

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

**RULE 352
GASOLINE CARGO TANK TESTING AND USE**

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**MARICOPA COUNTY
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**RULE 352
GASOLINE CARGO TANK TESTING AND USE**

SECTION 100 – GENERAL

- 101 PURPOSE:** To limit emissions of volatile organic compounds (VOC) from gasoline cargo tanks.
- 102 APPLICABILITY:** This rule applies to any gasoline cargo tank which is used to load or unload gasoline within Maricopa County, and to all persons who own, operate, maintain, repair, or test such a gasoline cargo tank.
- 103 EXEMPTIONS:**
- 103.1 Maricopa County Vapor Tightness Test and Maricopa County Vapor Tightness Certification Decal Exemption for Non Railcars:** The owner or operator of a gasoline cargo tank is exempt from Section 301.1 (Gasoline Cargo Tank Integrity – Maricopa County Vapor Tightness Test) and Section 301.2 (Maricopa County Vapor Tightness Certification Decal), if all of the following requirements are met:
- a. The gasoline cargo tank was placed in operation before July 13, 1988.
 - b. The gasoline cargo tank transported gasoline within Maricopa County before January 1, 1998.
 - c. The gasoline cargo tank only loads at a bulk gasoline plant exempted from vapor loss control by Section 103.4 of Rule 351.
 - d. The gasoline cargo tank serves only farm tanks or those non-resale gasoline dispensing facilities that meet the requirements in section 103.2.a of Rule 353.
 - e. The owner or operator of the gasoline cargo tank submits a signed affidavit to the Control Officer documenting compliance with Sections 103.1.a through 103.1.d.
 - f. The owner or operator has a complete copy of the signed affidavit available in the gasoline cargo tank for inspection by a bulk gasoline plant operator, a gasoline dispensing facility owner or operator, or the Control Officer. Maricopa County will not issue a Maricopa County Vapor Tightness Certification Decal to any gasoline cargo tank claiming this exemption.
 - g. The owner or operator of a gasoline cargo tank meeting the requirements in Section 103.1.a through Section 103.1.f, shall comply with the following sections:

- (1) Section 302.1 (General Requirements for the Loading of Gasoline) except Section 302.1.b(2).
- (2) Section 502 (Identifying a Potential Vapor Leak).
- (3) Section 504.1 (Recordkeeping and Reporting Requirements).

103.2 Maricopa County Vapor Tightness Test and Maricopa County Vapor Tightness Certification Decal Exemption for Railcars: The owner or operator of a gasoline cargo tank (railcar) is exempt from Section 301.1 (Gasoline Cargo Tank Integrity – Maricopa County Vapor Tightness Test) and Section 301.2 (Maricopa County Vapor Tightness Certification Decal), if the gasoline cargo tank (railcar) is currently certified in accordance with 40 CFR part 63.11092.

103.3 Alternative Demonstration of Maricopa County Vapor Tightness Test Compliance: A gasoline cargo tank is exempt from Section 301.1 (Gasoline Cargo Tank Integrity – Maricopa County Vapor Tightness Test) and is eligible to obtain a Maricopa County Vapor Tightness Certification Decal if the following two (2) conditions are met:

- a. The owner or operator of a gasoline cargo tank provides documentation from the gasoline cargo tank testing company to the Control Officer that certifies that the gasoline cargo tank was tested and verified vapor tight using test methods at least as stringent as those in Section 501.1 (Maricopa County Vapor Tightness Test).
- b. The owner or operator of a gasoline cargo tank complies with Section 401.4 (Registration).

103.4 Opening Hatches, Vent Valves, or Other Vapor Sealing Devices on Gasoline Cargo Tanks:

- a. When VOC vapors are present within a gasoline cargo tank, owners, or operators, their contractors, and authorized government agents may open vapor containment equipment 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 before opening a hatch, vent valve, or other vapor sealing device on a gasoline cargo tank after:
 - (a) The loading of gasoline is complete.
 - (b) The gasoline cargo tank has come to a complete stop.
 - (2) Reclose hatch or other sealing device within three (3) minutes of completing the required procedures.
 - (3) Limit wind speed at 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.
- b. **Loading:** 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.

