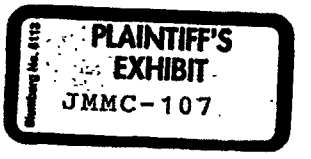
STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor

AIR RESOURCES BOARD
1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812





December 31, 1985

Dear Sir/Madam:

Changes to the October 1985 Report to the Scientific Review Panel on Asbestos

On November 20, 1985, the Scientific Review Panel met to consider the October 1985 Report on Asbestos prepared by the Air Resources Board (ARB) staff in conjunction with the staff of the Department of Health Services (DHS) pursuant to Health and Safety Code 39661. At that meeting, the Panel discussed this report and made several comments.

In response to the Panel's comments, we have made some revisions to the report. I have enclosed copies of the ARB and DHS letters to the Panel which summarize the Panel's comments and the staffs' responses. The Panel is scheduled to meet on January 14, 1986 and one of the agenda items is to review and consider the revised asbestos report. Enclosed is a copy of the Public Hearing Notice for the Scientific Review Panel's January meeting.

If you have any questions concerning the asbestos report, please contact Gary Murchison at (916) 322-6023.

Sincerely

William V. Loscutoff

William V. Loscutoff, Chief
Toxic Pollutants Branch

Enclosures

cc: Dr. Emil Mrak
Dr. Michael Lipsett, DHS
Peter Venturini
John Holmes
Richard Bode

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SC-JMM-0361

State of California

Memorandum

To : Emil M. Mrak Ph.D., Chairman
and Members of the Scientific Review Panel

Date : December 20, 1985

Subject: Submittal of Revisions to the Report on Asbestos

From : Air Resources Board
John R. Holmes, Ph.D.
Chief, Research Division

I am forwarding to you the revisions to the Report on Asbestos for your review and evaluation. The revisions were prepared according to the requests made by the Scientific Review Panel at the November 20, 1985 meeting. The revisions are scheduled to be reviewed and discussed at the next SRP meeting in San Francisco. The meeting will be held at the San Francisco Airport Hilton at 9:00 a.m. on January 14, 1986. I have enclosed a copy of the public meeting notice for your information.

The revisions to the Overview and Part A are arranged on an amendment sheet in a Comment/Action format. The amendment sheet lists each comment made by the Panel and is followed by the corresponding change the ARB staff will make (either revision or clarification).

I am also enclosing a revised Report on Asbestos in which all the revisions to the Overview and Part A listed on the amendment sheet have been incorporated. These revisions were prepared by the Air Resources Board staff.

A Table of Contents has been added to Part C, "Public Comments and Responses" and the pages are numbered. Public Comments received prior to the November 20, 1985 SRP meeting and staff responses to those comments are included in Part C.

The revisions to Part B, "The Health Effects of Asbestos", have also been arranged in the Comment/Action format. The revisions to Part B have not yet been incorporated into a final revised report form. The revisions to Part B were prepared by the Department of Health Services.

At the last meeting, Dr. Schenker requested that the Panel members send their written comments regarding the Asbestos report and revisions to him as soon as possible. I know he would appreciate your earliest response.

Best wishes from us all for a Joyous Holiday Season. We look forward to seeing you on January 14, 1986 in San Francisco. Please contact Candy Robertson at (916) 324-6696 if you require assistance with travel arrangements.

Enclosures

cc: James D. Boyd, Executive Officer
Harmon Wong-Woo, Deputy Executive Officer
Peter Venturini, Chief, Stationary Source Division
Dr. Raymond Neutra, Department of Health Services
Dr. Michael Lipsett, Department of Health Services

REVISIONS TO PART A OF THE ASBESTOS REPORT

IN RESPONSE TO COMMENTS MADE BY THE SCIENTIFIC REVIEW PANEL

1. A more critical review of asbestos exposure from sources other than the ambient air is needed.

The ARB staff has expanded Section E, Part A of the report to discuss the "yearly intake" of asbestos fibers from different media (water and air) for three different lifestyles: an office worker, a house person, and a child. This information was added to page III-21 and is summarized in Table III-5. The following conclusions are part of the summary: Although there were no significant differences between the asbestos concentrations found in homes and those found in the ambient air, the relative time spent in the home or outdoors had a major impact on the intake of asbestos fibers. Workplace concentrations and concentrations found in schools where asbestos was used on surrounding surfaces were higher than those found in the ambient air and could result in intakes significantly higher than those from ambient air. The ingestion of asbestos fibers from drinking water can be thousands of times more than the intake from inhalation; however, DHS has determined that there is no conclusive evidence available to show a relationship between ingestion of asbestos and various types of cancer. Therefore, the relative intakes for inhalation and ingestion should not be compared for risk assessment purposes.

3. The Panel would like the consistent use of units throughout Parts A and B of the report.

The ARB staff changed all the units in the Overview of Part A to PCM fibers/m^3 to allow easier comparison of health risk and ambient exposure data. However, the ARB staff did not change the units (f/m^3) in Sections I, II, and III of Part A and the units (f/cm^3) in Part B because these units are specific to ambient air measurements and epidemiological studies and therefore, should not be changed.

Memorandum

To : Richard Bode
Research Division
Air Resources Board
1800 15th Street
Sacramento

Date : December 19, 1985

Subject: Modifications of the AB 1807 Asbestos Report

From : Michael Lipsett, M.D., J.D.
Acting Chief, Air Toxics Unit
Department of Health Services
Epidemiological Studies and Surveillance Section
2151 Berkeley Way
Berkeley, California 94704
8/571-2669

Department of Health Services staff members' responses to comments from the Scientific Review Panel (SRP) are presented below in a format indicating where changes will be made in the final asbestos document. The following is a partial set of responses to comments, with further responses to be submitted subsequently. Since DHS staff have not received any written comments from the SRP, we have phrased panel members' comments in keeping with our understanding of the intent conveyed in the meeting November 20th. In addition to responses to the panel, several errata are listed below.

