State of California
AIR RESOURCES BOARD

Resolution 79-10

March 23, 1979

WHEREAS, Air Pollution Control Districts in California are required by Health and Safety Code Section 40001 to adopt and enforce rules and regulations which assure that reasonable provision is made to achieve and maintain the state ambient air quality standards and to endeavor to achieve and maintain the federal ambient air quality standards;

WHEREAS, the Board is required by Sections 41500 and 41507 of the Health and Safety Code to review rules and regulations and programs of the districts to determine whether the rules and regulations and programs assure that reasonable provision is made to achieve and maintain the state and national ambient air quality standards;

WHEREAS, the Board finds that:

1. The state 24-hour air quality standard for sulfur dioxide was exceeded on 45 days in Kern County during 1978;

2. The state 24-hour standard for sulfates was exceeded in Kern County on 28 days in 1978;

3. The state 24-hour air quality standard for total suspended particulate matter was exceeded on 90 percent of the days in which total suspended particulate matter was measured in Kern County in 1978;

4. The state annual geometric mean air quality standard for total suspended particulate matter was exceeded in Kern County in 1977, which was the last complete year for which data are available;

5. The state visibility standard was exceeded in Kern County on numerous occasions during the last several years;

6. The national 24-hour air quality standard for total suspended particulate matter was exceeded frequently in Kern County in 1978;

7. The national annual geometric mean air quality standard for total suspended particulate was exceeded in Kern County in 1977, which was the last complete year for which data are available;

8. Emissions of sulfur oxides are directly responsible for, or contribute to, the above violations of air quality standards;

9. Emissions of sulfur oxides from oilfield steam generators and boilers are the largest fraction of all sulfur oxides emissions;

10. Control equipment and emission reduction techniques are commercially available now or in the near future to reduce such emissions to low levels;

11. The cost-effectiveness of reducing such emissions is reasonable;

12. The Board's staff has for over a year requested the Kern County Air Pollution Control District to adopt rules to achieve state and national air quality standards;

13. The Kern County Air Pollution Control District has not adopted or proposed rules to require the installation of such equipment on all oilfield steam generators and boilers; and

WHEREAS, the Board finds that the rules and regulations of the Kern County Air Pollution Control District do not make reasonable provision for achieving and maintaining the aforementioned state ambient air quality standards;

WHEREAS, the Board finds that the rules and regulations of the Kern County Air Pollution Control District do not reasonably endeavor to achieve and maintain the national ambient air quality standards;

WHEREAS, the Board finds that Rule 424, as set forth in Attachment A hereto, is necessary and makes reasonable provision to achieve and maintain state ambient air quality standards for sulfur dioxide, sulfates, total suspended particulate and visibility;

WHEREAS, the Board finds that Rule 424, as set forth in Attachment A hereto, is also necessary to achieve and maintain the national ambient air quality standards for total suspended particulate matter;

WHEREAS, the Board is authorized pursuant to Health and Safety Code Section 41504 to amend local district rules and regulations to assure that they make reasonable provision for achieving and maintaining the state ambient air quality standards;

WHEREAS, the rules and regulations of the Kern County Air Pollution Control District regarding the control of sulfur oxide emissions must be amended in order to assure that they reasonably endeavor to achieve and maintain the national ambient air quality standards; and

WHEREAS, the Board has held the public hearing required by Health and Safety Code Section 41502 and EPA regulations to determine whether the Kern County Air Pollution Control District has adopted rules and regulations which assure that reasonable provision is made to achieve and maintain state and national ambient air quality standards;

NOW, THEREFORE, BE IT RESOLVED, that the Board adopts Rule 424 into the regulations of Kern County Air Pollution Control District to read as set forth in Attachment A hereto, subject to the completion of a response to environmental impact issues and appropriate amendments to Rule 424 in light thereof by the Executive Officer, who is hereby delegated the authority for undertaking such action.

BE IT FURTHER RESOLVED, that the Executive Officer shall transmit the final version of Rule 424 to the Kern County Air Pollution Control District upon completion of the aforedescribed environmental impact action, and that Rule 424 shall become effective six months from today.

BE IT FURTHER RESOLVED, that the Executive Officer is authorized to rescind Rule 424 upon the adoption of an equally effective rule by the Kern County Air Pollution Control Board within the period of time before Rule 424 becomes effective.

