

**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS  
REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 351  
STORAGE AND LOADING OF GASOLINE AT BULK GASOLINE PLANTS AND AT  
BULK GASOLINE TERMINALS**

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**MARICOPA COUNTY  
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**RULE 351  
STORAGE AND LOADING OF GASOLINE AT BULK GASOLINE PLANTS AND AT  
BULK GASOLINE TERMINALS**

**SECTION 100 - GENERAL**

**101 PURPOSE:** To limit emissions of volatile organic compounds (VOCs) from gasoline during the storage and loading of gasoline at bulk gasoline plants and at bulk gasoline terminals.

**102 APPLICABILITY:**

**102.1** This rule applies to:

- a. The storage of gasoline in a stationary gasoline storage tank at a bulk gasoline plant or at a bulk gasoline terminal.
- b. The loading of gasoline from a gasoline cargo tank, railcar, or pipeline into or out of a stationary storage tank at a bulk gasoline plant or at a bulk gasoline terminal.

**102.2** Compliance with the provisions of this rule shall not relieve any owner or operator subject to the requirements of this rule from complying with any other federally enforceable New Sources Performance Standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAP). In such cases, the most stringent standard shall apply.

**103 EXEMPTIONS:**

**103.1 Submerged Fill:** A submerged fill pipe in a stationary gasoline storage tank shall be submerged at all times except:

- a. During the initial fill until the fill pipe is submerged. The process of filling shall be continuous and shall be accomplished as rapidly as possible while minimizing vapors.
- b. When the stationary gasoline storage tank is in the process of being completely drained and subsequently refilled. The process of emptying and refilling shall be continuous and shall be accomplished as rapidly as possible while minimizing vapors.
- c. When the tank liquid has to be drained below the fill pipe in order to make a repair. The repair is to be made as expeditiously as possible. The process of refilling the stationary gasoline storage tank to meet the submerged fill pipe requirement shall be continuous and shall be accomplished as rapidly as possible while minimizing vapors.

**103.2 Floating Roof:** The floating roof shall be floating on the liquid surface at all times (i.e., off the roof leg supports) except:

- a. During initial fill until the roof is lifted off leg supports. The process of filling shall be continuous and shall be accomplished as rapidly as possible while minimizing vapors.
- b. When the tank is completely emptied and subsequently refilled. The process of emptying and refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible while minimizing vapors.
- c. When a repair requires the gasoline to be drained below the level where the roof is floating. The repair work shall be accomplished as rapidly as possible. Upon completion of the repair, the process of refilling the gasoline storage tank to meet the floating requirement shall be continuous and shall be accomplished as rapidly as possible while minimizing vapors.

**103.3 Seal Gap:** An owner or operator is exempted from the requirements for secondary seals and the secondary seal gap criteria when:

- a. Performing gap measurements.
- b. Inspecting the primary seal.
- c. Conducting repair work on the secondary seal. The repair work shall be accomplished as rapidly as possible.

**103.4 Bulk Gasoline Plants with a Throughput of Less than 120,000 Gallons Per 30-Day Period:** At a bulk gasoline plant built before October 2, 1978, vapor loss control specified in Section 304 (Vapor Loss Control Equipment) is not required at the loading rack when all of the following are met:

- a. The bulk gasoline plant has a throughput of less than 120,000 gallons of gasoline into gasoline cargo tanks in any consecutive 30-day period. If, during any consecutive 30-day period, a bulk gasoline plant has a throughput of 120,000 gallons of gasoline or greater into gasoline cargo tanks, the bulk gasoline plant shall:
  - (1) Become subject to all the provisions of Section 304 (Vapor Loss Control Equipment).
  - (2) Remain subject to the provisions of Section 304 (Vapor Loss Control Equipment) even if the consecutive 30-day throughput falls below the 120,000 gallon threshold.
- b. The owner or operator of the bulk gasoline plant:
  - (1) Loads gasoline by submerged fill only.
  - (2) Observes all parts of the gasoline loading process at all times.
  - (3) Discontinues the gasoline loading if any leaks are observed.
- c. The owner or operator of the bulk gasoline plant maintains records of the gasoline throughput that are:

- (1) Readily accessible to the Control Officer, upon request.
- (2) Available for at least five (5) years.

**103.5 Opening of Hatches, Vent Valves, or Other Vapor Sealing Devices:**

- a. A hatch, vent valve, or other vapor sealing device:
  - (1) May be opened to avoid an unsafe operating condition; and
  - (2) Shall be closed once the unsafe operating condition has been resolved.
- b. When VOC vapors from gasoline are present within a gasoline cargo tank, owners or operators, their contractors, and authorized government agents may open a hatch, vent valve, or other vapor sealing device while performing operations required by these Maricopa County Air Pollution Control Regulations or by other statutory entities, but shall be restricted as follows:
  - (1) Wait at least three (3) minutes after the loading of gasoline is complete or gasoline cargo tank has come to a complete stop before opening the hatch, vent valve, or other vapor sealing device.
  - (2) Reclose the hatch, vent valve, or other vapor sealing device within three (3) minutes of opening.
  - (3) Limit wind speed at the opened hatch, vent valve, or other opened vapor sealing device to not more than three miles per hour (3 mph), using a barrier if necessary.

**SECTION 200 – DEFINITIONS:** For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County Air Pollution Control Rules and Regulations, the definitions in this rule take precedence.

