

(Adopted December 21, 2001)(Amended April 7, 2006)(Amended April 6, 2018)  
(Amended November 6, 2020)(Amended May 5, 2023)(Amended September 1, 2023)

**RULE 1178            FURTHER REDUCTIONS OF VOC EMISSIONS FROM STORAGE  
TANKS AT PETROLEUM FACILITIES**

(a) Purpose

The purpose of this rule is to further reduce emissions of Volatile Organic Compounds (VOC) from Storage Tanks located at Petroleum Facilities.

(b) Applicability

The rule applies to the following Storage Tanks used to store Organic Liquid located at any Petroleum Facility that emits more than 40,000 pounds (20 tons) per year of VOC as reported in the Annual Emissions Report pursuant to Rule 301 – Permit Fees in any Emission Inventory Year starting with the Emission Inventory Year 2000:-

- (1) Aboveground Storage Tanks with capacity equal to or greater than 75,000 liters (19,815 gallons) storing Organic Liquid ~~with a true vapor pressure greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions;~~ and
- (2) Storage Tanks with a Potential For VOC Emissions of 6 tons per year used in Crude Oil And Natural Gas Production Operations.

(c) Definitions

- (1) ACCESS HATCH is an opening in the roof with a vertical well and a cover attached to it. Access Hatch provides passage for workers and materials through the roof for construction or maintenance.
- (2) AMBIENT TEMPERATURE is the temperature of an Organic Liquid within a Storage Tank that has been influenced by atmospheric conditions only and is not elevated by a non-atmospheric means of heating at the tank which includes but is not limited to steam, hot water, heaters, heat exchangers, tank insulation, or tank jacketing.
- (3) CERTIFIED PERSON is a person who has successfully completed the South Coast AQMD District tank self-inspection program and a South Coast AQMD District approved fugitive emissions compliance inspection program, and who holds a certificate issued by the Executive Officer evidencing that such person is in good standing in this program.

- (c) (4) COMPONENT INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, viewable from the tank platform, and ground for components not viewable from the tank platform but viewable at ground level. ~~CONTINUOUS SEAL is a seal that forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the floating roof. A continuous seal may be a vapor mounted, liquid mounted, or metallic shoe seal. A continuous seal may be constructed of fastened segments so as to form a continuous seal.~~
- (5) CRUDE OIL AND NATURAL GAS PRODUCTION OPERATIONS are any operations from a crude oil well to the point of custody transfer to a refinery and any operations from a natural gas well to the natural gas customer.
- (6) DOMED ROOF is a self-supporting fixed roof attached to the top of an Eexternal Ffloating Rroof Ttank to reduce evaporative losses. An External Floating Roof Tank equipped with a Domed Roof is a Domed External Floating Roof Tank.
- (7) EMISSION CONTROL SYSTEM is a combination of capture system(s) and control equipment used to recover, reduce, remove or control the release of VOC to the atmosphere. Such equipment includes, but is not limited to, absorbers, adsorbers, compressors, condensers, incinerators, flares, boilers, and process heaters.
- (8) EMISSION INVENTORY YEAR is the annual emission-reporting period specified by the Annual Emission Reporting (AER) Program requirements for a given year beginning from July 1 of the previous year through June 30 of a given year. ~~For example, emission inventory year 2000 covers the period from July 1, 1999 through June 30, 2000.~~
- (9) EXTERNAL FLOATING ROOF TANK is a Sstorage Ttank with a roof consisting of a double deck or pontoon single deck which rests or floats on the liquid being contained and is not equipped with a fixed roof above the floating roof.
- ~~(10) EXEMPT COMPOUNDS are as defined in Rule 102.~~
- (10+) FACILITY is any equipment or group of equipment or other VOC-emitting activities, which are located on one or more contiguous properties within the South Coast AQMD District, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above- described

(c) groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one Ffacility.

(~~112~~) FIXED ROOF SUPPORT COLUMN AND WELL is a column made of round pipe or of structural shape with an irregular cross section that passes through the floating roof via a peripheral vertical well and is used to support the roof of an internal floating roof tank.

(~~123~~) FIXED ROOF TANK is a Sstorage Ttank with a permanently affixed roof

(~~134~~) FLEXIBLE ENCLOSURE SYSTEM is a VOC emission reduction system made of a VOC impervious material which is resistant to ultraviolet radiation, completely enclosing a Slotted Guidepole and controls the vapor emission pathway from inside the storage vessel through the Guidepole slots to the outside air.

(~~145~~) FUEL GAS SYSTEM is the piping and control system that gathers gaseous stream(s) generated by onsite operations and transports the gaseous stream for sale or for use as fuel gas in combustion devices, or in-process combustion equipment such as furnaces and gas turbines, either singly or in combination.

(~~156~~) GAUGE FLOAT is a device that is used to indicate the level of liquid within the tank. The float rests on the liquid surface and is housed inside a well that is closed by a removable cover.

(~~167~~) GAUGE HATCH/SAMPLE PORT is an opening in the roof that provides access for gauging or sampling. A Gauge Hatch/Sample Port is usually equipped with a closing cover or a funnel and slit-fabric seal to cover the opening.

(~~178~~) GUIDEPOLE is an anti-rotation device that is fixed to the top and bottom of the tank, passing through a well that is equipped with a sliding cover. The Guidepole is used to prevent adverse movement of the roof and subsequent damage to the roof fittings and rim seals, or as access for level gauging or sampling of the liquid stock. The Guidepole can be solid or equipped with slots or holes for gauging purpose.

(~~189~~) INTERNAL FLOATING ROOF TANK is a Sstorage Ttank equipped with a fixed roof and a floating roof which rests on the liquid being contained.

(~~192~~) LADDER AND WELL is a ladder that passes through a well; and is used to access the tank bottom of an Internal Floating Roof Ttank.

(~~202~~) LIQUID MOUNTED PRIMARY SEAL is a Pprimary Sseal that is mounted in full contact with the liquid in the annular space between the tank shell and the floating roof.

- (c) ~~(21)~~ (22) MECHANICAL SHOE PRIMARY SEAL is a metallic band attached to the floating roof sliding in contact with the tank shell. The shoes are supported and held against the tank shell by a mechanical device, and are joined together to form a ring. The vapor space between the shoe and the roof is sealed from the atmosphere by a Pprimary Sseal of coated or VOC impervious fabric.
- (22) OPTICAL GAS IMAGING DEVICE is an infrared camera with a detector capable of visualizing gases in the 3.2-3.4 micrometer waveband.
- (23) ORGANIC LIQUID is any liquid containing VOC.
- (24) PETROLEUM FACILITY is any Ffacility primarily engaged in the production, refining, storage, transfer or distribution of crude petroleum or petroleum products as defined in the Standard Industrial Classification for crude petroleum and natural gas (SIC code 1311), petroleum refining (SIC code 2911), petroleum bulk stations and terminals (SIC code 5171), or other related industries (e.g., SIC codes 4226, 4612, 4613, 4923 and 5541).
- (25) POLE FLOAT is a device located inside a Guidepole that floats on the surface of the stored liquid, and is used to indicate the liquid level inside the tank.
- (26) POLE SLEEVE is a device that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.
- (27) POLE WIPER is a seal that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.
- (28) POTENTIAL FOR VOC EMISSIONS means emissions calculated using a generally accepted model or calculation methodology, based on permitted throughput limits or, when permitted throughput limits are not available, based on the maximum throughput in a calendar month, where at least 30 days of production occurred, in years 2019 to 2022.
- (29) PRESSURE-VACUUM VENT is a vent that is used to minimize tank emissions due to breathing effects.
- (30) PRIMARY SEAL is a seal mounted below a Ssecondary Sseal of a Rim Sseal Ssystem that consists of two seals. A Pprimary Sseal, which is in contact with the floating roof tank shell, can be either Mmechanical Sshoe, Resilient Ffilled, or Wwiper Ttype.
- (31) RESILIENT FILLED PRIMARY SEAL is an envelope filled with resilient foam (non-metallic polyurethane) mounted at the rim of the floating roof that makes contact with the shell. ~~A resilient filled nonmetallic primary seal can be liquid-mounted or vapor-mounted.~~