BE IT FURTHER RESOLVED, that the Executive Officer shall notice the steam generators SO_2 control issue for reconsideration by the Board near the end of the six-month period during which the rule is not effective.

I certify that the above is a true and correct copy of Resolution 79-10 as passed by the Air Resources Board.

Joan Gilpin

Joan Gilpin, Board Secretary

ATTACHMENT A

424. Sulfur Compounds From Oilfield Steam Generators

A. Definitions

For the purposes of this rule:

1. "Steam generator" means a fossil-fuel-fired combustion device which has a heat input capacity greater than fifteen million British thermal units (Btu's) per hour and which evaporates water to dry steam, or to a mixture of water vapor and steam, that has an absolute pressure of more than thirty pounds per square inch.

2. "Existing steam generator" means a steam generator for which a permit to construct was issued prior to February 21, 1979.

3. "New steam generator" means a steam generator for which a permit to construct was issued on or after February 21, 1979.

4. "Stationary source" means stationary source as defined in Rule 210.1.

B. Emission Standards

1. The owner or operator of a new steam generator shall limit the emissions of sulfur compounds from such steam generator to 0.06 pound of sulfur per million Btu's of heat input.

2. The owner or operator of an existing steam generator shall limit the emissions of sulfur compounds from such steam generator in accordance with the following schedule:

   a. After July 1, 1982, such emissions shall not exceed 0.25 pound of sulfur per million Btu's of heat input.

   b. After July 1, 1984, such emissions shall not exceed 0.12 pound of sulfur per million Btu's of heat input.

C. Increments of Progress

The owner or operator of an existing steam generator subject to this rule shall comply with each of the following increments of progress:

1. By July 1, 1980, submit to the Air Pollution Control Officer a plan for achieving compliance with this rule "compliance plan". The compliance plan shall identify each steam generator subject to this rule and shall indicate the specific control technique(s) and resulting emission rate for each such steam generator.
2. By July 1, 1981, submit to the Air Pollution Control Officer copies of purchase orders for all control equipment and low sulfur fuels identified in the compliance plan.
3. Commencing July 1, 1981, and every twelve months thereafter through July 1, 1984, submit to the Air Pollution Control Officer a written report describing the owner's or operator's progress in implementing the compliance plan.

D. Averaging

The owner or operator of two or more steam generators subject to this rule may satisfy the requirements of subsection (B)(2) by demonstrating that the average emissions of sulfur compounds from all of its new and existing steam generators which are

located within a 15 mile diameter circular region do not exceed the emission standards set forth in subsection (B)(2).

E. Cogeneration Exemption

1. This rule shall not apply to any existing steam generator for which a valid permit to operate exists and which the owner or operator designates shall be withdrawn from service and replaced by a steam generation facility which converts at least twenty percent of its heat input to electrical energy, hereinafter referred to as a cogeneration facility. Such designation shall be submitted, in writing, to the Air Pollution Control Officer by July 1, 1980. No exemption shall be effective until it is issued in writing by the Air Pollution Control Officer.

2. An owner or operator who makes a designation pursuant to this section shall comply with the following increments of progress:

   a. By July 1, 1981, submit to the Air Pollution Control Officer copies of all binding written agreements necessary for the construction and operation of the cogeneration facility.

   b. By July 1, 1981, file a Notice of Intent or Application for Certification with the California Energy Commission for the construction of the cogeneration facility, to the extent such Notice or Application is required pursuant to state law.

c. If such Notice or Application is required, commence construction of the cogeneration facility not later than one year after certification by the Commission, and complete construction of the cogeneration facility not later than five years after certification by the Commission.

d. If such Notice and Application are not required, commence construction of the cogeneration facility not later than July 1, 1982, and complete construction of the cogeneration facility not later than July 1, 1985.

3. The failure of an owner or operator who makes a designation pursuant to this section to comply with any increment of progress required by this section, except where such failure is the direct result of government action or court orders shall thereupon terminate all exemptions issued in response to such designation.

