

State of California
AIR RESOURCES BOARD

Resolution 88-43

August 11, 1988

Agenda Item No.: 88-11-2

WHEREAS, the Air Resources Board ("Board") and the federal Environmental Protection Agency have established ambient air quality standards for ozone and particulate matter, and the Board has established standards for visibility reducing particles, and these standards are frequently exceeded in several of the state's air basins;

WHEREAS, Health and Safety Code Sections 39003, 39500, 39602, and 41500 authorize the Board to coordinate, encourage, and review efforts to attain and maintain state and national ambient air quality standards;

WHEREAS, Health and Safety Code Sections 39600 and 39605 authorize the Board to act as necessary to execute the powers and duties granted to and imposed upon the Board and to assist the local air pollution control and air quality management districts;

WHEREAS, the statewide Technical Review Group for Suggested Control Measure Development (TRG) has approved a proposed Suggested Control Measure for the Control of Organic Compound Emissions from Sumps Used in Oil Production Operations (the "Suggested Control Measure") and has recommended that the Suggested Control Measure be forwarded to the Board for consideration;

WHEREAS, at least one district is considering the control of organic compound emissions from sumps used in oil production operations as an air quality improvement strategy;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project having significant adverse environmental impacts be adopted as proposed if feasible alternatives or mitigation measures are available;

WHEREAS, the Board has held a duly noticed public meeting to consider approval of the Suggested Control Measure and has heard and considered the comments presented by representatives of the Board, TRG, districts, affected industries, and other interested persons and agencies; and

WHEREAS, the Board finds that:

Emissions of organic compounds from sumps used in oil production operations contribute to ambient concentrations of ozone, sub-10 micron particulate matter (PM₁₀), and visibility reducing particles, and that those concentrations frequently exceed the ambient air quality standards in several air basins;

It is technically feasible and economically reasonable to reduce organic compound emissions from sumps used in oil production operations;

Implementation of the Suggested Control Measure would reduce organic compound emissions from sumps used in oil production operations by approximately 25 to 75 percent with an average cost-effectiveness of about \$0.70 to \$4.00 per pound of organic compound removed; and

No significant adverse environmental impacts associated with the proposed Suggested Control Measure have been identified and no potentially significant adverse environmental effects are likely to result from the adoption and implementation of the Suggested Control Measure;

NOW, THEREFORE, BE IT RESOLVED that the Board approves the Suggested Control Measure for the Control of Organic Compound Emissions from Sumps Used in Oil Production Operations, as set forth in Attachment A to this resolution and as amended by the Board to include Section E(6) regarding the use of alternative test methods.

BE IT FURTHER RESOLVED that the Executive Officer is directed to forward the Suggested Control Measure to the air pollution control and air quality management districts for consideration and adoption in regulatory form to the extent necessary to provide for the attainment and maintenance of the ambient air quality standards.

BE IT FURTHER RESOLVED that the Executive Officer is directed to provide assistance to any district requesting assistance in adopting, interpreting, or implementing the Suggested Control Measure.

I hereby certify that the above is a true and correct copy of Resolution 88-43, as adopted by the Air Resources Board.



Cary Allison, Board Secretary

ATTACHMENT A

SUGGESTED CONTROL MEASURE

A. Applicability

- (1) This rule is applicable to primary, secondary, or tertiary sumps located at facilities where crude petroleum is produced, gathered, separated, processed, or stored. This rule is not applicable to sumps located at petroleum refineries.
- (2) The owner or operator of a sump shall comply with the requirements of this rule no later than (two years from date of adoption).

B. Definitions

For the purpose of this rule, the following definitions apply:

- (1) Fixed Roof Cover means any cover that is made of a metallic, polymer, or other material and which is not in contact with a liquid surface, but is placed over and completely encloses the liquid surface.
- (2) Floating Cover means any cover that is made of a metallic, polymer, or other material and which floats on a liquid surface and prevents evaporation of the liquid under the cover into the atmosphere. A floating cover can be a flexible floating cover or a rigid floating cover.

- (a) Flexible Floating Cover means any floating cover that is made of flexible polymer material and that is in contact with the entire liquid surface it covers except for the small area of liquid surface under a hatch(es).
- (b) Rigid Floating Cover means any floating cover that is inflexible and that is in contact with over 95% of the liquid surface it covers, except for the small area of liquid surface under a hatch(es) and around the perimeter of the liquid body between the cover and the sump walls.
- (3) Oil production sump (Sump) means a lined or unlined surface impoundment or excavated depression in the ground that, during normal operations, is in continuous use for separating crude oil, water, and solids in oil production operations.
- (4) Organic Compound means any compound containing at least one atom of carbon except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, 1,1,1-trichloroethane, methylene chloride, trifluoromethane (FC-23), chlorodifluoromethane (CFC-22), trichlorotrifluoroethane (CFC-113), dichlorodifluoromethane (CFC-12), trichlorofluoromethane (CFC-11), dichlorotetrafluoroethane (CFC-114), and chloropentafluoroethane (CFC-115).

- (5) Primary Sump or First Stage Production Sump means any sump which is in continuous use and receives a stream of crude oil and produced water directly from oil production wells or field gathering systems.
- (6) Secondary Sump or Second Stage Production Sump means any sump which is in continuous use and receives a waste water stream from one or more first stage separators such as a primary or first stage production sump, a free water knock out (FWKO) device, or a wash tank as well as Intermittent or emergency streams.
- (7) Tertiary Sump or Third Stage Production Sump means any sump which is in continuous use and receives a waste water stream from second stage or subsequent separation processes upstream of the sump, and has a very small amount of oil present.
- (8) Small producer means a person, including any business entity, that produced an average of _____^{*/} barrels per day or less of crude oil over the 90 day period immediately preceding (date of adoption of this rule).

