

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

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

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**RULE 351  
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BULK GASOLINE TERMINALS**

**SECTION 100 – GENERAL**

- 101 PURPOSE:** To limit emissions of volatile organic compounds (VOCs) emitted during the storage and loading of gasoline at bulk gasoline plants and bulk gasoline terminals.
- 102 APPLICABILITY:** This rule is applicable to:
- 102.1** The storage of gasoline in a stationary storage tank at a bulk gasoline plant or bulk gasoline terminal.
- 102.2** The loading of gasoline from a gasoline cargo tank, railroad tank car or pipeline into or out of a stationary storage tank at a bulk gasoline plant or bulk gasoline terminal.
- 103 EXEMPTIONS:**
- 103.1 Aviation Gasoline:** The loading of aviation gasoline into stationary storage tanks at airports, and the subsequent loading of aviation gasoline within the airport, is exempt from Section 304 of this rule. The storage of aviation gasoline at airports is subject to this rule.
- 103.2 Seal Gap:** The owner or operator is exempted from the requirements for secondary seals and the secondary seal gap criteria when performing gap measurements or inspections of the primary seal.
- 103.3 Submerged Fill:** A gasoline stationary storage tank is exempt from the requirement that a submerged fill discharge pipe be fully submerged when:
- a. The tank is being drained completely.
  - b. The tank is being initially filled or filled after being completely drained.
- 103.4 Floating Roof:** As long as either of the following processes is accomplished continuously and as rapidly as practicable, a floating roof is exempt from the requirement that its roof be floating when:
- a. The tank is being drained completely.
  - b. The tank is being filled.
- 103.5 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 303 of this rule is not required at the loading rack when all of the following conditions are met:

- a. The bulk gasoline plant loads less than 120,000 gallons (454,800 l) of gasoline into gasoline cargo tanks in any consecutive 30-day period. Any bulk gasoline plant that becomes subject to all of the provisions of Section 303 of this rule by exceeding the throughput threshold of 120,000 gallons of gasoline in any consecutive 30-day period will remain subject to these provisions even if its throughput later falls below the threshold.
- b. Keep current records of amount of gasoline loaded and keep them readily accessible to the Control Officer upon request for at least five (5) years.
- c. Load gasoline using submerged fill only.
- d. The owner or operator of the bulk gasoline plant shall observe all parts of the gasoline loading process and shall discontinue the gasoline loading if any leaks are observed.
- e. **Opening of Hatches, Vent Valves or Other Vapor Sealing Devices:**
  - (1) A hatch, vent valve or other vapor sealing device may be opened for vacuum relief on a gasoline cargo tank or rail car when the gasoline is in the process of being loaded from the gasoline cargo tank or rail car into a stationary storage tank. The owner or operator shall reclose the hatch, vent valve or other vapor sealing device at the completion of the loading process.
  - (2) When VOC vapors from gasoline are present within a gasoline cargo tank, authorized government agents, as well as the owner or operator and their contractors may open vapor containment equipment while performing operations required by this rule or by other statutory entities, but shall be restricted as follows, unless approved in advance by the Control Officer:
    - (a) Wait at least 3 minutes after the loading of gasoline is complete or gasoline cargo tank has come to a complete stop before opening hatch or other vapor seal.
    - (b) Reclose hatch or other vapor sealing device within 3 minutes of opening.
    - (c) Limit wind speed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec).

