

.0925 PETROLEUM LIQUID STORAGE IN FIXED ROOF TANKS

- (a) For the purpose of this Regulation, the following definitions apply:
- (1) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature and/or pressure and remains liquid at standard conditions.
 - (2) "Crude oil" means a naturally occurring mixture which consists of hydrocarbons and/or sulfur, nitrogen and/or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.
 - (3) "Custody transfer" means the transfer of produced crude oil and/or condensate, after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipeline or any other forms of transportation.
 - (4) "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 shell.
 - (5) "Internal floating roof" means a cover or roof in a fixed roof tank which rests upon or is floated upon the petroleum liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.
 - (6) "Petroleum liquids" means crude oil, condensate, and any finished or intermediate products manufactured or extracted in a petroleum refinery.
 - (7) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of crude oils, or through redistillation, cracking, extraction, or reforming of unfinished petroleum derivatives.
- (b) This Regulation applies to all fixed roof storage vessels with capacities greater than 39,000 gallons containing volatile petroleum liquids whose true vapor pressure is greater than 1.52 psia.
- (c) This Regulation does not apply to volatile petroleum liquid storage vessels:
- (1) equipped with external floating roofs, or
 - (2) having capacities less than 416,000 gallons used to store produced crude oil and condensate prior to lease custody transfer.
- (d) With the exceptions stated in Paragraph (c) of this Regulation, the owner or operator of any fixed roof storage vessel subject to this Regulation shall not use the storage vessel unless:
- (1) The storage 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;
 - (2) The storage vessel is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials;

- (3) 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;
 - (B) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;
 - (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;
- (4) Routine visual inspections are conducted through roof hatches once per month;
- (5) A complete inspection of cover and seal is conducted whenever the tank is emptied for maintenance, shell inspection, cleaning, or for other nonoperational reasons or whenever excessive vapor leakage is observed; and
- (6) Records are maintained in accordance with Regulation .0903 of this Section and shall include:
 - (A) reports of the results of inspections conducted under Parts (d)(4) and (d)(5) of this Regulation,
 - (B) a record of the average monthly storage temperature, and true vapor pressures of petroleum liquids stored, and
 - (C) records of the throughput quantities and types of petroleum liquids for each storage vessel.

NCDAQ History Note: *Statutory Authority G.S. 143-215.3(a)(1);143-215.107(a)(5);
Eff. July 1, 1979;
Amended Eff. March 1, 1991; December 1, 1989; January 1,
1985.*

WNCRAQA History Note: *Adopted Eff. May 8, 2000*

.0926 BULK GASOLINE PLANTS

- (a) For the purpose of this Rule, the following definitions apply:
 - (1) "Average daily throughput" means annual throughput of gasoline divided by 312 days per year.
 - (2) "Bottom filling" means the filling of a tank truck or stationary storage tank through an opening that is flush with the tank bottom.
 - (3) "Bulk gasoline plant" means a gasoline storage and distribution facility which has an average daily throughput of less than 20,000 gallons of gasoline and which usually receives gasoline from bulk terminals by trailer transport, stores it in tanks, and

subsequently dispenses it via account trucks to local farms, businesses, and service stations.

- (4) "Bulk gasoline terminal" means a gasoline storage facility which usually 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; and has an average daily throughput of more than 20,000 gallons of gasoline.
- (5) "Gasoline" means any petroleum distillate having a Reid vapor pressure of four psia or greater.
- (6) "Incoming vapor balance system" means a combination of pipes or hoses which create a closed system between the vapor spaces of an unloading tank truck or trailer and a receiving stationary storage tank such that vapors displaced from the receiving stationary storage tank are transferred to the tank truck or trailer being unloaded.
- (7) "Outgoing vapor balance system" means a combination of pipes or hoses which create a closed system between the vapor spaces of an unloading stationary storage tank and a receiving tank truck or trailer such that vapors displaced from the receiving tank truck or trailer are transferred to the stationary storage tank being unloaded.
- (8) "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.
- (9) "Submerged filling" means the filling of a tank truck or stationary tank through a pipe or hose whose discharge opening is entirely submerged when the pipe normally used to withdraw liquid from the tank can no longer withdraw any liquid, or whose discharge opening is entirely submerged when the liquid level is six inches above the bottom of the tank.

(b) This Rule applies to the unloading, loading, and storage facilities of all bulk gasoline plants and of all tank trucks or trailers delivering or receiving gasoline at bulk gasoline plants except stationary storage tanks with capacities less than 528 gallons.

(c) The owner or operator of a bulk gasoline plant shall not transfer gasoline to any stationary storage tanks after May 1, 1993, unless the unloading tank truck or trailer and the receiving stationary storage tank are equipped with an incoming vapor balance system as described in Paragraph (i) of this Rule and the receiving stationary storage tank is equipped with a fill line whose discharge opening is flush with the bottom of the tank.

(d) The owner or operator of a bulk gasoline plant with an average daily gasoline throughput of 4,000 gallons or more shall not load tank trucks or trailers at such plant after May 1, 1993, unless the unloading stationary storage tank and the receiving tank truck or trailer are equipped

with an outgoing vapor balance system as described in Paragraph (i) of this Rule and the receiving tank truck or trailer is equipped for bottom filling.

(e) The owner or operator of a bulk gasoline plant with an average daily throughput of more than 2,500 gallons but less than 4,000 gallons located in an area with a housing density exceeding specified limits as described in this Paragraph shall not load any tank truck or trailer at such bulk gasoline plant after November 1, 1996, unless the unloading stationary storage tank and receiving tank truck or trailer are equipped with an outgoing vapor balance system as described in Paragraph (i) of this Rule and the receiving tank truck or trailer is equipped for bottom filling. In the counties of Alamance, Buncombe, Cabarrus, Catawba, Cumberland, Davidson, Durham, Forsyth, Gaston, Guilford, Mecklenburg, New Hanover, Orange, Rowan, and Wake, the specified limit on housing density is 50 residences in a square one mile on a side with the square centered on the loading rack at the bulk gasoline plant and with one side oriented in a true North-South direction. In all other counties the specified limit on housing density is 100 residences per square mile. The housing density shall be determined by counting the number of residences using aerial photographs or other methods determined by the Director to provide equivalent accuracy.

