



## Enhanced Regulatory Outreach Program Maricopa County Air Quality Department

# Notice of Stakeholder Workshops

**Date: June 29 And June 30, 2015**

**Location: 1001 North Central Avenue, Floor 9 Classroom\***

---

The Maricopa County Air Quality Department (department) will conduct a series of Stakeholder Workshops to discuss proposed rule revisions. The schedule is provided below. The draft rules that will be discussed during these workshops are attached to this announcement.

### **Monday, June 29, 2015**

- |                     |   |
|---------------------|---|
| 9:30 am – 10:30 am  | AQ-2015-002-Rule 322 (Power Plant Operations) And<br>AQ-2015-003-Rule 323 (Fuel Burning Equipment From<br>Industrial/Commercial/Institutional (ICI) Sources)  |
| 11:00 am – 12:00 pm | AQ-2015-008-Organic Liquids And Gasoline Rulemaking<br>Re: Organic Liquid Distribution: Rule 350 (Storage Of Organic Liquids At<br>Bulk Plants And Terminals) And Rule 351 (Loading Of Organic Liquids) |
| 1:30 pm – 2:30 pm   | AQ-2015-005-Rule 336 (Surface Coating Operations)   |

### **Tuesday, June 30, 2015**

- |                   |  |
|-------------------|--|
| 1:00 pm – 2:00 pm | AQ-2015-008-Organic Liquids And Gasoline Rulemaking<br>Re: Gasoline Bulk Tanks And Bulk Terminals: Rule 350 (Storage Of<br>Organic Liquids At Bulk Plants And Terminals) And Rule 351 (Loading Of<br>Organic Liquids)                |
| 2:30 pm – 3:30 pm | AQ-2015-008-Organic Liquids And Gasoline Rulemaking<br>Re: Gasoline Dispensing Facilities And Gasoline Cargo Tanks: Rule 352<br>(Gasoline Delivery Vessel Testing And Use) And Rule 353 (Gasoline In<br>Stationary Dispensing Tanks) |

Pending the U.S. Environmental Protection Agency's (EPA's) reclassification of Maricopa County from "marginal" to "moderate" nonattainment for the 2008 eight-hour ozone National Ambient Air Quality Standard (NAAQS), the department is proposing to revise the rules listed above to address the requirements of the State Implementation Plan (SIP).

Additional information about these draft rules is available on the Enhanced Regulatory Outreach Program (EROP) website (<http://www.maricopa.gov/regulations>). In order to enhance the discussion and cost savings, as well as support the county's sustainability initiative, information will be electronically displayed during the workshops. If you prefer a hardcopy of the documentation, please print the information from this announcement.

Thank you for participating in the rulemaking process.

\*When you arrive at 1001 North Central Avenue, please check-in in Suite #125 then proceed to the Floor 9 classroom.



## REGULATION III - CONTROL OF AIR CONTAMINANTS

### RULE 322

#### POWER PLANT OPERATIONS

#### ELECTRIC UTILITY STATIONARY GAS TURBINES, ELECTRIC UTILITY STEAM GENERATING UNITS

#### INDEX

#### SECTION 100-GENERAL

- 101 PURPOSE
- 102 APPLICABILITY
- 103 EXEMPTIONS
- 104 PARTIAL EXEMPTIONS

#### SECTION 200-DEFINITIONS

- 201 COGENERATION STEAM GENERATING UNIT
- 202 COMBINED CYCLE GAS TURBINE
- 203 CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)
- 204 COOLING TOWERS
- 205 CORRECTIVE ACTION PLAN (CAP)
- 206 DISTILLATE OIL
- 207 DRIFT
- 208 DRIFT ELIMINATOR
- 209 DRIFT RATE
- 210 ELECTRIC UTILITY STATIONARY GAS TURBINE
- 211 ELECTRIC UTILITY STEAM GENERATING UNIT
- 212 EMERGENCY FUEL
- 213 EMISSION CONTROL SYSTEM (ECS)
- 214 FOSSIL FUEL
- 215 FUEL SWITCHING STARTUP PROCESS
- 216 HEAT INPUT
- 217 HIGHER HEATING VALUE (HHV)
- 218 LOW SULFUR OIL
- 219 LOWER HEATING VALUE (LHV)
- 220 NATURAL GAS CURTAILMENT
- 221 OPACITY
- 222 PARTICULATE MATTER EMISSIONS
- 223 PEAK LOAD
- 224 POWER PLANT OPERATION
- 225 RATED HEAT INPUT CAPACITY



- 226 REGENERATIVE CYCLE GAS TURBINE
- 227 RESIDUAL OIL
- 228 RETROFITTING
- 229 SELECTIVE CATALYTIC REDUCTION (SCR)
- ~~228~~230 SIMPLE CYCLE GAS TURBINE
- ~~229~~231 STATIONARY GAS TURBINE
- ~~230~~232 SULFUR OXIDES (SO<sub>x</sub>)
- ~~234~~233 THIRTY (30) DAY ROLLING AVERAGE
- ~~232~~234 THREE (3) HOUR ROLLING AVERAGE
- ~~233~~235 TOTAL DISSOLVED SOLIDS (TDS)
- ~~234~~236 UNCOMBINED WATER

**SECTION 300 – STANDARDS**

- 301 LIMITATIONS – PARTICULATE MATTER
- 302 LIMITATIONS – OPACITY
- 303 LIMITATIONS - SULFUR IN FUEL
- 304 LIMITATIONS –NITROGEN OXIDES
- 305 LIMITATIONS –CARBON MONOXIDE
- 306 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT
- 307 EMERGENCY FUEL USE NOTIFICATION

**SECTION 400 – ADMINISTRATIVE REQUIREMENTS (~~NOT APPLICABLE~~)**

- 401 COMPLIANCE SCHEDULE
- 402 COMPLIANCE PLAN

**SECTION 500 – MONITORING AND RECORDS**

- 501 RECORDKEEPING AND REPORTING
- 502 RECORDS RETENTION
- 503 COMPLIANCE DETERMINATION
- 504 TEST METHODS INCORPORATED BY REFERENCE



~~Adopted 7/02/03~~  
~~Revised 10/17/07~~

Adopted 07/02/03; Revised 10/17/07; Revised MM/DD/YY

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

**RULE 322  
 POWER PLANT OPERATIONS  
ELECTRIC UTILITY STATIONARY GAS TURBINES, ELECTRIC UTILITY STEAM GENERATING  
 UNITS**

**SECTION 100 - GENERAL**

- 101 PURPOSE:** To limit the discharge of nitrogen oxides, sulfur oxides, particulate matter and carbon monoxide emissions into the atmosphere from stationary fossil-fuel-fired equipment at ~~existing power plants and existing cogeneration plants~~ Electrical Utility Stationary Gas Turbines, Electric Utility Steam Generating Units and to limit particulate matter emissions from cooling towers associated with this equipment.
- 102 APPLICABILITY:** This rule applies to any of the following types of equipment that burn fossil fuel for which construction commenced prior to May 10, 1996 and for which have been retrofitted:
- 102.1** Each electric utility steam generating unit or cogeneration steam generating unit used to generate electric power that has a heat input of equal to or greater than 100 million (MM) Btu/hour (29 megawatts (MW)).
  - 102.2** Each electric utility stationary gas turbine with a heat input at peak load equal to or greater than 10 MMBtu/hour (2.9 MW) based upon the lower heating value of the fuel.
  - 102.3** Each cooling tower associated with the type of equipment listed in ~~subsections 102.1 and 102.2~~ Sections 102.1 and 102.2 of this rule.
- 103 EXEMPTIONS:** This rule shall not apply to the following types of equipment:
- 103.1** Combustion equipment associated with nuclear power plant operations; or
  - 103.2** Reciprocating internal combustion equipment.
- 104 PARTIAL EXEMPTIONS:**
- 104.1** Stationary gas turbines that meet any of the following criteria listed below are exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, 306.4, and 501.4~~ Sections 301.1, 301.2, 304, 305, 306.6, and 501.4 of this rule:
    - a. Used for fire-fighting; or
    - b. Used for flood control; or
    - c. Used in the military at military training facilities or military gas turbines for use in other than a garrison; or
    - d. Engaged by manufacturers in research and development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements.
  - 104.2** All equipment listed in Section 102 of this rule fired with an emergency fuel that is normally fired with natural gas is exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, and 306.4, 501.4~~ Sections 301.1, 301.2, 304, 305, 306.6, 501.4 of this rule.
  - 104.3** All equipment listed in Section 102 of this rule shall be exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, and 306.4~~ 306.6, Sections 301.1, 301.2, 304, 305, 306.6 of this rule for 36



cumulative ~~hrs~~ hours of firing emergency fuel per year, per unit for testing, reliability, training, and maintenance purposes.

**SECTION 200 - DEFINITIONS:** ~~For the purpose of this rule, the following definitions shall apply: See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.~~ 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 COGENERATION STEAM GENERATING UNIT:** A steam or hot water generating unit that simultaneously produces both electrical (or mechanical) and thermal energy (such as heat or steam) from the same primary energy source and supplies more than one-third of its potential electric output to any utility power distribution system for sale.
- 202 COMBINED CYCLE GAS TURBINE:** A type of stationary gas turbine wherein heat from the turbine exhaust is recovered by a steam generating unit to make steam for use in a steam-electric turbine.
- 203 CONTINUOUS EMISSION MONITORING SYSTEM (CEMS):** The total equipment required to sample and analyze emissions or process parameters such as opacity, nitrogen oxide, and oxygen or carbon dioxide, and to provide a permanent data record.
- 204 COOLING TOWERS:** Open water recirculating devices that use fans or natural draft to draw or force air through the device to cool water by evaporation and direct contact.
- 205 CORRECTIVE ACTION PLAN (CAP):** A methodical procedure that is used to evaluate and correct a turbine operational problem and that includes, at a minimum, improved preventative maintenance procedures, improved ECS operating practices, possible operational changes, and progress reports.
- 206 DISTILLATE OIL:** A petroleum fraction of fuel oil produced by distillation that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-01, "Standard Specification for Fuel Oils."
- 207 DRIFT:** Water droplets, bubbles, and particulate matter that escape from cooling tower stacks.
- 208 DRIFT ELIMINATOR:** Device used to remove drift from cooling tower exhaust air, thus reducing water loss by relying on rapid changes in velocity and direction of air-droplet mixtures by impaction on eliminator passage surfaces. A drift eliminator is not categorized as an emission control system but is an inherent part of the cooling tower's design requirements.
- 209 DRIFT RATE:** Percentage (%) of circulating water flow rate that passes through a drift eliminator on a cooling tower.
- 210 ELECTRIC UTILITY STATIONARY GAS TURBINE:** Any stationary gas turbine that is constructed for the purpose of supplying more than 1/3 of its potential electric output capacity to any utility power distribution system for sale. Both simple and combined cycle gas turbines are types of electric utility stationary gas turbines.
- 211 ELECTRIC UTILITY STEAM GENERATING UNIT:** Any steam electric generating unit that uses fossil fuel and is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electric output to any utility power distribution system for sale.
- 212 EMERGENCY FUEL:** Fuel fired only during circumstances such as natural gas emergency, natural gas curtailment, or breakdown of delivery system such as an unavoidable interruption of supply that makes it impossible to fire natural gas in the unit. Fuel is not considered emergency fuel if it is used to avoid either



- peak demand charges or high gas prices during on-peak price periods or due to a voluntary reduction in natural gas usage by the power company.
- 213 EMISSION CONTROL SYSTEM (ECS):** A system approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions.
- 214 FOSSIL FUEL:** Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating energy.
- 215 FUEL SWITCHING STARTUP PROCESS:** The act of changing from one type of fuel to a different type of fuel.
- 216 HEAT INPUT:** Heat derived from the combustion of fuel, not including the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, and kilns.
- 217 HIGHER HEATING VALUE (HHV) OR GROSS HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor is condensed to liquid.
- 218 LOW SULFUR OIL:** Fuel oil containing less than or equal to 0.05 % by weight of sulfur.
- 219 LOWER HEATING VALUE (LHV) OR NET HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor remains as vapor and is not condensed to a liquid. The value is computed from the higher heating value by subtracting the water originally present as moisture and the water formed by combustion of the fuel.
- 220 NATURAL GAS CURTAILMENT:** An interruption in natural gas service, such that the daily fuel needs of a combustion unit cannot be met with natural gas available due to one of the following reasons, beyond the control of the owner or operator:
- 220.1** An unforeseeable failure or malfunction, not resulting from an intentional act or omission that the governing state, federal or local agency finds to be due to an act of gross negligence on the part of the owner or operator; or
  - 220.2** A natural disaster; or
  - 220.3** The natural gas is curtailed pursuant to governing state, federal or local agency rules or orders; or
  - 220.4** The serving natural gas supplier provides notice to the owner or operator that, with forecasted natural gas supplies and demands, natural gas service is expected to be curtailed pursuant to governing state, federal or local agency rules or orders.
- 221 OPACITY:** A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer.
- 222 PARTICULATE MATTER EMISSIONS:** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.
- 223 PEAK LOAD:** 100% of the manufacturer's design capacity of a gas turbine at 288° Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).
- 224 POWER PLANT OPERATION:** An operation whose purpose is to supply more than one-third of its potential electric output capacity to any utility power distribution system for sale.



- 225** **RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu/hr. as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity on the name plate, the maximum heat input shall be considered the rated heat input capacity.
- 226** **REGENERATIVE CYCLE GAS TURBINE:** Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustion unit.
- 227** **RESIDUAL OIL:** The heavier oils that remain after the distillate oils and lighter hydrocarbons are distilled off in refinery operations. This includes crude oil or fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 % by weight, and all fuel oil numbers 4, 5, and 6, as defined by the American Society of Testing and Materials in ASTM D396-01, “Standard Specifications for Fuel Oils.”
- 228** **RETROFITTING:** Any physical change to an emissions unit necessary for reducing NO<sub>x</sub> emissions to comply with the NO<sub>x</sub> emissions limits specified in Sections 301 through 302 of this rule, including, but not limited to, burner replacement, and the addition of emissions control equipment. Changes in the method of operation are not considered to be retrofitting.
- 229** **SELECTIVE CATALYTIC REDUCTION (SCR):** A post-combustion NO<sub>x</sub> control technique, e.g., a reducing agent, e.g., ammonia, is used in a gas-phase reaction with oxides of nitrogen in the presence of a catalyst to form nitrogen and water.
- ~~228~~**230** **SIMPLE CYCLE GAS TURBINE:** Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.
- ~~229~~**231** **STATIONARY GAS TURBINE:** Any simple cycle gas turbine, regenerative gas turbine or any gas turbine portion of a combined cycle gas turbine that is not self-propelled or that is attached to a foundation.
- ~~230~~**232** **SULFUR OXIDES (SO<sub>x</sub>):** The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.
- ~~231~~**233** **THIRTY (30) DAY ROLLING AVERAGE:** An arithmetic mean or average of all hourly emission rates for 30 successive combustion equipment operating days and calculated by a CEMS every hour.
- ~~232~~**234** **THREE (3) HOUR ROLLING AVERAGE:** An arithmetic mean or average of the most recent three one (1) hour tests, or an arithmetic mean or average over a period of three hours which is newly calculated with each hourly measurement.
- ~~233~~**235** **TOTAL DISSOLVED SOLIDS (TDS):** The amount of concentrated matter reported in milligrams/liter (mg/l) or parts per million (ppm) left after filtration of a well-mixed sample through a standard glass fiber filter. The filtrate is evaporated to dryness in a weighed dish and dried to constant weight at 180° C and the increase in dish weight represents the total dissolved solids.
- ~~234~~**236** **UNCOMBINED WATER:** Condensed water containing no more than analytical trace amounts of other chemical elements or compounds.

## SECTION 300 – STANDARDS

### 301 LIMITATIONS – PARTICULATE MATTER:

- 301.1 Fuel Type:** An ~~owner or operator~~ owner and/or operator of any combustion equipment listed in Section 102 of this rule shall burn only natural gas except when firing emergency fuel per ~~subsections 104.2 and 104.3~~ Sections 104.2 and 104.3 of this rule. An ~~owner or operator~~ owner and/or operator may burn a fuel other than natural gas for non-emergency purposes providing that the fuel shall not cause to be discharged more than 0.007 lbs. of particulate matter per MMBtu,



demonstrated and documented through performance testing of this alternate fuel using Test Method 5. This usage of different fuels other than natural gas shall be approved by the Control Officer prior to usage.

**301.2 Particulate Matter Testing:** A backhalf analysis shall be performed, using Reference Method 202 referenced in ~~subsection 504.6~~ Section 504.6 of this rule, each time a compliance test for particulate matter emissions to meet the standard in ~~subsection 301.1~~ Section 301.1 of this rule is performed using Test Method 5.

**301.3 Good Combustion Practices for Turbines:** An ~~owner or operator~~ owner and/or operator of any stationary gas turbine listed in ~~subsection 102.2~~ Section 102.2 of this rule, regardless of fuel type, shall use operational practices recommended by the manufacturer and parametric monitoring to ensure good combustion control as listed below. One of the following procedures may be used:

- a. Monitor the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100°F difference using a thermocouple. If a valid maximum temperature differential of greater than 100°F is observed across the burners, investigation and corrective action shall be taken within three hours to reduce the temperature difference to 100°F or less; or
- b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed above in ~~subsection 301.3a~~ Section 301.3 (a) of this rule shall then be followed using this alternate recommended maximum temperature differential after approval by the Control Officer.
- c. If the frequency of failure to meet the proper temperature differential of 100°F or to meet the alternate temperature differential recommended by the manufacturer reflects a pattern that the turbine is not being operated in a manner consistent with good combustion practices, then the Control Officer may require the ~~owner or operator~~ owner and/or operator to submit a Corrective Action Plan (CAP).

**301.4 Cooling Towers:** An ~~owner or operator~~ owner and/or operator of a cooling tower associated with applicable units listed in Section 102 of this rule shall:

- a. Equip the cooling tower with a drift eliminator. The drift eliminator shall not be manufactured out of wood.
- b. The concentration of Total Dissolved Solids (TDS) multiplied by the percentage of drift rate shall not exceed the maximum numerical limit of 20.
- c. Visually inspect the drift eliminator on a monthly basis only if the drift eliminator can be viewed safely and does not require an ~~owner or operator~~ owner and/or operator to walk into the tower. If the drift eliminator cannot be safely inspected monthly then ~~subsection 301.4d~~ Section 301.4(d) of this rule shall apply:
- d. Visually inspect the drift eliminator for integrity during a regularly scheduled outage when the cooling tower is not operating, if it cannot be inspected on a monthly basis. This visual inspection shall be no less than once per year.

## 302 LIMITATIONS – OPACITY:

**302.1** ~~No person shall~~ An owner and/or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity, except as provided in ~~subsection 302.2~~ Section 302.2 of this rule.

**302.2** Opacity may exceed the applicable limits established in ~~subsection 302.1~~ Section 302.1 of this rule for up to one hour during the startup of switching fuels; however, opacity shall not exceed 40% for any six (6) minute averaging period in this one hour period, provided that the Control Officer finds that the ~~owner or operator~~ owner and/or operator has, to the extent practicable, maintained and



operated the source of emissions in a manner consistent with good air pollution control practices for minimizing emissions. The one hour period shall begin at the moment of startup of fuel switching.

- 302.3** Determination of whether good air pollution control practices are being used shall be based on information provided to the Control Officer upon request, which may include, but is not limited to, the following:
- Monitoring results.
  - Opacity observations.
  - Review of operating and maintenance procedures.
  - Inspection of the source.

**303** **LIMITATIONS - SULFUR IN FUEL:** ~~An owner or operator~~ owner and/or operator of any applicable equipment listed in Section 102 of this rule that burns fuel oil alone or in combination with any other fuel as either emergency fuel or non-emergency fuel that meets the standards in ~~subsection 301.1~~ Section 301.1 of this rule shall use only low sulfur oil.

**304** **LIMITATIONS – NITROGEN OXIDES:** ~~No owner or operator~~ An owner and/or operator of any applicable equipment listed in ~~subsection 102.1~~ Section 102.1 of this rule that commenced construction or a major modification after May 30, 1972 shall not cause to be discharged into the atmosphere nitrogen oxides in excess of the following limits:

~~304.1 155 ppmv, calculated as nitrogen dioxide when burning gaseous fossil fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a Continuous Emission Monitoring System (CEMS) is used, the test result shall be based upon a 30-day rolling average.~~

~~304.2 230 ppmv calculated as nitrogen dioxide when burning liquid fossil fuel. During steady state operations, this test result using EPA Reference Method(s) 7, shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a CEMS is used, the test result shall be based upon a 30-day rolling average.~~

~~304.3 The nitrogen oxides concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The nitrogen oxides concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.~~

**304.1 RACT Emission Limits:**

**a. Gaseous Fuel Firing:** The NO<sub>x</sub> emissions shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.

**b. Liquid Fuel Firing:** The NO<sub>x</sub> emissions from any unit shall not exceed 65 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on liquid fuels.

**304.2 Emission Limits –Gaseous Fuel Firing:**

**a. The NO<sub>x</sub> emissions from any unit with a rated unit size output less than 10 MMBtu/hr or 2.9 MW, or any unit greater than or equal to 2.9 MW operating less than 877 hours per year, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.**

**b. The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater than or equal to 10 MMBtu/hr or 2.9 MW and less than 100 MMBtu/hr or 10 MW shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.**

**c. The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater than or equal to 100 MMBtu/hr or 10 MW, without SCR installed, shall not**



exceed 15 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.

- d.** The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, with SCR installed, shall not exceed 9 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.

**304.3 BARCT Emission Limit–Liquid Fuel Firing:**

- a.** The NO<sub>x</sub> emissions from any unit with a rated unit size output of less than 10 MW or any unit greater than or equal to 10 MMBtu/hr or 2.9 MW operating less than 877 hours per year, shall not exceed 65 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on liquid fuels.
- b.** The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, without SCR installed, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on liquid fuels.
- c.** The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, with SCR installed, shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on liquid fuels.

**TABLE 1: SUMMARY OF RACT AND BARCT REQUIREMENTS**  
**IN SECTIONS 304.1, 304.2 AND 304.3 OF THIS RULE**

<u>Rule Reference</u>	<u>Requirements</u>	<u>Time of Operation (hr/vr)</u>	<u>Unit Size Rating (MW)</u>	<u>NO<sub>x</sub> Emission Limit (ppmv)</u>	
				<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
<u>304.1</u>	<u>RACT</u>	<u>any</u>	<u>≥0.3</u>	<u>42.0</u>	<u>65.0</u>
<u>304.2(a)</u>	<u>BARCT</u>	<u>any</u>	<u>&lt;2.9</u>	<u>42.0</u>	
<u>304.3(a)</u>		<u>&lt;877</u>	<u>≥2.9</u>		<u>65.0</u>
<u>304.2(b)</u>		<u>≥877</u>	<u>≥2.9 to &lt;10</u>	<u>25.0</u>	
<u>304.2(c) And 304.3(b)</u>		<u>≥877</u>	<u>≥10.0 (no SCR)</u>	<u>15.0</u>	<u>42.0</u>
<u>304.2(d) And 304.3(c)</u>		<u>≥877</u>	<u>≥10.0 (w SCR)</u>	<u>9.0</u>	<u>25.0</u>

**304.4** The nitrogen oxides concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The nitrogen oxides concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.

**305** **LIMITATIONS - CARBON MONOXIDE:** ~~No owner or operator~~ An owner and/or operator of any equipment listed in Section 102 of this rule shall not cause to be discharged into the atmosphere carbon monoxide (CO) measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, and performed during steady state compliance source testing shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. The CO concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The CO concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.

**306** **REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:**



- 306.1** An owner and/or operator of any unit with a rated unit size output of less than 10 MW shall install, operate, and maintain in calibration, equipment approved by the Control Officer that continuously measures and records the following: control system operating parameters and elapsed time of operation.
- 306.2** An owner and/or operator of any unit with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW and operated for more than 4000 hours in any one calendar year during the three years before November xx, 2016 shall install, operate, and maintain in calibration, equipment approved by the Control Officer that continuously measures and records the following: control system operating parameters, elapsed time of operation, and continuous exhaust gas NO<sub>x</sub> concentrations corrected to 15 percent oxygen (O<sub>2</sub>) on a dry basis. The NO<sub>x</sub> continuous emission monitoring (CEM) system shall meet requirements as specified in 40 CFR Part 60 Appendix B, Specification 2 by November xx, 2018.
- 306.3** An owner and/or operator of any unit subject to any provision of this rule shall install by November xx, 2017, a non-resettable totalizing hour meter on each turbine.
- ~~306.1~~**306.4** **Emission Control System Required:** For affected operations which may exceed any of the applicable standards set forth in Section 300 of this rule, an ~~owner or operator~~ owner and/or operator may comply by installing and operating an emission control system (ECS).
- ~~306.2~~**306.5** **Providing and Maintaining ECS Monitoring Devices:** ~~No owner or operator~~ An owner and/or operator required to use an approved ECS pursuant to this rule shall not do so without first properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved Operation and Maintenance (O&M) Plan.
- ~~306.3~~**306.6** **Operation and Maintenance (O&M) Plan Required For ECS:**
- General Requirements:** An ~~owner or operator~~ owner and/or operator shall provide and maintain an O&M Plan for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution permit.
  - Approval by Control Officer:** An ~~owner or operator~~ owner and/or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.
  - Initial Plans:** An ~~owner or operator that~~ owner and/or operator who is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the ~~owner or operator~~ owner and/or operator has submitted for approval, but which have not yet been approved, unless notified by the Control Officer in writing. Once the initial plan has been approved in writing by the Control Officer, an ~~owner or operator~~ owner and/or operator shall then comply with the approved plan.
  - Revisions to Plan:** If revisions to the initial plan have been approved by the Control Officer in writing, an ~~owner or operator~~ owner and/or operator shall comply with the revisions to the initial plan. If revisions to the plan have not yet been approved by the Control Officer, then an ~~owner or operator~~ owner and/or operator shall comply with the newest recent O&M plan on file at Maricopa County Air Quality Department.
  - Control Officer Modifications to Plan:** After discussion with the ~~owner or operator~~ owner and/or operator, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An ~~owner or operator~~ owner and/or operator shall then comply with the plan that has been modified by the Control Officer.
- ~~306.4~~**306.7** **Continuous Emission Monitoring Systems (CEMS):**
- An ~~owner or operator~~ owner and/or operator of a combustion unit subject to Section 304 of this rule with a heat input of greater than 250 MMBtu/hr, regardless of fuel type, shall install, calibrate, maintain, and operate a CEMS for measuring nitrogen oxides and recording the output of the system. Where nitrogen oxide emissions are monitored by a CEMS, then a CEMS shall



also be required for the measurement of the oxygen content of the flue gases. All CEMS shall comply with the provisions in 40 CFR Subpart Da, Part 60, 60.47 (a).

- b. An ~~owner or operator~~ owner and/or operator of any affected unit listed above that requires a CEMS for nitrogen oxides that meets and is continuing to meet the requirements of 40 CFR Part 75 may use that CEMS to meet the requirements of ~~subsection 306.4 a~~ Section 306.7(a) of this rule.

**307 EMERGENCY FUEL USE NOTIFICATION:** An ~~owner or operator~~ owner and/or operator of a unit that is fired with emergency fuel but is normally fired with natural gas shall notify the Control Officer verbally no later than 24 hours after declaration of the emergency that necessitates its use in compliance with ~~subsections 104.2 and 212~~ Section 104.2 of this rule. This verbal report shall be followed by a written report within 48 hours of initial emergency fuel usage. The written report shall also include identification of the nature of the emergency, initial dates of usage, and the expected dates of usage.

#### SECTION 400 - ADMINISTRATIVE REQUIREMENTS (~~NOT APPLICABLE~~)

#### 401 COMPLIANCE SCHEDULE:

**401.1 RACT Emission Limits:** The owner and/or operator of any unit in existence on November xx, 2015, subject to the emission limits of Sections 304.1(a) and 304.1(b) of this rule, shall comply with these limits effective January xx, 2017 unless retrofitting is required. If retrofitting is required to achieve these limits, the owner and/or operator shall comply with the increments of progress of Section 401.3 of this rule and be in compliance with the BARCT limits by the date specified in Section 401.3 of this rule. Interim compliance with the limits of Sections 304.1(a) and 304.1(b) of this rule does not exclude that owner and/or operator from final compliance with the limits of Section 304 of this rule and the increments of progress of Section 401.3 of this rule.

**401.2 BARCT Emission Limits:** The owner and/or operator of any unit in existence on November xx, 2016, subject to the emission limits of Sections 304.2 and 304.3 of this rule, shall comply with the limits effective November xx, 2019 and shall do so in accordance with the increments of progress of Section 401.3 of this rule.

**401.3 Increments of Progress:** The owner and/or operator of any unit subject to the emissions limits of Section 304 of this rule shall comply with the following increments of progress. The following compliance schedule in Sections 401.3 and 401.4 of these rules do not apply to units already compliant with these rules as of November xx, 2016:

- a. By January xx, 2017, submit to the Control Officer a compliance plan as specified in Sections 304.2 and 304.3 of this rule.
- b. By September xx, 2017, submit to the Control Officer a complete application for an authority to construct for the modifications necessary to meet the limits of Section 402 of this rule.
- c. By May xx, 2017, begin construction.
- d. By October xx, 2017, complete construction.
- e. By January xx, 2019, be fully compliant with the emission limits of Section 304 of this rule. This shall include the submittal to the Control Officer of a complete source test report indicating compliance.

**401.4 Removal From Service:** The owner and/or operator of any unit in existence on November xx, 2016 that is expected to be removed from service by January xx, 2019 shall comply with the following:

- a. By January xx, 2017, submit to the Control Officer a notification requesting an exemption from the requirements of Section 304 of this rule.
- b. By September xx, 2017, submit to the Control Officer a complete application for an Authority to Construct for modification of the Permit to Operate.



c. By January xx, 2019, discontinue operation of the unit, disconnect the fuel supply line(s), and notify the Control Officer in writing of the removal from service.

**401.5** Operation of any unit beyond January xx, 2019, shall be done in compliance with the applicable NOx limits in Sections 304.2 and 304.3 of this rule.

**401.6** **Emergency Standby Units:** The owner and/or operator of any unit in existence prior to November xx, 2016 shall, by January xx, 2017, submit to the Control Officer a notification requesting an exemption from the requirements of Section 300 of this rule.

**402** **COMPLIANCE PLAN:** The owner and/or operator of any unit shall submit, for approval to the Control Officer, a plan for compliance with the provisions of Section 300 of this rule. The plan shall include:

**402.1** The following information relative to each unit subject to this rule: the name of the manufacturer, model number, rated shaft power output (MW), hours of operation, fuel type, and fuel consumption rate (MCF/hr or gal/hr).

**402.2** A description of the NO<sub>x</sub> control system proposed for each unit, including type and manufacturer, as well as the measurement and recording equipment required in Section 306 of this rule. Data on the expected performance of the NO<sub>x</sub> control system shall also be included.

**402.3** A compliance schedule for each unit, including, but not limited to, specific dates for the following events: final engineering, contract award, starting date of construction, completion date of construction, and the date of final compliance.

## SECTION 500 - MONITORING AND RECORDS

**501** **RECORDKEEPING AND REPORTING:** Any ~~owner or operator~~ owner and/or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer or his designee upon request. Records shall consist of the following information:

**501.1** **Operations And Maintenance (O&M) Plan Record Requirements:**

**a.** Permit number of each gas turbine.

**b.** Manufacturer, model number and rating in megawatts of each gas turbine.

**c.** Actual startup and shutdown time, daily hours of operation, and cumulative hours of operation to date for the calendar year. In addition, for emergency standby units, hours of operation shall be listed separately for emergencies and for maintenance operations.

**d.** Actual daily fuel usage of each unit.

**e.** Date and results of most recent emission test reported as ppmvat 15% O<sub>2</sub> and pound per unit time.

**f.** A summary of any emissions corrective maintenance taken.

~~501.1~~**501.2** **Equipment Listed In Section 102 Of This Rule:** Type of fuel used, amount of fuel used, amount of sulfur in the fuel if using liquid fuel, and the days and hours of operation.

~~501.2~~**501.3** **Cooling Towers:** Monthly gravimetric testing reports for TDS shall be recorded for six months in succession and thereafter quarterly reports shall be recorded. Results of the monthly or yearly visual inspection of the drift eliminator shall also be recorded. If the drift eliminator cannot be visually inspected monthly, then documentation of the physical configuration of the drift eliminator shall be submitted to the Control Officer to demonstrate that the drift eliminator cannot be inspected monthly.

~~501.3~~**501.4** **Emergency Fuel Usage:** Type and amount of emergency fuel used, dates and hours of operation using emergency fuel, nature of the emergency or reason for the use of emergency fuel as stated in ~~subsections 104.2 and 104.3~~ Sections 104.2 and 104.3 of this rule.



- ~~501.4~~**501.5** **Fuel Switching:** Monthly records of fuel switching including stop and start times, monthly records of hours of operation for testing, reliability and maintenance purposes per ~~subsection 104.3~~ Section 104.3 of this rule, and a yearly log total of these hours.
- ~~501.5~~**501.6** **CEMS:** All CEMS measurements, results of CEMS performance evaluations, CEMS calibration checks, and adjustments and maintenance performed on these systems.
- ~~501.6~~**501.7** **Good Combustion Practices:** Measurements of the temperature differential across the burners of turbines per ~~subsection 301.3 a, b, or c~~ Sections 301.3(a), 301.3(b), and 301.3(c) of this rule, results of evaluation and of corrective action taken to reduce the temperature differential or a finding that the temperature differential returned to the range listed in ~~subsection 301.3 a or b~~ Sections 301.3(a) or 301.3(b) of this rule without any action by the ~~owner or operator~~ owner and/or operator.
- 502** **RECORDS RETENTION:** Copies of reports, logs, and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.
- 503** **COMPLIANCE DETERMINATION:**
- 503.1** **Low Sulfur Oil Verification:**
- An ~~owner or operator~~ owner and/or operator shall submit fuel oil or liquid fuel receipts from the fuel supplier indicating the sulfur content of the fuel or verification that the oil used to generate electric power meets the 0.05% sulfur limit if requested by the Control Officer; or
  - If fuel receipts are not available then an ~~owner or operator~~ owner and/or operator shall submit a statement of certification or proof of the sulfur content of the oil or liquid fuel from the supplier to the Control Officer; or
  - An ~~owner or operator~~ owner and/or operator may elect to test the fuel for sulfur content in lieu of certification from the fuel supplier or fuel receipts using one of the test methods listed in ~~subsections 504.11, 504.12, 504.13 or 504.14~~ Sections 504.11, 504.12, 504.13, or 504.14 of this rule.
- 503.2** **Drift Rate Verification:** An ~~owner or operator~~ owner and/or operator shall submit design drift rate verification from the manufacturer of the drift eliminator used in the cooling towers to the Control Officer if proof of the design drift rate is requested by the Control Officer.
- 504** **TEST METHODS INCORPORATED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004), as listed below, are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department, 1001 N. Central Avenue, Suite ~~595~~125, Phoenix, AZ 85004-1942. The Standard Methods listed below (1995) are also incorporated by reference. When more than one test method as listed in ~~subsections 504.11 through 504.14~~ Sections 504.11 through 504.14 of this rule is permitted for the same determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation.
- 504.1** EPA Reference Methods 1 (“Sample and Velocity Traverses for Stationary Sources”), and 1A (“Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts”) (40 CFR 60, Appendix A).
- 504.2** EPA Reference Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2A (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), 2C (“Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts”), and 2D (“Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts”) (40 CFR 60, Appendix A).
- 504.3** EPA Reference Methods 3 (“Gas Analysis for the Determination of Dry Molecular Weight”), 3A (“Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources (Instrumental Analyzer Procedure”), 3B (“Gas Analysis for the Determination of Emission



- Rate Correction Factor of Excess Air”), and 3C (“Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.4** EPA Reference Method 4 (“Determination of Moisture Content in Stack Gases”) (40 CFR 60, Appendix A).
- 504.5** EPA Reference Method 5 (“Determination of Particulate Emissions from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.6** EPA Reference Method 202 (“Determination of Condensable Particulate Emissions from Stationary Sources”) (40 CFR 51, Appendix M).
- 504.7** EPA Reference Methods 7 (“Determination of Nitrogen Oxide Emissions from Stationary Sources”), 7A (“Determination of Nitrogen Oxide Emissions from Stationary Sources”), 7B (“Determination of Nitrogen Oxide Emissions from Stationary Sources - Ultraviolet Spectrometry”), 7C (“Determination of Nitrogen Oxide Emissions from Stationary Sources - Alkaline-Permanganate Colorimetric Method”), 7D (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Chromatographic Method”), and 7E (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method”) (40 CFR 60, Appendix A).
- 504.8** EPA Reference Method 9 (“Visual Determination of the Opacity of Emissions from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.9** EPA Reference Method 10 (“Determination of Carbon Monoxide Emissions from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.10** EPA Reference Method 20 (“Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines”) (40 CFR 60, Appendix A).
- 504.11** American Society of Testing Materials, ASTM Method D2622-98, (“Standard Test Method for Sulfur in Petroleum Products by Wavelength Disperse X-Ray Fluorescence Spectrometry”), 1998.
- 504.12** American Society of Testing Materials, ASTM Method D1266-98, (“Standard Test Method for Sulfur in Petroleum Products - Lamp Method”), 1998.
- 504.13** American Society of Testing Materials, ASTM Method D2880-00, (“Standard Specification for Gas Turbine Fuel Oils”), 2000.
- 504.14** American Society of Testing Materials, ASTM Method D4294-90 or 98 (“Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry”), 1990 or 1998.
- 504.15** Standard Methods for the Examination of Water and Wastewater, (“Dissolved Solids Dried at 180°C, Method #2540C”), American Public Health Association, 19<sup>th</sup> edition, 1995.



