

RULE 4402 CRUDE OIL PRODUCTION SUMPS (Adopted April 11, 1991; Amended September 19, 1991; Amended December 17, 1992; Amended December 15, 2011; Amended December 21, 2023)

1.0 Purpose

The purpose of this rule is to limit VOC emissions from sumps.

2.0 Applicability

This rule applies to all first, second, and third stage sumps at facilities producing, gathering, separating, processing, and/or storing crude oil in an oil field.

3.0 Definitions

3.1 APCO: the Air Pollution Control Officer of the San Joaquin Valley Unified Air Pollution Control District.

3.2 API: American Petroleum Institute.

3.3 ARB: California Air Resources Board.

3.4 EPA: United States Environmental Protection Agency.

3.5 First Stage Sump: a sump which receives a stream of crude oil and produced water directly from an oil production well(s) or a field gathering system(s).

3.6 Fixed Roof Cover: a cover which does not contact a liquid surface, but is placed over and completely covers the liquid surface.

3.7 Floating Cover: a flexible, or rigid cover which rests on a liquid surface and completely covers the liquid surface except for the area under a hatch(es), and for a rigid cover the area between the cover edge and the vessel wall.

- 3.8 Gap-free: means there shall be no visible gaps, that is gaps which exceed 0.060 inches.
- 3.9 Heavy Oil: produced crude oil that has an API gravity of less than 30 degrees by ASTM Method D-1298-85.
- 3.10 Operator: includes but is not limited to any person who owns, leases, supervises, or operates a facility and/or equipment.
- 3.11 Pit: any excavation for which the intended use under normal conditions is the intermittent or emergency collection of crude oil and water and is not used for the separation of oil and water.
- 3.12 Pond: any very large excavation that is used for the storage and or disposal of produced water, is not used for the separation of oil and water, has no more than five percent visible oil-covered surface area, and contains less than 5 milligrams per liter of VOCs as determined by EPA Test Method 413.2, 418.1 or 1664A and/or, if necessary, EPA Test Method 8240 or 8260. Ethane, provided the ethane fraction of the hydrocarbon vapors is less than 20 percent by volume, and hydrocarbons heavier than C14 may be excluded from the total concentration. Water samples collected for analysis shall be collected within a five foot radius of the sump inlet. One sample shall be collected near each inlet and the results averaged.
- 3.13 Produced Water: water, including oily water associated with the production, gathering, separating, and processing of crude oil.
- 3.14 Second Stage Sump: a sump which receives produced water from one or more upstream first stage separation processes, including sumps, free water knockout vessels, wash tanks, etc.
- 3.15 Small Producer: an operator who:
- 3.15.1 Produces an average over the preceding two calendar years of less than 6,000 barrels per day of crude oil from all operations within the County at the time of a request for an exemption pursuant to Section 6.1, and
  - 3.15.2 Does not engage in petroleum refining, transportation, or marketing of refined petroleum products.
- 3.16 Sump: a lined or unlined surface impoundment or excavated depression in the ground which, during normal operation, is in continuous use for separating crude oil, produced water, and solids in oil producing fields.

- 3.17 Third Stage Sump: a sump which receives produced water from one or more upstream second stage sumps, or subsequent separation processes.
- 3.18 Very Small Producer: an operator producing an average over the preceding two calendar years of less than 50 barrels of crude oil per day per lease and an average over the preceding two calendar years of less than 300 barrels of crude oil per day from all operations within the county at the time of a request for an exemption pursuant to Section 6.1.
- 3.19 Volatile Organic Compound (VOC): as defined in Rule 1020 (Definitions).

#### 4.0 Exemptions

4.1 The provisions of Section 5.0 of this rule shall not apply to:

- 4.1.1 Second or third stage small producer sumps that have a liquid surface area of less than 1,000 square feet and that are used exclusively in the production of heavy oil.
- 4.1.2 Second and third stage sumps containing produced water that has no more than five percent visible oil-covered surface area, and contains less than 5 milligrams per liter of VOCs as determined by EPA Test Method 413.2, 418.1 or 1664A and/or, if necessary, EPA Test Method 8240 or 8260. Ethane, provided the ethane fraction of the hydrocarbon vapors is less than 20 percent by volume, and hydrocarbons heavier than C14 may be excluded from the total concentration.
- 4.1.3 Any very small producer sump that is used as a second or third stage sump that has a liquid surface area of less than 5,000 square feet, and that serves heavy oil production operations exclusively.
- 4.1.4 Any sump that has estimated emissions of 0.007 lb/sq. ft. per day or less established by the ARB flux-box test method. The flux-box test shall be performed as described in the ARB Evaluation Report No. C-86-105. Inclusion of the flux-box test method to demonstrate qualification for this exemption does not mean the method is approved by ARB for any other testing.
- 4.1.5 Any sump used as a second stage, or third stage sump for not more than seven days in any one calendar month and not more than 21 days in any one calendar year. Any such sump shall be pumped out when not in use.
- 4.1.6 Any sumps located at petroleum refineries.