**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, the definitions in this rule take precedence.

**201 AVIATION GASOLINE (AVgas):** A type of gasoline used to fuel a piston engine aircraft.

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

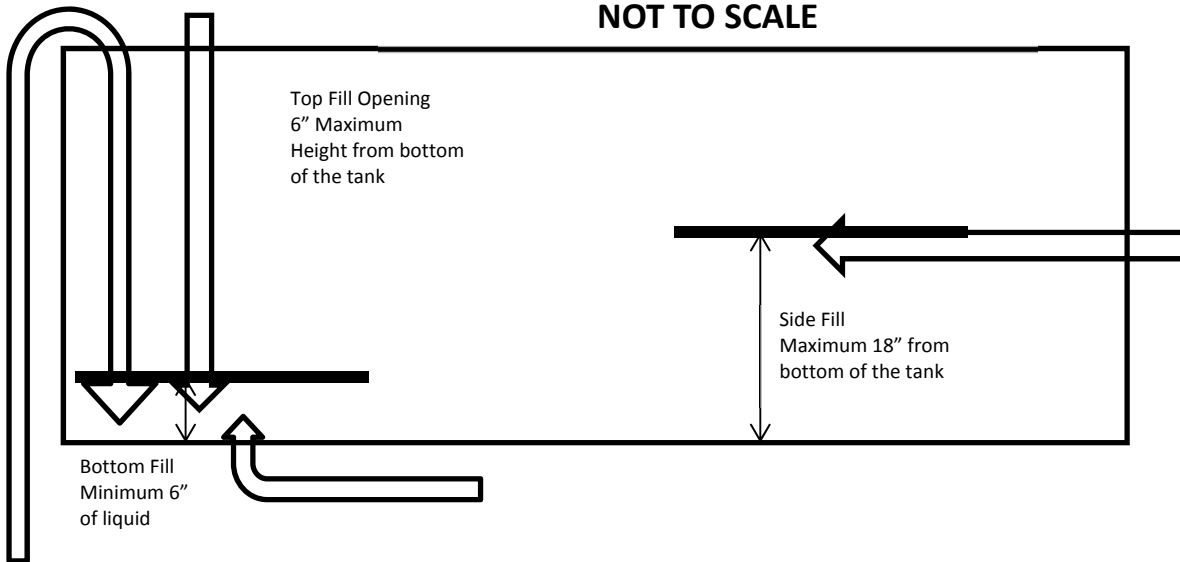
**201.1** Loads gasoline from a pipeline, rail, or gasoline cargo tank into a stationary storage tank;

**201.2** Loads gasoline from the stationary storage tank into a gasoline cargo tank for transport to a gasoline dispensing facility 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.
- 203** **BULK GASOLINE TANK:** Any stationary storage tank serving a loading rack which loads gasoline cargo tanks with gasoline.
- 204** **BULK GASOLINE TERMINAL:** Any gasoline storage and gasoline loading facility that meets all of the following:
- 204.1** Loads gasoline from a pipeline, rail, or gasoline cargo tank into a stationary storage tank;
- 204.2** Loads gasoline from the stationary storage tank into a gasoline cargo tank for transport to a gasoline dispensing facility or a bulk gasoline plant; and
- 204.3** 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 Administrator and any other person.
- 205** **DISPENSING TANK:** Any stationary tank which dispenses gasoline directly into a motorized vehicle's fuel tank, dispenses gasoline into an aircraft's fuel tank, or dispenses gasoline into a watercraft's fuel tank that directly fuels its engine(s).
- 206** **EXCESS GASOLINE DRAINAGE:** More than 10 milliliters (0.34 fluid ounces or 2 teaspoonsful) of liquid gasoline lost from the end of a fill hose or vapor recovery hose in the process of connecting or disconnecting the hose; or any quantity of gasoline escaping out the end of such a hose that wets any area(s) on the ground having an aggregate area greater than 113 square inches, or the perimeter of which would encompass a circle of 12 inches (30.5 cm) diameter. This does not include drainage into a fill pipe's spill containment receptacle.
- 207** **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.
- 208** **GAS TIGHT:** Having no leak of gaseous organic compound(s) exceeding 10,000 ppm above background when measurements are made using EPA Method 21 with a methane calibration standard.
- 209** **GASOLINE:** Any petroleum distillate, petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol that meets both of the following conditions:
- 209.1** Has a Reid vapor pressure between 4.0 and 14.7 psi (200–760 mm Hg.), as determined by ASTM D323-15a; and
- 209.2** Is used as a fuel for internal combustion engines.

- 210 GASOLINE CARGO TANK:** A delivery tank truck or railcar which is loading gasoline or which has loaded gasoline on the immediately previous load.
- 211 GASOLINE DISPENSING FACILITY:** All gasoline dispensing 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.
- 212 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.
- 213 INTERNAL FLOATING ROOF STATIONARY STORAGE TANK WITH FIXED ROOF COVERING:** A stationary storage tank with a floating cover or roof that rests upon or is floated upon the liquid being contained, and that also has a fixed roof on top of the tank shell. 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 tank for the purposes of this rule.
- 214 LEAK FREE:** A condition in which there is no liquid gasoline escape or seepage of more than 3 drops per minute from gasoline storage, handling, and ancillary equipment, including, but not limited to, seepage and escapes from above ground fittings.
- 215 ORGANIC LIQUID:** Any organic compound which exists as a liquid under any actual conditions of use, transport or storage.
- 216 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.
- 217 STATIONARY STORAGE TANK:** Any tank, reservoir or other container used to store, but not transport, gasoline.
- 218 SUBMERGED FILL:** Any gasoline discharge pipe or nozzle which meets at least one of the applicable specifications:
- 218.1 Top-Fill or Bottom-Fill:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is six inches (15 cm) from the bottom of the tank, unless exempted by Section 103.3 of this rule.
- 218.2 Side-Fill:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is 18 inches (46 cm) from the bottom of the tank, unless exempted by Section 103.3 of this rule.