4. If an owner or operator who makes a designation pursuant to this section fails to comply with an increment of progress required by this section as a direct result of government action or court order, the owner or operator shall, within thirty days of such failure, apply to the district hearing board for a schedule for compliance with subsection (B)(2). The hearing board shall require a schedule which provides for compliance as expeditiously as practicable.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Adoption Of A Regulation Controlling Emissions Of Sulfur Compounds From Steam Generators Used In Oilfield Operations In The Kern County Air Pollution Control District

Public Hearing Date: March 23, 1979

Response Date: 7/9/79

Issuing Authority: Air Resources Board

Comment: EPA has proposed regulations which would designate scrubber waste as a hazardous waste. There would not be sufficient disposal sites in Kern County for the disposal of hazardous waste and the cost of scrubbing would be greatly increased.

Response: Both EPA and the state Department of Health have proposed regulations which may result in scrubber waste as being designated as hazardous. Such hazardous waste would have to be disposed of in impoundments with impervious linings. The impoundments would have to have groundwater and leachate monitoring systems installed. The staff believes that such hazardous waste disposal sites could be constructed in Kern County. The need to manage scrubber waste as hazardous would increase the cost of meeting the regulation from $0.28 to as much as $0.42 per pound of SO_2 reduced. This cost is lower than other programs proposed by the staff and therefore, the Executive Officer believes that Regulation 424 should not be revised by this environmental consideration.

Certified: Thomas Clausen
for Board Secretary

Date: 7/9/79

(Resolution No. 79-10)

State of California
AIR RESOURCES BOARD

Supplemental Staff Report Re Significant Environmental Issues

Public Hearing To Consider Adoption Of A Regulation
Controlling Emissions Of Sulfur Compounds From
Steam Generators Used In Oilfield Operations
In The Kern County Air Pollution Control District

79-7-1

Date of Release:

1. Discussion

Section 60007 of the Board's regulations in Title 17, California Adminsitrative Code, directs the staff to report to the Board regarding environmental issues raised by public comments, for consideration by the Board on any matter for which a public hearing is required.

In addition to the environmental issues discussed in Section VIII of the staff report, the staff received no written comments on environmental issues prior to the public hearing.

2. Environmental issues raised at the public hearing are discussed in attachments hereto.

All of the environmental concerns commented on at the public hearing on the regulation controlling emissions of sulfur dioxide from oil field steam generators were discussed in the staff report and the issues, with one exception are adequately discussed in the staff report. The exception are the comments by Mr. Chet Frazier of Shell Oil Company, Mr. Les Clark of Belridge Oil Company and Mr. Greg McClintock of the Western Oil and Gas Association that the U.S. Environmental Protection Agency has proposed regulations which would classify scrubber waste as hazardous waste which would have to be disposed of in Class I disposal sites instead of Class II-1 sites as indicated in the staff report.

On December 18, 1978, the Environmental Protection Agency proposed hazardous waste guidelines and regulations as required under Sections 3001, 3002, and 3004 of the Solid Waste Disposal Act as substantially amended by the Resource Conservation and Recovery Act of 1976. These regulations are scheduled to be promulgated in September, 1979. The proposed rules set forth requirements for the identification, transport, and disposal of hazardous wastes.

Chapter 6.5 of Division 20 of the Health and Safety Code requires the Department of Health to adopt regulations for the designation, storage, transport and disposal of hazardous wastes. The Department of Health has adopted regulations for the management of hazardous waste and on January 30, 1979, proposed additional regulations for the designation of hazardous wastes.

Section 250.46-2 of the proposed EPA regulations designate utility scrubber wastes as hazardous wastes, unless it can be shown through a series of tests set forth in the proposed regulations, that the waste is not hazardous. The reason for designating scrubber waste as hazardous is because some scrubber wastes have concentrations of metal compounds which, if they enter aquifer, could contaminate the aquifer. Since the waste from scrubbers used in oil field operations would be similar to utility scrubber wastes, it is probable that it also would be considered hazardous. The proposed EPA regulations would require the disposal of scrubber waste in an impoundment with an impermeable double lining consisting of an impervious soil lining plus an outer impermeable membrane (probably of plastic), if the impoundment is located above an usable aquifer. If the impoundment is not located above an usable aquifer, the impervious lining would not be required. The impervious lining is required to prevent leachate from the impoundment traveling to the aquifer via cracks or permeability in the impoundment. The proposed regulations also require groundwater and leachate monitoring. Groundwater monitoring would be accomplished by tests of groundwater from wells located both hydraulically upgradient and downgradient of the impoundment. A leachate monitoring system shall be installed within the zone of aeration underlying the facility without drilling through the bottom and side liners or soil barriers of the landfill and shall be designed to collect samples in the zone of aeration between the bottom of the liner or soil barrier of the landfill or surface impoundment and the top of the water table. Routine tests of the samples are to be made in accordance with procedures set forth in the proposal. The proposal also would require the establishment of a trust fund for the closure of the facility and for post-closure monitoring for 20 years.

