[Attachment 2 - Proposed Second 15-Day Modifications]

California Environmental Protection Agency

Air Resources Board

Vapor Recovery Test Procedure

TP-204.1

Determination of
Five Minute Static Pressure Performance of
Vapor Recovery Systems of
Cargo Tanks

Adopted: April 12, 1996
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Amended: [Insert Amended Date]

*[Note to Commenters: The text is shown in ~~strikeout~~ to indicate deletions and underline to indicate additions proposed in the original 45 day comment period. The first 15 day changes are shown in double underline and **~~bold single strikeout~~**. The second 15 day changes, which are the newly-proposed changes, are shown in **bold double underline** and **~~bold double strikeout~~**. [Bracketed text] is not part of the proposed amendment.]*

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1 APPLICABILITY

Definitions common to all certification and test procedures are in:

D-200 Definitions for ~~Certification Procedures and Test Procedures for~~ Vapor Recovery Procedures ~~Systems~~

For the purpose of this procedure, the term "ARB" or "CARB" refers to the ~~State of~~ California Air Resources Board, and the term "~~ARB~~Executive Officer" refers to the Executive Officer of the ARB or his or her authorized representative or designee~~designate~~.

1.1 General Applicability

This procedure is used to determine compliance with ~~applies to the determination of~~ the five minute static pressure performance standard referenced in Vapor Recovery Certification Procedure 204 (CP-204), "Certification Procedure for Vapor Recovery Systems of Cargo Tanks." ~~of a vapor recovery system of a cargo tank by fluid mechanical principles.~~ This procedure may be used ~~applies~~ to determine ~~any vapor emissions~~the five minute static pressure associated with the dispensing of any fluid, although it is written to reflect application to the hydrocarbon vapors associated with the dispensing of gasoline.

~~1.2 Determinations of Compliance and Violation~~

~~Determinations of certain modes of compliance with and violation of certification specifications are outlined in ' 9.~~

~~1.3 Modifications~~

~~Modification of this procedure may be necessary for vapors and fluids other than the hydrocarbon vapors associated with the dispensing of gasoline.~~

~~Any modification of this method shall be subject to approval by the ARB Executive Officer.~~

2 PRINCIPLE AND SUMMARY OF TEST PROCEDURE

The cargo tank, mounted on either the truck or trailer, is pressurized to 18 inches water column (WC) and **the pressure in the system is** then allowed to decay for five (5) minutes. Similarly in a separate test, the cargo tank is evacuated to negative six (-6) inches WC and **the pressure in the system is** then allow to decay for five (5) minutes. The acceptability of the final pressure or vacuum level is based on the capacity of the cargo tank and is listed in CP-204. The performance of the cargo tank internal vapor valve can be determined by pressurizing the cargo tank to 18 inches WC and then closing the internal vapor valves. The system is then allowed to decay for five (5) minutes. The acceptability of final pressure level for the internal vapor valve is listed in CP-204. ~~is to be tested in a location where it will be protected from direct sunlight. The cargo tank, mounted on either the truck or trailer, is to be pressurized, isolated from the pressure source, and the pressure drop recorded to determine the rate of pressure change. A vacuum test (for annual certification criterion testing only) is to be conducted in the same manner. Annual recertification tests shall be conducted no more than sixty days prior to the issuance of the certification.~~

3 BIASES AND INTERFERENCES

~~This section is reserved for future specification.~~Thermal expansion due to direct sunlight on an exposed cargo tank can bias the results of this test procedure. Keep 100 percent of the length of the vapor space of a cargo tank in shade during testing.

~~4 SENSITIVITY, RANGE, AND PRECISION~~

~~This section is reserved for future specification.~~

4~~5~~ EQUIPMENT

4~~5~~.1 Source of air or inert gas capable of pressurizing tanks to 27.7 inches of water (1 psi) above atmospheric pressure.

4~~5~~.2 Low pressure (5 psi divisions) regulator for controlling pressurization of tank.

4~~5~~.3 Water manometer, or equivalent, with 0 to 25 inch range, with scale readings of 0.1 inch.

4~~5~~.4 Test cap for vapor line with a shut-off valve for connection to the pressure

and vacuum supply hoses. The test cap is to be equipped with a tap for connecting the manometer.

4~~5~~.5 Caps for liquid delivery line.

4~~5~~.6 Vacuum pump of sufficient capacity to evacuate tank to ten inches of water.

4~~5~~.7 Pressure and vacuum supply hose of 1/4 inch internal diameter.

4~~5~~.8 In-line, pressure vacuum relief valve set to activate at one (1) psi and with a capacity equal to the pressurizing or evacuating pumps.

