

FILE NAME: Friction Materials Standards Institute (FMS)

DATE: 1971-1980

DOC#: FMS085

DOCUMENT DESCRIPTION: Outline of FMSI Minutes 1971-1980

Friction Materials Standards Institute History

1971

The initiation of the Asbestos Study Committee is announced in July. Drislane informs all active members that the "background" to this development is two-fold: W. B. Reitze's (Johns-Manville) talk on asbestos exposures in the manufacturing setting in June of 1971 and the Illinois law that would ban asbestos in brake linings. The Asbestos Study Committee would be the FMSI's link to the Asbestos Information Association of North America. Finally, Drislane claims that he would like to staff the committee with skilled and "experienced" personnel from the manufacturing and industrial hygiene areas (FM-30).

The first meeting of the Asbestos Study Committee is held on 9/15. The minutes of the meeting show that Dr. Stefl (Raybestos), the chairperson, proceeded to inform the assembled that the purpose of the committee was to keep the members informed about asbestos regulations and to present the view of the brake lining companies to both the Asbestos Information Association of North America and the various regulatory agencies. A list of literature concerning asbestos was presented (see exhibit for citations) (FM-32).

A few days later, Stefl returns the minutes of the Asbestos Study Group which Drislane forwarded to Raybestos-Manhattan. Stefl also includes a copy of the federal proposal for the emission standards for asbestos. Stefl tells Drislane that he is to make copies of the proposal and distribute it to the members of the committee. He includes a copy of the comments and suggestions that were made on the initial federal draft by officials at the AIA. Stefl goes on to talk about what transpired at the unofficial meeting with some members of the Illinois Pollution Control Board in Chicago on September 17. Harker of the control board suggested that the companies represent themselves at the formal hearing as one group, rather than appear multiple times. Harker informed those at the informal meeting that one automobile company had told him that they would be using asbestos-free disc brakes by 1975 and that the asbestos ban would not affect them. Stefl notes that the AIA will likely testify on behalf of the asbestos companies since it has had this experience before in other banning hearings (FM-34).

In October, Drislane informs FMSI members about the proposed Illinois ban on asbestos brake lining. He reports that the FMSI received several articles of interest from the Illinois hearings on banning asbestos. The FMSI recommends that the companies let the Illinois Control Board know their views on the proposed ban. It was learned that the Control Board was surprised over the *lack* of a response. The FMSI councils the members to let the board know that there are no substitutes for asbestos at this time and that the EPA is still studying the extent of fiber emissions from brake lining jobs (FM-35). Attached to this exhibit are a number of letters

from FMSI members to Samuel T. Lawton of the State of Illinois Pollution Control Board. These letters and Drislane's cover sheet are proof that the FMSI coordinated industry-wide responses to place political pressure on the Illinois Pollution Control Board to rule in favor of the companies.

1972

FMSI members become more aware of the weight of pending legislation on asbestos hazards. It is at this time that the institute's directors discuss what the organization's strategy will be to deal with these problems. In a letter from R.E. Nelson, Chairperson SAE Brake Subcommittee 2, Abex Corporation to British Friction Materials Council (BFMC). RE: Asbestos Regulations. Date: 1/14/72, (FM-90), one FMSI member notes with reference to the success of preventing the Illinois ban, that the FMSI "[was] active and instrumental in getting this proposal removed." A copy of this information was also sent to M.G. Jacko of Bendix. A copy of the letter also went to E.W. Drislane of the FMSI. Only a few days later, Drislane asks the rest of the membership whether the FMSI's role should be to comment on proposed legislation or serve only as a "monitor to keep the membership advised?" (FM-91).

The companies soon develop a war mentality about proposed safety legislation. At an Asbestos Study Committee meeting on 2/10/72, company representatives claim that OSHA's new concern with health has made asbestos one of the five industrial substances "under attack." Also at this meeting, I.H. Weaver (Raybestos), chairperson of the Asbestos Study Committee, discussed the OSHA standards proposed in the Federal Register of 12/7/71 & 1/12/72 which were both distributed to the members of the Asbestos Study Committee. Weaver and Reitze (JM) agreed that OSHA would enforce these regulations and that they were relevant to asbestos brake linings. A student biology paper was also distributed to the members which reviewed the medical literature on asbestos-related diseases. The paper was forwarded to the committee by J. Greenen, the president of the FMSI. The committee also concluded that the FMSI should be used for "screening and passing on information to the members" not to comment on proposed legislation (FM-37). This meeting served to illustrate how aware industry was of how seriously the government was taking the asbestos problem. The meeting also established that the industry was keeping up with its awareness of the medical literature on the asbestos hazard. Additional letters from Drislane in the coming months will keep reminding the FMSI members to familiarize themselves with OSHA's proposed standards. Drislane even forwards copies of the standards as they were published in the Federal Register on 1/12/72 (FM-92; FM-96; FM-44).

In June of this year I.H. Weaver of Raybestos, chairperson of the FMSI's Asbestos Study Committee, distributes an extensive report on the committee's history and the OSHA standards (FM-94). In this report, Weaver claims that the proposed OSHA standards are surprisingly "lenient". The conclusion of the committee was that the permanent standards were too strict on the future TLV of 2 fibers per cc, while is

was "more lenient than was expected in regard to many other important matters." One major change between the proposed OSHA standards and these permanent regulations is that the references to "cancer" and "danger" were eliminated on signs and labels. Labeling requirements for "locked in" fibers were also eliminated. Weaver proposes a liaison with the AIA/NA to coordinate interpretation of the OSHA standards. Weaver also suggests that the companies all follow "as closely as possible medical and occupational health research concerning asbestos and asbestos-related diseases and determine whether FMSI or its member companies should help sponsor or otherwise support work of this nature." Weaver's report established how the brake companies realized that not having warning information like "cancer" and "danger" was "lenient" of the OSHA regulations. The Asbestos Study Committee was to study the ongoing medical research on asbestos related diseases and observe OSHA's activities, but the Weaver report does not reflect any attempt by the companies to act on this information or take a proactive position.

