California Environmental Protection Agency

Air Resources Board

Vapor Recovery Definitions

D - 200

DEFINITIONS FOR VAPOR RECOVERY PROCEDURES

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Note: This procedure is being amended. For ease of viewing, this method is shown as adopted text and the March 17, 1999 text is shown as repealed text. Because all text is affected, for ease of viewing, the underline is omitted as allowed in title 1, California Code of Regulations, section 8.

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1 APPLICABILITY

The terms and acronyms contained herein are applicable for the *Certification and Test Procedures for Vapor Recovery Systems at Gasoline Dispensing Facilities, Gasoline Bulk Plants, Gasoline Terminals, Cargo Tanks, and Novel Facilities*. They are intended as a clarification of the terms and acronyms used throughout the Certification and Test Procedures.

2 TERMS

"airport refueller"
is defined as a cargo tank which: has a total capacity no greater than 5000 gallons; exclusively transports avgas and jet fuel; and is not licensed for public highway use.

"assist"
refers to a vapor recovery system, which employs a pump, blower, or other vacuum inducing devices, to collect and/or process vapors at a subject facility.

"balance"
refers to a vapor recovery system which uses direct displacement to collect and/or process vapors at a subject facility.

"blend valve"
refers to the valve in a dispenser that typically creates specific product grade by blending two other product grades in a ratio.

"bootless nozzle"
refers to identify a type of vapor recovery nozzle that does not have a bellows, or “boot,” over the length of the nozzle spout.

"bulk plant"
refers to an intermediate gasoline distribution facility where delivery to and from storage tanks is by cargo tank.

"cargo tank"

means any container, including associated pipes and fittings, that is used for the transportation of gasoline on any highway and is required to be certified in accordance with Section 41962 of the California Health and Safety Code.

"certification procedures"

document certified performance standards and performance specifications for vapor recovery systems, and document test procedures for determining compliance with such standards and specifications.

The purpose of such procedures is to provide certified performance standards and performance specifications for performance levels equal to or greater than those levels required by federal, state, and local statutes, rules, and regulations applicable at the time that any ARB Executive Order certifying a system is signed.

"certification tests"

are tests which, as required by a certification procedure or an ARB Executive Order:

are performed before certification to determine compliance with a certified performance standard and

are performed after certification to determine compliance with a certified performance standard.

Note: Some ARB Executive Orders require periodic certification testing after certification. Also, compare with "compliance tests" below.

"compartment"

means a liquid-tight division of a cargo tank.

"compliance tests"

are tests which, as required by a certification procedure or an ARB Executive Order:

are performed before certification to evaluate and determine a certified performance specification and

are performed after certification to determine compliance with a certified performance specification.

"district"

refers to any of California's local air pollution agencies, including the air pollution control districts and air quality management districts.

"effective date"
refers to the date on which a provision has the effect of state law.

"emission factor"
refers to a performance standard expressed as pounds of hydrocarbon per 1,000 gallons of gasoline dispensed.

"Executive Order"
refers to a document issued by the Executive Officer that certifies a vapor recovery system.

"existing installation"
means any gasoline dispensing facility that is not a new installation.

"fugitive emissions"
refers to those emissions of hydrocarbon vapors emitted from a GDF due to evaporative loss from spillage or may also include those pressure-related fugitive emissions as defined below.

"gastight"
means exhibiting no vapor leak(s).

"gasoline"
means any petroleum distillate having a Reid vapor pressure of four pounds or greater and meeting the requirements of title 13, California Code of Regulations, section 2250 et seq.

"gasoline dispensing facility"
refers to a facility which dispenses gasoline to the end user.

"hold-open latch"
refers to a certified device which is an integral part of the dispensing nozzle and is manufactured specifically for the purpose of dispensing gasoline without requiring the consumer's physical contact with the nozzle during fueling operations.

"incinerator"
means any assist processor designed to control hydrocarbon emissions by any kind of oxidation which generates exhaust which is so hot and variable in volume that such volume can only be determined by correlated measurements and thermodynamic principles, rather than direct measurement.

"insertion Interlock"

refers to any certified mechanism which is an integral part of a bellows-equipped dispensing nozzle which prohibits the dispensing of fuel unless the bellows has been compressed.

"leak detection solution"

refers to any solution containing soap, detergent or similar materials which promote formation of bubbles, and which is used to wet joints or surfaces from which gas may be leaking, and which causes bubbles to form at the site of any escaping gas.

"leak free"

refers to a liquid leak of no greater than three drops per minute.

"liquid condensate trap (knock-out pot, thief port)"

refers to a device designed to collect liquid that condenses in the vapor return line in a manner that allows it to be evacuated and ensures that the vapor return line will not be blocked by the accumulation of liquid.

"liquid leak"

A liquid leak is defined to be the dripping of liquid organic compounds at a rate in excess of three (3) drops per minute from any single leak source other than the liquid fill line and vapor line disconnect operations. For cargo tanks, a liquid leak from liquid product line and vapor line disconnect operations is defined to be:

(a) more than two (2) milliliters liquid drainage per disconnect from a top loading operation; or

(b) more than ten (10) milliliters liquid drainage from a bottom loading operation. Such liquid drainage for disconnect operations shall be determined by computing the average drainage from three consecutive disconnects at any one permit unit.