The proposed regulations of the Department of Health (Department) would require a waste to be designated as hazardous if it is toxic, flammable, corrosive, or an irritant. The proposal contains a list of concentrations of compounds and elements, for both the waste and the leachate of the waste. The leachate of the waste is obtained by an extraction procedure set forth in the proposal. Among the elements and compounds in the list are some which would occur in scrubber waste. However, the concentrations of most of these elements and compounds would be below the concentrations shown in the list with the exception of vanadium possibly. KVB report 5807-842 shows a concentration of vanadium in the ash of a crude oil sample to be above 10%. If this is true, the concentration of vanadium in the scrubber waste could be above the concentration shown in the list. The producer of a waste has the option of conducting tests, some of which are expensive and time consuming, for toxicity and irritation which could result in the waste being designated as not hazardous. The producer

would have to weigh the benefits of conducting the tests (which may include tests on animal) and of considering the waste as hazardous. The Department has the option of designating a waste as hazardous even though, in the opinion of the producer, the waste is considered non-hazardous.

The Department regulations in Division 4 of Title 22 of the Administrative Code require that a hazardous waste be managed in a manner which will not result in a hazard to public health, personal safety, wildlife or domestic livestock. The regulations also set forth procedures for record-keeping, transport, and waste facility management.

There is a probability that scrubber waste from oil field steam generators will be considered hazardous. Therefore, the management of this waste could add appreciably to the cost of flue gas desulfurization. A conservative estimate (high) is probably an added 50% to the cost of scrubbing SO_2. The staff now estimates the cost per pound of SO_2 removal at $0.28. This cost would increase to as much as $0.42 per pound of SO_2 removed if the waste is designated as hazardous. If two net barrels of crude oil are produced for every barrel of crude oil burned, then the cost per net barrel produced would rise from $0.84 to $1.26.

The designation of scrubber waste as hazardous should cause proponents of systems to consider systems which oxidize the waste to more manageable forms such as gypsum, or which make a product such as sulfuric acid. The double alkali system should be more attractive since it produces a precipitate. Systems which produce liquid wastes, such as the once-through sodium carbonate system would be unattractive if such waste were designated as hazardous.

The staff recommends that the Executive Officer approve Regulation 424 as adopted at the March 23, 1978 hearing.

3. Recommendation

The staff recommends that the Executive Officer adopt, before final action on this item, the attached proposed Response to Significant Environmental Issues.

STATE OF CALIFORNIA

EDMUND G. BROWN JR., Governor

AIR RESOURCES BOARD
1[illegible]Q STREET
[illegible]OX 2815
SACRAMENTO, CA 95812

April 18, 1979

Dear Sir or Madam:

Subject: Air Resources Board Resolution 79-10

When we mailed you a copy of our Resolution 79-10 on March 29, 1979, we inadvertently omitted page 5 of the rule.

Enclosed is page 5 of the rule to be added to Attachment A.

If you have any questions, please call me at (916) 322-6020.

Sincerely,

Alan Goodley

Alan Goodley, Chief
Energy Strategy Development Branch

Enclosure

Goodley/jw

cc: J. Gilpin
G. Rubenstein
P.I.O.
F. Di Genova
H. Metzger

State of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : August 27, 1979

Subject: Filing of Notice of Decision for 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

Sally Rump
BOARD SECRETARY

attachments:
Resolution 79-10 and
Response to Significant
Environmental Issues thereto.

State of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : September 17, 1979

Subject: Filing of Supplemental Report

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 Supplemental Staff Report Re Significant Environmental Issues regarding Resolution 79-10 (previously forwarded).

Sally Rump
Board Secretary

attachment