FILE NAME: Lone Star Industries (LS)

DATE: 1969 Jan 15

DOC#: LS009

DOCUMENT DESCRIPTION: Meeting Minutes & Attendee List - Board of Directors Meeting of Johns Manville

Exhibit A-4

A REGULAR MEETING OF THE BOARD OF DIRECTORS OF JOHNS-MANVILLE CORPORATION was held in the offices of the Corporation on the 11th floor at No. 22 East 40th Street, New York City, on Wednesday, the 15th day of January, 1969, at 9:00 in the forenoon.

The following Directors were present, constituting a quorum:

C. B. Burnett
F. E. Dutcher
Joseph A. Grazier
K. V. Lindell
George P. MacNichol, Jr.
F. H. May, Jr.
William F. May
John P. Schroeder
A. C. Smith
William C. Stolk

C. B. Burnett, President of the Corporation, acted as Chairman of the meeting and presided thereat and Herbert Morton Ball, Secretary of the Corporation, acted as Secretary of the meeting and kept the minutes thereof.

A notice of the meeting and affidavit of mailing the same to all the Directors of the Corporation were presented to the meeting and, on motion, duly made, seconded, and unanimously carried, were ordered filed with the minutes of the meeting.

The members of the Board of Directors had been furnished in advance of the meeting with most of the material which would be of value in aiding their consideration of the matters appearing in the agenda book.

In his Monthly Report, the President reminded the Board that at the October meeting, Holophane Company, Inc. was suggested as being an interesting acquisition candidate. He informed the meeting that several substantial stockholders of Holophane Company, Inc. had indicated through a third party their interest in merging with a larger company of national reputation. They sought (1) tax-free exchange; (2) equal or better dividend rate; (3) premium over market price; and (4) continuation of the Holophane name. The report noted that Holophane made lighting equipment for industrial plants, commercial applications, schools, streets, and other outdoor lighting such as for shopping centers. In the U. S., there were three plants in Ohio (Newark, Springfield and Columbus) and one in Edison, New Jersey. Plants were also located in Toronto, Canada; London, England; and Mexico City (95% interest). The Company made many components for lighting purposes, including injection molded prismatic plastics, pressed prismatic glass, aluminum parts, sand and die castings, and extrusions and spinnings.

06

Complete fixtures were sold through electrical wholesalers throughout the U. S. and accounted for 65% of U. S. sales. The balance was sales of components to other fixture manufacturers. The lighting equipment industry was at about a billion-dollar level, with a 10% growth rate. There were over 1,000 producers, but Holophane was one of the largest and one of the best-rounded of the independents. The Company's growth rate had been faster than the industry's and management believed it would continue that way. With Holophane, J-M would be in position to integrate lighting systems with ceilings and would also expect to find additional uses for their glass-making and molded plastic facilities. J-M could be instrumental in widening their scope into residential lighting. The Company's capitalization consisted of 1,600,000 shares outstanding, with no debt.

The President advised that from 1964 to 1968 (fiscal year ended June 30) sales rose from $17 million to $30.3 million, and net earnings from $2,229,000 to $2,953,000. The $2,953,000 net earnings in 1968 were down from $3,344,000 in the year before. This was explained in the 1968 Annual Report which had been distributed to the Directors as being due to devaluation of the English pound, the 10% surtax, adverse conditions in the building industry, a write-off of start-up expenses in England, and a needed management change in Canada, which had been done. Also considerable expense was incurred in adding to their sales staff. In the latest year, earnings as a percent of sales were just under 10%, and of net worth, 18%. For the first quarter of the current fiscal year, sales were up 19% and earnings were up 4.5% over the year before. Earnings for the first six months were expected to be the best for the period. The stock was selling around 37, or about 20 times earnings for the year ended June 30, 1968, of $1.86.

A tabulation "Earnings Per Share - J-M and Holophane" was distributed to the meeting by the President.

The Board advised the President to continue his investigation and negotiation in order to determine if the future growth of Holophane would make the acquisition worth-while.

The President's Report also contained, for the information of the Board, a status report of some of the major capital expenditures approved by the Board in 1967 and 1968.

The President reported that the Icelandic diatomite venture was not making the progress expected. It would require a doubling of plant capacity with attendant higher costs. The Kaiser Engineering estimate of $350,000 to increase drying capacity was only 25% of what the eventual cost would amount to. He informed the Board that for the long pull the venture would work out if the inadequacy of the drier capacity was corrected.

The Board was informed by the President's Report that at the January 17, 1968 meeting a report had been presented,

giving the status of the asbestos/health situation. For information purposes, an updated report (blue folder) reflecting developments since that time was included in the agenda book and also had been sent to the Directors in advance of the meeting.

Included in the President's Report were a summary on the status of appropriations expenditures, January 1, 1969, for plants and properties in the United States and Canada (with supporting data to be presented quarterly); status of expenditures, January 1, 1969, for investments in other companies showing the amounts approved, the amounts advanced by J-M and the amounts expended locally; and the January 1 report of projects completed in November 1968.

Under the heading of "Other Matters", the President's Report noted that securements in the month of December were substantially higher than in November or in December 1967. Shipments of fiber glass textiles from Waterville in December established a new record of 2,493,000 pounds, including 959,000 pounds of chopped strand mat, which was also a new record.

The report also noted that at Corona a three-year contract was negotiated to expire December 1, 1971, providing for wage increases of 20¢ (7.2%) now, 18¢ (6%) in the second year, and 16¢ (5%) in the third year. Shift differentials were increased from 10¢ and 14¢ to 11¢ and 16¢ now, and to 12¢ and 18¢ in the second year. In the third year vacations would be improved to three weeks for eight years' service and four weeks for eighteen years' service.

The report also informed the meeting that as of December 31, 1968, 170,162 shares had been purchased under the Incentive Stock Option Plan by 139 participants at prices ranging from $27.82 to $57.00. As of December 31, 1968, 3,077 employees had subscribed to 323,546 shares of stock under the Employees' Stock Purchase Plans, of which 313,255 shares had been paid for in full and delivered. On the stock remaining under pledge, subscribers had paid $133,010 and owed $355,629. The average subscription price was $40.85.

Dr. Fred L. Pundsack, Director, Division and Corporate Research and Development, made a presentation to the meeting on "Research Activities".

There was then presented to the meeting a report showing changes in selling prices percentagewise by Divisions.

The attention of the meeting was called to a report entitled "Forecast of Earnings, 1969", which formed part of the agenda. This forecast was based on the premise that overall business activity in 1969 would be slightly higher than in 1968. Gross National Product was expected to increase about 6.7%, of

which 3½% was price. Housing starts were expected to increase about 7%, totaling 1,650,000 starts versus 1,540,000 in 1968. Prospects for non-residential construction were for about a 9% improvement, including a cost increase of 4.3%. Company net sales for the calendar year 1969 were forecast at $575 million or 3.6% higher than the estimate of $555 million for 1968. The forecast assumed a slight (0.6%) improvement in selling prices, principally in the Asbestos Fibre and Industrial Insulations Divisions. Selling prices in the Pipe Division were expected to be a little lower in 1969. Net earnings forecast for 1969 of $42.2 million would be $5.06 per share compared with the 1968 estimate of $40.2 million or $4.82 per share, assuming continuation of 10% surtax.

The attention of the meeting was also called to the Treasurer's Report of Cash and Securities as of December 31, 1968, which formed part of the agenda in the possession of the Directors.

The Chairman reminded the Board that at the last meeting it had authorized the presentation to the stockholders at the Annual Meeting on March 13, 1969, of a proposal to split the Common Stock of the Corporation on a two-for-one basis. He called the Board's attention to the copy of the "Monthly Report of President to the Board of Directors, July 17, 1968" contained in the agenda book, in which the President suggested ten steps to be considered as ways of avoiding a takeover. Step number 2 - "Authorize an issue of preferred convertible stock and announce that this step is being taken for acquisition purposes." - was approved by the Board at the July 17 meeting.

Morgan, Stanley & Co., financial advisers to the Corporation, had recommended a new capital structure for presentation to the stockholders in March:

1. The authorized Common Stock of the Corporation be increased to 50,000,000 shares from the present 25,000,000 shares authorized and the $5.00 par value be reduced to $2.50.

2. The stockholders at the Annual Meeting be requested to authorize a new preferred stock which in terms of liquidating value would not exceed $250,000,000 and in terms of shares would be 10,000,000 shares.

The agenda book contained a copy of a letter dated January 6, 1969, from Morgan Stanley & Co. to Francis H. May, Jr., Vice President for Finance, enclosing a brief study illustrating preferred stock authorized by stockholders of a selected number of corporations, as well as pro forma effects upon the Johns-Manville Corporation, assuming the issuance of various amounts of preferred stock.

There was also presented a proof of the Certificate of Amendment of Certificate of Incorporation of Johns-Manville Corporation.

Thereupon, on motion, duly made and seconded, the following resolutions were unanimously adopted:

RESOLVED that the Board of Directors of the Corporation proposes and recommends and hereby declares it advisable that the Corporation (a) change its authorized shares of Common Stock from a par value of $5.00 each to shares of a par value of $2.50 each, (b) increase the authorized number of shares of Common Stock (par value $2.50 per share) of the Corporation from 25,000,000 to 50,000,000 shares, and (c) add 10,000,000 shares of Cumulative Preferred Stock (without par value) to the authorized capital stock of the Corporation; and

RESOLVED that the form of "Certificate of Amendment of the Certificate of Incorporation of Johns-Manville Corporation under Section 805 of the New York Business Corporation Law" to effect the changes recommended in the foregoing Resolution, a proof of which was presented to this meeting, be, and the same hereby is, approved and that said Certificate, in substantially such form, with such changes, as might be approved by counsel, as may be necessary to carry out the intent of these Resolutions, be presented to the Annual Meeting of Stockholders to be held on March 13, 1969; and

RESOLVED that, subject to approval at said Annual Meeting of said Certificate by affirmative vote of the holders of a majority of the Corporation's Common Stock and the due filing of the same in the office of the Secretary of State of the State of New York, the proper officers of the Corporation be, and they hereby are, authorized to mail certificates for one share of Common Stock ($2.50 par value) to Stockholders for each share of Common Stock held by them of record at the close of business on March 13, 1969.

Proofs of the proposed Proxy, Notice of Annual Meeting to Stockholders, and Proxy Statement for use in connection with the 1969 Annual Meeting of Stockholders were presented to the Directors, each of whom was requested particularly to examine that portion relating to his nomination as a Director.

Thereupon, on motion, duly made and seconded, the following resolution was unanimously adopted:

RESOLVED that the form of Proxy, Notice of Annual Meeting of Stockholders and Proxy Statement for use in connection with the 1969 Annual Meeting of Stockholders, proofs of which were presented to the meeting be, and the same hereby are, approved for transmittal to the Stockholders, subject to such changes as might be approved by counsel or required by the Securities and Exchange Commission under its Proxy Rules.

There was then presented to the meeting for its approval a new form of stock certificate for less than 1,000 shares and without any par value shown, bearing the facsimile signatures of C. B. Burnett, President, and Herbert Morton Ball, Secretary.

Thereupon, on motion, duly made and seconded, the following resolution was unanimously adopted:

RESOLVED that the certificate for the Common Stock of the Corporation for less than 1,000 shares and without any par value shown, in the form presented to this meeting, bearing the facsimile signatures of C. B. Burnett, President, and Herbert Morton Ball, Secretary, be approved and adopted as the certificate to represent said Common Stock.

The meeting was advised by the Chairman it was considered desirable that an additional Assistant Secretary be appointed and he suggested the name of G. Earl Parker, an Attorney in the office of the Vice President, General Counsel and Secretary.

Thereupon, on motion, duly made and seconded, the following resolution was unanimously adopted:

RESOLVED that G. Earl Parker be, and he hereby is, appointed an Assistant Secretary of the Corporation, to hold office from January 15, 1969, until the First Meeting of the Board of Directors after the next Annual Meeting of Stockholders and until his successor shall have been duly appointed and shall have qualified.

Messrs. Dutcher, Lindell, F. H. May, Jr., and A. C. Smith left the meeting.

There was next presented a report of the Compensation Committee, dated January 15, 1969, containing the recommendation of the Committee that the Directors approve the Committee's action in adopting resolutions in the form attached to the report, changing the options granted under the Incentive Stock Option Plan, subject to approval by the Stockholders at the 1969 Annual Meeting of the two-for-one stock split.

After discussion, and on motion, duly made and seconded, the Board approved the adoption by the Committee of the following resolutions (C. B. Burnett not voting):

WHEREAS, the Incentive Stock Option Plan approved by the Stockholders on May 14, 1954, provides in Section 5 thereof "In the event (i) there are any changes in the Common Stock of the Company through stock split-ups ..... then in any such case the Committee may, subject to the approval of the Board of Directors, make such adjustments in the Plan and in options hereunder as it may deem equitable to prevent substantial dilution or enlargement of the rights granted to, or available for, participants hereunder.";

WHEREAS, the Directors on December 18, 1968, approved a two-for-one split of the Company's Common Stock subject to the approval of the Stockholders at the 1969 Annual Meeting:

NOW THEREFORE, the Committee DOES HEREBY RESOLVE, subject to approval by the Board of Directors and subject to approval of the two-for-one stock split by the Stockholders of the Company, that the second sentence of Article 2 of the Incentive Stock Option Plan as heretofore amended be, and the same hereby is further amended to read as follows: "The aggregate number of shares which may be optioned to any one individual may not exceed 16,000 shares at any one time and 48,000 shares in the aggregate.", and that Article 3 of the Incentive Stock Option Plan as heretofore amended be, and the same hereby is, further amended to read as follows: "The number of shares of Common Stock to be reserved for option from time to time pursuant to the Plan is limited to 500,000 shares; provided that any shares covered by any option granted under the Plan which remain unpurchased upon expiration of the time permitted for exercise of the option may be used for further options within the limits set forth in Article 2."

WHEREAS, on March 31, 1959 the Committee, as authorized by the Board of Directors on March 18, 1959, did grant to 46 key employees options to purchase shares of the Company at the last sale price of the Common Stock of

the Company at the close of the New York Stock Exchange on March 31, 1959 (which price was $53.00 per share);

WHEREAS, on January 3, 1962 the Committee, as authorized by the Board of Directors on December 20, 1961, did grant to 67 key employees options to purchase shares of the Company at the last sale price of the Common Stock of the Company at the close of the New York Stock Exchange on January 3, 1962 (which price was $57.00 per share);

WHEREAS, on December 16, 1964, the Committee, as authorized by the Board of Directors on November 18, 1964, did grant to 48 key employees options to purchase shares of the Company at the last sale price of the Common Stock of the Company at the close of the New York Stock Exchange on December 16, 1964 (which price was $53.875 per share);

NOW THEREFORE, the Committee DOES HEREBY RESOLVE, subject to approval by the Board of Directors and subject to approval of the two-for-one stock split by the Stockholders of the Company at the 1969 Annual Meeting, that the number of shares mentioned in each of the above described options is hereby doubled and that the price at which said shares may be purchased is hereby divided in half, and that in all other respects the said options shall remain unchanged.

The Chairman presented to the meeting a report of the Compensation Committee, dated January 15, 1969, containing the Committee's recommendation with respect to the granting of Deferred Awards for the year 1969 under the "Johns-Manville 1968 Deferred Compensation Plan".

After discussion, and on motion, duly made and seconded, the following resolutions were unanimously adopted (C. B. Burnett not voting):

RESOLVED that this Board approves the determination and designation of those key employees to whom Deferred Awards shall be granted for the year 1969 in accordance with the terms of the "Johns-Manville 1968 Deferred Compensation Plan", all as set forth in Exhibit A attached to the recommendation of the Compensation Committee to this Board;

RESOLVED that the foregoing resolution, together with the recommendation of the said Committee, be filed with the Secretary as Confidential Minute No. 67.

The Chairman also presented to the meeting a report of the Compensation Committee, dated January 15, 1969, containing the recommendation of the Committee with respect to reducing the Board of Directors profit sharing limitation from 8% to 7½% for the year 1969 and amending Paragraph 4 of Section I of Confidential Minute No. 55.

After discussion, and on motion, duly made and seconded, the resolution adopted by the Board on November 20, 1968, establishing a Profit Sharing Fund for 1969, wherein the limitation set by the Board was 8% of net earnings as reported to stockholders, after deduction of Profit Sharing Fund and after income taxes, was amended so that, as amended, it shall read as follows (C. B. Burnett not voting):

> RESOLVED that, pursuant and subject to Confidential Minute No. 55, if and when the net earnings after taxes of the Corporation exceed an amount equivalent to $2.20 per share on the outstanding Common Stock, a Profit Sharing Fund for 1969 be, and the same hereby is, established by appropriating 4% of profits before taxes as a Profit Sharing Fund, but subject to the limitation set by the Board of 7½% of net earnings as reported to stockholders, after deduction of Profit Sharing Fund and after income taxes; and

Thereupon, on motion, duly made and seconded, the following resolution was unanimously adopted (C. B. Burnett not voting):

> RESOLVED that Paragraph 4 of Section I of Confidential Minute No. 55 be, and the same hereby is, amended so that, as amended, it shall read as follows:
>
> 4. The aggregate amount of any Fund established for any year shall not exceed 7½% of net profits after taxes for such year. (The limitation in the Stockholder-approved Plan is 7% of net profits before deduction of taxes.)

The Chairman stated that he would entertain a motion with respect to the minutes of the regular Board meeting and of the Executive Committee meeting, both held December 18, 1968, copies of which had been provided each of the Directors at the commencement of the meeting.

Thereupon, on motion, duly made and seconded, the minutes as submitted were unanimously approved as recorded.

Whereupon, on motion, duly made and seconded, it was unanimously resolved that the meeting adjourn.

Secretary

REPORT TO THE BOARD OF DIRECTORS

ON ASBESTOS AND HEALTH

JANUARY 15, 1969

JOHNS-MANVILLE
JM
PRODUCTS

FORM 36-2
PRINTED IN U.S.A.

ASBESTOS/HEALTH

At the January 17, 1968 meeting of the Board a report was presented, giving the status of the asbestos/health situation. An updated report reflecting developments since that time will be discussed. This report (blue folder) is attached.

REPORT TO THE BOARD OF DIRECTORS

ON ASBESTOS AND HEALTH

JANUARY 15, 1969

- FACTS
- WHAT J-M HAS DONE IN THE PAST YEAR
  - Dust Reduction at Operating Locations
  - Sales Restrictions
  - Working with Others in the Industry
- RESEARCH
- WORKMEN'S COMPENSATION
- PUBLIC RELATIONS
- PLANNED FUTURE ACTION

FACTS

(Note: Information in this "Facts" section of the report that has been changed or added since January, 1968 is underlined)

Asbestos is a recognized toxic mineral -- a health hazard.

Asbestos is recognized as causing Asbestosis, a fibrosis of the lung.

Asbestos fiber is not known to be a carcinogen (cancer causing agent) but is probably a co-carcinogen (co-cancer causing agent) among people industrially exposed to it. To date, the principal medical study of asbestos insulation workers has shown not a single case of lung cancer among non-smokers.

Asbestos does not affect, to the same degree, all those who are exposed to it.

The effects of asbestos are both time-related and dose-related.

The amounts of asbestos dust that can be fully tolerated by the human are presently unknown.

It has been shown that all so-called "asbestos bodies" found in human lungs do not contain asbestos. (The term "asbestos body" has for years been applied loosely to describe a tiny body of tissue in the lung containing a core of some inhaled particle -- asbestos, talc, man-made fibers or other common substances. Because the

over-growth tissue contains some iron, a better term - being used by many specialists today - is "ferruginous body.")

The effect of asbestos on human health is probably limited to those who mine, mill, fabricate and apply asbestos or asbestos-containing products.

There still is no evidence of any risk to the general public from the use of finished asbestos products, though there has been, in the past year, much more "scare" publicity on this subject.

The effect on the public living in asbestos or asbestos product areas is not totally known but is probably remote.

Crocidolite asbestos fiber appears to be more hazardous to humans than either Chrysotile or Amosite asbestos fiber. New British regulations governing the handling of asbestos impose stricter controls on crocidolite than on other forms of asbestos.

The threshold limit value, or standard of allowable dust in asbestos mining, milling and manufacturing operations in the United States has been reviewed in the past year and is being reduced from 5 million particles per cubic foot to 2 million particles per cubic foot or 12 fibers (over 5 microns in length) per mililiter (cubic centimeter).

WHAT J-M HAS DONE IN THE PAST YEAR

Dust Reduction at Operating Locations

Additional advances are being made in the control of asbestos fiber dust in J-M plants. An example is the partially completed

program at the Manville asbestos textile operation that has resulted in a substantial reduction in dust levels. To date, this program has cost about $275,000. Another example -- the engineering study now underway on dust control systems in the pipe plants, to determine if they are operating with maximum effectiveness. Jeffrey Mine is undertaking a project to improve dust collection at their screens.

To assure that asbestos fiber dust levels will meet the proposed new threshold limit value will require new sampling and analysis techniques. To adopt the procedures developed for this new threshold limit value additional equipment and manpower are being provided at J-M's industrial hygiene laboratories.

Sales Restrictions

A policy of refusing to sell asbestos fiber for non-essential uses that might unduly expose the general public to the inhalation of asbestos dust, has been established. For example, during the year, Johns-Manville ceased selling fiber to manufacturers of modeling compounds used in grade schools -- and terminated development work, with another company, on a fire-fighting "air drop bomb" that would have released asbestos into the air in substantial quantities.

Working with Others in the Industry

During the year Johns-Manville has taken the following steps to orient other asbestos producers, processors and customers to the potential hazards of asbestos dust and to encourage the adoption of packaging, handling and fabricating practices that will minimize exposure on the part of all who work with asbestos:

1. Johns-Manville took the lead in developing codes of practice which were printed and issued by the National Insulation Manufacturers Association, to cover thermal insulation products containing asbestos and/or mineral fibers.

2. Two presentations were made to the Asbestos-Cement Products Association to urge the group to develop a code of practices for the protection of workmen using siding, and other materials that contain asbestos.

3. A presentation of the asbestos/health subject was made at an Environmental Health Seminar sponsored by the Asbestos Textile Institute.

4. Johns-Manville held an orientation program for the other manufacturers of asbestos-cement pipe and gave them copies of the J-M background paper on "Asbestos Cement Pipe and Human Health."

5. All asbestos fiber bags shipped in the United States and Canada will carry, shortly, a caution label that urges careful handling of the fiber to avoid unnecessary exposure to asbestos dust.

6. Advice on the best industrial hygiene practices to follow in handling asbestos was given to numerous customers who inquired on this subject during the year.

7. Liaison was maintained with Raybestos-Manhattan and with the British asbestos manufacturers who are members of the Asbestos Information Committee. This involved periodic exchange of medical papers and press clippings as well as personal visits to asbestos plants in the United Kingdom.

RESEARCH

As indicated in last year's report, Johns-Manville is co-sponsoring and co-financing a number of scientific research studies in the asbestos/health area. The current status of these studies is summarized in "Appendix A."

Johns-Manville took the lead, through the Quebec Asbestos Mining Association, in organizing the second "Antiqua Seminar," which brought together leading medical scientists from around the world to discuss the asbestos health problem and plan further research on it.

Dr. George W. Wright, Director of Medical Research at St. Luke's Hospital, Cleveland, and a leading authority in the field of pulmonary diseases, has agreed to devote the majority of his time to counseling Johns-Manville on the asbestos/health problem.

WORKMEN'S COMPENSATION

The company's experience to date in this area and anticipated liability is summarized in "Appendix B."

PUBLIC RELATIONS

The Fall of 1968 saw a sharp escalation of publicity about and public awareness of the asbestos/health problem. Much of this stemmed from a ten-page highly sensationalized article in the influential "New Yorker" magazine (October 12, 1968) and a front page story in the "Wall Street Journal" (November 7, 1968).

These articles sparked editorial attention from such other publications as "The Washington Post," "Man's" magazine and the Manville area press. Most of this publicity was sensational and highly negative in nature.

"Good Housekeeping" magazine, "Forbes" magazine and the "New York Daily News" presently are preparing articles on the asbestos/health subject. Johns-Manville is working with them in the hope of persuading them to take a more positive approach to the subject.

Coincident to and, in some instances, related to the increased publicity on the asbestos/health problem has been a growing attention on the part of officials at various levels of government. The City of New York and the City of San Francisco have expressed concern that the use of asbestos building materials may pose an air pollution "threat." Officials of the Department of Health, Education and Welfare and the Food and Drug Administration have indicated an increasing interest in asbestos as a possible health hazard. There are strong indications that the present session of Congress may hold public hearings on the asbestos/health problem.

The Muskie Subcommittee in the U. S. Senate has expressed interest in it, and there is the possibility that testimony will be sought in connection with any successor to the Occupational Health & Safety Act that failed to receive approval in Congress last year.

An active J-M Public Relations program in 1968 sought to counter this unfavorable publicity through such steps as:

1. Informing employees and stockholders of the facts concerning the asbestos/health situation via the Management Information Meeting program, the Annual Meeting of Stockholders and the 1968 Annual Report.

2. Preparing and distributing new background papers that supplement the basic paper prepared early in 1968 and included with the January, 1968 report to the Board. These background papers have covered the following subjects:

   Asbestos and the General Public

   Asbestos -- A Family of Minerals

   Asbestos-Cement Water Pipe and Human Health

3. Publicizing the nation's first joint health research program, inaugurated late last year by Johns-Manville, the International Association of Heat and Frost Insulators and Asbestos Workers and the Mt. Sinai School of Medicine. A press conference was held to announce this unique industrial hygiene program that

brings together industry, labor, science and the Federal Government, on a voluntary basis. Work was begun on a quarterly newsletter that will report progress on the program.

PLANNED FUTURE ACTION

In 1969 J-M plans to:

1. Prepare for possible Congressional hearings.

2. Take the initiative in contacting science writers, both to present positive information about progress being made on the asbestos/health problem and to refute erroneous exaggerated statements on this subject.

3. Take the initiative in contacting medical researchers who give papers or make public statements on the asbestos/health subject that are exaggerated or contain errors.

4. Take steps towards establishing a North American "Asbestos Information Committee" that could serve as the spokesman for the asbestos industry in such matters as contact with press or testimony before government bodies. Maintain liaison with the Asbestos Information Committee in the United Kingdom.

5. Prepare a background paper on the ingestion of asbestos. This would be of use in dealing with possible sensational

publicity arising from the fact that asbestos is used as a filtering agent for beer, wine and pharmaceuticals. Such publicity has already appeared in Great Britain.

6. Seek to arrange for positive articles in mass circulation publications, that will stress the steps that are being taken by industry, labor and science to control and overcome this health problem.

7. Prepare a booklet to be mailed annually to every overseas customer for asbestos fiber, that will caution on the need to avoid excessive inhalation of asbestos dust and will detail recommended industrial hygiene practices to minimize exposure of workmen to the dust.

8. Arrange exchange visits among the various U. S. asbestos manufacturers to observe effective dust control practices and thus accelerate the industry's progress in minimizing exposure of its workers to asbestos dust.

9. Continue to monitor medical meetings and medical papers and distribute transcripts and summaries to those concerned with this problem.

10. Establish "task forces" to personally visit doctors, public officials or others who indicate alarm or concern over the asbestos/health problem.

11. Take measurements of the amount of asbestos fiber in the ambient air of major cities, commencing with New York City. Such measurements, hopefully, will help refute the unproved assertions by some writers that asbestos is a significant pollutant in the urban air.

# # #

APPENDIX A

ENVIRONMENTAL HEALTH RESEARCH

FIBROUS DUST STUDY
INDUSTRIAL HYGIENE FOUNDATION OF AMERICA

This study involves the investigation of the health hazards of four various types of asbestos: chrysotile, amosite, crocidolite and synthetic. In addition, fibrous glass, mineral wool and some organic fibers will be studied.

Continued progress is being made with the investigation. Extensive animal studies are required prior to reaching any firm conclusions.

BRAKE LINING DUST STUDY
INDUSTRIAL HYGIENE FOUNDATION OF AMERICA

This study is checking the pathogenicity of brake lining dust by animal injection screening tests.

A short-range test involving 24 animals was recently completed. Results indicate that the brake lining dust reactions are those of an inert dust.

A proposal for a more extensive study is currently being reviewed. The U. S. Public Health Service has recommended, based on their studies and this short-range study, that further research to determine the possible carcinogenic effects of the fiber modified by brake wear be undertaken by Johns-Manville.

EPIDEMIOLOGICAL STUDY OF THE CANADIAN GENERAL POPULATION
INSTITUTE OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH

This study proposes to relate the health status of asbestos-exposed population to the non-exposed population.

EPIDEMIOLOGICAL STUDY OF THE CANADIAN GENERAL POPULATION
INSTITUTE OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH - (continued)

The IOEH Scientific Advisory Committee has indicated that the work is proceeding satisfactorily and on schedule.

ESTABLISH LIBRARY OF WORLD-WIDE ASBESTOS RESEARCH AND HEALTH STUDIES
INSTITUTE OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH

This project is designed to assemble information on world-wide asbestos research and health studies for future reference and distribution upon request.

The Institute is continuing to gather and codify pertinent information on world-wide asbestos research.

ASBESTOS INDUSTRY STUDY
UNITED STATES PUBLIC HEALTH SERVICE

This is a 7- to 10-year environmental, clinical and epidemiological study of workers exposed to asbestos. This study was initiated in January 1963.

Environmental studies and work history data gatherings have been completed in our Manville and Marshville plants, along with Asbestos Textile plants of other companies. Medical studies will be under way in the near future.

INSULATION WORKERS HEALTH STUDIES
MOUNT SINAI HOSPITAL

The Insulation Industry Hygiene Research Program has been launched. The Advisory Committee consists of Dr. Selikoff, Dr. Wright, Dr. Hammond, F. L. Pundsack, A. Hutchison and J. B. Jobe.

INSULATION WORKERS HEALTH STUDIES
MOUNT SINAI HOSPITAL - (continued)

A total of $362,500 has been pledged to this program by Johns-Manville and the Asbestos Workers Union.

R. D. Hindmarch, J-M Industrial Hygiene Supervisor, has been loaned to Mount Sinai in the interest of this program.

FIBROUS GLASS AND MINERAL WOOL INDUSTRY STUDY
UNITED STATES PUBLIC HEALTH SERVICE

This is a 7- to 10-year environmental, clinical and epidemiological study of workers exposed to fibrous glass and mineral wool. This study was initiated in March 1968.

The U. S. Public Health Service is continuing to gather statistical data concerning fibrous glass and mineral fiber dust exposures.

BIOEFFECTS OF FIBROUS GLASS STUDY
INDUSTRIAL HYGIENE FOUNDATION OF AMERICA

The purpose of this study is to provide current and definitive knowledge of the bioeffects of fibrous glass on pulmonary function, emphysema, and surface skin tissue. It is sponsored by PPG Industries, Owens-Corning Fiberglas Corporation, Certain-teed - St. Gobain, and Johns-Manville.

The project is under way and progressing satisfactorily.

COOPERATIVE ASBESTOS ENVIRONMENTAL HEALTH PROJECT
MOUNT SINAI HOSPITAL

Biological Activity of Asbestos

The hemolytic activity of asbestos increased with fiber openness, with chrysotile being more active than either crocidolite or

Biological Activity of Asbestos - (continued)

amosite. Other fine-grain minerals with positive surface charges (Al_2O_3 or MgO surface) also caused hemolysis. There was some evidence that chrysotile prevented growth of specific bacteria. The hemolysis studies are continuing with chrysotiles having special surface treatment.

Dust Mask Program

Prototypes of the newly developed throw-away dust masks were exhibited to personnel from Mount Sinai Hospital, Harvard University, U. S. Public Health Service, and the Bureau of Mines. The prototypes were well received. Preliminary tests at the Bureau of Mines indicated that a protection factor of 100 can probably be achieved; specifications for present half-masks require a protection factor of only 10. Further work will be concentrated on developing the filter element for the mask.

EPIDEMIOLOGICAL STUDY OF J-M RETIRED EMPLOYEES
SCHOOL OF PUBLIC HEALTH - UNIVERSITY OF PITTSBURGH

This is an epidemiological study to determine and analyze the life span, causes of death, and possible causal relationship to work exposures of J-M retired employees. Comparisons will be made between this group and similar age groups in the general population.

Data required by Dr. P. E. Enterline, School of Public Health, University of Pittsburgh, are being submitted from all J-M locations. This requires a detailed review of employment, medical and industrial hygiene records of each of the 3,500 retired employees.

X-RAY STUDY
SARANAC INSTITUTE

Serial X-rays for employees at all mining and manufacturing locations will be read and interpreted by Dr. L. J. Bristol, internationally recognized roentgenologist. This expert, uniform interpretation, both in terms of the traditional criteria and the new UICC criteria, will provide an accurate assessment of the pulmonary involvement at each location and therefore more valid appraisal of future Workmen's Compensation liability. The program is progressing satisfactorily and will be completed in approximately 20 months.

ASBESTOS AND TRACE METALS
INDUSTRIAL HYGIENE FOUNDATION OF AMERICA

A proposal to study the carcinogenic potential of trace metals (nickel, etc.) attached to asbestos fiber has been referred to Dr. George W. Wright for evaluation and comment. Preliminary findings in the Fibrous Dust Study (above) suggest that chrysotile fiber (uncontaminated) does not produce pulmonary cancer. This investigation would be undertaken to establish the causative agent.

OCCUPATIONAL DISEASE - WORKMEN'S COMPENSATION

BACKGROUND

In the mid-1930's, with Dr. A. J. Lanza as consultant, Johns-Manville sponsored both animal and human research on the effects of asbestos at Saranac Laboratory, New York, under the direction of Dr. LeRoy Gardner. The results obtained in the mid-1940's established that prolonged and heavy exposure to asbestos fiber did produce a unique and identifiable pulmonary fibrosis.

Subsequent to Dr. Gardner's death, Dr. Arthur Vorwald completed the investigation, and it was his opinion that the "long" fibers (5-50 microns in length) were responsible for the production of fibrosis. He suggested that a threshold limit of 1.0 million fibers per cubic foot of air would be appropriate. Accordingly, this standard has been used to evaluate Johns-Manville work environments, in addition to the ACGIH threshold limit of 5.0 million particles per cubic foot.

The relationship of bronchogenic cancer to asbestosis was reported from British experience in the mid-1950's. The association has been accepted as statistically substantiated, even though the precise physiological and pathological mechanics involved are as yet unknown (this is also the status of the relationship of smoking).

In 1965, at the American Academy of Sciences Symposium on Asbestos, concern regarding the possible relationship of asbestos fiber (not asbestosis) to mesothelioma was brought into focus.

BACKGROUND (continued)

It is obvious that although in the mid-1940's it was thought that a good deal was known about the biological effects of asbestos, subsequent developments have created a totally new spectrum of questions, the answers to which must be established through further and extensive research.

WORKMEN'S COMPENSATION

Our claims and costs for occupational disease cases have increased from 94 and $500,000 in 1965 to 141 and $810,000 in 1967. The increase has resulted from additional valid disability claims, "mass" filing at the Manville location, and increases in Workmen's Compensation rates.

In the period 9/1/67 to 8/31/68, the cost of adjudicated occupational disease claims was:

Plant	Cases	$ Cost	$ Avg./Case
Manville	138	294,343	2,200*
Jeffrey	9	104,452	11,000
Asbestos	3	36,782	12,000
Waukegan	4	46,928	11,500
Billerica	2	28,861	14,500
Long Beach	3	70,477	23,000

* The low average cost per case is due to the fact that 17% of the claims were dismissed with no award, and 54% of the claims were awarded 2-10% disabilities (nuisance awards).

WORKMEN'S COMPENSATION (continued)

At current 1968 compensation law rates and provisions, costs for total disability cases occurring now could reach $60,000 in New Jersey; in California, $75,000. Increased compensation rates can certainly be anticipated in the future.

In addition to Workmen's Compensation claim cases, Johns-Manville plant physicians have identified by X-ray various stages of pulmonary involvement. Some represent the very earliest of X-ray abnormalities, others are more advanced. These numbers represent potential claims over a number of future years.

Location	No. of Cases
Long Beach	3
Manville	168
Marshville	22
Marrero	3
Pittsburg	13
Waukegan	64
Zelienople	4
Billerica	18
Total	295

To obtain a current expert evaluation of pulmonary involvement at all locations, Dr. L. J. Bristol, Saranac Institute, has been engaged to interpret serial X-rays of all our plant personnel. The study of the Manville data will be completed in approximately four months and will enable us to estimate more accurately future Workmen's Compensation potential, as will the studies at each plant.

WORKMEN'S COMPENSATION (continued)

Dr. Bristol is a member of a committee of the International Cancer Commission (UICC) that has recently established new standard criteria for the interpretation of X-rays.

LOMPOC

In 1952, an intensified, extensive environmental dust control program was undertaken at Lompoc. The effectiveness of this continuing effort is indicated by the fact that no new cases of occupational disease (diatomaceous earth pneumoconiosis) have developed at that location since that date.

This observation has been substantiated not only by Johns-Manville medical data, but by U. S. Public Health studies as well.

HEARING LOSS

Hearing loss is another area of occupational disease that will have impact on future costs. At Manville in the last year, there were fifteen claims filed, three adjudicated at an average cost of $1,300 for partial loss (maximum for total loss of hearing is $8,000 at present), and one in California for $1,700. There is a growing trend to hold industry responsible for hearing loss, regardless of exposure. Collaboration with New Jersey industry associations has been initiated to get reasonable legislation enacted, similar to that of West Virginia and New York, which adjust for loss due to aging and require proof of industrial exposure.