

State of California  
AIR RESOURCES BOARD

Resolution 83-30

November 17, 1983

Agenda Item No.: 83-17-1

WHEREAS, Health and Safety Code Sections 39600 and 39601 require the Air Resources Board (the "Board") to adopt rules and regulations and take all actions necessary for the proper execution of the powers and duties granted to and imposed upon the state board;

WHEREAS, Health and Safety Code Section 39606(b) requires the Board to adopt ambient air quality standards, as defined by Health and Safety Code Section 39014, for the protection of the public health, safety, and welfare, including but not limited to health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy;

WHEREAS, Health and Safety Code Section 39606(b) provides that standards relating to health effects associated with exposure to air contaminants shall be based upon the recommendation of the state Department of Health Services;

WHEREAS, the current short-term (one-hour) statewide ambient air quality standard for sulfur dioxide (SO<sub>2</sub>) of 0.5 parts per million (ppm), as set forth in Title 17, California Administrative Code, Section 70200, was intended to address potential odor nuisances near point sources and possible changes in lung function associated with exposure to ambient concentrations of SO<sub>2</sub>;

WHEREAS, recently published scientific research findings from clinical and laboratory studies which tested the effects of SO<sub>2</sub> on persons with asthma demonstrated that these persons were more sensitive to exposure to ambient concentrations of SO<sub>2</sub> than were healthy subjects and that these sensitive persons were affected adversely by brief, five to ten minute exposures to SO<sub>2</sub> at concentrations as low as 0.4 to 0.5 ppm;

WHEREAS, the Board has received and considered a recommendation from the Department of Health Services, dated August 29, 1983, for a short-term standard of 0.25 ppm SO<sub>2</sub> averaged over a one hour measurement period;

WHEREAS, the Board has held a duly noticed public hearing at which it received and considered a substantial body of evidence, both written and oral, presented to it by staff, other scientists, industry representatives, and other members of the public relating to the proposed amendment of the standard;

WHEREAS, in consideration of the recommendation of the Department of Health Services and in consideration of the staff's additional analysis of the relevant data and studies, the staff presented for the Board's consideration two alternative proposals to replace the existing one-hour 0.5 ppm state ambient air quality standard for SO<sub>2</sub>, which were (a) 0.40 ppm SO<sub>2</sub> averaged over 10 minutes, and (b) 0.25 ppm SO<sub>2</sub> averaged over one hour, with the standard to be expressed as allowing no exceedances under each alternative, and using the fluorescence method as the approved measurement method;

WHEREAS, the California Environmental Quality Act and Board regulations require that action not be taken as proposed if feasible mitigation measures or alternatives exist which would substantially reduce any significant adverse environmental effects of the proposed action; and

WHEREAS, the Board finds that:

Laboratory studies on human volunteer subjects with asthma have demonstrated that many asthmatics are far more sensitive than healthy, nonsensitive persons when exposed to SO<sub>2</sub>;

Evidence gathered from air pollution episodes and other research studies indicates that in addition to asthmatics other groups, including children, older persons, and persons with respiratory illnesses or allergies, are generally more sensitive to air pollution than healthy, nonsensitive persons;

The principal effect caused by SO<sub>2</sub> in these studies was bronchoconstriction, which is often accompanied by other symptoms including wheezing and shortness of breath;

The level of bronchoconstriction experienced by an individual as a result of exposure to SO<sub>2</sub> depends upon several factors, including the person's degree of sensitivity, the concentration of SO<sub>2</sub> in the exposure, the person's breathing rate during exposure, and the route of exposure;

The present one-hour standard does not adequately reflect the effects of short-term SO<sub>2</sub> exposure episodes on the public's health in that clinically significant bronchoconstriction and chest symptoms have been observed in free-breathing asthmatic subjects exposed for five to ten minutes to concentrations as low as 0.4 to 0.5 ppm SO<sub>2</sub> in the air being inhaled during moderate to heavy exercise, and in that other studies show that asthmatics and sensitive individuals who breathe by mouth alone are expected to undergo a similar response during modest levels of exertion;

SO<sub>2</sub> levels which exceed 0.25 ppm averaged over one hour may occur in some instances, and may have occurred in one instance, as a result of the unforeseen breakdown, under rare and exceptional circumstances, of pollution control equipment at a single very large emissions source, or may possibly occur as a result of a localized adverse and extremely rare meteorological event that may be anticipated to occur only at intervals of many years.

Whenever ambient levels of SO<sub>2</sub> exceed 0.25 ppm averaged over one hour, whatever the cause of the exceedance, adverse health effects are anticipated to occur in susceptible segments of the exposed population;

Improvements in measurement technology have led to the development and widespread use of the fluorescence method to measure SO<sub>2</sub> continuously, automatically, and to minimize interference;

The short-term SO<sub>2</sub> standard of 0.25 ppm averaged over one hour recommended by the Department of Health Services is designed to protect against the adverse effects associated with exposures to SO<sub>2</sub> at levels of 0.4 ppm for five to ten minutes, and is an appropriate precautionary standard to protect the public health; and

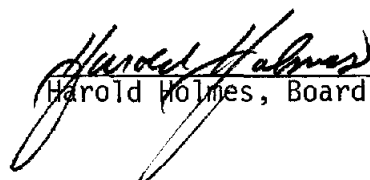
The short-term SO<sub>2</sub> standard adopted by this resolution will have a beneficial effect on air quality and will have no adverse environmental impacts.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendment of the regulations contained in Title 17, California Administrative Code, as set forth in Attachment A and directs the Executive Officer to adopt such amendments after making them available to the public for at least 15 days.

