (7) days in advance of testing and shall certify to the Department in writing within 15 days of the test that testing has been completed. Such certification shall be signed by the owner or operator of the facility and shall include the date of installation of the Stage II vapor collection and control system and the results of the tests required in this section. Test results shall be signed and certified as accurate by the person who conducted the tests.

11.10.3.8 Leak, Liquid Blockage, and Vapor Space Tie Tests performed pursuant to the requirements of this section shall use the methodology specified in EPA's Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling of Gasoline Dispensing Facilities, Volumes I and II, November 1991. Ten Gallon Per Minute Tests, Air to Liquid Ratio Tests, Pressure Vacuum Vent Cap Tests and any additional tests required by the applicable CARB certification shall be performed using the current CARB methodology for those tests, unless otherwise specified by

the Director.

11.10.3.9 The following records shall be maintained for a period of five years (unless otherwise noted) and shall be made available for inspection by representatives of the Department or the EPA on request:

- (a) Dates and results of weekly visual inspections as required in Subsection 11.10.2.1(e),
- (b) Date that any gasoline dispenser is removed from operation in compliance with the requirements specified in Subsection 11.10.2.1(f) and date that dispenser is returned to service,
- (c) Identification of parts of the Stage II vapor collection and control system that are repaired or replaced, and dates of such replacements,
- (d) Identification of any tests performed and the dates and results of such tests, and
- (e) Proof of attendance and completion of training, as specified in Subsection 11.10.2.1 (b) for each employee who has received Stage II training. Such documentation shall be maintained as long as the employee continues to be employed by the facility.

Records maintained pursuant to Subsections 11.10.3.8 (a), (b) and (c) for the two most current years shall be kept at the facility. All other records specified in this subsection shall be kept either at the facility or at a centralized location approved by the Department.

11.10.3.10 Any facility exempted from this section according to the provisions of Subsection 11.10.1 or Subsection 11.10.1(e) or (f) shall maintain records at the facility documenting monthly throughput of gasoline at the facility and shall make those records available for inspection by representatives of the Department or the EPA on request. Documentation shall include dates and quantities of gasoline delivered and monthly records of the quantity of gasoline dispensed. All records shall be maintained for a period of five (5) years.

11.10.4 Compliance Schedule

11.10.4.1 All gasoline dispensing facilities subject to this section, as identified in Subsection 11.10.1, must comply with the provisions of Subsection 11.10.2 according to the following schedule:

- (a) All gasoline dispensing facilities constructed or substantially modified on or after 15 November 1992 shall comply before commencing operation.
- (b) All gasoline dispensing facilities constructed or substantially modified after 15 November 1990 but before 15 November 1992 shall comply by 15 May 1993.
- (c) All gasoline dispensing facilities not enumerated in (a) or (b) above which had a throughput of gasoline of 100,000 gallons or more in any month after November 1991 shall comply by 15 November 1993.
- (d) All gasoline dispensing facilities not enumerated in (a), (b), or (c) above which had a throughput of gasoline of 50,000 gallons or more in any month after November 1991 shall comply by 15 May 1994.
- (e) All other gasoline dispensing facilities subject to this section shall comply by 15 November 1994.
- (f) Any gasoline dispensing facility which is initially exempt from this section because the monthly gasoline throughput at that facility did not exceed 10,000 gallons in any month between November 1991 and 15 November 1992 which subsequently has a throughput in excess of 10,000 gallons in any month must comply with the provisions of this section within 6 months of exceeding the 10,000 gallon threshold or by 15 November 1994, whichever is later.

11.11 General Provisions

11.11.1 Purpose

The purpose of this regulation is to regulate the storage and marketing of petroleum liquids to minimize emissions of volatile organic compounds.

11.11.2 Authority

These regulations are authorized pursuant to R.I. Gen. Laws § 42-17.1-2(s) and 23-23, as amended, and have been promulgated pursuant to the procedures set forth in the R.I. Administrative Procedures Act, R.I. Gen. Laws Chapter 42-35

11.11.3 Application

The terms and provisions of this regulation shall be liberally construed to permit the Department to effectuate the purposes of state law, goals and policies.

11.11.4 Severability

If any provision of this regulation or the application thereof to any person or circumstance, is held invalid by a court of competent jurisdiction, the validity of the remainder of the regulation shall not be affected thereby.

11.11.5 Effective Date

The foregoing regulation, "Petroleum Liquids Marketing and Storage", as amended, after due notice, is hereby adopted and filed with the Secretary of State this 19th day of September, 2008 to become effective twenty (20) days thereafter, in accordance with the provisions of Chapters 23-23, 42-35, 42-17.1, 42-17.6, of the General Laws of Rhode Island of 1956, as amended.

W. Michael Sullivan, PhD., Director
Department of Environmental Management

Notice Given on: July 8, 2008
Public Hearing held: August 8, 2008
Filing Date: September 19, 2008
Effective Date: October 9, 2008