In the same month of June, Weaver forwards additional information on asbestos to Drislane for dissemination to the FMSI members. In a letter to Drislane with attachment on June 1, Weaver forwards research materials from the IIT (Illinois Institute of Technology Research) on automotive emissions of asbestos fiber to be circulated by Drislane to all the members of the Asbestos Study Committee. The materials were originally forwarded by Dr. Harwood who conducted a seminar on asbestos from April 4-7 (the same seminar referred to in Drislane's memo to the membership - see FM-93). The IIT materials refer the reader to additional sources on asbestos regulations. The materials conclude that fiber emissions from their tests were "considerable." Added to this conclusion were the considerations that emissions were "likely to occur at places of high density population and restricted ventilation." The report also concludes that "there is no doubt that substitution of other materials for asbestos is possible" but the substitutes would be larger and more expensive. Disc brakes make such substitution more possible, however. But the report also concludes that the medical questions must be "fully resolved" before hard and fast rules are followed. Federal regulations are considered reasonable (FM-95). This report continues the considerable knowledge of the companies that there are medical problems associated with asbestos exposure, that asbestos fiber emissions from brake work could be significant and that methods to substitute asbestos are possible. In a letter, Drislane acknowledges receipt of Weaver's forwarded materials (FM-39).

Weaver continues to spread knowledge throughout the FMSI membership on the hazards of asbestos exposure. On June 16, he forwards his report on the past half year's activities of the Asbestos Study Committee (FM-97; FM-94). Later, Drislane forwards a chart created by Weaver which summarizes the industry position, NIOSH's recommended standards and the actual outcome. The exhibit is a remarkable demonstration of the effects of lobbying (FM-98). With both FM-94 and FM-98, Weaver presented the Harwood study results and the amazing chart on OSHA's regulations to the members. Keep in mind that Harwood's conclusion was that "considerable" emissions of asbestos fibers were in evidence in his studies and

that Harwood was in favor of the Illinois ban. This contrasts strikingly with the "Industry Position" column in FM-98 which states that "cancer" and "danger" should not be placed on warning labels. Despite Harwood's conclusions, the industry is in favor of watering-down the warning labels.

On June 20, Drislane makes sure that the other companies are aware of the attempted watering down of the OSHA standard. In a letter to all Active Members of the FMSI, he forwards the table prepared by AIA/NA which compares the position of the industry with OSHA's original position and the end result of the regulations on asbestos. On labeling, the table clearly shows that the industry was against inclusion of the words "cancer" and "danger" in the warning labels, while OSHA was in favor of their inclusion. The end result was no requirement for the inclusion of the words "cancer" and "danger" in the labels (FM-98). As it is the table was a subtle depiction of the results of political lobbying. At the very least, it shows how the industry was in favor of, and indeed succeeded at, watering-down the warning labels.

Additional knowledge of the OSHA standards and their interpretation reach the FMSI membership in June through the Asbestos Information Association/North America (AIA/NA). In a letter from Matthew M. Swetonic, Executive Secretary of the AIA/NA, to all the members of the AIA/NA, dated 7/5/72, the author reviews an AIA/NA meeting in Washington, D.C. on June 22, 1972 which discussed the interpretation and enforcement of OSHA's asbestos standards. Among the recommendations considered reasonable is the prevention of the carrying home of asbestos fibers on work clothes (FM-99). This letter was distributed to members during an FMSI Asbestos Study Committee meeting held on 8/17/72 (FM-41). At the very least, the reference suggested industry knowledge of the hazard from household exposure to asbestos fiber.

Despite all the knowledge and warnings, the FMSI members decide on using work on asbestos substitutes to protect their businesses rather than the health of their workers. On June 28, A. Comins of the Auto Friction Corporation suggests that the FMSI contract an outside firm to study the possibility of developing a substitute for asbestos. IF no practical substitute exists, the FMSI could then use this to combat regulations. No definite action was taken at this time on this issue (FM-40). Comins' statement, delivered at the Annual Meeting of the FMSI, showed that the companies were thinking about substitutes very early but took no action. The reference to using substitutes as a "weapon in reserve" to combat future regulations clearly indicated that the companies did not take regulations seriously and that they were only an obstacle to the further accumulation of profits.

In July, Drislane forwards an extensive list of papers that deal with asbestos in the workplace. The FMSI distributed these papers to all members last year (FM-100). Rather than follow and investigate the reasoning behind the OSHA standards, the companies become more concerned with following them only to the extent that they will be able to "defend" themselves against prosecution by OSHA. In July in a letter

from Swetonic to AIA/NA Members, the author, Swetonic, describes an inconsistency in the OSHA labeling standards. He argues that the law is stricter than the warning label that is prescribed. He states that the companies can choose to label and be on the "safe side" or not label and test fiber emissions. He warns that the companies have to have the results of the fiber tests on hand in order to defend themselves against OSHA. He states that the most basic idea in all of this is that the purchasers should be informed that there might be hazards involved in the use of the product. So they must be informed, perhaps with an instruction sheet accompanying the product, on how to safely use the product (FM-101). This letter was distributed to Abex during an FMSI Asbestos Study Committee meeting held on 8/17/72 (FM-41). The reference to warning the purchaser in the use of the product was important, but the FMSI membership would not do anything about this prescription for several years.