BE IT FURTHER RESOLVED that in determining what control strategies and measures are necessary to attain and maintain the one-hour SO<sub>2</sub> standard, local districts may, in consultation with the Air Resources Board, take into account whether an exceedance of the standard is caused by a rare and exceptional localized meteorological event that may be anticipated to occur only at intervals of many years or by a rare and exceptional breakdown of pollution control equipment, and districts shall not be required to adopt generally applicable control measures to address an exceedance which is caused by such exceptional circumstances.

BE IT FURTHER RESOLVED that the Board directs the staff to continue to follow the review of the national ambient air quality standards for sulfur oxides (SO<sub>2</sub>) and to study new evidence as it is published concerning the effects of SO<sub>2</sub> on asthmatics and other sensitive groups in the population.

I hereby certify that the above is a true and correct copy of Resolution 83-30 as adopted by the Air Resources Board.

  
Harold Holmes, Board Secretary

State of California  
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Hearing to Consider Amendments to Section 70100(i) and 70200,  
Title 17, California Administrative Code, Regarding the Short-Term  
(One-Hour) State Ambient Air Quality Standard for Sulfur Dioxide and  
Measurement Method

Agenda Item Nos.: 83-15-3  
83-17-1

Public Hearing Date: October 27, 1983  
October 28, 1983  
November 18, 1983

Response Date: December 7, 1983

Issuing Authority: Air Resources Board

Comment: No public comments were received identifying any significant  
environmental issues pertaining to this item. The staff report  
concluded that the proposed amendments would not result in  
significant adverse environmental impacts.

Response: N/A

CERTIFIED:

  
Board Secretary

Date:

7/27/84

Amend portion of table contained in Section 70200, Title 17, California Administrative Code, to read as follows:

70200. Table of Standards -- Applicable Statewide.

	Concentration and Methods*	Duration of Averaging Periods	Most Relevant Effects	Comments
Sulfur Dioxide (SO <sub>2</sub> )	0.25 ppm** <del>conductive</del> <del>metric-method</del> <u>fluorescence method</u>	1 hour	<del>a. -- Approximate odor threshold</del> <del>b. -- Possible alteration in lung function.</del> a. <u>Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.</u>	<del>Alteration in lung function was found at this level in only one study. Other studies reported higher concentrations to cause this effect.</del> The standard is <u>designed to protect against adverse effects from short-term (5-10 min.) peak exposures.</u>
	0.05 ppm <del>conductive</del> <del>metric-method</del> <u>fluorescence method, with oxidant, (ozone) equal to or greater than the state standard, or with suspended particulate matter equal to or greater than the state 24-hour suspended particulate matter standard.</u>	24 hours	a. Will help prevent respiratory disease in children b. Higher concentrations associated with excess mortality.	a. Further studies on co-carcinogenic role are necessary. b. Does not include effects on vegetation, ecosystems and materials. c. May not include a margin of safety.

\* \* \*

NOTE: Authority cited: Sections 39600, 39601(a), and 39606(b), Health and Safety Code. Reference: Sections 39014, 39606(b), 39701, and 39703(g), Health and Safety Code.

(The remainder of the table is not affected by these changes and continues fully in effect.)

Public Hearing to Consider Amendments to Sections 70100(i) and 70200,  
Title 17, California Administrative Code, Regarding the Short-Term  
(One-Hour) State Ambient Air Quality Standard for Sulfur Dioxide and  
Measurement Method

Public Hearing Dates: October 27, 1983

November 18, 1983

Public Availability Date: November 22, 1983

On October 27 and on November 18, 1983, the Air Resources Board (the "Board") considered the adoption of proposed amendments to Sections 70100(i) and 70200, Title 17, California Administrative Code, regarding the short-term (one-hour) state ambient air quality standard for sulfur dioxide and measurement method. Attached is a copy of the Board's Resolution 83-30, approving the amendments. Appended to Resolution 83-30 is the approved language showing additions to the originally proposed language by double underline.

In approving these amendments, the Board directed the Executive Officer to adopt the regulations after making them available to the public for a period of at least 15 days.

# Memorandum

◦ : Gordon Van Vleck  
Secretary  
Resources Agency

Date : December 27, 1983

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

*Harold Holmes*  
Harold Holmes  
Board Secretary

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 significant environmental comments raised during the comment period.

Attachments:  
Resolution 83-28  
Resolution 83-30  
Resolution 83-32

FILED AND POSTED BY  
OFFICE OF THE SECRETARY

DEC 28 1983

Resources Agency of California