**201 BULK GASOLINE PLANT:** Any gasoline storage and gasoline loading facility that meets all of the following:

- 201.1** Loads gasoline from a pipeline, railcar, or gasoline cargo tank into a stationary gasoline storage tank;
- 201.2** Loads gasoline from the stationary gasoline storage tank into a gasoline cargo tank for transport to a gasoline dispensing facility (GDF) or a bulk gasoline plant; and
- 201.3** Has a gasoline throughput of less than 20,000 gallons per day. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under Federal, State, or local law, and discoverable by the Control Officer and any other person. [40 CFR § 63.11100]

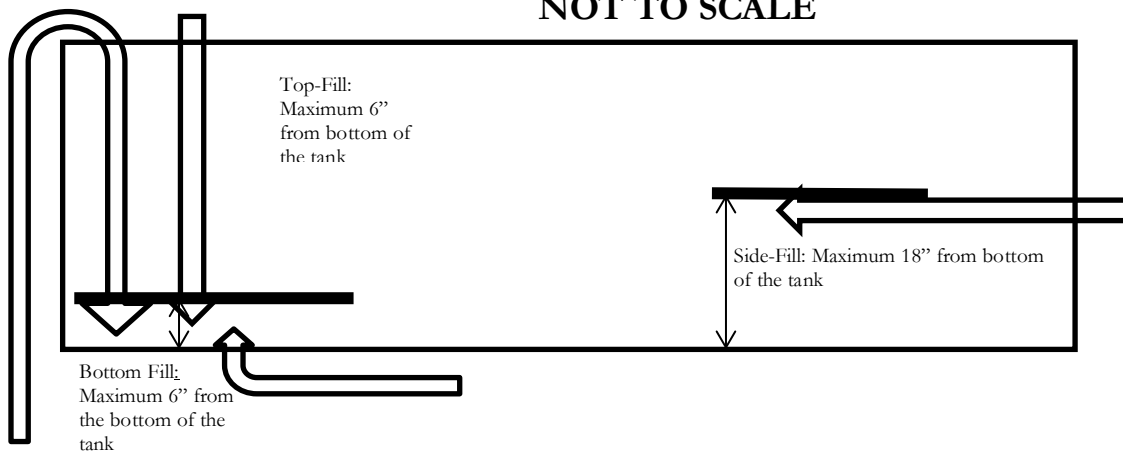
**202 BULK GASOLINE TERMINAL:** Any gasoline storage and gasoline loading facility that meets all of the following:

- 202.1** Loads gasoline from a pipeline, railcar, or gasoline cargo tank into a stationary gasoline storage tank.
- 202.2** Loads gasoline from the stationary gasoline storage tank into a gasoline cargo tank for transport to a gasoline dispensing facility (GDF) or a bulk gasoline plant.

- 202.3** Has a gasoline throughput of 20,000 gallons per day or greater. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under Federal, State, or local law, and discoverable by the Control Officer and any other person. [40 CFR § 63.11100]
- 203** **CONTAINER:** A portable unit in which a material can be stored, transported, treated, disposed of, or otherwise handled. Examples of containers include, but are not limited to, drums and portable cargo containers known as “portable tanks” or “totes.” [40 CFR § 63.2406]
- 204** **EXCESS GASOLINE DRAINAGE:** The quantity of gasoline that drains out of the end of a gasoline loading hose or vapor recovery hose during the process of connecting or disconnecting that is one or more of the following:
- 204.1** More than 0.34 fluid ounces or two teaspoonsful (2 tsp) of liquid gasoline lost from the end of a gasoline loading hose or vapor recovery hose. This does not include drainage into a fill pipe’s spill containment receptacle.
- 204.2** Wets any area(s) on the ground having an aggregate area greater than 113 square inches (113 in<sup>2</sup>).
- 204.3** The perimeter of which would encompass a circle of twelve inches (12”) diameter or larger. This does not include drainage into a fill pipe’s spill containment receptacle.
- 205** **EXTERNAL FLOATING ROOF STATIONARY STORAGE TANK:** An open top stationary storage tank with a floating roof consisting of a double deck or pontoon single deck that rests upon and is supported by the liquid being contained.
- 206** **GASOLINE CARGO TANK:** A delivery tank truck or railcar which is loading gasoline or unloading gasoline, or which has loaded or unloaded gasoline on the immediately previous load. [40 CFR § 63.11132] This includes any gasoline loading hoses the gasoline cargo tank carries through which deliveries are made.
- 207** **GASOLINE DISPENSING FACILITY (GDF):** Any stationary facility which dispenses gasoline into the fuel tank of a motor vehicle, motor vehicle engine, nonroad vehicle, or nonroad engine, including a nonroad vehicle or nonroad engine used solely for competition. These facilities include, but are not limited to, facilities that dispense gasoline into on-road, off-road, street, or highway motor vehicles, lawn equipment, boats, test engines, landscaping equipment, generators, pumps, and other gasoline fueled engines and equipment. [40 CFR § 63.11132] This includes all stationary gasoline storage tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same owner or operator under common control.
- 208** **GASOLINE LOADING FACILITY:** Any gasoline operation or facility such as a gasoline storage tank farm, pipeline terminal, bulk gasoline plant, bulk gasoline terminal, loading dock, or combination thereof, where gasoline is loaded into or out of gasoline cargo tanks for future distribution. Included are all related pollutant-emitting activities which are located on one or more contiguous or adjacent properties, and are under the control of the same owner or operator under common control.

- 209 **INTERNAL FLOATING ROOF STATIONARY STORAGE TANK WITH A FIXED ROOF:** A stationary storage tank with a floating cover or roof that rests upon or is floated upon the liquid being contained, and has a fixed roof on top of the tank shell. For the purposes of this rule, an external floating roof tank that has been retrofitted with a geodesic dome or other fixed roof shall be considered to be an internal floating roof stationary storage tank with a fixed roof.
- 210 **LEAK FREE:** A condition in which there is no liquid gasoline escape or seepage of more than three (3) drops per minute from gasoline storage, handling, or ancillary equipment, including, but not limited to, seepage and escapes from above ground fittings, gasoline loading hose(s), and vapor recovery hose(s). This does not include the disconnecting or connecting of either a gasoline loading hose from a gasoline fill pipe or a vapor recovery hose from a vapor pipe.
- 211 **LOADING RACK:** The gasoline loading arms, pumps, meters, shutoff valves, relief valves, and other piping and valves necessary to fill gasoline cargo tanks. [40 CFR § 60.501]
- 212 **PURGING:** Removing, cleaning, or scouring out gasoline vapors from all or a portion of a gasoline cargo tank by active or passive means and emitting the vapors into the atmosphere.
- 213 **STATIONARY GASOLINE STORAGE TANK:** Any stationary tank or reservoir used to store, but not transport, gasoline.
- 214 **SUBMERGED FILL:** Any gasoline fill pipe or nozzle extension which meets at least one of the specifications below:
- 214.1 **Top-Fill or Bottom-Fill:** The end of the fill pipe or nozzle extension is totally submerged when the liquid level is six inches (6") from the bottom of the tank.
- 214.2 **Side-Fill:** The end of the fill pipe or nozzle extension is totally submerged when the liquid level is eighteen inches (18") from the bottom of the stationary gasoline storage tank. A side-fill pipe that is greater than 18" from the bottom of the stationary storage tank shall remain submerged at all times.