### Submerged Fill Diagram NOT TO SCALE



- 219 **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 and subject to this rule.
- 220 **VAPOR BALANCE SYSTEM:** A piping system that is designed to collect gasoline vapors displaced from the loading of gasoline, and to route the collected vapors to the gasoline cargo tank from which the gasoline is being loaded.
- 221 **VAPOR LOSS CONTROL SYSTEM:** A system for reducing emissions to the atmosphere, consisting of an abatement device and a collection system, which achieves the abatement efficiency or emission limit during the loading of gasoline.
- 222 **VAPOR TIGHT:** A condition in which a suitable detector at the site of (potential) leakage of vapor shows less than 10,000 ppmv when calibrated with methane or the detector shows less than 1/5 lower explosive limit (LEL) when calibrated with a gas specified by the manufacturer and 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 must meet the applicable federal standards of performance set forth in new source performance standards (NSPS) set forth in 40 CFR Part 60, Subparts 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; 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; 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; Subpart XX-

Standard of Performance for Bulk Gasoline Terminals; and the national emission standards for hazardous air pollutants (NESHAP) set forth in 40 CFR Part 63, Subpart BBBBBB-NESHAP Gasoline Distribution Bulk Terminals, Bulk Plants and Pipeline Facilities, and all accompanying appendices, excluding the authorities that cannot be delegated to the department. These federal standards are adopted and incorporated by reference in Rule 360 and Rule 370 in these rules.

### **302 GASOLINE STATIONARY STORAGE TANK STANDARDS:**

**302.1 Submerged Fill:** The owner or operator of a gasoline stationary storage tank with a capacity more than 250 gallons (946 l) shall only allow the loading of gasoline into a stationary storage tank or a gasoline cargo tank using submerged fill.

**302.2 Gasoline Stationary Storage Tanks with a Capacity Between 250 Gallons (946 l) and 40,000 Gallons (151,400 L):** For gasoline stationary storage tanks with a capacity more than 250 gallons (946 l) but less than 40,000 gallons (151,400 l), an owner or operator shall store gasoline in a stationary storage tank that meets all of the following requirements:

- a. Each tank has a fill pipe that is maintained leak free and vapor tight.
- b. Each tank has a permanently installed submerged fill pipe. Where, because of government regulation including, but not limited to, Fire Department codes, such a fill pipe cannot be installed, a nozzle extension that reaches within 6 inches of the tank bottom shall be used to fill the tank.
- c. Each fixed roof tank has a pressure/vacuum valve that is maintained in good working order and that is installed with a pressure/vacuum vent valve that is either set within ten percent of the tank's maximum, safe working-pressure or is set at least at 0.5 psia (25.8 mm Hg).
- d. The tank is equipped with a vapor balance system which collects and returns displaced vapors to the gasoline cargo tank using vapor tight fittings and lines; or such tank uses at least one of the vapor loss control methods in Sections 303 of this rule.

**302.3 Gasoline Storage Tanks with a Capacity Equal to or Greater than 40,000 Gallons (151,400 L):** An owner or operator of a gasoline stationary storage tank with a capacity equal to or greater than 40,000 gallons (151,400 l), shall store gasoline in a stationary storage tank that is equipped with at least one of the following:

- a. An external floating roof storage tank; or
- b. An internal floating roof storage tank with a fixed cover; or
- c. A vapor loss control system.

### **303 VAPOR LOSS CONTROL:**

**303.1 External Floating Roof Stationary Storage Tanks:** An external floating roof stationary storage tank must meet the following requirements:



- a. The owner or operator of an external floating roof stationary storage tank and a vapor balance system or vapor loss control system shall properly install, properly maintain and properly operate the equipment.
- b. An owner or operator shall operate an external floating roof stationary storage tank subject to the provisions of this rule, except for tanks having metallic shoe primary seals onto which secondary seals were installed prior to July 13, 1988 and unless a secondary seal extends from the roof to the tank shell (a rim-mounted seal) and is not attached to the primary seal.
- c. **Floating Roof Requirements:**
  - (1) The floating roof shall rest on and be supported by the surface of the liquid contents.
  - (2) The floating roof shall be equipped with a continuous primary seal to close the space between the roof eave and tank wall, except as provided in Section 103.4 of this rule.
  - (3) The floating roof shall have a continuous secondary seal which is of a design that is in accordance with accepted standards of the petroleum industry. The secondary seal shall meet the requirements of Section 303.1(d) of this rule.
- d. **Secondary Seal Requirements:**
  - (1) The secondary seal is to be installed above the primary seal so that it completely covers the space between the roof edge or primary seal and the tank wall, except as provided in Section 303.1(d)(2) of this rule.
  - (2) The accumulated area of gaps between the tank wall and the secondary seal shall not exceed 1.0 square inch per foot (21.2 cm<sup>2</sup> per meter) of tank diameter. Determinations of gap area shall only be made at the point(s) where the gaps exceed 1/8 inch (3 mm). The width of any portion of any gap shall not exceed 1/2 inch (1.27 cm).
  - (3) Stationary storage tanks constructed after July 13, 1988, shall have a secondary seal that is rim-mounted.
- e. **Floating Roof Openings:**
  - (1) Floating roof tanks subject to the provisions of Section 303.1 of this rule shall have no visible holes, tears or other openings in the seal or in any seal fabric.
  - (2) The accumulated area of gaps between a tank's wall and primary seal shall not exceed 10 square inches per foot of tank diameter (21.2 cm<sup>2</sup> per meter)
  - (3) The width of any portion of any gap shall not exceed 1½ inches (3.8 cm).
  - (4) Where applicable, all openings except drains shall be equipped with a cover seal or lid.
  - (5) Where applicable, the cover seal or lid shall be in a closed position at all times, except when the system is in actual use.

- (6) Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports.
- (7) Rim vents, if provided, shall be set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

**303.2 Internal Floating Roof Stationary Storage Tank with Fixed Roof Covering:** An internal floating roof stationary storage tank with fixed coverings and its appurtenances must meet the following requirements:

- a. The owner or operator of an internal floating roof stationary storage tank and a vapor balance system or vapor loss control system shall properly install, properly maintain and properly operate the equipment.
- b. Gasoline stationary storage tanks for which construction, reconstruction or modification commenced after July 23, 1984, must 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, as incorporated by reference July 1, 2016.
- c. All tanks not subject to Section 303.2(b) must comply with one of the following:
  - (1) Comply with 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) of this rule, and meet at least one of the following requirements:
    - (a) Have a contact-type roof resting completely on the liquid surface.
    - (b) Have a liquid mounted seal.
    - (c) Have two seals, a primary and a secondary.
- d. **Floating Roof Openings:**
  - (1) Floating roof tanks subject to the provisions of Section 303.2 of this rule shall have no visible holes, tears or other openings in the seal or in any seal fabric.
  - (2) The accumulated area of gaps between a tank's wall and primary seal shall not exceed 10 square inches per foot of tank diameter (21.2 cm<sup>2</sup> per meter)
  - (3) The width of any portion of any gap shall not exceed 1½ inches (3.8 cm).
  - (4) Where applicable, all openings except drains shall be equipped with a cover seal or lid.
  - (5) Where applicable, the cover seal or lid shall be in a closed position at all times, except when the system is in actual use.
  - (6) Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports.

- (7) Rim vents, if provided, shall be set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

**303.3 Vapor Balance System:** An owner or operator of a bulk gasoline plant shall properly install, properly operate, and properly maintain a vapor balance system or, alternatively, use a vapor loss control system.

**303.4 Vapor Loss Control System:** An owner or operator of a bulk gasoline terminal shall properly install, properly operate, and properly maintain a vapor loss control system.

- a. The vapor processing subsystem shall be vapor tight except for the designated exhaust.
- b. Any gasoline cargo tank or stationary storage tank gauging or sampling device on a gasoline cargo tank or stationary storage tank, vented to such a vapor loss control system, shall be equipped with a vapor tight cover, which shall be closed at all times except during gauging or sampling procedures.
- c. All pressure-vacuum vent valves shall be constructed and maintained in a vapor tight condition except when the operating pressure exceeds the valve release setting.
- d. Switch loading shall be subject to vapor loss control system that is capable of preventing at least 95% by weight of the VOCs escaping into the atmosphere and reduces emissions of VOC to not more than 0.08 pounds per 1000 gallons of gasoline transferred.
- e. The terminal owner or operator and the operator of the receiving vessel shall act to ensure that the vapor recovery hose is connected before gasoline is loaded.