- (c) (32) RIM MOUNTED SECONDARY SEAL is a Ssecondary Sseal mounted on the rim of the floating roof of a Sstorage Ttank. Rim Mmounted Ssecondary Sseals are effective at reducing losses from the Pprimary Sseal fabric.
- (33) RIM SEAL SYSTEM is a closure device between the shell of the Sstorage Ttank and the floating roof edge. A Rrim Sseal Ssystem may consist of two seals, one above the other. The lower seal is referred to as the Pprimary Sseal and the upper seal is referred to as the Ssecondary Sseal.
- (34) RIM VENT is a device consisting of a weighted pallet that rests on a valve seat. Rim Vvents are used to release any excess pressure or vacuum present in the vapor pocket between the seal and the rim area of a floating roof tank.
- (35) ROOF DRAIN is a drain on the roof of a floating roof tank that is used to remove rainwater from the floating roof. There are two types of Rroof Ddrains. A closed Rroof Ddrain removes the rainwater from the surface of the roof through a flexible hose through the stored liquid prior to exiting the tank. With a closed Rroof Ddrain, the rainwater does not come in contact with the liquid stored in the tank. An open Rroof Ddrain is any drain other than the closed Rroof Ddrain. An open Rroof Ddrain is typically used only during an emergency.
- (36) ROOF LEG is a device that holds the floating roof at a predetermined distance from the tank bottom to allow for tank cleaning or repair. There are two types of Rroof Llegs, adjustable or fixed. Fixed legs are attached to the floating roof or hangers suspended from the roof, whereas adjustable legs pass through a well or sleeve, and penetrate the roof.
- (37) ROOF OPENING is any opening through a floating roof of a Sstorage Ttank for any roof fitting including but not limited to Aaccess Hhatch, Ffixed Rroof Ssupport Ccolumn Aand Wwell, Gauge Ffloat, Gauge Hhatch, Ssample Pport, Guidepole, Ladder Aand Wwell, Rim Vvent, Rroof Ddrain, Rroof Lleg, and Vacuum Bbreaker, and excluding Rim Sseal Ssystem.
- (38) SECONDARY SEAL is a seal mounted above the Pprimary Sseal of a Rrim Sseal Ssystem that consists of two seals. Secondary Sseals can be Sshoe Mmounted or Rrim-Mmounted.
- ~~(39) SHOE MOUNTED SECONDARY SEAL is a secondary seal mounted on the primary mechanical shoe. Shoe mounted secondary seals are effective at reducing vapor losses from the gaps between the shoe and the tank shell.~~
- (39) SLOTTED GUIDEPOLE is a Guidepole that has slots or holes through the wall of the Guidepole. The slots or holes allow the stored liquid to flow into the pole at liquid levels above the lowest operating level.

- (c) ~~(40)~~ STORAGE TANK or TANK is a stationary container primarily constructed of non-earthen materials that meets the applicability criteria of this rule.
- ~~(41)~~ TANK FARM INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of all applicable Storage Tanks at a Facility where the person conducting the inspection views the top of the tank shell, and fixed roof or dome if applicable. Tank Farm Inspections may be conducted from an elevated position and/or from ground level.
- (42) TRUE VAPOR PRESSURE is the vapor pressure of a liquid at actual storage conditions.
- (43) VACUUM BREAKER is a device used to equalize the pressure of the vapor space across the deck as the floating roof is either being landed on or floated off its legs. A ~~V~~vacuum ~~B~~breaker consists of a well with a cover. Attached to the underside of the cover is a guided leg long enough to contact the tank bottom as the floating roof is being landed. When in contact with the tank bottom, the guided leg mechanically lifts the cover off the well.
- ~~(44)~~ ~~VAPOR MOUNTED PRIMARY SEAL~~ is a primary seal that does not come in contact with the liquid in the annular space between the tank shell and the floating roof.
- ~~(45)~~ VAPOR TIGHT CONDITION is a condition that exists when the reading on a portable hydrocarbon analyzer is less than 500 parts per million (ppm), expressed as methane, above background, measured using EPA Reference Method 21.
- ~~(456)~~ VISIBLE GAP is a gap of more than 1/8 inch between any gasket or seal and the opening that it is intended to seal. Visible ~~G~~gap for primary and ~~S~~secondary ~~S~~seals is a gap that does not meet the requirements specified in subdivision (d).
- ~~(46)~~ VISIBLE VAPORS are any VOC vapors detected with an Optical Gas Imaging Device during a Component or Tank Farm Inspection, when operated and maintained in accordance with manufacturer training, certification, user manuals, specifications, and recommendations.
- (47) VOLATILE ORGANIC COMPOUNDS (VOC) as defined in Rule 102.
- (48) WASTE STREAM TANK is a ~~S~~storage ~~T~~ank containing at least 75% water by volume, and some liquid waste stream generated in a manner which contains petroleum liquid, emulsified oil, VOC or other hydrocarbons. For the purpose of this rule, ~~W~~waste ~~S~~stream ~~T~~anks include waste water tanks and recovered oil (or slop oil) tanks.
- ~~(49)~~ ~~WIPER PRIMARY SEAL~~ is a continuous annular blade of flexible material (e.g. rubber, urethane, or foam filled) fastened to a mounting bracket on the deck perimeter that spans the annular rim space and contacts the tank shell. A wiper

(c) ~~seal system may consist of a single primary seal, or dual (multiple) seals where one seal is mounted above the other.~~

(d) Requirements

(1) External Floating Roof Tanks

(A) Floating Roof Requirements

~~The owner or~~ No later than July 1, 2003, the operator of an Eexternal Ffloating Rroof Ttank shall:

- (i) Equip each Access Hatch and Gauge Ffloat well with a cover that is gasketed and bolted. The cover shall be closed at all times, with no Visible Gaps, except when the hatch or well must be opened for access.
- (ii) Equip each Gauge Hatch/sample well with a cover that is gasketed. The cover shall be closed at all times, with no Visible Gaps, except when the hatch or well must be opened for access.
- (iii) Gasket or cover each adjustable Rroof Leg with a VOC impervious sock at all times when the roof is floating.
- (iv) Gasket each Rim Vent. Rim Vents shall be closed at all times, with no Visible Gaps, when the roof is floating; and shall be set to open only when the roof is being floated off the Rroof Leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.
- (v) Gasket each Vacuum Breaker. Vacuum Breakers shall be closed at all times, with no Visible Gaps, when the roof is floating; and shall be set to open only when the roof is being floated off or is being landed on the Rroof Leg supports.
- (vi) Equip each open floating Rroof Drain with a slotted membrane fabric cover or other device with an equivalent control efficiency that covers at least 90 percent of the area of the opening.
- (vii) Equip each unslotted Guidepole well with a gasketed sliding cover and a flexible fabric sleeve or wiper.
- (viii) Equip each unslotted Guidepole with a gasketed cover at the end of the pole. The cover shall be closed at all times, with no Visible Gaps, except when gauging or sampling.
- (ix) Equip each Slotted Guidepole with the following combination of components:
  - (A) A gasketed cover, a Ppole Wwiper, and a Ppole Ffloat with a wiper or seal; or

- (d)
- (B) A gasketed cover, a Ppole Wwiper, and a Ppole Ssleeve that shall be extended into the stored liquid; or
  - (C) A gasketed cover, a Ppole Wwiper, a Ppole Ssleeve that shall be extended into the stored liquid, and a Fflexible Enclosure System.
- (x) Maintain the Ppole Ffloat in a condition such that it floats within the Guidepole at all times, except when it must be removed for sampling or when the tank is empty. The wiper or seal of the Ppole Ffloat shall be at or above the height of the Ppole Wwiper.
- (xi) An owner or operator that equips the Slotted Guidepole with a Fflexible Enclosure System shall ensure that the Fflexible Enclosure System:
- (A) Completely encloses the Slotted Guidepole;
  - (B) Is free of holes, tears, slots, or rips; and
  - (C) Is double-clamped tightly at the top of the Guidepole and secured to the tank roof with no Visible Gaps.
- (xii) Cover each Slotted Guidepole opening with a gasketed cover at all times, with no Visible Gaps, except when the cover must be opened for access.
- (xiii) Except for Vacuum Breakers and Rim Vents, ensure that each opening in the external floating roof shall provide a projection below the liquid surface.
- (xiv) Except for Vacuum Breakers, Rim Vents, Roof Drain, and leg sleeves, equip all other openings in the roof with a gasketed cover or seal which is closed at all times, with no Visible Gaps, except when the cover or seal must be opened for access.
- (B) In lieu of complying with the requirements of no Visible Gap in subparagraph (d)(1)(A), the owner or operator of a floating roof tank containing Organic Liquid shall maintain all Roof Openings in a Vapor Tight Condition at all times except during preventive maintenance or repair specified in subdivision (g) of this rule.
- (CB) Rim Seal System Requirements  
The owner or~~No later than July 1, 2003,~~ the operator of an Eexternal Floating Roof Tank shall equip the tank with a Rim Seal System meeting the following requirements:
- (i) The Pprimary Seal shall be a Mechanical Shoe or Liquid Mounted.



