

RULE 344. PETROLEUM SUMPS, PITS AND WELL CELLARS. (Adopted 11/10/1994)

A. Applicability

This rule applies to sumps, pits and well cellars at facilities where petroleum is produced, gathered, separated, processed or stored.

B. Exemptions

1. The provisions of this rule shall not apply to spill containments.
2. The provisions of this rule shall not apply post tertiary sumps and post tertiary pits.
3. Sections D, E, F and G.1 of this Rule shall not apply to:
 - a. Post-primary sumps or pits meeting any of the following criteria:
 - 1) monthly ROC loss across the sump of less than 75 pounds.
 - 2) producer oil shipment from all operations within Santa Barbara County of less than 150 barrels of oil per day averaged over the year preceding the year for which the exemption is claimed, or
 - 3) shut in sumps or pits that are empty with all inlets plugged, capped, or blind flanged.
 - b. Pits used less than 30 days per year. Pits are in use when either receiving or storing petroleum product.
4. Post primary sumps or pits with surface area less than 1000 square feet.
5. Sections F and G.1 of this Rule shall not apply to components which are subject to Rule 331 as components is defined in Rule 331.
6. Sections D.3 and D.4 of this rule shall not apply to wells that have been idle for more than six months immediately prior to inspection as indicated by production records.

C. Definitions

See Rule 102 for definitions not restricted to interpretation of this Rule.

"Capture efficiency" means the weight per unit time of ROC entering a capture system and delivered to a control device divided by the weight per unit time of total ROC generated by the source of ROC expressed as a percentage.

"Control" means the reduction, by destruction or removal, of the amount of ROCs in a gas stream prior to discharge to the atmosphere.

"Control efficiency" means the percentage of ROCs entering control equipment that is not present in the exhaust of that control equipment to the atmosphere.

"Defect" means a condition, including but not limited to a tear, hole or lack of required vapor-tightness, that creates a substantial chance of reducing the effectiveness of the control device.

"Facility" means a structure, building, oil lease, or operation, that has one or more permitted pieces of equipment.

"Fixed Roof Cover" means any cover that is not in contact with a liquid surface, but is placed over and completely encloses the liquid surface.

"Floating Cover" means any cover that floats on a liquid surface and prevents evaporation of the liquid under the cover into the atmosphere.

"Overall efficiency" means the emission reduction, expressed as a percentage, that results from the combined effect of capture and control of ROCs that would be emitted to the atmosphere from a container in the same product service without capture and control of emissions.

"Pit" means a basin the purpose of which is collection of emergency or intermittent streams of liquid under normal operations.

"Primary Sump" means any sump that receives a stream of crude oil and produced water directly from one or more oil production wells or field gathering systems.

"Post-primary Sump" means a sump that receives a stream from one or more previous separation processes.

"Post-Tertiary Sump" means a sump that receives a liquid stream that has undergone three or more previous separation processes.

"Sump" means a lined or unlined surface impoundment or depression in the ground that, during normal operations, is used for separating oil, water, and solids in oil production operations.

"Vapor tight" means that a seal or closure prevents the emission of volatile organic compounds which would cause an appropriate analyzer to register more than 10,000 parts per million by volume expressed as methane.

"Well cellar" means a lined or unlined containment into which one or more wellheads are installed. For the purposes of this rule, well cellars are not sumps or pits.

D. Requirements - Emission Reduction

1. Primary sumps shall not be installed or used.
2. Pits and post-primary sumps shall be
 - a. replaced by a tank that complies with Rule 325, or
 - b. provided with any of the following:
 - 1) a flexible floating cover or a rigid floating cover equipped with seals.
 - 2) a fixed roof cover equipped with a pressure vacuum relief valve and a closed vent system that collects and delivers vapors to a vapor recovery system, gas gathering system or an air pollution control device with a control efficiency of 95 percent by weight or greater.

- 3) other equipment having overall efficiency of at least 80 percent by weight. Costs incurred by the APCD for the review, testing and approval of an alternate control device may be recovered pursuant to the cost reimbursement provisions of Rule 210.

