State of California
AIR RESOURCES BOARD

Resolution 81-13

Agenda Item No: 81-11-1

June 25, 1981

WHEREAS, the Air Resources Board (the "Board") and the Environmental Protection Agency have established health-based ambient air quality standards for oxidant and ozone, respectively, 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 provide assistance to the air pollution control districts;

WHEREAS, the Suggested Control Measure for the Control of Emissions of Fugitive Photochemically Reactive Organic Compound Emissions from Oil and Gas Production Operations and Gas Processing Plants was developed by the staffs of the Board and the Ventura County Air Pollution Control District;

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

WHEREAS, the Board has held a duly noticed public meeting on this matter and has heard and considered comments presented by representatives of the ARB, districts, affected industries, and other interested persons and agencies; and

WHEREAS, the Board finds:

That emissions of photochemically reactive organic compounds from equipment such as valves, connections, diaphragms, seal packings, sealing mechanisms, hatches, sight glasses and meters (components) in oil and gas production and gas processing operations contribute to concentrations of oxidant and ozone which exceed, and are expected to continue to exceed, the state and federal ambient air quality standards in several of the state's air basins;

That inspection and maintenance procedures and technology, by which leakage of photochemically reactive organic compounds from components in oil and gas production and gas processing facilities can be reduced to meet the standards of 10,000 ppm hexane equivalent and 3 drops per minute specified in the Suggested Control Measure, constitute reasonably available control technology;

That although fugitive emissions of photochemically reactive compounds from components in oil and gas production operations and gas processing plants can be greatly reduced, such emissions cannot be completely eliminated;

That technology to inspect, repair and maintain components in oil and gas production and gas processing facilities in a safe manner is available;

That the technology to meet the emission standards contained in the Suggested Control is available and cost effective;

That the Suggested Control Measure has no significant adverse environmental impacts.

NOW, THEREFORE BE IT RESOLVED, that the Board endorses the Suggested Control Measure for the Control of Fugitive Photochemically Reactive Organic Compound Emissions from Oil and Gas Production Operations and Gas Processing Plants as set forth in Attachment A to this Resolution.

BE IT FURTHER RESOLVED, that the Executive Officer is directed to forward the Suggested Control Measure to districts which need reductions in photochemically reactive organic compound emissions to achieve and maintain state or national ambient air quality standards, with a recommendation that these districts use the Suggested Control Measure as a guideline and that they consider the adoption of the Suggested Control Measure or a similar measure sufficiently effective to meet local air pollution control needs.

BE IT FURTHER RESOLVED, that, in forwarding the Suggested Control Measure to districts, the Executive Officer is directed to recommend that the districts' enforcement of the leak limits in adopted district rules for the control of fugitive photochemically reactive organic compound emissions in oil and gas production operations and gas processing plans become operative on January 1, 1982.

BE IT FURTHER RESOLVED, that, in forwarding the Suggested Control Measure to districts, the Executive Officer is directed to recommend that the districts establish criteria (such as those in Attachment C) for determining whether a violation of the measure has occurred. This determination shall be based on the District's air quality improvement needs and on recognition of the fact that complete elimination of leaks is not cost-effective.

BE IT FURTHER RESOLVED, that, in forwarding the Suggested Control Measure to districts, the Executive Officer is directed to recommend that the districts take into consideration the guidelines in Attachment B to this resolution setting forth the relative cost-effectiveness of requiring the control of fugitive photochemically reactive organic compound emissions from various types of components and streams in oil and gas production operations.

I certify that the above is a true and correct copy of Resolution 81-13, as adopted by the Air Resources Board.

Sally Rump

Sally Rump, Board Secretary

ATTACHMENT A

SUGGESTED CONTROL MEASURE FOR THE CONTROL OF FUGITIVE PHOTOCHEMICALLY REACTIVE ORGANIC COMPOUND EMISSIONS FROM OIL AND GAS PRODUCTION OPERATIONS AND GAS PROCESSING PLANTS

Rule _____. Fugitive Photochemically Reactive Organic Compound Emissions from Oil and Gas Production Operations:

A. APPLICABILITY AND DATE OF EFFECT

This rule is applicable to emissions of photochemically reactive organic compounds from components at crude oil production facilities and natural gas production and processing facilities. Except as specified elsewhere in this Rule, this Rule shall become effective on (date of adoption by an air pollution control district.)

B. DEFINITIONS

1. "Photochemically Reactive Organic Compound" (PROC): any compound containing at least one atom of carbon, except: methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and carbonates.

2. "Photochemically Reactive Organic Fluid" (PROF): any fluid (liquid or gas) containing one or more photochemically reactive organic compounds.