## REGULATION III – CONTROL OF AIR CONTAMINANTS

### RULE 323 FUEL BURNING EQUIPMENT FROM INDUSTRIAL /COMMERCIAL/ INSTITUTIONAL (ICI) SOURCES

#### INDEX

#### SECTION 100 – GENERAL

- 101 PURPOSE
- 102 APPLICABILITY
- 103 EXEMPTIONS
- 104 PARTIAL EXEMPTIONS

#### SECTION 200 – DEFINITIONS

- 201 ALTERNATIVE FUELS
- 202 COGENERATION STEAM GENERATING UNIT
- 203 CORRECTIVE ACTION PLAN (CAP)
- 204 DISTILLATE OIL
- 205 EMERGENCY FUEL
- 206 EMISSION CONTROL SYSTEM (ECS)
- 207 FOSSIL FUEL
- 208 HEAT INPUT
- 209 LOW SULFUR OIL
- 210 NATURAL GAS CURTAILMENT
- 211 OPACITY
- 212 PARTICULATE MATTER EMISSIONS
- 213 PEAK LOAD
- 214 PROCESS HEATER
- 215 RATED HEAT INPUT CAPACITY
- 216 REGENERATIVE CYCLE GAS TURBINE
- 217 RESIDUAL OIL
- 218 RETROFITTING
- ~~218~~219 SIMPLE CYCLE GAS TURBINE
- ~~219~~220 STATIONARY GAS TURBINE
- ~~220~~221 STEAM GENERATING UNIT
- ~~221~~222 SULFUR OXIDES (SO<sub>x</sub>)
- ~~222~~223 UNCOMBINED WATER
- ~~223~~224 WASTE DERIVED FUEL GAS
- ~~224~~225 WATER HEATER



## **SECTION 300 – STANDARDS**

- 301 LIMITATIONS - PARTICULATE MATTER
- 302 LIMITATIONS - OPACITY
- 303 LIMITATIONS -SULFUR IN FUEL
- 304 LIMITATIONS -NITROGEN OXIDES
- 305 LIMITATION - CARBON MONOXIDE
- 306 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT

## **SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~**

- 401 COMPLIANCE SCHEDULE

## **SECTION 500 – MONITORING AND RECORDS**

- 501 RECORDKEEPING AND REPORTING
- 502 RECORDS RETENTION
- 503 COMPLIANCE DETERMINATION
- 504 TEST METHODS INCORPORATED BY REFERENCE



~~Adopted 07/03/05~~  
~~Revised 10/17/07~~

Adopted 07/03/05; Revised 10/17/07; Revised MM/DD/YY

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

**RULE 323**

**FUEL BURNING EQUIPMENT FROM INDUSTRIAL/COMMERCIAL/INSTITUTIONAL (ICI) SOURCES**

**INDEX**

**SECTION 100 – GENERAL**

- 101 PURPOSE:** To limit the discharge of nitrogen oxides, sulfur oxides, carbon monoxide, and particulate matter emissions into the atmosphere from fuel burning combustion equipment at industrial and/or commercial and/or institutional (ICI) sources.
- 102 APPLICABILITY:** This rule applies to any of the following types of ICI combustion equipment that burns either fossil fuels or alternative fuels:
- 102.1** Each steam generating unit that has a maximum design rated heat input capacity from fuels combusted in the generating unit of greater than 10 million (MM) Btu/hr (2.9 Megawatts (MW)).
  - 102.2** Each stationary gas turbine with a heat input at peak load equal to or greater than 2.9 megawatts (MW).
  - 102.3** Each cogeneration steam generating unit with a heat input of greater than 10 MMBtu/hr.
  - 102.4** Each indirect-fired process heater with a heat input greater than 10 MMBtu/hr.
  - 102.5** NSPS & NESHAP: In addition to this rule, facilities may be subject to New Source Performance Standards (NSPS) in Rule 360 and/or National Emission Standards for Hazardous Air Pollutants (NESHAP) in Rule 370 of these rules.
- 103 EXEMPTIONS:** This rule shall not apply to the following types of equipment:
- 103.1** Incinerators, crematories, or burn-off ovens; or
  - 103.2** Dryers, cement and lime kilns; or
  - 103.3** Direct-fired process heaters; or
  - 103.4** Medical waste incinerators; or
  - 103.5** Reciprocating internal combustion equipment; or
  - 103.6** Combustion equipment used in power plant operations for the purpose of supplying greater than one third of the electricity to any utility power distribution system for sale; or
  - 103.7** Combustion equipment associated with nuclear power plant operations; or
  - 103.8** Water heaters used for the sole purpose of heating hot water for comfort or for radiant heat.
- 104 PARTIAL EXEMPTIONS:**
- 104.1** Stationary gas turbines listed in ~~subsection 102.2~~ Section 102.2 of this rule that are used for any of the following reasons shall be exempt from ~~Sections 304, 305 and subsections 301.1, 301.2, 501.1 and 501.3~~ Sections 301.1, 301.2, 304, 305, 501.1, and 501.3 of this rule:
    - a.** Used for firefighting; or



- b. Used for flood control; or
  - c. Used at military training facilities other than a garrison facility; or
  - d. Engaged by manufacturers in research and the development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements; or
  - e. Fired with emergency fuel that is normally fired with natural gas, or
  - f. Testing, reliability, maintenance, training, and readiness purposes for a total of 36 hours per year per unit when firing any emergency fuel.
- 104.2** All steam generating units including cogeneration units and process heaters that are used for any of the following reasons shall be exempt from Sections 301, 304, 305, ~~and subsections 501.1 and 501.3~~ of this rule:
- a. Fired with an emergency fuel that is normally fired with natural gas; or
  - b. Firing any emergency fuel for testing, reliability, and maintenance purposes up to a maximum total of 36 ~~hrs.~~ hours per unit per year.

**SECTION 200 – DEFINITIONS:** ~~For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.~~ 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 ALTERNATIVE FUELS:** Substitutes for traditional oil-derived and fossil-fuel derived motor vehicle fuels including but not limited to biodiesel, propane, ethanol or methanol.
- 202 COGENERATION STEAM GENERATING UNIT:** A steam or hot water generating unit that simultaneously produces both electrical (or mechanical) and thermal energy (such as heat or steam) from the same primary energy source.
- 203 CORRECTIVE ACTION PLAN (CAP):** A methodical procedure that is used to evaluate and correct a turbine operational problem and that includes, at a minimum, improved preventative maintenance procedures, improved ECS operating practices, possible operational amendments, and progress reports.
- 204 DISTILLATE OIL:** A petroleum fraction of fuel oil produced by distillation that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-01, “Standard Specification for Fuel Oils.”
- 205 EMERGENCY FUEL:** Fuel fired by a gas combustion unit, normally fueled by natural gas, only during circumstances of unforeseen disruption or interruption in the supply of natural gas to a unit that normally runs on natural gas. The inability to burn natural gas may be one of the following, but is not limited to, natural gas emergency, natural gas curtailment, or a breakdown of the delivery system.
- 206 EMISSION CONTROL SYSTEM (ECS):** A system approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions.
- 207 FOSSIL FUEL:** Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal, and any form of solid, liquid or gaseous fuel derived from such material for the purpose of creating energy.
- 208 HEAT INPUT:** Heat derived from the combustion of fuel not including the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, and kilns.
- 209 LOW SULFUR OIL:** Fuel oil containing less than or equal to 0.05 % by weight of sulfur.



- 210 NATURAL GAS CURTAILMENT:** A shortage in the supply of natural gas, due solely to limitations or restrictions in distribution pipelines by the utility supplying the gas and not due to the cost of natural gas.
- 211 OPACITY:** A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer.
- 212 PARTICULATE MATTER EMISSIONS:** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.
- 213 PEAK LOAD:** 100% of the manufacturer’s design capacity of a gas turbine at 288 Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).
- 214 PROCESS HEATER:** An enclosed combustion device that uses controlled flame to transfer heat to a process fluid or a process material that is not a fluid or to heat transfer material for use in a process unit (not including the generation of steam). A process heater may be either indirect or direct-fired, dependent upon whether the gases of combustion mix with and exhaust to the same stack or vent (direct-fired) with gases emanating from the process material or not (indirect-fired). Emissions from indirect-fired units consist entirely of products of combustion while emissions from direct-fired units are unique to the given process and may vary widely in any industrial process. A process heater is not an oven or kiln used for drying, curing, baking, cooking, calcining, or vitrifying.
- 215 RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu/hr. as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified so that its maximum heat input is different than the heat input capacity on the nameplate (design heat capacity), the maximum heat input shall be considered as the rated heat input capacity.
- 216 REGENERATIVE CYCLE GAS TURBINE:** Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustor.
- 217 RESIDUAL OIL:** The heavier oils that remain after the distillate oils and lighter hydrocarbons are distilled off in refinery operations. This includes crude oil or fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05% by weight, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396-01, “Standard Specifications for Fuel Oils”.
- 218 RETROFITTING:** Any physical change to an emissions unit necessary for reducing NO<sub>x</sub> emissions to comply with the NO<sub>x</sub> emissions limits specified in Sections 301 of this rule, including, but not limited to, burner replacement, and the addition of emissions control equipment. Changes in the method of operation are not considered to be retrofitting.
- ~~218~~219 SIMPLE CYCLE GAS TURBINE:** Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.
- ~~219~~220 STATIONARY GAS TURBINE:** Any simple cycle gas turbine or regenerative gas turbine that is not self-propelled or that is attached to a foundation.
- ~~220~~221 STEAM GENERATING UNIT:** An external combustion unit or boiler fired by fossil fuel that is used to generate hot water or steam. The hot water or steam is then used as energy for driving another process or piece of equipment.
- ~~221~~222 SULFUR OXIDES (SO<sub>x</sub>):** The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.
- ~~222~~223 UNCOMBINED WATER:** Condensed water containing no more than analytical trace amounts of other chemical elements or compounds.



~~223~~224 **WASTE DERIVED FUEL GAS:** Any gaseous fuel that is generated from the biodegradation of solid or liquid waste including but not limited to, sewage sludge, digester gas, and landfill gas.

~~224~~225 **WATER HEATER:** A closed vessel in which water is heated by combustion of fuel and water is either withdrawn for use external to the vessel (at pressures not exceeding 160 psi with all controls and devices preventing water temperatures from exceeding 210°F) or used for radiant heat. Water heaters are usually no larger than 1 MM Btu/hr as opposed to boilers, do not reach temperatures of 220°F and higher that boilers can reach, and are not manufactured to meet boiler codes.

## SECTION 300 – STANDARDS

### 301 LIMITATIONS – PARTICULATE MATTER:

**301.1 Limitation-Liquid Fuels:** An ~~owner or operator~~ owner and/or operator shall not discharge, cause or allow the discharge of particulate matter emissions, caused by combustion of non-gaseous liquid fuels or a blend of liquid fuels with other fuels in excess of 0.10 lbs. per MMBtu from any combustion units listed in ~~subsections 102.1, 102.3 and 102.4~~ Sections 102.1, 102.3, and 102.4 of this rule with either a rated heat input capacity or heat input of greater than 100 MM Btu/hr.

**301.2 Particulate Matter Testing:** A backhalf analysis shall be performed, using Reference Method 202 referenced in ~~subsection 504.6~~ Section 504.6 of this rule, each time a compliance test for particulate matter emissions to meet the standards in ~~subsection 301.1~~ Section 301.1 of this rule is performed using Method 5. (The results of the Method 202 testing shall be used for emissions inventory purposes).

**301.3 Good Combustion Practices for Turbines:** An ~~owner or operator~~ owner and/or operator of a stationary gas turbine listed in ~~subsection 102.2~~ Section 102.2 of this rule, regardless of fuel type or size, shall use operational practices recommended by the manufacturer and parametric monitoring that ensure good combustion control. One of the following procedures may be used:

- a. Monitor the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100° F difference using a thermocouple. If a valid maximum temperature differential of greater than 100° F is observed across the burners, investigation and corrective action shall be taken within three hours to either reduce the temperature difference to 100° F or less, or
- b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed above in ~~subsection 301.3a~~ Section 301.3(a) of this rule shall then be followed using the alternate recommended maximum temperature differential after approval by the Control Officer.
- c. If a repetitive pattern of failure to meet the proper temperature differential of 100°F or to meet the alternate temperature differential recommended by the manufacturer indicates that the turbine is not being operated in a manner consistent with good combustion practices, then the Control Officer may require the owner or operator to submit a Corrective Action Plan (CAP).

**302 LIMITATIONS – OPACITY:** ~~No owner or operator shall~~ An owner and/or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity.

**303 LIMITATIONS – SULFUR IN FUEL:** An ~~owner or operator~~ owner and/or operator of any applicable equipment listed in Section 102 of this rule that burns liquid fuel oil or a mixture or blend of fuel oil with any other fuels shall use only low sulfur oil. An owner or operator using waste derived fuel gas shall use only waste derived fuel gas with a sulfur content less than or equal to 800 ppm (0.08%).

**304 LIMITATIONS – NITROGEN OXIDES:**



- 304.1** ~~An owner or operator~~ owner and/or operator of any combustion equipment listed in Section 102 of this rule, except gas turbines, with a heat input of greater than 10 MMBtu/hr to 100 MMBtu/hr; ~~except gas turbines~~, shall comply either with ~~(a) or (b) below~~ Sections 304.1(a) or 304.1(b) of this rule. Gas Turbines are subject to both Section 304.1(a) and 304.1(b) of this rule below:
- a. Establish initial optimal baseline concentrations for NO<sub>x</sub> and CO within 90 days of the first usage of the combustion equipment utilizing the initial design burner specifications or manufacturer's recommendations to ensure good combustion practices. Tune the unit annually in accordance with good combustion practices or a manufacturer's procedure, if applicable, that will include the following at a minimum:
    - (1) Inspect the burner system and clean and replace any components of the burner as necessary to minimize emissions of NO<sub>x</sub> and CO; and
    - (2) Inspect the burner chamber for areas of impingement and remove if necessary; and
    - (3) Inspect the flame pattern and make adjustments as necessary to optimize the flame pattern; and
    - (4) Inspect the system controlling the air-to-fuel ratio and ensure that it is correctly calibrated and functioning properly; and
    - (5) Measure the NO<sub>x</sub> and the CO concentration of the effluent stream after each adjustment was made with a handheld portable monitor to ensure optimal baseline concentrations are maintained or
  - b. Limit nitrogen oxide emissions to no more than the following amounts:
    - ~~(1) 155 ppm calculated as nitrogen dioxide, when burning gaseous fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample run time of one hour.~~
    - ~~(2) 230 ppm calculated as nitrogen dioxide, when burning liquid fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample run time of one hour.~~
    - (1) **Emission Limits–Gaseous Firing:** An owner and/or operator shall not allow the discharge into the atmosphere, when burning gaseous fuel from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, indirect- process heater operating less than 877 hours within a calendar year and with an annual heat input rate greater than 10 MMBtu/hr (2.9 MW), oxides of nitrogen (NO<sub>x</sub>) emissions in excess of 42 parts per million volume (ppmv) , corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.
    - (2) The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 10 MMBtu/hr (2.9 MW), without SCR installed, shall not exceed 15 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.
    - (3) The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 10 MMBtu/hr (2.9 MW), with SCR installed, shall not exceed 9 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on gaseous fuels.
    - (4) **Emission Limits-Nongaseous Fuel Firing:** An owner and/or operator shall not allow the discharge into the atmosphere, when burning nongaseous fuel from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, indirect- process heater operating less than 877 hours within a calendar year and with an annual heat input rate greater than 10 MMBtu/hr (2.9 MW), oxides of nitrogen (NO<sub>x</sub>) emissions in excess of 65



parts per million volume (ppmv), corrected to 15 percent oxygen (O<sub>2</sub>) when firing on liquid fuels.

- (5) The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 10 MMBtu/hr (2.9 MW), without SCR installed, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on liquid fuels.
- (6) The NO<sub>x</sub> emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 10 MMBtu/hr (2.9 MW), with SCR installed, shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O<sub>2</sub>) when firing on liquid fuels.

**TABLE 1:  
 SUMMARY OF LIMITATION REQUIREMENTS IN SECTION 304.1(B) OF THIS RULE**

Rule Reference	Time of Operation (hr/yr)	Unit Size Rating MMBtu/hr	NO <sub>x</sub> Emission Limit (ppmv)	
			Gaseous Fuel	Liquid Fuel
<u>304.1(b)(1) And 304.1(b)(5)</u>	<u>&lt;877</u>	<u>≥ 10</u>	<u>42</u>	<u>65</u>
<u>304.1(b)(2) And 304.1(b)(6)</u>	<u>≥877</u>	<u>≥10.0 (no SCR)</u>	<u>15</u>	<u>42</u>
<u>304.1(b)(3) And 304.1(b)(7)</u>	<u>≥877</u>	<u>≥10.0 (w SCR)</u>	<u>9</u>	<u>25</u>

- c. For simple gas turbines, the nitrogen oxides shall be measured dry and corrected to 15% oxygen. For all other combustion equipment, the nitrogen oxides shall be measured dry and corrected to 3% oxygen.

**304.2** ~~An owner or operator~~ owner and/or operator of any combustion equipment, listed in Section 102 of this rule, with a heat input greater than 100 MMBtu/hr, shall:

- a. Tune the equipment every 6 months with good combustion practices or a manufacturer’s procedure that at a minimum includes the procedures listed in ~~subsection 304.1a~~ Section 304.1(a) of this rule and;
- b. Meet the NO<sub>x</sub> emission limits as stated in ~~subsection 304.1b~~ Section 304.1(b) of this rule.

**305** **LIMITATIONS-CARBON MONOXIDE:** ~~No owner or operator~~ An owner and/or operator of any equipment listed in Section 102 of this rule with a heat input greater than 100 MM Btu/hr shall not cause to be discharged into the atmosphere, carbon monoxide (CO), measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, shall be based upon the arithmetic mean of the results of three test runs and shall be measured during steady state compliance source testing. Each test run shall have a minimum sample time of one hour. For simple gas turbines, the CO shall be measured dry and corrected to 15% oxygen. For all other combustion equipment, the CO shall be measured dry and corrected to 3% oxygen.

**306** **REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:**

**306.1** **Emission Control System Required:** For affected operations which may exceed any of the applicable standards set forth in Sections 300 of this rule, an owner or operator may comply by installing and operating an emission control system (ECS).

**306.2** **Providing and Maintaining ECS Monitoring Devices:** ~~No owner or operator~~ An owner and/or operator required to use an approved ECS pursuant to this rule shall not do so without first providing, properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved O&M Plan.

**306.3** **Operation and Maintenance (O&M) Plan Required For ECS:**



- a. **General Requirements:** An ~~owner or operator~~ owner and/or operator shall provide and maintain an O&M Plan for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or an air pollution permit.
- b. **Approval by Control Officer:** An ~~owner or operator~~ owner and/or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.
- c. **Initial Plans:** An ~~owner or operator~~ owner and/or operator that is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the ~~owner or operator~~ owner and/or operator has submitted for approval, but which have not yet been approved, unless notified by the Control Officer in writing. Once the initial plan has been approved in writing by the Control Officer, an ~~owner or operator~~ owner and/or operator shall comply with this approved plan.
- d. **Revisions to Plan:** If revisions to the initial plan have been approved by the Control Officer in writing, an ~~owner or operator~~ owner and/or operator shall comply with the revisions to the initial plan. If revisions to the plan have not yet been approved by the Control Officer in writing, then an ~~owner or operator~~ owner and/or operator shall comply with the most recent O&M plan on file at Maricopa County Air Quality Department.
- e. **Control Officer Modifications to Plan:** After discussion with the ~~owner or operator~~ owner and/or operator, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An ~~owner or operator~~ owner and/or operator shall then comply with the plan that has been modified by the Control Officer.

**SECTION 400 – ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)**

**401** COMPLIANCE SCHEDULE: An owner and/or operator of any unit subject to Sections 301 or 302 of this rule on or after November 2016 shall comply with this rule in accordance with the following schedules.

**401.1** Except as provided in Sections 401.2 and 401.3 of this rule, for units installed prior to November 2016 and permit application deemed complete by the Control Officer prior to November 2016, or installed after November 2016 and permit application deemed complete prior to November 2016:

**TABLE 2:**

<u>Number of Units subject to Section 304</u>	<u>Number of these Units required to be in full compliance by 01/xx/2017</u>	<u>Number of these Units required to be in full compliance by 01/xx/2018</u>	<u>Number of these Units required to be in full compliance by 01/xx/2019</u>
<u>1 or 2</u>	<u>1</u>	<u>2</u>	<u>N/A</u>
<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>
<u>4</u>	<u>2</u>	<u>3</u>	<u>4</u>
<u>5 or 6</u>	<u>2</u>	<u>4</u>	<u>6</u>
<u>More than 6</u>	<u>25% of these units</u>	<u>75% of these units</u>	<u>100% Of these units</u>

Note: Full Compliance identifies the date by which the owner shall demonstrate that each unit is in compliance with this rule.

**401.2** For units installed after November 2016 and permit application deemed complete by the Control Officer after November 2016: date of installation.

**401.3** For units installed prior to November 2016 and permit application deemed complete by the Control Officer after November 2016: November 2017.

**SECTION 500 – MONITORING AND RECORDS**

**501** **RECORDKEEPING AND REPORTING:** An ~~owner or operator~~ owner and/or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer or his designee upon request. Records shall consist of the following information:



- 501.1 Equipment Listed In Section 102 Of This Rule:** Type of fuel used, amount of fuel used, and amount of sulfur in the fuel if using liquid fuel, and the days and hours of operation.
- 501.2 Emergency Fuel Usage:** Monthly records of: type of emergency fuel used, dates and hours of operation using emergency fuel, and nature of the emergency or purpose for the use of the emergency fuel as stated in ~~subsections 104.1 and 104.2~~ Sections 104.1 and 104.2. Yearly records of the twelve month log of hours of operation in the emergency mode.
- 501.3 Good Combustion Practice:** Measurements of the temperature differential across the burners of turbines per ~~subsection 301.3~~ Section 301.3 of this rule, results of evaluation and corrective action taken to reduce the temperature differential or a finding that the temperature differential returned to the range listed in ~~subsection 301.3 (a) or (b)~~ Sections 301.3(a) or 301.3(b) of this rule without any action by the ~~owner or operator~~ owner and/or operator.
- 501.4 Tuning Procedure:** Date that the procedure was performed on the particular unit and at a minimum: stack gas temperature, flame conditions, nature of the adjustment and results of the nitrogen oxide and carbon monoxide concentrations obtained by using a handheld monitor after each adjustment.
- 502 RECORDS RETENTION:** Copies of reports, logs and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.
- 503 COMPLIANCE DETERMINATION:**
- 503.1 Low Sulfur Oil Verification:**
- a. An ~~owner or operator~~ owner and/or operator shall submit fuel oil receipts from the fuel supplier indicating the sulfur content of the fuel oil or verification that the fuel oil used meets the 0.05% sulfur limit or the 0.08% limit for landfill or digester gas if requested by the Control Officer, or
  - b. If fuel receipts are not available, an ~~owner or operator~~ owner and/or operator shall submit a statement of certification or proof of the sulfur content of the fuel oil from the supplier to the Control Officer, or
  - c. An ~~owner or operator~~ owner and/or operator may elect to test the fuel oil for sulfur content in lieu of certification from the fuel supplier or fuel receipts using one of the test methods incorporated by reference in ~~subsections 504.11, 504.12, 504.14 or 504.15~~ Sections 504.11, 504.12, 504.14, or 504.15 of this rule.
- 503.2 Gaseous Emissions-Source Test:**
- a. Compliance with the NO<sub>x</sub> and CO emission requirements and the stack gas oxygen requirements of Sections 301 through 304 of this rule shall be determined using the test methods specified below. All emissions determinations shall be made during normal operating conditions, except no compliance determination shall be established during unit startup or shutdown. Tests shall be conducted while units are operating at a firing rate that is as close as physically possible to the unit's rated heat input capacity. Tests shall be conducted for three 60 minute runs. Results shall be averaged over the three test periods. Test reports shall include the operational characteristics of all flue-gas NO<sub>x</sub> reduction equipment.
    - (1) Oxide of Nitrogen - EPA Method 7E.
    - (2) Carbon Monoxide - EPA Method 10.
    - (3) Stack Gas Oxygen - EPA Method 3A.
    - (4) Carbon Dioxide - EPA Method 3A.
  - b. A scheduled source test may not be discontinued solely due to the failure of one or more runs to meet applicable standards.



- c. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of one of the following reasons, then compliance may be determined using the average of the other two runs:
  - (1) Forced shutdown; or
  - (2) Failure of an irreplaceable portion of the sampling train; or
  - (3) Extreme meteorological conditions presenting a hazard to the sampling team; or
  - (4) Other circumstances beyond the owner or operators control as determined by the Control Officer.
- d. A source test not conducted pursuant to the source test methods listed in Section 501.1(a) of this rule may be rejected and the test report determined to be invalid.

**503.3 Gaseous Emissions-Continuous Emission Monitoring System (CEMS): Compliance with NO<sub>x</sub> emission requirements specified in Sections 301 through 304 of this rule may also be determined using CEMS. All emissions determinations shall be made in the as-found operating condition, except no compliance determination shall be established during unit startup or shutdown. Where the unit(s) are equipped with CEMS:**

- a. **General:** All CEMS must be installed according to the procedures specified in 40CFR60.13g. All CEMS shall be installed such that a representative measurement of emissions is obtained. Additional procedures for the location of CEMS found in 40CFR60 Appendix B shall be used. The data recorder for CEMS shall be in operation at all times the unit is operated.
- b. **Cycle Time:** An owner and/or operator of any unit using a continuous emission monitoring system (CEM) shall ensure that the CEM system completes a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15 minute period.
- c. **Calibration:** Zero and span shall be checked once every 24 hours. The CEMS shall be calibrated in accordance with the manufacturer's specifications.
- d. **Averaging:** The data recorded during periods of calibration checks, zero and span adjustments shall not be included in averaging for compliance determinations. Compliance shall be determined on an hourly basis using the average of the 3 previous 1 hour average emissions concentrations. The 1-hour average emissions concentration shall be determined from at least two data points recorded by the CEMS.
- e. **Accuracy Testing:** Accuracy testing of Continuous Emission Monitoring Systems shall be conducted using a relative accuracy test audit pursuant to 40CFR60 Appendix F.

**504 TEST METHODS ADOPTED BY REFERENCE COMPLIANCE DETERMINATION-TEST**

**METHODS INCORPORATED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004), as listed below, are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department, 1001 N. Central Avenue, Phoenix, AZ 85004-1942. When more than one test method as listed in ~~subsections 504.11, 504.12, 504.14, or 504.15~~ Sections 504.11, 504.12, 504.14, or 504.15 of this rule is permitted for the same determination, an exceedance of the limits established in this rule determined by any one of the applicable test methods constitutes a violation.

- 504.1** EPA Reference Methods 1 (“Sample and Velocity Traverses for Stationary Sources”), and 1 A (“Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts”) (40 CFR 60, Appendix A).
- 504.2** EPA Reference Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2A (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), 2C (“Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts”), and 2D (“Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts”) (40 CFR 60, Appendix A).



- 504.3** EPA Reference Methods 3 (“Gas Analysis for the Determination of Dry Molecular Weight”), 3A (“Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure”), 3B (“Gas Analysis for the Determination of Emission Rate Correction Factor of Excess Air”), and 3C (“Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.4** EPA Reference Method 4 (“Determination of Moisture Content in Stack Gases”) (40 CFR 60, Appendix A).
- 504.5** EPA Reference Method 5 (“Determination of Particulate Emissions from Stationary Sources”) (40 CFR 60, Appendix A)
- 504.6** EPA Reference Method 202 (“Determination of Condensable Particulate Emissions from Stationary Sources”) (40 CFR 51, Appendix M).
- 504.7** EPA Reference Methods 7 (“Determination of Nitrogen Oxide Emissions from Stationary Sources”), 7A (“Determination of Nitrogen Oxide Emissions from Stationary Sources”), 7B (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Ultraviolet Spectrometry”), 7C (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Colorimetric Method”), 7D (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline – Permanganate Chromatographic Method”), and 7E (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method”), (40 CFR 60, Appendix A).
- 504.8** EPA Reference Method 9, (“Visual Determination of the Opacity of Emissions from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.9** EPA Reference Method 10, (“Determination of Carbon Monoxide from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.10** EPA Reference Method 20, (“Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions From Stationary Gas Turbines”) (40 CFR 60, Appendix A).
- 504.11** American Society of Testing Materials, ASTM Method D2622-92 or 98, (“Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry”), 1992 or 1998.
- 504.12** American Society of Testing Materials, ASTM Method D1266-98, (“Standard Test Method for Sulfur in Petroleum Products (Lamp Method”), 1998.
- 504.13** American Society of Testing Materials, ASTM Method D2880-00, (“Standard Specification for Gas Turbine Fuel Oils”), 2000.
- 504.14** American Society of Testing Materials, ASTM Method D4294-90 or 98, (“Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy- Dispersive X-ray Fluorescence Spectrometry”), 1990 or 1998.
- 504.15** American Society of Testing Materials, ASTM Method D5504-01, (“Standard Test Method for Determination of Sulfur compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence”), 2006.



Revised 07/13/88  
 Revised 09/21/92  
 Revised 06/19/96  
 Revised 04/07/99  
 Revised MM/DD/YY

Revised 07/13/88; Revised 09/21/92; Revised 06/19/96; Revised 04/07/99; **Revised MM/DD/YY**

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

**RULE 336**  
**SURFACE COATING AND MANUFACTURING OPERATIONS**

**SECTION 100 – GENERAL**

- 101 PURPOSE:** To limit the emission of volatile organic compounds (VOCs) from surface coating, manufacturing and repair operations.
- 102 APPLICABILITY:** This rule applies to the following three types of VOC sources:
- 102.1 Surface Coating Operations:** This rule is applicable to surface coating operations listed in ~~Table 1~~ either Table 336-1; Table 336-2 ; or Table 336-3 of this rule that are not more specifically regulated by another rule within Rules 300 to 359 of Maricopa County Air Pollution Control Regulations, Regulation III. Examples of The coating operations not regulated by this rule ~~appear in subsection 305.4~~ are listed in Section 305.4 104 of this rule.
- Surface-coating activities regulated under this rule include, but are not limited to, the application of coating, coating preparation/mixing at the facility, applying the coating, and the cleanup of coating application equipment.
- 102.2** ~~Subsections 305.2 through 305.7 set forth partial or conditional exemptions for certain materials or uses employed by a surface coating operation subject to this rule.~~
- 102.3** ~~This rule is not applicable to coatings having a VOC content, minus exempt compounds, of less than 0.15 lb VOC/gal (18g/L) nor to solvents having a VOC content of material less than 0.15 lb VOC/gal.~~
- 102.2 Manufacturing and Repair Operations:**
- a. Resin Materials:** This rule is applicable to the manufacturing, fabrication, rework, repair, and touch-up of composite products made of resin and gel coats.
- b. Pleasure Craft and Fiberglass Boat Manufacturing and Repair:** This rule is applicable to all manufacturing, refinishing, repairing, modification operations of fiberglass products and their parts, as defined in Section 200.31 of this rule.
- 102.3 Industrial Adhesives and/or Adhesive Primers:** This rule is applicable to adhesive and/or adhesive primer usage which includes, but is not limited to, the application of adhesive, adhesive preparation/mixing at the facility, applying the adhesive, and the cleanup of the adhesive application equipment.
- 102.4 NSPS & NESHAP:** In addition to this rule, facilities may be subject to New Source Performance Standards (NSPS) in Rule 360 and/or to National Emission Standards for Hazardous Air Pollutants (NESHAP) in Rule 370 of these rules
- 103 TOTAL EXEMPTIONS AND BURDEN OF PROOF:** The owner or operator claiming a total exemption under Sections 103.1 shall document the type and quantity of VOC containing materials used and keep records according to Section 500 to justify the exemption status.



**103.1 Total VOC Content:** This rule is not applicable to coatings, manufacturing or repair materials having a VOC content, minus exempt compounds, of less than 0.15 lb VOC/gal per day (~~18g/L~~) (6.8 kg/day) or 2.7 tons per 12-month rolling period prior to controls nor to solvents having a VOC content of material less than 0.15 lb VOC/gal per day. However once a facility exceeds these threshold amounts, that facility shall be permanently subject to all components of this rule even if emissions later fall back below these thresholds.

**SURFACE COATING EXEMPTIONS:** The following are exempt from Section 301 of this rule:

**103.2 Leak-Preventing Materials:**

a. Sealants, adhesives, caulking, and similar materials used on the following substrates for the primary purpose of leak prevention:

- (1) Non-metallic substrates; and
- (2) Used substrates, post manufacture, such as, but not limited to, old joints and seals on pipe and valve assemblies.

**103.3 Certain Joint Fillers:** Caulking and beaded sealants used to fill gaps or to fill joints between surfaces are exempt from this rule, except those used in manufacturing other metal parts and products as defined in Section 248 of this rule, or in the manufacturing of cans.

**103.4 ECS Use In Lieu of Equipment/Practice:** In lieu of meeting an equipment or work practice standard within Sections 301, 302, 303, 304, and 307 of this rule, an owner or operator is allowed to instead use an ECS that has a capture efficiency not less than 90% and meets all ECS requirements in Section 305.

**103.5 Military coating:** A tactical military-equipment coating that is approved in a Maricopa County Air Pollution Permit subsequent to a sufficient demonstration by the user that no compliant substitute exists.