**Submerged Fill Pipe Diagram  
NOT TO SCALE**



- 215 **SWITCH LOADING:** Loading diesel fuel into a gasoline cargo tank whose previous load was gasoline; or loading any organic liquid not subject to this rule into a gasoline cargo tank whose previous load was gasoline.
- 216 **THROUGHPUT:** The amount of gasoline received.
- 217 **VAPOR BALANCE SYSTEM:** Vapor loss control equipment that collects gasoline vapors displaced from the loading of gasoline into:
- 217.1 A gasoline cargo tank and routes the collected vapors to a stationary gasoline storage tank; or
  - 217.2 A stationary gasoline storage tank and routes the collected vapors to the gasoline cargo tank from which the storage tank is loaded; or
  - 217.3 A gasoline cargo tank and routes the collected vapors to the gasoline cargo tank from which the gasoline cargo tank is loaded.
- 218 **VAPOR COLLECTION/PROCESSING SYSTEM:** A vapor loss control device consisting of a vapor gathering subsystem capable of collecting the gasoline vapors plus a second subsystem capable of processing such vapors and gases, reducing the inlet concentration of VOCs by at least 95 percent by weight.
- 219 **VAPOR LOSS CONTROL EQUIPMENT:** Any piping, vapor recovery hose(s), equipment, or devices which are used to collect, store, and or process VOC vapors at a bulk gasoline plant, bulk gasoline terminal, gasoline dispensing facility, or any other operation handling gasoline.
- 220 **VAPOR TIGHT:** A condition at the site of a (potential) vapor leak in which:
- 220.1 An organic vapor analyzer (OVA) shows less than 10,000 ppmv when calibrated with methane; or
  - 220.2 A combustible gas detector (CGD) shows less than one-fifth lower explosive limit (1/5 LEL) when:
    - a. Calibrated with a gas specified by the manufacturer; and
    - b. Used according to the manufacturer's instructions.

## SECTION 300 – STANDARDS

- 301 **FEDERAL STANDARDS OF PERFORMANCE FOR BULK GASOLINE PLANTS AND BULK GASOLINE TERMINALS:** An owner or operator of a bulk gasoline plant or bulk gasoline terminal shall meet the applicable federal standards set forth in New Source Performance Standards (NSPS) set forth in 40 CFR Part 60 and the National Emission Standards for Hazardous Air Pollutants (NESHAP) set forth in 40 CFR Part 63. The following federal standards are adopted and incorporated by reference in Rule 360 (New Source Performance Standards) and Rule 370 (Federal Hazardous Air Pollutant Program) of the Maricopa County Air Pollution Control Rules and Regulations. The applicable subparts include, but are not limited to the following:



- 301.1 40 CFR Part 60, Subpart K – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced after June 11, 1973, and Prior to May 19, 1978.
  - 301.2 40 CFR Part 60, Subpart Ka – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984.
  - 301.3 40 CFR Part 60, Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.
  - 301.4 40 CFR Part 60, Subpart XX – Standard of Performance for Bulk Gasoline Terminals.
  - 301.5 40 CFR Part 63, Subpart BBBBBB – NESHAP Gasoline Distribution Bulk Terminals, Bulk Plants and Pipeline Facilities.
  - 301.6 All accompanying appendices, excluding the authorities that cannot be delegated to the MCAQD.
- 302 GENERAL REQUIREMENTS:** An owner or operator of a bulk gasoline plant or a bulk gasoline terminal shall:
- 302.1 Maintain all containers, stationary gasoline storage tanks, and equipment associated with the storage and loading of gasoline to be:
    - a. Leak free.
    - b. Vapor tight.
    - c. In good working order.
  - 302.2 Install a permanent submerged fill pipe in all stationary storage tanks with a capacity greater than 250 gallons. Where because of government regulation, including, but not limited to, Fire Department codes, such submerged fill pipe cannot be installed, a nozzle extension that reaches within six inches (6”) of the tank bottom shall be used to fill the tank.
    - a. A side-fill pipe that is greater than 18” from the bottom of the stationary storage tank shall remain submerged at all times. Documentation demonstrating the side-fill pipe is submerged at all times shall be made available to the Control Officer during the course of a site visit.
  - 302.3 Minimize gasoline spills.
  - 302.4 Clean up spills as expeditiously as practicable.
  - 302.5 Cover all open gasoline containers and storage tanks when not in use.
  - 302.6 Minimize the amount of gasoline sent to waste collection systems that collect and transport gasoline to reclamation and recycling equipment such as an oil/water separator.
  - 302.7 Properly dispose of any VOC containing material.
  - 302.8 Not allow the purging of gasoline vapors and of JP-4 (jet petrol) vapors.

**303 CONTROL OF VOC VAPORS DURING THE STORAGE OF GASOLINE IN A STATIONARY GASOLINE STORAGE TANK:**

**303.1 Control of VOC Vapors During the Storage of Gasoline in a Fixed Roof Gasoline Stationary Storage Tank:** The owner or operator of a fixed roof stationary gasoline storage tank shall:

**a. Fixed Roof Gasoline Stationary Storage Tank with a Capacity of 250 Gallons but less than 40,000 Gallons:** Equip the storage tank with one of the following:

- (1) A pressure/vacuum vent valve that meets the following requirements:
  - (a) Is set per one of the following:
    - (i) Within ten percent (10%) of the tank's maximum, safe working-pressure.
    - (ii) At least at 0.5 psi (25.9 mm Hg).
  - (b) Is maintained in a vapor-tight condition except when the operating pressure exceeds the valve release setting.
- (2) A vapor collection/processing system that meets the requirements of Section 304.
- (3) An internal floating roof that meets the requirements of Section 303.2.