3. Well cellars

- a. A person shall not open any valve at the wellhead without using a portable container to catch and contain any organic liquid that would otherwise drop on the ground or into the well cellar. Such container shall be kept closed when not in use.
- b. Immediately before a well is steamed or after a well head is steam cleaned, the well cellar in which it is located shall be pumped out.
- c. Neither of the following conditions shall occur unless the owner or operator discovered the condition and the well cellar is pumped within 7 days of discovery:
 - 1) liquid depth exceeding 50 percent of the depth of the well cellar.
 - 2) oil/petroleum depth exceeding 2 inches.

If a well cellar cannot be accessed by a vacuum truck due to muddy conditions, the well cellar shall be pumped as soon as it becomes accessible.

4. Well heads not in well cellars are subject to Section D.3.a.

E. Requirements - Covers

1. The cover material shall be impermeable to ROCs. Metal cover materials are impermeable for the purposes of this requirement.
2. The cover material shall be free from holes, tears, and openings.
3. Gauging and sampling devices on the cover shall be kept closed and vapor-tight except when such devices are being used, inspected or repaired. Use, inspection and repair, within the meaning of this requirement, must be attended by the person engaged in the use, inspection or repair.
4. Cover drains which open directly into the liquid contents of any sump or pit shall employ a slotted membrane fabric cover, or its equivalent, over at least 90 percent of the open area.
5. The perimeter of all fixed covers shall form a vapor-tight seal with the foundation to which it is attached.
6. All rigid floating covers shall be installed and maintained such that the gap between the sump or pit wall and the seal does not exceed 1 inch. Gap dimensions are perpendicular to the wall of the sump or pit.
7. All pressure vacuum relief valves shall be set to within 10 percent of the maximum design working pressure of the cover.
8. A flexible floating cover shall completely cover the sump.

F. Requirements - Operator Inspection and Maintenance

1. The operator of any air pollution reduction control devices required in this rule shall inspect them for defects every other calendar quarter.
2. Defects detected through either operator inspection or District inspection shall be repaired or rectified within seven calendar days of detection. The operator shall reinspect and confirm compliance of the repaired or replaced component within 15 calendar days after the repair or replacement.

G. Requirements - Recordkeeping

1. The following information relating to inspection of sumps and pits shall be recorded for each inspection:
 - a. the inspection date,
 - b. the nature of the inspection or test, with standardized methods specified,
 - c. the name of the person and company performing the test or inspection,
 - d. the findings, and
 - e. for each defect,
 - 1) the type of defect and equipment which it affects,
 - 2) the corrective action(s) taken,
 - 3) the date and method by which compliance was confirmed, and
 - 4) if a lack of vapor-tightness was detected, the concentration of total gaseous hydrocarbons on which the lack of vapor-tightness is based and the background concentration of total gaseous hydrocarbons.
2. The following information relating to detection of conditions requiring pumping of a well cellar as required in Section D.3.c shall be recorded for each detection:
 - a. the date of the detection,
 - b. the name of the person and company performing the test or inspection, and
 - c. the date and time the well cellar is pumped.
3. An owner or operator claiming exemption B.3.a.1) shall perform a test at least once per year on a date selected by the district. Copies of the lab results showing ROC concentrations of the liquid entering and the liquid exiting the sump, the volume of liquid entering the sump during the month the samples were taken, and the resulting ROC loss, shall be submitted to the district for approval.
4. Owners or operators claiming an exemption per Section B.3.a.2) shall maintain records of the volume of oil produced each month and the number of days that oil was produced.

5. Owners or operators claiming an exemption per Section B.3.b. shall maintain records which show each day the pit was used during each calendar year. These records shall be updated daily during periods of sump use.
6. Owners or operators claiming an exemption per Section B.6 shall make production records available for each well for which the exemption is claimed.
7. All records required by this Rule shall be maintained at the facility for a period of three years after the end of each calendar year and made available to the District upon request.

