

December 18, 1985

To: Health and Environmental Affairs Committee

Subject: Revisions to the National Emission Standard for Hazardous
Air Pollutants (NESHAPS) for asbestos

The Asbestos Information Association (AIA) has advised the Institute of a request from the Environmental Protection Agency (EPA) for industry assistance on potential amendments to the NESHAPS regulations for asbestos. In general, the EPA is considering a requirement for continuous monitoring of baghouse efficiency and a possible requirement for installation of High Efficiency Particulate Air (HEPA) filters on the exhaust streams.

In addition to Mr. Pigg's letter of December 12, 1985, there are three attachments enclosed:

- (1) Memorandum from Kirkland & Ellis, AIA's special counsel for regulatory affairs. This memorandum reviews background documents and summarizes them. It indicates that EPA has made judgments on baghouse efficiency, and is seeking additional information to document these assumptions. As noted on Page 2 of the Kirkland & Ellis memorandum, the general purpose of this data gathering is to calculate the following: (1) Current Emissions; (2) Emissions if suggested additional controls are installed; (3) Cost of the controls; (4) Health risk per unit of asbestos emission; and (5) Cost of controls per number of lives saved with reduced exposures due to the new controls.
- (2) EPA letter to the AIA concerning their data gathering for two possible revisions to NESHAPS for asbestos: (a) implement monitoring practices for existing air pollution control devices, or (b) install HEPA filters on all asbestos-containing exhaust streams. They further indicate the general information they seek. The four enclosures referred to in the EPA letter to AIA were not included. Included was their Enclosure 5, which is listed as Attachment 3.
- (3) This includes 13 questions, plus a fourteenth that has several sub-questions. The various enclosures that accompanied Enclosure 5 and are referred to in the questions, are not included with this mailing.

The EPA is asking for input at this time. The AIA concurs that it is in industry's best interests to reply where it is reasonable. There is no question but that a well-studied reply cannot be produced by December 31, 1985. The foregoing is sent for the Committee's review and suggestions.

E. W. Drislane
Executive Director

Copies: Officers and Board of Directors



ASBESTOS INFORMATION ASSOCIATION

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PRIORITY ATTENTION
PLEASE

December 12, 1985

Memorandum For: AIA/NA MEMBERS
AIA/NA TECHNICAL COMMITTEE

Subject: Request for comments on EPA's draft support documents
for revisions to the National Emission Standard for
Hazardous Air Pollutants (NESHAPS) for asbestos

As indicated in the enclosed correspondence dated November 27, 1985 from the U. S. Environmental Protection Agency (EPA), the agency's Office of Air Quality Planning and Standards seeks industry help in assessing potential amendments to the Clean Air Act NESHAPS asbestos regulations. EPA's letter (Attachment II) outlines the work that the agency is doing to develop and assess new monitoring and air filtration requirements for emissions from asbestos manufacturing and processing facilities. Attachment III is a list of questions that EPA would like industry to answer to aid in that effort.

The enclosed memorandum (Attachment I) from the Association's special counsel for regulatory affairs (Kirkland & Ellis) summarizes the draft support documents that EPA has prepared. As indicated in K&E's memorandum, EPA's assessment is based almost entirely on assumptions - rather than actual data. The questions for which the agency seeks answers reflect a desire to collect such hard data.

AIA/NA has indicated to EPA that it will be as responsive as possible in order to assist the agency in this effort. As will be noted from questions 1 through 9 and 12 in Attachment III, the focus of EPA's inquiry is information on the operation of baghouses at manufacturing and processing facilities. Question 13 is also relevant and comments on disposal of waste are also solicited.

As a reminder, the EPA NESHAPS regulation is applicable to asbestos mills, manufacturing firms if they use commercial asbestos, and fabricating facilities. While AIA/NA members located in Canada are not covered by NESHAPS, it would be helpful nonetheless to have in hand your responses to EPA's questions.

