State of California
AIR RESOURCES BOARD

Resolution 81-33

May 21, 1981

Agenda Item No: 81-10-2

WHEREAS, the Air Resources Board ("Board") and the Environmental Protection Agency have established health-based ambient air quality standards for oxidant and ozone, respectively, and for particulate matter, and the Board has established standards for visibility reducing particles, and these standards are frequently violated 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 air pollution control districts;

WHEREAS, the Suggested Control Measure for the Control of Emissions of Photochemically Reactive Organic Compounds from Seals on Pumps and Compressors in Refineries was developed by the staffs of the Board and the South Coast Air Quality Management District, and reviewed and approved by a technical review group consisting of representatives of the Environmental Protection Agency, the Air Resources Board, the Bay Area Air Quality Management District, the South Coast Air Quality Management District, and several other air pollution control districts;

WHEREAS, the California Environmental Quality Act and Board regulations require that the Board not take any action which would have adverse environmental impacts unless the Board responds to all significant environmental issues raised and takes all feasible measures to mitigate such impacts;

WHEREAS, the Board has held a duly noticed public meeting on this matter, and heard and considered the 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 seals on pumps and compressors in petroleum refineries contribute to concentrations of oxidant and ozone and of photochemically generated particulate matter in excess of state and national ambient air quality standards in several of the State's air basins;

That the inspection of seals and seal flush systems and the reduction of leakage to a standard of 10,000 parts per million hexane equivalent, as determined by a prescribed inspection technique, is reasonably available control technology;

That technology to inspect seals and seal flush systems on refinery pumps and compressors in a safe manner is available;

That technology by which the 10,000 ppm performance standard can be met is available and cost-effective;

That in isolated cases, some seals may not be capable of meeting the 10,000 ppm standard with currently available technology and should be allowed exemptions until 1987, by which time the Board believes adequate technology or substitution of equipment to meet the standard will be developed;

That no 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 proposed Suggested Control Measure.

NOW, THEREFORE BE IT RESOLVED, that the Board approves the Suggested Control Measure for the Control of Emissions of Photochemically Reactive Organic Compounds from Seals on Pumps and Compressors in Refineries as set forth in Attachment A to this Resolution with the additions described below.

BE IT FURTHER RESOLVED, that the Executive Officer shall prepare language for appropriate exemptions from this Suggested Control Measure or reduced inspection requirements for pumps in heavy liquid service which are shown to have insignificant emissions and for reciprocating and vertical in-line pumps and submit that language for consideration by the Technical Review Group.

BE IT FURTHER RESOLVED, that, as an alternative to Section III.B. of the attached measure, local air pollution control districts may consider adopting as Section III.B. a provision substantially as follows:

B. The operator shall file with the Air Pollution Control Officer and, except for unscheduled shutdowns, shall comply with a schedule for the inspections required by Section III.A. The schedule shall identify the dates by which inspections shall be completed on each device subject to this rule. The plan may be revised by the operator. Any revisions shall be effective upon filing with the Air Pollution Control Officer.

BE IT FURTHER RESOLVED, that, after review of the revised language by the Technical Review Group, the Executive Officer shall 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 consider adoption of the Suggested Control Measure or a similar measure at least as effective as the Suggested Control Measure.

I certify that the above is a true and correct copy of Resolution 81-33, as adopted by the Air Resources Board.

Sally Rump

Sally Rump, Board Secretary

Attachment A

State of California
AIR RESOURCES BOARD

SUGGESTED CONTROL MEASURE FOR THE CONTROL OF EMISSIONS OF PHOTOCHEMICALLY REACTIVE ORGANIC COMPOUNDS FROM SEALS ON PUMPS AND COMPRESSORS IN REFINERIES

I. SCOPE

A. This rule applies to emissions of photochemically reactive organic compounds from seals on pumps and compressors and seal fluid systems in petroleum refineries.

B. This rule shall not apply to pumps handling residual oil from an atmospheric pressure crude oil still or to other oils with higher boiling temperature ranges.

II. DEFINITIONS

background: the registration on a hydrocarbon analyzer sampling at least one meter upwind from a device which is to be inspected.

device: a process pump or compressor which handles a photochemically reactive organic fluid, or a seal fluid system.

leak: a gaseous emission which is from a device and which causes a hydrocarbon analyzer used in accordance with section V to register over 10,000 ppm, as hexane, above background.

parts per million (ppm) as hexane: the registration on a hydrocarbon analyzer when the analyzer is used in accordance with section V.

photochemically reactive organic compound: any compound containing at least one atom of carbon, except: methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and carbonates.

photochemically reactive organic fluid: a fluid (liquid or gas) containing one or more photochemically reactive organic compounds.

process pump: a pump equipped with a driver which has a power rating larger than one horsepower.

seal fluid system: a system which circulates a fluid through or between seals on process pumps or compressors.

working day: any day except Saturdays, Sundays, and employee holidays.