4.1.7 Ponds.

4.1.8 Pits. Pits used for emergencies shall begin clean-up procedures within 24 hours after each emergency occurrence and shall be completed within 15 calendar days.

4.2 The requirements of Section 5.0 shall not apply during maintenance operations on sumps if the District is verbally notified at least 24 hours prior to the maintenance work and if maintenance will take no more than 24 hours to complete.

## 5.0 Requirements

5.1 First stage sumps are prohibited.

5.2 No operator shall use any second or third stage sump unless it is designed and equipped with one of the following control devices properly installed, maintained, and operated:

5.2.1 A flexible floating cover;

5.2.2 A rigid floating cover equipped with a closure device between the sump wall and the cover edge which maintains the gap between the wall and cover at every point around the perimeter at no more than one inch; or

5.2.3 A fixed roof cover.

5.3 A floating, fixed, or other cover used to achieve compliance with Section 5.2 shall be constructed and maintained to meet the following criteria:

5.3.1 The cover material is impermeable to VOCs;

5.3.2 There are no holes, tears, or other such openings, except pressure vacuum valves, in the cover material which allow the emission of VOCs;

5.3.3 All hatches are kept closed and gap-free, except during maintenance, inspection, or repair;

5.3.4 The edge of any cover, except for a rigid floating cover as provided for in Section 5.2.2, forms a gap-free seal with the top edge of the sump; and

5.3.5 All pressure/vacuum vents are set to within ten percent of the maximum safe working pressure of the cover.

- 5.4 If a sump is replaced by an above ground tank in lieu of complying with Section 5.2, such tank shall comply with all of the applicable requirements of Rule 4623 (Storage of Organic Liquids), or at a minimum, the tank roof appurtenances shall be maintained leak-free and the tank shall be fitted with a pressure/vacuum vent set to within ten percent of the maximum allowable working pressure of the tank. If replacement tank exclusively serves identical function of sump replaced, permitting of such tank may not be considered an emission change for the purposes of Rule 2201 (New and Modified Stationary Source Review Rule).

## 6.0 Administrative Requirements

### 6.1 Recordkeeping

Records kept pursuant to Section 6.1 shall be maintained for a minimum of five years, and made available to the APCO, ARB, and EPA upon request.

- 6.1.1 Any operator claiming exemption pursuant to Section 4.1.1 shall maintain records specified in Section 6.1.1.1. Any operator claiming exemption pursuant to Section 4.1.1 shall maintain records specified in Section 6.1.1.1, 6.1.1.2, and 6.1.1.3.

6.1.1.1 API gravity of crude oil for each exempt sump,

6.1.1.2 Sump surface area, and

6.1.1.3 Annual production rates.

- 6.1.2 Any operator claiming an exemption pursuant to Section 4.1.2 shall maintain records to justify the exemption; those records shall include the results of an independent laboratory analysis.

- 6.1.3 Any operator claiming exemption pursuant to Section 4.1.3 shall maintain records to justify the exemption; those records shall include the results of an independent laboratory analysis. Any operator claiming exemption pursuant to Section 4.1.3 shall maintain the records specified in Section 6.1.3.1, 6.1.3.2, and 6.1.3.3:

6.1.3.1 API gravity of crude oil for each exempt sump,

6.1.3.2 Sump surface area, and

6.1.3.3 Annual production rates.

- 6.1.4 Any operator claiming an exemption pursuant to Section 4.1.4 shall maintain records to justify the exemption; those records shall include the results of an independent laboratory analysis.
- 6.1.5 Any operator claiming an exemption pursuant to Section 4.1.5 shall maintain monthly records of sump use showing days of operation.
- 6.1.6 Any operator claiming an exemption pursuant to Section 4.1.7 shall maintain records to justify the exemption; those records shall include the results of an independent laboratory analysis.
- 6.1.7 Any operator claiming an exemption for emergency pits pursuant to Section 4.1.8 shall be required to maintain records documenting the date and time of each of the following:
  - 6.1.7.1 When the use of the emergency pit started,
  - 6.1.7.2 When clean-up of the emergency pit began, and
  - 6.1.7.3 When clean-up of the emergency pit finished.

## 6.2 Test Methods

Compliance with the requirements of Section 5.0 shall be determined in accordance with the following test methods or their equivalents as approved by the EPA and the APCO:

- 6.2.1 Analysis of halogenated exempt compounds shall be analyzed by ARB Method 422.
- 6.2.2 The efficiency of any VOC destruction device shall be measured by EPA Method 25, 25a, or 25b, as applicable.