We have advised EPA that the Association will not be able to respond to the agency's request for information before February 1, 1986. Accordingly, a response from AIA/NA members to this office by January 20, 1986 would be appreciated in order to allow ample time for review and consolidation of the data submitted. In addition, please indicate in your response the person(s)

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in your company with expertise in the area of baghouse operation and air emissions for further contact as may be necessary. It is proposed to use the services of AIA/NA's Technical Committee in drafting an industry reply to EPA.

A number of nonmember "copy to" addressees are listed to receive this memorandum. We invite input from these addressees in order that AIA/NA's response may be as representative of the asbestos industry as possible.

As a general comment, EPA's Office of Air Quality Planning and Standards, located in Research Triangle Park, N.C., has traditionally approached its regulatory initiatives in an objective manner by seeking participation in the draft stages from all parties concerned. The current NESHAPS regulations, first issued in 1973 with a few subsequent changes, reflect the results of this reasonable approach. Thus, we urge your careful attention to this review and comment process.

A copy of the complete draft EPA document is available from this office on request.

Please know that your assistance in this important project is appreciated in advance and we look forward to receiving your response by January 20, 1986.

A 'phone call by January 6, 1986 from companies intending to submit a written response would be appreciated.


B. J. Pigg
President

Enclosures

cc: The Asbestos Institute (Nash)
Gasket Fabricators Association (Farber)
Friction Materials Standards Institute (Drislane)
Association of Asbestos Cement Pipe Producers (Jackson)
Roof Coatings Manufacturers Association (Messervey)
General Motors Corp (Krebs)
Allied/Bendix (Riopelle/Stewart)
Armstrong World Industries (King)
Raymark (Smith)
Dana Corp. (Forde)
K&E (Hardy)
SH&B (Artabane)

KIRKLAND & ELLIS

MEMORANDUM

TO: B. J. Pigg

ATTACHMENT I

FROM: Tim Hardy

DATE: December 12, 1985

RE: EPA's NESHAPS Office Request for Information
on Baghouse Emissions

Per your request, I have reviewed the background documents supplied to you by EPA's Office of Air Quality Planning and Standards. As indicated in EPA's cover letter (Attachment II), the Agency is considering two new NESHAPS requirements that would affect asbestos manufacturing and processing facilities. They are: (1) continuous monitoring of baghouse pressure drops and daily checks to see if emissions are visible; and (2) installation of High Efficiency Particulate Air (HEPA) filters on all asbestos-containing exhaust streams.

The EPA support documents are almost entirely based on assumptions about baghouse efficiency. EPA is obviously concerned that these assumptions may be incorrect. It therefore seeks AIA/NA's help in documenting the assumptions. Questions 1 through 9 and 12 posed to AIA/NA (as listed in

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Attachment III) are intended to supply such information. It seems appropriate for industry to attempt to aid EPA on these issues. In order to assist your members in determining whether they have information to assist EPA, I outline below the basic assumptions EPA has employed.

SUMMARY OF THE EPA ASSESSMENT OF
AMENDMENTS TO THE NESHAPS ASBESTOS
REQUIREMENTS THAT WOULD IMPACT
MANUFACTURING AND PROCESSING FACILITIES:

The basic purpose of the EPA support documents is to determine the cost-effectiveness of the two NESHAPS amendments being considered. The bottom line of the EPA calculations is a conclusion about the costs per life saved of these additional control measures. In order to reach this bottom line, EPA must:

- (1) Calculate current emissions;
- (2) Calculate emissions if the proposed additional controls are installed;
- (3) Calculate the cost of the controls;
- (4) Calculate the health risk per unit of asbestos emission; and
- (5) Compare the cost of controls to the number of lives saved given the reduced exposures due to the new controls.

Following this scheme point by point, below are the assumptions relied on by EPA. The support documents are difficult to interpret in some areas (primarily because of lack of information), but I believe the following is approximately correct.

(1) Current Emissions.