**103.6 Special Facilities/Operations:**

- a. **Silicone Release Coatings:** Silicone release coating operations controlled by an ECS pursuant to Section 305 of this rule are exempt from the 90 percent overall control efficiency requirement if the ECS demonstrates at least 70 percent overall control and the coating is applied with a liquid seal air spray system.
- b. **Bonding Impact Resistant Rubber Lining to Metal:** An adhesive and an adhesive-primer are exempt from Table 336-1 VOC limits, but shall not have a VOC content of material exceeding 850 grams of VOC per liter (7.1 lb/gal), if such adhesive is used to bond sheets/strips of rubber to metal equipment so that such rubber sheathing directly contacts material received by the metal and so protects the metal. This exception does not apply to any other situations where adhesives are used to bond rubber to metal.

**103.7 Exemption of Coating Applicator Cleanup:** An owner and/or operator can use solvent that has at 20° C (68° F) a total VOC vapor pressure above 35 mm Hg for cleaning coating-application equipment, but only if such application equipment does not use spray devices and the same principal solvent is used for cleaning as is used in the coating.

**POLYESTER RESIN OPERATION EXEMPTIONS:**

**103.8** The owner and/or operator of a polyester resin operation can claim a total exemption to this rule if they do not use more than 20 gallons per month of polyester resin material, however once a source exceeds the exemption limit, that facility is permanently subject to all applicable components of this Rule 336: Surface Coating and Manufacturing Operations.

**103.9 Resin and Gel Coats Exceptions:** The following coatings are exempt from the requirements of Section 302 and Table 336-4:



- a. **Life-Saving Craft:** Production resins applied for military vessels, U.S. Coast Guard lifeboats, rescue boats, and other life-saving appliances approved under 46 CFR subchapter Q, or the construction of small passenger vessels regulated by 46 CFR subchapter T are exempt although all applications shall be with non-atomizing application equipment serving as emission control.
- b. **Part or Mold Repair and Touch Up:** Production and tooling resins, pigmented, clear, and tooling gel coat used for part or mold repair and touch shall not exceed 1 percent by weight of all resin and gel coat used at a facility on a 12-month rolling-average basis.
- c. **Skin Coats made with Pure 100-Percent Resins:**  
Pure, 100-percent resins (blends of vinyl ester and polyester) used for skin coats shall be applied with non-atomizing resin application equipment serving as the emission control. The total amount of resin used shall not exceed 5 percent by weight of all resin used at a facility on a 12-month rolling average basis.

**PLEASURE CRAFT AND FIBERGLASS BOAT MANUFACTURING AND REPAIR EXEMPTIONS:** The following are exempt from the VOC limits of this rule (Sections 301 through 307 of this rule) but shall comply with the work practices listed in Section 307 and recordkeeping requirements listed in Section 501 of this rule:

- 103.10** Coating with aerosol cans;
- 103.11** Facilities that use 3 gallons per day or less than 66 gal. per calendar month of coating, as applied, for touch-up, and repair, including VOC containing materials added to the original coating as supplied by the manufacturer. However once a source exceeds the exemption limit, that facility is permanently subject to all applicable components of this Rule 336: Surface Coating and Manufacturing Operations.
- 103.12** Other Plastic Parts Coating Exclusions:
  - a. Clear or translucent coatings;
  - b. Coatings applied at a paint manufacturing facility while conducting performance tests on the coatings;
  - c. Electric-Insulating and Thermal-Conducting Coatings.

**INDUSTRIAL ADHESIVE EXEMPTIONS:**

- 103.13** Total Adhesive Use: Facilities whose total usage of all miscellaneous industrial adhesives consist of a net volume of 16 ounces or less, or a net weight of one pound per day or less; or
- 103.14** Tire Repair; or
- 103.15** Flat Wood Paneling; or
- 103.16** Field operations including construction.

**104** **TOTAL CATEGORICAL EXEMPTIONS:** This rule does not apply to the following operations:

- 104.1** Aerospace coating operations (Rule 348).
- 104.2** Architectural coatings including buildings and erected structures (Rule 335).
- 104.3** Cleaning: VOC loss from cleaning or stripping a surface for coating or other purpose is regulated by Rule 334. VOC-containing solvents used to remove impurities from exterior or interior surfaces as regulated by Rule 331 (Solvent Cleaning) of these rules.
- 104.4** Printing and graphic arts coating (Rule 337).
- 104.5** Semiconductor manufacturing (Rule 338).
- 104.6** Coating or refinishing a highway vehicle or mobile equipment (Rule 345).



- 104.7 Coating interior or exterior auto parts.
- 104.8 Coating automotive and transportation equipment.
- 104.9 Coating motor vehicle accessories.
- 104.10 Coating wood furniture and fixtures (Rule 342).
- 104.11 Coating wood millwork (Rule 346).
- 104.12 Polystyrene Foam Operations (Rule 358).
- 104.13 Rubber Tire Manufacturing.

## **105 PARTIAL EXEMPTIONS:**

**SURFACE COATINGS:** An owner and/or operator using the coatings listed shall be exempt from the following sections, however they are subject to all other applicable provisions of this rule. Once a facility exceeds the exemption limit, that facility is then permanently subject to all provisions of this rule.

- 105.1 **Extreme Performance Coatings:** Extreme performance coatings are exempt from the VOC limits in ~~4~~ Tables 336-1, 336-2; 336-3 of this rule but not from any other Sections of this Rule 336 when used under the following conditions:
  - a. Used on internal combustion engine components that are normally above 250°F (121°C) during use; or
  - b. Used at temperatures above 250°F (121°C) on items that are both included under the ~~SIC~~ (Standard Industrial Classification) North American Industry Classifications System (NAICS) codes ~~3661,3663,3669,3677,3678,3679, or 3769~~ 334210, 334220, 334290, 334416, 334417, 334418, 334419, 334310 or 336419 and are electronic products in space vehicles and/or are communications equipment. The US Government Printing Office“ Standard Industrial Classification Manual, 1987”(and no future editions) is incorporated by reference and is on file at the Maricopa County Air Quality Department, Planning and Analysis Division, 1001 N. Central Avenue, Suite 595, Phoenix, Arizona 85004.
- 105.2 **Stencil coatings** as defined in Section 200.104 of this rule and used to coat metal parts, are exempt from the VOC limits listed in Section 301, Tables 336- 1 through 336-3 and the application methods ( Section 306), but still shall comply with the work practices (Sections 307) and the recordkeeping provisions listed in Section 500 of this rule.
- 105.3 **Stencil coatings**, as defined in Section 200.104 of this rule, applied on clear or transparent substances and used to coat plastic parts are exempt from the VOC limitations listed in Section 301; Tables 336-1, 336-2 and 336-3 of this rule, but still shall comply with the application methods (Section 306) , the work practices (Sections 307) of this rule and the recordkeeping provisions listed in Section 500 of this rule.
- 105.4 **Spray Gun and VOC Limit Miscellaneous Exemptions:** The following application methods coatings or operations are exempt from the following sections of this rule: VOC limits in Tables 336-1 through 336-3, ECS requirements (Section 305), and application methods ( Section 306), but still shall comply with the work practices listed in Sections 307 and the recordkeeping provisions listed in Section 500.
  - a. Coating with an aerosol can (Section 202 of this rule); or
  - b. Low usage Coatings, listed in Tables 336-1 through 336-3,when aggregate of all formulations do not exceed 55 gallons (208 liters) per year facility-wide, calculated as defined in Section ~~501.2~~ 505 of this rule;or
- 105.5 **A Quality Class Q protective coating that is used on equipment, structures, and/or components within a containment facility of a nuclear power plant and is approved in accordance with either ANSI**



standards American Society of Testing Materials Standards N101.2 and N101.4 or with ASTM standards D3911 and D3843 (ASTM) D5144-00, D3911-03, or D3843-00.

**105.6** **Low Usage Allowance for Restricted Guns:** An owner or operator may use spray guns otherwise prohibited by Section 306 of this rule for use with coatings over 2 lbs. VOC/gal under the following limited conditions:

- a.** If VOC emissions from the finishing application station are captured and directed to an ECS complying with the provisions of Section 305 of this rule; or
- b.** To coat the inside of pipes and tubes with a wand-style applicator; or
- c.** Using an airbrush or other small gun that has a reservoir capacity not exceeding 250 cc (8.8 fluid ounces) and is used solely for detailing, lettering, touchup, and/or repair.

**POLYESTER RESIN OPERATIONS:** An owner and/or operator using resin/gel coats on the equipment, materials or processes listed shall be exempt from the following sections, however they are subject to all other applicable provisions of this rule. Once a facility exceeds the exemption limit, that facility is then permanently subject to all provisions of this rule.

**105.6** **Polyester Resin and Gel Coats – Fiberglass Boats:** Use of non-atomizing application equipment (Section 200.69 of this rule) exempts the following from Section 302, Table 336-4 of this rule.

- a.** **Life-Saving Craft:** Application of polyester resin or gel coats on lifesaving craft.
- b.** **Part or Mold Repair and Touch up:** The total quantity of all materials shall not exceed 1 percent by weight used at a facility on a 12-month rolling-average basis.
- c.** **Skin Coats made with Pure 100-Percent Resins (blends of vinyl ester and polyester):** The total quantity of all materials shall not exceed 5 percent by weight of all resin used at a facility on a 12-month rolling average basis.

**105.7** **Polyester Resin Bonding Putties:** An owner or operator using polyester resin bonding putties (Section 200.83 of this rule) to assemble fiberglass parts at fiberglass boat manufacturing facilities and/or at other reinforced plastic composite manufacturing facilities are exempt from the VOC emission limits listed in Section 302 and Section 303 of this rule.

**INDUSTRIAL ADHESIVES:** An owner or operator using the adhesives listed shall be exempt from the VOC limits listed in Section 304 and the ECS 90% control efficiency listed in Section 305 but still shall comply with the application methods in Section 306 and the work practices listed in Section 307, however they are subject to all other applicable provisions of this rule. Once a facility exceeds the exemption limit, that facility is then permanently subject to all provisions of this rule.

**105.8** Adhesives or adhesive primers being tested or evaluated in any research and development, quality assurance, or analytical laboratory; or

**105.9** Adhesives or adhesive primers used in the assembly, repair, or manufacture of aerospace or undersea-based weapon systems; or

**104.10** Adhesives or adhesive primers used in medical equipment manufacturing operations; or

**105.11** Cyanoacrylate adhesive application processes; or

**105.12** Aerosol adhesive and aerosol adhesive primer application processes; or

**105.13** Processes using adhesives and adhesive primers that are supplied to the manufacturer in containers with a net volume of 16 ounces or less, or a net weight of one pound or less; or

**105.14** Processes using polyester bonding putties to assemble fiberglass parts at fiberglass boat manufacturing facilities and at other reinforced plastic composite manufacturing facilities.



**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 Definition 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~~**200.01** **ADHESIVE** – A chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.
- 200.02** **ADHESIVE PRIMER**: Any product intended by the manufacturer for application to a substrate, prior to the application of an adhesive, to provide a bonding surface.
- ~~202~~ **AEROSOL CAN**—An aerosol coating product which comes in a non-refillable hand-held container from which a product is dispensed by means of pressurized propellant packaged within the container.
- 200.03** **AEROSOL CAN-SPRAY COATING** – A coating which is sold in a hand-held, pressurized, non-refillable container, of less than 22 fluid ounces (0.66 liter) capacity, and which is expelled from the container in a finely divided form when a valve on the container is depressed.
- ~~203~~**200.04** **AIR-DRIED COATING**: A coating which is dried by the use of air or forced warm air at temperatures up to and including 200°F (93.3°C).
- 200.05** **AIRLESS SPRAY**: A system that atomizes principally by hydraulic pressure, including “airless” and “air assisted airless”.
- ~~204~~**200.06** **BAKED COATING**: A coating that is dried or cured in an oven in which the oven temperature exceeds 200°F (93.3°C).
- 200.07** **CAMOUFLAGE COATING**: A coating used, principally by the military, to conceal equipment from detection.
- ~~205~~**200.08** **CAN COATING**: Any coating either used in the production of metal cans-applied to the surface(s) of formed cans or applied at a can making facility to the surface(s) of flat metal sheets or strips that are formed there into cans.
- ~~206~~**200.09** **CAN PRINTING INK**: A fluid or viscous formulation used in can printing that imparts design, pattern, and/or alphanumeric symbols to a can.
- 200.10** **CLEANUP**: The removal of uncured coating from any surface.
- ~~207~~**200.11** **CLEAR COAT**: Any coating which lacks color or opacity or is transparent.
- 200.12** **CLOSED MOLDING OPERATIONS**: Any molding process in which pressure is used to distribute the resin through the reinforcing fabric placed between two mold surfaces to either saturate the fabric or fill the mold cavity. The pressure may be clamping pressure, fluid pressure, atmospheric pressure, or vacuum pressure used either alone or in combination. The mold surfaces may be rigid or flexible. Closed molding includes, but is not limited to, compression molding with sheet molding compound, infusion molding, resin injection molding (RIM), vacuum assisted resin transfer molding (VARTM), resin transfer molding (RTM), and vacuum assisted compression molding. In closed molding operations, nearly all of the monomers are bound in the cross-link reactions and emissions are very low. (Closed molding is generally applicable to making a large number of small parts, such as hatches and locker doors, or small numbers of high performance boat hulls.)
- 200.13** **COATING APPLICATION EQUIPMENT**: Any spray gun, wand, rollers, brushes or any other means used to apply or cover a surface with a coating for either beauty, protection or other purposes
- ~~208~~**200.14** **COIL COATING**: Any coating applied to the surface(s) of flat metal sheets or strips that are formed into rolls or coils not used to make cans.



- 200.15** **CORROSION-RESISTANT RESIN:** Polyester resin material used to make products for corrosion resistant applications such as, but not limited to, tooling, fuel or chemical tanks, boat hulls, pools and outdoor spas.
- ~~209~~**200.16** **DAY:** A period of 24 consecutive hours beginning at midnight.
- 200.17** **DIP COAT (INCLUDING ELECTRO-DEPOSITION):** A coating application method accomplished by dipping an object into coating.
- 200.18** **DRUM:** A cylindrical metal shipping container larger than 12 gallons capacity but no larger than 110 gallons capacity.
- 200.19** **ELECTRIC DISSIPATING COATING:** A coating that rapidly dissipates a high-voltage electric charge.
- ~~210~~ **200.20** **ELECTROSTATIC SPRAY/SYSTEM:** A method of applying atomized paint by electrically charging the coating and the object being coated with opposing charges. A higher proportion of the coating reaches and coats the object than would occur in the absence of a charge.
- ~~211~~ **200.21** **EMISSION CONTROL SYSTEM (ECS):** A system, approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions of volatile organic compounds. Such system consists of an emissions collection subsystem and an emissions processing subsystem.
- ~~212~~ **200.22** **END SEALING COMPOUND:** A compound which is coated onto can ends and functions as a gasket when the end is attached to the can.
- 200.23** **ETCHING FILLER:** A coating that contains less than 23 percent solids by weight and at least ½ percent acid by weight, and is used instead of applying a pretreatment coating followed by a primer.
- ~~213~~ **200.24** **EXEMPT EVAPORATING COMPONENTS (EXEMPT COMPOUNDS):** The non-VOC, evaporating portion of a coating formulation; this necessarily includes all non-precursor organic compounds as defined in Rule 100 of these Rules and Regulations, as well as water and other inorganic liquids and gases.
- ~~214~~**200.25** **EXTERIOR CAN BASECOAT:** Any coating applied to the exterior of a can to provide protection for the metal or to provide background for any lithographic or printing operation.
- 200.26** **EXTREME HIGH-GLOSS COATING:** A coating which when tested by the American Society for Testing Material Test Method D-523 adopted in 1980, shows reflectance of 75 or more on a 60° meter.
- ~~215~~**200.27** **EXTREME-PERFORMANCE COATING:** A coating used on a surface where the coated surface in its intended use is at temperatures consistently in excess of 250°F (121°C). Extreme performance coatings include but are not limited to, coatings applied to locomotives, railroad cars, farm machinery, and heavy duty trucks.
- ~~216~~**200.28** **FABRIC:** A textile material. Non-manufactured items from nature are not fabric except for natural threads, fibers, filaments, and similar that have been manufactured into textile fabric.
- ~~217~~**200.29** **FABRIC COATING:** Any decorative or protective coating or reinforcing material applied onto or impregnated into textile fabric.
- 200.30** **FIBERGLASS BOAT MOLDS:** Fiberglass boat manufacturing facilities construct the molds or “tools” that are used to build the separate parts of the fiberglass boat. The production of molds is done using specialized resins and gel coats referred to as tooling resin and gel coat. These differ



from production resin and gel coat in that they are harder, more heat resistant, and more dimensionally stable than production materials.

- 200.31** **FIBERGLASS:** A process where the liquid resin is mixed with a catalyst before it is applied to the glass, which causes a cross-linking reaction between the resin molecules. The catalyzed resin hardens to form a rigid shape consisting of the plastic resin reinforced with glass fibers. fiberglass (also known as fiber reinforced plastic or FRP, aluminum, rotationally molded (rotomolded) polyethylene (PLASTIC).
- 200.32** **FILAMENT APPLICATION-** A method of applying resin to an open mold that involves feeding reinforcement fibers through a resin bath and winding the resin-impregnated fibers on a rotating mandrel.
- 200.33** **FILLER :** A finely divided inert (non-VOC) material, which may be added to the resin to enhance its mechanical properties and extend its volume. Resin fillers include, but are not limited to, silica, carbon black, talc, mica and calcium carbonate.
- 200.34** **FLEXIBLE VINYL:** A non-rigid polyvinyl chloride plastic with at 5 percent by weight plasticizer content.
- 200.35** **FLOW COATING: (Flow Coaters):** A coating application system, with no air supplied to the nozzle, where paint flows over the part and the excess coating drains back into the collection system.
- 200.36** **FLUID IMPINGEMENT TECHNOLOGY:** A spray gun that produces an expanding non-misting curtain of liquid by the impingement of low-pressure uninterrupted liquid stream.
- ~~218~~**200.37** **FILM COATING:** Any coating applied in a web coating process on film substrate other than paper or fabric, including, but not limited to, typewriter ribbons, photographic film, magnetic tape, and metal foil gift wrap.
- 200.38** **FINISH PRIMER/ SURFACER:** A coating applied with a wet thickness film of 10 mils prior to the application of a topcoat for purposes of providing corrosion resistance, adhesion of subsequent coatings, a moisture barrier, or promotion of a uniform surface necessary for filling in surface imperfections.
- 200.39** **FIRE RETARDANT RESIN:** Polyester resin material used to make products that are resistant to flame or are a low flame spread/low smoke product, as defined in 40 CFR 63.5935.
- 200.40** **FLEXIBLE COATING:** Any coating that is required to comply with engineering specifications for impact resistance, mandrel bend, or elongation as defined by the original equipment manufacturer.
- ~~219~~**200.41** **FLEXIBLE PLASTIC PART OR PRODUCT:** A plastic part or product designed to withstand significant deformation without damaging it for its intended use. Not included are flexible plastic parts that are found on a can, coil, metal furniture, or large appliance, or that are already a part of an aerospace component, highway vehicle, mobile equipment, architectural building or structure, or a previously coated marine-vessel.
- 200.42** **FLOW COATING: (Flow Coaters):** A coating application system, with no air supplied to the nozzle, where paint flows over the part and the excess coating drains back into the collection system.
- 200.43** **FLUID IMPINGEMENT TECHNOLOGY:** A spray gun that produces an expanding non-misting curtain of liquid by the impingement of low-pressure uninterrupted liquid stream.
- 200.44** **GEL COAT:** A thermosetting polyester resin surface coating, either pigmented or clear, that provides a cosmetic enhancement and improves resistance to degradation from exposure to the elements.
- 200.45** **GLOSS REDUCER:** A coating that is applied to a plastic part solely to reduce the shine of the part and is applied at a thickness of less than or equal to 0.5 mils of coating solids.



- 200.46** **HEAT-RESISTANT COATING:** A coating that must withstand a temperature of at least 400° during normal use.
- 200.47** **HAND APPLICATION METHODS:** Application of coatings by non-mechanical, hand-held equipment including but not limited to paint brushes, hand rollers, caulking guns, trowels, spatulas, syringe daubers, rags, and sponges.
- 200.48** **HIGH-TEMPERATURE COATING:** A coating that is certified to withstand a temperature of 1000°F for 24 hours.
- ~~220~~**200.49** **HEAT SENSITIVE MATERIAL** Materials which cannot consistently be exposed to temperatures greater than 203°F (95°C) without materially affecting desired function, performance, or other characteristics **HIGH VOLUME-LOW PRESSURE SPRAY EQUIPMENT:** Spray Equipment used to apply coatings which is designed to be operated and is operated between 0.1 and 10.0 pounds per square inch gauge (psig) air pressure measured dynamically at the center of the air cap and at the air horns.
- ~~224~~**200.50** **HIGHWAY VEHICLE:** Any vehicle that is physically capable of being driven upon a highway including, but not limited to, cars, pickups, vans, trucks, truck-tractors, motor-homes, motorcycles, and utility vehicles.
- ~~222~~**200.51** **INTERIOR BASECOAT:** Any coating applied to the interior of a can to provide a protective lining between the intended contents and the metal shell of the can.
- ~~223~~**200.52** **INTERIOR BODY SPRAY:** Any coating sprayed onto the interior of a can to provide a protective film between the intended contents and the metal shell of the can.
- 200.53** **LAMINATE:** A product made by bonding together two or more layers of material.
- ~~224~~**200.54** **LARGE APPLIANCE:** A door, case, lid, panel, or interior support part of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, evaporative coolers, and other similar products.
- ~~225~~ **LOW PRESSURE SPRAY GUN:** An air atomized spray gun that, by design, functions best at tip pressures below 10 psig (516 mm Hg), measured according to Section 503.1d of this rule, and for which the manufacturer makes no claims to the public that the gun can be used effectively above 12 psig (619 mm Hg).
- 200.55** **LIFE-SAVING CRAFT:** Military vessels, U.S. Coast Guard lifeboats, rescue boats, and other life-saving appliances approved under 46 CFR subchapter Q, or the construction of small passenger vessels regulated by 46 CFR subchapter T.
- 200.56** **MARBLE OR CULTURED RESINS:** Orthophthalate and modified acrylic isophthalate resins used for the fabrication of cast products.
- 200.57** **MARINE VESSEL** –Any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship or watercraft except those used primarily for recreation. This includes both salt water and fresh water vessels.
- ~~226~~**200.58** **METAL FURNITURE:** Any furniture made of metal or any metal part which will be assembled with other parts made of metal or other material(s) to form a furniture piece.
- 200.59** **METALLIC COATING:** A coating which contains more than 5 grams of metal particles per liter of coating as applied.
- 200.60** **MILITARY SPECIFICATION COATING:** A coating that has a formulation that has been approved by a United States Military Agency for use on military equipment.
- ~~227~~**200.61** **MINUS EXEMPT COMPOUNDS or MINUS EXEMPT EVAPORATING COMPONENTS:** See VOC Content Minus Exempt Compounds.



- 200.62** **MIRROR BACKING COATING:** Any coating applied onto the silvered surface of a mirror.
- ~~228~~**200.63** **MOBILE EQUIPMENT:** Any equipment that is physically capable of being driven or drawn upon a highway including, but not limited to, the following types of equipment: construction vehicles (such as mobile cranes, bulldozers, concrete mixers); farming equipment (wheel tractor, plow, pesticide sprayer); hauling equipment (truck trailers, utility bodies, camper shells); and miscellaneous equipment (street cleaners, mopeds, golf carts).
- 200.64** **MOLD-SEAL COATING:** The initial coating applied to a new mold or a repaired mold to provide a smooth surface which, when coated with a mold release coating, prevents products from sticking to the mold.
- 200.65** **MONOMER:** A volatile organic compound that partially combines with itself, or other similar compounds, by a cross-linking reaction to become a part of the cured resin or gel coat. A fraction of each monomer compound evaporates during resin and gel coat application and curing. Styrene and methacrylate (MMA) are the primary monomer VOC we have identified in the resins and gel coats used in fiberglass boat manufacturing.
- The resins contain styrene and the gel coats contain both compounds. In the remainder of this rule the monomers in resins and gel coats are referred to as monomer VOC.
- 200.66** **MONOMER PERCENT BY WEIGHT OF A RESIN:** the weight of the monomer, divided by the weight of the polymer.
- 200.67** **NON-PRECURSOR ORGANIC COMPOUND:** Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as “exempt”. A listing of these compounds is found in Rule 100.**MULTI-COMPONENT COATING:** A coating requiring the addition of one or more separate reactive resins, commonly known as catalysts or hardeners, prior to application to form an acceptable dry film.
- ~~229~~**200.68** **ORGANIC COMPOUND:** Any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, carbonates, and metallic carbides. **ONE-COMPONENT COATING:** Any coating that is ready for application as it comes out of its container to form an acceptable dry film. A thinner or reducer, necessary to reduce the viscosity, is not considered a component.
- 200.69** **NON-ATOMIZING SPRAY APPLICATION EQUIPMENT:** Any application technique in which resin flows from the applicator, in a steady and observable coherent flow, without droplets, for a minimum distance of three (3) inches from the applicator orifices. Non-Atomized mechanical application means the use of application tools other than buckets and brushes to apply resin and gel coat. Examples of non-atomized application include flow coaters, pressure-fed rollers, and fluid impingement spray guns.
- 200.70** **OPEN MOLDING:** Boats made from fiberglass are typically manufactured in a process known as open molding. Separate molds are typically used for the boat hull, deck, and miscellaneous small fiberglass parts (also known as fiber reinforced plastic or FRP). Examples of FRP parts are fuel tanks, seats, storage lockers, and hatches.
- ~~230~~**200.71** **OTHER METAL PARTS AND PRODUCTS:** Any metal part or product, excluding the following items that are made of metal: can, coil, furniture, large appliance, aerospace component, metal foil, metal textile fabric, semiconductor metal, highway vehicle, mobile equipment, an architectural building or structure, a previously coated marine-vessel.
- ~~234~~**200.72** **OVERVARNISH:** Any coating applied to a can to reduce the coefficient of friction, to provide gloss, or to protect the finish against abrasion and/or corrosion.
- 200.73** **PAN BACKING COATING:** A coating applied to the surface of pots, pans, or other cooking implements that are exposed directly to a flame or other heating element.



- ~~232~~200.74 **PAPER COATING:** Any coating applied on or impregnated into paper, including, but not limited to, adhesive tapes ~~and labels~~, book covers, post cards, office copier paper, and drafting paper ~~and pressure sensitive tapes~~.
- 200.75 **PIGMENTED GEL COATS:** Used when a solid color surface is desired. Most gel coats are pigmented. Clear gel coats do not have any pigments and usually have a higher VOC content than pigmented gel coats.
- ~~233~~200.76 **PLASTIC:** A substrate containing one or more resins and may be solid, porous, flexible, or rigid. Plastics include fiber reinforced plastic composites. Any solid, synthetic: resin, polymer, or elastomer, except rubber. For the purposes of this rule, plastic film is considered film; fabric and paper made of polymeric plastic fibers are considered fabric and paper, respectively.
- 200.77 **PLEASURE CRAFT:** Any marine or fresh-water vessel used by individuals for noncommercial, nonmilitary, and recreational purposes that is less than 20 meters (78.7 feet) in length. A vessel rented exclusively to or chartered by individuals for such purposes shall be considered a pleasure craft as defined in 40 C.F.R. § 63.782.  
The definition of ship specifically refers to the use of the vessel for military or commercial activities.
- 200.78 **PLEASURE CRAFT COATING:** Any marine coating, except unsaturated polyester resin (fiberglass) coatings, applied by brush, spray, roller, or other means to a pleasure craft.
- ~~234~~200.79 **POLYESTER AND POLYESTER RESIN:** A complex, polymeric ester containing difunctional acids. ~~Polyester resins can be isophthalic, orthophthalic, halogenated, bisphenol A, vinyl ester, furans, cross linking agents, catalysts, gel coats, inhibitors, accelerators, promoters and any other material containing VOC used in polyester resin operations.~~
- ~~235~~200.80 **POLYESTER COMPOSITE:** Cured material made of polyester resin with reinforcing material imbedded in it, such as glass fibers.
- 200.81 **POLYESTER:** A polymer of ester molecules, which are formulated by the reaction of an acid and an alcohol and linked together by the ester linkages, which is dissolved in a monomer
- 200.82 **POLYESTER RESIN MATERIALS:** Unsaturated polyester resins, such as Isophthalic, orthophthalic, halogenated, bisphenol A, vinyl ester, or furan resins; cross-linking agents; catalysts; gel coats; inhibitors; accelerators; promoters; and any other material containing VOC used in polyester resin operations.
- 200.83 **POLYESTER RESIN PUTTIES:** Fiberglass or fiber reinforced plastic (FRP) parts of the boat assembly are small pieces of woven glass or glass mat and resin, putties, or mechanical fasteners which are used assemble fiberglass parts and to fill gaps between parts. These polyester resins are mixed with fillers to create putty. The putty becomes part of the composite structure. The putties may be applied by hand, or by using mechanically powered equipment similar to a large caulking gun. These polyester resin putties used to assemble fiberglass parts are not considered adhesives and are addressed in this CTG.
- 200.84 **POWDER COATING:** Any material applied as a dry (without carrier) finely divided solid which, when melted and fused, adheres to the substrate as a paint film.
- ~~257~~ **PREFABRICATED ARCHITECTURAL COMPONENT COATING:** ~~A coating applied to metal parts and products which are to be used as an architectural structure.~~
- ~~258~~ **PRESSURE SENSITIVE LABEL:** ~~A flexible strip of paper or other material that is coated on one side with a permanently tacky adhesive which will adhere to a variety of surfaces with light pressure.~~
- ~~259~~ **PRESSURE SENSITIVE TAPE:** ~~A flexible backing material with a pressure sensitive adhesive coating on one or both sides of the backing such as duct tape, duct insulation tape and medical tape.~~



- ~~200.85~~ **200.85** **PRETREATMENT COATING:** A coating which contains no more than 12 percent solids by weight, and at least 1/2 percent acid, by weight, is used to provide surface etching, and is applied directly to metal surfaces to provide corrosion resistance, adhesion and ease of stripping.
- ~~236~~**200.86** **PRIMER:** A coating applied directly to substrate for any one or combination of the following purposes: corrosion prevention, protection from the environment, functional fluid resistance, or adhesion of subsequent coatings.
- 200.87** **PULTRUSION:** A process where continuous roving strands are moved through a strand-tensioning device into a resin bath for impregnation and then passed through a heated die for curing.
- ~~237~~**200.88** **QUALITY CLASS Q:** Any system, structure, coating or other component which, if defective or inoperable, could cause or increase the severity of a nuclear incident, thereby imposing undue risk to the health and safety of the public.
- 200.89** **REINFORCED PLASTIC COMPOSITE:** A composite material consisting of plastic reinforced with fibers.
- 200.90** **RUBBER:** Any natural or manmade rubber substrate, including but not limited to, styrene-butadiene rubber, polychloroprene (neoprene), butyl rubber, nitrile rubber, chlorosulfonated polyethylene and ethylene propylenediene terpolymer.
- ~~238~~**200.91** **REFINISHING:** Recoating a used object's surface which arrives at the refinisher with a coating or with a previous coating worn away by use.
- ~~239~~**200.92** **REPAIR COATING:** A coating or coating operation used to recoat the portion of a completed finish that suffered post-production damage at the facility where the finish was applied.
- 200.93** **REPAIR:** Addition of polyester resin to portions of a previously fabricated product in order to mend mechanical damage which occurs after the normal fabrication process.
- 200.94** **RESIN:** Any thermosetting polyester resin, which is used to encapsulate and bind together reinforcement fibers and/or fillers in the formulation of composite materials. A resin includes any class of organic polymers of natural or synthetic origin used in these reinforced products and is solid or semi-solid in the cured state.
- 200.95** **RESIN IMPREGNATOR:** A mechanical non-atomizing composite materials application technique in which fiber reinforcement is saturated with resins in a controlled ratio for each specific composite product.
- ~~240~~**200.96** **RESTRICTED SPRAY GUN:** Any air-atomizing spray gun that is not a low pressure spray gun, and any other coating gun that is not on the list in ~~Section 303.4~~Section 302 of this rule.
- 200.97** **ROLL COAT (Resin Rollers):** A coating application method accomplished by rolling a coating only a flat surface using a roll applicator.
- 200.98** **SEALANT:** Any material with adhesive properties that is formulated primarily to fill, seal, or waterproof gaps or joints between two surfaces and includes primer and caulks.
- 200.99** **SHOCK-FREE COATING:** A coating applied to electrical components to protect the user from electric shock. The coating has characteristics of being of low capacitance and high resistance, and having resistance to breaking down under high voltage.
- ~~241~~**200.100** **SILICONE RELEASE COATING:** Any resin coating the major cured portion of which is silicone resin, having as its primary function the release of food products from metal surfaces such as baking pans.



- 242200.101** **SMALL SURFACE COATING SOURCE (SSCS):** A facility from which the total VOC emissions for all surface coating operations that are subject to this rule without, or prior to, any emission control, is less than 15 pounds (6.8 kg) per day and less than 2 tons (1814 kg) per year; as demonstrated by both adequate records of coating and diluent use (~~pursuant~~ according to Section 501.2 501.4 of this rule) and a separate tally of the number of days each month that such coating operations occur.
- 200.102** **SOLAR-ABSORBENT COATING:** A coating which has as its prime purpose the absorption of solar radiation.
- 200.103** **SOLVENT CLEANING:** Removal of loosely held uncured adhesives, uncured inks, uncured coatings, and contaminants which include, but are not limited to, dirt, soil, and grease from parts, products, tools, machinery, equipment, and general work areas. Each distinct method of cleaning in a cleaning process, which consists of a series of cleaning methods, shall constitute a separate solvent cleaning operation.
- 200.104** **STENCIL COATING:** An ink or a coating which is rolled or brushed onto a template or stamp in order to add identifying letters, symbols and/or numbers.
- 243200.105** **STRIPPABLE BOOTH COATING:** A temporary coating that is applied to spray booth surfaces to receive the overspray and protect the surfaces, and which is designed to readily be pulled off the substrate in strips or sheets, and disposed of.
- 244200.106** **SURFACE COATING:** Any liquid, fluid, or mastic composition which is converted to a solid (or semi-solid) protective, decorative, or adherent film or deposit after application as a thin layer. Surface coating is generally distinct and different from impregnation and from applying adhesive for bonding purposes.
- 245200.107** **SURFACE COATING OPERATION:** Preparation, handling, mixing, and application of surface coating, and cleanup of application-equipment and enclosures at a facility where surface coating is applied.
- 246200.108** **THREE-PIECE CAN SIDE-SEAM COAT SPRAY COATING:** Any coating sprayed onto the interior and/or exterior of a can body seam on a three-piece can to protect the exposed metal.
- 200.109** **TIRE REPAIR:** A process that includes expanding a hole, tear, fissure or blemish in a tire casing by grinding or gouging, applying adhesive and filling the hole or crevice with rubber.
- 200.110** **TOOLING RESIN-** A resin that is used to produce molds. Tooling resins generally more heat resistant (have higher heat distortion temperatures), low shrinkage, higher hardness, and higher dimensional stability than the production materials or outer surface coatings.
- 247200.111** **TOPCOAT:** The final, permanent, coating-formulation that completed the finish on a surface.
- 248200.112** **TOTAL VOC VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE):** The sum of the partial pressures of the compounds defined as VOCs, calculated according to the formula in Section 504 of this rule.
- 249-200.113** **TOUCH-UP COATING:** A coating used to cover minor coating imperfections after the main coating operation. This includes touch-up coating that accompanies the purchase of an object already coated with that coating.
- 200.114** **TRANSFER EFFICIENCY:** The ratio of the weight of coating solids adhering to the part being coated to the weight of coating solids used in the application process expressed as a percentage.
- 250200.115** **TWO-PIECE CAN EXTERIOR END COAT COATING:** Any coating applied to the exterior end of a can to provide protection to the metal.