**b. Fixed Roof Gasoline Stationary Storage Tank with a Capacity of 40,000 Gallons or Greater:** Equip the storage tank with one of the following:

- (1) A vapor collection/processing system that meets the requirements of Section 304.
- (2) An internal floating roof that meets the requirements of Section 303.2.

**303.2 Control of VOC Vapors During the Storage of Gasoline in a Fixed Roof Gasoline Storage Tank with an Internal Floating Roof:** An internal floating roof stationary gasoline storage tank and its appurtenances shall meet the following requirements:

- a.** The owner or operator of an internal floating roof stationary gasoline storage tank shall properly:
  - (1) Install the equipment.
  - (2) Operate the equipment.
  - (3) Maintain the equipment.
- b.** Stationary gasoline storage tanks for which construction, reconstruction, or modification commenced after July 23, 1984, shall comply with all applicable requirements of the EPA New Source Performance Standard (NSPS), 40 CFR Part 60, Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984. This federal standard is adopted and incorporated by reference in Rule 360 (New Source Performance Standards) of these regulations.

- c. All stationary gasoline storage tanks not subject to Section 303.2(b) shall comply with one of the following:
  - (1) 40 CFR Part 60, Subpart Kb, notwithstanding the type of facility and the date of tank construction, reconstruction or modification; or
  - (2) Have at least one continuous seal which completely covers the space between the roof edge and tank wall, except as provided in Section 303.2(d), and shall have at least one of the following:
    - (a) A contact-type roof resting completely on the liquid surface.
    - (b) A liquid mounted seal.
    - (c) A primary seal and a secondary seal.
- d. **Internal Floating Roof Openings:**
  - (1) Floating roof tanks shall have no visible holes, tears, or other openings in the seal or in any seal fabric.
  - (2) All openings in a floating roof, except drains, shall be equipped with a cover, seal, or lid.
  - (3) All covers, seals, and lids shall be in a closed position at all times, except when they are in actual use.
  - (4) Automatic bleeder vents shall be closed at all times, except when the roof is floated off of or landed onto the roof leg supports.
  - (5) Rim vents, if provided, shall be set to open only:
    - (a) When the roof is being floated off the roof leg supports; or
    - (b) At the manufacturer's recommended setting.
  - (6) Shall have a slit fabric cover that covers at least 90 percent (90%) of the sample well opening. [40 CFR § 60.112b(a)(1)(vii)]
  - (7) The accumulated area of gaps between a tank's wall and primary seal shall not exceed ten square inches per foot (10 in<sup>2</sup>/ft) of tank diameter.
  - (8) The width of any portion of any gap shall not exceed one and one-half inches (1 1/2").

**303.3 Control of VOC Vapors During the Storage of Gasoline in an External Floating Roof Stationary Gasoline Storage Tank:** An external floating roof stationary gasoline storage tank and its appurtenances shall meet the following requirements:

- a. An owner or operator utilizing an external floating roof stationary gasoline storage tank to control vapor loss shall properly:
  - (1) Install the equipment.
  - (2) Operate the equipment.
  - (3) Maintain the equipment.
- b. **External Floating Roof Requirements:** The floating roof shall:

- (1) Rest on and be supported by the surface of the liquid contents.
- (2) Be equipped with a continuous primary seal to close the space between the roof eave and tank wall. The primary seal shall meet the requirements of Section 303.3.c (Primary Seal Requirements).
- (3) Have a continuous secondary seal which is of a design that is in accordance with accepted standards of the gasoline industry. The secondary seal shall meet the requirements of Section 303.3.d (Secondary Seal Requirements).

**c. Primary Seal Requirements:**

- (1) The accumulated area of gaps between a tank's wall and primary seal shall not exceed ten square inches per foot (10 in<sup>2</sup>/ft.) of tank diameter.
- (2) The width of any portion of any gap shall not exceed one and one half inches (1½").

**d. Secondary Seal Requirements:**

- (1) The secondary seal shall be:
  - (a) Rim-mounted.
  - (b) Not attached to the primary seal.
  - (c) Installed above the primary seal so that it completely covers the space between the roof edge or primary seal and the tank wall.
- (2) The accumulated area of gaps between the tank wall and the secondary seal shall not exceed 1.0 square inch per foot (1 in<sup>2</sup>/ft.) of tank diameter. Determinations of gap area shall only be made at the point(s) where the gaps exceed one eighth inch (1/8"). The width of any portion of any gap shall not exceed one half inch (1/2"). [40 CFR § 60.113b(b)(4)(ii)]

**e. External Floating Roof Openings:**

- (1) Floating roof tanks shall have no visible holes, tears, or other openings in the seal or in any seal fabric.
- (2) All openings, except drains, shall be equipped with a cover, seal, or lid.
- (3) All covers, seals, and lids shall be in a closed position at all times, except when they are in actual use.
- (4) Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports.
- (5) Rim vents, if provided, shall be set to open only:
  - (a) When the roof is being floated off the roof leg supports; or
  - (b) At the manufacturer's recommended setting.

**304 VAPOR LOSS CONTROL EQUIPMENT:**

**304.1 General Requirements for Vapor Loss Control Equipment:**

- a. The owner or operator of a bulk gasoline plant or a bulk gasoline terminal and the owner or operator of a gasoline cargo tank shall ensure:
  - (1) Any vapor loss control equipment required by this rule is connected between the gasoline cargo tank and the stationary gasoline storage tank during the loading and unloading of gasoline.
  - (2) Loading into a gasoline cargo tank is accomplished in a manner that prevents:
    - (a) Gauge pressure from exceeding 18 inches (18”) of water (33.6 mm Hg).
    - (b) Vacuum pressure from exceeding six inches (6”) of water (11.2 mm Hg).
  - (3) Vapor transfer piping is equipped with fittings that are:
    - (a) Vapor tight.
    - (b) Automatically and immediately close upon disconnection.

