

RULE 449 TRANSFER OF GASOLINE INTO VEHICLE FUEL TANKS**Adopted 2-5-75****(Amended 9-15-75, 6-1-76, 8-3-77, 9-29-87, 12-17-91, 2-2-95, 4-3-97, 09-26-02, 02-26-09)****INDEX****100 GENERAL**

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100 GENERAL

- 101 **PURPOSE:** To limit the emission of gasoline vapor into the atmosphere when motor vehicle fuel tanks are filled.
- 102 **APPLICABILITY:** The provisions of this rule shall apply to the transfer of gasoline from any stationary storage tank or delivery vessel into any motor vehicle fuel tank.
- 110 **EXEMPTION, DISPENSING EQUIPMENT FOR EMERGENCY MOTOR VEHICLES:** The provisions of this rule shall not apply to dispensing equipment that is used exclusively for the fueling of emergency motor vehicles while on location at an emergency.
- 111 **EXEMPTION, DISPENSING EQUIPMENT FOR IMPLEMENTS OF HUSBANDRY:** The provisions of this rule shall not apply to dispensing equipment which is used primarily for the fueling of implements of husbandry as such vehicles are defined in Division 16 (Section 36000 et seq) of the California Vehicle Code, if such container is equipped with a permanent submerged fill pipe.
- 112 **EXEMPTION, MAINTENANCE INSPECTION:** The maintenance inspection requirements in Section 303 shall not be required on Saturdays, Sundays, and holidays for gasoline dispensing facilities with a six month average monthly gasoline throughput of less than 100,000 gallons.
- 113 **EXEMPTION, E85:** The requirements of this rule shall not apply to the dispensing of E85 into a vehicle fuel tank until CARB certifies Phase II vapor recovery systems for the dispensing of E85.
- 114 **EXEMPTION, ONBOARD REFUELING VAPOR RECOVERY:** Except for Sections 308 and 503, the requirements of this rule shall not apply to non-retail gasoline dispensing facilities where 100 percent of the vehicles being refueled are equipped with onboard refueling vapor recovery (ORVR) systems.
- 115 **EXEMPTION, ICC CERTIFICATION:** The requirements of Section 402 shall not apply to the owner/operator of a gasoline dispensing facility or his/her direct employee(s) when replacing any defective nozzles, hoses and breakaways with new or CARB certified re-manufactured components of the same make and model, or alternatives specifically identified in the latest applicable CARB Executive Order.

200 DEFINITIONS

- 201 **BACKGROUND:** A reading as methane on a portable hydrocarbon detection instrument which is determined at least three (3) meters upwind from the affected device to be inspected and uninfluenced by any specific emission point.
- 202 **CARB:** The California Air Resources Board.
- 203 **CARB CERTIFIED:** A Phase I or Phase II vapor recovery system, equipment, or any component thereof, for which CARB has evaluated its performance and issued a valid Executive Order pursuant to Health and Safety Code Section 41954. Each component of a system is a separate CARB certified item and cannot be replaced with a non-certified item or other items that are not certified for use with the particular system. Except for qualified repairs, a CARB certified component shall be as supplied by the qualified manufacturer. A rebuilt component shall not be deemed as CARB certified unless the person who rebuilds the component is authorized by CARB to rebuild the designated CARB certified component.
- 204 **DELIVERY VESSEL:** Any motor vehicle, trailer, or rail car used for the transportation of gasoline.