- 200.116 TUB/SHOWER RESINS:** Dicyclopentadiene (DCPD) resins, along with orthophthalate and isophthalate resins, are used to fabricate bathware products.
- 200.117 VACUUM BAGGING:** A partially closed molding technology using techniques similar to open molding but with a modification in the resin curing stage. After resin decks, but it is not feasible to replace open molding with closed molding at all types of boat manufacturing facilities.
- 200.118 VAPOR PRESSURE:** Pressure exerted at a uniform temperature by the gas of a substance when the gas is in equilibrium with the liquid (or solid) phase of that substance.
- 200.119 VOC VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE):** Sum of the partial pressures of the compounds defined as VOCs, calculated according to the formula in Section 504 of this rule.
- ~~254~~**200.120 VINYL COATING (COATING ON VINYL):** Any decorative or protective coating or reinforcing coating applied over vinyl-coated textile fabric or vinyl sheets
- ~~252~~**200.121 VOC BORNE COATING:** ~~A coating that contains more VOC than water, by weight.~~ **VOC - CONTAINING MATERIAL** –Any chemical or item that contains an organic compound that participates in atmospheric photochemical reactions, except the non-precursor organic compounds. This includes but is not limited to rags, waste coatings, waste brushes, waste rollers, waste applicators, waste solvents, and their residues that are used for surface preparation, cleanup or removal of surface coatings.
- 253 VOC BORNE DILUENT:** ~~A solvent or other diluent that contains more VOC than water, by weight~~
- ~~254~~**200.122 VOC CONTENT:** In this rule, VOC content is determined by one of the following two formulas: To determine compliance with ~~Table 4~~ the VOC limits in Sections 301 and 304 of this rule or the 2.0 lb VOC/gal. threshold in Section ~~302~~ 306 of this rule, use the following formula in ~~subsection~~ Section 255.1 ~~200.122(a) of this rule~~. For other purposes, use the formula in ~~subsection 255.2~~ Section 200.122(b) of this rule:
- ~~254.1a.~~ **VOC CONTENT MINUS EXEMPT COMPOUNDS** (is the same as **VOC CONTENT MINUS EXEMPT EVAPORATING COMPONENTS**) (also known as **“THE EPA METHOD 24 VOC CONTENT”** on manufacturer’s data sheets.)

$$\frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

VOC Content Minus Exempt Compounds =

Using consistently either English or metric measures in the calculations, where:

$W_s$  = weight of all volatile material in pounds (or grams), including VOC, water, non-precursor organic compounds and dissolved vapors

$W_w$  = weight of water in pounds (or grams)

$W_{es}$  = weight of all non-precursor compounds in pounds (or grams)

$V_m$  = volume of total material in gallons (or liters)

$V_w$  = volume of water in gallons (or liters)

$V_{es}$  = volume of all non-precursor compounds in gallons (or liters)



**254.2b. VOC CONTENT OF MATERIAL (MATERIAL VOC-CONTENT)**

$$\text{VOC Content of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Using consistently either English or metric measures in the calculations, where:  $W_s$  = weight of all volatile material in pounds (or grams) including VOC, water, non-precursor organic compounds and dissolved vapors

$W_w$  = weight of water in pounds (or grams)

$W_{es}$  = weight of all non-precursor compounds in pounds (or grams)

$V_m$  = volume of total material in gallons (or liters)

256 ~~VOLATILE ORGANIC COMPOUND (VOC) – Any organic compound which participates in atmospheric photochemical reactions, except non-precursor~~

**200.123 VAPOR SUPPRESSANT:** A wax substance added to resin for the purpose of forming a layer on the surface of the resin while it is curing and minimize the outward diffusion of monomer vapor into the atmosphere.

**200.124 VAPOR SUPPRESSED RESIN (VSR):** Polyester resin material which contains additives to reduce VOC evaporation loss to less than fifty (50) grams per square meter of surface area as determined and certified by resin manufacturers.

**SECTION 300 – STANDARDS**

**301 SURFACE COATINGS:** ~~A person~~An owner and/or operator shall comply with one of the following for all applications of surface coatings:

**301.1** Meet the VOC limits in ~~Table 4~~Section 301, Tables 336-1 through 336-3 of this rule; or

**301.2** Operate an Emission Control System (ECS) in accordance with ~~subsection 306.1~~Section 305.1 of this rule when applying a coating that exceeds the VOC limits in ~~Table 4~~Section 301, Tables 336-1 through 336-3 of this rule; or

**301.3** Qualify for an exemption under ~~Section 305~~Sections 103,104 or 105 of this rule.

**TABLE 1**

SURFACE COATING EMISSION LIMITS		
TYPE OF SURFACE COATING  Column I	LIMITS AS APPLIED: VOC content minus exempt compounds (see Section 255.1)	
	Column II lbs/gal g/liter	
Can Coating		
Sheet Basecoat (Exterior and Interior) and Overvarnish	2.8	340
Two Piece Can Exterior (Basecoat and Overvarnish)	2.8	340
Two and Three Piece Can Interior Body Spray	4.2	510
Two Piece Can Exterior End (Spray or Roll Coat)	4.2	510
Three Piece Can Side Seam Spray	5.5	660
End Sealing Compound	3.7	440



Can Printing Ink	2.5	300
Coil Coating (any coat)	2.6	310
Metal Furniture Coating	3.0	360
Large Appliance Coating	2.8	340
<b>OTHER METAL PARTS AND PRODUCTS COATING (As defined in Section 231)</b>		
The following includes Non adhesive Coating, Adhesive, Adhesive Primer, Caulking, and Beaded Sealants:		
Air Dried Coating	3.5	420
Baked Coating [above 200°F (93°C)]	3.0	360
Silicone Release Coating: Baked or Air Dried	3.5	420
Fabric Coating	2.9	350
Film Coating	2.9	350
COATING PLASTIC PARTS AND PRODUCTS THAT ARE Not Defined as Flexible	3.5	420
<b>COATING FLEXIBLE PLASTIC PARTS AND PRODUCTS</b>		
Primer	4.1	490
Color Topcoat	3.8	450
Basecoat/Clear Coat (Combined System) – Limit for either coat	4.5	540
Paper Coating, including Adhesives	2.9	350
Vinyl Coating (Coating on Vinyl)	3.8	450
STRIPPABLE BOOTH COATINGS	2.0	240

**TABLE 336-1: SURFACE COATING VOC EMISSION LIMITS**  
**Cans, Coils, Drums, Metal Furniture, Large Appliances**

<b>TYPE OF SURFACE COATING</b>	<b>LIMITS AS APPLIED - VOC content minus exempt compounds lbs VOC/gal coating</b>	<b>LIMITS AS APPLIED -VOC content minus exempt compounds lbs VOC/gal coating</b>
<b>Can Coatings:</b>		
Sheet Basecoat (Exterior and Interior) and Overvarnish	2.8	340
Two-Piece Can Exterior (Basecoat and Overvarnish)	2.8	340
Two and Three-Piece Can Interior Body Spray	4.2	510
Two-Piece Can Exterior (Spray or Roll Coat)	4.2	510
Three-Piece Can Side-Seam Spray	5.5	660
End Sealing Compound	3.7	440
Can Printing Ink	2.5	300
<b>Coil Coating (any coat)</b>	<b>2.6</b>	<b>310</b>
<b>Drum Coatings:</b>		
Drum Coating, New, Exterior (Air-Dried)	3.5	420
<i>Effective (insert 1 yr. after rule is adopted)</i>	2.8	340
Drum Coating, New, Exterior (Baked)	3.0	360
<i>Effective (insert 1 yr. after rule is adopted)</i>	2.8	340
Drum Coating, New, Interior (Air-Dried)	3.5	420
Drum Coating, New, Interior (Baked)	3.0	360
Drum Coating, Reconditioned, Exterior (Air-dried)	3.5	420
Drum Coating, Reconditioned, Exterior (Baked)	3.0	360
Drum Coating, Reconditioned, Interior (Air-dried)	3.5	510
Drum Coating, Reconditioned, Interior (Baked)	3.0	360



<b>Metal Furniture Coating Types/Air-dried:</b>		
General One-Component	<u>3.0</u>	<u>360</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.3</u></b>	<b><u>280</u></b>
General, Multi-Component	<u>3.0</u>	<u>360</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.8</u></b>	<b><u>340</u></b>
Extreme High Gloss	<u>3.0</u>	<u>360</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.8</u></b>	<b><u>340</u></b>
Extreme Performance	<u>3.0</u>	<u>360</u>
Heat Resistant	<u>3.0</u>	<u>360</u>
Metallic	<u>3.0</u>	<u>360</u>
Pretreatment Coatings	<u>3.0</u>	<u>360</u>
Solar Absorbent	<u>3.0</u>	<u>360</u>
<b>Metal Furniture Coating Types/Baked:</b>		
General One-Component	<u>3.0</u>	<u>360</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.3</u></b>	<b><u>280</u></b>
General, Multi-Component	<u>3.0</u>	<u>360</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.3</u></b>	<b><u>280</u></b>
Extreme High Gloss	<u>3.0</u>	<u>360</u>
Extreme Performance	<u>3.0</u>	<u>360</u>
Heat Resistant	<u>3.0</u>	<u>360</u>
Metallic	<u>3.0</u>	<u>360</u>
Pretreatment Coatings	<u>3.0</u>	<u>360</u>
Solar Absorbent	<u>3.0</u>	<u>360</u>
<b>Large Appliance Coating Types/Air-dried:</b>		
<b>GENERAL COATINGS</b>		
One-Component	<u>2.8</u>	<u>340</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.3</u></b>	<b><u>280</u></b>
Multi-Component	<u>2.8</u>	<u>340</u>
<b>SPECIALTY COATINGS</b>		
Extreme High Gloss	<u>2.8</u>	<u>340</u>
Extreme Performance	<u>2.8</u>	<u>340</u>
Heat Resistant	<u>2.8</u>	<u>340</u>
Metallic	<u>2.8</u>	<u>340</u>
Pretreatment Coatings	<u>2.8</u>	<u>340</u>
Solar Absorbent	<u>2.8</u>	<u>340</u>
<b>Large Appliance Coating Types / Baked:</b>		
<b>GENERAL COATINGS</b>		
One-Component	<u>2.8</u>	<u>340</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.3</u></b>	<b><u>280</u></b>
Multi-Component	<u>2.8</u>	<u>340</u>
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b><u>2.3</u></b>	<b><u>280</u></b>
<b>SPECIALTY COATINGS</b>		
Extreme High Gloss	<u>2.8</u>	<u>340</u>
Extreme Performance	<u>2.8</u>	<u>340</u>
Heat Resistant	<u>2.8</u>	<u>340</u>
Metallic	<u>2.8</u>	<u>340</u>
Pretreatment Coatings	<u>2.8</u>	<u>340</u>
Solar Absorbent	<u>2.8</u>	<u>340</u>
<b>Other Metal Parts and Products Coating</b> (as defined in Section 247 of this rule).		



The following includes Non-adhesive Coating, Adhesive, Adhesive Primer, Caulking, and Beaded Sealants:		
<b>GENERAL COATINGS</b>		
Air-Dried Coating-One Component and Multi Component:	<u>3.5</u>	<u>420</u>
<i>Effective (insert 1 yr. after rule is adopted)</i>	<u>2.8</u>	<u>340</u>
Baked Coating [above 200° F(93° C)]-One Component and Multi Component	<u>3.0</u>	<u>360</u>
<i>Effective (insert 1 yr. after rule is adopted)</i>	<u>2.3</u>	<u>280</u>
<b>SPECIALTY COATINGS</b>		
Camouflage (Air-dried)	<u>3.5</u>	<u>420</u>
Camouflage (Baked)	<u>3.0</u>	<u>360</u>
Electric-Insulating Varnish (Air-dried)	<u>3.5</u>	<u>420</u>
Electric-Insulating Varnish (Baked)	<u>3.0</u>	<u>360</u>
Etching Filler (Air-dried)	<u>3.5</u>	<u>420</u>
Etching Filler (Baked)	<u>3.0</u>	<u>360</u>
Extreme High Gloss (Air-dried)	<u>3.5</u>	<u>420</u>
Extreme High Gloss (Baked)	<u>3.0</u>	<u>360</u>
Extreme Performance (Air-dried)	<u>3.5</u>	<u>420</u>
Extreme Performance (Baked)	<u>3.0</u>	<u>360</u>
Heat-Resistant (Air-dried)	<u>3.5</u>	<u>420</u>
Heat-Resistant (Baked)	<u>3.0</u>	<u>360</u>
High Temperature (Air-dried)	<u>3.5</u>	<u>420</u>
High Temperature (Baked)	<u>3.0</u>	<u>360</u>
Metallic (Air-dried)	<u>3.5</u>	<u>420</u>
Metallic (Baked)	<u>3.0</u>	<u>360</u>
Military Specification(Air-dried)	<u>2.8</u>	<u>340</u>
Military Specification(Baked)	<u>2.3</u>	<u>280</u>
Mold-Seal (Air-dried)	<u>3.5</u>	<u>420</u>
Mold-Seal (Baked)	<u>3.0</u>	<u>360</u>
Pan Backing (Both Air-dried and Baked)	<u>3.5</u>	<u>420</u>
Prefabricated Architectural Multi-Component (Air-dried)	<u>3.5</u>	<u>420</u>
Prefabricated Architectural Multi-Component (Baked)	<u>3.0</u>	<u>360</u>
<i>Effective (insert 1 yr. after rule is adopted)</i>	<u>2.3</u>	<u>280</u>
Prefabricated Architectural One Component (Air-dried)	<u>3.5</u>	<u>420</u>
Prefabricated Architectural One Component (Baked)	<u>3.0</u>	<u>360</u>
<i>Effective (insert 1 yr. after rule is adopted)</i>	<u>2.3</u>	<u>280</u>
Pretreatment Coatings (Air-dried)	<u>3.5</u>	<u>420</u>
Pretreatment Coatings (Baked)	<u>3.0</u>	<u>360</u>
Repair and Touch Up (Air-dried)	<u>3.5</u>	<u>420</u>
Repair and Touch Up (Baked)	<u>3.0</u>	<u>360</u>
Silicone Release (Air-dried)	<u>3.5</u>	<u>420</u>
Silicone Release (Baked)	<u>3.0</u>	<u>360</u>
Solar-Absorbent (Air-dried)	<u>3.5</u>	<u>420</u>
Solar-Absorbent (Baked)	<u>3.0</u>	<u>360</u>
Strippable Booth Coatings (All applications)	<u>2.0</u>	<u>240</u>
Vacuum-Metalizing (Air-dried)	<u>3.5</u>	<u>420</u>
Vacuum-Metalizing (Baked)	<u>3.0</u>	<u>360</u>
<b>Pleasure Craft</b>		
Baked	<u>3.0</u>	<u>360</u>
Air-Dried	<u>3.5</u>	<u>420</u>

\* see definition in Section 255.1.



**TABLE 336-2: SURFACE COATING VOC EMISSION LIMITS  
 PLASTIC PARTS**

<u>TYPE OF SURFACE COATING</u>	<u>LIMITS AS APPLIED</u> VOC content minus exempt compounds <u>lbs VOC/gal coating</u>	<u>LIMITS AS APPLIED</u> VOC content minus exempt compounds <u>g VOC/liter coating</u>
Non-Flexible Plastic Parts including: Primer, Base, Clear and Basecoat/Clear Coat, General Multi-Component, Electric Dissipating Coatings and Shock-Free Coatings, Extreme Performance, Metallic, Mold Seal, Multi-Colored, Optical, Mirror, and Vacuum-Metalizing.	3.5	420
Flexible and Non-Flexible Plastic Parts General One-Component	3.5	420
<b><i>Effective (insert 1 yr. after rule is adopted)</i></b>	<b>2.3</b>	<b>280</b>
Strippable Booth Coatings(All applications)	2.0	240
Flexible Primer	3.5	420
Flexible Color Topcoat	3.5	420
Basecoat/ Clear Coat (Combined System) Limit for Either Coat	3.5	420
Gel Coat applied to fiberglass or cultured marble	3.5	420

**TABLE 336-3: SURFACE COATING VOC EMISSION LIMITS  
 MISCELLANEOUS COATINGS**

<u>TYPE OF COATING</u>	<u>CURRENT LIMITS AS APPLIED</u> VOC content minus exempt compounds <u>(lbs.VOC/ gal. coating)</u>	<u>CURRENT LIMITS AS APPLIED</u> VOC content minus exempt compounds <u>(g VOC/liter coating)</u>	<u>FUTURE LIMITS AS APPLIED</u> VOC content minus exempt compounds New limits effective (insert 1 yr. after rule is adopted) <u>(lbs.VOC/lb coating)</u>
Concrete Products,(Air-Dried)	3.5	420	n/a*
Concrete Products,(Baked)	3.0	360	n/a
Strippable Booth Coatings	2.0	240	n/a
Vinyl	3.8	450	n/a
Fabric	2.9	350	n/a
Film	2.9	350	0.08
Foil	2.9	350	0.08
Labels ( Pressure sensitive)	2.9	350	0.067
Paper including adhesives	2.9	350	0.08
Pressure Sensitive Tape	2.9	350	0.067

\*n/a means non- applicable. Thus the existing limit remains in effect for these materials.

**302 POLYESTER RESIN OPERATIONS:** An owner and/or operator shall comply with one of the following VOC limits for all applications of resin applications:

**302.1 Material Requirements:**

**a. Closed Molding Process:**

An owner and/ or operator, who uses a closed molding process, as defined in Section 200.12 of this rule, shall comply with at least one of the requirements listed in Section 302, as well as the requirements in Sections 305 through 307 if applicable and Section 500 of this rule.

**b. Open Molding Process:**



An owner or operator using an open molding system, as defined in Section 200.70 of this rule, shall limit all formulations of the monomer content of materials used to the percentages specified in Table 336-4 below, by weight, as applied and non-monomer VOC content shall be limited to 5 percent by weight of the total VOC in all resin and gel coats.

- c. All resin and gel coats used shall meet non-monomer VOC content limits of 5 percent.

**TABLE 4336-4: POLYESTER RESIN OPERATIONS**

<u>Gel Coats and Resins</u>	<u>Monomer Percentage by Weight as Applied</u>
<b>Gel Coats</b>	-
<b>Clear Gel Coats</b>	-
Marble Resin Gel Coats	42
Boat Manufacturing Gel Coats -Clear	48
Other Tooling Gel Coats	40
All Other Clear Gel Coats	44
<b>Pigmented Gel Coats</b>	-
White and Off-White Gel Coats	30
Non-White Boat Manufacturing Gel coats	33
Other Non-White Gel Coats	37
Primer Gel Coats	28
<b>Speciality Gel Coats</b>	48
-	-
<b>Resins</b>	-
Marble resins	10% with fillers or 32% without fillers*
Solid Surface Resins	17
Tub/Shower Resins	24% with fillers or 35% without fillers
Boat Manufacturing (atomized)	30
Boat Manufacturing (non-atomized)	39
Lamination Resins	31% with fillers or 35% without fillers
<b>Fire Retardant Resins</b>	38
<b>Corrosion Resistant, High Strength and Tooling Resins</b>	-
Non-atomizing Mechanical Application	46**
Filament Application	42**
Manual Application	40**
<b>Other Resins</b>	35

Monomer percent by weight includes the addition of any VOC-containing materials.

\* An owner or operator of a polyester resin operation may meet the monomer content limits by adding filler to a resin to reduce the monomer content to the applicable limit or by using resin with a monomer content that complies with the applicable limit without the addition of fillers.

\*\*If the owner or operator manufactures a composite product by using more than one technology to apply corrosion-resistant, high strength or tooling resins, the highest permissible resin monomer content is the applicable limit.

**303 PLEASURE CRAFT AND FIBERGLASS BOAT MANUFACTURING AND REPAIR**

**303.1 PLEASURE CRAFT VOC COATING LIMITS:** An owner or operator shall not apply any coatings, including any VOC-containing materials added to the original coating supplied by the manufacturer, which contain VOC in excess of the limits specified in Table 336-4 below.

**TABLE 336-5  
 Pleasure Craft Surface Coating VOC Content Limits**

<u>Coating category</u>	<u>kg VOC/l. coating</u>	<u>lbs VOC/gal.coating</u>
Extreme High Gloss Topcoat	0.49	4.1
High Gloss Topcoat	0.42	3.5
Pretreatment Wash Primers	0.78	6.5



<u>Coating category</u>	<u>kg VOC/l. coating</u>	<u>lbs VOC/gal.coating</u>
<u>Finish Primer/Surfacer</u>	<u>0.42</u>	
<u>High Build Primer Surfacer</u>	<u>0.34</u>	<u>2.8</u>
<u>Aluminum Substrate Anti-foulant Coating</u>	<u>0.56</u>	<u>4.7</u>
<u>Other Substrate Anti-foulant Coating</u>	<u>0.33</u>	<u>2.8</u>
<u>All other Pleasure craft surface coatings for metal or plastic</u>	<u>0.42</u>	
<u>Antifouling Sealer/Tie Coat (new category)</u>	<u>0.42</u>	<u>3.5</u>

**303.2 FIBERGLASS BOAT MANUFACTURING OPERATIONS**

**a. Material Requirements**

**(1) Closed Molding Process:**

**(a)** An owner or operator who uses a closed molding process, as defined in Section 200 of this rule, shall comply with the applicable requirements of Sections 303.2, Section 304, Section 305 and Section 500 of this rule.

**(b)** An owner or operator shall not operate a closed molding system, unless the weight loss of polyester resin materials during polymerization is less than four (4.0) percent.

**(2) Open Molding Process:**

An owner or operator using an open molding system, as defined in Section 200.70 of this rule, shall limit all formulations of the monomer content of materials used to the percentages specified in Table 336-6 below, by weight, as applied and non-monomer VOC content shall be limited to 5 percent.

**TABLE 336-6  
 Compliant Materials Monomer VOC Content for Open Molding Resin and Gel Coat**

<u>For this Material</u>	<u>This application method</u>	<u>This weighted average monomer VOC content (weight %) limit is required:</u>
<u>Production Resin</u>	<u>Atomized (Spray)</u>	<u>28</u>
<u>Production Resin</u>	<u>Non-atomized</u>	<u>35</u>
<u>Pigmented gel coat</u>	<u>Any Method</u>	<u>33</u>
<u>Clear Gel Coat</u>	<u>Any Method</u>	<u>48</u>
<u>Tooling Resin</u>	<u>Atomized</u>	<u>30</u>
<u>Tooling Resin</u>	<u>Non-atomized</u>	<u>39</u>
<u>Tooling Gel Coat</u>	<u>Any Method</u>	<u>40</u>

**b. Process or Control Requirements:** An owner or operator shall comply with one of the following process or control requirements.

**(1) Closed Molding:** An owner or operator shall not operate a closed molding system, unless the weight loss of polyester resin materials during polymerization is less than four (4.0) percent.

**(2) Control Equipment:** An owner or operator may elect to control VOC emissions by to installing and operating an emissions control system which has an overall capture and control efficiency of at least 90 percent or more on a mass basis (by weight), as approved by the Control Officer. Control efficiency shall be continuously monitored, the results of which shall be averaged over a rolling 24 hour period and shall comply with Section 305 of this rule.

**304 INDUSTRIAL ADHESIVES**



**304.1 APPLICATION OF ADHESIVES:** A person shall comply with one of the following for all applications of adhesives:

- a. Meet the limits in Section 304, Table 336-7; or
- b. Operate an ECS in accordance with Section 305 when applying a coating that exceeds the VOC limits in this rule; or
- c. Qualify for an exemption under Sections 103, 104 or 105.

**TABLE 336-7: INDUSTRIAL ADHESIVES**

INDUSTRIAL ADHESIVE EMISSION LIMITS		
	LIMITS AS APPLIED: VOC content minus exempt compounds (see subsection 240.1) *	
GENERAL ADHESIVE APPLICATION PROCESSES	lbs/gal	Column II g/liter
Reinforced Plastic Composite	1.7	200
Flexible Vinyl	2.1	250
Metal	0.3	30
Porous Metal ( except wood)	1.0	120
Rubber	2.1	250
Wood	0.3	30
Other Substrates	2.1	250
SPECIALTY ADHESIVE APPLICATION PROCESSES		
Ceramic Tile Installation	1.1	130
Contact Adhesive	2.1	250
Cove Base Installation	1.3	150
Floor Covering Installation (Indoor)	1.3	150
Floor Covering Installation (Outdoor)	2.1	250
Floor Covering Installation (Perimeter Bonded Sheet Vinyl)	5.5	660
Metal to Urethane/Rubber Molding or Casting	7.1	850
Multipurpose Construction	1.7	200
Plastic Solvent Welding (ABS)	3.3	400
Plastic Solvent Welding ( Except ABS)	4.2	500
Sheet Rubber Lining Installation	7.1	850
Single-Ply Roof Membrane Installation/Repair ( Except EPDM)	2.1	250
Structural Glazing	0.8	100
Thin Metal Laminating	6.5	780
Waterproof Resorcinol Glue	1.4	170
ADHESIVE PRIMER APPLICATION PROCESSES		
Plastic Solvent Welding Adhesive Primer	5.4	650
Single-Ply Roof Membrane Adhesive Primer	2.1	250
Other Adhesive Primer	2.1	250

\* If an adhesive is used to bond dissimilar substances together, then the applicable substrate category with the highest VOC emission limit is recommended as the limit for such application.

**305 EMISSION CONTROL SYSTEM:** The VOC limits in Sections 301, 302, 303, and 304 of this rule do not apply when emissions of VOC from operations are controlled by an ECS that meet the following terms listed below. Coating that exceeds the applicable VOC-limits in these sections shall be clearly identified such that facility-operators are informed an ECS must be used.



- 305.1** The control device shall reduce VOC emissions from an emission collection system by at least 95 percent by weight or the output of the air pollution control device is no more than 5 parts per million (ppm) VOC by volume calculated as carbon with no dilution; or
- 305.2** The owner and/or operator demonstrates that the emission collection system collects at least 90 percent by weight of the VOC emissions generated by the sources of the VOC emissions.
- 305.3** Any owner and/or operator electing to use an emissions control system as a means of complying with this rule shall comply with Section 305 of this rule.
- e.305.4** **Control Efficiency Of The Emissions Processing Subsystem: (Surface Coatings)**
- (1) The emissions processing subsystem of the ECS shall reduce the mass of VOC entering it by at least 90 percent; or
- (2)a.** **Alternative for Very Dilute Input:** For VOC input-concentrations of less than 100 ppm (as carbon) at the inlet of the ECS emissions processing subsystem, the VOC processing subsystem also satisfies the processor efficiency requirements of this rule ~~if~~ and:
- (a)b.** The VOC output is consistently less than 20 mg VOC/ m<sup>3</sup> (as carbon) adjusted to standard conditions; and
- (b)c.** The ECS consistently shows an overall control efficiency of at least ~~85%~~ 90% when tested pursuant to EPA Methods listed in Section \_\_\_\_\_ subsection ~~503.3~~ of the rule. at VOC input-concentrations exceeding 100 ppm (as carbon).
- d.** **Providing and Maintaining ECS Monitoring Devices:** Any owner and/or operator processing VOC emissions pursuant to this rule must provide, properly install and maintain in calibration, in good working order and in operation, devices described in the facility's O&M Plan that indicate temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained. Records must be kept according to Section 500 of this rule which demonstrate that the ECS meets the overall control standards required by Section 305 of this rule.
- 305.5** **Operation and Maintenance (O&M) Plan Required for ECS:** An owner and/or operator of a facility that is required to have an O&M Plan according to Section 305.5 of this rule shall comply with the following:
- a.** **General Requirements:** Provide and maintain an O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used according to this Rule 336 or according to an Air Quality Permit. The O& M plan must be readily available on-site at all times to the Control Officer.
- b.** **Compliance with Plan:** The owner or operator shall comply with all the identified actions and schedules provided in each O&M Plan.
- c.** **Approval by Control Officer:** Submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used according to this Rule 336.
- d.** **Initial Plans:** Fully comply with all O&M Plans that the owner or operator has submitted for approval, but which have not yet been approved, unless notified otherwise by the Control Officer in writing. Once the initial plan has been approved in writing by the Control Officer, an owner or operator must comply with this approved plan.
- e.** **Revisions to Plan by Owner or Operator:** Comply with the revisions to the initial plan if revisions to the initial plan have been approved by the Control Officer in writing. If revisions to the plan have not yet been approved by the Control Officer in writing, then an owner or operator must comply with the most recent O&M plan on file at Maricopa County Air Quality Department.
- f.** **Modifications to Plan by Control Officer:** Comply with the modified plan after submission to the Control Officer and before the Control Officer's approval of the O & M plans.



## **306**     **APPLICATION METHODS**

- 306.1**     An owner and/or operator shall use one of the following methods for all Surface Coatings, Gel Coat material (polyester resin surface coating) applications to an open molding surface, and adhesives or adhesive primers subject to this rule, containing more than 2 pounds of VOC per gallon (240 g/L) minus exempt compounds:
- a.**     A low pressure spray gun; or
  - b.**     An electrostatic system; or
  - c.**     A system that atomizes principally by hydraulic pressure, including “airless” and “air assisted airless”; or
  - d.**     Non-atomizing or non-spraying application methods, such as but not limited to dipping, rolling, or brushing; or
  - e.**     An Alternative Application Method: Any method which achieves either an HVLP equivalent or a transfer efficiency of greater than or equal to 65%, as demonstrated:
    - (1)**     In accordance with the provisions of Section \_\_\_\_\_ of this rule; or
    - (2)**     As stamped on the gun by the manufacturer; or
    - (3)**     From testing documentation of the HVLP spray-gun status provided by the manufacturer; or
  - f.**     A high-volume low pressure (HVLP) spray-gun that meets the definition of HVLP in this rule and that meets the spray-gun tip pressure measurement test described in Section 200.49 of this rule;
- 306.2**     An owner and/or operator shall use the following methods for these specific Polyester Resin Applications (excluding gel coats) subject to this rule:
- a.**     **Tub/Shower Polyester Resin Materials:** An owner or operator shall not apply to an open molding system any tub/shower polyester resin material unless all the applied resin material is vapor suppressed.
  - b.**     **Resin Material Application (Excluding Gel Coats):** An owner or operator shall not apply any resin materials to an open mold surface unless one of the following non-atomizing application techniques are used and operated according to the operating procedure specified by the equipment manufacturer:
    - (1)**     Pressure-fed resin rollers (Section 200.97); or
    - (2)**     Resin Impregnators (Section 200.95); or
    - (3)**     Flow Coaters (Section 200.42); or
    - (4)**     Fluid impingement technology (Section 200.43); or
    - (5)**     Hand Lay-up applications (Section 200.47); or
    - (6)**     Other non-atomizing application techniques which are approved in writing by the Control Officer and U.S. EPA, as having similar emission reduction efficiencies.
  - c.**     **Pultrusion Operations:** An owner or operator shall not perform pultrusion operations, unless wet-out tubs baths are covered except for 18 inches from the exit of the bath to the die. The weight loss of polyester resin materials during polymerization shall be less than three (3) percent in a pultrusion operation.
  - d.**     **Alternative Compliance Option:** An owner or operator may use alternative application processes and materials to those listed in Section 303 of this rule provided they result in equivalent VOC emissions and are approved in writing by the Control Officer and U.S. EPA.



**306.3** Pleasure-craft: Extreme High Gloss Coatings: Extreme High Gloss Coatings shall not be applied with the use of the application methods listed in Section 306.1 although the remaining provisions of this rule apply.

**307** **WORK PRACTICES: STORAGE, HANDLING, CLEANING AND DISPOSAL OF VOC-CONTAINING MATERIAL:** An owner or operator shall control emissions from VOC-containing materials used during storage, handling, cleaning, and disposal as well as for surface preparation before coating with the following practices:

**307.1** For the purposes of this rule, the following definitions apply:

- a. “in use” or “handled”: actively engaging the materials with activities such as mixing, depositing, brushing, rolling, padding, wiping or removing or transferring material into or out of the container. Immediately after the operation is completed, the container shall be closed.
- b. “Containers” include but are not limited to drums, buckets, cans, pails, and trays.

**307.2** **STORAGE AND HANDLING WORK PRACTICES:**

a. **Fiberglass Resin, Gel Coat and Putty Mixing Operations:**

Mixing containers with a capacity equal to or greater than 55 gallons (208 liters), including those used for on-site mixing of putties and poly-putties, shall have a cover with no visible gaps in place at all times. This shall not apply when the material is being manually added to or removed from a container, or when mixing or pumping equipment is being placed in or removed from a container.

b. **Labeling:** All containers that are 1 gallon or larger used for collection of VOC-containing material shall be clearly identified with their contents.

c. **Storage, Mixing, and Use of VOC Containing Materials:** An owner or operator shall store all VOC-containing material and VOC-containing cleaning materials in closed or covered leak-free containers. The containers shall be closed at all times except when the material is being handled such as when mixing, depositing, removing or transferring material into or out of the container.

d. **Spills:** An owner or operator shall implement procedures to minimize spills of any VOC-containing material immediately during handling and transfer to and from containers, enclosed systems, waste receptacles and other equipment including small containers.

**307.3** **CLEANUP OF APPLICATION EQUIPMENT:** Work practices to control VOC emissions from cleaning materials used during metal product or plastic part refinish coating operations include both materials used to clean surfaces before coating (surface preparation) and to clean application equipment between coating jobs.

a. **Conveyance of VOC-Containing Materials and VOC-Containing Cleaning Materials:** An owner or operator shall ensure that all VOC-containing materials and VOC-containing cleaning materials shall be conveyed from one location to another in labeled and closed containers and pipes.

b. **Solvent Cleaning- Polyester Resin or Fiberglass Application Equipment:** An owner or operator shall ensure any solvent used to clean polyester resin or fiberglass application equipment, parts, products, tools, machinery, equipment, and general working areas shall contain no more than 5 percent VOC, by weight, or have a composite vapor pressure of no more than 0.50 mm Hg at 68 °F.

c. **Solvent Cleaning-Surface Coatings, Pleasure-Craft Application Equipment:** Any person subject to this rule using VOC-solvent to clean coating application equipment shall use only solvent which, as used, has a VOC-vapor pressure below 35 mm Hg at 20° C (68° F), except for sprayless equipment exempted pursuant to Section 104 of this rule.