**304.2 Vapor Balance System:** The owner or operator of a vapor balance system shall properly install, operate, and maintain the system to:

- a. Prevent any vapors collected at one loading rack from passing to another loading rack.
- b. Reduce the VOC emissions:
  - (1) To not more than 0.6 pounds per 1000 gallons of gasoline loaded; or
  - (2) By preventing at least 90% of the displaced vapors from being released into the atmosphere.

**304.3 Vapor Collection/Processing System:** The owner or operator of a vapor collection/processing system shall properly install, operate, and maintain the system to:

- a. Reduce the inlet concentration of VOCs to the vapor collection/processing system by at least 95 percent by weight.
- b. Reduce the VOC emissions to not more than 0.08 pounds of VOC per 1000 gallons of gasoline loaded.
- c. Vent the displaced vapors and air during the loading of a gasoline cargo tank to the vapor collection/processing system.
- d. Prevent the capacity of the vapor collection/processing system from being exceeded.
- e. Be vapor tight except for the designated exhaust.
- f. Maintain any diaphragm(s) used in the vapor storage tanks to be vapor tight.
- g. Maintain all pressure-vacuum vent valves in a vapor tight condition except when the operating pressure exceeds the valve release setting.

## 305 CONTROL OF VOC VAPORS DURING THE LOADING OF GASOLINE:

- 305.1 General Requirements for the Loading of Gasoline:** The owner or operator of a gasoline loading facility and the owner or operator of a gasoline cargo tank shall ensure:
- a. All parts of the gasoline loading process are observed at all times.
  - b. Dry break couplings:
    - (1) Are leak free.
    - (2) Are vapor tight.
    - (3) Automatically and immediately close upon disconnect.
  - c. Proper connection of:
    - (1) The vapor recovery hose.
    - (2) The gasoline loading hose.
  - d. Gasoline is loaded:
    - (1) Using submerged fill.
    - (2) In a leak free manner.
  - e. Appropriate measures are implemented to prevent:
    - (1) Overfill.
    - (2) Excess gasoline drainage.
  - f. The loading of gasoline is stopped immediately if:
    - (1) A liquid leak is observed.
    - (2) A vapor leak is observed.
  - g. Proper disconnection of:
    - (1) The vapor recovery hose to prevent excess gasoline drainage.
    - (2) The gasoline loading hose to prevent excess gasoline drainage.
  - h. Use of a bucket or other effective capture device to catch any gasoline dripping during the connection or disconnection of the gasoline loading hose and the vapor hose.
  - i. Collection and containment of any gasoline that escapes, drips, spills, or leaks in a manner that will prevent evaporation into the atmosphere.

**305.2 Loading of Gasoline at Bulk Plants:**

- a. **Loading of Gasoline from a Gasoline Cargo Tank into a Stationary Storage Tank Exceeding 250 Gallons:** The owner or operator of a bulk gasoline plant shall:
  - (1) Ensure the gasoline cargo tank has been demonstrated to be vapor tight by one of the following:
    - (a) A valid Maricopa County Vapor Tightness Certification decal.

- (b) A certification in accordance with the U.S. Department of Transportation (DOT) pressure test requirements in 49 CFR Part 173.31 (Use of Tank Cars) for railcars.
  - (c) A complete copy of a signed affidavit exempting the gasoline cargo tank from obtaining a Maricopa County Vapor Tightness Certification Decal pursuant to section 103.1(e) in Rule 352.
    - (i) This affidavit shall be in the gasoline cargo tank and made available for inspection by a bulk gasoline plant operator or the Control Officer.
    - (ii) A gasoline cargo tank exempted pursuant to 103.1(e) in rule 352 shall only load gasoline at bulk plants meeting requirements under section 103.4 of this rule.
- (2) Ensure the gasoline cargo tank is properly connected to either:
- (a) A vapor balance system that meets the requirements in Section 304.1 and 304.2; or
  - (b) A vapor collection/processing system that meets the requirements in Section 304.1 and 304.3.
- b. Loading of Gasoline from a Stationary Storage Tank Exceeding 250 Gallons into a Gasoline Cargo Tank:** The owner or operator of a bulk gasoline plant shall ensure the requirements in 305.2.a.(1) and (2) are met.
- 305.3 Loading of Gasoline at a Bulk Gasoline Terminal:** The owner or operator of a bulk gasoline terminal shall:
- a. Ensure the gasoline cargo tank has been demonstrated to be vapor tight by one of the following:
    - (1) A valid Maricopa County Vapor Tightness Certification decal.
    - (2) A certification in accordance with the U.S. Department of Transportation (DOT) pressure test requirements in 49 CFR Part 173.31 (Use of Tank Cars) for railcars.
  - b. Ensure the gasoline cargo tank is properly connected to a vapor collection/processing system that meets the requirements in Section 304.1 and 304.3.
- 305.4 Loading of Gasoline from One Gasoline Cargo Tank Into Another Gasoline Cargo Tank:** The owner or operator of a gasoline cargo tank shall ensure the gasoline cargo tank is properly connected to a vapor balance system that meets the requirements in Sections 304.1 and 304.2.
- 305.5 Switch Loading – Loading of Non-Gasoline liquids Into a Gasoline Cargo Tank Where the Previous Load was Gasoline:** The owner or operator of a bulk gasoline plant or a bulk gasoline terminal shall ensure the gasoline cargo tank is properly connected to a vapor collection/processing system that meets the requirements in Section 304.1 and 304.3. The emissions limit specified in section 304.3(b) shall be 0.08 pounds of VOC per 1000 gallons of liquid loaded.