**303.5 Equipment Maintenance, Operation and Repair:** The owner or operator of a bulk gasoline plant or bulk gasoline terminal shall:

- a. Maintain the equipment associated with the storage and loading of gasoline as follows:
  - (1) Leak free;
  - (2) Vapor tight; and
  - (3) In good working order.
- b. Repair and Retest: The owner or operator of a vapor balance system or vapor loss control system that exceeds the standards of this rule shall notify the Control Officer immediately and observe the following time schedule for corrective action:
  - (1) Concentrations at or above the lower explosive limit must be brought into compliance within 24 hours of detection.
  - (2) For vapor collection/processing equipment subject to gas-tight standard, vapor leak concentrations exceeding 10,000 ppmv but less than 50,000 ppmv as methane shall be brought into compliance within five (5) days of detection.

- (3) Except as the Control Officer otherwise specifies, a leak source must 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 leak-correction equipment shall be discontinued until correction is verified by retesting.

**304 GENERAL REQUIREMENTS FOR THE LOADING OF GASOLINE:** The owner or operator of a bulk gasoline plant or a bulk gasoline terminal shall comply with the following:

**304.1 Loading of Gasoline into Stationary Storage Tanks:**

- a. Comply with Section 302.1 of this rule.
- b. Verify the proper connection to a vapor balance system or a vapor loss control system prior to loading gasoline at facilities.
- c. Verify the proper disconnection from a vapor balance system or a vapor loss control system at the completion of loading gasoline at facilities.
- d. Minimize spills during storage and loading of gasoline.
- e. Clean up spills as expeditiously as practicable.
- f. Cover all open containers of gasoline or gasoline soaked material when not in use.
- g. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

**304.2 Loading of Gasoline into Gasoline Cargo Tanks:**

- a. Verify that the gasoline cargo tank displays a valid Maricopa County Vapor Tightness Certification decal or a signed affidavit indicating an exemption from vapor tightness testing.
- b. Verify the proper connection to a vapor balance system or a vapor loss control system prior to the loading of gasoline.
- c. Verify the proper disconnection from a vapor balance system or a vapor loss control system at the completion of loading gasoline.
- d. Minimize spills during storage and loading of gasoline.
- e. Clean up spills as expeditiously as practicable.
- f. Cover all open containers of gasoline and gasoline soaked material when not in use.
- g. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.
- h. Purging of gasoline vapors is prohibited.

**304.3 Loading of Gasoline at a Bulk Gasoline Plant:**

- a. **Loading of Gasoline into Gasoline Cargo Tanks:** An owner or operator shall not load gasoline from a gasoline cargo tank into a stationary storage tank at a bulk gasoline plant if the stationary storage tank has a capacity of more than 250 gallons (946 l), unless the gasoline cargo tank displays a valid Maricopa County Vapor Tightness Certification decal and uses a vapor balance system equipped with fittings which are vapor tight or, alternatively, uses a vapor loss control system that reduces emissions of VOC to not more than 0.6 pounds per 1000 gallons of gasoline transferred.
- b. **Loading from Stationary Storage Tanks at Bulk Gasoline Plants:** An owner or operator shall not load gasoline from a stationary storage tank at a bulk gasoline plant if the stationary storage tank has a capacity of more than 250 gallons (946 l) into a gasoline cargo tank unless both the loading rack and gasoline cargo tank use a vapor balance system equipped with fittings which are vapor tight or, alternatively, use a vapor loss control system that reduces emissions of VOC to not more than 0.6 pounds per 1000 gallons of gasoline transferred.

**304.4 Loading of Gasoline at a Bulk Gasoline Terminal:** An owner or operator of a bulk gasoline terminal shall load gasoline from a stationary storage tank, if the owner or operator meets all the conditions of Sections 303.4 and 304.2 of this rule and uses a vapor loss control system that is capable of preventing at least 95% by weight of the VOCs escaping into the atmosphere and reduces emissions of VOC to not more than 0.08 pounds per 1000 gallons of gasoline transferred.