"liquid removal device"

Refers to a device designed specifically to remove liquid from the vapor return portion of a vapor hose.

"liquid retain"

refers to any liquid gasoline retained in the vapor passage of the nozzle/hose assembly, on the atmospheric side of the vapor check valve.

"lower explosive limit (LEL)"

refers to the minimum volumetric fraction of combustible gas, in air, which will support the propagation of flame; commonly expressed in units of percent (%) or parts per million (ppm).

Standard references for physical properties of combustible gases differ by a few percent in their listed values for lower explosive limit (LEL) and differ also in terms employed. For clarity:

(1) "LEL" shall mean the same as "lower limit of flammability," "lower end of the explosive range", and other related terms in common technical discourse.

(2) The authoritative reference for determination of LEL values shall be the chapter "GASEOUS FUELS", by C. C. Ward, pages 7-21 to 7-24 of *Marks' Standard Handbook for Mechanical Engineers*, Eighth Edition, McGraw Hill, New York, 1978.

(3) The LEL for propane is 2.1% (21,000 ppm).

"major modification"
means the addition, replacement, or removal of an underground storage tank, underground piping, vapor piping within a dispenser, or a dispenser at an existing installation. The replacement of a dispenser is not a major modification when the replacement is occasioned by end user damage to a dispenser.

"mini-boot (vapor guard)"
refers to a device that is permanently installed at the base of a bootless vapor recovery nozzle spout to enhance the effectiveness of vapor collection.

"multi-product dispenser"
refers to a dispenser of multiple products with two or more hoses per dispenser side.

"National Institute of Standards and Technology"
refers to the United States Department of Commerce, National Institute of Standards and Technology (NIST) which, through its Standard Reference Materials (SRM) Program, provides science, industry, and government with a source of well-characterized materials certified for chemical composition or for some chemical or physical property. These materials are designated SRMs and are used to calibrate instruments and to evaluate analytical methods and systems, or to produce scientific data that can be referred readily to a common base.

"new installation"
means a gasoline dispensing facility that is not constructed as of the operative date of the latest amendments to Certification Procedure CP-201 or a gasoline dispensing facility constructed as of the operative date of the latest amendments to Certification Procedure CP-201 that has undergone a

major modification on or after the operative date of the amendments.

"novel"
is a modifier which indicates a vapor recovery system (or system feature) or facility to which the written procedures (of general applicability) do not apply; for such a novel system or facility, new system-specific or facility-specific performance specifications and test procedures shall be developed and required as conditions of certification.

"nozzle bellows (nozzle boot)"
refers to the flexible device around the spout of some vapor recovery nozzles, utilized to contain the vapor displaced from the vehicle.

"on-board refueling vapor recovery system"
refers to vehicle based system required by Title 13, California Code of Regulations, Section 1978, or Part 86, Code of Federal Regulations.

“operative date”
refers to the date on which a regulated person is first required to act or is prohibited from acting.

"over-fill protection device"
refers to a device designed to stop the delivery of product to a storage tank to prevent the over-filling of the tank and potential spillage.

"phase I"
refers to control of vapors during the transfer of gasoline from the cargo tank to the gasoline dispensing facility.

"phase II"
refers to the control of vapors during the transfer of gasoline from the gasoline dispensing facility to the vehicle.

"portable fuel container"
means any container or vessel that is designed or used primarily for receiving, transporting, storing, and dispensing fuel.

"pressure-related fugitive emissions"
refers to those emissions of hydrocarbon vapors emitted from a GDF due to a positive gauge pressure in the headspace (ullage) of the gasoline storage tank. These emissions do not include transfer emissions at the nozzle/fillpipe interface nor the emissions from the vent pipe P/V valve, provided that the cracking pressure of the P/V valve has been exceeded.

"processor"
refers to a vapor processor, either destructive or non-destructive, utilized on a

vacuum assist system.

"Reid Vapor Pressure"
refers to the absolute vapor pressure of volatile petroleum liquids, except liquefied petroleum gases, as determined in accordance with ASTM D323-89.

"spillage"
refers to liquid which enters the environment from a dispensing facility, except for liquid which leaves such dispensing facility in a vehicle tank or cargo tank.

The following definitions apply for the determination of spillage as defined above:

(1) "pre-dispensing spillage"
refers to spillage which occurs between:

(a) the time when a dispensing nozzle is removed from a dispenser and

(b) the time when the dispensing nozzle is inserted into the tank receiving the dispensed liquid

(2) "dispensing spillage"
refers to spillage which occurs between:

(a) the time when the dispensing nozzle is inserted into the tank receiving the dispensed liquid and

(b) the time when the dispensing nozzle is withdrawn from the tank receiving the dispensed liquid

(3) "post-dispensing spillage"
refers to spillage which occurs between:

(a) the time when the dispensing nozzle is withdrawn from the tank receiving the dispensed liquid and

(b) the time when the dispensing nozzle is returned to a dispenser

"spitback"
refers to the forcible ejection of liquid gasoline upon activation of the nozzle's primary shutoff mechanism.