- (d)
- (ii) The Ssecondary Sseal shall be Rim Mmounted and shall not be attached to the Pprimary Sseal.
  - (iii) Gaps between the tank shell and the Pprimary Sseal shall not exceed 1.3 centimeters (1/2 inch) for a cumulative length of ~~1030~~ percent of the circumference of the tank, and 0.32 centimeter (1/8 inch) for ~~3060~~ percent of the circumference of the tank. No gap between the tank shell and the Pprimary Sseal shall exceed 3.8 centimeters (1-1/2 inches). No continuous gap between the tank shell and the Pprimary Sseal greater than 0.32 centimeter (1/8 inch) shall exceed 10 percent of the circumference of the tank.
  - (iv) Gaps between the tank shell and the Ssecondary Sseal shall not exceed 0.32 centimeter (1/8 inch) for a cumulative length of 95 percent of the circumference of the tank. No gap between the tank shell and the Ssecondary Sseal shall exceed 1.3 centimeters (1/2 inch).
  - (v) Mechanical Sshoe Pprimary Sseals shall be installed so that one end of the shoe extends into the stored Organic Liquid and the other end extends a minimum vertical distance of 61 centimeters (24 inches) above the stored Organic Liquid surface.
  - (vi) The geometry of the shoe shall be such that the maximum gap between the shoe and the tank shell is no greater than double the gap allowed by the seal gap criteria specified in clause (d)(1)(~~CB~~)(iii) for a length of at least 46 centimeters (18 inches) in the vertical plane above the liquid surface.
  - (vii) The Pprimary Sseal envelope shall be made available for unobstructed inspection by the Executive Officer along its circumference. In the case of riveted tanks with Resilient Filled Pprimary Sseals, at least eight such locations shall be made available; for all other types of seals, at least four such locations shall be made available. If the Executive Officer deems it necessary, further unobstructed inspection of the Pprimary Sseal may be required to determine the seal's condition along its entire circumference.
  - (viii) The Ssecondary Sseal shall be installed in a way that permits the Executive Officer to insert probes up to 3.8 centimeters (1-1/2 inches) in width to measure gaps in the Pprimary Sseal.

- (d) (ix) There shall be no holes, tears or openings in the Ssecondary Seal or in the Pprimary Seal envelope surrounding the annular vapor space enclosed by the roof edge, seal fabric, and Ssecondary Seal.
- (x) Except during the preventive maintenance, repair, or inspection periods specified in subdivision (f) and (g) of this rule that do not exceed 72 hours with prior notification to the Executive Officer, both the Pprimary Seal and the Ssecondary Seal shall cover the annular space between the external floating roof and the wall of the Sstorage Tank in a continuous fashion, with no Vvisible Ggaps.
- (xi) The owner or operator shall use a Rrim Seal System that is identified on the current list of seals approved by the Executive Officer. The owner or operator requesting the use of an alternative Rrim Seal System shall submit a written application including emission test results and analysis demonstrating that the alternative Rrim Seal System is better in performance and has a rim seal loss emission factor that is less than or equal to the current design.

~~(C) No later than July 1, 2003, in lieu of complying with the requirement of no visible gap in subparagraph (d)(1)(A), the operator of an external floating roof tank shall maintain all roof openings in a vapor tight condition at all times except during preventive maintenance, repair, or inspection periods specified in subdivision (f) and (g) of this rule.~~

(D) Tank Condition Requirements

The owner or operator shall maintain the tank in a condition free of Visible Vapors resulting from a defect in equipment as determined pursuant to the schedule and inspection requirements specified in paragraph (f)(4).

(E) Doming Requirements

The owner or operator shall install a Domed Roof on tanks meeting the following criteria:

- (i) All External Floating Roof Tanks used to store Organic Liquid with a True Vapor Pressure of 3 psia or greater as demonstrated pursuant to subparagraph (d)(1)(F), except for tanks permitted to contain more than 97% by volume crude oil.

(d) (ii) All External Floating Roof Tanks permitted to contain more than 97% by volume crude oil.

(F) Verification of True Vapor Pressure

Effective January 1, 2024, an owner or operator of an External Floating Roof Tank shall demonstrate the True Vapor Pressure of the Organic Liquid stored is less than 3 psia, with one representative sample, at least once every six calendar months pursuant to the requirements of subdivision (i). For facilities that have committed to a testing frequency in writing on or before January 1, 2003, the applicability and compliance verification of Waste Stream Tanks and recovered oil tanks shall be based on a monthly average True Vapor Pressure greater than or equal to 3 psia. The monthly average True Vapor Pressure of waste stream shall be determined based on at least one representative sample or multiple samples collected from the top surface layer that is no deeper than 6 inches at the frequency committed to in writing by the affected Facility.

(G) In lieu of complying with the requirements in subparagraph (d)(1)(E), the owner or operator of a wastewater tank where the conversion to a Domed External Floating Roof Tank may create a hazard due to the accumulation of pyrophoric material, as confirmed by the Executive Officer, shall accept permit conditions to limit the True Vapor Pressure of the Organic Liquid stored in a tank to less than 3 psia.

(2) Domed External Floating Roof Tanks

The owner or operator of a Domed External Floating Roof Tanks shall:

~~(A) Phase I: The operator at any petroleum facility with annual VOC emissions exceeding 40,000 lbs (20 tons) for emission inventory year 2000 shall install domed roofs on all external floating roof tanks that contain organic liquids having true vapor pressure greater than or equal to 3 psia as reported in the Annual Emissions Report pursuant to Rule 301—Permit Fees for the emission inventory year 2000 according to the following schedule:~~

~~(i) At least 1/3 of the tanks subject to this provision by January 1, 2004;~~

~~(ii) At least 2/3 of the tanks subject to this provision by January 1, 2006;~~

~~(iii) All tanks subject to this provision by January 1, 2008.~~

~~(iv) As an alternative to clauses (i) through (iii) above, an operator may submit a compliance plan demonstrating that 75% of the~~

- (d) ~~tanks subject to this provision have domes installed by December 31, 2006, and 100% of such tanks shall have domes installed by December 31, 2008. The Executive Officer shall approve any plan which convincingly demonstrates compliance and may impose conditions of approval necessary to assure compliance. The operator shall comply with all provisions and conditions of an approved plan.~~
- (B) ~~Phase II: For additional external floating roof tanks that are not identified under Phase I but contain organic liquids having true vapor pressure greater than or equal to 3 psia as reported in the Annual Emissions Report pursuant to Rule 301 – Permit Fees for any emission inventory year after 2000, the operator who is subject to Phase I shall comply with the requirements specified in subparagraph (d)(2)(A) no later than two years after becoming subject to the rule. In those cases where the two-year period falls within Phase I, the operator shall complete the installation of the domes on all Phase II tanks by no later than January 1, 2010, or December 31, 2010 if choosing to comply with the alternative in clause (d)(2)(A)(iv). The applicability and compliance verification of waste stream tanks and recovered oil tanks shall be based on a monthly average true vapor pressure greater than or equal to 3 psia. The monthly average true vapor pressure of waste stream shall be determined based on at least one representative sample or multiple samples collected from the top surface layer that is no deeper than 6 inches at a frequency committed to in writing by the affected facility no later than January 1, 2003. The facility shall monitor and keep records of sampling results and monthly average true vapor pressures on site and make them available to the Executive Officer upon request.~~
- (C) ~~In lieu of complying with the requirements in subparagraph (d)(2)(B):~~
- (i) ~~The operator who is subject to Phase I shall accept permit conditions to limit the true vapor pressure of the organic liquids stored in a tank to lower than 3 psia by the end of Phase I.~~
- (ii) ~~The operator of a waste water tank where the installation of a domed roof may create a hazard due to the accumulation of pyrophoric material, as confirmed by the Executive Officer, who is subject to Phase II shall accept permit conditions to limit the true vapor pressure of the organic liquids stored in a tank to lower than 3 psia.~~

