California Environmental Protection Agency

Air Resources Board

Proposed for Amendment

Vapor Recovery Definitions

D-200

DEFINITIONS FOR VAPOR RECOVERY PROCEDURES

Adopted: April 12, 1996
Amended: March 17, 1999
Amended: February 1, 2001
Amended: July 3, 2002
Amended: October 8, 2003
Amended: May 25, 2006
Amended: [insert date of amendment]

Note: Test is proposed for amendment. Test proposed for addition is shown in underline. Text proposed for deletion is shown in ~~strikethrough~~.

California Environmental Protection Agency
Air Resources Board

Vapor Recovery Definitions

D-200

Definitions for
Vapor Recovery Procedures

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, and Aboveground Storage Tanks*. They are intended as a clarification of the terms and acronyms used throughout the Certification and Test Procedures.

2 TERMS

abbreviated operational tests
operational tests that are conducted for a duration of less than 180 days.

aboveground storage tank
a system that uses a gasoline storage tank that is intended for fixed installations, without backfill, that is located above or below grade ~~and requires emergency relief venting~~.

airport refueller
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
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
a vapor recovery system which uses direct displacement to collect and/or process vapors at a subject facility.

below-grade vaulted tank
an aboveground storage tank that is below the level of the earth's surface contained in an enclosure, without backfill, and requires continuous ventilation.

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

bootless nozzle
identifies a type of vapor recovery nozzle that does not have a bellows, or "boot," over the length of the nozzle spout.

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

cargo tank
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
any test conducted as part of the certification process. Certification tests include operational tests, vapor recovery equipment defect tests, challenge mode tests, and any bench testing conducted during a system or component certification.

challenge mode testing
testing to verify that the system will meet applicable standards and specifications under various GDF operating conditions.

compartment
a liquid-tight division of a cargo tank.

compliance tests
tests which, as required by an ARB Executive Order, are performed after certification to determine compliance with a certified performance standard or specification.

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

effective date
the date on which a provision has the effect of state law. The effective date "starts the clock" for the period of continuing use of installed vapor recovery systems/equipment under Health and Safety Code section 41956.1. The period may be up to four years after which the component and/or system may no longer be used.

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

engineering evaluation
an evaluation by the Executive Officer of the relationship that vapor recovery system and/or system component design, operation, and defects, have on the performance of the vapor recovery system. The evaluation may include, but is not limited to, an analysis based on physical science, chemistry, and engineering data from test procedures, in-use performance audits, challenge mode tests, or observations conducted by the Executive Officer or technical or other information made available to the Executive Officer.

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

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

expired certification
any system or component certification that has reached the end of it's certification period and has not been renewed or extended by the Executive Officer.

fugitive emissions
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.

full operational tests
operational tests where the complete complement of test procedures are conducted to demonstrate compliance with all the applicable standards and specifications in CP-201.

gastight
exhibiting no vapor leak(s).

gasoline
any petroleum distillate having a Reid vapor pressure of four pounds or greater and meeting the requirements of title 13, California Code of Regulations, division 3, chapter 5, article 1, beginning with section 2250.

gasoline dispensing facility
a gasoline dispensing facility (GDF) is a stationary source which receives gasoline from cargo tanks and/or dispenses gasoline directly into the fuel tanks of motor vehicles.

hold-open latch
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 refueling operations.

incinerator
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
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.

in-station diagnostics (ISD)
equipment that provides continuous real-time monitoring of critical emission-related vapor recovery system parameters and components, and alerts the station operator when a failure mode is detected so that corrective action is taken.

leak detection solution
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
liquid leak of no greater than three drops per minute.

limited operational tests
operational tests where only the test procedures appropriate for a specific

component(s) are conducted to demonstrate compliance with specific standards and specifications.

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

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

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

liquid retain
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)
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:

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

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.

The LEL for propane is 2.1% (21,000 ppm).
The LEL for methane is 5.0 % (50, 000 ppm)

major modification

the modification of an existing GDF that makes it subject to the same requirements to which a new installation is subject.

Modification of the Phase I system that involves the addition, replacement, or removal of an underground storage tank, or modification that causes the tank top to be unburied, is considered a major modification of the Phase I system.

Modification of the Phase II system that involves the addition, replacement or removal of 50 percent or more of the buried vapor piping, or the replacement of dispensers, is considered a major modification of the Phase II system. The replacement of a dispenser is not a major modification when the replacement is occasioned by end user damage to a dispenser.

Phase II system upgrades to make the systems ORVR compatible do not constitute a major modification. Phase II system upgrades to comply with the under-dispenser containment requirement (CCR, Title 23, section 2636(h)(1)) initiated before January 1, 2004 do not constitute a major modification. Modifications to dispensers may require use of unihose configurations as described in CP-201 section 4.10.