**305 OPERATING REQUIREMENTS FOR A VAPOR LOSS CONTROL SYSTEM:** The owner or operator of a vapor loss control system subject to this rule shall operate the system and gasoline loading equipment as follows:

- 305.1** Loading shall be accomplished in a manner that prevents gauge pressure from exceeding 18 inches of water (33.6 mm Hg) and vacuum from exceeding six inches of water (11.2 mm Hg) in the gasoline cargo tank. Each owner or operator shall ensure that a vapor loss control system is connected between the gasoline cargo tank and the gasoline storage tank during the loading of gasoline.
- 305.2** Loading shall be accomplished in a manner that prevents leaks, overfills, and excess gasoline drainage. An owner or operator of a bulk gasoline plant or bulk gasoline terminal and the operator of a gasoline cargo tank shall observe all parts of the loading and shall discontinue loading if any leaks are observed. All appropriate measures shall be taken to prevent liquid leaks from the loading device when it is not in use, and to complete drainage before the loading device is disconnected. During the loading of gasoline, potential leak sources shall be vapor tight as demonstrated by the test procedure described in Section 501 of this rule.
- 305.3** During the loading of gasoline, an owner or operator shall operate the vapor loss control system in such a manner that the displaced vapor and air will be vented only to the vapor loss control system, which shall be operated gas-tight and in a manner such that the vapor processing capacity is not exceeded. Diaphragms used in vapor storage tanks shall be maintained gas-tight.
- 305.4** Vapor recovery hoses shall be equipped with fittings that are vapor tight and that automatically and immediately close upon disconnection. Vapor balance systems shall

be designed to prevent any vapors collected at one loading rack from passing to another loading rack.

## **SECTION 400 – ADMINISTRATIVE REQUIREMENTS**

### **401 EQUIPMENT LEAKS:**

- 401.1** The owner or operator shall perform monthly inspections, while gasoline is being transferred, for liquid and vapor leaks and for faulty equipment. Monthly inspection leak detection methods can include one or more of the following methods:
- a.** Incorporation of sight, sound, smell and/or touch.
  - b.** Use of a combustible gas detector (CGD) or organic vapor analyzer (OVA) pursuant to Section 501 of this rule.
  - c.** Method 21-Determination of Volatile Organic Compound Leaks, Alternative Screening Procedure 8.3.3, use of a soap solution pursuant to Section 501 of this rule.
  - d.** Use of an optical gas imaging instrument calibrated according to manufacturing specifications and used according to Section 501 of this rule.
- 401.2** A log book shall be used and signed by the owner or operator at the completion of each monthly inspection for equipment leaks. A section of the log book shall contain a list, summary description, or diagram(s) showing the location of all equipment in gasoline service at the facility.
- 401.3** Leak detection tests shall be conducted annually by the owner or operator of each bulk gasoline plant or bulk gasoline terminal. Testing shall be done according to procedures in Section 504 of this rule, except that EPA Method 21 shall be used to test for leaks from a vapor loss control system and its associated piping outside the loading area. Equipment shall conform to the specifications of those test methods cited in Section 504 of this rule. Prior to testing, the owner or operator shall notify the Control Officer of the date, time and location of the testing. The Control Officer shall at their discretion observe the tests.

### **402 GASOLINE STORAGE TANK INSPECTIONS:**

#### **402.1 Inspection of an External Floating Roof Stationary Storage Tank:**

- a.** The owner or operator of any external floating roof stationary storage tank subject to this rule shall visually inspect the tank and seals at least once every six (6) months to determine ongoing compliance with the applicable standards of this rule pertaining to the tank. Determinations of secondary seal gap area on external floating roof stationary storage tanks shall be made only once per year. Records of these inspections shall be maintained and shall be made available to the Control Officer upon request.
- b. Annual and Empty Tank Inspection:** The owner or operator of any stationary storage tank which uses an external floating roof to meet the vapor loss control system requirements of this rule shall conduct a visual inspection each time the

external floating roof stationary storage tank is emptied and degassed or at least once a year. The visual inspection shall include all of the following:

- (1) Verify the secondary seal covers the space between the roof edge and the tank.
- (2) Measure the gaps between the tank wall and the secondary seal. The accumulated area of gaps between the tank wall and the secondary seal shall not exceed 21.2 cm<sup>2</sup> (3.29 square inches) per meter of tank diameter and the width of any portion of any gap shall not exceed 1.27 cm (0.2 inch).
- (3) Verify there are no holes, tears, or other openings in the seal or seal fabric.