(f) The owner or operator of a bulk gasoline plant not subject to the outgoing vapor balance system requirements of Paragraph (d) or (e) of this Rule shall not load trucks or trailers at such plants unless:

- (1) Equipment is available at the bulk gasoline plant to provide for submerge filling of each tank truck or trailer; or
- (2) Each receiving tank truck or trailer is equipped for bottom filling.

(g) For a gasoline bulk plants located in nonattainment area for ozone, once the average daily throughput of gasoline at the bulk gasoline plant reaches or exceeds the applicability threshold in Paragraph (d) or (e) of this Rule or if Paragraph (d) or (e) is currently applicable to the bulk gasoline plant, the bulk gasoline plant shall continue to comply with the outgoing vapor balance system requirements of Paragraph (d) or (e) of this Rule, as is applicable, even though the average daily gasoline throughput falls below the threshold contained in Paragraph (d) or (e) of this Rule.

(h) The owner or operator of a bulk gasoline plant, tank truck or trailer that is required to be equipped with a vapor balance system pursuant to Paragraphs (c), (d), or (e) of this Rule shall not transfer gasoline between tank truck or trailer and stationary storage tank unless:

- (1) The vapor balance system is in good working order and is connected and operating;
- (2) Tank truck or trailer hatches are closed at all times during loading and unloading operations; and

- (3) The tank truck's or trailer's pressure/vacuum relief valves and hatch covers and the truck tanks or storage tanks or associated vapor and liquid lines are vapor tight during loading or unloading.
- (i) Vapor balance systems required under Paragraphs (c), (d), and (e) of this Rule shall consist of the following major components:
 - (1) a vapor space connection on the stationary storage tank equipped with fittings which are vapor tight and will be automatically and immediately closed upon disconnection so as to prevent release of organic material;
 - (2) a connecting pipe or hose equipped with fittings which are vapor tight and will be automatically and immediately closed upon disconnection so as to prevent release of organic material; and
 - (3) a vapor space connection on the tank truck or trailer equipped with fittings which are vapor tight and will be automatically and immediately closed upon disconnection so as to prevent release of organic material.
- (j) The owner or operator of a bulk gasoline plant shall paint all tanks used for gasoline storage white or silver at the next scheduled painting or before November 1, 2002, whichever is sooner.
- (k) The pressure relief valves on tank trucks or trailers loading or unloading at bulk gasoline plants shall be set to release at the highest possible pressure (in accordance with state or local fire codes or the National Fire Prevention Association guidelines). The pressure relief valves on stationary storage tanks shall be set at 0.5 psi for storage tanks placed in service on or after November 1, 1992, and 0.25 psi for storage tanks existing before November 1, 1992.
- (l) 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.
- (m) The owner or operator of a bulk gasoline plant shall observe loading and unloading operations and shall discontinue the transfer of gasoline:
 - (1) if any liquid leaks are observed, or
 - (2) if any vapor leaks are observed where a vapor balance system is required under Paragraphs (c), (d), or (e) of this Rule.
- (n) The owner or operator of a bulk gasoline plant shall not load, or allow to be loaded, gasoline into any truck tank or trailer unless the truck tank or trailer has been certified leak tight in accordance with Rule .0932 of this Section within the last 12 months where the bulk gasoline plant is required to use an outgoing vapor balance system.

NCDAQ History Note:

Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);

Eff. July 1, 1979;

*Amended Eff. July 1, 1996; May 1, 1993; March 1, 1991;
December 1, 1989.*

WNCRAQA History Note: Adopted Eff. May 8, 2000

.0927 BULK GASOLINE TERMINALS

- (a) For the purpose of this Rule, the following definitions apply:
- (1) "Bulk gasoline terminal" means:
 - (A) breakout tanks of an interstate oil pipeline facility; or
 - (B) a gasoline storage facility that usually receives gasoline from refineries primarily by pipeline, ship, or barge; delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by tank truck; and has an average daily throughput of more than 20,000 gallons of gasoline.
 - (2) "Breakout tank" means a tank used to:
 - (A) relieve surges in a hazardous liquid pipeline system, or
 - (B) receive and store hazardous liquids transported by pipeline for reinjection and continued transport by pipeline.
 - (3) "Gasoline" means a petroleum distillate having a Reid vapor pressure of four psia or greater.
 - (4) "Contact deck" means a deck in an internal floating roof tank that rises and falls with the liquid level and floats in direct contact with the liquid surface.
 - (5) "Degassing" means the process by which a tank's interior vapor space is decreased to below the explosive limit for the purpose of cleaning, inspection, or repair.
 - (6) "Leak" means a crack or hole that lets petroleum product vapor or liquid escape that can be identified through the use of sight, sound, smell, an explosimeter, or the use of a meter that measures volatile organic compounds. When an explosimeter or meter is used to detect a leak, a leak is a measurement that is equal to or greater than 100 percent of the lower explosive limit, as detected by a combustible gas detector using the test procedure described in Rule .0940 of this Section.
 - (7) "Liquid balancing" means a process used to degas floating roof gasoline storage tanks with a liquid whose vapor pressure is below 1.52 psia. This is done by removing as much gasoline as possible without landing the roof on its internal supports, pumping in the replacement fluid, allowing mixing, remove as much mixture as possible without landing the roof, and repeating these steps until the vapor pressure of the mixture is below 1.52 psia.
 - (8) "Liquid displacement" means a process by which gasoline vapors, remaining in an empty tank, are displaced by a liquid with a vapor pressure below 1.52 psia.