- (d) ~~(AD)~~ The operator of a domed external floating roof tank shall ~~E~~equip and maintain all ~~R~~roof ~~O~~openings and Rim Seal Systems and in accordance with the specifications listed in subparagraphs (d)(1)(A) and (d)(1)(C), ~~except for Slotted Guidepoles~~ by the applicable compliance date in subparagraph (d)(2)(A) and (d)(2)(B). Each ~~S~~lotted ~~G~~uidepole shall be equipped with the following combination of components:
- (i) A gasketed cover, a ~~P~~pole ~~W~~wiper, a ~~P~~pole ~~F~~float with a wiper or seal; or
  - (ii) A gasketed cover, a ~~P~~pole ~~W~~wiper, and a pole sleeve that shall be extended into the stored liquid; or
  - (iii) A gasketed cover, a ~~P~~pole ~~W~~wiper, and a flexible enclosure system.
- ~~(E)~~ The operator of a domed external floating roof tank shall equip the tank with a rim seal system consisting of a primary and a secondary seal meeting the specifications listed in subparagraph (d)(1)(B) ~~by the applicable compliance date in subparagraphs (d)(2)(A) and (d)(2)(B)~~.
- ~~(BF)~~ The operator shall ~~E~~ensure that the concentration of organic vapor in the vapor space above ~~the~~ a domed external floating roof ~~does~~ shall not exceed 30 percent of its lower explosive limit (LEL) ~~by the applicable compliance date in subparagraph (d)(2)(A) and (d)(2)(B)~~.
- ~~(C)~~ Comply with the requirements of subparagraph (d)(1)(D).
- ~~(D)~~ Maintain the Domed Roof in a condition that is free of gaps, cracks, punctures, and other openings, except where vents and access points are located.
- ~~(G)~~ The operator shall submit to the Executive Officer an annual status report including at a minimum all of the following:
- (i) A list of all external floating roof tanks subject to the requirement in subparagraphs (d)(2)(A) and (d)(2)(B);
  - (ii) A general description of each tank including information such as tank identification, District permit number or District device identification, tank type, tank capacity, type of liquid stored, and if applicable, number of representative samples, frequency of sampling, averaging method used to determine the monthly average true vapor pressure of waste stream or recovered oil tanks, and the results.
  - (iii) A compliance status for each tank; and

- (d) (iv) ~~An estimated compliance date for each external floating roof tank that is not yet in compliance with the requirement in subparagraph (d)(2)(A) and (d)(2)(B).~~

(3) Internal Floating Roof Tanks

The owner or operator of an Internal Floating Roof Tank shall:

~~When an internal floating roof tank is scheduled for emptying and degassing, but no later than January 1, 2007, the operator of an internal floating roof tank shall:~~

- (A) Equip each Fixed Roof Support Column And Well with a sliding cover that is gasketed or with flexible fabric sleeves;
- (B) Equip each Ladder Well with a gasketed cover. The cover shall be closed at all times, with no Visible Gaps, except when the well must be opened for access;
- (C) Equip and maintain other Roof Openings according to the specifications listed in subparagraph (d)(1)(A) or (d)(1)(~~B~~C). Each Slotted Guidepole shall be equipped with the following combination of components:
- (i) A gasketed cover, a Ppole Wwiper, a Ppole Float with a wiper or seal; or
- (ii) A gasketed cover, a Ppole Wwiper, and a Ppole Ssleeve that shall be extended into the stored liquid; or
- (iii) A gasketed cover, a Ppole Wwiper, and a flexible enclosure system.
- (D) Equip the tank with a Rim Seal System consisting of ~~either a Pprimary Seal, or a Pprimary and a Ssecondary Seal~~ meeting the specifications listed in subparagraph (d)(1)(~~C~~B), with the exception of a Mechanical Shoe Pprimary Seal which shall have one end extend a minimum vertical distance of 15 centimeters (6 inches) above the liquid surface and the other end extend into the liquid a minimum of 10 centimeters (4 inches); and
- (E) Ensure that the concentration of organic vapor in the vapor space above the ~~internal floating roof~~ does~~shall~~ not exceed 50 percent of its lower explosive limit (LEL) for those installed prior to June 1, 1984 and 30 percent of its LEL for those installed after June 1, 1984.
- (F) Comply with the requirements of subparagraph (d)(1)(D).

(4) Fixed Roof Tanks

- (d) (A) ~~No later than January 1, 2007, The~~ owner or operator of a Fixed Roof Tank shall equip each Fixed Roof Tank with an Emission Control System meeting the following requirements:
- (i) ~~Vent tank emissions to a Fuel Gas System, or vent tank emissions to an~~ The tank emissions are vented to an Emission Control System with an overall control efficiency of at least 98.5% by weight ~~or the tank emissions are vented to a fuel gas system.~~
  - (ii) Any tank gauging or sampling device on a tank shall be equipped with a vapor tight cover which shall be closed at all times, with no Visible Gaps, except during gauging or sampling. The roof of such tank shall be properly maintained in a Vapor Tight Condition with no holes, tears or uncovered opening.
  - (iii) All openings on the roof shall be properly installed and maintained in a Vapor Tight Condition at all times.
  - (iv) ~~The operator shall~~ Equip each Fixed Roof Tank with Pressure-Vacuum Vents that shall be set to the lesser of 10% below the maximum allowable working pressure of the roof or 0.5 psig.
  - (v) ~~The operator shall~~ Maintain Pressure-Vacuum Vents in a Vapor Tight Condition at all times except when the operating pressure of the Fixed Roof Tank exceeds the manufacturer's recommended setting.
- (B) In lieu of complying with the requirement in subparagraph (d)(4)(A), the owner or operator may choose to convert the Fixed Roof Tank to an External Floating Roof Tank, a Domed External Floating Roof Tank or an Internal Floating Roof Tank meeting the requirements specified in paragraphs (d)(1), (d)(2) or (d)(3).
- (C) The owner or operator shall comply with the requirements of subparagraph (d)(1)(D).
- (5) Compliance Schedules  
 The owner or operator of any petroleum facility with annual VOC emissions exceeding 40,000 lbs (20 tons) for any emission inventory year subsequent to 2000 reporting pursuant to Rule 301 — Permit Fees Storage Tank that becomes subject to this rule or requirements of this rule on or after September 1, 2023 shall meet the following compliance schedules:
- (A) The owner or operator of a Facility that becomes subject to this rule after September 1, 2023 shall ~~Comply with the requirements for external~~

- (d) ~~floating roof tanks specified in paragraph (d)(1) no later than one year after becoming subject to this rule.~~
- (i) Comply with the requirements for External Floating Roof Tanks specified in paragraph (d)(1), except for subparagraph (d)(1)(E) no later than one year after becoming subject to this rule.
  - (ii) Comply with the requirements of subparagraph (d)(1)(E) no later than two years after becoming subject to the requirement.
  - (iii) Comply with the requirements for Internal Floating Roof Tanks specified in paragraph (d)(3) when the tanks are scheduled for emptying and degassing, but no later than five years after becoming subject to this rule.
  - (iv) Comply with the requirements for Fixed Roof Tanks specified in paragraph (d)(4) no later than five years after becoming subject to this rule.
- (B) The owner or operator shall install a Domed Roof on any Storage Tanks under common ownership permitted to contain more than 97% by volume crude oil that become subject to the doming requirements of subparagraph (d)(1)(E) upon September 1, 2023, in accordance with the following schedule:~~Comply with the requirements for domed external floating roof tanks specified in paragraph (d)(2) no later than six years after becoming subject to this rule . Any external floating roof tank that later becomes subject to this requirement based on any subsequent emission inventory year, shall comply with the requirements in paragraph (d)(2) no later than two years after becoming subject to this rule.~~
- (i) No later than December 31, 2031 for at least 1/3 of the applicable Storage Tanks; and
  - (ii) No later than December 31, 2033 for at least 1/2 of the applicable Storage Tanks; and
  - (iii) No later than December 31, 2038 for all of the applicable Storage Tanks.
- (C) In lieu of meeting the compliance schedule specified in subparagraph (d)(5)(B), the owner or operator of a Facility containing 12 or more tanks permitted to contain more than 97% by volume crude oil located at a single location where five or more tanks are 260 feet in diameter or larger, shall install a Domed Roof pursuant to the following compliance schedule:



- (d)
  - (i) No later than December 31, 2030 for at least 1/4 of the applicable Storage Tanks; and
  - (ii) No later than December 31, 2036 for at least 1/2 of the applicable Storage Tanks; and
  - (iii) No later than December 31, 2040 for at least 3/4 of the applicable Storage Tanks; and
  - (iv) No later than December 31, 2041 for all of the applicable Storage Tanks.
- ~~(DC)~~ The owner or operator of an External Floating Roof Tank permitted to contain more than 97% by volume crude oil with a True Vapor Pressure of less than 3 psia that becomes subject to the doming requirements of subparagraph (d)(1)(E) after September 1, 2023, after a test demonstrates that the True Vapor Pressure of the crude oil is 3 psia or greater, shall comply with subparagraph (d)(1)(E) no later than 3 years after becoming subject the requirement.~~Comply with the requirements for internal floating roof tanks specified in paragraph (d)(3) when the tanks are scheduled for emptying and degassing, but no later than five years after becoming subject to this rule.~~
- ~~(ED)~~ The owner or operator of an Internal Floating Roof Tank not equipped with a Secondary Seal shall comply with the requirements of subparagraph (d)(3)(D) when the tank is next emptied or degassed, or prior to refilling for any tank that is out of service, beginning 2 years after September 1, 2023. The owner or operator shall install a Secondary Seal no later than 10 years after September 1, 2023.~~Comply with the requirements for fixed roof tanks specified in paragraph (d)(4) no later than five years after becoming subject to this rule.~~
- ~~(6)~~ ~~The operator of all tanks for which a permit to construct and operate has been issued by the Executive Officer on and after January 1, 2002 for new construction shall comply with the requirements of subdivision (d).~~
- (e) Identification Requirements
  - (1) The owner or operator shall permanently identify all tanks subject to the requirements of this rule by a visible sign that includes the tank number, on the outside wall of the tank for inventory, inspection and record keeping purposes.
  - (2) The owner or operator shall notify the Executive Officer of any change(s) in tank identification.
- (f) Monitoring Requirements
  - (1) External Floating Roof Tanks

- (f) To demonstrate compliance with paragraph (d)(1), the operator shall have a Certified Person conduct the following in accordance with the procedures and guidelines specified in Attachment A:
- (A) Conduct an EPA Method 21 inspection or measure gaps of all Roof Openings on a semiannual basis and each time the tank is emptied and degassed.
  - (B) Perform complete gap measurements of the Rim Seal System on a semiannual basis and each time the tank is emptied and degassed.
- (2) Domed External Floating Roof Tanks and Internal Floating Roof Tanks
- To demonstrate compliance with paragraph (d)(2) and (d)(3), the owner or operator shall have a Certified Person conduct the following in accordance with the procedures and guidelines specified in Attachment A:
- (A) Visually inspect the Rim Seal System and ~~r~~Roof Openings and use an explosimeter to measure the lower explosive limit (LEL) on a semiannual basis.
  - (B) Perform complete gap measurements of the Rim Seal System each time the tank is emptied and degassed but no less than once every ten years.
  - (C) Perform complete gap measurements of all Roof Openings each time the tank is emptied and degassed but no less than once every ten years.
- (3) Fixed Roof Tanks
- (A) No later than 180 days after the effective date of the requirements, the owner or operator of a Facility who elects to install an Emission Control System to comply with the requirements in clause (d)(4)(A)(i) shall conduct an initial performance testing to determine the overall efficiency of the Emission Control System and submit a complete test report to the Executive Officer. The performance testing of the Emission Control System shall be repeated when the system is modified or an operating parameter is changed in a manner that affects the capture or control efficiency. In such case, the performance test shall be conducted and the test report submitted to the Executive Officer within 180 days after the modification. Subsequent to the initial performance test, the operator shall conduct annual performance tests, and shall monitor and record applicable operating parameters on a weekly basis to ensure that the Emission Control System is achieving 985% overall control efficiency.

- (f) (B) To demonstrate compliance with clauses (d)(4)(A)(ii), (d)(4)(A)(iii) and (d)(4)(A)(v), the owner or operator shall have a Certified Person conduct EPA Method 21 measurements on a quarterly basis.
- (C) To demonstrate compliance with clause (d)(4)(A)(iv), the operator shall keep engineering data sheet for Pressure-Vacuum Vents installed after January 1, 2002.

(4) Optical Gas Imaging Inspections

Effective July 1, 2024, the owner or operator shall demonstrate compliance with subparagraphs (d)(1)(D), (d)(2)(C), (d)(3)(F) and (d)(4)(C), by conducting OGI inspections in accordance with the following requirements:

(A) The person conducting an OGI inspection shall:

- (i) Complete a manufacturer's certification or training program for the OGI Device used to conduct the inspection; and
- (ii) Operate and maintain the OGI Device in accordance with the manufacturer's specifications and recommendations.

(B) Tank Farm Inspections

A person meeting the requirements of subparagraph (f)(4)(A) shall:

- (i) Conduct a Tank Farm Inspection at least once every calendar week; and
- (ii) When Visible Vapors are detected from a tank, conduct an inspection from the tank's platform to identify components and/or equipment emitting Visible Vapors.

(A) If determined that Visible Vapors are emitted from components required to be maintained in a Vapor Tight Condition or in a condition with no Visible Gaps, the owner or operator shall make necessary repairs or adjustments pursuant to subdivision (g), or demonstrate compliance with a Vapor Tight Condition or a condition with no Visible Gaps for the component from which Visible Vapors are emitted within 3 days.

(B) If determined that Visible Vapors are emitted from equipment not specified in subclause (f)(4)(B)(ii)(A), a visual inspection for defects in equipment shall be conducted, which may include the use of the OGI Device. The owner or operator shall make necessary repairs or adjustments pursuant to subdivision (g) for any defects identified.

- (f) (iii) If, during an inspection of a tank conducted pursuant to clause (f)(4)(B)(i), Visible Vapors are detected and no repairs or demonstrations were required pursuant to clause (f)(4)(B)(ii), an owner or operator is not required to conduct inspections required by clause (f)(4)(B)(ii) for that tank for the following weeks within that calendar month provided the inspector:
- (A) Records the Visible Vapors detected during the Tank Farm Inspection; and
- (B) Makes a determination that there are no visually identifiable departures indicating an increase in Visible Vapors by comparing the Visible Vapors detected during subsequent Tank Farm Inspections in the same calendar month to the Visible Vapors recorded pursuant to subclause (f)(4)(B)(iii)(A). Departures may include, but are not limited to, increases in the size, density, flowrate, or number of Roof Openings from which Visible Vapors are emitted.
- (C) Component Inspections  
A person that meets the requirements of subparagraph (f)(4)(A) shall:
- (i) Conduct a Component Inspection for each floating roof tank at least once every six months; and
- (ii) When Visible Vapors are detected, and are not emitted from the Rim Seal System, the owner or operator shall make any necessary repairs or adjustments pursuant to subdivision (g), or demonstrate compliance with the applicable rule requirements for the components or equipment from which Visible Vapors are detected within 3 days; and
- (iii) When the Visible Vapors are detected from the Rim Seal System, the owner or operator shall identify any defects in the equipment and make any necessary repairs or adjustments pursuant to subdivision (g). If no defects are identified, an inspection from ground level shall be conducted. If Visible Vapors are detected at the top of the tank shell or roof vents, the owner or operator shall demonstrate compliance with the Rim Seal requirements of this rule, or make any necessary repairs, within 3 days.

- (g) Maintenance Requirements

(g) The owner or operator shall maintain tanks in accordance with the following requirements:

(1) Repair, or replace any piping, valves, vents, seals, gaskets, or covers of Roof Openings that are found to have defects or Visible Gaps, or are not in a Vapor Tight Condition and do not meet all the requirements of this rule before filling or refilling an emptied and degassed Storage Tank, or within 72 hours after an inspection, including one conducted by the operator as specified in paragraphs (f)(1) through (f)(3), determines that the equipment is not operating in compliance.

(2) Make any necessary repairs or adjustment on tanks found in non-compliance during an inspection required by paragraph (f)(4) within 3 days after the inspection.

~~The operator shall repair, or replace any piping, valves, vents, seals, gaskets, or covers of roof openings that are found to have defects or visible gaps, or are not vapor tight and do not meet all the requirements of this rule before filling or refilling an emptied and degassed storage tank, or within 72 hours after an inspection, including one conducted by the operator as specified in subdivision (f), determines that the equipment is not operating in compliance.~~

(h) Record Keeping and Reporting Requirements

(1) ~~During the inspections specified subdivision (f), the operator~~For inspections required by ~~sub~~paragraphs (f)(1) through (f)(3), the owner or operator shall; keep records of all findings, including but not limited to the readings measured according to EPA Reference Test Method 21.