103.5 Connecting Coaxial Fittings: Requirements for first connecting a vapor recovery hose before a gasoline cargo tank loading hose do not apply to coaxial vapor recovery connection fittings.

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.

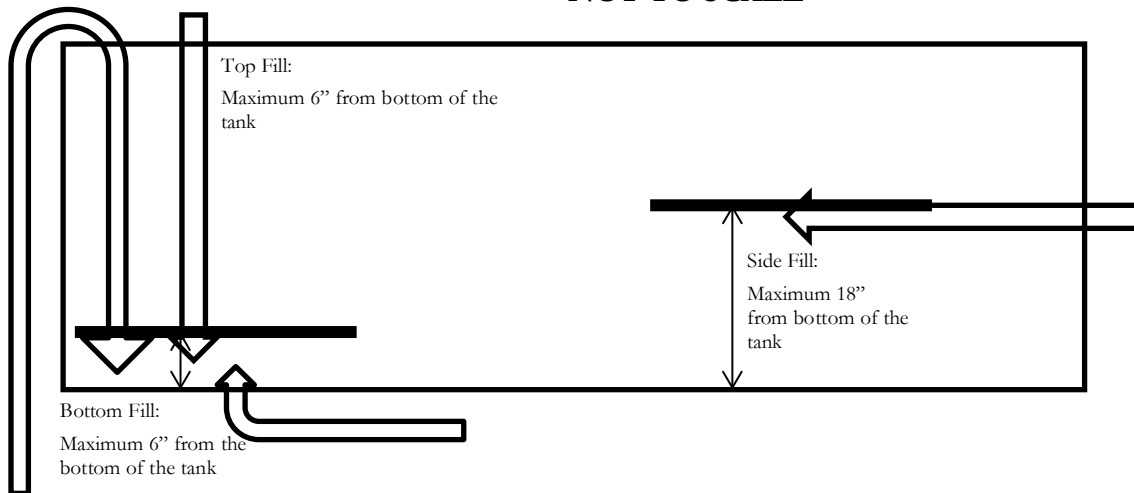
- 201 BULK GASOLINE PLANT:** Any gasoline storage and gasoline loading facility that meets all of the following:
- 201.1** Loads gasoline from a pipeline, railcar, or gasoline cargo tank into a stationary gasoline storage tank.
 - 201.2** Loads gasoline from the stationary gasoline storage tank into gasoline cargo tanks for transport to gasoline dispensing facility (GDF).
 - 201.3** Has a gasoline throughput of less than 20,000 gallons per day. Gasoline throughput shall be the maximum calculated design throughput which 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 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 gasoline cargo tanks for transport to a 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 which 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 COAXIAL VAPOR BALANCE SYSTEM:** A type of vapor balance system in which the gasoline vapors are removed through the same fill pipe connection as which the fuel is delivered.
- 204 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]
- 205 DUAL-POINT VAPOR BALANCE SYSTEM:** A type of vapor balance system in which the stationary gasoline storage tank is equipped with an entry port for a gasoline fill pipe and a separate exit port for a vapor connection.