- 205 **E85:** Any alternative vehicle fuel with a nominal 85 percent ethanol composition, having a Reid vapor pressure of 4 pounds per square inch or greater and meeting the specifications of Title 13 CCR Section 2292.4.
- 206 **EMERGENCY:** An unforeseen combination of circumstances that calls for immediate action to prevent further injury, loss of life or damage to property.
- 207 **EMERGENCY MOTOR VEHICLE:** A motor vehicle used for fire fighting purposes.
- 208 **EXECUTIVE ORDER:** A document issued by CARB pursuant to Health and Safety Code Section 41954 certifying that a specific vapor recovery system meets the applicable performance specifications and setting conditions for the certification.
- 209 **GASOLINE:** Any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 4 pounds per square inch absolute or greater as determined by a method specified in Section 501.1
- 210 **GASOLINE DISPENSING FACILITY:** A mobile fueler or a stationary source consisting of one or more storage tanks and associated equipment that receives, stores, and dispenses gasoline to motor vehicle fuel tanks.
- 211 **HOLD-OPEN LATCHES:** A hold-open latch is any device permanently attached to a gasoline dispensing nozzle for the purpose of providing a continuous flow of gasoline after the operator has started the flow, without the operator's continued assistance.
- 212 **INSTALLER/CONTRACTOR:** A person(s) engaged in the installation, alteration, repair, or replacement of a vapor recovery system or its components at a gasoline dispensing facility.
- 213 **LEAK FREE:** A liquid leak of less than three drops per minute.
- 214 **MOBILE FUELER:** Any gasoline delivery vessel with an attached container that is used to transport and dispense gasoline from an onboard storage container into any motor vehicle fuel tank.
- 215 **MOTOR VEHICLE:** Any vehicle which is self-propelled as defined in Section 415 of the California Vehicle Code.
- 216 **ONBOARD REFUELING VAPOR RECOVERY (ORVR):** A vehicle-based vapor recovery system required by California Code of Regulations, Title 13, Section 1978, or Title 40, Code of Federal Regulations, Part 86.
- 217 **OWNER/OPERATOR:** Any person who owns, leases, or operates a gasoline dispensing facility.
- 218 **REBUILD/REBUILT:** Repairs, replacements, or reconstructions to any part of a component of a vapor recovery system that forms the gasoline vapor passage of the component, or that comes in contact with the recovered gasoline vapors in the component. Rebuild does not include the replacement of a complete component with another CARB certified complete component; nor does it include the replacement of a spout, bellows, or vapor guard of a CARB certified nozzle. The new part shall be CARB certified and as supplied by the qualified manufacturer specifically for the CARB certified nozzle.
- 219 **RETAIL GASOLINE DISPENSING FACILITY:** A gasoline dispensing facility subject to payment of California sales tax on gasoline sales.
- 220 **SIX MONTH AVERAGE MONTHLY GASOLINE THROUGHPUT:** The sum of a gasoline dispensing facility's total gasoline throughput for six months divided by six.

- 221 **SUMMER FUEL:** Gasoline that is required to comply with the requirements of Title 13 CCR, Section 2262.4.
- 222 **TESTER:** Any person(s) who conducts performance or reverification test as required by this Rule or by a CARB Executive Order.
- 223 **TOPPING OFF:** An attempt by a person filling up a motor vehicle to dispense gasoline after the dispensing nozzle primary shut-off mechanism has engaged. The filling of a motor vehicle tank that, because of the configuration of the fill pipe, causes premature activation of the primary shutoff mechanism shall not be considered topping off.
- 224 **VAPOR RECOVERY EQUIPMENT DEFECTS (VRED) LIST:** A list of defects CARB has identified as substantially impairing the efficiency of the vapor recovery system, incorporated by reference in Title 17 CCR Section 94006, pursuant to California Health & Safety Code Section 41960.2(c).
- 225 **VAPOR TIGHT:** A condition under which the concentration of total organic compounds does not exceed 10,000 ppmv (expressed as methane) above background, as determined pursuant to Section 501.2.
- 226 **WINTER FUEL:** Gasoline that is not required to comply with the regulations that are applicable to summer fuel.