(2) ~~The operator shall record all inspections of primary, secondary seals, a flexible enclosure system (if any), and roof openings on compliance inspection report forms approved by the Executive Officer as described in Attachment A.~~

(3) ~~The operator shall submit all inspection reports and documents to the Executive Officer semiannually within five working days of completion of the inspections specified in paragraph (f)(1) and (f)(2); and on January 31 and July 31, respectively, upon the completion of two consecutive quarterly inspections conducted as specified in subparagraph (f)(3)(B).~~

(A) Keep records of all findings, including but not limited to the readings measured according to EPA Reference Test Method 21;

(B) Record all inspections of Primary Seals, Secondary Seals, a Flexible Enclosure System (if any), and Roof Openings on compliance inspection report forms approved by the Executive Officer as described in Attachment A. An owner or operator may use an electronic compliance

- (h) inspection report form provided that all required information specified in Appendix A is contained in the electronic report form; and
- (C) Submit all inspection reports and documents to the Executive Officer semi-annually within five working days of completion of the inspections specified in paragraphs (f)(1) and (f)(2); and on January 31 and July 31, respectively, upon the completion of two consecutive quarterly inspections conducted as specified in subparagraph (f)(3)(B). Inspection reports may be submitted electronically to the email address designated by the Executive Officer.
- (2) For OGI inspections required by subparagraph (f)(4), the owner or operator shall:
- (A) Report Visible Vapors detected during a Tank Farm Inspection requiring a demonstration with rule requirements or a repair pursuant to clause (f)(4)(B)(ii) to the Executive Officer by phone (1-800-CUT-SMOG or 1-800-288-7664) within 24 hours after the inspection is completed;
- (B) Keep written records and digital recordings of Visible Vapors detected during a Tank Farm Inspection resulting from a defect or emitted from a component required to be maintained in a Vapor Tight Condition or a condition with no Visible Gaps. Written records shall include tank identification, date of inspection, and findings. Findings shall include identification of tanks from which Visible Vapors were identified and any repairs or determinations made pursuant to subparagraphs (f)(4)(B). Digital recordings shall be accurately time-stamped and capture the Visible Vapors for a minimum of 5 seconds; and
- (C) Keep written records of Component Inspections that include tank identification, date of inspection and findings. Findings shall include identification of Storage Tanks from which Visible Vapors were identified, any repairs or determinations made pursuant to subparagraph (f)(4)(C).
- (34) If the owner or operator determines that a tank is in violation of the requirements of this rule during the inspections specified subdivision (f), the owner or operator shall submit a written report to the Executive Officer within 5 calendar days~~120 hours~~ of the determination of non-compliance, indicating corrective actions taken to achieve compliance. Written reports may be submitted electronically to the email address designated by the Executive Officer.
- (45) The owner or operator who elects to install or modify an Emission Control System to comply with the requirement in clause (d)(4)(A)(i) shall conduct an initial performance test as described in clause-subparagraph (f)(3)(A) and submit

(h) a complete test report to the Executive Officer no later than 180 days after the effective date of the requirement for new installation; or 180 days after the modification. Subsequent annual performance test and test report shall be submitted annually within 60 days after the end of each Emission Inventory Year.

~~(56)~~ The owner or operator shall keep all required records for monitoring, inspection, maintenance, and repair records, sampling results, and type of Organic Liquid stored at the Facility for a period of five years and shall make the records available to the Executive Officer upon request.

(i) Test Methods and Procedures

The following test methods and procedures shall be used to determine compliance with this rule. Alternative test methods may be used if they are determined to be equivalent and approved in writing by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency.

- (1) Measurements of gaseous Volatile Organic Compound leaks shall be conducted according to EPA Reference Method 21 using an appropriate analyzer calibrated with methane.
- (2) Organic Liquids that are stored at Ambient Temperatures with a True Vapor Pressure of greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions shall be determined as those with a flash point of less than 100 °F as determined by ASTM Method D-93.
- (3) Organic Liquids that are stored at above Ambient Temperatures with a True Vapor Pressure greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions shall be determined as those whose volume percent evaporated is greater than ten percent at an adjusted temperature  $T_{Adj}$  as determined by ASTM Method D-86 of:

$$T_{Adj} = 300 \text{ }^{\circ}\text{F} + T_1 - T_a$$

Where:

$T_1$  = Liquid Storage Temperature (°F)

$T_a$  = Ambient Temperature (°F) = 70 °F

- ~~(4) Organic liquids with a~~ The True Vapor Pressure of Organic Liquid greater than or equal to 3 psia shall be determined by ASTM Method D-323 for Reid Vapor Pressure, or ASTM Method D-6377 correlated to ASTM D-323, and converted to True Vapor Pressure using applicable nomographs in EPA AP-42 or South Coast AQMD District and EPA approved nomographs. The actual storage temperature used for

- (i) determining ~~T~~True ~~V~~Vapor ~~P~~Pressure shall be 70 degrees Fahrenheit for ~~O~~rganic ~~L~~iquids that are stored at ~~A~~mbient ~~T~~emperatures, and actual storage temperature for ~~O~~rganic ~~L~~iquids that are stored at above ~~A~~mbient ~~T~~emperatures.
- (5) Control efficiency of an ~~E~~mission ~~C~~ontrol ~~S~~ystem, on a mass emissions basis, and the VOC concentrations in the exhaust gases shall be determined by U.S. EPA Test Methods 25, 25A; South Coast AQMD~~District~~ Method 25.1 - Determination of Total Gaseous Non-Methane Organic Emissions as Carbon; or District Method 25.3 – Determination of Low Concentration Non-Methane Non- Ethane Organic Compound Emissions from Clean Fueled Combustion Sources, as applicable.
- (6) When more than one test method or set of test methods are specified for any testing, the application of these methods to a specific set of test conditions is subject to approval by the Executive Officer. In addition, 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 the rule.
- (7) The sampling, analysis, and reporting shall be conducted by a laboratory that has been approved under the South Coast AQMD~~District~~ Laboratory Approval Program (LAP) for the cited South Coast AQMD~~District~~ reference test methods, where LAP approval is available. For South Coast AQMD~~District~~ reference test methods for which no LAP program is available, the LAP approval requirement shall become effective one year after the date that the LAP program becomes available for that South Coast AQMD~~District~~ reference test method.
- (8) Tests to determine emission factors for an alternative control device for rim seal or deck opening shall accurately simulate conditions under which the device will operate, such as wind, temperature, and barometric pressure. Test methods that can be used to perform the testing required in this paragraph include, but are not limited to, the following methods, which shall be performed by a laboratory certified by American Petroleum Institute (API):
- (A) API Manual of Petroleum Measurement Standards, Chapter 19, Section 3, Part A, Wind Tunnel Test Method for the Measurement of Deck-Fitting Loss Factors for External Floating-Roof Tanks;



- (i)
  - (B) API Manual of Petroleum Measurement Standards, Chapter 19, Section 3, Part B, Air Concentration Test Method for the Measurement of Rim Seal Loss Factors for Floating-Roof Tanks.
  - (C) API Manual of Petroleum Measurement Standards, Chapter 19, Section 3, Part E; Weight Loss Test Method for the Measurement of Deck-Fitting Loss Factors for Internal Floating-Roof Tanks.
- (j) Exemptions
  - (1) The provisions of this rule shall not apply to pressurized Sstorage Ttanks designed to operate in excess of 15 pounds per square inch gauge (psig) without any emissions to the atmosphere except under emergency conditions.
  - ~~(2) Domed external floating roof tanks installed prior to January 1, 2002 shall be exempt from the requirements of subparagraph (d)(2)(D) and (d)(2)(E) for secondary seals.~~
  - ~~(3) Any facility with a facility emission cap equal to or less than 40,000 pounds (20 tons) per year of VOC shall be exempt from the requirements of this rule.~~
  - (24) Portable Baker tanks containing Organic Liquids having Ttrue Vapor Pressures from 0.1 psia to 0.5 psia equipped with carbon canisters to reduce the emissions from the Sstorage Ttanks to less than 500 ppm outlet concentration shall be exempt from the performance testing requirements specified in clause (d)(4)(A)(i) and subparagraph (f)(3)(A) provided that the operator conducts EPA Reference Method 21 measurement weekly to ensure that the system achieves the emission standard of 500 ppm.
  - (35) External Floating Roof tanks having permit conditions that limit the Ttrue Vapor Pressure of the Organic Liquids stored in the tanks to ~~less~~ lower than 3 psia shall be exempt from the requirements of ~~clause~~ paragraph (d)(12)(E)(i) provided that the True Vapor Pressure of the Organic Liquid is less than 3 psia as demonstrated pursuant to subparagraph (d)(1)(F).
  - (46) Except for Storage Tanks ~~with that do not have~~ a Potential For VOC Emissions of 6 tons per year or greater used in Crude Oil And Natural Gas Production Operations, tanks ~~and are~~ storing Organic Liquid with a True Vapor Pressure equal to or less than 5 mm Hg (0.1 psia) under actual storage conditions ~~shall be~~ are exempt from the requirements of this rule, provided the owner or operator demonstrates that the Organic Liquid stored has a True Vapor Pressure of 5 mm Hg (0.1 psia) or less under actual storage conditions with a method specified in a permit condition, or with the appropriate test method specified in subdivision (i) pursuant to subparagraphs (j)(4)(A) and (j)(4)(B), with the first test conducted no later than July 1, 2024 or within one month from refilling a tank that is out of