(b) This Rule applies to bulk gasoline terminals and the appurtenant equipment necessary to load the tank truck or trailer compartments.

(c) Gasoline shall not be loaded into any tank trucks or trailers from any bulk gasoline terminal unless:

- (1) The bulk gasoline terminal is equipped with a vapor control system that prevents the emissions of volatile organic compounds from exceeding 35 milligrams per liter. The owner or operator shall obtain from the manufacturer and maintain in his records a pre-installation certification stating the vapor control efficiency of the system in use;
- (2) Displaced vapors and gases are vented only to the vapor control system or to a flare;
- (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 that make vapor-tight connections and that are automatically and immediately closed upon disconnection.

(d) Sources regulated by Paragraph (b) of this Rule shall not:

- (1) allow gasoline to be discarded in sewers or stored in open containers or handled in any manner that would result in evaporation, or
- (2) allow the pressure in the vapor collection system to exceed the tank truck or trailer pressure relief settings.

(e) The owner or operator of a bulk gasoline terminal shall paint all tanks used for gasoline storage white or silver at the next scheduled painting or by December 1, 2002, whichever occurs first.

(f) The owner or operator of a bulk gasoline terminal shall install on each external floating roof tank with an inside diameter of 100 feet or less used to store gasoline a self-supporting roof, such as a geodesic dome, at the next time that the tank is taken out of service or by December 1, 2002, whichever occurs first.

(g) The following equipment shall be required on all tanks storing gasoline at a bulk gasoline terminal:

- (1) rim-mounted secondary seals on all external and internal floating roof tanks,
- (2) gaskets on deck fittings, and
- (3) floats in the slotted guide poles with a gasket around the cover of the poles.

(h) Decks shall be required on all above ground tanks with a capacity greater than 19,800 gallons storing gasoline at a bulk gasoline terminal. All decks installed after June 30, 1998 shall comply with the following requirements:

- (1) deck seams shall be welded, bolted or riveted; and
- (2) seams on bolted contact decks and on riveted contact decks shall be gasketed.

(i) If, upon facility or operational modification of a bulk gasoline terminal that existed before December 1, 1992, an increase in benzene emissions results such that:

- (1) emissions of volatile organic compounds increase by more than 25 tons cumulative at any time during the five years following modifications; and
- (2) annual emissions of benzene from the cluster where the bulk gasoline terminal is located (including the pipeline and marketing terminals served by the pipeline) exceed benzene emissions from that cluster based upon calendar year 1991 gasoline throughput and application of the requirements of this Chapter,

then, the annual increase in benzene emissions due to the modification shall be offset within the cluster by reduction in benzene emissions beyond that otherwise achieved from compliance with this Rule, in the ratio of at least 1.3 to 1.

(j) The owner or operators of a bulk gasoline terminal that has received an air permit before December 1, 1992, to emit toxic air pollutants under Chapter 17 .0700 to comply with Section .1100 of this Chapter shall continue to follow all terms and conditions of the permit issued under Chapter 17 .0700 and to bring the terminal into compliance with Section .1100 of this Chapter according to the terms and conditions of the permit, in which case the bulk gasoline terminal shall continue to need a permit to emit toxic air pollutants and shall be exempted from Paragraphs (e) through (i) of this Rule.

(k) The owner or operator of a bulk gasoline terminal shall not load, or allow to be loaded, gasoline into any truck tank or trailer unless the truck tank or trailer has been certified leak tight according to Rule .0932 of this Section within the last 12 months.

(l) The owner or operator of a bulk gasoline terminal shall have on file at the terminal a copy of the certification test conducted according to Rule .0932 of this Section for each gasoline tank truck loaded at the terminal.

(m) Emissions of gasoline from degassing of external or internal floating roof tanks at a bulk gasoline terminal shall be collected and controlled by at least 90 percent by weight. Liquid balancing shall not be used to degas gasoline storage tanks at bulk gasoline terminals. Bulk gasoline storage tanks containing not more than 138 gallons of liquid gasoline or the equivalent of gasoline vapor and gasoline liquid are exempted from the degassing requirements if gasoline vapors are vented for at least 24-hours. Documentation of degassing external or internal floating roof tanks shall be made according to Section .0903 of this Chapter, Recordkeeping: Reporting: Monitoring.

(n) According to Rule .0903 of this Section, the owner or operator of a bulk gasoline terminal shall visually inspect the following for leaks each day that the terminal is both manned and open for business:

- (1) the vapor collection system,
- (2) the vapor control system, and

(3) each lane of the loading rack while a gasoline tank truck or trailer is being loaded. If no leaks are found, the owner or operator shall record that no leaks were found. If a leak is found, the owner or operator shall record the information specified in Paragraph (p) of this Rule. The owner or operator shall repair all leaks found according to Paragraph (q) of this Rule.

(o) The owner or operator of a bulk gasoline terminal shall inspect weekly for leaks:

- (1) the vapor collection system,
- (2) the vapor control system, and
- (3) each lane of the loading rack while a gasoline tank truck or trailer is being loaded.

The weekly inspection shall be done using sight, sound, or smell; a meter used to measure volatile organic compounds; or an explosimeter. An inspection using either a meter used to measure volatile organic compounds or an explosimeter shall be conducted every month. If no leaks are found, the owner or operator shall record the date that the inspection was done and that no leaks were found. If a leak is found, the owner or operator shall record the information specified in Paragraph (p) of this Rule. The owner or operator shall repair all leaks found according to Paragraph (q) of this Rule.