**d. Spray-Gun Cleaning Requirements:**

- (1) An owner and/or operator subject to this rule shall clean spray-guns without spraying or atomizing a solvent cleaner with the gun.**
- (2) Spray-Gun Cleaning Machine: An owner and/or operator subject to this rule shall use a spray-gun cleaning machine to clean spray-guns if the vehicle refinishing operation is required to have an Air Pollution Control Permit as per Rule 200 of these Rules unless they comply with all the conditions in Section 307.3(c) (iii) of these rules.
  - (a) Spray-Gun Cleaning Machine-General Requirements: The spray-gun cleaning machine shall meet all of the following requirements:
    - (i) Be designed to clean spray-guns.**
    - (ii) Have at least one pump which drives solvent cleaner through and over the spray-gun.**
    - (iii) Have a basin which permits containment of the solvent cleaner.**
    - (iv) Be kept in proper repair and free from liquid leaks.**
    - (v) Shall be fitted with a cover.**
    - (vi) Be located on-site where the spray application occurs.**
    - (vii) Shall be a commercially-sold gun cleaning machine which shall be operated and maintained as stipulated in the Air Pollution Permit's Operation and Maintenance (O&M) Plan, or in the absence of its mention in the O&M Plan, according to manufacturer's or distributor's instructions.****
  - (b) Manual Spray-Gun Cleaning Requirements: Manual cleaning of spray-guns shall comply with the following requirements:
    - (i) Disassembled spray-guns must be cleaned by hand; or**
    - (ii) Disassembled spray-guns must be soaked in a vat that is closed, except when the application equipment is being handled in the container, or transferred into or out of the container; or**
    - (iii) Solvent cleaners shall be less than 10 percent VOC (excluding water and non-precursor organic compounds) or shall contain less than 8.0 percent VOC by weight (including water and non-precursor organic compounds) and calculated pursuant to Section 503.5 of this rule.**
    - (iv) Solvent cleaner has a VOC-vapor pressure below 35 mm Hg at 20°C (68°F).******

**307.4 DISPOSAL**

**Waste Materials: An owner or operator shall store all VOC-containing coatings, thinners, and coating-related waste materials intended for disposal, but not limited to, rags, waste coatings, waste brushes, waste rollers, waste applicators, waste solvents, and their residues, in closed or covered, leak-free containers which are legibly labeled with their contents and which remain covered at all times when not in use.**

**SECTION 400 – ADMINISTRATIVE REQUIREMENTS**

**401 COMPLIANCE SCHEDULE:**

**401.1 ECS Schedule: By ~~August 1, 1999~~: (6 months after rule adoption)**

- a. All new recordkeeping provisions shall be in effect, including subsections 501.1e and 501.2a. Any owner and/or operator intending to install an Emission Control System (ECS) in a**



facility shall comply with requirements of ~~subsection 501.4~~ Section 305 of this rule and shall announce the intention to use an ECS to the Control Officer in writing within 30 days if:

- ~~(1)a.~~ The ECS is used as an alternative to meeting the spray-gun provisions of Section 306; or
- ~~(2)b.~~ The ECS is used as an alternative to meeting the gun cleaning machine provisions of Section 307.3 of this rule.
- b. The intention to use an Emission Control System (ECS) shall be announced to the Control Officer in writing if:
  - ~~(1)~~ The ECS is used as an alternative to meeting the spray gun provisions of Section 302; or
  - ~~(2)~~ The ECS is used as an alternative to meeting the gun cleaning machine provisions of Section 303.

**401.2** By November 1, 1999, the following shall be in continuing use:

- ~~a.~~ Spray guns required pursuant to Section 302;
- ~~b.~~ Cleaning solvent(s) having the required vapor pressure pursuant to Section 303, and the data sheet(s) confirming the vapor pressure.

~~401.3~~**401.2** By ~~May 1, 2000~~ (6 months after the rule adoption), the ECS announced pursuant to ~~subsection 401.1b~~ Section 401.1 of this rule shall be in continuing use.

**401.3 O&M Plan:**

- ~~402.1a.~~ The owner and/or operator of an existing facility shall update or submit an O&M Plans by (3 months after DATE OF RULE ADOPTION) or within three (3) months of becoming subject to the rule, to the Control Officer for approval which describes the method(s) used to achieve full compliance with the rule. The compliance plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require an owner and/or operator submitting the compliance plan to also submit subsequent reports on progress in achieving compliance; and.
- ~~402.2b.~~ The Control Officer shall take final action on an O&M Plan revision/update to address the newly amended provisions of this rule within 30 calendar days of the filing of the complete O&M Plan revision/update. The Control Officer shall notify the applicant in writing of his approval or denial; and
- c. **Compliance Date:** Attain full compliance with all of the standards in this rule by (12 months after DATE OF RULE ADOPTION) or within twelve (12) months of becoming subject to the rule.

**SECTION 500**

**501 RECORDKEEPING AND REPORTING:** Any person ~~An owner and/or operator~~ subject to this rule shall comply with the following requirements of subsections 501.1 and 501.2 that apply to materials regulated by this Rule 336. Records shall be retained for ~~five~~ ~~5~~ (5) years and shall be made available to the Control Officer upon request. ~~Records can consist of but are not limited to purchase orders, invoices, receipts, usage records, MSDS, and hazardous wastes manifests.~~ Records may be kept in either electronic or paper format.

**501.1 Current Lists:** Operational information required by this rule shall be kept in a complete and consistent manner on-site and be made available without delay to the Control Officer upon request.

**501.2** Records of the following process and operational information, as applicable, are required. Express VOC content in 1 of 3 forms: pounds VOC per gallon, grams VOC per liter, or the percent VOC by weight along with the specific gravity or density, (2 numbers are required).



- a. **General Data:** Daily records shall be kept for all days that a facility is actively operating. Records shall include all of the following:
- (1) Hours of operation;
  - (2) Type of operation;
  - (3) Mixing Ratio: The mix ratio of the VOC-containing materials.
- b. **Surface Coatings, Fiberglass and Adhesives Used:**
- a. Maintain a current list of surface coatings, adhesives, reducers, thinners, gun-cleaning materials, additives, fiberglass coatings and any other VOC-containing materials regulated by this rule; ~~give~~ List the VOC content of material for each as received (before thinning). A complete, neat assemblage of this data meets the requirements for a list. Express VOC content in 1 of 3 forms: pounds VOC per gallon, grams VOC per liter, or the percent VOC by weight along with the specific gravity or density, (2 numbers are required). The VOC content of each coating as received, minus exempt compounds. (This figure is sometimes called the “EPA Method 24” VOC content on manufacturer’s data sheets). If the coating is a multi-part coating, list the VOC content which the manufacturer states the coating will have once all the necessary parts are mixed together in the proportions specified by the manufacturer.
- b.c. **Less Stringent Recordkeeping for Consistently Low Users:** An owner and/or operator of a facility that always uses less than 2 gallons per day total of thinner and coating (listed in Table ~~4336-1~~ through 336-3), meets the listing and recording requirements of ~~subsections 501.1a,~~ Sections 501.2 (a) (b) if:
- (1) All purchase receipts/invoices of VOC-containing material that ~~is~~ are regulated by this rule for the most recent 12 months are kept together; and
  - (2) Current data sheets show the VOC content of material for every VOC containing substance currently used that is regulated by this rule.
- e.d. **Facilities That Are Not Small Surface-Coating Sources:** Facilities that are not small surface-coating sources shall do the following:
- (1) **Coatings:** For all coatings (except those recorded under the ~~subsection 305.4e~~ low usage allowance provisions (Section 501.2 (c) of this rule), make the following listings for coatings, manufacturing materials, and adhesives that have VOC limits in Table ~~4~~ 336-1 through 336-7:
    - (a) **VOC Before Reducing:** The VOC content of each coating as received, minus exempt compounds. (This figure is sometimes called the “EPA Method 24” VOC content on manufacturer’s data sheets). If the coating is a multi-part coating, list the VOC content which the manufacturer states the coating will have once you have mixed all the necessary parts together in the proportions specified by the manufacturer.
    - (b) **List Maximum VOC Content Of Coating As Applied:** For each coating that you thin/reduce or add any additive to, record in a permanent log either of the following:
      - (i) The maximum number of fluid ounces thinner/reducer that you ever add to a gallon of unreduced coating (or maximum g/liter), and the maximum fluid ounces of every other additive you mix into a gallon of the coating; or
      - (ii) The VOC content of the coating, after adding the maximum amount of thinner/reducer and other additives that you would ever add, as determined by the formula in ~~subsection 255.4~~ Section 500 of this rule.
- e. **Polyester Resin Operations:**



- (1) **Applications:** The type of nonatomizing application, or other in the case of gel coat, application techniques(s) used, manufacturer’s names, and the records of the fluid tip, pressure calibration as specified by the manufacturer; and
- (2) **Materials and VOC Content:** The manufacturer’s name, the type and amount of each of the polyester resin basic raw materials used, delivered and the weight (in percent) of monomer for all polyester resin materials and filler(s). If VOC-containing materials are added to the polyester resin, the amount of VOC-containing materials, in grams, and the VOC content in grams per liter, of VOC-containing materials; and
- (3) **Tub/Shower Resins:** Certification of analysis from the resin manufacture(s) to verify that all the applied tub/shower resin materials are vapor suppressed; and
- (4) **Pultrusion systems:** For pultrusion systems, the weight loss (in percent) of polyester resins materials for each application; and

**501.3 Applicator Clean Solvent:** Have a hardcopy of the VOC vapor pressure (VP) at 20°C (68°F) of solvent(s) used to clean spray guns, hoses, reservoirs, and any other coating application equipment. Any one of the following ways of providing the VP data is sufficient:

- (a.) A current manufacturer’s technical data sheet;
- (b.) A current manufacturer’s safety data sheet (MSDS);
- (c.) Actual test results; or
- (d.) A letter signed by an official or lab manager of the supplying facility.

**501.2501.4 Frequency Of Updating Usage Records:** Update your records, showing the type and amount used of each VOC-containing coating, manufacturing materials, or adhesive which is regulated by name or type in ~~Table 1~~ the Tables 336-1 through 336 -7 of these rules, and update each VOC-containing material, ~~related to surface coating~~, that is not addressed by ~~Table 1~~ in the Tables found in Rule 336 of these rules. This includes, but is not limited to, thinners, surfacers, and diluents. Maintain records according to the following schedule:

- a. **Small Surface-Coating Sources:** Small surface-coating sources shall update each month’s records of coating use by the end of the following month.
- b. **All Other Sources:** For a source that does not meet the definition of small surface-coating source:
  - (1) **Monthly:** Monthly update records of each coating or manufacturing material or adhesive used that complies with the VOC limits in ~~Table 1~~ this Rule 336. Complete a month’s update by the end of the following month.
  - (2) **Daily:** ~~Daily update the usage of each coating that exceeds its limits in Table 1, including coating exempted by subsection 305.4c.~~

**501.3501.5 Grouping By VOC Content:** For purposes of recording usage, coatings, manufacturing materials, and adhesives that are in the same category in ~~Table 1~~, and have similar VOC content, may be recorded under a name that includes the category name. The highest VOC content among the members of that grouping shall be assigned to that grouping, rounded to the nearest 10th of a pound. To identify what products belong within each group, after each group name and the group’s VOC content of material must appear the name of each product in the group and its VOC content of material.

**For example:** For flexible plastic parts, you use 20 gallons of primer that has 3.04 lb VOC/gal., 30 gallons of primer having 3.14 lb VOC/gal., and 40 gallons of primer having 2.89 lb VOC/gal. You may record usage as 90 gallons of flexible plastic primer containing 3.1 lb VOC/gal. If grams VOC per liter is used to record VOC content, round off to the nearest whole number of grams.

## 502 ECS RECORDING REQUIREMENTS:



- 502.1** On each day an ECS is used at a facility pursuant to this rule, an owner or operator of the facility shall:
- a. Record the amount and VOC content of coating, the amount of catalyst/hardener, and the amounts of solvent, reducer, and diluent used that were subject to ECS control pursuant to this Rule 336; and
  - b. Make a permanent record of the operating parameters of the key systems as required by the O&M Plan; and
  - c. Make a permanent record of the maintenance actions taken, within 24 hours of the action's completion, for each day or period in which the O&M Plan requires that maintenance be done.
- 502.2.** An explanation shall be entered for scheduled maintenance that is not performed during the period designated for it in the O&M Plan.

**503 COMPLIANCE DETERMINATION AND TEST METHODS:** ~~When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.~~

An exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule. The EPA and the American Society for Testing and Materials (ASTM) test methods and other documents as they exist in the Code of Federal Regulations (CFR) as listed below, are adopted and incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. These documents are available Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ 85004; or by calling (602) 506-0169 for information. ASTM methods are also available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, or from its website at [www.astm.org](http://www.astm.org).

- 503.1 Compliance Determination:** The following means shall be used to determine compliance with this rule:
- a. Measurement of VOC content of materials subject to ~~Section Sections 301 or Section 302 through 304~~ of this rule shall be conducted and reported using one of the following means:
    - (1) BAAQMD Method 31, 503.2f or 503.2g, [April 15, 1992]; or (SCAQMD Method 313-91, 503.2g [April 1997]).: VOC content of coatings, solvents, and other substances having less than 5% solids ~~will be determined by the test method in subsection 503.2f or 503.2g (BAAQMD Method 31 [April 15, 1992]) or 503.2g (SCAQMD Method 313-91 [April 1997]).~~
    - (2) EPA Method 24, 503.2c; (BAAQMD Method 31, 503.2f [April 15, 1992]); or 503.2g (SCAQMD Method 313-91 [April 1997]). The VOC content of coatings or other materials having 5% or more solids. ~~will be determined by the test method in subsection 503.2c (EPA Method 24), 503.2f (BAAQMD Method 31 [April 15, 1992]) or 503.2g (SCAQMD Method 313-91 [April 1997]).~~
  - (a) Plastisols, powder coatings, and radiation-cured coatings shall be cured according to the procedures actually used in the coating process being tested before final VOC-emission determinations are made.
  - (b) In the case of multi-component, polymerizing coatings tested according to 503.1a, Method 24 shall be modified to eliminate the post-mixing dilution-step (that employs toluene or other solvent). Instead, the mixture shall be spread by appropriate technique to form a thin layer, occupying the entire bottom of the foil pan. Techniques included in the method referenced in 503.1b can be used as a guide for such spreading.



- b. EPA Method 18 referred to in subsection 503.2b, or EPA Method 25 and its submethod, referred to in subsection 503.2d. The VOC content of gaseous emissions entering and exiting an ECS, shall be determined by either EPA Method 18 referred to in subsection 503.2b, or EPA Method 25 and its submethod, referred to in subsection 503.2d.
- c. EPA Method 204 (503.2e) and its submethods, or by using mass balance calculation methods in concert with the methods in 503.2a (EPA Methods 2, 2a, 2c, and 2d).  
Capture efficiency of an ECS, shall be determined either by the methods in 503.2e (EPA Method 204 and its submethods), or by using mass balance calculation methods in concert with the methods in 503.2a (EPA Methods 2, 2a, 2c, and 2d).
- d. Measurement of air pressure at the center of the spray gun tip and air horns of an air-atomizing spray gun (reference subsection 302.1 and Section 225) shall be performed using an attachable device in proper working order supplied by the gun's manufacturer for performing such a measurement.
- e. Temperature measurements shall be done with an instrument with an accuracy and precision of less than one-half degree Fahrenheit (0.25°C) for temperatures up to 480°F (250°C).
- f. SCAQMD Method 312-91, Determination of Percent Monomer in Polyester Resins and Gel Coat materials, revised April 1996. Alternatively, the manufacturer's formulation of data may be accepted as an alternative to this method. If there is a disagreement between manufacturer's formulation data and the results of a subsequent test, the facility should use the test method results unless the facility can make a demonstration that the manufacturer's formulation data is correct.

**503.2 Test Methods Adopted By Reference:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 1998), as listed below, are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 503 are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ, 85004.

- a. EPA Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2a (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), 2c (“Determination of Stack Gas Velocity and Volumetric Flow rate in Small Stacks or Ducts”), and 2d (“Measurement of Gas volumetric Flow Rates in Small Pipes and Ducts”). All 4 of the foregoing methods are in 40 CFR 60, Appendix A.
- b. EPA Method 18 (“Measurement of Gaseous Organic Compound Emissions by Gas Chromatography”) and its submethods (40 CFR 60, Appendix A).
- c. EPA Test Method 24 (“Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings”) (40 CFR 60, Appendix A).
- d. EPA Method 25 (“Determination of Total Gaseous Non-methane Organic Emissions as Carbon”) and its submethods (40 CFR 60, Appendix A).
- e. EPA Test Methods 204 (“Criteria for and Verification Of a Permanent or Temporary Total Enclosure”), 204a, 204b, 204c, 204d, 204e, and 204f (Appendix M, 40 CFR 51).
- f. California’s Bay Area Air Quality Management District (BAAQMD) Method 31 (April 15, 1992), “Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings.”
- g. California’s South Coast Air Quality Management District (SCAQMD) Method 313-91 (April 1997).

**503.3 Test Methods for ECS:** For coatings/adhesives controlled pursuant to Section 305 of this rule.



- a. Measurements of VOC emissions from an ECS shall be conducted in accordance with EPA Methods 18 or its submethods, or by Method 25 or its submethods (40 CFR 60, Appendix A).
- b. Capture efficiency of an ECS shall be determined by mass balance in combination with ventilation/draft rate determinations done in accordance with subsection 503.3c or with US EPA Test Methods 204, 204a, 204b, 204c, 204d, 204e, and 204f (Appendix M, 40 CFR 51).
- c. Ventilation/draft rates shall be determined by EPA Methods 2, 2a, 2c, and 2d (40 CFR 60, Appendix A).

**503.4 Test Methods for ECS:** For Polyester Resin Operations controlled pursuant to section 305 of this rule.

- a. “Guidelines for Determining Capture Efficiency”, January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA; or
- b. EPA Reference Method 204 – Criteria for and Verification of a Permanent or Temporary Total Enclosure, 40 CFR 51, Appendix M; or applicable Subparts 204A, 204B, 204C, 204D, 204E, or 204F; or
- c. EPA Reference Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography, 40 CFR 60, Appendix A; or
- d. EPA Reference Method 25 – Determination of Total Gaseous Nonmethane Organic Emissions as Carbon, 40 CFR 60, Appendix A; or applicable Subparts 25A or 25B.

**504 FORMULA FOR TOTAL VOC VAPOR PRESSURE:** Equivalent to: **VOC COMPOSITE PARTIAL PRESSURE.** Reference ~~subsection 303.2~~ Section 2XX.

$$PP_c = \frac{\sum_{i=1}^n (W_i)(VP_i) / MW_i}{\frac{W_w}{18} + \sum_{j=1}^m \frac{W_{ej}}{MW_{ej}} + \sum_{i=1}^n \frac{W_i}{MW_i}}$$

$W_i$  = Weight of the “i”th VOC compound in grams

$W_w$  = Weight of water in grams

$W_{ej}$  = Weight of the “j”th non-precursor compound in grams

$MW_i$  = Molecular weight of the “i”th VOC compound in grams per gram mole, e.g., one gram-mole of isopropyl alcohol weighs 60 grams

$MW_{ej}$  = Molecular weight of the “j”th non-precursor compound, e.g., 1 gram-mole of acetone weighs 58 grams

$PP_c$  = VOC composite partial pressure at 20°C in mm mercury (Hg)

$VP_i$  = Vapor pressure of the “i”th VOC compound at 20°C in mm Hg

18 = Weight of one gram-mole of water

**505 VOC CONTENT:** In this rule, VOC content is determined by one of the following two formulas: To determine compliance with the VOC limits in Section 301 of this rule or the 2.0 lb VOC/gal threshold in Section 302 of this rule, use the following formula in Section 240.1 of this rule. For other purposes, use the formula in Section 240.2 of this rule:



**505.1 VOC CONTENT MINUS EXEMPT COMPOUNDS** (is the same as VOC CONTENT MINUS EXEMPT EVAPORATING COMPONENTS) (also known as “THE EPA METHOD 24 VOC CONTENT” on manufacturer’s data sheets.)

$$\text{VOC Content Minus Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Using consistently either English or metric measures in the calculations, where:

- $W_s$  = weight of all volatile material in pounds (or grams), including VOC, water, non-precursor organic compounds and dissolved vapors
- $W_w$  = weight of water in pounds (or grams)
- $W_{es}$  = weight of all non-precursor compounds in pounds (or grams)
- $V_m$  = volume of total material in gallons (or liters)
- $V_w$  = volume of water in gallons (or liters)
- $V_{es}$  = volume of all non-precursor compounds in gallons (or liters)

**505.2 VOC CONTENT OF MATERIAL (MATERIAL VOC-CONTENT)**

$$\text{VOC Content of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Using consistently either English or metric measures in the calculations, where:  $W_s$  = weight of all volatile material in pounds (or grams) including VOC, water, non-precursor organic compounds and dissolved vapors

- $W_w$  weight of water in pounds (or grams)
- $W_{es}$  weight of all non-precursor compounds in pounds (or grams)
- $V_m$  volume of total material in gallons (or liters)



## REGULATION III – CONTROL OF AIR CONTAMINANTS

### RULE 350

### STORAGE AND TRANSFER OF ORGANIC (NON-GASOLINE) LIQUIDS AT BULK PLANTS AND BULK TERMINALS ORGANIC LIQUID DISTRIBUTION OPERATIONS

#### INDEX

#### SECTION 100 – GENERAL

- 101 PURPOSE
- 102 APPLICABILITY
- 103 EXEMPTIONS
- 104 AVAILABILITY OF INFORMATION

#### SECTION 200 – DEFINITIONS

[Definitions will be included in the index at a later date.]

#### SECTION 300 – STANDARDS

#### SECTION 400 – ADMINISTRATIVE REQUIREMENTS

#### SECTION 500 – MONITORING AND RECORDS



Revised 07/13/88  
Revised 04/06/92

Revised 07/13/88; Revised 04/06/92; **Revised MM/DD/YY**

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

**RULE 350**

**STORAGE AND TRANSFER OF ORGANIC (NON-GASOLINE) LIQUIDS AT BULK PLANTS AND  
TERMINALS ORGANIC LIQUID DISTRIBUTION OPERATIONS**

**SECTION 100 – GENERAL**

- 101 PURPOSE:** To limit emissions of volatile organic compounds from organic (non-gasoline) liquids under actual storage and transfer conditions.
- 102 APPLICABILITY:** This rule is applicable to the ~~transfer and~~ storage and transfer of any organic (non-gasoline) liquid in a bulk plant or bulk terminal stationary storage tank ~~which is used primarily to fill delivery vessels at an organic liquids distribution operation.~~ Compliance with the provisions of this rule shall not relieve any person 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 Organic Liquids** having a true vapor pressure less than 0.5 psia as determined by test methods in (PROPOSED) Rule 350, Section 500 are exempt from the organic liquid transfer requirements of (PROPOSED) Rule 350, Section 3XX.
- 103.2 Gasoline Facilities:** Gasoline bulk plants and bulk terminals are not subject to the requirements of this rule but are subject to (PROPOSED) Rule 351.
- 103.3 Small Transportable Containers** with a capacity of less than 30 gallons ~~(114 L):~~ are exempt from in (PROPOSED) Rule 350, Section 3XX.
- 103.4 A Pressure Tank** maintaining working pressure sufficient at all times to prevent organic vapor or gas loss to the atmosphere is exempt from in (PROPOSED) Rule 350, Sections 301, 302, 303, and 304.
- 103.4 A Floating Roof** is exempt from the requirement that its roof be floating when the tank is being drained completely and when it is being filled, as long as both processes are accomplished continuously and as rapidly as practicable.
- 104 AVAILABILITY OF INFORMATION:** Copies of the code of federal regulations are available electronically at: [ecfr.gpoaccess.gov](http://ecfr.gpoaccess.gov); at the Maricopa County Air Quality Department, 1001 N. Central Ave., Suite 125, Phoenix, AZ, 85004; or by calling (602) 506-6010 for information. ASTM standards are available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, or from its website at [www.astm.org](http://www.astm.org).

**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~~ **BULK PLANT** – Any organic liquid distribution operation which has an annual throughput of not more than 6,000,000 gallons of organic (non-gasoline) liquid with a true vapor pressure of 0.5 psia, loading facility at which gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual storage conditions are received from delivery vessels for storage in on-site stationary tanks, and from which such liquids also are transferred to delivery vessels.
- ~~202~~ **BULK TERMINAL** – Any primary distributing loading facility which has ever received in any consecutive 30-day period over 600,000 gallons (2,271,180 l) of gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions; or any loading facility where delivery of such liquids to the facility is primarily by pipeline. Any organic liquid distribution operation which has an annual throughput of 6,000,000 gallons or more of organic (non-gasoline) liquids with a true vapor pressure of 0.5 psia or greater.
- ~~203~~ **DELIVERY VESSEL** – Any vehicular-mounted container such as a railroad tank-car, tanker-truck, tank-trailer or any other mobile container used to transport organic liquids.
- XXX** **CARGO TANK** – A liquid-carrying tank permanently attached and forming an integral part of a motor vehicle or truck trailer. For the purposes of this rule, vacuum trucks used exclusively for maintenance or spill response are not considered cargo tanks.
- XXX** **CLOSED VENT SYSTEM** – A system that is not open to the atmosphere and is composed of piping, ductwork, connections and flow-inducing devices that transport vapors from an emission point to a control device.
- XXX** **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.”
- ~~204~~ **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.
- ~~205~~**XXX** **GASOLINE** – Any petroleum distillate, or petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual conditions of storage and handling, having a Reid vapor pressure of 27.6 kilopascals (4.0 pounds per square inch absolute (psia)) or greater and which is used as a fuel for internal combustion engines. For the purposes of this rule, aviation gasoline (av-gas) is included in this definition.
- ~~206~~ **LOADING FACILITY** – Any operation or facility such as a gasoline storage tank farm, pipeline terminal, bulk plant, loading dock or combination thereof, where organic liquids are transferred or loaded into or out of delivery vessels 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 person or persons under common control.
- ~~207~~**XXX** **ORGANIC LIQUID** – Any organic compound which exists as a liquid under any actual conditions of use, transport or storage. For the purposes of this rule, gasoline, as defined in this rule, is not considered an organic liquid.
- XXX** **ORGANIC LIQUID DISTRIBUTION (OLD) OPERATION** – The combination of activities and equipment used to store or transfer organic liquids into, out of, or within a plant site regardless of the specific activity being performed. Activities include, but are not limited to, storage, transfer, blending, compounding and packaging.



- 208 STATIONARY STORAGE TANK** - Any tank, reservoir or other container used to store, but not transport, organic liquids.
- 209 SUBMERGED FILL PIPE** - Any discharge pipe or nozzle which meets the applicable specification as follows:
- 209.1 Top-Filled Or Bottom-Filled Tanks:** 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.
- 209.2 Side-Filled:** At its highest point within the storage tank less 2,000,000 gallon capacity, theThe 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.
- 209.3 Horizontal Filled:** At its highest point within a floating roof tank 2,000,000 gallons or greater (7,580,000 l) capacity, the end of the discharge pipe or nozzle may be up to 39.4 inches (1 meter) above the tank bottom if the discharge pipe or nozzle is kept completely submerged, including when the roof rests on its legs, except when the tank is being emptied completely.
- ~~**210 TRUE VAPOR PRESSURE (TVP)**~~ - Absolute vapor pressure of a liquid at its existing temperature of storage and handling.
- ~~**211 VAPOR LOSS CONTROL DEVICE**~~ - Any piping, hoses, equipment, and devices which are used to collect, store and/or process organic vapors at a bulk terminal, bulk plant, service station or other operation handling gasoline and/or other organic liquids.
- ~~**212 VAPOR TIGHT**~~ - A condition where no organic vapor leak reaches or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak when measured with a combustible gas detector or an organic vapor analyzer, both calibrated with propane.

**SECTION 300 – STANDARDS**

- 301 STORAGE AND TRANSFER OF ORGANIC LIQUIDS REQUIREMENTS APPLICABLE TO ALL STORAGE CONTAINERS AND STORAGE TANKS:** A person shall handle organic liquids in a manner that would result in vapor releases to the atmosphere by:
- 301.1** Minimize organic liquid spills; and
- 301.2** Clean up spills as expeditiously as practicable; and
- 301.3** Cover all open organic liquid containers and all organic storage tank fill-pipes with a gasketed seal when not in use; and
- 301.4** Minimize organic liquid sent to open waste collection systems that collect and transport organic liquid to reclamation and recycling devices.

**301302 ALL STORAGE TANKS GREATER THAN 250 GALLONS (946 L):** No person shall install or use a stationary storage tank with a capacity greater than 250 gallons (946 l) for storing organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or more unless such a tank meets the following requirements the table below:

~~**301.1** - The tank has a submerged fill pipe; and~~

**Note<sup>†</sup>**

<sup>†</sup>This note is not part of Rule 350, but is provided for the reader's convenience. The requirement of subsection 301.2 for a pressure/vacuum valve is not applicable to floating roof tanks.



~~301.2 The tank has a pressure/vacuum valve which is set within ten percent of the tank's maximum, safe working pressure.~~

**Table 350-1 STORAGE TANK CONTROL REQUIREMENTS**

Tank Capacity	True Vapor Pressure of Organic Liquid In Tank		
	<0.5 TO <1.5 psia	<1.5 to <11.0 psia	≥11.0 psia
<250 gallons	Cover with gasketed seal	Cover with gasketed seal	Pressure tank or approved emission control system
≥250 gallons to <40,000	Submerged fill pipe	Submerged Fill Pipe; and Vapor Recovery System; Pressure Vacuum Valve; or one of the following: Internal Floating Roof; or External Floating Roof; or Vapor Collection Processing System.	Pressure tank or approved emission control system
≥40,000 gallons	Submerged Fill Pipe; Pressure Vacuum Valve; and one of the following: Internal Floating Roof; or External Floating Roof; or Vapor Collection Processing System.	Submerged Fill Pipe; Pressure Vacuum Valve; and one of the following: Internal Floating Roof; or External Floating Roof; or Vapor Collection Processing System.	Pressure tank or approved emission control system

**Pressure vacuum valves:**

301.2 The tank has a pressure/vacuum valve which is maintained in good working order and set:

- a. within ten percent of the tank's maximum, safe working-pressure; or
- b. at least 25.8 mm Hg (0.5 psia)

~~302 **GASOLINE STORAGE TANKS BETWEEN 250 AND 40,000 GALLONS (946 – 151,400 L):** No person shall store gasoline in a stationary storage tank with a capacity less than 40,000 gallons (151,400 l) but greater than 250 gallons (946 l) unless the tank is equipped with a vapor recovery system which collects and returns displaced vapors to the delivery vessel using vapor tight fittings and lines; or such tank uses at least one of the vapor loss control methods in Sections 306, 307, or 308 of this rule.~~

~~303 **ORGANIC LIQUID STORAGE TANKS OF 20,000 THROUGH 39,999 GALLONS CAPACITY (75,700 – 151,396 L):** No person shall store organic liquids with a true vapor pressure (TVP) of 1.5 through 11.0 psia (77.5 – 569 mm Hg) in a stationary tank with a capacity from 20,000 through 39,999 gallons (75,700 – 151,396 l) unless the tank is equipped with a vapor recovery system which collects and returns displaced vapors to the delivery vessel using vapor tight fittings and lines; or such tank uses at least one of the vapor loss control methods specified in Sections 306, 307, or 308 of this rule.~~

~~304 **STORAGE TANKS OF 40,000 GALLONS (151,400 L) OR MORE:** No person shall place, store or hold in any stationary storage tank having a capacity of 40,000 gallons (151,400 L) or more, any gasoline or organic liquid having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions, unless such storage tank is equipped with at least one of the vapor loss control devices specified in Sections 306, 307, or 308 of this rule.~~



~~305~~ **TANKS STORING LIQUIDS HAVING VAPOR PRESSURES EXCEEDING 11 PSIA:** No person shall place, store, or hold in a stationary tank having a capacity over 250 gallons (946 l) organic liquid(s) with a true vapor pressure above 11.0 psia (569 mm Hg) unless such a tank is either a pressure tank maintaining working pressure sufficient at all times to prevent organic vapor/gas loss to the atmosphere or is equipped with a vapor collection/processing system specified in Section 308 of this rule.

~~306~~ **EXTERNAL FLOATING ROOF STORAGE TANKS:** This vapor loss control device is an uncovered floating roof consisting of either a pontoon type or a double deck type roof. It must rest on and be supported by the surface of the liquid contents, be equipped with a continuous primary seal to close the space between the roof eave and tank wall, except as provided in subsection 309.1 and 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 following requirements:

~~306.1~~ 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 subsection 306.2 of this rule. Storage tanks constructed after July 13, 1988, shall have a secondary seal that is rim-mounted. Except for tanks having metallic shoe primary seals onto which secondary seals were installed prior to July 13, 1988, by October 6, 1993 no person shall operate an external floating roof tank subject to the provisions of this rule unless a secondary seal extends from the roof to the tank shell (a rim mounted seal) and is not attached to the primary seal.

~~306.2~~ 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).

~~306.3~~ 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.

**307 INTERNAL FLOATING ROOF TANKS WITH FIXED COVERING:** This vapor loss control device is a covered tank with an internal floating roof resting on the contained liquid. This tank and its appurtenances shall meet the applicable requirements as follows:

**307.1** Bulk terminal 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.

**307.2** All tanks not subject to subsection 307.1 must comply with one of the following:

- a. Comply with 40 CFR Part 60, Subpart Kb, notwithstanding the type of facility and the date of tank construction, reconstruction or modification; or
- b. Have at least one continuous seal which completely covers the space between the roof edge and tank wall, except as provided in subsection 309.1, and meet at least one of the following requirements:
  - (1) Have a contact-type roof resting completely on the liquid surface.
  - (2) Have a liquid mounted seal.
  - (3) Have two seals, a primary and a secondary.

**308XXX VAPOR COLLECTION/PROCESSING SYSTEM:** This vapor loss control device consists of a vapor gathering subsystem capable of collecting the organic vapors and organic gases plus a second subsystem



capable of processing such vapors and gases, preventing at least 95 percent by weight of the volatile organic compounds entering it from escaping to the atmosphere.

- 308.1 The vapor processing subsystem shall be gas-tight except for the designated exhaust.
- 308.2 Any tank gauging or sampling device on a tank, vented to such a vapor collection/processing system, shall be equipped with a gas-tight cover which shall be closed at all times except during gauging or sampling procedures.
- 308.3 All pressure-vacuum valves shall be constructed and maintained in a gas tight condition except when the operating pressure exceeds the valve release setting.

### 309 ADDITIONAL REQUIREMENTS:

- 309.1 **Prohibition – Floating Roof Openings:** Floating roof tanks subject to the provisions of Section 306 or 307 of this rule shall have no visible holes, tears or other openings in the seal or in any seal fabric. The accumulated area of gaps between a tank's wall and primary seal shall not exceed 10 square inches per foot of tank diameter (212 cm<sup>2</sup> per meter) and the width of any portion of any gap shall not exceed 1½ inches (3.8 cm). Where applicable, all openings except drains shall be equipped with a cover seal or lid. The cover seal or lid shall be in a closed position at all times, except when the device is in actual use. Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports. 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.
- 309.2 Tanks and all required emission control equipment shall be properly installed, properly maintained and be properly operating.

### ~~310 EXEMPTIONS:~~

- ~~310.1 A pressure tank maintaining working pressure sufficient at all times to prevent organic vapor or gas loss to the atmosphere is exempt from Sections 301, 302, 303, and 304 of this rule.~~
- ~~310.2 During the following periods a floating roof is exempt from the requirement that its roof be floating: when the tank is being drained completely and when it is being filled, as long as both processes are accomplished continuously and as rapidly as practicable.~~
- ~~310.3 A horizontal filling nozzle at its highest point within a floating roof tank exceeding 2,000,000-gallons (7,580,000 l) capacity may be up to 39.4 inches (1 meter) above the tank bottom if: except when the tank is emptied completely, the nozzle is kept completely submerged, including when the roof rests on its legs.~~

### SECTION 400 – ADMINISTRATIVE REQUIREMENTS

- 401 **ANNUAL INSPECTIONS OF EXTERNAL FLOATING ROOF TANKS:** The owner or operator of any tank which uses an external floating roof to meet the vapor loss control 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 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.
- 402 **ANNUAL INSPECTIONS OF INTERNAL FLOATING ROOF TANKS:** The owner or operator of any tank which uses an internal floating roof to meet the vapor loss control requirements of this rule shall



make the entire tank including the internal floating roof available for inspection prior to filling. It shall be made available for visual inspection through the manholes or roof hatches on the fixed covering on an annual basis. Roofs which practicably can be walked on shall annually be made available for hands-on inspection.