300 STANDARDS

- 301 **VAPOR RECOVERY REQUIRED:** A person shall not transfer, or permit the transfer of, gasoline from a stationary storage container with a capacity of 250 gallons or more, or mobile fueler with a capacity of 120 gallons or more, into any motor vehicle fuel tank with a capacity of 5 gallons or more unless the displaced gasoline vapors are processed by a CARB certified vapor recovery system. The vapor recovery system shall have:
- 301.1 For summer fuel, a gasoline vapor control efficiency of at least 95% by weight and a mass emission factor not exceeding 0.38 pounds of gasoline vapors per 1,000 gallons of gasoline dispensed; and
- 301.2 For winter fuel, a gasoline vapor control efficiency of at least 95% by weight or a mass emission factor not exceeding 0.38 pounds of gasoline vapors per 1,000 gallons of gasoline dispensed.
- 302 **EQUIPMENT MAINTENANCE:** A person shall not transfer, or permit the transfer, or provide equipment for the transfer, of gasoline from a stationary storage container or mobile fueler subject to the provisions of Section 301 into any motor vehicle fuel tank of 5 gallons or more capacity unless:
- 302.1 The vapor recovery system is operating in accordance with the applicable CARB Executive Orders, the manufacturer's specifications, and is maintained to be leak free, vapor tight, and in good working order; and
- 302.2 The equipment is operated and maintained without any of the applicable defects listed in the VRED List.
- 303 **MAINTENANCE INSPECTION:**
- 303.1 Maintenance inspections, except as provided in Section 112, shall be conducted for each day the vapor recovery system is operated to ensure that vapor recovery system components that are verifiable through direct measurement or observation are in proper working order.
- 303.2 Any equipment with a major defect listed in the VRED List shall be removed from service and tagged to ensure that it is not used until it is repaired and brought into compliance before being returned to service. The owner or operator of a vapor recovery system shall insure that the removal from service of one component of a vapor recovery system with multiple components will not result in gasoline liquid or vapors entering the atmosphere.

- 303.3 Defects discovered during the maintenance inspection and repaired in accordance with Title 17, Division 3, Subchapter 7.5, Chapter 1, Section 93101 of California Code of Regulations such that after repair gasoline liquid or vapors do not enter the atmosphere shall not constitute a violation of Rule 449.
- 304 **PROHIBITION OF USE:** Whenever a Phase II vapor recovery system, or any component thereof, contains a defect listed in the VRED List, the operator shall mark such system or component "Out of Order". No person shall use or permit the use of such marked component or system until it has been repaired, replaced, or adjusted, as required to permit proper operation, and the Air Pollution Control Officer has reinspected it or has authorized its use pending reinspection.
- 305 **POSTING OF OPERATING INSTRUCTIONS:** The operator of each retail facility utilizing a Phase II system shall conspicuously post in the gasoline dispensing area operating instructions for the system and the Sacramento Metropolitan Air Quality Management District's or CARB's telephone number for complaints. The instructions shall clearly describe how to fuel motor vehicles correctly with vapor recovery nozzles utilized at the station, and shall include a warning that topping off may result in spillage or recirculation of gasoline and therefore is prohibited.
- 306 **HOLD OPEN LATCHES:** All gasoline dispensing nozzles subject to Section 301 shall be equipped with hold open latches unless the usage of the hold open latch is prohibited by the local fire Marshall.
- 307 **PROHIBITION OF SALE:** A person shall not supply, offer for sale, sell, install or allow the installation of any new or rebuilt vapor recovery system or any of its components, unless the system and component are CARB certified. Each vapor recovery system and its components shall be clearly and permanently marked with the qualified manufacturer's name and model number as certified by CARB. In addition, any qualified manufacturer who rebuilds a component shall also clearly and permanently mark the corresponding information on the component.
- 308 **ONBOARD REFUELING VAPOR RECOVERY:** The owner or operator of a non-retail gasoline dispensing facility claiming exemption pursuant to Section 114 shall submit an application pursuant to Rule 201- GENERAL PERMIT REQUIREMENTS for an Authority to Construct and Permit to Operate the gasoline dispensing facility and agree to comply with the following conditions:
- 308.1 No fuel shall be dispensed into a vehicle that is not owned or under direct control of the owner/operator, except for a vehicle being used in an emergency;
- 308.2 No fuel shall be dispensed into a vehicle not equipped with an ORVR system, except for a vehicle being used in an emergency.
- 308.3 The gasoline dispensing facility shall use nozzles that are part of a CARB certified vapor recovery system, except that the vapor return line shall be sealed off.