"submerged fillpipe"

(1) means any fillpipe which has its discharge opening entirely submerged when the liquid level is six inches above the bottom of the tank.

(2) when referring to a tank which is loaded from the side, means any fillpipe which has its discharge opening entirely submerged when the liquid level is 18 inches above the bottom of the tank.

"summer fuel"
means fuel that complies with the requirements of title 13, California Code of Regulations, section 2262.4.

"test procedures"
specify equipment and techniques for determining the performance and compliance status of vapor recovery systems relative to certified performance standards and associated certified performance specifications.

"terminal"
refers to a primary distribution facility for the loading of cargo tanks that deliver gasoline to bulk plants, service stations and other distribution points; and where delivery to the facility storage tanks is by means other than by cargo tank.

"top off"
refers to the attempt to dispense gasoline to a motor vehicle or utility equipment fuel tank after the dispensing nozzle primary shutoff mechanism has engaged. The filling of a class of vehicle tanks which, because of the configuration of the fill pipe, cause premature activation of the primary shutoff, shall not be considered topping off.

"transition flow"
refers to the flow rate at which a transition occurs in the slope of the plot of flow rate versus pressure for a valve tested per TP-201.2B.

"ullage"
refers to the empty volume of any container. For example, the ullage of a tank designed primarily for containing liquid is the volume of the tank minus the volume of the liquid.

"underground storage tank"
refers to any one or combination of tanks, including pipes connected thereto, which is used for the storage of gasoline and which is substantially or totally beneath the surface of the ground.

"unihose dispenser"
refers to a multi-product dispenser that has only hose and nozzle per

dispenser side.

"vapor leak"
refers to a vapor leak measured as less 10,000 parts per million on a methane calibrated gas detector, measured at a minimum distance of one centimeter from the source in accordance with EPA Reference Method 21, compliance with the static pressure integrity requirements as determined by TP-201.3, or the absence of bubbles using a liquid leak detector solution.

"vapor recovery system"
means a vapor gathering system capable of collecting the hydrocarbon vapors and gases discharged and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission into the atmosphere, with all tank gauging and sampling devices gastight except when gauging or sampling is taking place.

"**vapor recovery system for gasoline dispensing facility (GDF)"**
refers to all equipment used at a GDF to recover, contain, and transfer gasoline vapors generated by refueling vehicle tanks, gasoline storage tanks, and portable fuel containers, including, but not limited to, dispensing equipment, couplers, fittings, processors, control boards, gauges, and monitors.

"vent"
means any plumbing which conveys an air/vapor mixture from a vapor recovery system to the atmosphere.

"winter fuel"
means fuel that is not summer fuel.

3 ACRONYMS

"ACF"
actual cubic feet (see "CF", "CFH", and "CFM") at sampling conditions.

"APCD"
refers to one of California's Air Pollution Control Districts.

"AQMD"
refers to one of California's Air Quality Management Districts.

"A/L Ratio" or "A/L"
refers to air to liquid ratio.

"ARB"

refers to the California Air Resources Board.

"ARB Executive Officer" or "Executive Officer"
refers to the Executive Officer of the ARB or his or her authorized representative or designate.

"CARB"
California Air Resources Board.

"CCR"
California Code of Regulations.

"CF"
cubic feet.

"CFR"
Code of Federal Regulations.

"CT#"
cargo tank number issued by the Executive Officer.

"CFH"
cubic feet per hour.

"CFM"
cubic feet per minute.

"DMS"
California Department of Food and Agriculture, Division of Measurement Standards.

"DOSH"
California Department of Industrial Relations, Division of Occupational Safety and Health.

"Eng. Eval."
engineering evaluation.

"**EO"**
Executive Order.

"FID"
flame ionization detector.

"GC/FID"
gas chromatograph with flame ionization detector.

"GDF"
gasoline dispensing facility.

"H&SC"
California Health and Safety Code.

"ID"
inside diameter.

"ID#"
identification number.

"ISD"
In-Station Diagnostics.

"LDS"
leak detection solution.

"LEL"
lower explosive limit.

"LPM"
liters per minute.

"mmHg"
millimeters of mercury (unit of pressure).

"MPD"
multi-product dispenser.

"N_2"
nitrogen gas.

"NDIR"
non-dispersive infrared.

"NIST"
National Institute of Standards and Technology.

"**ORVR"**
onboard refueling vapor recovery.

"**PV or P/V Valve"**
pressure/vacuum relief vent valve.

"SFM"
California State Fire Marshal.

"Sec."
section.

"Spec."
specification.

"Std."
standard.

"UST"
underground storage tank.

"WC"
inches of water column (unit of pressure).

"WC_g"
inches of water column, gauge (unit of pressure).