**306 EQUIPMENT REPAIR AND RETESTING:** The owner or operator of any piping, hoses, equipment, and devices used to collect, transport, store, and/or process gasoline and/or vapors that exceeds the standards of this rule, shall:

**306.1 Exceedance Notification Schedule:** Notify the Control Officer:

- a. By phone within 24 hours of such exceedance; and
- b. Submit a written notice:
  - (1) Within 72 hours from the date of discovery documenting the exceedance of the standards of this rule. The written notice may be submitted by mail, email, facsimile, commercial delivery, or hand delivery.
  - (2) To include:
    - (a) The date and time of the exceedance.
    - (b) A description of the exceedance.
    - (c) Steps taken to mitigate the exceedance.

**306.2 Corrective Action Schedule:** Observe the following time schedule for corrective action:

- a. Concentrations at or above the lower explosive limit shall be brought into compliance within 24 hours of detection.
- b. Leak concentrations exceeding 10,000 ppmv when calibrated with methane, or 1/5 the lower explosive limit (1/5 LEL) of the calibration gas, shall be brought into compliance within five (5) days of detection.
- c. Except as the Control Officer otherwise specifies, a leak source shall be tested after presumed leak-correction within fifteen (15) minutes of recommencing use. If leak standards are exceeded in this test, the use of the faulty equipment shall be discontinued until correction is verified by retesting.

## **SECTION 400 - ADMINISTRATIVE REQUIREMENTS**

**401 INSPECTION OF A FIXED ROOF STATIONARY GASOLINE STORAGE TANK:**

**401.1 Inspection of a Fixed Roof Stationary Gasoline Storage Tank without an Internal Floating Roof:** The owner or operator shall conduct a visual inspection of the tank at least once every six (6) months to ensure the stationary gasoline storage tank is:

- a. Leak free.
- b. Vapor tight.
- c. In good working order.

**401.2 Inspection of a Fixed Roof Stationary Gasoline Storage Tank with an Internal Floating Roof:** The owner or operator shall conduct a visual inspection, through manholes or roof hatches if necessary, at the following frequencies to verify the following:



- a. **Six (6) Month Inspection:**
  - (1) There are no visible holes, tears, or other openings in the seal or in any seal fabric.
  - (2) No visible liquid is on top of the floating roof.
  - (3) All covers, seals, and lids are in a closed position at all times except when they are in actual use.
  - (4) Automatic bleeder vents are closed at all times except when the roof is floated off of or landed onto the roof leg supports.
  - (5) The tank is in compliance with the rule.
- b. **Annual Inspection, not to exceed 12 months between inspections:**
  - (1) No visible liquid is on top of the floating roof.
  - (2) All seals are attached.
  - (3) The primary seal does not have any holes, tears, or other openings.
  - (4) The secondary seal, if one is in service, does not have any holes, tears, or other openings.
- c. **Five (5) Year Inspection or Empty Tank Inspection:** Each time the stationary gasoline storage tank is emptied and degassed or at least once every five (5) years, not to exceed 60 months between inspections.
  - (1) The internal floating roof does not have any defects.
  - (2) The primary seal does not have any holes, tears, or other openings.
  - (3) The secondary seal, if one is in service, does not have any holes, tears, or other openings.
  - (4) Gaskets prevent liquid surfaces from exposure to atmosphere.
  - (5) The slotted membrane does not have more than a ten percent (10%) open area.
  - (6) The slit fabric cover complies with the requirements in Section 303.2.d(6).
  - (7) The accumulated area of gaps between the tank's wall and the primary seal comply with the requirements in Section 303.2.d(7).
  - (8) The width of any portion of any gap complies with the requirements in Section 303.2.d(8).

**402 INSPECTION OF AN EXTERNAL FLOATING ROOF STATIONARY GASOLINE STORAGE TANK:** The owner or operator shall conduct inspections at the following frequencies to verify the following:

**402.1 Six (6) Month Inspection:**

- a. There are no visible holes, tears, or other openings in the seal or in any seal fabric.
- b. No visible liquid is on top of the floating roof.

- c. The floating roof has a continuous primary seal to close the space between the roof eave and tank wall.
- d. The floating roof has a continuous secondary seal.
- e. The tank is in compliance with the rule.

**402.2 Annual Inspection, not to exceed 12 months between inspections:**

- a. The secondary seal covers the space between the roof edge and the tank.
- b. The gaps between the tank wall and the secondary seal comply with the requirements in Section 303.3.d.
- c. There are no holes, tears, or other openings in the seal or seal fabric.

**402.3 Five (5) Year and Empty Tank Inspection:** Each time the external floating roof storage tank is emptied and degassed or at least once every five (5) years, not to exceed 60 months between inspections. This inspection can be performed while the tank is in service.

- a. Measurements of the gaps between the primary seal and the tank wall comply with the requirements in Section 303.3.c.
- b. Measurements of the gaps between the secondary seal and the tank wall comply with the requirements in Section 303.3.d.
- c. There are no holes, tears, or other openings in the seal or seal fabric.
- d. The external floating roof does not have any defects.

**403 EQUIPMENT LEAK DETECTION INSPECTIONS:** The owner or operator of a bulk plant or a bulk terminal shall conduct equipment leak detection inspections at the following frequencies:

**403.1 Monthly Leak Detection Inspections:** Inspect for liquid leaks, vapor leaks, and faulty equipment while the gasoline is being loaded. Monthly inspection leak detection methods shall include one or more of the following methods as described in Section 501.1 (Identifying a Potential Vapor Leak):

- a. Incorporation of sight, sound, or smell.
- b. Method 21-Determination of Volatile Organic Compound Leaks, Alternative Screening Procedure 8.3.3, use of a soap solution.
- c. Use of an optical gas imaging instrument.
- d. Use of a combustible gas detector (CGD).
- e. Use of an organic vapor analyzer (OVA).

**403.2 Annual Leak Detection Inspections (not to exceed 12 months between inspections):** Inspect for liquid leaks, vapor leaks, and faulty equipment. Conduct vapor leak inspections following procedures in Section 501.2 (Determining Vapor Tight Status), except that EPA Method 21 shall be used to test for leaks from a vapor collection/processing system and its associated piping outside the gasoline loading area. Equipment shall conform to the specifications of those test methods

cited in Section 504 (Compliance Determination –Test Methods Incorporated by Reference).