Comment: The report should mention the range over which risks have been extrapolated; i.e., from past asbestos concentrations to which occupational cohorts were exposed to current ambient concentrations of asbestos. (McCann)

Response: Insert in the Executive Summary before the last sentence preceding Table 1-1 (p.2) the following: "In this case the range of extrapolation was four to five orders of magnitude."

Comment: Having a discussion of the physical properties of asbestos in Parts A and B of the report is redundant. (McCann)

Response: While some parts of these discussions may be repetitive, Section 2 of Part B was intended to briefly describe those physico-chemical properties relevant to asbestos-related health effects. The material in Part A does not attempt to do this.

Comment: The discussion of the SEER data on mesothelioma needs amplification with respect to whether the ambient levels of airborne asbestos discussed in the report are likely to have been etiologically responsible for a potentially large fraction of recent mesothelioma incidence in women. (McCann)

Response: In Section 9.h of Part B, DHS staff members calculated upper-bound risk estimates from recent mesothelioma incidence data in the San Francisco-Oakland SEER. The purpose of this exercise was to ascertain, using the sentinel tumor mesothelioma, whether the risk projections described earlier in Section 9 were

(2) Insert after the second full paragraph in section 9:

> As noted earlier (section 4.a), asbestos has been indisputably demonstrated to be carcinogenic in humans in a variety of occupational settings. Tables 9-1 and 9-2 are not comprehensive and include only studies used in the quantitative risk assessment. Although individual study details are provided only in summary form, even a cursory review of the standardized mortality ratios (SMRs) in Table 9-1 and the numbers of pleural and peritoneal mesotheliomas in Table 9-2 indicates that there is strong evidence for asbestos carcinogenicity in humans.

Comment: Clarification is needed regarding the choice of the upper bound for the lung cancer proportionality constant, "C_ℓ". Specifically, on pp. 45-46 it is stated that, "The upper bound in DHS' risk assessment was calculated using a value for C_ℓ exceeding all estimates for the 95% confidence limits on values of C_ℓ derived from epidemiologic studies (See Figure 9-2)." Figure 9-2 indicates that the value chosen for C_ℓ appears to be equal to, not greater than, the highest value presented. (Schencker)

Response: In the final document the above-quoted sentence will be changed to read as follows: "The upper bound in DHS' risk assessment was calculated with C_ℓ set as 0.1, which was the highest 95% upper confidence limit estimated for any of the epidemiologic studies under consideration (See Figure 9-2)." In addition, an earlier sentence in that paragraph will be deleted, viz., "The upper bound for the proportionality constant C_ℓ was specified as 0.1, which was taken from the risk assessment by Nicholson (1985)."

Other SRP comments require additional work and/or clarification before DHS staff members respond. Additional minor modifications of the text are listed below.

1. In the Executive Summary insert the following:

   (a) At the end of the first paragraph on p.1: "While most experimental and epidemiologic studies have involved exposure to chrysotile, amosite and crocidolite, DHS staff members believe that fibrous anthophyllite, tremolite and actinolite should also be considered as human or potential human carcinogens."

   (b) After the first sentence of paragraph 2 on p.2: "Similar and other tumor types have also been produced in animals exposed to asbestos via inhalation and intraperitoneal or intrapleural administration."

   (c) At the end of the last paragraph on p.3: "Uncertainty also arises because of sampling variability, including interconversions between past industrial exposure measurements and fiber counts measurable by current techniques.*"

State of California
SCIENTIFIC REVIEW PANEL
on TOXIC AIR CONTAMINANTS

NOTICE OF PUBLIC MEETING OF THE SCIENTIFIC REVIEW PANEL (SRP) ESTABLISHED PURSUANT TO HEALTH AND SAFETY CODE SECTION 39670 (AB 1807)

A meeting of the Scientific Review Panel on Toxic Air Contaminants established pursuant to Health and Safety Code Section 39670 will take place at the time and place set forth below.

DATE: January 14, 1986

TIME: 9:00 a.m.

PLACE: San Francisco Airport Hilton
San Francisco International Airport
San Francisco, CA 94128

AGENDA

1. Review and consideration of the Report on Asbestos prepared by Air Resources Board staff pursuant to Health and Safety Code Section 39661. This item has been continued from the November 20, 1985 meeting.

2. Review and consideration of the revised Report on Chlorinated Dioxins and Dibenzofurans prepared by Air Resources Board staff pursuant to Health and Safety Code Section 39661. This report has been revised in response to comments made by the Scientific Review Panel at its November 20, 1985 meeting.

3. Organizational matters.

4. Other Business:

   Closed Session - Personnel (as authorized by State Agency Open Meeting Act, Government Code Section 11126 (a).)

Copies of the Report on Asbestos, which was revised to address comments made by the SRP on November 20, 1985, will be available on December 23, 1985. Copies of the revised Report on Chlorinated Dioxins and Dibenzofurans will be available on December 26, 1985. Both reports are available for inspection at or may be obtained from the ARB Public Information Office, 1102 "Q" Street, Sacramento, California (916) 322-2990.

The Scientific Review Panel has established January 3, 1986 as the deadline for the public to submit comments to be considered at this meeting. All comments must be addressed to Richard Bode of the Air Resources Board. The Panel does not intend to take oral testimony.

FOR FURTHER INQUIRIES OR TO SUBMIT WRITTEN COMMENTS FOR CONSIDERATION BY THE SCIENTIFIC REVIEW PANEL, PLEASE CONTACT:

Richard Bode
1800 15th Street
P.O. Box 2815
Sacramento, California, 95812
(916) 323-1527