- 206 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:
- 206.1** More than 0.34 fluid ounces or two teaspoonsful (2 tsp) of liquid gasoline lost from the end of a gasoline loading hose or a vapor recovery hose. This does not include drainage into a fill pipe's spill containment receptacle.
 - 206.2** Wets any area(s) on the ground having an aggregate area greater than 113 square inches (113 in²).
 - 206.3** 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.
- 207 GASOLINE CARGO TANK:** A delivery tank truck or railcar which is loading or unloading gasoline, or which has loaded or unloaded gasoline on the immediately previous load. [40 CFR §§ 63.11100 and 63.11132] This includes any gasoline loading hose(s) that the gasoline cargo tank carries through which the loading of gasoline occurs.
- 208 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- and 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.
- 209 GASOLINE VAPORS:** Vapors originating from liquid gasoline that are usually found in mixture with air. Included are any droplets of liquid gasoline or gasoline-vapor condensate that are entrained by the vapor.
- 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 MARICOPA COUNTY VAPOR TIGHTNESS TEST:** The complete pressure, vacuum, and vapor valve testing of a gasoline cargo tank that is performed according to Maricopa County specifications as described in Section 501 (Maricopa County Gasoline Cargo Tank Vapor Tightness Testing Requirements).
- 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 SPILL CONTAINMENT RECEPTACLE:** An enclosed container installed around the fill pipe or vapor recovery connection point designed to contain drips and spills of gasoline

that can occur during delivery or during the disconnection of a gasoline loading hose from a gasoline fill line or a vapor recovery hose from a vapor line.

- 214 **STATIONARY GASOLINE STORAGE TANK:** Any stationary tank or reservoir used to store, but not transport gasoline. Any such tank that is connected to permanent piping and not moved to another service location within any twelve (12)-month period will be considered a stationary gasoline storage tank.
- 215 **SUBMERGED FILL:** Any fill pipe or nozzle extension which meets at least one of the specifications below:
- 215.1 **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 stationary gasoline storage tank.
- 215.2 **Side-Fill:** The end of the discharge 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 Diagram
NOT TO SCALE



- 216 **SWITCH LOADING:** Loading diesel fuel into a gasoline cargo tank whose previous load was gasoline; or loading any liquid not subject to this rule into a gasoline cargo tank whose previous load was gasoline.
- 217 **THROUGHPUT:** The amount of gasoline received.
- 218 **VAPOR BALANCE SYSTEM:** Vapor loss control equipment that collects gasoline vapors displaced from the loading of gasoline into one of the following:
- 218.1 A gasoline cargo tank and routes the collected vapors to a stationary gasoline storage tank; or

- 218.2** A stationary gasoline storage tank and routes the collected vapors to the gasoline cargo tank from which the storage tank is loaded; or
- 218.3** A gasoline cargo tank and routes the collected vapors to the gasoline cargo tank from which the gasoline cargo tank is loaded.
- 219** **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.
- 220** **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.
- 221** **VAPOR TIGHT:** A condition in which an organic vapor analyzer (OVA) at the site of (potential) leakage of vapor shows less than 10,000 ppmv when calibrated with methane or a combustible gas detector (CGD) shows less than one-fifth lower explosive limit (1/5 LEL) when calibrated with a gas specified by the manufacturer and used according to the manufacturer's instructions.

SECTION 300 – STANDARDS

301 GASOLINE CARGO TANK REQUIREMENTS:

- 301.1 Gasoline Cargo Tank Integrity-Maricopa County Vapor Tightness Test:** A gasoline cargo tank shall pass the Maricopa County Vapor Tightness Test, and meet the requirements of section 301.2, before storing, transporting, loading or unloading gasoline within Maricopa County, unless exempted by Section 103.1 (Maricopa County Vapor Tightness Test and Maricopa County Vapor Tightness Certification Decal Exemption for Non Railcars), 103.2 (Maricopa County Vapor Tightness Test and Maricopa County Vapor Tightness Certification Decal Exemption for Railcars), or Section 103.3 (Alternative Demonstration of Maricopa County Vapor Tightness Test Compliance).
- a.** Scheduling and notification of a Maricopa County Vapor Tightness Test shall be done in accordance with Section 401.1 (Notification of Required Testing).
 - b.** The Maricopa County Vapor Tightness Test shall be performed according to Section 501.1 (Maricopa County Vapor Tightness Test).
 - c.** Results of the Maricopa County Vapor Tightness Test shall be recorded according to Section 504.2 (Recordkeeping and Reporting Requirements).
- 301.2 Maricopa County Vapor Tightness Certification Decal:** Unless exempted in Section 103.1 (Maricopa County Vapor Tightness Test and Maricopa County Vapor Tightness Certification Decal Exemption for Non Railcars) or Section 103.2 (Maricopa County Vapor Tightness Test and Maricopa County Vapor Tightness Certification Decal Exemption for Railcars), an owner or operator of a gasoline cargo tank shall:

- a. Comply with Section 401.4 (Registration) for registration requirements to obtain a valid Maricopa County Vapor Tightness Certification Decal after either:
 - (1) Passing the Maricopa County Vapor Tightness Test as performed according to Section 501.1 (Maricopa County Vapor Tightness Test).
 - (2) Complying with Section 103.3 (Alternative Demonstration of Maricopa County Vapor Tightness Test Compliance).
- b. Clearly display a valid Maricopa County Vapor Tightness Certification Decal that is permanently mounted near the front right side (passenger) of the gasoline cargo tank.

301.3 Purging Prohibited:

- a. No person shall purge gasoline vapors into the atmosphere from a gasoline cargo tank unless the following two (2) conditions are met:
 - (1) VOC emissions shall be reduced at least 90% by weight, as determined by one or more of the test methods listed in Section 506 (Test Methods Incorporated by Reference), including capture and processing, by a control device having a Maricopa County Permit to Operate and/or Construct.
 - (2) Such purging shall be done only after all loading valves are opened and any liquid gasoline outflow is captured in a container having an attached lid which is kept closed when not receiving or pouring gasoline.
- b. An owner or operator of a gasoline cargo tank shall not purge gasoline vapors from such tank as a result of switch loading.

302 LOADING OF GASOLINE:

302.1 General Requirements for the Loading of Gasoline: The owner or operator of a gasoline cargo tank shall have the responsibility to:

- a. Ensure all parts of the gasoline loading process are observed.
- b. Maintain gasoline cargo tanks and equipment associated with the loading and unloading of the gasoline to be:
 - (1) Leak free.
 - (2) Vapor tight.
 - (3) In good working order.
- c. Properly connect/disconnect:
 - (1) The vapor recovery hose to prevent excess gasoline drainage.
 - (2) The gasoline loading hose to prevent excess gasoline drainage.
 - (3) Use 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 recovery hose.
- d. Load gasoline:

(1) Into stationary gasoline storage tanks with a capacity of more than 250 gallons using submerged fill. Where because of government regulation, including, but not limited to, Fire Department codes, such a permanent 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.

(2) Discontinue loading operation if a liquid leak or vapor leak is observed.

e. Minimize gasoline spills [40 CFR § 63.11116(a)(1)] by:

(1) Disconnecting a gasoline loading hose or a vapor recovery hose in such a way as to prevent excess gasoline drainage from escaping from the hose in one connect/disconnect cycle.

(2) Collecting and containing any gasoline that escapes, spills, or leaks in a manner that will prevent evaporation into the atmosphere.

f. Clean up gasoline spills as expeditiously as practicable. [40 CFR § 63.11116(a)(2)] This can include, but is not limited to, the correct use of buckets and or absorbent material designed for the purpose and the correct disposal of the collected gasoline.

g. Cover all open gasoline containers when not in use. [40 CFR § 63.11116(a)(3)] Any gasoline that escapes, spills, or leaks shall be collected and contained in a manner that will prevent evaporation into the atmosphere.

h. Minimize gasoline sent to waste collection systems that collect and transport gasoline to reclamation and recycling equipment such as an oil/water separator. [40 CFR § 63.11116(a)(4)]

i. Properly dispose of any VOC - containing material.

j. Prevent:

(1) Overfill.

(2) Excess gasoline drainage.

302.2 Loading of Gasoline at a Bulk Gasoline Plant: The owner or operator of a gasoline cargo tank shall:

a. Ensure the gasoline cargo tank is properly connected to either:

(1) A vapor balance system; or

(2) A vapor collection/processing system.

b. Connect an additional vapor recovery hose before connecting any additional gasoline loading hose, unless an assisted vapor collection/processing system is serving the vapor recovery hose that is already connected.