**403.3 Leak Detected:** If a leak is detected, follow the corrective action time schedule in Section 306 (Equipment Repair and Retesting).

**404 GASOLINE STORAGE TANK AND EQUIPMENT LEAK INSPECTIONS – AVAILABILITY TO CONTROL OFFICER:** The owner or operator shall notify the Control Officer of the date, time, and location of the inspections and tests in Sections 404.1, 404.2, and 404.3 no less than seven (7) working days prior to the inspection or test date. The Control Officer shall at their discretion observe the inspection or test.

**404.1 Inspection of a Fixed Roof Gasoline Storage Tank with an Internal Floating Roof:** The owner or operator shall make the following parts of the tank available for inspection by the Control Officer at the specified frequencies:

- a. The entire tank, including the internal floating roof, prior to initial filling of the storage tank.
- b. The internal floating roof for visual inspection through the manholes or roof hatches on an annual basis.
- c. The primary seal envelope for its full length every five (5) years on a tank with a capacity of 20,000 gallons or more. This inspection can be performed while the tank is in-service.
- d. The primary seal envelope for its full length on a tank with a capacity of 20,000 gallons or more any time the secondary seal is removed or if the tank is drained and cleaned by the owner or operator for any reason.

**404.2 Inspection of an External Floating Roof Stationary Gasoline Storage Tank:** The owner or operator shall make the following parts of the tank available for inspection by the Control Officer at the specified frequencies:

- a. The primary seal envelope and the secondary seal for unobstructed inspection on an annual basis. The primary seal envelope shall be made available for inspection at a minimum of four (4) locations selected along its circumference at random by the Control Officer. If the Control Officer detects a violation as a result of any such inspection, the Control Officer may require such further unobstructed inspection of the seals as may be necessary to determine the seal condition for its entire circumference.
- b. The primary seal envelope for its full length every five (5) years on a tank with a capacity of 20,000 gallons or more. This inspection can be performed while the tank is in-service.
- c. The primary seal envelope for its full length on a tank with a capacity of 20,000 gallons or more any time the secondary seal is removed or if the tank is drained and cleaned by the owner or operator for any reason.

**404.3 Equipment Leak Detection Tests:** The owner or operator shall allow the Control Officer to observe all annual equipment leak detection tests.

**405 OTHER AGENCIES' REQUIREMENTS:** Compliance with this rule does not relieve or otherwise affect the owner's or operator's obligation to comply with any other applicable federal, state, or local legal requirement including, but not limited to, rules promulgated by Arizona Department of Agriculture, Weights and Measures Services Division, local fire department codes, and local zoning ordinances.

**SECTION 500 - MONITORING AND RECORDS:** In addition to any federal testing, monitoring, and recording requirements, an owner or operator of a bulk gasoline plant or bulk gasoline terminal shall comply with the following:

**501 MONITORING FOR LEAKS:**

**501.1 Identifying a Potential Vapor Leak:** Equipment leak detection inspections as required in Section 400 (Administrative Requirements), shall be conducted using one or more of the test procedures listed below to identify a potential vapor leak. If a potential leak is detected, refer to Section 501.2 (Determining Vapor Tight Status), to determine the vapor tight status.

- a. The use of sight, sound, or smell.
- b. Method 21-Determination of Volatile Organic Compound Leaks, Alternative Screening Procedure 8.3.3:
  - (1) Spray a soap solution over the potential leak source. The soap solution may be a commercially available leak detection solution or may be prepared using concentrated detergent and water. A pressure sprayer or squeeze bottle may be used to dispense the solution.
  - (2) Observe the potential leak site to determine if any bubbles are formed. If no bubbles are observed, the source is presumed to have no detectable vapor leak.
- c. **Optical Gas Imaging:** An operator of a calibrated optical gas imaging device may use an optical gas imaging instrument to identify a potential vapor leak.
- d. **Combustible Gas Detector (CGD) or Organic Vapor Analyzer (OVA):** An operator of a calibrated CGD or an OVA may use the test procedure described in Section 501.2 (Determining Vapor Tight Status) to identify a potential leak.

**501.2 Determining Vapor Tight Status:** An owner, operator, or the Control Officer shall follow the test procedure below to determine the vapor tight status of any piping, hoses, equipment, and devices used to collect, transport, store, or process gasoline at a bulk gasoline plant or a bulk gasoline terminal.

- a. **Combustible Gas Detector (CGD) or Organic Vapor Analyzer (OVA) - Test Procedure:** A CGD or an OVA meeting the specifications and performance criteria contained in EPA Method 21 and this section shall be used to determine vapor tight status.
  - (1) **Calibration:** Calibrate the CGD or the OVA within four (4) hours prior to monitoring as follows:
    - (a) The CGD shall be:
      - (i) Calibrated with a gas specified by the manufacturer.

- (ii) Used according to the manufacturer's instructions.
- (b) The OVA shall be properly calibrated to 10,000 ppm as methane.
- (2) **Probe Distance:** The probe inlet shall be:
  - (a) At the surface of the potential leak source when searching for leaks.
  - (b) At the surface of the leak source when the highest detector reading is being determined for a discovered leak.
  - (c) At the closest practical probe distance when the probe is either obstructed from moving on the surface of an actual or potential leak source, or if the source is a rotating shaft.
- (3) **Probe Movement:** The probe shall be moved slowly, not faster than 1.6 inches per second (1.6"/sec). If there is any meter deflection at an actual or potential leak source, the probe shall be positioned to locate the point of highest meter response.
- (4) **Probe Position:** The probe inlet shall be positioned in the path of the vapor flow from an actual or potential leak such that the central axis of the probe-tube inlet shall be positioned coaxial with the path of the most concentrated vapors.
- (5) **Wind:** Wind shall be blocked as much as possible from the space being monitored. Monitoring results shall be valid only when wind speed in the space being monitored is five miles per hour (5 mph) or less.
- (6) **Data Recording:** The highest detector reading and location for each incidence of detected leakage shall be recorded along with the date and time. If no gasoline vapor is detected, that fact shall be entered into the record.
- b. **Vapor Leak Detected:** If a vapor leak is detected, follow the corrective action time schedule in Section 306 (Equipment Repair and Retesting).