H. Requirements - Sampling and Calculations

1. Sampling related to the exemption provided in Section B.3.a.1) shall be done annually on a date chosen by the District. Samples shall be taken according to ASTM 4057 88. In the event sampling and subsequent testing shows a facility no longer qualifies for this exemption, facilities that have successfully demonstrated exempt status for the previous three years may have one retest on a date chosen by the District.
2. Overall efficiency shall be calculated by multiplying the capture efficiency by the control efficiency and expressing the result as a percentage.
3. Control efficiency as required by Sections D.2.b.2) or D.2.b.3) shall be calculated by dividing the difference between control device inlet and exhaust quantities of total gaseous hydrocarbons, excluding methane, by said inlet quantity. However, if the control device is a thermal oxidizer, the control efficiency may be calculated according to 40 CFR 60.113b.c.1.i.
4. Calculations of monthly ROC emissions for the purpose of determining a Section B.3.a.1) exemption shall be performed as follows:

$$\text{Monthly ROC} = V (\text{ROC}_{\text{inlet}} - \text{ROC}_{\text{outlet}})$$

where: V is the Volume of wastewater through the sump during the month that wastewater was sampled for ROC content

ROC_{inlet} is the concentration of ROC in liquid to enter the sump or pit
 ROC_{outlet} is the concentration of ROC in liquid leaving the sump or pit

5. Any margin of error associated with a test method or protocol shall not be incorporated into the results of any test.

I. Requirements - Test Methods

1. Capture efficiency as required to determine overall control efficiency shall be determined using method specified in 55 Federal Register 26865, June 29, 1990.
2. For the purpose of determining applicability of Section B.3.a.1), concentration of ROC in liquid shall be determined using purge and trap (EPA Method 5030) and extraction (EPA Method 3510) with gas chromatograph mass spectroscopy. Stock standards shall be prepared using crude oil or other fluids as appropriate.
3. To determine cover material adequacy, impermeability to ROCs shall be determined using ASTM F119-82. Manufacturer's written certification of impermeability, where based on these methods, is sufficient.

4. For the purpose of determining control efficiency as required in section D.2.b.3), total gaseous hydrocarbon concentration shall be determined using US EPA Test Method 25A and vapor flow through pipes shall be determined using US EPA Test Method 2A, 2B, 2C, or 2D, as appropriate.
5. Vapor-tightness shall be determined using US EPA Test Method 21. The analyzer shall be calibrated with methane. If the alternative screening procedure referenced in Method 21 is used and bubbles are observed, the instrument technique specified in Method 21 shall be used within the same working day to determine vapor-tightness.
6. An alternate test method that is comparable in accuracy to the cited method may be used in place of the above specified methods. The alternate method must be approved by the Control Officer, CARB and USEPA.

J. Compliance Schedule

1. Owners and operators with well cellars and well heads subject to this rule shall operate them in full compliance with this rule by April 30, 1996.
2. Sumps and pits with surface areas greater than or equal to 2000 square feet are subject to the following compliance schedule:
 - a. an application for an Authority to Construct emission reduction equipment for an existing sump or pit shall be submitted not later than October 30, 1995.
 - b. any person requesting an exemption per Section B.3.a.1), B.3.a.2), or B.3.b shall submit documentation to the District that demonstrates their exempt status no later than October 30, 1995. This documentation shall be provided in a format provided by the District. Exemption requests submitted in any other format will be subject to the cost reimbursement provisions of Rule 210.
 - c. shall be in full compliance no later than April 30, 1996.
3. Sumps and pits with surface areas less than 2000 square feet are subject to the following compliance schedule:
 - a. an application for an Authority to Construct emission reduction equipment for an existing sump or pit shall be submitted not later than October 30, 1997.
 - b. any person requesting an exemption per Section B.3.a.1), B.3.a.2), or B.3.b shall submit documentation to the District that demonstrates status no later than October 30, 1997. This documentation shall be provided in a format provided by the District. Exemption requests submitted in any other format will be subject to the cost reimbursement provisions of Rule 210.
 - c. shall be in full compliance no later than April 30, 1998.
4. The owner or operator of any facility that claims exemptions B.3.a.1), B.3.a.2), or B.3.b shall submit an application for an Authority to Construct within 90 days after the expiration of the exemption and be in full compliance within 12 months of same.