302.3 Loading of Gasoline at a Bulk Gasoline Terminal: The owner or operator of a gasoline cargo tank shall:

a. Ensure the gasoline cargo tank is properly connected to a vapor collection/processing system.

- b. Connect an additional vapor recovery hose before connecting any additional gasoline loading hose, unless an assisted vapor collection/processing system is serving the vapor recovery hose that is already connected.

302.4 Loading of Gasoline into a Stationary Gasoline Storage Tank at any GDF: The owner or operator of a gasoline cargo tank shall:

- a. Coaxial vapor balance system:
 - (1) Ensure any locked cap can be removed.
 - (2) Verify the stationary gasoline storage tank does not have any broken or damaged fitting that prevent the correct coaxial connection.
 - (3) Not remove the fill cap of a fill pipe unless every other fill pipe either has a fill cap fastened in place or a gasoline loading hose connecting it to the gasoline cargo tank.
- b. Dual-point vapor balance system:
 - (1) Ensure the stationary gasoline storage tank is equipped with a vapor return poppetted valve.
 - (2) Ensure any locked cap can be removed.
 - (3) Verify the stationary gasoline storage tank does not have any broken or damaged fitting that prevent the correct connection of a gasoline loading hose or a vapor recovery hose.
 - (4) Ensure a vapor recovery hose is connected from the gasoline cargo tank to a vapor return-line serving the stationary gasoline storage tank prior to the connection of the gasoline loading hose.
 - (5) Do not connect more than one gasoline loading hose to the gasoline cargo tank if a gasoline cargo tank's vapor recovery hose is connected to a vapor return line that is not part of a dual-point vapor balance system.
 - (6) Not remove the fill cap of a fill pipe unless every other fill pipe either has a fill cap fastened in place or a gasoline loading hose connecting it to the gasoline cargo tank.
 - (7) Not simultaneously have more than one gasoline loading hose connected, unless each gasoline loading hose is connected to a gasoline cargo tank's dual-point vapor balance system that already has a vapor recovery hose connecting it to the gasoline cargo tank.
 - (8) Thoroughly drain the gasoline loading hose and the vapor recovery hose into the stationary gasoline storage tank prior to disconnecting any fittings.
 - (9) Disconnect a gasoline loading hose from a stationary gasoline storage tank before disconnecting the vapor recovery hose.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 MARICOPA COUNTY VAPOR TIGHTNESS TEST: The owner, operator, or tester of a gasoline cargo tank being tested to meet requirements of Section 301.1 of this rule shall:

401.1 Notification of Required Testing:

- a. Notify the Control Officer:
 - (1) During normal business hours, 8 a.m. to 5 p.m.
 - (2) At least four (4) hours prior to gasoline cargo tank vapor tightness testing.
 - (3) No more than 72 hours prior to gasoline cargo tank vapor tightness testing.
 - (4) **Weekend Testing:** Prior to 2 PM on Friday (or prior to 2 PM on the last business day before testing).
 - (5) **Testing Between 9 P.M. and 5 A.M.:** Any testing that is performed in the eight (8) hour period between 9 p.m. and 5 a.m. is not valid for purposes of satisfying Section 301.1 (Gasoline Cargo Tank Integrity – Maricopa County Vapor Tightness Test) requirements, except if the Control Officer gives specific, advanced written permission for a particular occasion.
- b. Provide an estimated start time that is no more than one (1) hour prior to actual gasoline cargo tank vapor tightness testing start time.
- c. Provide the location of where the testing will occur.

401.2 Conduct the Vapor Tightness Test:

- a. Between the hours of 5 a.m. and 9 p.m. unless approved by the Control Officer per Section 401.1.a(5).
- b. Per the vapor tightness testing requirements in Section 501.1 (Maricopa County Vapor Tightness Test).