In August at an Asbestos Study Committee meeting, members reported that OSHA officials would come onto the grounds of their plant with respirators already on. One member's plant exceeded the OSHA regulations on one inspection. OSHA found a higher concentration of asbestos in the air in the Inspection Department than "most members had realized." Members found that additional dust was created from the transportation of pallets of brake linings. Although the members suggested that warning labels be placed on the products, Feierabend from Abex said that "this recommendation would not be accepted warmly by many manufacturers. Mr. Wagner objected to the recommendation that warning notices be put in the brake linings as he felt it was another 'red flag' that would bring more harm to the industry than the alleged good that would come from enclosing such notices." The members also considered the idea that customers who do additional grinding and drilling of the brake linings of clutch facings might create working conditions where the concentration of asbestos would be "a hazard." The members also reconsidered the question of substitutes for asbestos and a study on this issue. It was argued that the sponsorship of such a study could be used "as a defense should we have a recurrence of action similar to Illinois' banning of asbestos based brake linings." But it was decided in the end not to ask the FMSI to take on such a study. The hygiene directors of the companies were listed. Copies of these minutes were sent to all Committee Members, J. Greenen, L. Stickles, the British Council, and the AIA/NA (FM-41). The meeting established that the industry was well aware that dust levels in their own plants often exceed OSHA's recommended levels. It also established that the companies recognized that additional dust could be created after the manufacturing process - particularly during transportation, and most importantly, after additional grinding and drilling by the customer. This problem was described by them as "a hazard"! Also, the issue of studying substitutes for asbestos was justified not with references to the hazards of asbestos itself but with the hazards to the company from anti-asbestos litigation! The almighty dollar was clearly more important to them! Finally, the hygiene directors of the companies are listed, but the members didn't mention anything that these people were doing about the asbestos problem.

At the end of August, Drislane forwards an article originally sent to Drislane by Weaver to the Asbestos Study Committee. Drislane states that Weaver "felt this was a good overview of the entire asbestos health situation as it now stands." The article was distributed to all the Asbestos Study Committee members, the British Council, and the AIA/NA (Swetonic). The article was authored by J.C. Gilson, "Health Hazards of Asbestos," (no information on where it appeared). Gilson argued that research since the 1930's established that asbestos could produce asbestosis and lung cancer. There was a synergistic effect between smoking and exposure to asbestos. Gilson stated that "in the last 15 years" there has been a link between asbestos exposure and mesothelioma. Problem: Gilson stated that duration of exposure can be short, but most mesotheliomas have been associated with heavy exposure. He noted that fibers are often mixed so that exposure to any one type of fiber is never guaranteed. So any information dealing with specific fiber types is "incomplete." Although, he does say that the risk of mesothelioma is probably lowest with chrysotile. But the evidence for a dose response relation is "less clear" for mesotheliomas so no threshold limit value can be assessed without difficulty. The article cites Selikoff's 1960's work (FM-42). The Gilson article clearly questioned the existence of a dose response relationship for mesothelioma. The obvious effect would be to cast doubt on the utility of attempts to limit exposure to some OSHA TLV in the case of mesothelioma.

The FMSI membership's knowledge about the hazards of asbestos exposure becomes more extensive in October as Drislane forwards an article from the *New York Times* to the Asbestos Study Committee. The article is entitled, "Wider Link to Cancer Found in Asbestos Workers." Drislane highlights the paragraph on the "wearing away of asbestos brake linings in automobiles and trucks." He notes that the reporter concludes that "this is a 'significant source of airborne asbestos'." But he thinks that this paragraph is not related to the title which focuses on cancer in the stomach, rectum and colon. Drislane ends the note with the cryptic: "Ordinarily, there will be an article of this type in the Times about every month with Dr. Selikoff generally the source." The article is by Boyce Rensberger. It is mostly concerned with new findings of cancers of the colon, stomach and rectum as a result of asbestos exposure. The author states that scientists confirmed that low levels of asbestos exposure in the ambient air is a cancer threat to the public. These findings were reported at a conference by the International Agency for Research on Cancer, a branch of the World Health Organization, in Lyons, France. Dr. Selikoff announced these findings at that meeting. Also mentioned were Dr. E. Cuyler Hammond and Herbert Seidman of the American Cancer Society's Environmental Cancer Research Project. The paragraph on brake linings states that "another significant source of airborne asbestos is the wearing away of asbestos brake linings in automobiles and trucks" (FM-43). A reasonable person might ask, if there is a cancer risk for the public at large, wouldn't there be such a risk for the people who work with these products frequently?

The specific problem of subsequent drilling and grinding of asbestos-containing friction materials becomes more prevalent in FMSI discussions in November. In a