(p) For each leak found under Paragraph (n) or (o) of this Rule, the owner or operator of a bulk gasoline terminal shall record:

- (1) the date of the inspection,
- (2) the findings (location, nature and severity of each leak)
- (3) the corrective action taken,
- (4) the date when corrective action was completed, and
- (5) any other information that the terminal deems necessary to demonstrate compliance.

(q) The owner or operator of a bulk gasoline terminal shall repair all leaks as follows:

- (1) The vapor collection hose that connects to the tank truck or trailer shall be repaired or replaced before another tank truck or trailer is loaded at that rack after a leak has been detected originating with the terminal's equipment rather than from the gasoline tank truck or trailer.
- (2) All other leaks shall be repaired as expeditiously as possible but no later than 15 days from their detection. If more than 15 days are required to make the repair, the reasons that the repair cannot be made shall be documented, and the leaking equipment shall not be used after the fifteenth day from when the leak detection was found until the repair is made.

NCDAQ History Note:

Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);

Eff. July 1, 1979;

Amended Eff. January 1, 2007; April 1, 2003; August 1, 2002;

July 1, 1998; July 1, 1996; July 1, 1994; December 1, 1992.

*WNCRAQA History Note: Adopted Eff. May 8, 2000;
Amended Eff. March 19, 2007; May 10, 2004; September 9,
2002.*

.0928 GASOLINE SERVICE STATIONS STAGE I

- (a) Definitions. For the purpose of this Rule, the following definitions apply:
- (1) "Gasoline" means a petroleum distillate having a Reid vapor pressure of four psia or greater.
 - (2) "Delivery vessel" means tank trucks or trailers equipped with a storage tank and used for the transport of gasoline from sources or supply to stationary storage tanks of gasoline dispensing facilities.
 - (3) "Submerged fill pipe" means any fill pipe with a discharge opening which is entirely submerged when the pipe normally used to withdraw liquid from the tank can no longer withdraw any liquid, or which is entirely submerged when the level of the liquid is:
 - (A) six inches above the bottom of the tank if the tank does not have a vapor recovery adaptor, or
 - (B) 12 inches above the bottom of the tank if the tank has a vapor recovery adaptor.

If the opening of the submerged fill pipe is cut at a slant, the distance is measured from the top of the slanted cut to the bottom of the tank.
 - (4) "Owner" means any person who has legal or equitable title to the gasoline storage tank at a facility.
 - (5) "Operator" means any person who leases, operates, controls, or supervises a facility at which gasoline is dispensed.
 - (6) "Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks.
 - (7) "Gasoline service station" means any gasoline dispensing facility where gasoline is sold to the motoring public from stationary storage tanks.
 - (8) "Throughput" means the amount of gasoline dispensed at a facility during a calendar month after November 15, 1990.
 - (9) "Line" means any pipe suitable for transferring gasoline.
 - (10) "Dual point system" means the delivery of the product to the stationary storage tank and the recovery of vapors from the stationary storage tank occurs through two separate openings in the storage tank and two separate hoses between the tank truck and the stationary storage tank.

- (11) "Coaxial system" means the delivery of the product and recovery of vapors occur through a single coaxial fill tube, which is a tube within a tube. Product is delivered through the inner tube, and vapor is recovered through the annular space between the walls of the inner tube and outer tube.
- (12) "Poppeted vapor recovery adaptor" means a vapor recovery adaptor that automatically and immediately closes itself when the vapor return line is disconnected and maintains a tight seal when the vapor return line is not connected.
- (13) "Stationary storage tank" means a gasoline storage container which is a permanent fixture.

(b) **Applicability.** This Rule applies to all gasoline dispensing facilities and gasoline service stations and to delivery vessels delivering gasoline to a gasoline dispensing facility or gasoline service station.

(c) **Exemptions.** This Rule does not apply to:

- (1) transfers made to storage tanks at gasoline dispensing facilities or gasoline service stations equipped with floating roofs or their equivalent;
- (2) stationary tanks with a capacity of not more than 2,000 gallons which are in place before July 1, 1979, if the tanks are equipped with a permanent or portable submerged fill pipe;
- (3) stationary storage tanks with a capacity of not more than 550 gallons which are installed after June 30, 1979, if tanks are equipped with a permanent or portable submerged fill pipe;
- (4) stationary storage tanks with a capacity of not more than 2000 gallons located on a farm or a residence and used to store gasoline for farm equipment or residential use if gasoline is delivered to the tank through a permanent or portable submerged fill pipe except that this exemption does not apply in ozone non-attainment areas;
- (5) stationary storage tanks at a gasoline dispensing facility or gasoline service station where the combined annual throughput of gasoline at the facility or station does not exceed 50,000 gallons, if the tanks are permanently equipped with submerged fill pipes;
- (6) any tanks used exclusively to test the fuel dispensing meters.

(d) With exceptions stated in Paragraph (c) of this Rule, gasoline shall not be transferred from any delivery vessel into any stationary storage tank unless:

- (1) The tank is equipped with a submerged fill pipe, and the vapors displaced from the storage tank during filling are controlled by a vapor control system as described in Paragraph (e) of this Rule;
- (2) The vapor control system is in good working order and is connected and operating with a vapor tight connection;