EPA assumes the information received in response to the 1981 data from its 1982 Asbestos Reporting Rule, supplemented by plant closure data, represents the universe of asbestos manufacturing (218) and processing (273+) facilities with emissions. It assumes further that existing baghouse controls can, when operating properly, reduce emissions to 0.01% of the waste asbestos collected in the baghouse (i.e., 99.99% baghouse efficiency). It further assumes, however, that over each six-month period, collection efficiency drops to 90% (at a maximum) or 99.5% (at a minimum) -- at which time visible emissions occur and corrective actions are taken to return collection efficiency to 99.99%.

(2) Emissions with New Controls.

EPA evaluates two additional controls.

First, requirements that pressure drops be continuously monitored and visual checks for emissions be made daily are assumed to lead to more rapid detection of efficiency reductions. However, more rapid detection is assumed to be only one day more rapid than the baseline case without this monitoring requirement.

Second, HEPA filters are assumed to remove 99.97% of asbestos fibers from exhaust streams. Thus, emissions with such controls are assumed to be 99.97% less than existing emissions.

(3) New Control Costs.

EPA assumes that operating and capital costs of the additional monitoring controls will be minimal: approximately \$1,000 per year per plant, or industry-wide \$3 million/year.

Cost of installation and operation of HEPA filters are assumed to be considerably higher: \$4.30 per cubic foot of air moved, or industry-wide \$265 million/year.

(4) Health Risks.

EPA's asbestos health assessment is based on work done by Dr. Nicholson of Mt. Sinai on the potency of asbestos and a standard EPA model that calculates dispersion of fibers within 50 kilometers of each plant and estimates the population within that area. The health risk assumptions, like the OSHA health assessment, predict asbestos risks at the very low levels likely from facility emissions on the basis of extrapolations from risks found at much higher exposures in occupational cohorts. EPA uses higher potency factors than did the National Academy of Sciences in its 1983 risk assessment. No adjustments are made for fiber type.

EPA calculates that manufacturing and processing facility emissions annually cause 10 to 20 deaths (as contrasted to the calculation that 1,600 to 3,300 deaths annually would be caused if emissions were not controlled at

all by baghouses). The Agency further calculates that the number of deaths annually would be reduced by new monitoring controls to 4, and by requirements of HEPA filters on all exhaust streams to less than 0.1.

(5) Final Calculations of Costs per Life Saved.

Based on the assumptions above, EPA calculates the cost per life saved of the two new regulatory controls. This assessment finds very high costs per life saved for the HEPA filter requirement ranging from \$730,000 in paper plants to \$331 million in packing and gasket plants and averaging \$40 to \$50 million across the industry. It is likely EPA considers such costs too high to justify a HEPA filter requirement, especially since the total number of lives saved (10 to 20) is small.

The costs per life saved of new monitoring requirements are not presented, but appear to be in the range of \$500,000. EPA may well consider such costs reasonable, but the total number of lives saved (5 to 15 annually) is small.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

27 NOV 1985

Mr. B. J. Pigg
Executive Director
Asbestos Information Association
1745 Jefferson Davis Highway
Arlington, Virginia 22202

Dear Mr. Pigg:

As you may know, the United States Environmental Protection Agency (EPA) is considering revisions to the existing national emission standard for hazardous air pollutants (NESHAP) for asbestos. The NESHAP for asbestos was first promulgated by EPA in April 1973, and it has been amended and revised several times since that date. The current review and consideration of revisions addresses all aspects of the existing standard in accordance with our policy of reviewing NESHAP every 5 years.

Two of the alternatives that EPA is considering for possible revisions would require asbestos processors to either, (a) implement monitoring practices for their air pollution control devices, or (b) install high efficiency particulate air (HEPA) filters as final filters on all their asbestos-containing exhaust streams. As part of the evaluation of these regulatory alternatives, EPA considers the emission reductions, costs, benefits (particularly reductions in risks to human health) and economic impacts that are associated with the alternatives. The estimated emission reductions, costs, health benefits, economic impacts, and other factors will be considered by EPA in deciding whether or not to propose any revisions to the existing NESHAP for asbestos. The regulatory alternatives under consideration by EPA and the development of asbestos emission estimates corresponding to these alternatives are described below in more detail.