(j) ~~service after July 1, 2024. External floating roof tanks subject to clause (d)(1)(A)(i) shall be exempt from this requirement until the next time the tank is emptied and degassed, provided that the operator has demonstrated to the satisfaction of the Executive Officer that in order to properly bolt, the covers for access hatches and gauge float wells must be welded. The operator shall use equivalent means, such as clamping, to secure the covers during the interim period.~~

(A) Test every 5 years for tanks storing refined Organic Liquid meeting specifications for sale; and

(B) Test annually for tanks storing an Organic Liquid that does not meet the criteria requirements of subparagraph (j)(4)(A).

If the Organic Liquid stored is not an Organic Liquid intended to have a True Vapor Pressure of 0.1 psia or less at the time testing is required, the owner or operator shall test the True Vapor Pressure when the tank is refilled with an Organic Liquid intended to have a True Vapor Pressure of 0.1 psia or less within one month from refilling. The owner or operator shall, for a minimum of five years, keep records on the type of Organic Liquid stored with its corresponding dates of storage, and the results of all tests conducted pursuant to this paragraph.

~~(57) External floating roof tanks permitted to contain more than 97% by volume crude oil shall be exempt from the doming requirements of clausesubparagraphparagraph (d)(12)(E)(A)(ii) and (d)(2)(B) provided that a permit application is submitted to the Executive Officer no later than one year from September 1, 2023 to limit the True Vapor Pressure of the crude oil stored to less than 3 psia but shall comply with other remaining applicable requirements of this rule and the True Vapor Pressure of the crude oil stored is less than 3 psia as demonstrated pursuant to subparagraph (d)(1)(F) or by a True Vapor Pressure test requested by the Executive Officer.~~

(6) Any tank that is out of service, where the tank has been emptied or has been opened to the atmosphere pursuant to the requirements of Rule 1149 – Storage Tank and Pipeline Cleaning and Degassing, shall be exempt from the requirements of paragraph (f)(4) until the tank is refilled.

(7) An owner or operator shall be exempt from the requirements of subparagraphclause (f)(4)(B)(ii) if a determination is made that it is unsafe to conduct an inspection from a tank platform, provided that the reason(s) and date(s) the inspection was not conducted is documented. The inspections shall resume on the first day determined to be safe.

**ATTACHMENT A****INSPECTION PROCEDURES AND COMPLIANCE REPORT FORMS**Equipment Needed:

Organic Vapor Analyzer (OVA) calibrated with methane in accordance with EPA Test Method 21, explosimeter calibrated with methane (for internal floating roof tanks), liquid resistant measuring tape or device, tank probe (to measure gaps in tank seals - 1/8 inch, 1/2 inch, 1-1/2 inch), flashlight.

Inspection Procedures:

1. The findings of all tank self-inspections, whether completed or not, shall be recorded on the Rule 1178 Compliance Report forms prescribed by the Executive Officer and submitted to South Coast AQMD's ~~the District's~~ Refinery Section in accordance with the rule's requirements. If an inspection is stopped before completion, indicate the reason for this action in the Comments section of the compliance report form.
2. During the compliance inspection, the person(s) conducting the inspection must have a copy of the Permit to Operate or Permit to Construct pertinent to the tank being inspected. Any discrepancies between the permit equipment description and the existing tank or the permit conditions and the actual operating conditions of the tank as verified during inspection must be recorded in the Comments section of the compliance report form.
3. Inspect the ground level periphery of each tank for possible leaks in the tank shell. Complete the tank information section (D) on the report.
4. For external floating roof tanks:
  - o From the platform, conduct an overall visual inspection of the roof and check for obvious permit or rule violations. Record the information as shown under section F of the compliance report form.
  - o During visual inspection of the roof, check for unsealed roof legs, open hatches, open emergency roof drains or vacuum breakers and record the findings on the report accordingly. Indicate presence of any tears in the fabric of both seals.
  - o Conduct an inspection of the roof fittings for vapor tight condition and record any leaks above 500 ppm in the fugitive emissions tank report OR conduct an inspection of the roof fittings using the 1/8" probes.

- o Conduct an inspection of the entire secondary seal using the 1/8" and 1/2" probes. Record the gap data in section F(4) of the report.
  - o Conduct an inspection of the entire primary seal using the 1/8", 1/2", and 1-1/2" probes. Inspect the primary seal by holding back the secondary seal. Record the gap data in section F(5) of the report.
  - o Record all cumulative gaps between 1/8 inch and 1/2 inch; between 1/2 inch and 1-1/2 inch; and in excess of 1-1/2 inches, for both primary and secondary seals in section G of the report. Secondary seal gaps greater than 1/2 inch should be measured for length and width, and recorded in Comments under section (J) of the report.
  - o For slotted guidepoles with a flexible enclosure system, conduct a visual inspection of the flexible enclosure system. Record any holes, tears, slots, or rips in the flexible enclosure system and any tightening or replacement of clamps at the top and the bottom of the flexible enclosure system pursuant to clause (d)(1)(A)(xi).
5. For internal floating roof and domed tanks:
- o Using an explosimeter, measure the concentration of the vapor space above the floating roof in terms of lower explosive limit (LEL), and record the reading in section (E) of the report.
  - o Conduct a visual inspection of the roof openings and the secondary seal, if applicable, and record findings on the report.
  - o Conduct gap measurements of the rim seal system and roof openings each time the tank is emptied and degassed but no less than once every ten years.
  - o Conduct a visual inspection of the slotted guidepole flexible enclosure system.
6. For fixed roof tanks:
- o Conduct an inspection of the pressure relief valves, piping, valves and fittings located on the roof for vapor tight condition and record any readings in excess of 500 ppm in the fugitive emissions tank report.
7. Complete all necessary calculations and record all required data accordingly on the report.



## SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1178 COMPLIANCE REPORT

**\*\*PLEASE COMPLETE FORM LEGIBLY IN BLACK INK\*\***

SCAQMD ID No.: \_\_\_\_\_

Tank No. \_\_\_\_\_ SCAQMD Permit No. \_\_\_\_\_ Inspection Date \_\_\_\_\_ Time \_\_\_\_\_

Is This a Follow-up Inspection? No  Yes  If yes, Date of Previous Inspection \_\_\_\_\_

**A. COMPANY INFORMATION:**

Company Name \_\_\_\_\_

Location Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Mailing Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Contact Person \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_ E-mail \_\_\_\_\_

**B. INSPECTION CONDUCTED BY:**

Name \_\_\_\_\_ Title \_\_\_\_\_

Company Name \_\_\_\_\_ Phone \_\_\_\_\_

Mailing Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

**C. TANK INFORMATION:**

Capacity \_\_\_\_\_ (bbls) Installation Date \_\_\_\_\_ Tank Diameter \_\_\_\_\_ (ft) Tank Height \_\_\_\_\_ (ft)

Product Type \_\_\_\_\_ Product RVP \_\_\_\_\_

Type of Tank: Riveted  Welded  Other  (describe) \_\_\_\_\_

Color of Shell \_\_\_\_\_ Color of Roof \_\_\_\_\_

Roof Type: Pontoon  Double Deck  Other(describe) \_\_\_\_\_

External floating roof  Internal floating roof or domed tank  Flexible enclosure system

**D. GROUND LEVEL INSPECTION:**

1) Product Temperature \_\_\_\_\_ °F 2) Product level \_\_\_\_\_ (ft)

3) List type and location of leaks found in tank shell.  
\_\_\_\_\_

4) List any discrepancies between the existing equipment and the equipment description on the Permit.  
\_\_\_\_\_

5) Is tank in compliance with Permit conditions? No  Yes  If no, explain \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**E. INTERNAL FLOATING ROOF OR DOMED TANK:**

- 1) Check vapor space between floating roof and fixed roof with explosimeter. \_\_\_\_\_ % LEL
- 2) Conduct visual inspection of roofs, secondary seals, and slotted guidepole flexible enclosure system, if applicable.
- 3) Are all roof openings covered? No  Yes  If no, explain in Comments section (J) and proceed to part (H)(6).