- (3) The vapor control system is properly maintained and all damaged or malfunctioning components or elements of design are repaired, replaced or modified;
 - (4) Gauges, meters, or other specified testing devices are maintained in proper working order;
 - (5) The delivery vessel and vapor collection system complies with Rule .0932 of this Section; and
 - (6) The following records, as a minimum, are kept in accordance with Rule .0903 of this Section:
 - (A) the scheduled date for maintenance or the date that a malfunction was detected;
 - (B) the date the maintenance was performed or the malfunction corrected; and
 - (C) the component or element of design of the control system repaired, replaced, or modified.
- (e) The vapor control system required by Paragraph (d) of this Rule shall include one or more of the following:
- (1) a vapor-tight line from the storage tank to the delivery vessel and:
 - (A) for a coaxial vapor recovery system, either a poppeted or unpoppeted vapor recovery adaptor;
 - (B) for a dual point vapor recovery system, poppeted vapor recovery adaptor; or
 - (2) a refrigeration-condensation system or equivalent designed to recover at least 90 percent by weight of the organic compounds in the displaced vapor.
- (f) If an unpoppeted vapor recovery adaptor is used pursuant to Part (e)(1)(A) of this Rule, the tank liquid fill connection shall remain covered either with a vapor-tight cap or a vapor return line except when the vapor return line is being connected or disconnected.
- (g) If an unpoppeted vapor recovery adaptor is used pursuant to Part (e)(1)(A) of this Rule, the unpoppeted vapor recovery adaptor shall be replaced with a poppeted vapor recovery adaptor when the tank is replaced or is removed and upgraded.
- (h) Where vapor lines from the storage tanks are manifolded, poppeted vapor recovery adaptors shall be used. No more than one tank is to be loaded at a time if the manifold vapor lines are size 2 1/2 inches and smaller. If the manifold vapor lines are 3 inches and larger, then two tanks at a time may be loaded.
- (i) Vent lines on tanks with Stage I controls shall have pressure release valves or restrictors.
 - (j) The vapor-laden delivery vessel:
 - (1) shall be designed and maintained to be vapor-tight during loading and unloading operations and during transport with the exception of normal pressure/vacuum venting as required by regulations of the Department of Transportation; and
 - (2) if it is refilled in Western North Carolina, shall be refilled only at:

- (A) bulk gasoline plants complying with Rule .0926 of this Section, or
- (B) bulk gasoline terminals complying with Rule .0927 of this Section or Rule .0524 of this Chapter.

NCDAQ History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);
 Eff. July 1, 1979;
 Amended Eff. July 1, 1996; July 1, 1994; March 1, 1991;
 December 1, 1989.

WNCRAQA History Note: Adopted Eff. May 8, 2000

.0929 PETROLEUM REFINERY SOURCES (REPEALED)

NCDAQ History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);
 Eff. July 1, 1979;
 Amended Eff. March 1, 1991; December 1, 1989; January 1,
 1985;
 Repealed Eff. July 1, 1996.

.0930 SOLVENT METAL CLEANING

- (a) For the purpose of this Regulation, the following definitions apply:
 - (1) "Cold cleaning" means the batch process of cleaning and removing soils from metal surfaces by spraying, brushing, flushing, or immersion while maintaining the solvent below its boiling point. Wipe cleaning is not included in this definition.
 - (2) "Conveyorized degreasing" means the continuous process of cleaning and removing soils from metal surfaces by operating with either cold or vaporized solvents.
 - (3) "Freeboard height" means for vapor degreasers the distance from the top of the vapor zone to the top of the degreaser tank. For cold cleaners, freeboard height means the distance from liquid solvent level in the degreaser tank to the top of the tank.
 - (4) "Freeboard ratio" means the freeboard height divided by the width of the degreaser.
 - (5) "Open top vapor degreasing" means the batch process of cleaning and removing soils from metal surfaces by condensing hot solvent vapor on the colder metal parts.
 - (6) "Solvent metal cleaning" means the process of cleaning soils from metal surfaces by cold cleaning or open top vapor degreasing or conveyorized degreasing.
- (b) This Regulation applies to cold cleaning, open top vapor degreasing, and conveyorized degreasing operations.

- (c) The provisions of this Regulation shall apply with the following exceptions:
 - (1) Open top vapor degreasers with an open area smaller than 10.8 square feet shall be exempt from Subparagraph (e)(3) of this Regulation; and
 - (2) ConveyORIZED degreasers with an air/vapor interface smaller than 21.6 square feet shall be exempt from Subparagraph (f)(2) of this Regulation.
- (d) The owner or operator of a cold cleaning facility shall:
 - (1) equip the cleaner with a cover and the cover shall be designed so that it can be easily operated with one hand, if:
 - (A) The solvent volatility is greater than 15 millimeters of mercury or 0.3 pounds per square inch measured at 100°F;
 - (B) The solvent is agitated; or
 - (C) The solvent is heated;
 - (2) equip the cleaner with a facility for draining cleaned parts. The drainage facility shall be constructed internally so that parts are enclosed under the cover while draining if the solvent volatility is greater than 32 millimeters of mercury or 0.6 pounds per square inch measured at 100°F. However, the drainage facility may be external for applications where an internal type cannot fit into the cleaning system;
 - (3) install one of the following control devices if the solvent volatility is greater than 33 millimeters of mercury or 0.6 pounds per square inch measured at 100°F, or if the solvent is heated above 120°F:
 - (A) freeboard which gives a freeboard ratio greater than or equal to 0.7;
 - (B) water cover if the solvent is insoluble in and heavier than water; or
 - (C) other systems of equivalent control, such as refrigerated chiller or carbon adsorption, approved by the Director;
 - (4) provide a permanent, conspicuous label, summarizing the operating requirements;
 - (5) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere;
 - (6) close the cover whenever parts are not being handled in the cleaner;
 - (7) drain the cleaned parts for at least 15 seconds or until dripping ceases; and
 - (8) if used, supply a solvent spray which is a solid fluid stream (not a fine, atomized, or shower type spray) at a pressure which does not cause excessive splashing.
- (e) With the exception stated in Paragraph (c) of this Regulation, the owner or operator of an open top vapor degreaser shall:
 - (1) equip the vapor degreaser with a cover which can be opened and closed easily without disturbing the vapor zone;
 - (2) provide the following safety switches or devices:

- (A) a condenser flow switch and thermostat or other device which prevents heat input if the condenser coolant is either not circulating or too warm,
 - (B) a spray safety switch or other device which shuts off the spray pump if the vapor level drops more than 10 inches, and
 - (C) a vapor level control thermostat or other device which prevents heat input when the vapor level rises too high;
- (3) install one of the following control devices:
- (A) freeboard ratio greater than or equal to 0.75. If the degreaser opening is greater than 10.8 square feet, the cover must be powered;
 - (B) refrigerated chiller;
 - (C) enclosed design (The cover or door opens only when the dry part is actually entering or exiting the degreaser.); or
 - (D) carbon adsorption system, with ventilation greater than or equal to 50 cubic feet per minute per square foot of air/vapor area (when cover is open), and exhausting less than 25 parts per million of solvent averaged over one complete adsorption cycle.
- (4) keep the cover closed at all times except when processing workloads through the degreaser; and
- (5) minimize solvent carryout by:
- (A) racking parts to allow complete drainage,
 - (B) moving parts in and out of the degreaser at less than 11 feet per minute,
 - (C) holding the parts in the vapor zone at least 30 seconds or until condensation ceases,
 - (D) tipping out any pools of solvent on the cleaned parts before removal from the vapor zone, and
 - (E) allowing parts to dry within the degreaser for at least 15 seconds or until visually dry;
- (6) not degrease porous or absorbent materials, such as cloth, leather, wood, or rope;
- (7) not occupy more than half of the degreaser's open top area with a workload;
- (8) not load the degreaser to the point where the vapor level would drop more than 10 inches when the workload is removed from the vapor zone;
- (9) always spray below the vapor level;
- (10) repair solvent leaks immediately or shutdown the degreaser;
- (11) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere;

- (12) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator;
 - (13) not use ventilation fans near the degreaser opening, nor provide exhaust ventilation exceeding 65 cubic feet per minute per square foot of degreaser open area, unless necessary to meet OSHA requirements (OSHA is the U.S. Occupational Safety and Health Administration; in North Carolina the N.C. Labor Department has delegation of OSHA programs.); and
 - (14) provide a permanent, conspicuous label, summarizing the operating procedures of Subparagraphs (4) through (12) of this Paragraph.
- (f) With the exception stated in Paragraph (c) of this Regulation, the owner or operator of a conveyORIZED degreaser shall:
- (1) not use workplace fans near the degreaser opening, nor provide exhaust ventilation exceeding 65 cubic feet per minute per square foot of degreaser opening, unless necessary to meet OSHA requirements;
 - (2) install one of the following control devices:
 - (A) refrigerated chiller or
 - (B) carbon adsorption system, with ventilation greater than or equal to 50 cubic feet per minute per square foot of air/vapor area (when downtime covers are open), and exhausting less than 25 parts per million of solvent by volume averaged over a complete adsorption cycle;
 - (3) equip the cleaner with equipment, such as a drying tunnel or rotating (tumbling) basket, sufficient to prevent cleaned parts from carrying out solvent liquid or vapor;
 - (4) provide the following safety switches or devices:
 - (A) a condenser flow switch and thermostat or other device which prevents heat input if the condenser coolant is either not circulating or too warm,
 - (B) a spray safety switch or other device which shuts off the spray pump or the conveyor if the vapor level drops more than 10 inches, and
 - (C) a vapor level control thermostat or other device which prevents heat input when the vapor level rises too high;
 - (5) minimize openings during operation so that entrances and exits will silhouette workloads with an average clearance between the parts and the edge of the degreaser opening of less than four inches or less than 10 percent of the width of the opening;
 - (6) provide downtime covers for closing off the entrance and exit during shutdown hours;
 - (7) minimize carryout emissions by:
 - (A) racking parts for best drainage; and
 - (B) maintaining the vertical conveyor speed at less than 11 feet per minute;

- (8) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere;
- (9) repair solvent leaks immediately, or shut down the degreaser;
- (10) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and
- (11) place downtime covers over entrances and exits or conveyORIZED degreasers immediately after the conveyors and exhausts are shutdown and not remove them until just before start-up.

NCDAQ History Note: *Statutory Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);
Eff. July 1, 1979;
Amended Eff. March 1, 1991; December 1, 1989; January 1,
1985.*

WNCRAQA History Note: *Adopted Eff. May 8, 2000*

.0931 CUTBACK ASPHALT

- (a) For the purpose of this Regulation, the following definitions apply:
 - (1) "Asphalt" means a dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) in which the predominating constituents are bitumens which occur in nature as such or which are obtained as residue in refining petroleum.
 - (2) "Cutback asphalt" means asphalt cement which has been liquefied by blending with petroleum solvents (diluents). Upon exposure to atmospheric conditions, the diluents evaporate, leaving the asphalt cement to perform its function.
 - (3) "Emulsified asphalt" means an emulsion of asphalt cement and water which contains a small amount of an emulsifying agent; a heterogeneous system containing two normally immiscible phases (asphalt and water) in which the water forms the continuous phase of the emulsion, and minute globules of asphalt form the discontinuous phase.
 - (4) "Penetrating prime coat" means an application of low-viscosity liquid asphalt to an absorbent surface. It is used to prepare an untreated base for an asphalt surface. The prime penetrates the base and plugs the voids, hardens the top, and helps bind it to the overlying asphalt course. It also reduces the necessity of maintaining an untreated base course prior to placing the asphalt pavement.
- (b) This Regulation applies to the manufacture and use of cutback asphalts for the purpose of paving or maintaining roads, highways, streets, parking lots, driveways, curbs, sidewalks,

airfields (runways, taxiways, and parking aprons), recreational facilities (tennis courts, playgrounds, and trails), and other similar structures.

(c) Cutback asphalt shall not be manufactured, mixed, stored, used, or applied except where:

- (1) Long-life (one month or more) stockpile storage is necessary;
- (2) The use or application at ambient temperatures less than 50°F, as measured at the nearest National Weather Service Field Office or Federal Aviation Administration Station, is necessary;
- (3) The cutback asphalt is to be used solely as a penetrating prime coat; or
- (4) The user can demonstrate to the director that there are no volatile organic compound emissions under conditions of normal use.