- 403 FIVE-YEAR, FULL CIRCUMFERENCE INSPECTIONS:** As of July 13, 1988, the owner or operator of a floating roof tank of 20,000 gallons (75,700 l) or more storing an organic liquid with a TVP of 1.5 psia (77.5 mm Hg) or greater shall make the primary seal envelope available for inspection by the Control Officer for its full length every five years. However, if prior thereto 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 working days prior to removal of the secondary seal. The owner or operator shall perform a complete inspection of the primary seal and floating roof, including measurement of gap area and maximum gap, whenever the tank is emptied for non-operational reasons or at least every five years, whichever is more frequent.
- 404 SEMI-ANNUAL INSPECTIONS BY OWNER OR OPERATOR:** The owner or operator of any floating roof tank subject to this rule shall inspect the tank and seals at least once every six months to determine ongoing compliance with both the applicable standards of this rule and any permit conditions pertaining to the tank. Determinations of secondary seal gap area on external floating roofs need be made only once per year. Records of these inspections shall be maintained and shall be made available to the Control Officer upon request.
- ~~**405 COMPLIANCE SCHEDULE:** By October 6, 1992, any person subject to Section 300 who does not comply with all its provisions shall submit to the Control Officer for approval an emission control plan describing the method(s) to be used to achieve full compliance by October 6, 1993. This plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require a person submitting such an emission control plan to submit subsequent reports on progress in achieving compliance.~~

## SECTION 500 – MONITORING AND RECORDS

- 501 VAPOR PRESSURE RECORDS:** A person whose tanks are subject to the provisions of this rule shall keep accurate records of liquids stored in such tanks including ~~either~~ the true ~~or the Reid~~ vapor pressure ranges of each such liquid. The temperature of the contents of each affected tank located at bulk terminals shall be recorded at least weekly and the true vapor pressure of each shall be recorded at least once each month. These records shall be kept a minimum of ~~three~~five years.
- 501 LEAK CONCENTRATIONS:** Any instrument used for the measurement of organic compound concentration shall be calibrated according to manufactures instructions or in accordance with EPA Reference Method 21 as incorporated by reference in Maricopa County Air Pollution Control Regulations, Appendix G, Incorporated Materials.
- 502 COMPLIANCE DETERMINATION – TEST METHODS:** When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.
- ~~**502.1 Determination Of Vapor-Tight Condition:** Applicable procedures of Rule 351, Section 501.~~
- 502.2 Emission Rates and Control Device Efficiency:** EPA Reference Methods 2A, 2B, 18 and 25A.
- 502.3 Gaseous Leak Detection and Determination of Gas-Tight Condition:** EPA Method 21.
- ~~**502.4 Reid Vapor Pressure:** Reid vapor pressure shall be determined by ASTM Method D323-82D323-08 (Reapproved 2014) or by ASTM Method D-5191.~~



**502.5 True Vapor Pressure:** True vapor pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within  $\pm 1$  degree Fahrenheit or  $\pm 0.5$  degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.

~~Last Formatted – Fall 1997~~



**REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 350 RULE 351  
 STORAGE AND LOADING OF ~~ORGANIC LIQUIDS~~ GASOLINE AT BULK PLANTS AND BULK  
TERMINALS**

**INDEX**

**SECTION 100 - GENERAL**

- 101 PURPOSE
- 102 APPLICABILITY
- 103 EXEMPTIONS

**SECTION 200 - DEFINITIONS**

[WILL BE INCLUDED IN THE INDEX AT A LATER DATE]

**SECTION 300 - STANDARDS**

- 301 ~~GENERAL REQUIREMENTS FOR LOADING FACILITIES~~ FEDERAL STANDARDS OF PERFORMANCE FOR GASOLINE BULK PLANTS AND BULK TERMINALS
- 302 ~~OPERATING REQUIREMENTS FOR VAPOR LOSS CONTROL DEVICES~~ STORAGE TANK STANDARDS
- 303 ~~REPAIR AND RETESTING REQUIREMENT~~ GENERAL REQUIREMENTS FOR LOADING FACILITIES
- 304 ~~EQUIPMENT MAINTENANCE AND OPERATING PRACTICES~~ OPERATING REQUIREMENTS FOR VAPOR LOSS CONTROL DEVICES
- 305 ~~EXEMPTIONS~~ REPAIR AND RETESTING REQUIREMENT
- 306 EQUIPMENT MAINTENANCE AND OPERATING PRACTICES
- 307 CARGO TANKS

**SECTION 400 - ADMINISTRATIVE REQUIREMENTS**

- 401 EQUIPMENT LEAKS
- 402 COMPLIANCE SCHEDULE

**SECTION 500 - MONITORING AND RECORDS**

- 501 ~~LEAK DETECTION – TEST PROCEDURE~~ PROVIDING AND MAINTAINING MONITORING DEVICES
- 502 ~~COMPLIANCE INSPECTIONS~~ ANNUAL INSPECTIONS OF EXTERNAL FLOATING ROOF TANKS
- 503 ~~RECORDS RETENTION~~ ANNUAL INSPECTIONS OF INTERNAL FLOATING ROOF TANKS
- 504 ~~COMPLIANCE DETERMINATION – TEST METHODS~~ FIVE-YEAR, FULL CIRCUMFERENCE INSPECTIONS
- 505 SEMI-ANNUAL INSPECTIONS BY OWNER OR OPERATOR
- 506 VAPOR PRESSURE RECORDS
- 507 CARGO TANK RECORDKEEPING AND REPORTING



- 508      COMPLIANCE DETERMINATION - TEST METHODS
- 509      GASOLINE STORAGE TANK TEST METHODS:
- 510      VAPOR CONTROL SYSTEMS:
- 511      GASOLINE CARGO TANK TEST METHODS:



Revised 07/13/88

Revised 04/06/92

Revised 07/13/88; Revised 04/06/92; **Revised MM/DD/YY**

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

**RULE 350~~RULE 351~~**  
**STORAGE AND LOADING OF ORGANIC LIQUIDS~~GASOLINE~~ AT BULK PLANTS AND BULK  
TERMINALS**

**SECTION 100 - GENERAL**

**101 PURPOSE:** To limit emissions of volatile organic compounds from ~~organic liquids under actual storage conditions~~ gasoline under actual storage and loading at bulk plants and bulk terminals.

**102 APPLICABILITY:** This rule is applicable to:

**102.1** The the transfer/loading of gasoline at a bulk plant or bulk terminal;

**102.2** The and storage of any organic liquid/gasoline in a bulk plant or bulk terminal, stationary storage tank which is used primarily to fill delivery vessels; and

**102.3** The cargo tanks that load gasoline at a bulk plant or bulk terminal.

**103 EXEMPTIONS:**

**103.1** 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.

**103.2** A pressure tank maintaining working pressure sufficient at all times to prevent gas loss to the atmosphere is exempt from Sections [list out] of this rule.

**103.3** A floating roof is exempt from the requirement that its roof be floating as long as either of the following processes is accomplished continuously and as rapidly as practicable:

**a.** When the tank is being drained completely.

**b.** When the tank is being filled.

**103.4** **Bulk Plants with a Throughput of Less Than 120,000 Gallons Per 30-Day Period:** At bulk plants built before October 2, 1978, vapor loss control specified in Section 301.2b is not required at the outloading rack when all of the following are complied with:

**a.** After April 6, 1992, the bulk plant loads less than 120,000 gallons (454,800 l) of gasoline into delivery vessels in any consecutive 30-day period. Any plant that becomes subject to all of the provisions of Section 301.2b by exceeding this threshold will remain subject to these provisions even if its output later falls below the threshold.

**b.** Keep current records of amount of gasoline loaded and keep them readily accessible to the Division upon request for at least three (3) years.

**c.** Load gasoline using submerged fill only.

**d.** The owners or operators of the bulk plant or the owners or operators of the cargo tank shall observe all parts of the transfer and shall discontinue the transfer if any leaks are observed.

**SECTION 200 - DEFINITIONS:** For the purpose of this rule, the following definitions shall apply: For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions); 40 CFR 60, Subparts K, Ka and Kb; and 40 CFR 63, Subpart BBBBBB. In the event of



any inconsistency between any of the Maricopa County air pollution control rules and the CFR, the definitions in this rule take precedence.

- 201** ~~**BULK PLANT**—Any loading facility at which gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual storage conditions are received from delivery vessels for storage in on-site stationary tanks, and from which such liquids also are transferred to delivery vessels.~~ **BULK GASOLINE PLANT:** Any gasoline storage and distribution facility that receives gasoline by pipeline, rail, or cargo tank, and subsequently loads the gasoline into gasoline cargo tanks for transport to gasoline dispensing facilities, and has a gasoline throughput of less than 20,000 gallons per day.
- 202** ~~**BULK TERMINAL**—;~~ Any primary gasoline storage and distribution distributing loading facility that receives gasoline by pipeline, rail or cargo tank and has a gasoline throughput of 20,000 gallons per day or greater, which has ever received in any consecutive 30-day period over 600,000 gallons (2,271,180 l) of gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions; or any loading facility where delivery of such liquids to the facility is primarily by pipeline.
- 203** ~~**DELIVERY VESSEL**—Any vehicular-mounted container such as a railroad tank car, tanker truck, tank-trailer or any other mobile container used to transport organic liquids.~~ **GASOLINE CARGO TANK:** A delivery tank truck or railcar which is loading gasoline or which has loaded gasoline on the immediately previous load.
- 204** ~~**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.
- 205** ~~**GASOLINE**—Any petroleum distillate, petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual conditions of storage and handling, and which is used as a fuel for internal combustion engines.~~
- 206** ~~**GASOLINE LOADING FACILITY**—;~~ Any operation or facility such as a gasoline storage tank farm, pipeline terminal, bulk plant, loading dock or combination thereof, where ~~organic liquids are transferred or gasoline is loaded into or out of delivery vessels~~ cargo tanks for future ~~distribution~~ 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 person or persons under common control.
- 207** ~~**ORGANIC LIQUID**—Any organic compound which exists as a liquid under any actual conditions of use, transport or storage.~~
- 208** ~~**STATIONARY STORAGE TANK**—;~~ Any tank, reservoir or other container used to store, but not transport, ~~organic liquids~~ gasoline.
- 209** ~~**SUBMERGED FILL PIPE**—Any discharge pipe or nozzle which meets the applicable specification as follows:~~
- 209.1** ~~**Top-Filled Or Bottom-Filled Tanks:** 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.~~
- 209.2** ~~**Side-Filled:** 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.~~
- 210** ~~**TRUE VAPOR PRESSURE (TVP)**—Absolute vapor pressure of a liquid at its existing temperature of storage and handling.~~
- 211** ~~**VAPOR LOSS CONTROL DEVICE**—;~~ Any piping, hoses, equipment, and devices which are used to collect, store and/or process organic vapors at a bulk terminal, bulk plant, service station or other operation handling gasoline, ~~and/or other organic liquids.~~



212 **VAPOR TIGHT--:** A condition where no organic vapor leak reaches or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak when measured with a combustible gas detector or an organic vapor analyzer, both calibrated with propane.

**SECTION 300 – STANDARDS**

**301 FEDERAL STANDARDS OF PERFORMANCE FOR GASOLINE BULK PLANTS AND BULK TERMINALS:** An owner or operator of a gasoline bulk plant or gasoline terminal must meet the federal standards of performance set forth in 40 CFR 60, Subparts K, Ka and Kb; and the national emission standards set forth in 40 CFR 63, Subpart BBBB, 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.

**302 STORAGE TANK STANDARDS:**

**302.1 SUBMERGED FILL PIPES:** No persons shall load gasoline into storage tanks and cargo tanks without meeting at least one of the following requirements:

- a. Top-Filled Or Bottom-Filled Tanks: The end of the discharge pipe or nozzle is totally submerged when the liquid level is no more than six inches (15 cm) from the bottom of the tank.
- b. Side-Filled: The end of the discharge pipe or nozzle is totally submerged when the liquid level is no more than 18 inches (46 cm) from the bottom of the tank.
- c. A horizontal filling nozzle at its highest point within a floating roof tank exceeding 2,000,000 gallons (7,580,000 l) capacity may be up to 39.4 inches (1 meter) above the tank bottom if the nozzle is kept completely submerged, including when the roof rests on its legs except when the tank is emptied completely.

**301 ~~ALL STORAGE TANKS GREATER THAN 250 GALLONS (946 L):~~** No person shall install or use a stationary storage tank with a capacity greater than 250 gallons (946 l) for storing organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or more unless such a tank meets the following requirements:

**301.1** The tank has a submerged fill pipe; and

**301.2** The tank has a pressure/vacuum valve which is set within ten percent of the tank's maximum, safe-working pressure.

**302 ~~GASOLINE STORAGE TANKS BETWEEN 250 AND 40,000 GALLONS (946 – 151,400 L):~~** No person shall store gasoline in a stationary storage tank with a capacity less than 40,000 gallons (151,400 l) but greater than 250 gallons (946 l) unless the tank is equipped with a vapor recovery system which collects and returns displaced vapors to the delivery vessel using vapor tight fittings and lines; or such tank uses at least one of the vapor loss control methods in Sections 306, 307, or 308 of this rule.

**303 ~~ORGANIC LIQUID STORAGE TANKS OF 20,000 THROUGH 39,999 GALLONS CAPACITY (75,700 – 151,396 L):~~** No person shall store organic liquids with a true vapor pressure (TVP) of 1.5 through 11.0 psia (77.5 – 569 mm Hg) in a stationary tank with a capacity from 20,000 through 39,999 gallons (75,700 – 151,396 l) unless the tank is equipped with a vapor recovery system which collects and returns displaced vapors to the delivery vessel using vapor tight fittings and lines; or such tank uses at least one of the vapor loss control methods specified in Sections 306, 307, or 308 of this rule.

Note<sup>‡</sup>

**304 ~~STORAGE TANKS OF 40,000 GALLONS (151,400 L) OR MORE:~~** No person shall place, store or hold in any stationary storage tank having a capacity of 40,000 gallons (151,400 L) or more, any gasoline or organic liquid having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage

<sup>‡</sup> This note is not part of Rule 350, but is provided for the reader's convenience. The requirement of subsection 301.2 for a pressure/vacuum valve is not applicable to floating roof tanks.



conditions, unless such storage tank is equipped with at least one of the vapor loss control devices specified in Sections 306, 307, or 308 of this rule.

- 305** ~~**TANKS STORING LIQUIDS HAVING VAPOR PRESSURES EXCEEDING 11 PSIA:**~~ No person shall place, store, or hold in a stationary tank having a capacity over 250 gallons (946 l) organic liquid(s) with a true vapor pressure above 11.0 psia (569 mm Hg) unless such a tank is either a pressure tank maintaining working pressure sufficient at all times to prevent organic vapor/gas loss to the atmosphere or is equipped with a vapor collection/processing system specified in Section 308 of this rule.
- 306** ~~**EXTERNAL FLOATING ROOF STORAGE TANKS:**~~ This vapor loss control device is an uncovered floating roof consisting of either a pontoon type or a double deck type roof. It must rest on and be supported by the surface of the liquid contents, be equipped with a continuous primary seal to close the space between the roof eave and tank wall, except as provided in subsection 309.1 and 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 following requirements:
- 306.1** 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 subsection 306.2 of this rule. Storage tanks constructed after July 13, 1988, shall have a secondary seal that is rim-mounted. Except for tanks having metallic shoe primary seals onto which secondary seals were installed prior to July 13, 1988, by October 6, 1993 no person shall operate an external floating roof tank subject to the provisions of this rule unless a secondary seal extends from the roof to the tank shell (a rim-mounted seal) and is not attached to the primary seal.
- 306.2** 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).
- 306.3** 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.
- 307** ~~**INTERNAL FLOATING ROOF TANKS WITH FIXED COVERING:**~~ This vapor loss control device is a covered tank with an internal floating roof resting on the contained liquid. This tank and its appurtenances shall meet the applicable requirements as follows:
- 307.1** Bulk terminal 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.
- 307.2** All tanks not subject to subsection 307.1 must comply with one of the following:
- a.** Comply with 40 CFR Part 60, Subpart Kb, notwithstanding the type of facility and the date of tank construction, reconstruction or modification; or
- b.** Have at least one continuous seal which completely covers the space between the roof edge and tank wall, except as provided in subsection 309.1, and meet at least one of the following requirements:
- (1) Have a contact type roof resting completely on the liquid surface.
- (2) Have a liquid mounted seal.
- (3) Have two seals, a primary and a secondary.
- 302.2** ~~**BULK TANKS:**~~ An owner or operator of a gasoline bulk plant or gasoline terminal, as defined in 40 CFR §63.11100, must comply with the requirements of Section 301 and Section 302 of this rule, notwithstanding the type of facility and the date of tank construction, reconstruction or modification.



**308** ~~**VAPOR COLLECTION/PROCESSING SYSTEM:** This vapor loss control device consists of a vapor gathering subsystem capable of collecting the organic vapors and organic gases plus a second subsystem capable of processing such vapors and gases, preventing at least 95 percent by weight of the volatile organic compounds entering it from escaping to the atmosphere.~~

~~**308.1** The vapor processing subsystem shall be gas tight except for the designated exhaust.~~

~~**308.2** Any tank gauging or sampling device on a tank, vented to such a vapor collection/processing system, shall be equipped with a gas tight cover which shall be closed at all times except during gauging or sampling procedures.~~

~~**308.3** All pressure vacuum valves shall be constructed and maintained in a gas tight condition except when the operating pressure exceeds the valve release setting.~~

**309** **ADDITIONAL REQUIREMENTS:**

~~**309.1** **Prohibition Floating Roof Openings:** Floating roof tanks subject to the provisions of Section 306 or 307 of this rule shall have no visible holes, tears or other openings in the seal or in any seal fabric. The accumulated area of gaps between a tank's wall and primary seal shall not exceed 10 square inches per foot of tank diameter (212 cm<sup>2</sup> per meter) and the width of any portion of any gap shall not exceed 1½ inches (3.8 cm). Where applicable, all openings except drains shall be equipped with a cover seal or lid. The cover seal or lid shall be in a closed position at all times, except when the device is in actual use. Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports. 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.~~

~~**309.2** Tanks and all required emission control equipment shall be properly installed, properly maintained and be properly operating.~~

**310** **EXEMPTIONS:**

~~**310.1** A pressure tank maintaining working pressure sufficient at all times to prevent organic vapor or gas loss to the atmosphere is exempt from Sections 301, 302, 303, and 304 of this rule.~~

~~**310.2** During the following periods a floating roof is exempt from the requirement that its roof be floating: when the tank is being drained completely and when it is being filled, as long as both processes are accomplished continuously and as rapidly as practicable.~~

~~**310.3** A horizontal filling nozzle at its highest point within a floating roof tank exceeding 2,000,000 gallons (7,580,000 l) capacity may be up to 39.4 inches (1 meter) above the tank bottom if: except when the tank is emptied completely, the nozzle is kept completely submerged, including when the roof rests on its legs.~~

**303** **GENERAL REQUIREMENTS FOR LOADING FACILITIES:** All gasoline bulk terminals and plants must have submerged fill pipes in all tanks over 250 gallons (946 l) storing organic liquids, observe designated procedures and be equipped with applicable equipment as follows:

**301.1** **Loading Of Gasoline:**

- a.** Connect a vapor return hose before connecting any loading hose.
- b.** Connect an additional vapor hose before connecting any additional loading hose, unless an assisted vapor return system is serving the vapor hose that is already connected.
- c.** Use a bucket or other effective capture device to catch any liquid dripping during the connection or disconnection of both the loading hose from the truck and the vapor hose from the loading dock's vapor receiving pipe.
  - (1)** Either dispose of the captured liquid in a tank designated for that purpose, or use a receptacle or a material designed to absorb the liquid.



(2) Any gasoline that escapes or spills must be collected and contained.

**301.2 Bulk Terminals:** No person shall load gasoline into any cargo tank from a stationary storage tank at a bulk terminal unless the vessel bears a current Maricopa County pressure-test decal issued by the Control Officer and the terminal uses a vapor collection/processing system which reduces the emissions of volatile organic compounds to not more than .08 pounds per 1000 gallons of such liquids transferred (10 grams per 1000 liters). Switch loading shall be subject to this standard. The terminal owner or operator and the operator of the receiving cargo tank shall act to ensure that the vapor line is connected before gasoline is transferred.

**301.3 Bulk Plant Tanks Over 250 Gallons (>946 L):**

- a. Loading of Bulk Plant Tanks:** No person shall load gasoline from a cargo tank into a bulk plant tank that exceeds 250 gallon (946 l) capacity unless the cargo tank bears a current Maricopa County pressure-test decal and uses a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pound of volatile organic compounds per 1000 gallons transferred (72 grams per 1000 liters).
- b. Loading From Bulk Plant Tanks:** No person shall load gasoline from a bulk plant tank that exceeds 250 gallons (946 l) capacity into a cargo tank unless both the loading rack and cargo tank use a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pounds of volatile organic compounds per 1000 gallons loaded (72 grams per 1000 liters).

**304 OPERATING REQUIREMENTS FOR VAPOR LOSS CONTROL DEVICES:** The owner or operator of a vapor loss control device subject to this rule shall operate the device and organic liquid loading equipment as follows:

**304.1** 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 cargo tank. Each owner or operator of a facility shall act to ensure that any vapor recovery system required by this Rule 351 is connected between the cargo tank and the storage tank during all loading of gasoline.

**304.2** Loading shall be accomplished in a manner that prevents overfills, fugitive liquid leaks or excess gasoline liquid drainage. Owners or operators of bulk plants or operators of cargo tanks shall observe all parts of the loading and shall discontinue loading if any liquid or vapor leaks are observed. 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 loading operations, potential leak sources shall be vapor tight as demonstrated by the test procedure described in Section 501 of this rule.

**304.3** Loading operations which use vapor collection/processing equipment shall be accomplished in such a manner that the displaced vapor and air will be vented only to the vapor collection/processing 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.

**304.4** Vapor recovery lines 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.

**305 REPAIR AND RETESTING REQUIREMENT:** Except as superseded by Department actions pursuant to the procedures of Rule 100, Section 501 ("Malfunctions"), the owner/operator of a vapor loss control device that exceeds the standards of this rule shall notify the Control Officer and observe the following time schedule in ending such exceedances:

**303.1** Concentrations at or above the lower explosive limit must be brought into compliance within 24 hours of detection.



**303.2** Leak concentrations exceeding 10,000 ppm but less than 50,000 ppm as methane for vapor collection/processing equipment subject to gas-tight standard shall be brought into compliance within 5 days of detection.

**303.3** Except as the Control Officer otherwise specifies, a leak source subject to Sections 303.1 or 303.2 must be tested after presumed leak-correction within 15 minutes of recommencing use; if leak standards are exceeded in this test, the use of the faulty equipment shall be discontinued within 15 minutes until correction is verified by retesting.

**306** **EQUIPMENT MAINTENANCE AND OPERATING PRACTICES:** All equipment associated with loading operations shall be maintained to be leak free, vapor tight and in good working order. Gasoline shall not be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation to the atmosphere. Purging of gasoline vapors and of JP-4 (jet petrol) vapors is prohibited.

**305** **EXEMPTIONS:**

**305.1** ~~Less Than 120,000 Gallons Per 30-Day Period:~~ ~~At bulk plants built before October 2, 1978, vapor loss control specified in Section 301.2b is not required at the outloading rack when all of the following are complied with:~~

- a. ~~After April 6, 1992, the bulk plant loads less than 120,000 gallons (454,800 l) of gasoline into delivery vessels in any consecutive 30 day period. Any plant that becomes subject to all of the provisions of Section 301.2b by exceeding this threshold will remain subject to these provisions even if its output later falls below the threshold.~~
- b. ~~Keep current records of amount of gasoline loaded and keep them readily accessible to the Division upon request for at least three (3) years.~~
- c. ~~Load outgoing gasoline using submerged fill only.~~
- d. ~~The owners or operators of the bulk plant or the owners or operators of the delivery vessel shall observe all parts of the transfer and shall discontinue the transfer if any leaks are observed.~~

**307** **CARGO TANKS**

**307.1** A gasoline cargo tank shall:

- a. ~~Be designed and maintained to be vapor tight and leak free; and~~
- b. ~~Clearly display a valid Maricopa County Air Quality Department decal that is permanently mounted near the front on the right (passenger) side of the cargo tank.~~

**307.2** Opening Hatches on Non-Exempt Cargo Tanks:

- a. **Required by Rule:** Owners/operators, their contractors, and authorized government agents may open vapor containment equipment on a nonexempt gasoline cargo tank while performing operations required by governmental agencies, but shall be restricted as follows, unless approved in advance by the Control Officer:
  - (1) ~~Wait at least 3 minutes after a cargo tank has stopped before opening its hatch or other vapor seal.~~
  - (2) ~~Reclose hatch or other sealing device within 3 minutes of completing the required procedures.~~
  - (3) ~~Limit windspeed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec), using a barrier if necessary.~~
- b. **Loading:** Hatches of a cargo tank may be open for monitoring to prevent overflow during the period that the cargo tank is receiving gasoline from a tank or other source, if so required by a local fire code or other ordinance.



**SECTION 400 - ADMINISTRATIVE REQUIREMENTS:** An owner or operator of a gasoline bulk plant or gasoline terminal shall submit the following to the Control Officer:

- 401.1** An operation and maintenance (O&M) plan as described in Section XXX of this rule by [+XX days after BOS adoption of rule] or within XX days of construction, reconstruction or modification, whichever comes last.
- 401.2** Any required notifications of compliance status.
- 401.3** Notice of performance testing.
- 401.4** Any additional information requested by the Control Officer.
- 401.5** **OTHER AGENCIES' REQUIREMENTS:** Compliance with this rule does not relieve or otherwise affect a person's obligation to comply with any other applicable federal, state, or local legal requirement, including, but not limited to, rules promulgated by the Arizona Department of Weights and Measures, local fire department codes, and local zoning ordinances.

**404** **GASOLINE CARGO TANK LEAK TEST REQUIRED:** A gasoline cargo tank shall first pass the MC Pressure Test before loading gasoline within Maricopa County, and to continue, must pass the Maricopa County Pressure Test (MC test) each year thereafter. This does not apply to loads that originate solely in another state, nor to loads originating in Maricopa County that are not delivered in Maricopa County.

- 404.1** **Testing:** The MC test shall be performed according to subsection 302.2.
  - a.** Scheduling and notification of an initial test or annual retest shall be done in accordance with section XXX.
  - b.** A tester shall record the results of a MC test according to the format in section XXX.
  - c.** A valid Maricopa County Air Quality Department decal shall be affixed to the cargo tank consequent to passing the MC test before the cargo tank may load gasoline.
  - d.** An owner or operator of a cargo tank shall comply with section XXX registration requirements to obtain a valid Maricopa County Air Quality Department decal after a successful MC test.

**302.2** **Maricopa County Pressure Test:** A cargo tank that tested per MC test procedure shall pass all 3 of the following pressure subtests, in the following sequence using the vapor hose for the test that is used to load gasoline unit. If more than one hose is used for gasoline loading, each hose shall be tested separately using the following test sequence:

- a.** **Positive Pressure Subtest:** Lose no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when pressurized to a gauge pressure of 18 inches (45.7 cm) of water in 2 consecutive runs according to procedures in subsections 5.1.1 through 5.2.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule; and
- b.** **Vapor Valve Subtest:** Lose no more than 5.0 inches (127 mm) of water column in 5.0 minutes, measured in the vapor system after the cargo tank compartments are first collectively pressurized to a gauge pressure of 18 inches (45.7 cm) of water and then the vapor valves are closed, per subsection 503.2 of this Rule 352; and
- c.** **Partial Vacuum Subtest:** Gain no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when initially evacuated to a gauge pressure of 6 inches (15.2 cm) of water, in 2



consecutive runs, per subsections 5.3.1 through 5.3.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule.

- d. Pressure Instability:** A subtest is invalidated if during either of the pressure subtests, more than 1/2 inch water pressure is gained, or if during the vacuum test the vacuum is increased by more than minus 1/2 inch.

**302.3** A cargo tank shall be repaired, retested, and pass all 3 subtests in the same testing period within 15 days of testing if it does not pass all 3 subtests of subsection 302.2 of this rule.

**401.1** **Notification of Required Testing:** The owner, operator, or tester within Maricopa County shall notify the Control Officer as follows for each vessel cargo tank being tested to meet requirements of Section 302 or subsection 304.1 of this rule:

- a.** Contact the Control Officer during normal business hours of the Department at least 4 hours prior to testing; and
- b.** Give an estimated start time that is no more than 1 hour prior to actual start time;
- c.** Except for weekend testing, the Control Officer shall be notified no more than 24 hours in advance of testing;
- d.** For weekend testing, the notification shall be given, along with the date of testing, prior to 2 PM on Friday (or Thursday, if Friday is a County holiday);
- e.** Give the location of the testing;
- f.** Any testing that is performed in the 8 hour period between 9 PM and 5 AM is not valid for purposes of satisfying Section 302 requirements, except if the Control Officer gives specific, advance permission for a particular occasion.
- g.** If they test fails, the test site has until the end of day to retest. If a retest is needed then the test site must call in to notify within 4 hours. Test must be from 5 am through 9 PM

**401.2** **Registration:** To obtain a Maricopa County Pressure Test decal, do the following for each vessel cargo tank that passes the required annual test:

- a.** Submit the following documents in a single packet and forward to Maricopa County Air Quality Department (address) Assemble in 1 packet the following 3 items:
- (1)** A properly completed Maricopa County “APPLICATION FOR AIR POLLUTION VAPOR RECOVERY CERTIFICATION” (also called “The Application”).
  - (2)** A properly completed copy of the Maricopa County Air Quality “Tank Truck Leak Certification Check List” or a certified copy of cargo tank pressure testing conducted by a facility outside of Maricopa County, and
  - (3)** The annual decal fee (or replacement decal fee) remittance. (The fee amount appears in Rule 280.)
- b.** Send or convey this single packet to the Maricopa County Air Quality Department at the address on the top of the application.



- c. Upon receipt and verification of the submitted documents and annual or replacement fee, of these 3 properly completed items, a decal will be issued by the Control Officer.

#### **401.3 Expiration:**

- a. A decal that is issued to a vessel cargo tank that passed its test in the 4-month period between March 1 through June 30 shall expire at 11:59 PM on June 30 of the following year.
- b. A decal that is issued to a vessel cargo tank that passed its test in the period after June 30 of the previous year and before March 1 of the current year shall expire at 11:59 PM on June 30 of the year. For example, if the test is passed between July 1, 2000, through February 28, 2001, the decal expires on June 30, 2001.

#### **401.4 Loss of Decal:**

- a. An owner or operator shall notify the Control Officer immediately if a valid decal/sticker is lost, defaced, or destroyed.
- b. The Control Officer may require a demonstration of need for replacement.
- c. If Rule 280 so provides, the Control Officer may charge a fee for reissue or substitute issue of a lost, defaced, or destroyed decal/sticker, if the Control Officer determines that the Department is not at fault.

**401 ANNUAL INSPECTIONS OF EXTERNAL FLOATING ROOF TANKS:** ~~The owner or operator of any tank which uses an external floating roof to meet the vapor loss control 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 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.~~

**402 ANNUAL INSPECTIONS OF INTERNAL FLOATING ROOF TANKS:** ~~The owner or operator of any tank which uses an internal floating roof to meet the vapor loss control requirements of this rule shall make the entire tank including the internal floating roof available for inspection prior to filling. It shall be made available for visual inspection through the manholes or roof hatches on the fixed covering on an annual basis. Roofs which practicably can be walked on shall annually be made available for hands on inspection.~~

**403 FIVE-YEAR, FULL CIRCUMFERENCE INSPECTIONS:** ~~As of July 13, 1988, the owner or operator of a floating roof tank of 20,000 gallons (75,700 l) or more storing an organic liquid with a TVP of 1.5 psia (77.5 mm Hg) or greater shall make the primary seal envelope available for inspection by the Control Officer for its full length every five years. However, if prior thereto 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 working days prior to removal of the secondary seal. The owner or operator shall perform a complete inspection of the primary seal and floating roof, including measurement of gap area and maximum gap, whenever the tank is emptied for non-operational reasons or at least every five years, whichever is more frequent.~~

**404 SEMI-ANNUAL INSPECTIONS BY OWNER OR OPERATOR:** ~~The owner or operator of any floating roof tank subject to this rule shall inspect the tank and seals at least once every six months to determine ongoing compliance with both the applicable standards of this rule and any permit conditions pertaining to the tank. Determinations of secondary seal gap area on external floating roofs need be made~~



~~only once per year. Records of these inspections shall be maintained and shall be made available to the Control Officer upon request.~~

- ~~405 **COMPLIANCE SCHEDULE:** By October 6, 1992, any person subject to Section 300 who does not comply with all its provisions shall submit to the Control Officer for approval an emission control plan describing the method(s) to be used to achieve full compliance by October 6, 1993. This plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require a person submitting such an emission control plan to submit subsequent reports on progress in achieving compliance.~~

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

- 501 PROVIDING AND MAINTAINING MONITORING DEVICES:** No person required to use an approved emission control system to control particulate emissions pursuant to this rule shall do so without first providing, properly installing, operating and maintaining in calibration and in good working order devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved O&M Plan.

- 502 ANNUAL INSPECTIONS OF EXTERNAL FLOATING ROOF TANKS:** The owner or operator of any tank which uses an external floating roof to meet the vapor loss control 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 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.

- 503 ANNUAL INSPECTIONS OF INTERNAL FLOATING ROOF TANKS:** The owner or operator of any tank which uses an internal floating roof to meet the vapor loss control requirements of this rule shall make the entire tank including the internal floating roof available for inspection prior to filling. It shall be made available for visual inspection through the manholes or roof hatches on the fixed covering on an annual basis. Roofs which practicably can be walked on shall annually be made available for hands-on inspection.

- 504 FIVE-YEAR, FULL CIRCUMFERENCE INSPECTIONS:** The owner or operator of a floating roof 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 years. However, if the secondary seal is removed or if the tank is drained and cleaned by the owner or operator for any reason prior to the five year time frame, the primary seal envelope shall be made available inspection at that time. The owner or operator shall provide notification to the Control Officer no less than seven working days prior to removal of the secondary seal.

- 505 SEMI-ANNUAL INSPECTIONS BY OWNER OR OPERATOR:** The owner or operator of any floating roof tank subject to this rule shall inspect the tank and seals at least once every six months to determine ongoing compliance with both the applicable standards of this rule and any permit conditions pertaining to the tank. Determinations of secondary seal gap area on external floating roofs need be made only once per year. Records of these inspections shall be maintained and shall be made available to the Control Officer upon request.

- 501506 VAPOR PRESSURE RECORDS:** A person whose tanks are subject to the provisions of this rule shall keep accurate records of liquids gasoline stored in such tanks including either the true or the Reid vapor pressure ranges of each such liquid. The temperature of the contents of each affected gasoline tank located



at bulk terminals shall be recorded at least weekly and the true vapor pressure of each shall be recorded at least once each month. These records shall be kept a minimum of three years.

**507** **CARGO TANK RECORDKEEPING AND REPORTING:**

**502.1** The owner or operator of a gasoline ~~delivery vessel~~ cargo tank subject to this rule shall maintain records of all certification, testing, and repairs.

- a. Such records must be maintained in a legible, readily available condition for at least 5 years after the date the testing and repair is completed.
- b. Upon verbal or written request by the Control Officer, or a designee of the Control Officer, records shall be provided 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** The records of the certification testing required by Section ~~302~~XXX must be recorded in both of the following documents: the “Application for Air Pollution Vapor Recovery Certification” and the “Tank Truck Leak Certification Check List”. Pressure and vacuum shall be recorded to no less than the nearest quarter inch or half-centimeter of water column. The minimum requirements for each of these 2 documents follow:

a. For the “Application for Air Pollution Vapor Recovery Certification”:

- (1) Owner's name and address.
- (2) Tank ID number, the location of the test, the time of the test, and the date of the test.
- (3) For the pressure subtest, 2 readings: the change in pressure (in inches H<sub>2</sub>O) for Run 1 and the change in pressure for Run 2.
- (4) For the vapor-valve subtest (subsection 302.2b), 1 reading: the total change in pressure during the test.
- (5) For the vacuum test, 2 readings: the total change in vacuum during Run 1 and the same for Run 2.

b. The “Tank Truck Leak Certification Check List” (or its successor document) shall contain at least the following information:

- (1) The same information required in subsections a(1) and a(2) of this subsection 501.2; and
- (2) The time the subtest began, the initial pressure of the subtest, the finish time, the final pressure of the subtest, and the pressure change between the start and end of the subtest; the ~~vessel~~ cargo tank's unit number, manufacturer's serial number, the tank capacity, whether the tank was purged of gasoline vapors, and the date of the next leakage test if the set of 3 subtests are not all passed.
- (3) If the initial pressure test was not passed, one set of readings in the row “Initial Test”, also giving the elapsed time if the pressure reached zero before 5 minutes. For example, the row marked “Initial Test” will normally contain the results of the initial failed subtest if any repairs were made subsequent to any pressurization or evacuation of the tank.