401.3 Vapor Tightness Testing – Availability to the Control Officer: The Control Officer shall, at their discretion, observe the vapor tightness testing.

401.4 Registration: To obtain a Maricopa County Vapor Tightness Certification Decal, the following information shall be submitted to the Control Officer for each gasoline cargo tank demonstrating the vapor integrity of the gasoline cargo tank:

- a. A completed “Maricopa County Vapor Tightness Certification Decal Application” (application) that includes, at a minimum, all of the information required by Section 504.2.
- b. A completed copy of:
 - (1) The “Maricopa County Air Quality Department Gasoline Cargo Tank Vapor Tightness Certification Check List” (checklist), and
 - (2) If applicable, documentation from the gasoline cargo tank testing company to the Control Officer that attests to the vapor integrity of the gasoline cargo tank as described in Section 103.3 (Alternative Demonstration of Maricopa County Vapor Tightness Test Compliance).
- c. The annual fee remittance as listed in Rule 280 (Fees).
- d. Upon receipt of the completed application, checklist, and fee remittance, a Maricopa County Vapor Tightness Certification Decal will be issued by the Control Officer.

401.5 Expiration:

- a. For a gasoline cargo tank that passed the Maricopa County Vapor Tightness Test, the certification of vapor tightness shall expire on the date indicated on the vapor tightness certification decal.
- b. For a gasoline cargo tank that has passed the Maricopa County Vapor Tightness Test:
 - (1) In the 4-month period beginning March 1 and ending June 30, the certification of vapor tightness shall expire at 11:59 PM local time on June 30 of the following year, as indicated on the decal.
 - (2) On or after July 1 through December 31, the certification of vapor tightness shall expire at 11:59 PM local time on June 30 of the following year, as indicated on the decal.
 - (3) On or after January 1, but prior to March 1, the certification of vapor tightness shall expire at 11:59 PM local time on June 30 of the current year, as indicated on the decal.

401.6 Lost, Defaced or Destroyed Maricopa County Vapor Tightness Certification Decal:

- a. An owner or operator shall notify the Control Officer immediately if a valid Maricopa County Vapor Tightness Certification Decal is lost, defaced, or destroyed.
- b. The Control Officer may require a demonstration of need for decal replacement.
- c. If Rule 280 (Fees) so provides, the Control Officer may charge a fee for a replacement decal [Rule 280, Section 307] if the Control Officer determines that the MCAQD is not at fault.

402 INSTALLATION OF CONTROL DEVICE: An owner or operator of a gasoline cargo tank testing company who chooses to comply with Section 301.3 (Purging Prohibited) through the use of a control device shall:

402.1 Submit an application for a Maricopa County Air Pollution Control Permit.

402.2 Properly:

- a. Install the control device.
- b. Operate the control device.
- c. Maintain the control device.

402.3 Submit an Operation and Maintenance Plan (O&M) for the control device.

402.4 Use the applicable test methods as incorporated by reference in Section 506 (Test Methods Incorporated by Reference), to determine compliance with Section 301.3.a.

SECTION 500 – RECORDS AND MONITORING

501 MARICOPA COUNTY GASOLINE CARGO TANK VAPOR TIGHTNESS TESTING REQUIREMENTS:

501.1 Maricopa County Vapor Tightness Test: The following three subtests shall be used to determine the vapor tightness of a gasoline cargo tank. Each gasoline cargo tank shall pass all of the vapor tightness tests in the listed order of Section 501.1 using the same vapor recovery hose during each test as will be used for loading. If more than one vapor recovery hose is used for loading, the sequence of tests shall be performed for each vapor recovery hose.