letter from Drislane to Asbestos Study Committee w/ OSHA Label survey. (First attached to FM-45), the FMSI secretary states that "the problem" is that the shipment of asbestos-containing brake linings or clutch facings often creates dust. Subsequent operation - cutting, grooving, drilling and grinding in particular - "can produce airborne concentrations of asbestos fibers in excess of the current exposure limits (5 fibers/cc TWA or 10 fibers/cc ceiling)." The survey is composed of three question areas that deal with whether labels will include information on these subsequent hazards. He asks for members to complete the labeling survey and return it to the FMSI office (FM-46). The letter was an indication that the FMSI and the companies knew about the subsequent hazard problem. More importantly, the OSHA standards did not force the companies to think about this problem. As Weaver admitted earlier, the regulations were "too lenient" in regards to this. But the companies knew about this problem - and it is a "problem" because that is exactly how Drislane characterizes it! In another letter from Drislane to J.H. Kelly, Bendix Corporation, dated 11/28/72, Drislane informs Kelly of Bendix that there is a problem with customers who do subsequent drilling and grinding operations with asbestos brake linings, brake blocks, and clutch facings. He notes that these operations "may very well raise the asbestos concentrations in the atmosphere above the OSHA standard." Most importantly, "some members have indicated that the drilling and grinding operations are problem areas in brake lining factories with existing exhaust systems." Drislane argues that it is the responsibility of the manufacturer to warn the customer of this hazard. Drislane suggests the use of notices within or on the carton of the product. Pointing to the recent survey of the FMSI members, Drislane notes that this has been a "controversial item for the Institute in that some members feel that one or two companies are trying to railroad them into labeling. Another group of companies feel that we should comply with the spirit of the law now and it is not fair if they do the proper labeling and their competition does not" (FM-47). Drislane's letter established that there were problems with subsequent operations on the asbestos brake and clutch products and that it was the responsibility of the manufacturer to warn the customer of these problems. BUT, the "controversy" for the FMSI was due to intra-industry conflicts concerning competition issues, not health issues. This suggests clearly that there was a delay in the implementation of the FMSI's own advice due primarily to an intra-industry squabble on "who goes first" - this issue had nothing to do with health, but with the profit margin of the companies!!!!

In December, the FMSI releases the survey results from its earlier study on labeling. Drislane's cover sheet summarizes some of the conclusions of the recent survey on whether to label products for warning customers who do subsequent operations on asbestos-containing brake and clutch products. Of the 25 questionnaires that were sent out by the FMSI, only 11 replies were received - so less than 50% of the companies even bothered to participate in the survey! Still, Drislane calls this a "reasonable cross-section of the membership." He notes finally that the survey will be used at the next Asbestos Study Committee meeting. The results of the survey showed that a large majority of the companies were not labeling their replacement shipments, their O.E.M. shipments and interpreted OSHA standards as requiring

warnings on subsequent machining operations. A "slight majority" (as Drislane puts it) plan to label replacement and O.E.M. shipments (FM-48). This Drislane letter and survey results clearly showed a generalized indifference by the industry in the face of the subsequent operations problem. Less than 50% of the members companies saw fit to participate in the FMSI survey. Clearly a majority failed to go ahead with warnings on subsequent operations even though virtually all of the companies surveyed interpreted the OSHA standards as requiring them to do so!!! A reasonable person might ask: why delay if you know (as previous exhibits have shown) that there is a "significant" and "hazardous" "problem" from asbestos dust exposure during subsequent drilling, grinding, grooving, etc. operations on asbestos-containing brakes and clutches?!?! Clearly, health concerns were not a priority. The profit motive explanation becomes more credible in light of this!

1973

In January, Drislane informs all the active members of the FMSI that there has been "considerable activity in the asbestos field over the past several months." What he is referring to is a stream of federal standards on labeling and journalistic accounts of the hazards of asbestos. Most telling is the detailed reference to a New York Times article called, "Asbestos, the Saver of Lives, Has a Deadly Side." The article is a feature article dated 1/21/73. As Drislane himself notes, "The article emphasized medical histories of asbestos workers as concerns lung cancer, mesothelioma and asbestosis." The information included in this article "relied heavily on data supplied by Dr. Selikoff and Mt. Sinai Hospital. Drislane notes that he will supply a copy of the article to any member who requests one (FM-104).

In February, the Asbestos Study Committee discussed the need to label products for subsequent use that could exceed recommended OSHA limits. Committee members mentioned that the 10 fcc limit was exceeded during such activities. The Chairman, I.H. Weaver of Raybestos-Manhattan, described a study on bakery trucks done by Mt. Sinai Hospital. The study concluded that dust concentrations above the 10 fcc standard were produced during radius grinding and drilling of brake linings. Based on an earlier labeling survey of the FMSI members, the committee concluded that "the Membership is not now labeling in accordance with the OSHA requirements..." Most members also agreed that 5 fcc is exceeded in many areas such as inspection, drilling and grinding where there is no adequate dust collection machinery. The members conclude that the companies should label the product for subsequent grilling or drilling operations. The hesitation of the members to do this is explained: they fear that potential customers will be scared away from buying a labeled product. The minutes also summarize the New York Times article that was initially mentioned to the members by Drislane the month before (see FM-104). The minutes indicate that copies of the article were distributed to the Members of the Committee and other non-committee members who requested a copy. Mr. Weaver brought an additional article from the Saturday Review of the Society entitled "An Asbestos Town Struggles with a Killer." In this article, a Johns-Manville plant in Manville, New Jersey was exposed for health hazards. Although the committee concluded that

no action was planned based on these articles, they were considered "almost required reading". The Committee also received copies of the report of the Advisory Committee on Asbestos Cancers which met in Lyon, France on October 5 and 6, 1972. The members made no comments about the report, but Weaver argued that it should "have restricted circulation" (FM-49). The episode linked the companies to good medical knowledge of the hazards of asbestos (through the New York Times article) and this knowledge was strengthened by Weaver's Saturday Review of the Society article. The links to knowledge about subsequent use hazards of drilling and grinding are also noted. Finally, the reference to the Lyon meeting suggests the companies are aware that there is an entire international community concerned with the hazards of asbestos use.