400 ADMINISTRATIVE REQUIREMENTS

- 401 **TEST REQUIREMENTS FOR VAPOR RECOVERY SYSTEM:** The following requirements are to verify the proper operation of a vapor recovery system.
- 401.1 **Required Tests:** Unless otherwise specified in the relevant CARB Executive Orders, performance and reverification tests shall include the following, as applicable, according to the test methods specified in Section 501 of this rule:
- a. Static Pressure (Leak Decay) Test
 - b. Air-to-Liquid (A/L) ratio test
 - c. Dynamic Back Pressure Test, and
 - d. Liquid Removal Test for balance systems with liquid removal device required by the CARB Executive Orders if more than 100mL of liquid is found in the vapor path. This shall be determined by lowering the gasoline dispensing nozzle into a container and draining all liquid, then measuring the amount of liquid using a graduated cylinder or graduated beaker.

- 401.2 **Initial Tests:** Within 30 calendar days of completion of construction or modification of any vapor recovery system, the owner or operator shall conduct and pass all applicable performance tests.
- 401.3 **Testing Frequency:** The owner/operator of a gasoline dispensing facility shall perform and pass all applicable reverification tests annually, or more frequently as required by the applicable CARB Executive Order.
- a. Gasoline dispensing facilities shall conduct and pass reverification tests within 30 days of the end of each required period following the most recent successful test.
 - b. If CARB-certified in-station diagnostics are used, the Air Pollution Control Officer may change the required frequency of reverification testing to no less than once every two years if allowed by the applicable CARB Executive Orders.
- 402 **CERTIFICATION:**
- 402.1 Effective May 26, 2009, installers/contractors shall not install, alter, repair or replace a vapor recovery system unless they meet all of the following requirements:
- a. Be certified by the International Code Council (ICC) for Vapor Recovery System Installation and Repair, and, if required, be certified by the system manufacturer.
 - b. Maintain valid certifications as required in paragraph (a).
 - c. Have and make available on site proof of any and all certifications required by this Rule, the Executive Order and the Installation, Operation and Maintenance Manual in order to install or maintain specific systems.
- 402.2 Testers shall not test a vapor recovery system unless they meet all of the following requirements:
- a. Effective 3 months after a certification test is available, be certified by the International Code Council (ICC) for Vapor Recovery System Testing and Repair.
 - b. If required by the Executive Order, be certified by the system manufacturer.
 - c. Maintain valid certifications as required in paragraph (a) and (b).
 - d. Have and make available on site proof of any and all certifications required by this Rule, the Executive Order and the Installation, Operation and Maintenance Manual in order to test specific systems.
- 403 **OPERATION AND MAINTENANCE MANUAL:** The owner/operator of a vapor recovery system shall have available an operation and maintenance manual. The manual shall be kept on-site and made available to any person who operates, inspects, maintains, repairs, or tests the vapor recovery equipment as well as the Air Pollution Control Officer upon request. The manual shall, at a minimum, include the following current information:
- 403.1 All applicable CARB Executive Orders and associated Installation, Operation and Maintenance Manuals, Approval Letters, and District permits,
 - 403.2 Manufacturer's manual(s) for all installation, operation and maintenance procedures as required to be provided by CARB CP-201 and CP-206 and any additional instruction provided by the manufacturer,
 - 403.3 System and/or component testing requirements, including test schedules and passing criteria for each of the standard tests listed in Section 401, and
 - 403.4 Protocol for performing daily maintenance inspections, including the components to be inspected and the defects requiring repair.
- 404 **NOTIFICATION OF TESTING:** At least 7 days prior to performance or reverification testing, the owner or operator shall notify the Air Pollution Control Officer of the exact date and time of the test. If the vapor recovery system fails any of the applicable tests and the necessary repairs are performed that same day, the owner or operator may retest the vapor recovery system on the same day without re-notification, provided that the reasons for the test failure and any repairs performed are properly documented in the test reports and repair records.