~~6 CALIBRATION PROCEDURE~~

~~This section is reserved for future specification.~~

5~~7~~ PRE-TEST PROTOCOL

5.1 The requirement that each compartment shall have its **own** internal vapor valve must be met to conduct this test.

5.2 The following shall be performed for all cargo tanks subject to testing in accordance with this test procedure:

5.2.1 Cargo tank and trailers shall be empty of gasoline or product to conduct this test.

Warning: Under no circumstances shall the vapors in any cargo tank be purged or vented directly to the atmosphere.

5.2.2 Cargo tank shall be purged by one of the following methods:

(a) Air from the purged cargo tank shall be routed to an incinerator that is certified by ARB and permitted by a district.

(b) Cargo tank vapors shall be routed **to** an ARB certified vapor recovery system at a bulk plant or terminal when water is used to purge the cargo tank. The water can be reused. If the water is disposed **of**, it shall conform to all applicable federal, state, and local regulations.

(c) Cargo tank vapors shall be routed to an ARB certified vapor recovery system at a bulk plant or terminal when a liquid with a vapor pressure of less than four pounds Reid Vapor Pressure (<4 psi RVP) is used to purge the cargo tank.

(d) Any purging method or system **must be** approved in writing by the Executive Officer.

~~The cargo tank shall adhere to all of the other certification conditions in CP-204 (in addition to those requirements of CP-204 to which this test procedure applies).~~

6~~8~~ TEST PROCEDURE

~~This procedure does not apply unless pressurized air lines or other equipment penetrate the cargo tank headspace.~~This test shall be conducted with product hoses and vapor hoses connected and exposed to the pressurized cargo tanks or compartments. The cargo tank shall meet the standards for all three tests in consecutive runs.

6~~8~~.1 Static Pressure Performance, Positive Pressurization

~~8.1.1 Static Pressure Performance Measurement~~

6~~8~~.1.1~~.1~~ Open and close the dome covers.

6~~8.1~~.1.2 Connect static electrical ground connections to tank. Attach the delivery and vapor hoses, remove the delivery elbows and plug the liquid delivery fittings.

6~~8.1~~.1.3 Attach the test cap to the vapor recovery line of the cargo tank.

6~~8.1~~.1.4 Connect the vacuum and pressure supply hose and the pressure-vacuum relief valve to the shut-off valve. Attach the pressure source to the hose. Attach a manometer to the pressure tap.

6~~8.1~~.1.5 Connect compartments of the tank internally to each other if possible.

6~~8.1~~.1.6 Applying air pressure slowly, pressurize the tank, or alternatively the first compartment, to 18 inches WC~~of water~~.

6~~8.1~~.1.7 Close the shut-off valve, allow the pressure in the cargo tank to stabilize (adjust the pressure if necessary to maintain 18 inches WC~~of water~~), record the time and initial pressure.

6~~8.1~~.1.8 At the end of five minutes, record the final time and pressure.

6~~8~~.1.~~2~~.9 ~~Pressure Change from (+18) Inches of Water, Gauge 8.1.2.1~~ Calculate and record the pressure change (inches WC~~water column~~) between ~~from~~ initial pressure of+18 inches WC~~of water, gauge, to~~ and the final pressure.

6.1.10~~8.1.2.2.~~Repeat sections 6.1.6 through 6.1.9 for each compartment if they ~~were~~ are not interconnected.

6~~8~~.2 Static Pressure Performance, Vacuum Test (Negative Pressurization)

~~This procedure does not apply unless pressurized air lines or other equipment penetrate the cargo tank headspace.~~

~~8.2.1 Static Pressure Performance Measurement~~

6~~8~~.2.~~1~~.1 Connect vacuum source to pressure and vacuum supply hose referenced in section 6.1.4.

6~~8~~.2.~~1~~.2 Slowly evacuate the tank, or alternatively the first compartment, to six (6) inches WC ~~of water~~ vacuum. Close the shut-off valve, allow the pressure in the cargo tank to stabilize (adjust the pressure if necessary to maintain a vacuum or negative six (-6) inches WC ~~of water vacuum~~), and record the initial pressure and time. At the end of five (5) minutes, record the final pressure and time.

6~~8~~.2.~~2~~.3 ~~Pressure Change from (-6) Inches of Water, Gauge~~Calculate and record the pressure change (inches WC ~~water column~~) from the initial -6 inches of WC ~~water, gauge, to~~and the final pressure. If pressurized air lines or other equipment penetrate the cargo tank headspace, record and report the value of the pressure change as zero.

6.2.4 Repeat sections 6.2.2 to 6.2.3 for each compartment if they are not interconnected.

6~~8~~.3 Internal Vapor Valve Performance, Positive Pressurization

6~~8~~.3.1 ~~Static Pressure Performance Measurement8.3.1.1~~ After completing the vacuum and pressure tests (section 6.1 and 6.2), pressurize the tank as in section 6~~8~~.1.6 ~~above~~ to 18 inches WC~~of water~~.