The Asbestos Study Committee begins to take definitive action on labeling asbestos friction material products for subsequent cutting and drilling. In February the Asbestos Study Committee unanimously passed the following resolution: **RESOLVED:** That (1) where asbestos containing materials do not have their asbestos fiber completely locked in, or (2) where subsequent operations may be performed on asbestos containing materials, the hazardous labeling practice be adhered to in accordance with the Label Specifications in the OSHA Standards for Exposure to Asbestos Dust. The committee concluded that the members should comply with the OSHA regulations. An attached survey of the members shows that only one currently labels replacement shipments and only two O.E.M. shipments. A majority, 10 to 4, interpret the OSHA requirement as requiring labeling where subsequent machining is expected (FM-51).

In June, the companies agree once again that subsequent drilling and other work on friction materials is a hazard that should be avoided. The minutes of an Asbestos Study Committee meeting on the first of June concluded that in order to meet the "true spirit of the OSHA regulations, manufacturers doing subsequent drilling, grinding or cutting of asbestos containing brake linings should use the care that OSHA suggests." The membership concluded that the labels should state "Avoid creating dust" (FM-52).

On June 27, the FMSI gets a bombshell. I. H. Weaver of Raybestos presents a damning talk on the status of the industry and the asbestos hazard. As reported by the minutes of the Annual Meeting of the FMSI where Weaver presented his talk, the Raybestos executive argued that the companies should comply with OSHA regulations and that if they didn't, "the consumer activist groups and organized labor may push for even harsher regulations." Weaver also suggested that the OSHA label should be placed on products where additional cutting, drilling and grinding could be done. Such use, he noted, could raise exposure levels appreciably. The report of the Weaver committee was accepted by all assembled.

Weaver mentioned the Lyon, France meeting as the "single most significant event that occurred during the past year on the subject of asbestos hazards." He noted that the meeting was attended by 130 medical researchers and representatives of

government, industry and labor. Weaver concluded, based on the findings at the Lyon meeting that: "(1) All major commercial types of asbestos can cause cancer; (2) Evidence has been greatly strengthened that all commercial types of asbestos except Anthophyllite may be responsible for mesothelioma. (Risk is greatest with Crocidolite, less with Amosite, and apparently still less with Chrysotile); (3) Cigarette smoking is an important factor enhancing lung cancer risk in asbestos workers." Weaver underlined that the "most important item" as the "incrimination of all major types of asbestos as causal agents for carcinoma, particularly mesothelioma." He states that, in this light, the association of chrysotile with brake products is "of serious concern." Weaver stated that it is the responsibility of the companies to properly train and educate their workers on the hazards of asbestos. He says that this must be done to avoid conflicts with labor and "social and environmental activist organizations." "If we don't do this ourselves," Weaver argues, "be assured that someone else will jump on the bandwagon and do it in a way that will not be to our benefit." Weaver discounts the use of coatings and treatments to lock in fibers. He notes that none of the companies can be certain that their products will not be altered or used in subsequent operations that produce dust. Weaver states that labeling is the "very least the industry can do to fulfill moral obligation to its customers, their employees, and the public" (emphasis added). Weaver does not know of any negative effects labeling has on sales. Weaver states that OSHA and NIOSH were considering requiring the words "Danger" and "Cancer" in the industry labels, and Weaver was "exceedingly surprised" when the final label excluded these words. Weaver states that people should be checked for exposure "where there is any doubt about actual exposure." Weaver justifies his general stand with the idea that the alternative would be worse. He states that the companies really are not aware how close NIOSH came to defending harsher regulations that would have regulated some firms out of existence (FM-54 (FM-55 originally attached). Weaver's recommendations to the industry speak for themselves. Still, one must add that his thinking, in the end, was still very oriented around the feeling that harsher regulations should be avoided and the industry must be protected from labor and environmental activists. This was still a very self-serving stand for the industry.

In December, Drislane confirms that I.H. Weaver has been informing him of the activities of government, industry and the press concerning asbestos. He states that there is a "considerable amount of literature" on the subject and that he attached citations of articles to this cover letter. Drislane is also forwarding complete texts of two articles: 1) "type of Asbestos and Respiratory Cancer in the Asbestos Industry" (Types of asbestos and their carcinogenic potentials) and 2) "Asbestos Health Question Perplexes Experts" (A summary of the Durham, N.C. meeting on the biological effects of ingested asbestos). Drislane informs the members that if they want a copy of any of the articles that the members should request copies from him (FM-56).

In June the Asbestos Study Committee confirms receipt of a path-breaking paper by Rohl, Anderson, Nicholson and Langer entitled, "Asbestos Exposure During Brake Lining Maintenance and Repair." The article described "deplorable" working conditions in several New York city shops. The committee concludes that these conditions are probably "common" for end-product users and that the industry must do more to change these conditions (FM-105). The minutes of the meeting showed that little or nothing at all was done between the period of very high knowledge for the industry of subsequent grilling of end-products by users in 1972 and 1973 and the date of this meeting.

At the end of June, the members of the Asbestos Study Committee distribute copies of Weaver's comments at the annual meeting held on 6/27/73 (see FM-54) (FM-106).

1975

In February, Drislane informs the committee that Weaver has passed along the enclosed article on "Asbestos Research" published in the Health PAC Bulletin of November/December 1974. Drislane summarizes the article this way: "It is an article most critical of industry, alleging a cover-up helped along by some scientists" (FM-108).

In March, Drislane reports that Weaver has sent three papers to the committee. He also states that Selikoff has been pushing to have the suggested TLV reduced. One of the articles describes mesothelioma in rats. Weaver believes that this "was bad news for those hoping that chrysotile would be proven not to be associated with mesothelioma" (FM-58).