**502508** **COMPLIANCE DETERMINATION - TEST METHODS:** When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.

**509** **GASOLINE STORAGE TANK TEST METHODS:** The EPA test method as it exists in the Code of Federal Regulations (CFR) (July 1, 1998), as listed below, is adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 504 are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ 85004.

**502.1** **Determination Of Vapor-Tight Condition:** ~~Applicable procedures of Rule 351, Section 501.~~

**502.2** **Emission Rates and Control Device Efficiency:** EPA Reference Methods 2A, 2B, 18 and 25A.

**502.3** **Gaseous Leak Detection and Determination of Gas-Tight Condition:** EPA Method 21.

**502.4** **Reid Vapor Pressure:** Reid vapor pressure shall be determined by ASTM Method D323-82 or by ASTM Method ~~D 5194~~ D323-94.

**502.5** **True Vapor Pressure:** True vapor pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within  $\pm 1$  degree Fahrenheit or  $\pm 0.5$  degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.

**502.6** **Optical Gas Imaging**

**510** **VAPOR CONTROL SYSTEMS:**

**504.1** **Vapor Collection/Processing System:** Control efficiency of a vapor collection/processing system shall be determined according to EPA Reference Method 25A or Method 25B subsequent to the Control Officer's approval of the test protocol. Leak tests to verify a gas-tight state of the equipment associated with the vapor collection/processing device, including the piping outside of the loading area, shall be conducted according to EPA Reference Method 21. Gas volume flow rates shall be determined by Method 2B for a thermal oxidizer; otherwise, by Method 2A.

**504.2** **Vapor Balance And Loading Systems:** Vapor tightness shall be determined using the method described in Section 501 of this rule.

**504.3** True Vapor Pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within  $\pm 1$  degree Fahrenheit or  $\pm 0.5$  degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.

**504.4** Reid Vapor Pressure shall be determined by ASTM Method D 323-82 or by ASTM Method D 5191.

**511** **GASOLINE CARGO TANK TEST METHODS:**

**504.1** **Pressure and Vacuum Tests:** The subtests to determine compliance with subsection 302.2a and subsection 302.2c of this rule shall be performed according to EPA Method 27, except that the definition of gasoline shall be according to this Rule 352.



- 504.2** **Test of Internal Vapor Valves:** The test to determine compliance with subsection 302.2b shall be performed immediately after successfully passing the pressure subtest (pursuant to subsection 302.2a), without performing any intervening maintenance or repair on the vapor valves.
- 504.3** Confirmation of a vapor leak detected on a vessel cargo tank during ~~onloading~~ loading shall be determined by properly deploying a pressure tap adapter that conforms to Method 27 provisions, and demonstrating the leak according to subsection 504.4, while the pressure is less than 20 inches of water column.
- 504.4** Pursuant to Section 203, Reid vapor pressure shall be determined using American Society for Testing and Materials (ASTM) Method D 323-90.
- 504.1** EPA Method 27 (“Determination Of Vapor Tightness Of Gasoline Delivery Tank Using Pressure-Vacuum Test”) in 40 CFR 60, Appendix A.
- 504.2** American Society for Testing and Materials (ASTM) Method D 323-90, 1990 (Reid vapor pressure).
- 504.3** **Test of Internal Vapor Valves:**
- a.** Pressurize the ~~delivery vessel~~ cargo tank to 18 inches (45.7 cm) of water column, using the first 2 procedures of the "Pressure Test" section of EPA Method 27.
  - b.** Close all the vessel cargo tank’s internal valves, including the internal vapor valves, thereby isolating the vapor system (vapor return line plus vapor manifold) from the compartments.
  - c.** Relieve the pressure in the vapor return line (to atmospheric pressure).
  - d.** Seal the vapor return line and after 5.0 minutes record the pressure present in the vapor system.
- 504.4** **Delivery Vessel Cargo Tank Vapor Tightness Test:** A vapor tight condition will be determined for vessel cargo tanks by the following method:
- a.** **Calibration:** Within 4 hours prior to monitoring, the combustible gas detector or organic vapor analyzer shall be suitably calibrated for a 20 percent LEL response, or to 10,000 ppm with methane.
  - b.** **Probe Distance:** The probe inlet shall be 1 inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be 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 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 a potential or actual 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 a leak such that the central axis of the probe-tube inlet shall be positioned coaxially with the path of the most concentrated vapors.
  - e.** **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.



**AQ-2015-008-Rule 351**  
**Loading of Organic Liquids**  
Stakeholder Workshops: June 29 and 30, 2015  
Contact: Cheri Dale – 602-506-3476 - [CheriDale@mail.maricopa.gov](mailto:CheriDale@mail.maricopa.gov)

**Maricopa County Air Quality Dept.**  
Planning & Analysis Division  
1001 N. Central Ave. Ste. 125  
Phoenix, AZ 85004

---

~~Last Formatted – Fall 1997~~



**REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 352**

**GASOLINE DELIVERY VESSEL TESTING AND USE STORAGE AND LOADING OF GASOLINE AT GASOLINE DISPENSING FACILITIES**

**INDEX**

**SECTION 100 – GENERAL**

- 101 PURPOSE
- 102 APPLICABILITY
- 103 EXEMPTIONS

**SECTION 200 – DEFINITIONS**

[Definitions will be listed out in final draft document.]

**SECTION 300 – STANDARDS**

- 301 ~~PREVENT LEAKS AND SPILLS~~ MANUFACTURERS, SUPPLIERS, OWNERS/OPERATORS
- 302 ~~GASOLINE DELIVERY VESSEL LEAK TEST REQUIRED~~ GENERAL HOUSEKEEPING REQUIREMENTS
- 303 ~~DISPLAY A VALID DECAL~~ GASOLINE STORAGE EQUIPMENT AND OPERATION
- 304 ~~PURGING PROHIBITED~~ CARGO TANKS
- 305 ~~EXEMPTIONS~~ LOADING OF GASOLINE

**SECTION 400 – ADMINISTRATIVE REQUIREMENTS**

- 401 TESTING OTHER AGENCIES' REQUIREMENTS
- 402 TIME FRAME FOR INSTALLATION OF CONTROL DEVICE TESTING
- 403 GASOLINE STORAGE TANK COMPLIANCE INSPECTIONS
- 404 GASOLINE CARGO TANK LEAK TEST REQUIREMENT
- 405 INSTALLATION OF A CONTROL DEVICE
- 406 CARB DECERTIFICATION

**SECTION 500 – RECORDS AND MONITORING**

- 501 GASOLINE STORAGE TANK RECORDKEEPING AND REPORTING REQUIREMENTS
- 502 ~~MONITORING FOR LEAKS~~ GASOLINE CARGO TANK RECORDKEEPING AND REPORTING REQUIREMENTS
- 503 COMPLIANCE DETERMINATION
- 504 TEST METHODS



Revised 07/13/88  
 Revised 11/16/92  
 Revised 05/05/99  
 Revised 09/25/13

Revised 07/13/88; Revised 11/16/92; Revised 05/05/99; Revised 09/25/13; **Revised MM/DD/YY**

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

**RULE 352**

**GASOLINE DELIVERY VESSEL TESTING AND USE STORAGE AND LOADING OF GASOLINE AT  
 GASOLINE DISPENSING FACILITIES**

**SECTION 100 – GENERAL**

- 101 PURPOSE:** To limit emissions of volatile organic compounds (VOC) from gasoline stored in stationary dispensing tanks; from gasoline delivered into such tanks and from gasoline cargo tanks, delivery vessels.
- 102 APPLICABILITY:** This rule applies to:
- 102.1** Gasoline stored in or transferred into any stationary dispensing tank; and
  - 102.2** any Any gasoline delivery vessel cargo tank which is used to receive or deliver gasoline within Maricopa County; and
  - 102.3** to all persons who own, operate, maintain, repair, or test such gasoline dispensing facilities and gasoline cargo tanks. a vessel.
  - 102.4** Gas stations and other gasoline-dispensing facilities, including those located at airports.
  - 102.5** This rule does not apply to a bulk tank or a bulk terminal as defined in (PROPOSED) Rule 351.
- 103 STORAGE TANK EXEMPTIONS:**
- 103.1 Dispensing Tanks for Farm Operations:** Any stationary gasoline dispensing tank used exclusively for the fueling of implements of normal farm operations.
  - 103.2 The Vapor Recovery Provisions of Section XXX of this Rule Shall Not Apply to the Following Stationary Gasoline Dispensing Tanks:**
    - a. Non-Resale Dispensing Operations From Non-Farm Tanks:** Any stationary gasoline dispensing operation receiving less than 120,000 gallons of gasoline in any 12 consecutive calendar months, dispensing no resold gasoline, and having each gasoline dispensing tank equipped with a permanent submerged fill pipe pursuant to subsection 302.1, is exempt from Section 303. However, any operation shall become subject to the provisions of Section 303 of this rule by exceeding the 120,000 gallon threshold or not abiding by the restrictions, and shall remain subject to such provisions even if annual emissions later fall below this threshold.
    - b. Dispensing Tanks Of 1000 Gallons Or Less:** Any stationary dispensing tank having a capacity of 1000 gallons (3785 l) or less which was installed prior to October 2, 1978, provided that such tank is equipped with a permanent submerged fill pipe. Where, because of government regulation including, but not limited to, Fire Department codes, such a fill pipe cannot be installed, the gasoline shall be delivered into the tank using a nozzle extension that reaches within 6 inches of the tank bottom.
    - c. Dispensing Tanks with Offset Fill Lines:** Any stationary dispensing tank installed prior to October 2, 1978, where the fill line between the fill connection and tank is offset.



**104**    **EXEMPTIONS: CARGO TANKS:**

- 104.1**    A cargo tank is exempt from pressure test requirements of Section 302 if ALL of the following conditions are met:
- a.**    The cargo tank was placed in operation before July 13, 1988; **and**
  - b.**    The cargo tank transported gasoline within Maricopa County before January 1, 1998; **and**
  - c.**    The cargo tank never loads at a gasoline terminal; **and**
  - d.**    The cargo tank serves only farm tanks and/or those non-resale dispensing operations having a yearly throughput not exceeding 120,000 gallons of gasoline, verified by monthly records pursuant to section XXX of this rule; **and**
  - e.**    The cargo tank has a sticker affixed to it that indicates to a gasoline dispensing facility that the cargo tank has passed an ~~annual vapor tightness test.~~ Maricopa County Pressure Test.
- 104.2**    An operator of a cargo tank exempted by section XXX is allowed to incidentally purge gasoline vapors from a cargo tank as a passive result of loading, or briefly when lids/ports must be open for inspection.

**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.

**XXX**    **AST-Aboveground Storage Tank-**

**XXX**    **UST-Underground Storage Tank-**

**XXX**    **AV-GAS-**

**201**    **2-POINT SYSTEM:** A fill pipe and a vapor-recovery pipe pair which are in close proximity to one another and are connected directly to and emerge directly above the tank they serve.

**XXX**    **CARB-CERTIFIED:** ~~A vapor control system, subsystem, or component that has been specifically approved by system configuration and manufacturer’s name and model number in an executive order of the certified by the California Air Resources Board (CARB), pursuant to Section 41954 of the California Health and Safety Code. Such orders are included in CARB’s publication, “Gasoline Facilities – Phase I & II”, which is available as set forth in subsection 503.4.~~

**XXX**    **DISPENSING TANK:** Any stationary tank which dispenses gasoline into a motorized vehicle’s fuel tank that directly fuels its engine(s). This includes aircraft and watercraft engines.

**XXX**    **COAXIAL-**

**XXX**    **DUAL-POINT VAPOR BALANCE SYSTEM:** a type of vapor balance system in which the storage tank is equipped with an entry port for a gasoline fill pipe and a separate exit port for a vapor connection.

**202**    **EXCESS GASOLINE DRAINAGE:** ~~More than 10 milliliters (2 teaspoonsful) of liquid gasoline lost in the process of connecting or disconnecting a gasoline delivery hose, or any quantity of gasoline lost during those processes 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. More than 10 milliliters (2 teaspoonsful) of liquid gasoline lost from the end of a fill hose or vapor 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 filltube’s spill containment receptacle.~~



- 203** **GASOLINE:** Any petroleum distillate or blend of petroleum distillate with other combustible liquid(s), such as alcohol, that is used as a fuel for internal combustion engines and has a Reid vapor pressure between 4.0 and 14.7 psi (200–760 mm Hg.) For the purposes of this rule, liquefied petroleum gas (LPG) is excluded.
- 204** **GASOLINE DELIVERY VESSEL:** Any vehicular mounted container such as a tanker truck, tank trailer, cargo tank or any other wheel mounted container used to transport gasoline. This includes any hoses the vessel carries through which deliveries must be made. **CARGO TANK:** A delivery tank truck or railcar and its associated pipes, hoses, and fittings which transports gasoline and is identified with a pressure test certification decal issued by the Control Officer.. ~~is loading gasoline or which has loaded gasoline on the immediately previous load.~~
- XXX** **GASOLINE DISPENSING OPERATION:** ~~All gasoline dispensing tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same person (or persons under common control).~~ **FACILITY:** any stationary facility which dispenses gasoline into the fuel tank of a motor vehicle.
- 205** **GASOLINE VAPORS:** Vapors, originating from liquid gasoline, that are usually found in mixture with air. Included are any droplets of liquid gasoline or of gasoline-vapor condensate that are entrained by the vapor.
- 208** **INSTALLER:** The person, as defined in Rule 100, that installs VOC control equipment at a dispensing facility.
- 206** **LEAK FREE:** ~~Having no single gasoline leak of more than 3 drops per minute from a gasoline delivery vessel, including fill hose(s) and vapor hose(s), but not including the disconnecting or connecting of either a gasoline hose from a gasoline fill line or a vapor hose from a vapor line.~~ **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.
- 207** **MARICOPA COUNTY (MC) PRESSURE TEST:** The complete pressure, vacuum, and vapor-valve testing of a gasoline ~~delivery vessel~~ cargo tank that is performed according to Maricopa County specifications as described in subsection 302.2 of this rule.
- XXX** **Monthly throughput:** The total amount of gasoline transferred into or dispensed from a gasoline dispensing site during one calendar month.
- XXX** **OFFSET FILL LINE:** Any dispensing tank's gasoline fill line (piping and fittings) which contains one or more bends.
- XXX** **POPPETTED DRY BREAK:** A Stage 1 vapor recovery device that opens only by connection to a mating device to ensure that no gasoline vapors escape from the dispensing tank before the vapor return line is connected.
- 208** **PURGING:** Removing, cleaning, or scouring out gasoline vapors from all or a portion of a ~~delivery vessel~~ cargo tank by active or passive means and emitting the vapors into the atmosphere.
- 209** **STAGE 1 VAPOR RECOVERY SYSTEM (VR SYSTEM):** Any piping, hoses, equipment, and/or devices which are used to collect, store, or process gasoline vapors displaced by the delivery of gasoline and also by the unloading of gasoline into a vapor laden ~~delivery vessel~~ cargo tank. **STAGE 1 VAPOR RECOVERY:** At a gasoline dispensing facility, the use of installed vapor recovery equipment designed to reduce by at least 90% the VOC vapor that would otherwise be displaced into the atmosphere from a dispensing tank when gasoline is delivered into the tank by a ~~delivery vessel~~ cargo tank. This reduction may



*be done either by capturing the displaced vapors within the ~~delivery vessel~~ cargo tank, and/or by processing the vapors on site with an emission processing device (such as a VOC oxidizer).*

**210 SWITCH LOADING:** Loading diesel fuel into a ~~delivery vessel~~ cargo tank whose previous load was gasoline; or loading any liquid not subject to this rule into a ~~delivery vessel~~ cargo tank whose previous load was gasoline.

**211 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 LEL (lower explosive limit) subsequent to calibration with a gas specified by the manufacturer and is used according to the manufacturer's instructions.

*VAPOR-TIGHT: A condition in which an organic vapor analyzer (OVA) or a combustible gas detector (CGD) at a potential VOC leak source shows either less than 10,000 ppm when calibrated with methane, or less than 1/5 of the lower explosive limit, when prepared according to the manufacturer and used according to subsection 504.3 of this rule.*

## SECTION 300 – STANDARDS

### **301 Manufacturers, Suppliers and Owner/Operator:**

**301.1** A person shall not supply, offer for sale, sell, install or allow the installation of an aboveground or underground storage tank, any type of vapor recovery system or any of its components unless the tank, system and components are clearly identified with a permanent identification affixed by the certified manufacturer or rebuilder and one of the following:

- a.** The equipment is supplied by the manufacturer as a CARB certified component; or
- b.** The equipment is rebuilt by a person who is authorized by CARB to rebuild that specific CARB certified component; or
- c.** The equipment is approved by a third party that is recognized by the industry and the department. Written approval from the Control Officer must be obtained prior to installing any non-CARB certified component.

**301.2** A person shall not install an aboveground or underground storage tank, system, or vapor recovery system components unless they are licensed as a Vapor Recovery Registered Service Representative (RSR) in the State of Arizona to perform the work.

**301.3** A person shall not install a coaxial fill pipe or reinstall a coaxial fill pipe in major modifications in which the top of the tank is exposed and the vapor port bung is pre-configured to accept vapor recovery piping.

**301.4** Both the owner/operator of a dispensing tank and the driver/operator of a cargo tank delivering gasoline to the fuel dispensing tank equipped with vapor recovery shall have responsibility to assure that vapor recovery equipment (if required by this rule) is properly connected and in use at all times while gasoline is actively being loaded.

**301.5** The owner/operator of a fuel dispensing tank not exempted by Section 305 shall refuse delivery of gasoline from a cargo tank which does not bear a current pressure test certification decal issued by the Control Officer. This provision does not apply during times when the facility is unattended or there is only one person under control of the dispensing facility present.

### **302 General Housekeeping Requirements:**

**302.1** No person shall transfer gasoline; permit the transfer of gasoline; or store gasoline in any stationary dispensing tank located above or below ground unless the following conditions are met:

- a.** Minimize gasoline spills;
- b.** Clean up spills as expeditiously as practicable;



- c. Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;
- d. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

**303** **Gasoline Storage Equipment and Operation Requirements:** A person shall not transfer, allow the transfer, or provide equipment for the transfer of gasoline from any cargo tank into any stationary storage tank with a capacity of 950 liters (251 gallons) or more, unless the cargo tank bears a current Maricopa County Pressure Test decal and all of the following conditions are met:

**303.1** **Underground Storage Tanks**

- a. Underground storage tanks are equipped with a "CARB certified" equipment.
- b. Must consist of a two point vapor recovery system with separate fill and vapor connection points OR a coaxial system.
- c. The vapor recovery system shall be maintained and operated according to the manufacturer's specifications and the applicable CARB Executive Orders including the corresponding CARB approved Installation, Operation and Maintenance Manual.
- d. All fill tubes are equipped with gasketed vapor tight caps;
- e. Each submerged fill tube shall have the highest point of its discharge opening no more than six inches (6") from the bottom of the tank.
- e. All dry breaks are equipped with vapor tight seals and gasketed vapor tight caps;
- f. Each vapor tight cap is in a closed position except when the fill tube or dry break it serves is actively in use;
- g. The fill tube assembly, including fill tube, fittings and gaskets, is maintained to prevent vapor leakage from any portion of the vapor recovery system;
- h. A "CARB certified" spill box shall be installed and maintained free of standing liquid, debris and other foreign matter. The spill box shall be equipped with an integral drain valve or other devices that are certified by CARB to return spilled gasoline to the underground stationary storage tank. The drain valve shall be maintained closed and free of vapor emissions at all times except when the valve is actively in use.
- i. All CARB certified coaxial fill tubes are spring-loaded and operated so that the vapor passage from the stationary storage tank back to the cargo tank is not obstructed;

**303.2** **Storage of Gasoline in Above Ground Storage Tanks (AST) at a Gasoline Dispensing Facility:** Above ground Storage Tanks (AST) Requirements: Each AST shall be equipped, operated and maintained per manufacturer specifications and CARB Executive Orders as follows:

- a. CARB certified" vapor recovery system having a minimum volumetric efficiency of 95%.
- b. Each AST shall have a permanent submerged drop tube that has a discharge opening no more than 6 inches above the tank bottom or, if a side fill AST, have discharge opening of no more than 18 inches above the tank bottom.
- c. Each AST shall have pressure vacuum vents installed and operated per manufacturer specifications.
- d. Each fill tube shall have a gasketed, vapor tight cap.
- e. Each dry break shall be vapor tight seals and covered with a gasketed vapor tight cap.
- f. All threads, gaskets, and mating surfaces of the drop tube assembly shall prevent liquid or vapor leakage at the joints of the assembly.



- g. Each gasketed vapor tight cap shall remain in a closed position except when the drop tube or dry break it serves is actively in use.
- h. A spill containment receptacle shall be installed on each direct fill pipe or remote fill pipe.
- i. Each AST shall be equipped with a spill containment receptacle that shall be maintained to be free of standing liquid, debris and other foreign matter.
- j. Each spill containment receptacle equipped with an integral drain valve or other approved devices that return spilled gasoline to the aboveground storage tank shall be maintained closed vapor tight except when the valve is actively in use.
- k. Any overflow prevention equipment shall be approved, installed and maintained vapor-tight to the atmosphere. Any device mounted within the fill tube shall be so designed and maintained that no vapor from the vapor space above the gasoline within the tank can penetrate into the fill pipe or through any of the fill pipe assembly into the atmosphere.
- l. All CARB certified coaxial fill tubes are spring-loaded and operated so that the vapor passage from the stationary storage tank back to the cargo tank is not obstructed;

**303.3** **VAPOR BALANCE CONTROL SYSTEMS (?)**The owner or operator of a vapor ----- system shall maintain and operate the vapor ----- system according to a Control Officer approved operation and maintenance plan to achieve at least a 95 percent reduction of emissions.

**301** **PREVENT LEAKS AND SPILLS:**

**301.1** **Vessel Integrity:** In Maricopa County, no person shall store or transport gasoline in or otherwise use or operate any gasoline delivery vessel unless such vessel is designed and maintained to be vapor tight and leak free.

**301.2** **Onloading Measures:**

- a. At any bulk loading rack, connect a vapor return hose before connecting any loading hose.
- b. At a bulk plant, connect an additional vapor hose before connecting any additional loading hose, unless an assisted vapor return system is serving the vapor hose that is already connected.
- c. Use a bucket or other effective capture device to catch any liquid dripping during the connection or disconnection of both the loading hose from the truck and the vapor hose from the loading dock's vapor receiving pipe.
  - (1) Either dispose of the captured liquid in a tank designated for that purpose, or use a receptacle or a material designed to absorb the liquid.
  - (2) Any gasoline that escapes or spills must be collected and contained.

**304** **CARGO TANKS:**

**304.1** A gasoline cargo tank shall:

- a. Be designed and maintained to be vapor tight and leak free; and
- b. Clearly display a valid Maricopa County Air Quality Department decal that is permanently mounted near the front on the right (passenger) side of the cargo tank.

**304.2** Opening Hatches on Non-Exempt Cargo Tanks:

- a. **Required by Rule:** Owners/operators, their contractors, and authorized government agents may open vapor containment equipment on a nonexempt gasoline cargo tank while performing operations required by governmental agencies, but shall be restricted as follows, unless approved in advance by the Control Officer:
  - (1) Wait at least 3 minutes after a cargo tank has stopped before opening its hatch or other vapor seal.



(2) Reclose hatch or other sealing device within 3 minutes of completing the required procedures.

(3) Limit windspeed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec), using a barrier if necessary.

b. Loading: Hatches of a cargo tank may be open for monitoring to prevent overflow during the period that the cargo tank is receiving gasoline from a tank or other source, if so required by a local fire code or other ordinance.

### 305 LOADING OF GASOLINE:

~~301.~~ **Prevent Liquid Spills and Excess Drainage:** A driver/operator of a gasoline ~~delivery vessel~~ cargo tank shall:

- a. Thoroughly drain a fill hose and a vapor recovery hose into the dispensing tank before disconnecting it from the tank's fittings.
- b. Connect and disconnect fill hoses and vapor recovery hoses in such a way as to prevent excess gasoline drainage (~~more than 2 teaspoonsful~~) from escaping from the hose in one connect/disconnect cycle.
- c. Spills and any gasoline that is deposited in or on an area other than within the dispensing tank shall be collected and contained. 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.

#### ~~301.4 Vapor Hose use Required at Retail Gas Stations:~~

- ~~a. A driver/operator shall not deliver gasoline to a dispensing tank at a retail gas station unless a vapor hose is first connected from the vessel to a vapor return line serving the tank.~~
- ~~b. No delivery shall be made to a retail tank if:
  - (1) it is not served by a vapor return, or
  - (2) if it has a locked cap that cannot be removed, or
  - (3) if broken fittings prevent correct connection of the vapor hose.~~

**301.5 Prevent Vapor Escape During Deliveries:** ~~For~~ Loading of gasoline into storage ~~dispensing~~ tanks at retail gas stations and any other gasoline dispensing facilities that are equipped with a Stage 1 vapor recovery system (VR System):

- a. A cargo tank operator shall not deliver gasoline to a gasoline storage dispensing tank at a retail gas station stations or at any gasoline dispensing facility with an installed vapor recovery system, unless a vapor hose is first connected from the cargo tank to a vapor return-line serving the storage tank.
- ~~a.b.~~ During deliveryloading, the vesselcargo tank operator shall not remove the lidcap of a fill tube unless every other fill tube either has a lidcap fastened in place or a delivery hose connecting it to the delivery vesselcargo tank.
- ~~b.c.~~ Connect a vapor recovery hose before connecting any gasoline delivery hose. Requirements for first connecting a vapor hose before a gasoline delivery hose do not apply to coaxial vapor recovery connection fittings.
- ~~e.d.~~ Disconnect and drain a delivery hose from a gasoline cargo tank before disconnecting and draining the vapor recovery hose.
- ~~e.e.~~ **Restriction on Multiple Connection:** A delivery vesselcargo tank shall not simultaneously have more than one gasoline delivery hose connected, unless each delivery hose is connected to a dispensing tank's 2-point system that already has a vapor hose connecting it to the vesselcargo tank.



**301.6 Vapor Recovery Systems Having Remote Vapor Return Lines:** If a ~~delivery vessel's cargo tank's~~ vapor hose is connected to a vapor return line that is not part of a 2-point system, then there shall not be more than one gasoline delivery hose connected to the ~~vessel cargo tank~~, and no other hoses connected to a fill tube; ~~viz., no~~ No more than one compartment of the ~~delivery vessel cargo tank~~ shall be emptied at a time.

**301.7** No delivery shall be made to a retail gasoline storage tank if:

- (1) it is not served by a vapor return, or
- (2) if it has a locked cap that cannot be removed, or
- (3) if broken fittings prevent correct connection of the vapor hose.

~~302~~ ~~**GASOLINE DELIVERY VESSEL CARGO TANK LEAK TEST REQUIRED:** A gasoline delivery vessel shall first pass the MC Pressure Test before delivering or unloading gasoline within Maricopa County, and to continue, must pass the MC Pressure Test each year thereafter. This does not apply to loads that originate solely in another state, nor to loads originating in Maricopa County that are not delivered in Maricopa County.~~

~~302.1~~ ~~**Testing:** The MC Pressure Test shall be performed according to subsection 302.2.~~

- ~~a.~~ ~~Scheduling and notification of an initial test or annual retest shall be done in accordance with subsection 401.1 and subsection 401.3.~~
- ~~b.~~ ~~A tester shall record the results of a Pressure Test according to the format in subsection 501.2.~~
- ~~c.~~ ~~A valid Maricopa County Air Quality Department decal shall be affixed to the vessel consequent to passing the MC Pressure Test before the vessel may deliver or unload gasoline.~~
- ~~d.~~ ~~An owner or operator of a delivery vessel shall comply with subsection 401.2 registration requirements to obtain a valid Maricopa County Air Quality Department decal after a successful MC Pressure Test.~~

~~302.2~~ ~~**MC Pressure Test:** A vessel that is being MC Pressure Tested shall pass all 3 of the following pressure subtests, in the following order, and use the same vapor hose during the test as will be used for deliveries by that same unit:~~

- ~~a.~~ ~~**Positive Pressure Subtest:** Lose no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when pressurized to a gauge pressure of 18 inches (45.7 cm) of water in 2 consecutive runs according to procedures in subsections 5.1.1 through 5.2.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule; and~~
- ~~b.~~ ~~**Vapor Valve Subtest:** Lose no more than 5.0 inches (127 mm) of water column in 5.0 minutes, measured in the vapor system after the vessel compartments are first collectively pressurized to a gauge pressure of 18 inches (45.7 cm) of water and then the vapor valves are closed, per subsection 503.2 of this Rule 352; and~~
- ~~c.~~ ~~**Partial Vacuum Subtest:** Gain no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when initially evacuated to a gauge pressure of 6 inches (15.2 cm) of water, in 2 consecutive runs, per subsections 5.3.1 through 5.3.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule.~~
- ~~d.~~ ~~**Pressure Instability:** A subtest is invalidated if during either of the pressure subtests, more than 1/2 inch water pressure is gained, or if during the vacuum test the vacuum is increased by more than minus 1/2 inch.~~

~~302.3~~ ~~A vessel shall be repaired, retested, and pass all 3 subtests in the same testing period within 15 days of testing if it does not pass all 3 subtests of subsection 302.2 of this rule.~~

~~305~~ ~~**EXEMPTIONS:**~~



- ~~305.1~~ A delivery vessel is exempt from pressure test requirements of Section 302 if all of the following conditions are met:
- ~~a.~~ The vessel was placed in operation before July 13, 1988; **and**
  - ~~b.~~ The vessel transported gasoline within Maricopa County before January 1, 1998; **and**
  - ~~c.~~ The vessel never loads at a gasoline terminal; **and**
  - ~~d.~~ The vessel serves only farm tanks and/or those non resale dispensing operations having a yearly throughput not exceeding 120,000 gallons of gasoline, verified by monthly records pursuant to subsection 501.1a; **and**
  - ~~e.~~ The vessel either has a sticker affixed to it that indicates to a bulk plant operator that the vessel may be loaded in Maricopa County, or has an affidavit signed by an owner or officer of the operating company filed with the Maricopa County Air Quality Department, with a complete copy of the signed affidavit available in the vehicle for inspection by a bulk plant operator or the Control Officer.
- ~~305.2~~ An operator of a delivery vessel exempted by subsection 305.1 is allowed to incidentally purge gasoline vapors from such vessel as a passive result of loading, or briefly when lids/ports must be open for inspection.
- ~~305.3~~ **Opening Hatches on Non-Exempt Vessels:**
- ~~a.~~ **Required by Rule:** Owners/operators, their contractors, and authorized government agents may open vapor containment equipment on a nonexempt gasoline delivery vessel while performing operations required by governmental agencies, but shall be restricted as follows, unless approved in advance by the Control Officer:
    - ~~(1)~~ Wait at least 3 minutes after onloading is complete and after a delivery vessel has stopped before opening its hatch or other vapor seal.
    - ~~(2)~~ Reclose hatch or other sealing device within 3 minutes of completing the required procedures.
    - ~~(3)~~ Limit windspeed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec), using a barrier if necessary.
  - ~~b.~~ **Defueling:** Hatches of a delivery vessel may be open for monitoring to prevent overflow during the period that the vessel is receiving gasoline from a tank or other source, if so required by a local fire code or other ordinance.
  - ~~c.~~ **Connecting Coaxial Fittings:** Requirements for first connecting a vapor hose before a gasoline delivery hose do not apply to coaxial VR connection fittings.

## SECTION 400 – ADMINISTRATIVE REQUIREMENTS

- 401** **OTHER AGENCIES' REQUIREMENTS:** Compliance with this rule does not relieve or otherwise affect a person's obligation to comply with any other applicable federal, state, or local legal requirement, including, but not limited to, rules promulgated by the Arizona Department of Weights and Measures, local fire department codes, and local zoning ordinances.
- 401402** **TESTING:** Testing required by subsections 302.2a, b, and c ~~this rule~~ shall be conducted by the owner or operator of the gasoline dispensing facility, the owner or operator of the gasoline cargo tank ~~delivery vessel~~, or by a consultant, at the expense of the owner or operator. The Control Officer may at any time observe the tests. An owner or operator shall comply with the following provisions:
- 403** **GASOLINE STORAGE TANK COMPLIANCE INSPECTIONS:** Any dispensing tank required by this rule to be equipped with vapor loss control devices may be subject to monitoring for vapor tightness and leak tightness during any working hours. Such a tank may be opened for gauging or inspection when



loading operations are not in progress, provided that such tank is part of an open system or is served by a positive-pressure relief valve with a relief setting not exceeding +1/2 lb psig.

**404** **GASOLINE CARGO TANK LEAK TEST REQUIRED:** A gasoline cargo tank shall first pass the MC Pressure Test before loading gasoline within Maricopa County, and to continue, must pass the Maricopa County Pressure Test (MC test) each year thereafter. This does not apply to loads that originate solely in another state, nor to loads originating in Maricopa County that are not delivered in Maricopa County.

**404.1** **Testing:** The MC test shall be performed according to subsection 302.2.

- a. Scheduling and notification of an initial test or annual retest shall be done in accordance with section XXX.
- b. A tester shall record the results of a MC test according to the format in section XXX.
- c. A valid Maricopa County Air Quality Department decal shall be affixed to the cargo tank consequent to passing the MC test before the cargo tank may load gasoline.
- d. An owner or operator of a cargo tank shall comply with section XXX registration requirements to obtain a valid Maricopa County Air Quality Department decal after a successful MC test.

**302.2** **Maricopa County Pressure Test:** A cargo tank that tested per MC test procedure shall pass all 3 of the following pressure subtests, in the following sequence using the vapor hose for the test that is used to load gasoline ~~unit~~. If more than one hose is used for gasoline loading, each hose shall be tested separately using the following test sequence:

- a. **Positive Pressure Subtest:** Lose no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when pressurized to a gauge pressure of 18 inches (45.7 cm) of water in 2 consecutive runs according to procedures in subsections 5.1.1 through 5.2.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule; and
- b. **Vapor Valve Subtest:** Lose no more than 5.0 inches (127 mm) of water column in 5.0 minutes, measured in the vapor system after the cargo tank compartments are first collectively pressurized to a gauge pressure of 18 inches (45.7 cm) of water and then the vapor valves are closed, per subsection 503.2 of this Rule 352; and
- c. **Partial Vacuum Subtest:** Gain no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when initially evacuated to a gauge pressure of 6 inches (15.2 cm) of water, in 2 consecutive runs, per subsections 5.3.1 through 5.3.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule.
- d. **Pressure Instability:** A subtest is invalidated if during either of the pressure subtests, more than 1/2 inch water pressure is gained, or if during the vacuum test the vacuum is increased by more than minus 1/2 inch.

**302.3** A cargo tank shall be repaired, retested, and pass all 3 subtests in the same testing period within 15 days of testing if it does not pass all 3 subtests of subsection 302.2 of this rule.