**c. Five-Year, Full Circumference Inspections of External Floating Roof Stationary Storage Tanks:**

The owner or operator of a floating roof tank of 20,000 gallons (75,700 l) or more storing gasoline shall conduct a complete inspection of the external floating roof tank each time the tank is emptied and degassed or at least once every five (5) years. This inspection can be performed while the tank is in service. The inspection shall include all of the following:

- (1) Perform a complete inspection of the gasoline storage tank as described in Section 402.1(a) of this rule.
- (2) Perform a complete inspection of the primary seal and floating roof.
- (3) Measure gap areas and maximum gap. The accumulated area of gaps between the tank wall and the mechanical shoe or liquid-mounted primary seal shall not exceed 21.2 cm<sup>2</sup> per meter of tank diameter, and the width of any portion of any gap shall not exceed 3.81 cm.

**402.2 Inspection of Internal Floating Roof Stationary Storage Tanks with a Fixed Roof Covering:**

- a. The owner or operator of any internal floating roof stationary storage tank subject to this rule shall visually inspect the tank and seals at least once every six (6) months to determine ongoing compliance with the applicable standards of this rule pertaining to the tank. Records of these inspections shall be maintained and shall be made available to the Control Officer upon request.
- b. The owner or operator of any stationary storage tank which uses an internal floating roof to meet the vapor loss control system requirements of this rule shall conduct a visual inspection each time the internal floating roof stationary storage tank is emptied and degassed or at least once a year. The visual inspection can be made through manholes or rood hatches and shall include all of the following:
  - (1) The internal floating roof shall not have an accumulation of liquid on the roof.
  - (2) The seal shall be attached.
  - (3) The seal shall not have any holes or tears.

**402.3 Five Year Inspection and Empty Tank Inspection:** The owner or operator of any stationary storage tank which uses an internal floating roof to meet the vapor loss control system requirements of this rule shall conduct a visual inspection each

time the internal floating roof stationary storage tank is emptied and degassed or at least once every five (5) years. The visual inspection shall include all of the following:

- a. The internal floating roof shall be free of any defects.
- b. The primary seal shall not have any holes, tears or other openings.
- c. The secondary seal if one is in service, shall not have any holes, tears or other openings.
- d. Gaskets shall prevent liquid surfaces from exposure to atmosphere.
- e. The slotted membrane shall not have more than a ten percent (10%) open area.

**403 GASOLINE STORAGE TANK INSPECTIONS-AVAILABILITY TO CONTROL OFFICER:**

**403.1 Annual Inspections of External Floating Roof Tanks:** The owner or operator of any stationary storage tank which uses an external floating roof to meet the vapor loss control system requirements of this rule shall make the primary seal envelope and the secondary seal available for unobstructed inspection by the Control Officer 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.

**403.2 Annual Inspections of Internal Floating Roof Tanks:** The owner or operator of any stationary storage tank which uses an internal floating roof to meet the vapor loss control system requirements of this rule shall make the entire tank including the internal floating roof available for inspection prior to filling. The internal floating roof shall be made available for visual inspection through the manholes or roof hatches on the fixed covering on an annual basis.

**403.3 Five-Year, Full Circumference Inspections:** The owner or operator of a floating roof stationary storage tank of 20,000 gallons (75,700 l) or more storing gasoline shall make the primary seal envelope available for inspection by the Control Officer for its full length every five (5) years. This inspection can be performed while the tank is in-service. However, if the secondary seal is removed or if the tank is drained and cleaned by the owner or operator for any reason, it shall be made available for such inspection at that time. The owner or operator shall provide notification to the Control Officer no less than seven (7) working days prior to removal of the secondary seal.

**404 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 DETERMINING VAPOR TIGHT STATUS:** If a determination of vapor tight status is to be made during the loading of a gasoline cargo tank, an owner or operator or Control Officer shall use one or more of the methods listed in Section 501 of this rule.

**501.1 Combustible Gas Detector (CGD) or Organic Vapor Analyzer (OVA)-Test**

**Procedure:** During loading of gasoline cargo tanks, the peripheries of all potential sources of leakage at the gasoline loading facility are checked with a CGD or OVA as follows:

- a. **Calibration:** Within four (4) hours prior to monitoring, the CGD or OVA shall be properly calibrated for a 20 percent lower explosive limit (LEL) response or to 10,000 ppm with methane.
- b. **Probe Distance:** The probe inlet shall be one (1) inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one (1) inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within one (1) inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance shall be used.
- c. **Probe Movement:** The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). 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.
- d. **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.
- e. **Wind:** Wind shall be blocked as much as possible from the space being monitored. The annual leak detection test required by Section 401 of this rule shall be valid only when wind speed in the space being monitored is five (5) mph or less.
- f. **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.