Additional evidence against a fiber type defense emerged in April. The Asbestos Study Committee noted that all asbestos fiber types are linked with lung cancer and asbestosis. They even conclude, "it would be difficult to win an argument that there are some types of asbestos that are not harmful to the respiratory tract" (FM-109). This was a unique admission because it was one of the very few that directly stated the opinion of industry members that there was no differentiation of carcinogenicity among fiber types.

In June, Drislane read the report of the Asbestos Study Committee. He discussed the fear that the industry will not be able to meet the new OSHA 2 fcc limit slated to be operational on 7/1/76. He repeated Weaver's warning that Selikoff is now looking at friction materials manufacturers more closely. Later he states that Selikoff "continues predictions of epidemic of asbestos related death and disease in years to come. He emphasizes the mesothelioma hazard and the fact no known dose level is "safe" and is pointing to the possible health significance of shorter, smaller fibers or particles not now covered by the standards" (FM-110). The event clearly demonstrated a high degree of familiarity with Selikoff's work and its significance. Very telling was the reference to Selikoff's emphasis of the mesothelioma hazard and that low doses could cause it. Thus, it was clear to the industry that all the talk

about TLVs did not apply to mesothelioma!

In order to strengthen the FMSI's already considerable knowledge about asbestos hazards, Drislane lists a number of articles Weaver sent on to the committee members. Among them is: "(3) letter J.H. Marsh, Raybestos-Manhattan, Inc. Re: Dr. Selikoff meeting with Chief Industrial Hygienists of Ford, Chrysler and GM. Includes report by Dr. Nicholson of Mount Sinai from data given by Dr. Selikoff: "Asbestos Exposure During Brake Lining Maintenance and Repair." Copies of the articles were originally included with this cover letter to the members (FM-61).

Drislane extends the FMSI members' knowledge by recommending that the FMSI show the British documentary, "Asbestos -- Killer Dust" at the next board meeting. He states that the film depicts the "health controversies that are currently raging in regard to occupational and community exposure to air and water borne asbestos fibers." Weaver indicates that Raybestos-Manhattan has a copy of the film (FM-63).

In June the Asbestos Study Committee releases a report that begins by stating that most industrial managers are already "well aware of the increasing amount of time they must devote to problems relating to occupational and environmental hazards." The report characterizes the scientific literature on these hazards as "an increasing volume of evidence regarding hitherto unsuspected health hazards associated with various raw materials, chemicals and manufacturing methods." These events are seen as "burdens" on industrial managers, which are made heavier by the "more militant union attitude on occupational health matters." The friction materials producers are extremely dependent upon asbestos for their products. The Asbestos Study Committee claims that they have tried to keep abreast of developments in the literature on the subject. Selikoff's work is highlighted. The document claims that Selikoff "continues [his] predictions of epidemic of asbestos related death and disease in years to come. He emphasizes the mesothelioma hazard and the fact no known dose level is 'safe' and is pointing to the possible health significance of shorter, smaller fibers or particles not now covered by standards. Selikoff people have been actively promoting hazards associated with asbestos emissions from brake lining wear and from brake service operations." The author notes that the controversy and publicity regarding the issue has not slackened and that there is no "justification for such change." Weaver notes that the proposed OSHA standards are only a "minimum standard" which means that more protection than provided by the standard should be offered wherever possible (FM-62). The report was a solid admission about the mounting scientific evidence on "asbestos health hazards." Weaver characterized the exponents of this information as 'enemies' - Selikoff in particular is seen as a political actor - a view which strongly undermined company claims that they treated the medical literature with the respect it deserved! Weaver's admission that the OSHA standards are a "minimum standard" and that they do not guarantee disease prevention (implicit in his statement) is a forceful argument for how the companies realized the risk they were taking and engaged in this risky act of producing a hazardous product anyway.

In August, Drislane tells the Asbestos Study Committee, Active Members, and Regional Members that Weaver forwarded a copy of the 'Asbestos Safety Bulletin' used by the New York City Local of the U. A. W. The bulletin concerns safety procedures for workers who handle asbestos brake materials in shops and garages. Drislane notes that this is "further illustration of the direction of those promoting occupational safety and health regulations for the brake repair industry." In an attached cover letter written by Weaver, he notes: "It is very disturbing to me to see this type of information being published now by organized labor when it should have been done a long time ago by friction materials manufacturers. In my opinion we could have and should have recommended a better procedure than the one described in the attached union bulletin" (FM-65). This exchange offered a good contrast between what organized labor was willing to say and the quality of the companies' recommended procedures. Weaver admitted that the companies' recommendations could have been better than labor's suggestions. The fact that Weaver also claimed that the companies should have done the same thing "a long time ago", is a strong mea culpa from a company man.

In October the Asbestos Study Committee meet to discuss the Asbestos Information Association (AIA) meeting held in Washington last Sept. 10-11, 1975. The attendees noted that it had been a good review of the asbestos problem. Wagner and Drislane announce that they are planning a similar seminar with OSHA representatives. The members briefly discuss the possibility of showing a movie on the asbestos problem during this seminar but the interviews with Selikoff and Lewinsohn of Turner Brothers are considered too controversial to be presented. The FMSI resolved that the Department of Labor should be asked to delay the cut-off date on proposed amendments. The members also noted, when discussing recommended work practices, that despite these adjustments, "the actual level of exposure to the remaining workmen from these changes will be quite high." The members also estimated that removing asbestos from brake lining would displace the industry 5-10 years (FM-67). First, the meeting showed that the industry was continually organizing information distribution functions to get the word out on the asbestos problem. Second, the industry was shown to deny the seriousness of the asbestos problem by refusing to see Selikoff's interview. Ironically, though, they suggested that the proposed OSHA standards were not enough since remaining workmen would still be at risk of disease. Finally, the members continually placed profit-motive over life by arguing that cost factors and productivity factors suggested that proposed changes to work practices would be negative. This explained why they agreed to ask the Department of Labor to delay final rulings.

In the same month of October, the FMSI membership receives news that the former OSHA standards are inadequate for protecting fully against the hazards of mesothelioma from asbestos exposure. Drislane posts a bulletin, "OSHA Proposed New Asbestos Standard," dated 10/7/75. The bulletin is a cover letter for an attached article by the *New York Times*, Sunday October 5, 1975. Drislane notes that the proposed new OSHA standard is "rough". The article explains that the Labor Department changed the standard because it did not protect against mesothelioma

and other asbestos-induced cancers. The article also notes that asbestos on workers' clothing is a cause of cancer (FM-66).

1976

Drislane continues to accumulate more data on the hazards of asbestos exposure from friction materials. In January, Drislane asks Selikoff's staff at Mount Sinai for copies or references of technical papers with data on asbestos fiber counts observed in shops doing work on brakes and clutch facings (FM-69). In response, Selikoff sends the FMSI Dr. Rohl's findings of asbestos-related disease among New York garage mechanics. Dr. Rohl includes a coversheet in his own handwriting. The attached findings show that asbestos fibers do escape the braking process and brake repair workers in the garage setting are exposed. The authors conclude that this constitutes a hazard (FM-70).

More knowledge comes in in February when Marsh tells Drislane that he had already seen the Rohl paper. Marsh notes that the paper is the same paper that Marsh was given at an American Society of Governmental & Industrial Hygienists conference in Miami in May 1974. After that meeting there was a presentation at the Ford Motor Co. in May 1975. Dr. Selikoff, and representatives from NIOSH, organized labor, a few companies and the medical directors of Ford, Chrysler, and GM were present. Another meeting of the same group is planned for March 1976 and Marsh plans to attend. Marsh promises to give Drislane a complete report on the upcoming meeting. Marsh concludes that "there is no question that excessive amounts of asbestos dust exist in many brake service centers and it is incumbent upon the industry to take an aggressive approach in providing its customers with information on the safe handling of asbestos containing products" (FM-72). The Marsh note reflected a very well-organized and concerted exchange of information on the part of the companies.

In July, Drislane sends the Rohl paper to the Asbestos Study Committee membership. Drislane notes, following Marsh's earlier letter, that this paper was delivered at the ACGIH conference in May 1974 in Miami. The article itself is a source of extensive and important knowledge. The piece is a study of garage mechanics during brake lining maintenance. The study found that fiber concentrations "frequently in excess of regulated limits" were common among the cases studied. Unaltered chrysotile was found in air and brake drum dust samples. The article reviews the most important articles documenting "significant disease risk" associated with asbestos inhalation (including Wagner et al. 1960, Newhouse and Thompson 1965, Selikoff et al. 1964 and Harries 1968). Measurable concentrations of asbestos fiber were observed before by Hickish & Knight (1970), Hatch (1970) and Boillat and Lob (1973). The authors note that a large number of repair workers are subjected to these exposures, which includes work on clutch facings as well as brake linings. The authors conclude that chrysotile fibers and fibrils do survive the braking process. The cloud of dust created by brake servicing and clutch work is visible for several minutes and produces "significant

concentrations at least 20 ft. away." "It is evident that any person 65-75 ft away can be exposed." The authors found that "there was minimal, if any, effort to control dust in most garages. Workmen do not use respiratory protection. There was little awareness of the potential hazard of brake dust." The beveling of truck brake shoes on a grinding machine is singled out as producing "very high concentrations of fiber...in the vicinity of the operator." Area samples showed that workers 30 ft. away were also exposed. The article also suggests that proposed OSHA standards are not sufficient since they do not count small chrysotile fibers. Grinding of truck brake shoes resulted in an average concentration of about 4 fibers/ml and during beveling, 37 fibers/ml. Measurable fiber concentrations were found during such operations as far as 25 ft or more. This indicates "that many employees in garages other than brake lining workers are potentially exposed to asbestos, including other mechanics and shop management." The authors urge the implementation of stringent industrial hygiene measures as rapidly as possible (FM-74). This article was specific to garage mechanics working on truck brake shoes and it demonstrated secondary/bystander exposure as an additional hazard of the profession. The visibility of the dust cloud was a significant finding as was the reference to the lack of awareness of dust hazards on the part of garage mechanics.

Drislane informs the Asbestos Study Committee members on September 27 that for some time AIA and Weaver at Raybestos had been trying to get FMSI to put together a write-up that would advise end-product users on the precautions they must take. Drislane admits that the issue lay "dormant" for a couple of years (FM-75). The letter suggested that even under pressure from within the industry, the companies dragged their feet on coordinating an informative packet for end-product users. This is true despite their considerable knowledge by the date of this letter of the dangers of subsequent operations on brake and clutch asbestos products.

In October, Drislane informs the Asbestos Study Committee about proposed NIOSH standards. NIOSH recommends the use of the words "cancer" and "dust hazard" (FM-102). This letter represented good follow-up on the earlier refusal of the companies to consider inclusion of the word "cancer" in their labels. Here is the FMSI some years later, passing on the same NIOSH recommendations from 1972 that call for the use of the word "cancer."

In December, Drislane tells the Asbestos Study Committee that its members unanimously supported recommending to the Board of Directors that an insert be made in the FMSI's catalogs on recommended procedures for brake servicing. The committee also approved the one page insert entitled, "Recommended Procedures for Reducing Asbestos Dust During Brake Servicing." But, Drislane notes some of the limitations with these approaches. He argues that "printing a page in the FMSI catalog still does not get procedures into the hands of the garage mechanic." He suggests that this could be remedied if rebuilders "or other people" were required to put lining sets into individual boxes, but "the drawback of course is several pennies cost" (FM-103). Drislane shows he is more cautious than the members to find solutions for the asbestos problem. Fundamentally, the letter showed that there was

a pervasive lack of knowledge among end-product users of the hazards of asbestos, and that the manufacturers were more aware of these hazards than the workers. More importantly, the exhibit shows that the companies were aware that their own warnings were inadequate.

Despite cosmetic attempts to warn customers about the hazards of asbestos, the primary motivation of the companies continues to be self-defense. In December, Drislane circulated final draft copies of the recommended procedures for handling asbestos brake and clutch materials to the members, who voted unanimously for the wording of the final draft. The warning label in the draft does not include the word "cancer", an omission that Weaver pointed out several years before made the first OSHA warnings "lenient." Drislane states that the write-up "would help the brake lining (and clutch facing) suppliers to defend against allegations that they did not notify users on the possible hazards of asbestos exposure." Drislane seems to be reflecting the attitude of the companies in this statement (FM-77). Drislane's last statement is an interesting and suspicious foreshadowing of defense strategy.

1977

Hilton C. Lewinsohn delivers a talk to the FMSI membership, entitled "Medical Aspects of Occupational Exposure to Asbestos," on June 22, 1977. In his talk and written paper, Lewinsohn reveals knowledge of the full state-of-the-art. Most noteworthy is his reference to how exposure in some mesothelioma cases may actually be quite short. The latency is normally between 20 and 40 years or more. One bad aspect of his talk is his reference to peritoneal mesothelioma as invariably caused after severe exposure to asbestos and mostly to crocidolite (FM-78).

1978

In June, certain FMSI members admit that the companies have been negligent in informing the public about the hazards of asbestos. In an FMSI Board of Directors Meeting, dated 6/7/78, the minutes of the 6/21/77 meeting were distributed and accepted as written. Reports on the completion of the work practices booklet for the institute. The Asbestos Study Committee is charged with the responsibility of reviewing the booklet. Some discussion concerns possible liability for including outdated information in the booklet. Mr. Simon of Brassbestos Manufacturing states that "he felt the Institute should do more to advise the public concerning health studies on asbestos. In particular, he referred to an article in the *New York Times* in May 1978 written by staff writer Jane Brody" (FM-79).

Despite considerable knowledge by now, the FMSI company members do not seem to pursue the free distribution of knowledge about the asbestos hazard as decency might require. In an Asbestos Study Committee meeting in August, the members discuss the Work Practices Booklet. The members wanted to emphasize the need for workers not to use airhoses in the workplace. The members omitted the reference to the need to keep machinery clean of asbestos fibers because the words "machinery

and equipment" were not used in the original OSHA standards. The committee resolved to publish the work practices book. They also resolved not to make representations to the Consumer Product Safety Commission concerning possible recalls of asbestos-bearing friction materials (FM-80). This meeting reflected the reluctance of the companies to make more apparent the need to control dust hazards. The members seemed to play with words, water-down wording and then finally deciding not to make public presentations concerning the asbestos hazard to consumer agencies. More telling still was their hesitancy on authorizing recalls of asbestos-containing friction materials. It was very important that they even considered this option. All of this placed the profit motive above human life given especially the knowledge the companies all had at this time of the health hazards associated with asbestos exposure in friction materials.

1979

In October, the members review the history of the Asbestos Study Committee in 1971. Their analysis shows that the threat of government regulations and the specific event of the Illinois Pollution Control Board regulations prompted the FMSI to form the committee. Later when the EPA had made clear its intention to categorize asbestos as a "major carcinogen," the Asbestos Study Committee moved into action. The committee was created to "maintain better liaison with Washington" (*lobbying*). Also, the committee's mission became broader to broach areas under-analyzed by the Asbestos Information Association. The Asbestos Study Committee was renamed the Health and Environmental Affairs Committee at this meeting. The committee has coordinated a series of meetings and activities with the AIA's ad hoc committee on friction materials. Nicholson, Drislane and Weaver sit on both. Labeling and training questionnaires are coordinated between the two. The committee members believe that the FMSI should continue to coordinate its activities with the ad hoc AIA committee especially in terms of responses to EPA policy. The members characterize EPA regulators as "paranoid". The 1979 Enterline report to the AIA was referenced. Dr. Nicholson's report in 1979 was also referenced. Discussion of pending legislation (including the Hart Bill). The members finally announce the creation of a one-page insert warning end-product users (FM-82).

1980

In February the Asbestos Study Committee changed its name to the Health and Environmental Affairs Committee. The 'general responsibility' of the newly renamed committee is to monitor the existing world-wide federal, state and provincial legislation, regulations and literature on safety, health and environmental matters affecting members of the FMSI. Drislane submits the new charter to the board members for their approval (FM-83).

In July Drislane reports on the July 1980 workshop sponsored by the Consumer Product Safety Commission and the Environmental Protection Agency. Drislane

heard a presentation by Charles Brunhofer of Bendix on friction materials. Brunhofer reported on the company's progress with the use of semi-metallic type linings on automotive disc brakes. Drislane states that Brunhofer "reached back into the history of this development which started prior to the days when asbestos was a target of Mt. Sinai and the environmentalists." In an attached sheet, Drislane notes that cermets cost three to five times as much as asbestos friction materials (FM-84).