- a. Pressure Test:** Lose no more than one inch (1") of water column in five (5) minutes, when pressurized to a gauge pressure of eighteen inches (18") of water column in two (2) consecutive runs, according to procedures in EPA Method 27, as incorporated by reference in Section 506 (Test Methods Incorporated By Reference).
- b. Vapor Valve Loss Test:** Lose no more than five inches (5") of water column in five (5) minutes, measured in the vapor system after the gasoline cargo tank compartments are first collectively pressurized to a water gauge pressure of eighteen inches (18") of water column and then the vapor valves are closed.
- c. Vacuum Test:** Gain no more than one inch (1") of water column in five (5) minutes, when initially evacuated to a water gauge pressure of six inches (6") of water column, in two (2) consecutive runs, according to procedures in EPA Method 27, as incorporated by reference in Section 506 (Test Methods Incorporated By Reference).
- d. Pressure Instability:** A test is invalid if during the positive pressure test or the vapor valve loss test, more than one-half inch (+1/2") of water column is gained. A test is invalid if during the vacuum test the vacuum is increased by more than minus one-half inch (-1/2") of water column.

501.2 If a gasoline cargo tank does not pass all the tests listed in Section 501.1, the gasoline cargo tank shall be repaired, then retested. A gasoline cargo tank being retested shall pass all tests as listed in Section 501.1 in the same testing period within fifteen (15) days of initial testing.

502 IDENTIFYING A POTENTIAL VAPOR LEAK: An owner or operator or Control Officer shall follow one or more of the test procedures in Section 502 to identify a potential vapor leak. If a potential vapor leak is detected, refer to Section 503 (Determining Vapor Tight Status) to determine the vapor tight status.

502.1 For the purposes of identifying a potential vapor leak, the use of sight, sound, or smell are acceptable.

502.2 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 vapor leak site to determine if any bubbles are formed.
 - (1) If no bubbles are observed, the source is presumed to have no detectable vapor leak.
 - (2) If any bubbles are observed, the instrument techniques of Section 503 (Determining Vapor Tight Status) shall be used to verify if a vapor leak exists.

502.3 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.

502.4 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 503 (Determining Vapor Tight Status) to identify a potential vapor leak.

503 DETERMINING VAPOR TIGHT STATUS:

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

Procedure: An owner or operator or the Control Officer shall follow the test procedure below to determine the vapor tight status of a gasoline cargo tank. 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.

- a. **Calibration:** Within four (4) hours prior to monitoring, the CGD or OVA shall be properly calibrated for a 20 percent lower explosive limit (20% LEL) response or to 10,000 ppmv with methane.
- b. **Probe Distance:** The probe inlet shall be:
 - (1) At the surface of the potential leak source when searching for leaks.
 - (2) At the surface of the leak source when the highest detector reading is being determined for a discovered leak.
 - (3) 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.
- c. **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.
- 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 coaxially with the path of the most concentrated vapors.
- e. **Wind:** Wind shall be blocked as much as possible from the space being monitored. A determination of vapor tight status shall be valid only when wind speed in the space being monitored is five miles per hour (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.

504 RECORDKEEPING AND REPORTING REQUIREMENTS: The owner or operator of a gasoline cargo tank subject to this rule shall:

504.1 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.

504.2 The records of the gasoline cargo tank vapor tightness certification testing required by Section 301.1 (Gasoline Cargo Tank Integrity-Maricopa County Vapor Tightness Test), shall be recorded in both of the following documents: “Maricopa County Vapor Tightness Certification Decal Application” and the “Maricopa County Air Quality Department Gasoline Cargo Tank Vapor Tightness Certification Check List”. The minimum requirements for each of these two (2) documents are:

- a. For the “Maricopa County Vapor Tightness Certification Decal Application” include the following information:
 - (1) Owner's name and address.
 - (2) The manufacturer’s gasoline cargo tank vehicle identification number (VIN).
 - (3) The gasoline cargo tank unit number.
 - (4) The location of the test.
 - (5) The time of the test.
 - (6) The date of the test.
 - (7) **Pressure Test:** For the pressure test, record the following two (2) readings:
 - (a) Change in pressure (in inches of water column) for Run 1.
 - (b) Change in pressure (in inches of water column) for Run 2.
 - (8) **Vapor Valve Loss Test:** For the vapor valve loss test record the total change in pressure during the test.
 - (9) **Vacuum Test:** For the vacuum test, record the following two (2) readings:
 - (a) Change in vacuum (in inches of water column) for Run 1.
 - (b) Change in vacuum (in inches of water column) for Run 2.
 - (10) Name of the gasoline cargo tank testing company.
 - (11) The printed name and signature of the person conducting the vapor tightness test.
 - (12) Title of the person conducting the vapor tightness test.
 - (13) Contact information of the person or company conducting the vapor tightness test.