C. Exemptions

The owner or operator of a secondary or tertiary sump is exempt from the requirements of this rule if:

^{*/} To be determined by each district depending on the needs of the district. Districts may wish to consider criteria other than oil production rate in identifying which business entities should be exempt as small producers.

(1) The weighted average concentration of organic compounds (or volatile organic compounds) in liquid samples taken from within 10 feet of all sump inlet pipes, is less than _____, or the average amount of organic compound emissions from the sump surface is less than _____ lbs/sq.ft.-day.**/

(2) The sump has a liquid surface area less than _____^{***/} square feet and is owned and operated by a small producer.

D. Requirements

(1) No person shall place, store, or hold in any primary, secondary, or tertiary sump, any crude petroleum unless the sump is designed and equipped with one of the following organic compound emission control devices, properly installed, properly maintained, and in good operating order:

(a) a flexible floating cover

(b) a rigid floating cover equipped with a closure device between the sump wall and the cover edge. The closure

**/ Districts would have the option of exempting sumps based on (1) the concentration of total organic compounds in sump fluid, (2) the concentration in sump fluid of those organic compounds that, because of their relatively high volatility (C_{14} or less), contribute most to sump emissions, or (3) the amount of emissions from the sump. Districts would be free to use other criteria to identify the sumps, if any, that would be exempted

***/To be determined by each district depending on the needs of the district. Districts would be free to use criteria other than the one cited here to identify the sumps, if any, that would be exempt.

device shall operate such that the gap between the sump wall and the cover shall not exceed one (1) inch at any location around the sump perimeter.

(c) a fixed roof cover.

(d) any alternative type of cover which, by itself or in conjunction with other organic compound emission control devices, controls organic compound emissions with an effectiveness equivalent to a cover which meets the requirement in this rule for a flexible floating cover or that reduces organic compound emissions by at least 90 percent by weight. The owner or operator of a sump shall, prior to installation, demonstrate to the satisfaction of the (Executive or Air Pollution Control) Officer of the District that the alternative type of cover and other control devices proposed for installation are capable of controlling organic compound emissions with an effectiveness equivalent to a cover which meets the requirements in this rule for a flexible floating cover or that they are capable of reducing emissions by at least 90 percent by weight.

(2) A floating, fixed roof, or other cover used to achieve compliance with section D(1) shall be constructed and maintained such as to prevent the escape into the atmosphere of organic compounds through openings other than

pressure/vacuum vents. The cover and its appurtenances shall be maintained such that:

- (a) The cover material is impermeable to organic compounds,
 - (b) There are no holes, tears, or openings in the cover material which allow the emission of organic compounds into the atmosphere,
 - (c) Any emergency drain is provided with a slotted membrane fabric cover, or equivalent, that covers at least nine-tenths of the area of the opening,
 - (d) All hatches are maintained closed and gap-free, except during times of actual maintenance, inspection, or repair,
 - (e) The perimeter of any sump cover except for a rigid floating cover forms a gap-free seal with the foundation to which it is attached, and
 - (f) All pressure/vacuum relief valves are set to within 10 percent of the maximum safe working pressure of the cover.
- (3) If a sump is replaced by a tank, that tank shall comply with the District's regulation for the control of emissions from petroleum storage tanks. At a minimum, the tank shall be maintained leak free and shall be fitted with a pressure/vacuum relief valve that is set to within 10 percent of the maximum allowable working pressure of the tank.

E. Testing and Administration

- (1) The owner or operator of a sump who wishes to install on a sump an alternative type of cover or other emission control device pursuant to section D(1)(d) of this rule shall, prior to installation or use, demonstrate equivalence to the (Executive or Air Pollution Control) Officer of the District by actual emissions tests, engineering evaluation, or other means acceptable to the Officer. The tests or evaluation shall take into consideration the emissions from the uncontrolled sump as calculated using the surface area of that sump and appropriate emission factors or as determined by actual emissions tests.
- (2) Any person claiming an exemption from this rule pursuant to section C shall justify the exemption status every 12 months. Each justification shall be submitted to the (Executive or Air Pollution Control) Officer, in writing, for approval and must include the results of organic compound concentration or emission tests conducted by an independent test laboratory or source test organization.
- (3) The testing of the concentrations of total organic compounds in the streams that flow into a sump shall be performed using EPA method 413.2, "spectrophotometric, Infrared", or EPA method 418.1, "spectrophotometric, Infrared". Testing to determine the concentration of volatile organic compounds in sump fluid shall be performed

using EPA method 8240, "Gas Chromatographic/Mass Spectrometric Method for Volatile Organics".

- (4) The testing of organic compound emissions from a sump shall be performed using the Air Resources Board flux box method developed by the Air Resources Board, or equivalent method approved in writing by the (Executive or Air Pollution Control) Officer of the District.
- (5) Records of all tests conducted pursuant to this section shall be maintained by the operator for a period of at least two years and shall be made available to the (Executive or Air Pollution Control) Officer of the District upon request.
- (6) A method other than specified in Section E(3), above, or a modified test method may be used if prior approval is obtained from the Executive (or Air Pollution Control) Officer of the district. In order to secure the Officer's approval, the proponent is responsible for demonstrating to the Officer's satisfaction that the alternative method is equivalent to the adopted method or that the modification to the method does not alter the results obtained by the adopted method.