**F. EXTERNAL FLOATING ROOF TANK (or DOMED TANK AND INTERNAL FLOATING ROOF TANK when needed)**

- 1) On the diagram (below) indicate the location of the ladder, roof drain(s), anti-rotation device(s), platform, gauge well, and vents or other appurtenances. *Note information in relation to North (to the top of the worksheet).*
- 2) Describe any uncovered openings found on the roof in the Comments section (J). (Refer to Rule 463(a)(1)(F)):
- 3) Identify any tears in the seal fabric. Describe and indicate on diagram (below):
- 4) Secondary Seal Inspection
  - a) Type of Secondary Seal: \_\_\_\_\_
  - b) Does 1/2" probe drop past seal? No  Yes  if yes, measure length(s) and show on diagram
  - c) Does 1/8" probe drop past seal? No  Yes  if yes, measure length(s) and show on diagram.
  - d) Record dimensions of gap for gaps > 1/8" \_\_\_\_\_ > 1/2" \_\_\_\_\_

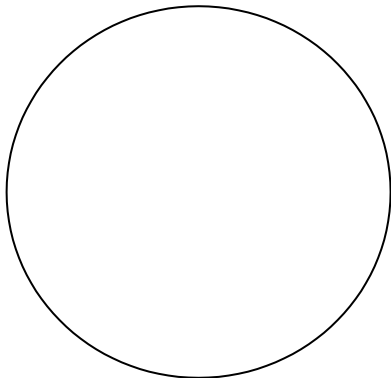
*NOTE: Record the actual width and cumulative length of gaps in feet and inches. (Do not include gaps > 1/2" in 1/8" measurements)*

- 5) Primary Seal Inspection
  - a) Type of Primary Seal:  Shoe;  Tube;  Other \_\_\_\_\_
  - b) (shoe seal) does 1-1/2" probe drop past seal? No  Yes ; if yes, measure length(s) and show on diagram.
  - c) (shoe seal) does 1/2" probe drop past seal? No ; Yes ; if yes, measure length(s) and show on diagram.
  - d) (tube seal) does 1/2" probe drop past seal? No  Yes  if yes, measure length(s) and show on diagram.
  - e) (all seal types) does 1/8" probe drop past seal? No  Yes  if yes, measure (length(s) and show on diagram.
  - f) Record dimensions of gaps for gaps > 1/8" \_\_\_\_\_ > 1/2" \_\_\_\_\_

*NOTE: Record the actual width and cumulative length of gaps in feet and inches. (Do not include gaps > 1/2" in 1/8" measurements, or gaps > 1-1/2" in 1/2" measurements)*

- 6) Deck Fitting Inspection (circle one) does 1/8" probe drop past gasket seal or pass Method 21? No  Yes  if yes, identify

NOTE: Show defects using symbols. Show seal gaps and lengths.



**LEGEND:**

Equipment:

- ⊞ Antirotational device
- Gauge well
- ⊞ Leg stand
- ⊞ Roof drain
- \* Emergency roof drain
- ∞ Vacuum breaker
- σ Vent
- ⊞ Platform & ladder

Defects:

- ⊞ Leg top
- ⊞ Leg pin
- ⊞ Open hatch
- ∨ Torn seal
- |-P-| Primary seal gap
- |-S-| Secondary seal gap

Tank No. \_\_\_\_\_ SCAQMD Permit No. \_\_\_\_\_

7) Flexible Enclosure System Inspection

Does flexible enclosure system have any holes, tears, slots, or rips? If yes, identify location and approximate size: No  Yes

Does the flexible enclosure system have double-clamps at the top that are fitted tightly to prevent fugitive emissions from being released to the outside? No  Yes

Is the flexible enclosure system properly secured to the roof of the tank, with no visible gaps to prevent fugitive emissions from being released to the outside? No  Yes

IF INTERNAL FLOATING ROOF OR DOMED TANK, PROCEED TO PART H(6) WHEN APPROPRIATE:

G. CALCULATIONS - complete all applicable portions of the following:

Record dimensions of indicated gaps [from F(4)(d), F(5)(b), and F(5)(f)]. Record in feet and inches.

Gaps in primary seal between 1/8 and 1/2 inch: \_\_\_\_\_

Gaps in primary seal between 1/2 and 1-1/2 inch: \_\_\_\_\_

Gaps in primary seal greater than 1-1/2 inches: \_\_\_\_\_

Gaps in secondary seal between 1/8 and 1/2 inch: \_\_\_\_\_

Gaps in secondary seal greater than 1/2 inch: \_\_\_\_\_

Multiply diameter (ft) of tank to determine appropriate gap limits:

5% circumference = diameter X 0.157 = \_\_\_\_\_ 60% circ. = diam. X 1.88 = \_\_\_\_\_

10% circumference = diameter X 0.314 = \_\_\_\_\_ 90% circ. = diam. X 2.83 = \_\_\_\_\_

30% circumference = diameter X 0.942 = \_\_\_\_\_ 95% circ. = diam. X 2.98 = \_\_\_\_\_

H. DETERMINE COMPLIANCE STATUS OF TANK:

1) Were any openings found on the roof? No  Yes

2) Were any tears in the seals found: No  Yes

3) Is the product level lower than the level at which the roof would be floating? No  Yes

4) Secondary Seal:

Did 1/2" probe drop between shell and seal? No  Yes

Did cumulative 1/8" - 1/2" gap exceed 95% circumference length? No  Yes

5) Primary Seal

Shoe Did 1-1/2" probe drop between shell and seal? No  Yes

Did cumulative 1/2" - 1-1/2" gap exceed 30% circumference length, and

Did cumulative 1/8 - 1/2" gap exceed 60% circumference length? No  Yes

Did any single continuous 1/8" - 1-1/2" gap exceed 10% circ. length? No  Yes

Tube Did 1/2" probe drop between shell and seal No  Yes

Did cumulative 1/8" - 1/2" gap exceed 95% circumference length? No  Yes

6) Internal floating roof (installed before 6/1/84) did LEL exceed 50% No  Yes

(installed after 6/1/84) or domed tank did LEL exceed 30%? No  Yes

7) Does tank have permit conditions? No  Yes

Does tank comply with these conditions? No  Yes

I. IF INSPECTION WAS TERMINATED PRIOR TO COMPLETION FOR ANY REASON, PLEASE EXPLAIN:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**J. COMMENTS:**

Use this section to complete answers to above listed items and to describe repairs made to the tank; include date and time repairs were made.

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

**K. I(We) certify the foregoing information to be correct and complete to the best of my(our) knowledge.**

Inspection completed by: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature) (Certification ID #)

Compliance status by: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature) (Certification ID #)

Company Representative: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature) (Certification ID #)

SEND COMPLETED REPORT TO: SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

21865 E. Copley Drive  
Diamond Bar, CA. 91765 FAX: (909)396 -3341  
Attn: Rule 1178 Supervising Inspector

**OR**

[rule463rule1178compliancereports@aqmd.gov](mailto:rule463rule1178compliancereports@aqmd.gov)

FOR SCAQMD USE ONLY:

Date received \_\_\_\_\_

Reviewed by: \_\_\_\_\_  
(Signature) (Certification ID #)

Date reviewed \_\_\_\_\_

Tank Status:  in compliance  in violation, Rule(s) \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**RULE 1178 FUGITIVE EMISSIONS TANK REPORT**

<b>Company Information</b>							
Company Name							
Address							
Contact/Phone Number							
SCAQMD ID #				Report Date			
Tank ID	Type	Fitting	Date	Leak Rate	Type of Repair	Date	Post Repair Leak Rate

**COMMENTS:**

Use this section to complete answers to above listed items and to describe repairs made to the tank; include date and time repairs were made.

---



---



---