3. "Leak"

a. the dripping at a rate of more than three (3) drops per minute of liquid containing photochemically reactive organic compounds; or

b. an emission of gaseous photochemically reactive organic compound which causes an appropriate analyzer sampling one (1) centimeter from a source to register as high or higher than it would register if sampling a gas composed of 10,000 ppm hexane in air.

4. "Component": any valve, connection, diaphragm, seal packing, sealing mechanism, hatch, sight glass, or meter.

5. "Appropriate analyzer": a hydrocarbon analyzer which uses the flame ionization detection method, or an equivalent method approved by the air pollution control officer and which is calibrated with propane.

6. Inspections:

a. Operatorinspection": a survey of components to detect and repair leaks for the purposes of complying with this Rule. An operator inspection may be performed by any method deemed appropriate by the operator.

b. "Agency inspection": a survey of components by air pollution control district personnel for enforcement purposes.

7. "Working day": any day except Saturdays, Sundays, and holidays.

C. REQUIREMENTS

1. Hatches shall be closed at all times except during sampling or attended maintenance operations.

2. A person shall not use any component at a crude oil or natural gas production facility or at a natural gas processing plant if such component leaks photochemically reactive organic compounds into the atmosphere.*

3. All components containing photochemically reactive organic fluids shall be inspected by the operator as necessary to ensure compliance with the provisions of this Rule. The inspections shall be accomplished by any means which the operator deems suitable.

4. An operator, upon detection of a leaking component, shall affix to that component a readily visible tag bearing the date on which the leak is detected. The tag shall remain in place until the leaking component is repaired and reinspected and found to be in compliance with the requirements of this Rule.

~~3.~~ 5. An operator shall repair ~~be considered to be in violation of this Rule if~~ a leaking component ~~is not repaired~~ to a leak-free condition and reinspected the component within the time specified in subsection E1, E2, or E3.

~~4.~~ 6. Emissions from components which have been tagged by the operator for repair or which have been repaired and are awaiting re-inspection pursuant to subsection E3 shall not be violation per subsection C2.

~~5.~~ 7. This Section C shall be effective beginning on January 1, 1982.

D. OPERATOR ~~INSPECTION SCHEDULE~~ MANAGEMENT PLANS

1. Each operator shall, no later than one hundred twenty (120) days after the date of adoption of this Rule, submit a management plan to the air pollution control officer. The management plan shall describe the procedure which the operator intends to use to comply with the requirements of this Rule. The management plan must include: A plot plan with a description of the process operation; a product flow diagram in sufficient detail to make it possible to determine the type of product passing through lines of the system; a description of any hazard which might affect the safety of an inspector; and identification of process units which cannot be immediately shut down for repair of leaks.

*In adopting this measure, the Air Resources Board recommends that the districts establish criteria for determining whether a violation has occurred. This determination shall be based on the District's air quality improvement needs and on recognition of the fact that complete elimination of leaks is not cost-effective.

2. Within sixty (60) days of beginning construction on a new facility requiring a management plan or beginning modifications to a facility covered under an existing management plan, the operator shall submit a new or modified plan to the air pollution control officer.

E. REPAIR

1. Any component leak which causes a registration on an appropriate analyzer to exceed 75,000 parts per million photochemically reactive organic compounds expressed as hexane when the analyzer probe is held at one centimeter from the joining surfaces shall be repaired to a leak-free condition within fifteen (15) working days unless an application for a variance is filed with the District Hearing Board within fifteen (15) working days.

2. Any component leak which causes a registration on an appropriate analyzer to exceed 10,000 parts per million photochemically reactive organic compounds expressed as hexane when the analyzer probe is held at one centimeter from the joining surfaces and any component leak dripping liquid containing photochemically reactive organic compounds at a rate of more than three drops per minute shall be repaired to a leak-free condition within twenty (20) working days unless an application for a variance is filed with the District Hearing Board within the twenty (20) day period. This provision shall not apply to a leaking component which is an essential part of a critical process unit identified in the approved management plan, in which case repair shall be accomplished during the next shut down or process turnaround of the essential process unit, but not later than six months from the date of detection.

3. An operator shall reinspect a component for leaks within ten (10) working days after the date on which the component is required.

F. EXEMPTIONS

1. The requirements of this Rule shall not apply to components that are located in areas which cause inspection to be infeasible or unsafe for personnel provided that such components are identified in the management plan approved by the air pollution control officer as described in Section D1 of this Rule.

2. The requirements of this Rule shall not apply to any component which is vented to a vapor control system which is being operated in compliance with the rules and regulations of the air pollution control district.