Presented in the enclosures to this letter for review and comment by the Asbestos Information Association (AIA) are the following items pertaining to the two regulatory alternatives described above:

- Methodology for estimating asbestos emissions (Enclosure 1)
- Methodology for estimating health risks (Enclosure 2)
- Estimates of costs for monitoring and control devices (Enclosure 3)
- Methodology and results of the economic analysis (Enclosure 4)
- List of specific questions and topics regarding the above items, for your consideration and comment (Enclosure 5)

As indicated in the list of questions, we are requesting your comments on specific items. We are particularly interested in your comments on our estimates of asbestos emissions and the uncertainties in these estimates. We

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are also interested in any other pertinent comments you may have. The economic analysis is presented primarily as background information, although we have listed a few specific questions regarding this item.

Under the existing NESHAP, there are no specific requirements for monitoring to ensure that pollution control equipment is operated and maintained to minimize asbestos emissions. Thus, a regulatory alternative is being considered that would require an observer to monitor daily all air pollution control equipment for the presence of visible emissions. No certification would be required for the observer. This alternative would also require the pressure drop across each control device to be continuously monitored and recorded. The monitoring of pressure drop would alert the operator of fabric filters to the improper cleaning of the bags, or to equipment malfunctions such as leaks in bags. In practice, many plants have already implemented a monitoring program as described here.

A second regulatory alternative would reduce emissions under the current standard by requiring HEPA filters on exhaust air streams. It is envisioned that the HEPA filters would be installed following existing controls and would not replace existing particulate collection equipment.

Two of the most critical elements in our analyses are the risk reductions and the costs associated with each of the regulatory alternatives. The existing risks and achievable reductions in these risks depend directly upon asbestos emission rates. In the absence of comprehensive asbestos emissions data, EPA has estimated asbestos emission rates by the procedures discussed in Enclosure 1. Costs were estimated by the procedures discussed in Enclosure 3.

Because there are essentially no measured data on asbestos emissions, EPA has estimated emissions using information from a variety of sources, including the asbestos industry. Several judgments have been made about the operating characteristics of control devices (primarily fabric filters) in the asbestos industry, such as inlet concentration of particulate matter, fabric filter collection efficiency, increased outlet concentration of particulate matter as a function of time, frequency of malfunctions, and duration of malfunctions. Rather than using a single value for each of the parameters for which values are uncertain, ranges of values were used that define the probable minimum and maximum values of the parameters. We would like your comments on the methodology for estimating emissions, particularly on the underlying assumptions. It is our intention to refine the estimates if possible to produce a "best estimate" of emissions, or to narrow the range of estimated emissions.

In order to estimate the health impacts of the regulatory alternatives, EPA first estimated emission rates and the resulting health impacts for asbestos source categories in the absence of any controls. These health impacts corresponding to uncontrolled emissions were then reduced by the degree to which emissions are controlled presently (corresponding to the baseline situation, which is the existing NESHAP) or would be controlled under the regulatory alternatives under consideration.

We are requesting comments from AIA on the attached package by December 31, 1985. We would like to have this package circulated to as many of your members

as you deem appropriate. We realize that this could be costly and burdensome. Therefore, we are willing to consider mailing the package to the members that you identify. In addition, we would like to meet with you and members of AIA who have reviewed the package to discuss your comments. We suggest that this meeting be scheduled for early January 1986 at our offices in Durham, North Carolina.

Thank you for your assistance. We look forward to receiving your written comments and discussing them in our meeting. If you have any questions, please call John Copeland of EPA at (919) 541-5601.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jack R. Farmer", with a long, sweeping horizontal line extending to the right.

Jack R. Farmer
Director
Emissions Standards and
Engineering Division

5 Enclosures

ATTACHMENT III

Enclosure 5

QUESTIONS AND TOPICS FOR YOUR CONSIDERATION AND COMMENT

The following list of questions was developed to address the uncertainties contained in EPA's emission estimates, health risk assessment, and economic analysis. On the questions or subjects for which you have information, or for which you have some experience based on your work in the industry, we welcome any comments you have that would help us to make a best estimate or to narrow the range of uncertainty of the estimates.