NCDAQ History Note: *Statutory Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);
Eff. July 1, 1979;
Amended Eff. December 1, 1989; January 1, 1985; June 1,
1980.*

WNCRAQA History Note: *Adopted Eff. May 8, 2000.*

.0932 GASOLINE TRUCK TANKS AND VAPOR COLLECTION SYSTEMS

(a) For the purposes of this Rule, the following definitions apply:

- (1) "Bottom filling" means the filling of a tank truck or stationary storage tank through an opening that is flush with the tank bottom.
- (2) "Bulk gasoline plant" means a gasoline storage and distribution facility that has an average daily throughput of less than 20,000 gallons of gasoline and which usually receives gasoline from bulk terminals by trailer transport, stores it in tanks, and subsequently dispenses it via account trucks to local farms, businesses, and service stations.
- (3) "Bulk gasoline terminal" means:
 - (A) breakout tanks of an interstate oil pipeline facility; or
 - (B) a gasoline storage facility that usually receives gasoline from refineries primarily by pipeline, ship, or barge; delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by tank truck; and has an average daily throughput of more than 20,000 gallons of gasoline.
- (4) "Certified facility" means any facility that has been certified under Rule .0960 of this Section to perform leak tightness tests on truck tanks.

- (5) "Gasoline" means any petroleum distillate having a Reid vapor pressure of 4.0 psia or greater.
 - (6) "Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks.
 - (7) "Gasoline service station" means any gasoline dispensing facility where gasoline is sold to the motoring public from stationary storage tanks.
 - (8) "Truck tank" means the storage vessels of trucks or trailers used to transport gasoline from sources of supply to stationary storage tanks of bulk gasoline terminals, bulk gasoline plants, gasoline dispensing facilities and gasoline service stations.
 - (9) "Truck tank vapor collection equipment" means any piping, hoses, and devices on the truck tank used to collect and route gasoline vapors in the tank to or from the bulk gasoline terminal, bulk gasoline plant, gasoline dispensing facility or gasoline service station vapor control system or vapor balance system.
 - (10) "Vapor balance system" means a combination of pipes or hoses that 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.
 - (11) "Vapor collection system" means a vapor balance system or any other system used to collect and control emissions of volatile organic compounds.
- (b) This Rule applies to gasoline truck tanks that are equipped for vapor collection and to vapor control systems at bulk gasoline terminals, bulk gasoline plants, gasoline dispensing facilities, and gasoline service stations equipped with vapor balance or vapor control systems.
- (c) Gasoline Truck Tanks
- (1) Gasoline truck tanks and their vapor collection systems shall be tested annually by a certified facility. The test procedure that shall be used is described in Section .2600 of this Chapter and is according to Rule .0912 of this Section. The gasoline truck tank shall not be used if it sustains a pressure change greater than 3.0 inches of water in five minutes when pressurized to a gauge pressure of 18 inches of water or when evacuated to a gauge pressure of 6.0 inches of water.
 - (2) Each gasoline truck tank that has been certified leak tight, according to Subparagraph (1) of this Paragraph shall display a sticker near the Department of Transportation certification plate required by 49 CFR 178.340-10b.
 - (3) There shall be no liquid leaks from any gasoline truck tank.
 - (4) Any truck tank with a leak equal to or greater than 100 percent of the lower explosive limit, as detected by a combustible gas detector using the test procedure described in Rule .2615 of this Chapter shall not be used beyond 15 days after the leak has been

discovered, unless the leak has been repaired and the tank has been certified to be leak tight according to Subparagraph (1) of this Paragraph.

- (5) The owner or operator of a gasoline truck tanks with a vapor collection system shall maintain records of all certification testing and repairs. The records shall identify the gasoline truck tank, the date of the test or repair; and, if applicable, the type of repair and the date of retest. The records of certification tests shall include:
- (A) the gasoline truck tank identification number;
 - (B) the initial test pressure and the time of the reading;
 - (C) the final test pressure and the time of the reading;
 - (D) the initial test vacuum and the time of reading;
 - (E) the final test vacuum and the time of the reading,
 - (F) the date and location of the tests,
 - (G) the NC sticker number issued, and
 - (H) the final change in pressure of the internal vapor value test.
- (6) A copy of the most recent certification report shall be kept with the truck tank. The owner or operator of the truck tank shall also file a copy of the most recent certification test with each bulk gasoline terminal that loads the truck tank. The records shall be maintained for at least two years after the date of the testing or repair, and copies of such records shall be made available within a reasonable time to the Director upon written request.

(d) Bulk Gasoline Terminals, Bulk Gasoline Plants Equipped With Vapor Balance or Vapor Collection Systems

- (1) The vapor collection system and vapor control system shall be designed and operated to prevent gauge pressure in the truck tank from exceeding 18 inches of water and to prevent a vacuum of greater than six inches of water.
- (2) During loading and unloading operations there shall be:
- (A) no vapor leakage from the vapor collection system such that a reading equal to or greater than 100 percent of the lower explosive limit at one inch around the perimeter of each potential leak source as detected by a combustible gas detector using the test procedure described in Rule .2615 of this Chapter; and
 - (B) no liquid leaks.
- (3) If a leak is discovered that exceeds the limit in Subparagraph (2) of this Paragraph:
- (A) For bulk gasoline plants, the vapor collection system or vapor control system (and therefore the source) shall not be used beyond 15 days after the leak has been discovered, unless the leak has been repaired and the system has been retested and found to comply with Subparagraph (2) of this Paragraph;

- (B) For bulk gasoline terminals, the vapor collection system or vapor control system shall be repaired following the procedures in Rule .0927 of this Section.
- (4) The owner or operator of a vapor collection system at a bulk gasoline plant or a bulk gasoline terminal shall test, according to Rule .0912 of this Section, the vapor collection system at least once per year. If after two complete annual checks no more than 10 leaks are found, the Director may allow less frequent monitoring. If more than 20 leaks are found, the Director may require that the frequency of monitoring be increased.
- (5) The owner or operator of a vapor control systems at bulk gasoline terminals, bulk gasoline plants, gasoline dispensing facilities, and gasoline service stations equipped with vapor balance or vapor control systems shall maintain records of all certification testing and repairs. The records shall identify the vapor collection system, or vapor control system; the date of the test or repair; and, if applicable, the type of repair and the date of retest.