**501.2 Method 21-Determination of Volatile Organic Compound Leaks, Alternative Screening Procedure 8.3.3:**

- a. Spray a soap solution over all potential leak sources. 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.
- b. Observe the potential leak sites to determine if any bubbles are formed.
  - (1) If no bubbles are observed, the source is presumed to have no detectable vapor leaks.

(2) If any bubbles are observed, the instrument techniques of Section 501.1 of this rule shall be used to determine if a vapor leak exists.

**501.3 Optical Gas Imaging:** A certified operator of a calibrated optical gas imaging instrument may use an optical gas imaging instrument to identify vapor leaks. If a vapor leak is detected, the instrument techniques listed in Section 501.1 of this rule shall be used to determine if a vapor leak exists.

**501.4 Gasoline Cargo Tank Loading Pressure:** During a performance test, 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. The pressure shall be recorded every five (5) minutes while a gasoline cargo tank is being loaded. The highest instantaneous pressure that occurs during each loading shall be recorded. A pressure measurement device capable of measuring 20 inches (50.8 cm) of water pressure with a precision of 0.1 (2.5 mm) inch of water shall be calibrated. This device shall fit the tap and shall either be permanently installed or shall be kept available at all times at the facility.

**502 COMPLIANCE INSPECTIONS:** The Control Officer, at any time, may monitor a gasoline cargo tank vapor collection system, a loading rack's vapor loss control devices, a gasoline loading facility, or a vapor loss control system for vapor leaks by the methods described in Section 501 of this rule or by applicable EPA Reference Methods specified in Section 504 of this rule.

**503 RECORDS RETENTION:** Records and information required by this rule shall be retained for at least five (5) years.

**503.1 Vapor Pressure Records:**

**a. Bulk Gasoline Plant:** An owner or operator of a stationary storage tank located at a bulk gasoline plant shall keep accurate records of the following:

- (1) The amount of gasoline stored in each tank.
- (2) The Reid vapor pressure ranges of each such liquid.
- (3) These records shall be kept for a minimum of five (5) years.

**b. Bulk Gasoline Terminal:** An owner or operator of a stationary storage tank located at a bulk gasoline terminal shall keep accurate records of the following:

- (1) The amount of gasoline stored in each tank.
- (2) The temperature of the contents of each stationary storage tank subject to this rule, shall be determined and recorded using at least one of the following methods:
  - (a) Take the actual temperature of the contents of the stationary storage tank each week and record the weekly temperature of the contents of each stationary storage tank.
  - (b) Obtain the maximum local monthly average ambient temperature as reported by the National Weather Service and record monthly for each stationary storage tank.

(c) Record monthly AP 42, Section 7.1 emission estimation procedures for each storage tank.

(3) The Reid vapor pressure of the contents of each stationary storage tank shall be recorded at least once each month.

(4) These records shall be kept for a minimum of five (5) years.

**503.2 Leak Inspection Records:** The owner or operator of a bulk gasoline plant or bulk gasoline terminal shall keep a log book documenting each leak inspection. The log book shall include the items listed below:

- a. The owner or operator shall sign the log book at the completion of each monthly inspection for equipment leaks.
- b. Each monthly inspection log shall contain a list, summary description or diagram(s) showing the location of all equipment at the bulk gasoline plant or bulk gasoline terminal.
- c. Each monthly inspection log shall include any maintenance that occurred.
- d. Each annual inspection log shall include any maintenance that occurred.
- e. For an external floating roof, record the seal gap measurements, including the raw data obtained and any calculations performed.
- f. The date the stationary storage tank was removed from service, if applicable.
- g. These records shall be kept for a minimum of five (5) years.
- h. Additional recordkeeping requirements for use of optical gas imaging instruments: 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.

**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). An owner or operator may use an Optical Gas Imaging instrument to comply with the alternative work practice requirements in 40 CFR 40.18(g) instead of using the 40 CFR 60, Appendix A-7, Method 21 monitor to identify leaking equipment.
- j. AP 42, Fifth Edition, Volume I, Chapter 7: Liquid Storage Tanks, November 2006, errata August 2012.

**504.2 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 ASTM Standards**

- a. ASTM D323-15a “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 D4953-15 “Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method).
- d. ASTM D5191-15 “Standard Test Method for Vapor Pressure of Petroleum Products (Mini Method).”
- e. ASTM D6420-99 (Reapproved 2004), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry.

**504.4 American Petroleum Institute Standard API STD 650 Welded Tanks for Oil Storage, Twelfth Edition, Includes Errata 1 (2013), Errata 2 (2014), and Addendum 1 (2014).**