<u>The replacement of an aboveground storage tank is a major modification. The installation of an AST after retrofitting with standing loss controls or the exchange of an AST for a standing loss control retrofitted AST of equal capacity to comply with the requirements of CP-206 is not a major modification.</u>

mini-boot

a device used on vapor recovery nozzles to enhance collection efficiency without requiring a tight seal at the vehicle fillpipe.

multi-product dispenser (MPD)

a dispenser of multiple products with one or more hoses per dispenser side.

motor vehicle

as defined in Section 39039 of the Health and Safety Code.

National Institute of Standards and Technology

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

a gasoline dispensing facility that is not constructed as of the operative date of the latest amendments to Certification Procedures CP-201or CP-206, or a gasoline dispensing facility constructed as of the operative date of the latest amendments to Certification Procedures CP-201 or CP-206 that has undergone a major modification on or after the operative date of the amendments.

novel

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)

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

vehicle based system required by title 13, California Code of Regulations, section 1978, or Part 86, Code of Federal Regulations.

operational test

testing conducted for the purpose of certification of a vapor recovery system or component where the vapor recovery equipment is installed in an operating GDF. Also see the definitions for “abbreviated”, “full”, and “limited” operational tests. The term “operational test” is intended to imply certification tests conducted on a GDF operating under normal conditions. This definition excludes vapor recovery equipment defect and bench tests conducted as part of a system certification. Challenge mode testing may be conducted during an operational test if the Executive Officer determines that such testing will not impact the operational test.

operative date

the date on which a regulated person is first required to act or is prohibited from acting. The operative date determines when new installations and facilities undergoing major modifications must use equipment that meets the applicable performance standard and/or performance specification.

over-fill prevention device
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
control of vapors during the transfer of gasoline from the cargo tank to the gasoline dispensing facility.

phase II
the control of vapors during the transfer of gasoline from the gasoline dispensing facility to the vehicle and storage of gasoline at the gasoline dispensing facility.

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

pressure-related fugitive emissions
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
a vapor processor, either destructive or non-destructive, that operates to manage the pressure of the vapor in the gasoline storage tank within specified limits.

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

renewed certification
an Executive Order for vapor recovery equipment or system reviewed and approved for renewal by the Executive Officer on or before the expiration date as stated in the Executive Order.

revoked certification
an Executive Order for vapor recovery equipment or system which has been determined by the Executive Officer to not be in compliance with the applicable performance standards and specifications.

rigid piping
any piping material with a bend radius that exceeds six feet as determined by TP-201.2G.

spillage
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:

pre-dispensing spillage
spillage which occurs between:

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

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

dispensing spillage
spillage which occurs between

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

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

post-dispensing spillage
spillage which occurs between

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

the time when the dispensing nozzle is returned to a dispenser.

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

spitting
liquid gasoline dispensed or released from the nozzle spout when the trigger is depressed without the dispenser being activated

static torque of phase I adaptor
the amount of torque, measured as pound-inches, required to start the rotation of a rotatable phase I adaptor as measured in accordance with TP-201.1B.

standing loss control

the control of vapors from ASTs when no Phase I or Phase II gasoline transfers are occurring.

submerged fillpipe

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

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

superseded certification

an Executive Order (EO) that has been replaced by a revised version of the Executive Order that reflects changes in the vapor recovery equipment or system.

summer fuel

fuel that is required to comply with the requirements of title 13, California Code of Regulations, section 2262.4.

temperature attenuation

a standing loss control for aboveground storage tanks that controls the effects of diurnal ambient temperature or solar radiation on fuel surface temperature.

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

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 other than by cargo tank.

terminated certification

status of certification of any systems or any system components certified under performance standards in effect prior to the adoption of revised standards and installed prior to the operative date of the revised standards.

top off

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
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
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
any one or combination of tanks, including pipes connected thereto, which is used for the storage of gasoline, which is substantially or totally beneath the surface of the ground and does not have an emergency vent.

unihose dispenser
a multi-product dispenser that has only one hose and nozzle per dispenser side.

vapor guard (see mini-boot)

vapor leak
a vapor leak measured as greater than 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, bagging of individual components, or the presence of bubbles using a liquid leak detector solution.

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

winter fuel

fuel that is not required to comply with the regulations that are applicable to summer fuel.

3 ACRONYMS

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

APCD
one of California's Air Pollution Control Districts.

AQMD
one of California's Air Quality Management Districts.

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

ARB
Air Resources Board.

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

AST
aboveground storage tank.

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.

NEMA
National Electrical Manufacturers Association

NIST
National Institute of Standards and Technology.

NPT
National pipe threads

ORVR
onboard refueling vapor recovery.

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

QA/QC
quality assurance/quality control

SFM
California State Fire Marshal.

Sec.
section.

SLC
Standing Loss Control

Spec.
specification.

Std.
standard.

SWRCB
State Water Resources Control Board.

UST
underground storage tank.

VRED
vapor recovery equipment defect.

WC
water column (unit of pressure normally expressed in inches).

WC_g
water column, gauge (unit of pressure normally expressed in inches).