1. Do you know of any emission test data for particulate emissions or asbestos emissions for asbestos plants?
2. What are the practices at your plant for visible emission monitoring? Are baghouses checked for visible emissions weekly, daily, more frequently than once per day, or not at all? What proportion of all plants in your judgement check daily, weekly, more often than daily, or not at all? Is pressure drop monitored at your plant weekly, daily, more often than once per day, or not at all?
3. How frequently do you perform maintenance inspections for your baghouses--daily, weekly, monthly, quarterly, semiannually, annually? What components do you check during each inspection? When checking the condition of bags, what do you look for, what problems do you find, and how are problems corrected? How long does it take to inspect each baghouse? How many people are used to inspect each baghouse? In your opinion, do periodic inspections ever detect bag conditions that would lead eventually to visible emissions if undetected?
4. Do you agree that a baghouse would have at most two episodes per year of visible emissions? Is once per year appropriate as a minimum?
5. For plants that do not check daily for visible emissions, is 20 hours a reasonable average (some longer, some shorter) time that visible emissions might go undetected? Is an average of 4 hours appropriate for plants that do inspect daily for visible emissions?
6. Based on your inspection of baghouses or on other information, does the efficiency of a new or rebagged baghouse remain relatively constant for a period of time until bag failures signal the need for rebagging (see Figures 2 and 4 of Enclosure 1), or does the efficiency steadily decrease after rebagging until corrective action is required (see Figures 1 and 3 of Enclosure 1)?

7. What problems regarding technical applicability and costs do you foresee with the regulatory option that would require HEPA filters and prefilters on all asbestos-containing exhaust air? We envision that HEPA filters would be installed following existing control devices.
8. What are the appropriate stack parameters (height, diameter, velocity, temperature, release area) to use for asbestos emissions from manufacturing, milling, and fabrication? (See page A-17 of Enclosure 2.) Are emissions vented through stacks, vents on the side of baghouses, or by some other arrangement?
9. Do asbestos fibers have a significant settling velocity? If so, what data are available?
10. Are there more than 291 primary manufacturers as used in our analyses? Does our figure of roughly 270 fabricators represent all those producing that are covered by the NESHAP for asbestos?
11. Is there an easy way to get longitude and latitude coordinates for all of the plants? Should we use city centroid coordinates? Are waste disposal sites generally located in populated areas? Are most waste disposal sites at the plant location?
12. Should we use plant specific information rather than model plant data? If so, what would be the source of this information?
13. What are the general procedures at your plant for disposal of waste--wetting of the waste, transport in a covered container, burial in a landfill? What is the distance of the disposal site from the plant? Are the procedures different for different product categories?
14. The economic analysis of impacts for manufacturing sources resulting from a revision to the asbestos NESHAP are based on the following industry sectors:

°Domestic Asbestos Fiber

°Primary Products

- Paper products
- Friction products
- Asbestos-cement pipe
- Asbestos-cement sheet
- Flooring products
- Plastics
- Coatings and compounds
- Packing and gaskets
- Textiles
- Chlorine

°Secondary Products

- Asbestos-felt-backed vinyl sheet flooring
- Textile friction materials
- Textile gaskets

a. For these sectors, and component industries within sectors, can you supply average annual growth or decline rates by sector? How is this data generated and used by the industry? What factors have recently been most important with regard to growth and the general economic status of the asbestos manufacturing industry as a whole, or with regard to sectors mentioned above?

b. For sectors listed above, discuss the convertability of existing capital equipment from asbestos product manufacture to non-asbestos product manufacture. Is it possible for manufacturers to make the same product with the same equipment utilizing a substitute for asbestos? If conversion is a possibility are cost estimates available?

c. What changes in outlook and operation for the asbestos-manufacturing industry would occur in the absence of the existing asbestos NESHA?

d. What is your assessment of the economic impact of product liability on the asbestos manufacturing industry?

e. How are asbestos substitutes changing the demand for asbestos products, and what is your estimate of the long-range outlook for substitutes for specific products?