**401.1** **Notification of Required Testing:** The owner, operator, or tester within Maricopa County shall notify the Control Officer as follows for each ~~vessel~~ cargo tank being tested to meet requirements of Section 302 or subsection 304.1 of this rule:

- a. Contact the Control Officer during normal business hours of the Department at least 4 hours prior to testing; and
- b. Give an estimated start time that is no more than 1 hour prior to actual start time;
- c. Except for weekend testing, the Control Officer shall be notified no more than 24 hours in advance of testing;
- d. For weekend testing, the notification shall be given, along with the date of testing, prior to 2 PM on Friday (or Thursday, if Friday is a County holiday);



- e. Give the location of the testing;
- f. Any testing that is performed in the 8 hour period between 9 PM and 5 AM is not valid for purposes of satisfying Section 302 requirements, except if the Control Officer gives specific, advance permission for a particular occasion.
- g. If they test fails, the test site has until the end of day to retest. If a retest is needed then the test site must call in to notify within 4 hours. Test must be from 5 am through 9 PM

**401.2 Registration:** To obtain a Maricopa County Pressure Test decal, do the following for each vessel/cargo tank that passes the required annual test:

- a. Submit the following documents in a single packet and forward to Maricopa County Air Quality Department (address) Assemble in 1 packet the following 3 items:
  - (1) A properly completed Maricopa County “APPLICATION FOR AIR POLLUTION VAPOR RECOVERY CERTIFICATION” (also called “The Application”),
  - (2) A properly completed copy of the Maricopa County Air Quality “Tank Truck Leak Certification Check List” or a certified copy of cargo tank pressure testing conducted by a facility outside of Maricopa County, and
  - (3) The annual decal fee (or replacement decal fee) remittance. (The fee amount appears in Rule 280.)
- ~~b. Send or convey this single packet to the Maricopa County Air Quality Department at the address on the top of the application.~~
- c. Upon receipt and verification of the submitted documents and annual or replacement fee, of these 3 properly completed items, a decal will be issued by the Control Officer.

**401.3 Expiration:**

- a. A decal that is issued to a vessel/cargo tank that passed its test in the 4-month period between March 1 through June 30 shall expire at 11:59 PM on June 30 of the following year.
- b. A decal that is issued to a vessel/cargo tank that passed its test in the period after June 30 of the previous year and before March 1 of the current year shall expire at 11:59 PM on June 30 of the year. For example, if the test is passed between July 1, 2000, through February 28, 2001, the decal expires on June 30, 2001.

**401.4 Loss of Decal:**

- a. An owner or operator shall notify the Control Officer immediately if a valid decal/sticker is lost, defaced, or destroyed.
- b. The Control Officer may require a demonstration of need for replacement.
- c. If Rule 280 so provides, the Control Officer may charge a fee for reissue or substitute issue of a lost, defaced, or destroyed decal/sticker, if the Control Officer determines that the Department is not at fault.

**402405 ~~TIME FRAME FOR INSTALLATION OF CONTROL DEVICE:~~** An owner or operator of a vessel/cargo tank testing operation who chooses to comply with the Section 304 purging provisions through the use of a control device shall submit ~~by August 1, 1999,~~ an application for a Maricopa County Air Pollution Control Permit and an Operation and Maintenance Plan for the control device. ~~The device shall be fully functioning by May 1, 2000.~~

**406 CARB DECERTIFICATION:** A person shall not install or reinstall a component related to vapor recovery that has been decertified by CARB in “Gasoline Facilities - Phase I & II” publication, referenced in subsection 503.4.

## SECTION 500 – RECORDS AND MONITORING



**501** **GASOLINE STORAGE RECORDKEEPING AND REPORTING:** The owner or operator of each gasoline dispensing facility in Maricopa County shall maintain records as follows:

- 501.1** The total amount of gasoline received each month shall be recorded by the end of the following month.
- 501.2** The owner or operator of a gasoline dispensing facility shall cause weekly records of fill tube, vapor valve and spill containment inspection to be kept. The findings of such weekly inspections shall be permanently entered in a record or log book by the end of Saturday of the following week.
- 501.3** These records and any reports or supporting information required by this rule or by the Control Officer shall be retained for at least 5 years.
- 501.4** Records of the past 12 months shall be in a readily accessible location and must be made available to the Control Officer without delay upon verbal or written request.

**501502** **CARGO TANK RECORDKEEPING AND REPORTING REQUIREMENTS:**

- 502.1** The owner or operator of a gasoline ~~delivery vessel~~ cargo tank subject to this rule shall maintain records of all certification, testing, and repairs.
- a. Such records must be maintained in a legible, readily available condition for at least 5 years after the date the testing and repair is completed.
  - b. Upon verbal or written request by the Control Officer, or a designee of the Control Officer, records shall be provided 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** The records of the certification testing required by Section ~~302XXX~~ must be recorded in both of the following documents: the “Application for Air Pollution Vapor Recovery Certification” and the “Tank Truck Leak Certification Check List”. Pressure and vacuum shall be recorded to no less than the nearest quarter inch or half-centimeter of water column. The minimum requirements for each of these 2 documents follow:
- a. For the “Application for Air Pollution Vapor Recovery Certification”:
    - (1) Owner's name and address.
    - (2) Tank ID number, the location of the test, the time of the test, and the date of the test.
    - (3) For the pressure subtest, 2 readings: the change in pressure (in inches H<sub>2</sub>O) for Run 1 and the change in pressure for Run 2.
    - (4) For the vapor-valve subtest (subsection 302.2b), 1 reading: the total change in pressure during the test.
    - (5) For the vacuum test, 2 readings: the total change in vacuum during Run 1 and the same for Run 2.
  - b. The “Tank Truck Leak Certification Check List” (or its successor document) shall contain at least the following information:
    - (1) The same information required in subsections a(1) and a(2) of this subsection 501.2; **and**
    - (2) The time the subtest began, the initial pressure of the subtest, the finish time, the final pressure of the subtest, and the pressure change between the start and end of the subtest; the ~~vessel's~~ cargo tank's unit number, manufacturer's serial number, the tank capacity, whether the tank was purged of gasoline vapors, and the date of the next leakage test if the set of 3 subtests are not all passed.
    - (3) If the initial pressure test was not passed, one set of readings in the row “Initial Test”, also giving the elapsed time if the pressure reached zero before 5 minutes. For example, the row marked “Initial Test” will normally contain the results of the initial failed subtest if any repairs were made subsequent to any pressurization or evacuation of the tank.



- 502502.3** **MONITORING FOR LEAKS:** The Control Officer may at any time monitor a ~~delivery vessel~~cargo tank, including the vapor collection system, for vapor and liquid leaks to ascertain if it is vapor tight and leak free. Leakage of vapor exceeding 1/5 of the lower explosive limit, or 10,000 ppm as methane, when performed according to subsection 504.4, shall be an exceedance of the vapor-tight standard of subsection 301.1.
- 503** **COMPLIANCE DETERMINATION:** When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.
- 504** **TEST METHODS:** The EPA test method as it exists in the Code of Federal Regulations (CFR) (~~July 1, 1998~~), as listed below, is adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 504 are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix,
- 504.1** **GASOLINE STORAGE TEST METHODS:**
- 504.1** **EPA Test Methods:**
- a.** EPA Methods 2a (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), and 2b (“Determination of Exhaust-Gas Volume Flow-Rate From Gasoline Vapor Incinerators”). Both of the foregoing methods are in 40 CFR 60, Appendix A.
- b.** EPA Method 25 (“Determination of Total Gaseous Nonmethane Organic Emissions as Carbon”) and its submethods (40 CFR 60, Appendix A).
- 504.2** **Gasoline Vapor Pressure:**
- a.** American Society for Testing and Materials (ASTM) Method D323-94 (1994) “Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)
- b.** American Society for Testing and Materials (ASTM) Method D4953-93 (1993) “Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)
- 504.3** **Leak Detection Test Method:**
- a.** Calibration: Within four hours prior to monitoring, the CGD or OVA shall be suitably calibrated in a manner and with the gas specified by the manufacturer for 20 percent LEL response, or calibrated with methane for a 10,000 ppm response.
- b.** Probe Distance: The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one 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 inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance greater than 1 inch 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 a potential or actual 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 a leak, such that the central axis of the probe-tube inlet shall be positioned coaxially with the path of the most concentrated vapors.
- e.** 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.
- 504.4** **CARB Certification and Test Procedures for Gasoline Vapor Recovery Systems:**



- a. CARB Test Method CP-201, “Certification Procedure for Vapor Recovery Systems of Dispensing Facilities”.
- b. CARB Test Procedure TP-201.1 - “Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities without Assist Processors”.
- c. CARB Test Procedure TP-201.1A - “Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities with Assist Processors”.

**504.2 GASOLINE CARGO TANK TEST METHODS:**

- 504.1 Pressure and Vacuum Tests:** The subtests to determine compliance with subsection 302.2a and subsection 302.2c of this rule shall be performed according to EPA Method 27, except that the definition of gasoline shall be according to this Rule 352.
- 504.2 Test of Internal Vapor Valves:** The test to determine compliance with subsection 302.2b shall be performed immediately after successfully passing the pressure subtest (pursuant to subsection 302.2a), without performing any intervening maintenance or repair on the vapor valves.
- 504.3** Confirmation of a vapor leak detected on a ~~vessel~~cargo tank during ~~onloading~~loading shall be determined by properly deploying a pressure tap adapter that conforms to Method 27 provisions, and demonstrating the leak according to subsection 504.4, while the pressure is less than 20 inches of water column.
- 504.4** Pursuant to Section 203, Reid vapor pressure shall be determined using American Society for Testing and Materials (ASTM) Method D 323-90.
- 504.1** EPA Method 27 (“Determination Of Vapor Tightness Of Gasoline Delivery Tank Using Pressure-Vacuum Test”) in 40 CFR 60, Appendix A.
- 504.2** American Society for Testing and Materials (ASTM) Method D 323-90, 1990 (Reid vapor pressure).
- 504.3 Test of Internal Vapor Valves:**
- a. Pressurize the ~~delivery vessel~~cargo tank to 18 inches (45.7 cm) of water column, using the first 2 procedures of the "Pressure Test" section of EPA Method 27.
  - b. Close all the ~~vessel's~~cargo tank's internal valves, including the internal vapor valves, thereby isolating the vapor system (vapor return line plus vapor manifold) from the compartments.
  - c. Relieve the pressure in the vapor return line (to atmospheric pressure).
  - d. Seal the vapor return line and after 5.0 minutes record the pressure present in the vapor system.
- 504.4 ~~Delivery Vessel~~Cargo Tank Vapor Tightness Test:** A vapor tight condition will be determined for ~~vessels~~cargo tanks by the following method:
- a. **Calibration:** Within 4 hours prior to monitoring, the combustible gas detector or organic vapor analyzer shall be suitably calibrated for a 20 percent LEL response, or to 10,000 ppm with methane.
  - b. **Probe Distance:** The probe inlet shall be 1 inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be 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 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 a potential or actual 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 a leak such that the central axis of the probe-tube inlet shall be positioned coaxially with the path of the most concentrated vapors.
- e. 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.



**~~REGULATION III – CONTROL OF AIR CONTAMINANTS~~**

**~~RULE 353~~**

**~~GASOLINE IN STATIONARY DISPENSING TANKS~~**

**~~INDEX~~**

**~~SECTION 100 – GENERAL~~**

- ~~101 – PURPOSE~~
- ~~102 – APPLICABILITY~~

**~~SECTION 200 – DEFINITIONS~~**

- ~~201 – CARB CERTIFIED~~
- ~~202 – DISPENSING TANK~~
- ~~203 – EXCESS GASOLINE DRAINAGE~~
- ~~204 – GASOLINE~~
- ~~205 – GASOLINE DELIVERY VESSEL~~
- ~~206 – GASOLINE DISPENSING OPERATION~~
- ~~207 – GASOLINE VAPORS~~
- ~~208 – INSTALLER~~
- ~~209 – LEAK FREE~~
- ~~210 – OFFSET FILL LINE~~
- ~~211 – POPPETTED DRY BREAK~~
- ~~212 – SIDE FILL PIPE~~
- ~~213 – STAGE 1 VAPOR RECOVERY~~
- ~~214 – TANK CAPACITY~~
- ~~215 – TOP FILL OR VERTICAL FILL PIPE~~
- ~~216 – VAPOR LOSS CONTROL DEVICE~~
- ~~217 – VAPOR TIGHT~~

**~~SECTION 300 – STANDARDS – VAPOR LOSS CONTROL MEASURES REQUIRED~~**

- ~~301 – BASIC TANK INTEGRITY~~
- ~~302 – FILL PIPE REQUIREMENTS~~
- ~~303 – VAPOR RECOVERY SYSTEM~~
- ~~304 – EQUIPMENT MAINTENANCE AND USE REQUIRED~~
- ~~305 – EXEMPTIONS~~

**~~SECTION 400 – ADMINISTRATIVE REQUIREMENTS~~**

- ~~401 – TANKS THAT LOST THEIR EXEMPTION~~
- ~~402 – BURDEN OF PROOF~~
- ~~403 – CARB DECERTIFICATION~~



404 — ~~OTHER AGENCIES' REQUIREMENTS~~

**SECTION 500 — MONITORING AND RECORDS**

501 — ~~COMPLIANCE INSPECTIONS~~

502 — ~~RECORDKEEPING~~

503 — ~~COMPLIANCE DETERMINATION~~

504 — ~~TEST METHODS~~



Revised 07/13/88  
 Revised 04/06/92  
 Revised 06/16/99  
 Revised 09/25/13

Revised 07/13/88; Revised 04/06/92; Revised 06/16/99; Revised 09/25/13; **Revised MM/DD/YY**

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

**RULE 353  
 GASOLINE IN STATIONARY DISPENSING TANKS**

**SECTION 100 – GENERAL**

**101 — PURPOSE:** To limit VOC (volatile organic compound) emissions from gasoline stored in stationary dispensing tanks, and from gasoline delivered into such tanks.

**102 — APPLICABILITY:** This rule is applicable to gasoline stored in or transferred into any stationary dispensing tank with a capacity of more than 250 gallons (946 l). This includes gas stations and other gasoline dispensing facilities, including those located at airports.

**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 — CARB CERTIFIED:** A vapor control system, subsystem, or component that has been specifically approved by system configuration and manufacturer’s name and model number in an executive order of the California Air Resources Board (CARB), pursuant to Section 41954 of the California Health and Safety Code. Such orders are included in CARB’s publication, “Gasoline Facilities – Phase I & II”, which is available as set forth in subsection 503.4.

**202 — DISPENSING TANK:** Any stationary tank which dispenses gasoline into a motorized vehicle’s fuel tank that directly fuels its engine(s). This includes aircraft.

**203 — EXCESS GASOLINE DRAINAGE:** More than 10 milliliters (2 teaspoonsful) of liquid gasoline lost from the end of a fill hose or vapor 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 filltube’s spill containment receptacle.

**204 — GASOLINE:** Any petroleum distillate or blend of petroleum distillate with other combustible liquid(s), such as alcohol, that is used as a fuel for internal combustion engines and has a vapor pressure between 4.0 and 14.7 psi (200–760 mm Hg.), as determined by the applicable method pursuant to subsections 503.2 and 504.2. For the purposes of this rule, liquefied petroleum gas (LPG) is excluded.

**205 — GASOLINE DELIVERY VESSEL:** Any vehicular mounted container such as a tanker truck, tank trailer, cargo tank or any other wheel mounted container used to transport gasoline. This includes any hoses the vessel carries through which deliveries must be made.

**206 — GASOLINE DISPENSING OPERATION:** All gasoline dispensing tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same person (or persons under common control).

**NOTE:** CURRENT RULE 353 IS PROPOSED TO BE INCLUDED IN PROPOSED RULE 352- STORAGE AND LOADING OF GASOLINE AT GASOLINE DISPENSING FACILITIES. PROPOSED RULE 353 REVISIONS WILL RESERVE THE 353 NUMBER FOR FUTURE ORGANIC LIQUID RULEMAKING.



- 207** — **GASOLINE VAPORS:** Vapors, originating from liquid gasoline, that are usually found in mixture with air. Included are any droplets of liquid gasoline or of gasoline vapor condensate that are entrained by the vapor.
- 208** — **INSTALLER:** The person, as defined in Rule 100, that installs VOC control equipment at a dispensing facility.
- 209** — **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.
- 210** — **OFFSET FILL LINE:** Any dispensing tank's gasoline fill line (piping and fittings) which contains one or more bends.
- 211** — **POPPETTED DRY BREAK:** A Stage 1 vapor recovery device that opens only by connection to a mating device to ensure that no gasoline vapors escape from the dispensing tank before the vapor return line is connected.
- 212** — **SIDE FILL PIPE:** A fill pipe that enters a dispensing tank through the tank's side.
- 213** — **STAGE 1 VAPOR RECOVERY:** At a gasoline dispensing facility, the use of installed vapor recovery equipment designed to reduce by at least 90% the VOC vapor that would otherwise be displaced into the atmosphere from a dispensing tank when gasoline is delivered into the tank by a delivery vessel. This reduction may be done either by capturing the displaced vapors within the delivery vessel, and/or by processing the vapors on site with an emission processing device (such as a VOC oxidizer).
- 214** — **TANK CAPACITY:** The maximum volume of liquid gasoline a particular tank is allowed to store while still complying with all applicable rules, including local, state, and Federal rules.
- 215** — **TOP FILL or VERTICAL FILL PIPE:** A fill pipe that enters a dispensing tank through its top.
- 216** — **VAPOR LOSS CONTROL DEVICE:** Any piping, hoses, equipment, or devices which are used to collect, store and/or process VOC vapors at a service station or other gasoline dispensing operation.
- 217** — **VAPOR TIGHT:** A condition in which an organic vapor analyzer (OVA) or a combustible gas detector (CGD) at a potential VOC leak source shows either less than 10,000 ppm when calibrated with methane, or less than 1/5 of the lower explosive limit, when prepared according to the manufacturer and used according to subsection 504.3 of this rule.

**SECTION 300 — STANDARDS VAPOR LOSS CONTROL MEASURES REQUIRED:** No person shall transfer or permit the transfer of gasoline from any delivery vessel into any stationary dispensing tank located above or below ground with a capacity of more than 250 gallons (946 l) unless the following conditions are met:

- 301** — **BASIC TANK INTEGRITY:** No vapor or liquid escapes are allowed through a dispensing tank's outer surfaces, nor from any of the joints where the tank is connected to pipe(s), wires, or other system.
- 301.1** — **VOC Emission Standard:**
- a. Gasoline delivery operations shall be vapor tight, as defined in Section 218, except for tanks exempted by Section 305 from Stage 1 vapor recovery requirements.
  - b. Tanks and their fittings shall be vapor tight except for the outlet of a pressure/vacuum relief valve on a dispensing tank's vent pipe. Specifically, this means that at a probe tip distance of 1 inch (2.5 cm) from a surface, no vapor escape shall exceed 1/5 of the lower explosive limit. This applies to tanks containing gasoline regardless of whether they are currently being filled, and to caps and other tank fittings.



**301.2 — ~~Leakage Limits Liquid Leaks and Spills:~~**

- ~~a. Gasoline storage and receiving operations shall be leak free. Specifically, no liquid gasoline escape of more than 3 drops per minute is allowed. This includes leaks through the walls of piping, fittings, fill hose(s), and vapor hose(s).~~
- ~~b. There shall be no excess gasoline drainage from the end of a fill hose or a vapor hose. Specifically, not more than 2 teaspoonsful of gasoline shall be lost in the course of a connect or disconnect process.~~

**301.3 — ~~Spill Containment Equipment:~~** The entire spill containment system including gaskets shall be kept vapor tight.

- ~~a. The Spill Containment Receptacle:
  - ~~(1) The outer surface of the spill containment receptacle shall have no holes or cracks and shall allow no vapors to pass from the dispensing tank through it to the atmosphere.~~
  - ~~(2) Spill containment receptacles shall be kept clean and free of foreign material at all times.~~
  - ~~(3) Spill containment receptacles shall be inspected at least weekly. Records of inspection and cleaning shall be kept according to subsection 502.2.~~~~
- ~~b. If the spill containment is equipped with a passageway to allow material trapped by the containment system to flow into the interior of the dispensing tank:
  - ~~(1) The passageway shall be kept vapor tight at all times, except during the short period when a person opens the passageway to immediately drain material trapped by the containment system into the tank.~~
  - ~~(2) The bottom of the receptacle shall be designed and kept such that no puddles of gasoline are left after draining through the passageway has ceased.~~~~
- ~~c. The dispensing tank owner/operator is responsible for assuring that before a delivery vessel leaves the premises after a delivery:
  - ~~(1) Any gasoline in a dispensing tank's spill containment receptacle has been removed.~~
  - ~~(2) Any gasoline that a person has taken out of a spill receptacle, as a free liquid or as absorbed into/onto other material removed from the receptacle, shall be contained in such a way that VOC emission is prevented; disposal in conformance with applicable hazardous waste rules is sufficient to meet this requirement.~~
  - ~~(3) Any plunger/stopper assembly is unimpeded and sealing correctly.~~~~
- ~~d. Criteria Of Violation/Exceedance for Spill Containment Receptacles: A reading on a CGD or OVA exceeding 1/5 LEL (10,000 ppm as methane) is an exceedance. The procedure for performing a determination is set forth in subsection 504.3.~~

**302 — ~~FILL PIPE REQUIREMENTS:~~**

**302.1 — ~~Each fill line into a stationary dispensing tank shall be equipped with a permanent submerged fill pipe that has a discharge opening which is completely submerged when the liquid level is 6 inches above the tank bottom.~~**

- ~~a. Threads, gaskets, and mating surfaces of the fill pipe assembly shall be designed and maintained tight. There shall be no liquid or vapor leakage at the joints of the assembly.~~
- ~~b. An owner/operator is responsible to assure that external fittings of a fill pipe assembly shall be inspected weekly to assure that cap, gasket, and piping are intact and are not loose.
  - ~~(1) A record of the inspection shall be made according to subsection 502.2.~~
  - ~~(2) An owner/operator shall act to prevent driver/deliverers from connecting the delivery hose coupling to a fill pipe coupling with so much twisting force that the fill pipe~~~~



~~assembly is loosened. One method of complying is to have a CARB certified swivel coupling as part of the fill pipe assembly (reference subsection 503.4 for CARB).~~

**302.2—Fill Pipe Caps:**

- ~~a. The cap shall have a securely attached, intact gasket.~~
- ~~b. The cap and its gasket shall always function properly, latch completely so that it cannot then be easily twisted by hand, and have no structural defects.~~
- ~~c. The cap of a gasoline fill pipe shall always be fastened securely on the fill pipe except immediately before, during, and immediately after:
  - ~~(1) “Sticking” the tank to measure gasoline depth.~~
  - ~~(2) Delivering gasoline into the tank.~~
  - ~~(3) Doing testing, maintenance or inspection on the gasoline/vapor system.~~~~
- ~~d. Do not unfasten or remove a fill pipe cap unless every other fill pipe is either securely capped or connected to a delivery hose, except as otherwise needed for testing, maintenance, or inspection.~~

**302.3—Restrictions on Multiple Fill Pipes:**

- ~~a. A tank installed after December 31, 1998, shall not be equipped with more than one fill pipe unless more than one fill pipe is specifically allowed in the Air Pollution Permit and there is a 2-point system having a properly installed vapor return pipe close to each fill pipe.~~
- ~~b. Restriction on Concurrent Delivery: An owner/operator of a dispensing tank fitted with more than 1 fill pipe shall prevent concurrent delivery of gasoline by a gasoline delivery vessel to more than 1 fill pipe of the tank by locking additional fill pipes shut or by using other permanent means, unless:
  - ~~(1) Concurrent delivery is specifically allowed in the facility’s Air Pollution Permit; and~~
  - ~~(2) All fill pipes in use are part of a 2-point vapor recovery system; and~~
  - ~~(3) Before making a concurrent delivery through a tank’s second fill pipe, an additional vapor return hose from the delivery vessel must first be attached to the vapor return line associated with the second fill pipe.~~~~

**302.4—Fill Pipe Obstructions:**

- ~~a. Any type of screen and/or other obstructions in fill pipe assemblies shall be permanently removed by November 1, 1999, unless it is specifically allowed by an Air Pollution Permit or is CARB certified, as referenced in subsection 503.4.~~
- ~~b. A screen or other obstruction, allowed by Air Pollution Permit or CARB, shall be temporarily removed by the owner/operator of a dispensing tank prior to inspection by the Control Officer to allow measurements pursuant to this rule.~~

~~**302.5—Overfill Protection Equipment:** Overfill prevention equipment shall be vapor tight to the atmosphere. Any device mounted within the fill pipe shall be so designed and maintained that no vapor from the vapor space above the gasoline within the tank can penetrate into the fill pipe or through any of the fill pipe assembly into the atmosphere.~~

**303—VAPOR RECOVERY SYSTEM:**

~~**303.1** Gasoline vapors displaced from a dispensing tank by gasoline being delivered shall be handled by a Stage Vapor Recovery System, unless the tank is exempted by Section 305.~~

~~**303.2** Stage 1 Vapor Recovery System Configuration (Reference subsection 503.4 for identification of CARB certified components):~~



- ~~a. Replacement: After June 16, 1999, no part of a vapor recovery system for which there is a CARB specification shall be replaced with anything but CARB certified components.~~
- ~~b. Vapor Valves:
  - ~~(1) All vapor return lines from dispensing tanks shall be equipped with CARB certified, spring loaded, vapor tight, poppetted dry break valves.~~
  - ~~(2) Vapor valves shall be inspected weekly to determine if closure is complete and gaskets are intact; a record shall be made pursuant to subsection 502.2.~~~~
- ~~c. Above Ground Systems: After June 16, 1999, an above ground dispensing tank shall have CARB certified fittings wherever CARB so specifies.~~
- ~~d. New Systems: Each new gasoline tank installation shall use CARB certified fittings exclusively wherever CARB so specifies, and:
  - ~~(1) Shall have its own separate, functioning 2 point vapor return line;~~
  - ~~(2) Is allowed to have a combination vapor recovery system that in addition to having a separate 2 point Stage 1 vapor return line, also has stage 1 vapor piping/fittings linking it to one or more (other) gasoline dispensing tanks.~~~~
- ~~e. New Coaxial Prohibited:
  - ~~(1) No coaxial fill pipes shall be installed after June 16, 1999, in new installations; and~~
  - ~~(2) No coaxial fill pipes shall be reinstalled after June 16, 1999, in major modifications in which the top of the tank is exposed and the vapor port bung is pre configured to accept vapor recovery piping.~~~~

~~**304 EQUIPMENT MAINTENANCE AND USE REQUIRED:** All vapor loss control equipment shall be installed as required, operated as recommended by the manufacturer, and maintained leak free, vapor tight and in good working order.~~

~~**304.1** Both the owner/operator of a dispensing tank and the driver/operator of a delivery vessel delivering gasoline to the fuel dispensing tank equipped with vapor recovery shall have responsibility to assure that vapor recovery equipment (if required by this rule) is properly connected and in use at all times while gasoline is actively being dropped/delivered.~~

~~**304.2** The owner/operator of a fuel dispensing tank not exempted by Section 305 shall refuse delivery of gasoline from a delivery vessel which does not bear a current pressure test certification decal issued by the Control Officer. This provision does not apply during times when the facility is unattended or there is only one person under control of the dispensing facility present.~~

~~**304.3** Coaxial Systems: Both spring loaded and fixed coaxial fill tubes shall be maintained according to the standards of their manufacturer(s) and be operated so that there is no obstruction of vapor passage from the tank to the delivery vessel.~~

~~**305 EXEMPTIONS:**~~

~~**305.1** **Dispensing Tanks for Farm Operations:** Any stationary gasoline dispensing tank used exclusively for the fueling of implements of normal farm operations is exempt from this rule, except for cap, spills, and liquid leak age provisions in Section 301.~~

~~**305.2** **The Vapor Recovery Provisions of Section 303 of this Rule Shall Not Apply to the Following Stationary Gasoline Dispensing Tanks:**~~

- ~~a. **Non-Resale Dispensing Operations From Non-Farm Tanks:** Any stationary gasoline dispensing operation receiving less than 120,000 gallons of gasoline in any 12 consecutive calendar months, dispensing no resold gasoline, and having each gasoline dispensing tank equipped with a permanent submerged fill pipe pursuant to subsection 302.1, is exempt from Section 303. However, any operation shall become subject to the provisions of Section 303 of~~



~~this rule by exceeding the 120,000-gallon threshold or not abiding by the restrictions, and shall remain subject to such provisions even if annual emissions later fall below this threshold.~~

- ~~b. Dispensing Tanks Of 1000 Gallons Or Less: Any stationary dispensing tank having a capacity of 1000 gallons (3785 l) or less which was installed prior to October 2, 1978, provided that such tank is equipped with a permanent submerged fill pipe. Where, because of government regulation including, but not limited to, Fire Department codes, such a fill pipe cannot be installed, the gasoline shall be delivered into the tank using a nozzle extension that reaches within 6 inches of the tank bottom.~~
- ~~e. Dispensing Tanks with Offset Fill Lines: Any stationary dispensing tank installed prior to October 2, 1978, where the fill line between the fill connection and tank is offset.~~

#### **SECTION 400 – ADMINISTRATIVE REQUIREMENTS**

~~401 – TANKS THAT LOST THEIR EXEMPTION: Tanks that were formerly exempt from a provision prior to June 16, 1999, shall come into compliance by December 1, 1999.~~

#### **402 – BURDEN OF PROOF:**

~~402.1 – Proving Exempt Status: The burden of proof of eligibility for exemption from a provision of this rule is on the applicant. Persons seeking such an exemption shall maintain adequate records and furnish them to the Control Officer upon request.~~

#### ~~402.2 – Providing Proof of Equipment Compliance:~~

- ~~a. It is the responsibility of the installer of vapor control equipment, when so required by the Control Officer, to provide proof that a vapor recovery system or its modifications meet the requirements of this Rule 353.~~
- ~~b. If the owner/operator or the equipment supplier voluntarily provides such proof, the Control Officer has the option to waive the subsection 402.2a requirement that the installer provide this proof.~~

~~403 – CARB DECERTIFICATION: A person shall not install or reinstall a component related to vapor recovery that has been decertified by CARB in “Gasoline Facilities Phase I & II” publication, referenced in subsection 503.4.~~

~~404 – OTHER AGENCIES’ REQUIREMENTS: Compliance with this rule does not relieve or otherwise affect a person’s obligation to comply with any other applicable federal, state, or local legal requirement, including, but not limited to, rules promulgated by the Arizona Department of Weights and Measures, local fire department codes, and local zoning ordinances.~~

#### **SECTION 500 – MONITORING AND RECORDS:**

~~501 – COMPLIANCE INSPECTIONS: Any dispensing tank required by this rule to be equipped with vapor loss control devices may be subject to monitoring for vapor tightness and leak tightness during any working hours. Such a tank may be opened for gauging or inspection when loading operations are not in progress, provided that such tank is part of an open system or is served by a positive pressure relief valve with a relief setting not exceeding +1/2 lb psig.~~

~~502 – RECORDKEEPING: The owner or operator of each gasoline dispensing facility in Maricopa County shall maintain records as follows:~~

~~502.1 – The total amount of gasoline received each month shall be recorded by the end of the following month.~~



- ~~502.2~~ The owner or operator of a gasoline dispensing facility shall cause weekly records of fill tube, vapor valve and spill containment inspection to be kept. The findings of such weekly inspections shall be permanently entered in a record or log book by the end of Saturday of the following week.
- ~~502.3~~ These records and any reports or supporting information required by this rule or by the Control Officer shall be retained for at least 5 years.
- ~~502.4~~ Records of the past 12 months shall be in a readily accessible location and must be made available to the Control Officer without delay upon verbal or written request.
- ~~503~~ **COMPLIANCE DETERMINATION:** The test methods referenced in Section 504 shall be used in the ways given in the subsections that immediately follow. When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule. For routine information collection, the Control Officer may accept a manufacturer's data sheet (MSDS), data certified by an officer of the supplying company, or test data for the product of inquiry.
- ~~503.1~~ Control efficiency of [emission control device] vapor recovery systems and vapor collection/processing systems shall be determined according to EPA Method 2A and either EPA Method 25A or 25B (Section 504 and subsection 504.1), or by CARB approved test methods (Section 504 and subsection 504.4). EPA Method 2B shall be used for vapor incineration devices.
- ~~503.2~~ Vapor pressure of gasoline (reference Section 204) shall be determined using American Society for Testing and Materials (ASTM) Method D323-94 or ASTM Method D4953-93. Method D323-94 shall be used for gasoline either containing no oxygenates or MTBE (methyl tertiary butyl ether) as the sole oxygenate. Method D4953-93 shall be used for oxygenated gasoline.
- ~~503.3~~ **Vapor Leaks:**
- ~~a.~~ If a determination of leak tight status is to be made on Stage 1 or spill containment equipment at a gasoline dispensing facility or on a delivery vessel at the station, the method in subsection 504.3 shall be used.
  - ~~b.~~ Subsection 504.3 probe distance and movement parameters not with standing, if it has been established that there are no other interfering vapor escapes, it is an exceedance if a reading by the Control Officer from an established vapor escape above 1/5 LEL (or 10,000 ppm as methane) is sustained for at least 5 seconds, and the probe is either consistently further than 1 inch from the source and/or the probe is consistently being moved faster than 4 cm per second.
  - ~~c.~~ The Control Officer may count it as a failure to perform weekly inspections pursuant to subsection 301.3 if foreign material is found in a spill containment receptacle and there is no record of an inspection's being performed in the preceding 10 days.
- ~~503.4~~ The CARB publication, "Gasoline Facilities Phase I & II", pursuant to sections 41954 through 41962 of the California Health and Safety Code, is adopted by reference, as it exists on June 16, 1999. This publication is available for reference at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ, 85004. This publication is available for purchase at the (California) Air Resources Board, PO Box 2815, 2020 L Street, Sacramento, CA, 95812-2815; (916) 323-0255 or (916) 322-2886.
- ~~504~~ **TEST METHODS:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 1998), as listed below, are adopted by reference. The CARB test methods as they exist in Stationary Source Test Methods, Volume 2, on April 8, 1999, as listed in subsection 504.4 are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 504 are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ, 85004.
- ~~504.1~~ **EPA Test Methods:**



- a. ~~EPA Methods 2a (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), and 2b (“Determination of Exhaust Gas Volume Flow Rate From Gasoline Vapor Incinerators”). Both of the foregoing methods are in 40 CFR 60, Appendix A.~~
- b. ~~EPA Method 25 (“Determination of Total Gaseous Nonmethane Organic Emissions as Carbon”) and its submethods (40 CFR 60, Appendix A).~~

**504.2 Gasoline Vapor Pressure:**

- a. ~~American Society for Testing and Materials (ASTM) Method D323 94 (1994) “Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)~~
- b. ~~American Society for Testing and Materials (ASTM) Method D4953 93 (1993) “Standard Test Method for Vapor Pressure of Gasoline and Gasoline Oxygenate Blends (Dry Method)~~

**504.3 Leak Detection Test Method:**

- a. ~~Calibration: Within four hours prior to monitoring, the CGD or OVA shall be suitably calibrated in a manner and with the gas specified by the manufacturer for 20 percent LEL response, or calibrated with methane for a 10,000 ppm response.~~
- b. ~~Probe Distance: The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one 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 inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance greater than 1 inch 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 a potential or actual 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 a leak, such that the central axis of the probe tube inlet shall be positioned coaxially with the path of the most concentrated vapors.~~
- e. ~~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.~~

**504.4 CARB Certification and Test Procedures for Gasoline Vapor Recovery Systems:**

- a. ~~CARB Test Method CP 201, “Certification Procedure for Vapor Recovery Systems of Dispensing Facilities”.~~
- b. ~~CARB Test Procedure TP 201.1 “Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities without Assist Processors”.~~
- c. ~~CARB Test Procedure TP 201.1A “Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities with Assist Processors”.~~