500 MONITORING AND RECORDS

- 501 **TESTING PROCEDURE:** The performance and reverification tests shall be conducted in accordance with the following test methods. All test methods referenced in this section shall be the most recent version approved by the U.S. Environmental Protection Agency, CARB, and the Air Pollution Control Officer or as stated in the applicable Executive Orders.
- 501.1 Vapor pressures shall be determined by ASTM D2879-97(2007), ASTM D323-06, or ASTM D5191-07.
 - 501.2 Vapor tightness shall be determined using EPA Reference Method 21.
 - 501.3 The static pressure (leak decay) test shall be performed according to the Bay Area Air Quality Management District Manual of Procedures, Source Test Procedure ST-30 or CARB TP-201.3, TP-201.3B, or TP-206.3, as applicable.
 - 501.4 The dynamic back pressure test shall be performed according to the Bay Area Air Quality Management District Manual of Procedures, Source Test Procedure ST-27, or CARB TP-201.4
 - 501.5 The air-to-liquid volume ratio of a Phase II vapor recovery system shall be determined by CARB TP-201.5.
 - 501.6 The liquid removal rate of a Phase II vapor recovery system shall be determined by the Bay Area Air Quality Management District Manual of Procedures, Source Test Procedure ST-37, or CARB TP-201.6.
 - 501.7 Only calibrated equipment meeting the calibration range and intervals specified by CARB and the equipment manufacturer shall be used to conduct any performance or reverification test.
 - 501.8 Those vapor recovery systems whose CARB Executive Orders specify different tests to be performed instead of, or in addition to, the referenced test methods, or which, by their design, preclude the use of the referenced test methods, shall be tested in accordance with the test procedures specified in the applicable CARB Executive Orders or their equivalents as approved by the APCO and EPA.
 - 501.9 **MULTIPLE TEST METHODS:** When more than one test method or set of test methods is specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.
- 502 **RECORDKEEPING:** A person subject to this rule shall maintain the following records on-site and make them available for review by the Air Pollution Control Officer immediately upon request.
- 502.1 Results of the tests specified in Section 401 shall be delivered to the Air Pollution Control Officer within thirty (30) days of the completion of the test. The test results shall contain the following information:
 - a. Name, location, address, and telephone number of the facility tested, and Sacramento Metropolitan Air Quality Management District permit number
 - b. Name, address and phone number of the person or company performing the test
 - c. Date of the test
 - d. Test data
 - e. Number of nozzles tested
 - f. Number of tanks tested
 - g. Statement of pass or fail
 - 502.2 Daily maintenance inspection reports shall include at least the following:
 - a. Date and time of inspection
 - b. List of defects from the VRED List that are applicable to the vapor recovery equipment and have a verification procedure of "direct observation" or "direct measurement"
 - c. Notation by person performing inspection whether each defect is present
 - d. Description of any defects discovered
 - e. Action taken upon discovery of a defect
 - f. Name and signature of person performing inspection

- 502.3 The following records must be retained by the owner or operator for a period not less than 3 years (5 years for sources subject to the requirements of Rule 207, Title V - Federal Operating Permit Program):
- a. Maintenance records for the vapor recovery system
 - b. Repair records for the vapor recovery system
 - c. Daily maintenance inspection reports
 - d. Performance test results
 - e. Reverification of performance test results
 - f. Monthly gasoline throughput

503 **RECORDS FOR ORVR EXEMPTION:** The owner or operator of a non-retail gasoline dispensing facility claiming exemption pursuant to Section 114 shall maintain the following records on site and make them available to the Air Pollution Control Officer immediately upon request:

- 503.1. Records of the date and quantity of fuel dispensed, by vehicle.
- 503.2. Records of the make, model, model year, and vehicle identification number of all vehicles refueled at the gasoline dispensing facility.

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