NCDQA History Note: Statutory Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5); Eff. July 1, 1980; Amended Eff. August 1, 2008; June 1, 2008; January 1, 2007; April 1, 2003; August 1, 2002; July 1, 1994; December 1, 1989; January 1, 1985.

WNCRAQA History Note: Adopted Eff. May 8, 2000; Amended Eff. November 17, 2008; March 19, 2007; May 10, 2004; September 9, 2002.

.0933 PETROLEUM LIQUID STORAGE IN EXTERNAL FLOATING ROOF TANKS

- (a) For the purpose of this Rule, the following definitions apply:
- (1) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature or pressure and remains liquid at standard conditions.
- (2) "Crude oil" means a naturally occurring mixture consisting of hydrocarbons or sulfur, nitrogen or oxygen derivatives of hydrocarbons or mixtures thereof which is a liquid in the reservoir at standard conditions.
- (3) "Custody transfer" means the transfer of produced crude oil 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.

- (4) "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 shell.
 - (5) "Internal floating roof" means a cover or roof in a fixed roof tank which rests upon or is floated upon the petroleum liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.
 - (6) "Liquid-mounted seal" means a primary seal mounted so the bottom of the seal covers the liquid surface between the tank shell and the floating roof.
 - (7) "Vapor-mounted seal" means a primary seal mounted so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank shell, the liquid surface, and the floating roof.
 - (8) "Petroleum liquids" means crude oil, condensate, and any finished or intermediate products manufactured or extracted in a petroleum refinery.
- (b) This Rule applies to all external floating roof tanks with capacities greater than 950 barrels containing petroleum liquids whose true vapor pressure exceed 1.52 pounds per square inch absolute.
- (c) This Rule does not apply to petroleum liquid storage vessels:
- (1) that have external floating roofs that have capacities less than 10,000 barrels and that are used to store produced crude oil and condensate prior to custody transfer;
 - (2) that have external floating roofs and that store waxy, heavy-pour crudes;
 - (3) that have external floating roofs, and that contain a petroleum liquid with a true vapor pressure less than 4.0 pounds per square inch absolute and:
 - (A) The tanks are of welded construction; and
 - (B) The primary seal is a metallic-type shoe seal, a liquid-mounted foam seal, a liquid-mounted filled type seal, or any other closure device of demonstrated equivalence; or
 - (4) that have fixed roofs with or without internal floating roofs.
- (d) With the exceptions stated in Paragraph (c) of this Rule, an external floating roof tank subject to this Rule shall not be used unless:
- (1) The tank has:
 - (A) a continuous secondary seal extending from the floating roof to the tank wall (a rim-mounted secondary),
 - (B) a metallic-type shoe primary seal and a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal); or
 - (C) a closure or other control device demonstrated to have an efficiency equal to or greater than that required under Part (A) or (B) of this Subparagraph.

- (2) The seal closure devices meet the following requirements:
 - (A) There shall be no visible holes, tears, or other openings in the seal or seal fabric;
 - (B) The seal shall be 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 primary seals, the gap-area of gaps exceeding 0.125 inch in width between the secondary seal and the tank wall shall not exceed 1.0 square inch per foot of tank diameter;
- (3) All openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves, are:
 - (A) provided with a projection below the liquid surface; and
 - (B) equipped with covers, seals, or lids that remain in a closed position at all times except when in actual use;
- (4) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;
- (5) Rim vents are set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting;
- (6) Any emergency roof drains are provided with slotted membrane fabric covers or equivalent covers that cover at least 90 percent of the area at the opening;
- (7) Routine visual inspections are conducted once per month;
- (8) For tanks equipped with a vapor-mounted primary seal, the secondary seal gap measurements are made annually in accordance with Paragraph (e) of this Rule; and
- (9) Records are maintained in accordance with Rule .0903 of this Section and include:
 - (A) reports of the results of inspections conducted under Subparagraph (7) and (8) of this Paragraph;
 - (B) a record of the average monthly storage temperature and the true vapor pressures or Reid vapor pressures of the petroleum liquids stored; and
 - (C) records of the throughput quantities and types of volatile petroleum liquids for each storage vessel.

(e) The secondary seal gap area is determined by measuring the length and width of the gaps around the entire circumference of the secondary seal. Only gaps equal to or greater than 0.125 inch are used in computing the gap area. The area of the gaps are accumulated to determine compliance with Part (d)(2)(C) of this Rule.

(f) Notwithstanding the definition of volatile organic compound found in Rule .0901(28) of this Section, the owner or operator of a petroleum liquid storage vessel with an external floating roof not equipped with a secondary seal or approved alternative, that contains a petroleum liquid with a true vapor pressure greater than 1.0 pound per square inch shall maintain 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 1.0 pound per square inch.

*NCDAQ History Note: Statutory Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);
Eff. July 1, 1980;
Amended Eff. June 1, 2004; July 1, 1994; March 1, 1991;
December 1, 1989; January 1, 1985.*

*WNCRAQA History Note: Adopted Eff. May 8, 2000;
Amended Eff. July 12, 2004.*