III. REQUIREMENTS FOR INSPECTIONS OF DEVICES

A. The operator of a device shall inspect each seal on that device in accordance with section V at least once during each calendar quarter. Operator inspections shall commence during the first calendar quarter following adoption of this rule.

B. The Air Pollution Control Officer shall be notified of the date of inspection of each device at least 30 days in advance of that date.

C. All devices with leaks present during the scheduled inspection shall be tagged or marked to be easily identifiable in the field.

D. Any leak found by the Air Pollution Control Officer within five working days after the date described in subsection III B shall not exceed a registration of 75,000 ppm as hexane on a hydrocarbon analyzer unless the device was tagged or marked as having a leak per subsection III C. Any leak so found shall be subject to Section IV of this rule.

E. The operator of a process pump which handles a photochemically reactive organic fluid shall observe the seal once every week. The operator shall inspect in accordance with section V any seal from which liquid is emerging.

IV. REQUIREMENTS FOR LEAK ELIMINATION

A. Except as provided by sub-sections IV B and IV C, whenever a leak is detected by any person, the operator of the leaking device shall follow the procedures set forth in sub-section IV A 1. or IV A 2., whichever applies.

1. If the device has a designated spare, or if existing piping allows a portable spare device to be put into service without disrupting service, the leaking device shall be shut down within two working days, and, if necessary to stop leakage, isolated by valves. If the spare is put into service, it shall be tested within one working day of its startup for seal leakage in accordance with section V. If the spare also has a leak, neither the original device nor the spare shall be used after 15 working days from the original detection of a leak unless the leak has been eliminated.

2. If there is no designated spare device and no piping to allow the use of a portable spare, the leak shall be eliminated within five working days after startup after the next process unit shutdown which allows shutdown of the device, but in no case later than one year from the date of the original leak detection.

B. Procedures set forth in sub-sections IV A 1. and IV A 2. shall not be required until December 31, 1986, for any pump which has a leak which causes a hydrocarbon analyzer registration less than 75,000 ppm as hexane and which is equipped with double seals or tandem seals and an externally-supplied inter-seal flush operated in a manner deemed by the Air Pollution Control Officer to minimize the leak.

C. The procedures set forth in sub-sections IV A 1. and IV A 2. shall not be required for any device for which the operator demonstrates to the satisfaction of the Air Pollution Control Officer either:

1. that without the contribution to a hydrocarbon analyzer registration of ethane and/or any compound which is not a photochemically reactive organic compound, the registration would be less than 10,000 ppm as hexane, or

2. that the device emits less than 0.4 pound of photochemically reactive organic compounds per hour.

D. The provisions of this section IV shall become effective on July 1, 1983.

V. INSPECTION PROCEDURES

A. An instrument used for inspecting seals for leaks shall respond according to the mass concentration of hydrocarbon compounds in air. It shall inspire sample gas at the rate of one liter per minute and shall be calibrated by sampling a reservoir of a known concentration of one hydrocarbon compound in air at atmospheric pressure. The hydrocarbon compound shall be either hexane at the approximate concentration 10,000 ppm by volume or another hydrocarbon at the concentration which would yield the same registration on that instrument as would 10,000 ppm hexane. However, a compound other than hexane may be used only if the instrument manufacturer has certified the response to hexane relative to the response to the other compound.

B. Sampling of a seal shall be performed one centimeter from the outer end of the shaft/seal interface.

C. Sampling of a vent shall be performed in the plane of the vent opening at the centroid.

D. The following modifications shall be made as necessary to make sampling of emissions from devices feasible and safe.

1. Holes shall be cut in safety guards or screens blocking access to the sample point, or

2. a permanent sampling tube of at least 3/16 inch inside diameter shall be installed one centimeter from the outer end of the shaft/seal interface. The downstream end of the sampling tube shall couple with 1/4-inch tubing.

VI. RECORDING REQUIREMENTS

The operator of devices or seal fluid systems shall maintain records enabling the Air Pollution Control Officer to identify all leaking devices and non-complying fluid systems and to determine the dates of discovery and the schedules for leak reductions. The records shall be kept for a length of time specified by the Air Pollution Control Officer.

VII. SCHEDULE OF COMPLIANCE

Within six months following adoption of this rule, the operator of devices shall make available to the Air Pollution Control Officer a

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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 Seals on Pumps and Compressors in Refineries

Agenda Item No. 81-10-2

Public Hearing Date: May 21, 1981

Response Date: May 21, 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: 8/21/81

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 60007(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 81-33