- b. The “Maricopa County Air Quality Department Gasoline Cargo Tank Vapor Tightness Certification Check List” shall contain at least the following information:
- (1) Owner's name and address.
 - (2) Manufacturer’s gasoline cargo tank vehicle identification number (VIN).
 - (3) The gasoline cargo tank unit number.
 - (4) The gasoline cargo tank capacity.
 - (5) Whether the gasoline cargo tank was purged of gasoline vapors.
 - (6) The location of the test.
 - (7) The time of the test.
 - (8) The date of the test.
 - (9) Initial testing information:
 - (a) The time the test began.
 - (b) The initial pressure in inches of water column.
 - (c) The finish time of the test.
 - (d) The final pressure of the test.
 - (e) The pressure change between the start and end of the test.
 - (f) If the initial pressure test failed:
 - (i) Record one set of readings in the row “Initial Test.”
 - (ii) Record the elapsed time if the pressure reached zero before five (5) minutes.
 - (iii) Record any repairs conducted.
 - (10) Testing Information for each test:
 - (a) The time the test began.
 - (b) The initial pressure in inches of water column.
 - (c) The finish time of the test.
 - (d) The final pressure of the test.
 - (e) The pressure change between the start and end of the test.
 - (11) The date of the next leakage test if the set of three (3) subtests are not all passed.
 - (12) Name of the gasoline cargo tank testing company.
 - (13) The printed name and signature of the person conducting the vapor tightness test.
 - (14) Title of the person conducting the vapor tightness test.

- (15) Contact information of the person or company conducting the vapor tightness test.

505 COMPLIANCE

- 505.1 Pressure and Vacuum Tests:** The tests to determine compliance with Section 501.1 (Maricopa County Vapor Tightness Test) shall be performed according to EPA Method 27 – Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure Vacuum Test, except that the definition of gasoline shall be according to this rule.
- 505.2 Test of Internal Vapor Valves:** The vapor valve loss test shall be performed immediately after successfully passing the pressure subtest, without performing any intervening maintenance or repair on the vapor valves.
- 505.3** Confirmation of a vapor leak detected on a gasoline cargo tank during loading of gasoline shall be determined by properly deploying a pressure tap adapter that conforms to Method 27 provisions, and demonstrating the leak according to Section 503 (Determining Vapor Tight Status), while the pressure is less than twenty inches (20”) of water column.
- 505.4** Reid vapor pressure shall be determined using ASTM D323 06: Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method).

506 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 adopted by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Alternative test methods as approved by the EPA 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.

- 506.1** EPA Method 2A – Direct Measurement of Gas Volume Through Pipes and Small Ducts.
- 506.2** EPA Method 2B – Determination of Exhaust Gas Volume Flow Rate from Gasoline Vapor Incinerators.
- 506.3** EPA Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography.
- 506.4** EPA Method 21 – Determination of Volatile Organic Compound Leaks.
- 506.5** EPA Method 25A – Determination of Total Gaseous Organic Concentrations Using a Flame Ionization Analyzer.
- 506.6** EPA Method 25B – Determination of Total Gaseous Organic Concentration Using a Nondispersive Infrared Analyzer.
- 506.7** EPA Method 27 – Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure – Vacuum Test.

- 506.8** Optical Gas Imaging: Alternative Work Practice for Monitoring Equipment Leaks, 40 CFR § 60.18(g), (h), and (i).
- 506.9** EPA Approved ASTM D323 06: Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method).