3. The requirements of this Rule shall not apply to any component which the operator demonstrates, to the satisfaction of the air pollution control officer, that without the contribution of ethane to an appropriate analyzer registration, the analyzer registration would be less than 10,000 ppm photochemically reactive organic compounds as hexane. This subsection F.3. shall not be applicable to any component in a natural gas processing plant.

4. If an operator can demonstrate to the air pollution control officer that any component or group of components included in the management plan ~~do~~ does not leak or that it contains materials which are not likely to emit photochemically reactive organic compounds, or ethane under the conditions described in subsection F.3. or ~~are~~ that the component or group of components is not cost-effective to routinely inspect, the operator may request that the air pollution control officer exclude these components from unannounced agency inspections. Components in this category may be inspected by district personnel at any time provided the operator is notified five working days prior to the inspection of the components.

ATTACHMENT B

GUIDELINES FOR ESTIMATING THE RELATIVE COST-EFFECTIVENESS RATIOS FOR THE CONTROL OF FUGITIVE PHOTOCHEMICALLY REACTIVE ORGANIC COMPOUND EMISSIONS FROM VARIOUS TYPES OF COMPONENTS AND STREAMS IN OIL AND GAS PRODUCTION OPERATIONS AND GAS PROCESSING PLANTS

A measure for the control of fugitive photochemically reactive organic compound emissions from components in oil and gas production operations and gas processing plants can be made to apply to some or all of the following combinations of components and streams. The following list ranks components and streams according to the relative cost-effectiveness ratio of controlling fugitive emissions.

1) Application of gaseous emission limitation (10,000 ppm) to all gas-service components in all applications in oil and gas production facilities and gas processing plants.

2) Application of gaseous emission limitation (10,000 ppm) and of liquid leak limitation (3 drops per minute) to all components containing liquid condensate or other liquid streams comprised largely of low molecular weight organic compounds (e.g. vapor recovery system condensate and liquid streams in gas plants) in oil and gas production facilities and gas processing plants.

3) Application of gaseous and liquid leak limitations to all dynamic components (valves, pumps, etc.) handling photochemically reactive organic fluids in oil and gas production facilities and gas processing plants.

4) Application of liquid leak limitation to all static components (flanges, threaded connections, etc.) handling photochemically reactive organic fluids upstream of first vessel or tank in oil production facilities.

5) Application of liquid leak limitation to all static components handling photochemically reactive organic fluids downstream of first vessel or tank in oil production facilities.

6) Application of gaseous leak limitation to all static components handling photochemically reactive organic fluids upstream of first vessel or tank in oil production facilities.

7) Application of gaseous leak limitation to all static components handling photochemically reactive organic fluids downstream of first vessel or tank in oil production facilities.

NOTE: Cost/effectiveness ratio can generally be expected to decrease with increasing API gravity, gas to oil ratio, temperature, and pressure of stream and with decreasing density of stream. Data on cost effectiveness are now being obtained on heavy crudes.

ATTACHMENT C

SUGGESTED CONTROL MEASURE FOR THE CONTROL OF FUGITIVE PHOTOCHEMICALLY REACTIVE ORGANIC COMPOUND EMISSIONS FROM OIL AND GAS PRODUCTION OPERATIONS AND GAS PROCESSING PLANTS

GUIDELINES FOR DETERMINING WHETHER A VIOLATION HAS OCCURRED

Since the achievement of a totally leak-free facility may be financially prohibitive, the Air Resources Board recommends that districts establish criteria for determining whether a violation of the measure has occurred. These criteria may include:

1) Prosecutorial discretion during the first few months after the measure has been adopted, or when an operator has a good enforcement history.

2) The issuance of Notices of Violation or Citations only in cases where more than a small, specified number (such as one) of Notices of Repair has been issued during the course of a facility inspection.

3) The issuance of Notices of Violation or Citations only in the event that the number of leaks detected during the course of an inspection exceeds a small, specified percentage (such as 0.25%) of the number of components inspected.

4) The issuance of Notices of Repair only for leaks found in components handling streams which do not contain gases or low molecular weight liquids.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Meeting to Consider a Suggested Control Measure for the Control of Emissions of Photochemically Reactive Organic Compounds from Oil and Gas Production Operations and Gas Processing Plants

Agenda Item No. 81-11-1

Public Hearing Date: June 24 and 25, 1981

Response Date: June 25, 1981

Issuing Authority: Air Resources Board

Comment: No significant environmental issues were identified at the hearing or by the staff.

Response: N/A

Certified: Sally Rump
Board Secretary

Date: 7/2/81

State of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : April 6, 1981

Subject: Filing of Notice of Decision of the Air Resources Board

From : **Air Resources Board**

Pursuant to Title 17, Section 60006(b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.

Sally Rump
BOARD SECRETARY

attachments
Resolution 81-13