6~~8~~.3.~~1~~.2 Close the cargo tank's internal valve(s) ~~including the internal vapor valve(s),~~ thereby isolating the vapor return line and manifold from the cargo tank.

6~~8~~.3.~~1~~.3 Relieve the pressure in the vapor return line to atmospheric pressure.

6~~8~~.3.~~1~~.4 Seal the vapor return line and after five (5) minutes record the final gauge pressure existing in the vapor return line and manifold.

6~~8~~.3.2~~5~~ ~~Pressure Change from (+18) Inches of Water, Gauge~~Calculate the pressure change (inches WC~~water column~~) from + 18 inches WC~~of water, gauge,~~ to the final pressure.

7 REQUIREMENTS AT CONCLUSION OF PRESSURE TESTING

The entire cargo tank, including tank, domes, dome vents, piping hose connections, adaptors, couplings, hoses and delivery elbows shall be inspected for evidence of wear, damage, or maladjustment that could be a potential leak source. Any part found to be defective shall be adjusted, repaired or replaced as necessary.

~~9 DETERMINATIONS OF COMPLIANCE AND VIOLATION~~

~~Determinations of certain modes of compliance with and violation of certification specifications are outlined below.~~

~~9.1 Static Pressure Performance Standard~~

~~9.1.1 Determination of Compliance~~

~~Compliance is determined if the pressure change from ' 8.1.2 or ' 8.2.2 is equal to or less than the limit specified in CP-204 ' 4.1.1.1.~~

~~9.1.2 Determination of Violation~~

~~Violation is determined if the pressure change from ' 8.1.2 or ' 8.2.2 is greater than the limit specified in CP-204 ' 4.1.1.1.~~

~~9.2 Internal Vapor Valve Performance Standard~~

~~9.2.1 Determination of Compliance~~

~~Compliance is determined if the pressure change from ' 8.3.2 is equal to or less than the limit specified in CP-204 ' 4.1.3.1.~~

~~9.2.2 Determination of Violation~~

~~Violation is determined if the pressure change from ' 8.3.2 is greater than the limit specified in CP-204 ' 4.1.3.1.~~

~~10 QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)~~

~~This section is reserved for future specification.~~

~~11 RECORDING DATA~~

~~This section is reserved for future specification.~~

~~12 CALCULATING RESULTS~~

~~This section is reserved for future specification.~~

8~~13~~ REPORTING RESULTS

Results for a given cargo tank shall be reported by the company responsible for testing as listed on the 48 hour test notification that was submitted to the Board. Results can be submitted through the ARB Online Cargo Tank Vapor Recovery Certification Program that can be accessed through the ARB webpage at www.arb.ca.gov/enf/cargotanks/cargotanks.htm. ~~This section is reserved for future specification~~

9~~14~~ ALTERNAT~~IVE~~E TEST PROCEDURES

9.1 U.S. EPA Method 27

U.S. EPA Method 27 referenced in the Code of Federal Regulations – Title 40, Chapter I, Subchapter C, Part 63, Subpart R, section 63.425(e), **(as last amended on December 19, 2003)** may be used an alternate to the procedure described in Section 6 with the following exceptions:

a. The purging of vapor from cargo tanks and compartments shall be conducted in accordance with section 5.

b. Results of each test conducted shall comply with the performance standards referenced in section 3.1 of CP-204 without taking the arithmetic mean of two successive results as allowed by section 40 CFR 63.425(e)

c. Results from three consecutive tests (pressure, vacuum, and internal vapor valve) run in any sequence shall comply with performance standards reference in section 3.1 of CP-204.

9.2 Other Alternate Test Procedures

This test procedure shall be conducted as specified. Modifications to this test procedure shall not be used to determine compliance unless prior written approval has been obtained from the Executive Officer, pursuant to section 5 of Certification Procedure 204 (CP-204). ~~Test procedures, other than specified above, shall only be used if prior written approval is obtained from the ARB Executive Officer. In order to secure the ARB Executive Officer's approval of an alternative test procedure, the applicant is responsible for demonstrating to the ARB Executive Officer's satisfaction that the alternative test procedure is equivalent to this test procedure.~~

~~(1) Such approval shall be granted on a case-by-case basis only. Because of the evolving nature of technology and procedures for vapor recovery systems, such approval shall not be granted in subsequent cases without a new request for approval and a new demonstration of equivalency.~~

~~(2) Documentation of any such approvals, demonstrations, and approvals shall be maintained in the ARB Executive Officer's files and shall be made available upon request.~~

~~15 REFERENCES~~

~~This section is reserved for future specification.~~

~~16 FIGURES~~

~~This section is reserved for future specification.~~