**501.3 Gasoline Cargo Tank Loading Pressure:** During a performance test:

- a. A pressure measurement device capable of measuring twenty inches (20") of water pressure with a precision of one-tenth of an inch (1/10") of water shall be calibrated.
- b. This device shall fit the tap and shall either be:
  - (1) Permanently installed; or
  - (2) Be kept available at all times at the facility.
- c. A pressure tap shall be placed in the gasoline loading facility's vapor loss control system, as close as possible to the gasoline cargo tank.
- d. The pressure shall be recorded every five (5) minutes while a gasoline cargo tank is being loaded.
- e. The highest instantaneous pressure that occurs during each loading shall be recorded.

**502 RECORDKEEPING AND REPORTING REQUIREMENTS:** The owner or operator of a bulk gasoline plant or a bulk gasoline terminal shall:

**502.1** Maintain the records and information required by this rule. The records shall be:

- a. Legible.
- b. Signed by the person performing the activity.
- c. Retained for at least five (5) years.
- d. Provided to the Control Officer upon verbal or written request, within a reasonable time. If the Control Officer is at the site where requested records are kept, records shall be provided without delay.

**502.2 Storage Tank Inspection and Maintenance Records:** Maintain accurate records for each storage tank that include, but are not limited to the following:

- a. Certifications.
- b. Testing conducted.
- c. Inspections performed.
- d. Repair work.

**502.3 Vapor Pressure Records:**

- a. **Bulk Gasoline Plant:** Keep accurate records of the following:
  - (1) The amount of gasoline stored in each tank. Current amount shall be available upon request of the Control Officer.
  - (2) **Monthly:** The Reid vapor pressure ranges of the gasoline.
- b. **Bulk Gasoline Terminal:** Keep accurate records of the following:
  - (1) The amount of gasoline stored in each tank. Current amount shall be available upon request of the Control Officer.
  - (2) The temperature of the contents of each stationary storage tank, using at least one of the following methods:
    - (a) Take the actual temperature of the contents of the stationary storage tank weekly.
    - (b) Obtain the maximum local monthly average ambient temperature as reported by the National Weather Service.
  - (3) **Monthly:** The Reid vapor pressure of the contents of each stationary gasoline storage tank.

**502.4 Leak Inspection Records:** Keep a log documenting each leak inspection that includes the items listed below:

- a. **Monthly:**
  - (1) A list, summary description, or diagram(s) showing the location of all equipment inspected for leaks.
  - (2) Any maintenance that occurred.

b. **Annually:** Any maintenance that occurred.

**502.5 Throughput Records:** Record the total monthly throughput of gasoline by the end of the following month.

**502.6 Additional Record Requirements When Using an Optical Gas Imaging Instrument:** An owner or operator using an optical gas imaging instrument for leak inspections shall date and time stamp the video records of every monitoring event where an optical gas imaging instrument was used.

**502.7 Disposal Records of VOCs:** Maintain records of the type, amount, and method of disposing of VOC containing materials on each day of disposal.

**503 COMPLIANCE INSPECTIONS:** Where applicable, the Control Officer may at any time inspect the following for liquid or vapor leaks:

**503.1** A bulk gasoline plant.

**503.2** A bulk gasoline terminal.

**503.3** The loading of gasoline.

**503.4** A gasoline cargo tank's vapor balance system during the loading of gasoline.

**503.5** A gasoline loading rack's vapor collection/processing system.

**503.6** The vapor loss control equipment.

**504 COMPLIANCE DETERMINATION - TEST METHODS INCORPORATED BY REFERENCE:** The following test methods are approved for use for the purpose of determining compliance with this rule. The test methods are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Alternative test methods as approved by the Administrator or other EPA-approved test methods may be used upon prior written approval from the Control Officer. When more than one test method is permitted for the same determination, an exceedance under any method will constitute a violation. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department.

**504.1 EPA Test Methods:**

- a. EPA Method 2A—Direct Measurement of Gas Volume Through Pipes and Small Ducts.
- b. EPA Method 2B—Determination of Exhaust Gas Volume Flow Rate from Gasoline Vapor Incinerators.
- c. EPA Method 18—Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.
- d. EPA Method 21—Determination of Volatile Organic Compound Leaks.
- e. EPA Method 21—Determination of Volatile Organic Compound Leaks, Alternative Screening Procedure 8.3.3.
- f. EPA Method 25A—Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer.

- g. EPA Method 25B—Determination of Total Gaseous Organic Concentration Using a Nondispersive Infrared Analyzer.
- h. EPA Method 27—Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure Vacuum Test.
- i. Optical Gas Imaging: Alternative Work Practice for Monitoring Equipment Leaks, 40 CFR § 60.18(g), (h), and (i).
- j. AP 42, Fifth Edition, Volume I, Chapter 7: Liquid Storage Tanks, November 2006, errata August 2012.

**504.2 EPA Approved California Air Resources Board (CARB) Test Procedures:**

- a. TP-201.1E Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves, October 8, 2003.

**504.3 EPA Approved ASTM Standards:**

- a. ASTM D323-06 Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method).
- b. ASTM D2879-10 Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope.
- c. ASTM D4953-06 Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method).
- d. ASTM D5191-13 Standard Test Method for Vapor Pressure of Petroleum Products (Mini Method) except the following correction equation shall be used:  

$$\text{RVP psi} = (0.956 * X) - 0.347$$

$$\text{RVP kPa} = (0.956 * X) - 0.239$$
 Where X = Total measured vapor pressure, in psi or kPa. [40 CFR § 80.46(c)(2)]
- e. ASTM D6420-99 (Reapproved 2004) Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry.