United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VA. 22092

June 3, 1980

Dr. J.P. Leineweber
Vice President and Technical Director
Health, Safety and Environment Department
The Johns-Manville Sales Corporation
Ken-Caryl Ranch
Denver, Colorado 80217

Dear Jim:

Your letter of May 13, 1980 is too important to receive a casual answer. It raises a number of very serious questions directly relating to the use of good science in addressing environmental health issues. But of more importance to me personally and which is most disturbing is that I am in your opinion, or perhaps in the opinion of the Johns-Manville Corporation, not acting in a professional and responsible manner. If that is your attitude, so be it.

Since you have raised the issue of responsibility to the public, I think it would be to our mutual advantage to air the issues, and that includes an appraisal of the many actors in this controversy over asbestos and health.

However, before going on to these matters let me note that you are correct when you suggest the difficulties inherent in being interviewed. A thirty to forty-minute detailed discussion covering a broad range of science with all the specifics detailed can be reported as a single sentence that contains none of the limiting factors. For example, in my lengthy discussions with reporters concerning the health of the Globe, Arizona trailer park residents relative to the nearby chrysotile asbestos tailings, I tried to make it clear that I was referring to the residents of Thetford Mines, Quebec -- not the miners. I said that medical data has shown no asbestos-related diseases among the residents of Thetford Mines, thus I did not believe that such diseases would appear in the Globe trailer park residents. My in-depth conversation with the Arizona reporters was fairly well presented in the newspapers except they included the Quebec miners in with the residents. And two weeks later when my interview was re-reported and condensed by other papers, the story came out: "Director of the U.S. Geological Survey says asbestos does not cause disease". In regard to the Eddinger story in the Washington Report, April 28, 1980, if he had written, "the residents of Thetford Mines, Black Lake, and Asbestos, Quebec who were not employed in the chrysotile asbestos industry have not shown any asbestos related diseases; for those employed in the chrysotile asbestos industry and who were exposed to low to moderate levels of chrysotile asbestos dust (up to 20 fibers per cubic centimeter) no significant excess of disease has been demonstrated even in those exposed for over 20 years", his story would have accurately reflected my interpretation of the medical literature. According to the latest report of McDonald et al. (Brit. J. Industrial Med., vol. 37, p. 11-24, 1980), the overall standard mortality ratio of Quebec chrysotile miners and millers with over 20 years service and exposed to chrysotile asbestos at levels below 20 fibers per cm^3 is 0.94!

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When I talk to reporters and others concerned with asbestos and health problems I refer to the scientific literature. I usually carry with me to meetings twenty or thirty of the most important papers on the subject. These are what I show to reporters - not somebody's "expert opinion". In the testimony about health effects of chrysotile in a crushed stone quarry in Rockville, Maryland, I was the one who furnished the medical literature to the hearing officials. In the hair dryer issue that so aroused the public I told the NBC news director about the Quebec medical studies which would indicate that chrysotile asbestos paper in these devices should not concern the users about their health. I then sent about a pound of medical literature on the subject to the news director which backed up my statements. In short, I have done everything I can to furnish good solid medical data on asbestos to interested parties. I cannot write the news stories but I can carry the message. Sooner or later someone will hear me.

Let me continue to address some of your comments to me in your letter.

Item 1. Mesothelioma for example. No chrysotile asbestos mining community in the world shows an incidence of this disease any greater than that found in the Zürich region of Switzerland -- an area which has no asbestos mines, mills, or factories. Mesothelioma is not a significant disease of chrysotile asbestos workers; lung cancer and asbestosis are for those who were very heavily exposed for long periods of time. These exposure levels have long ceased to exist in Quebec and in most other responsibly operated mines and mills.

Item 2. Eddinger was referring to an ingestion study by NIEHS which is nearly complete. The preliminary data (J.M. Moore, D.V.M., Feb. 15, 1980 letter from NTP) indicates no health effects on the animals. Your disregard of the importance of an ingestion study troubles me. The general public may well be much more exposed to asbestos by ingestion than by inhalation. Chrysotile asbestos occurs naturally in many U.S. water supplies. If chrysotile causes intestinal cancer then a lot of money (billions?) must be spent in filtering water supplies and perhaps in even taking up asbestos cement pipes! But we have some solid human epidemiology on this matter. The residents of Thetford Mines drink or did drink untreated water containing up to 1 billion fibers per liter -- yet there is no evidence of excess intestinal cancer in this population (Archives Env. Health, vol. 32, p. 185-190, 1977).

Item 3. Your comments in item 3 of your letter are the most disturbing of all, for it appears that there is a J-M policy of assuming that blue asbestos (crocidolite) is no more dangerous than white asbestos (chrysotile). You state that the concept of crocidolite (blue asbestos) being especially harmful "is very popular in England" as if the British scientists were just playing guessing games with their medical studies. Let me remind you that the pioneering studies of asbestos and health were mostly done by British Commonwealth scientists starting in the 1930's; by the 1950's Sir Richard Dole had firmly established the role of asbestos and lung cancer; and by the mid-1960's Britain had established fiber limits of 2/cm^3 and had begun to clean up asbestos operations and to protect workers' health. The British have a good understanding of the nature of blue asbestos from the South African work of Wagner and now from the work on the mortality experience of the Australian blue asbestos miners. Let me refer you to the opinions of the Chief Medical officer of the James Hardie Industries, Limited, Granville, N.S.W., Australia, S.F. McCullagh, M.D. I

believe you know of the Hardie Industries as one of the world's larger asbestos companies. To put it succinctly, Dr. McCullagh won't touch blue asbestos with a ten-foot pole. It is banned from use in Australia for good reason -- Wittenoom. Hardie Industries, by the way, uses amosite instead of crocidolite in cement pipe.

The Chief medical officer of Hardie has reason to be frightened of blue asbestos. The health data of the miners and residents of Wittenoom Gorge, Western Australia is now in (see enclosed preprint by Hobbs et al. titled, The incidence of asbestos caused disease in workers formerly employed in mining and milling of crocidolite at Wittenoom Gorge). On the basis of 460 deaths of miners who worked in the ABA mines there were 20 mesothelioma deaths (4.3%), 58 respiratory cancer deaths (12.6%) and 15 pneumoconiosis deaths (3.3%). From 1943 to when the mines closed in 1966 6,577 people were employed averaging less than one year service in the mines or mills. Sixteen of the mesothelioma victims had less than two years service in the mines. If we project this mortality experience to all ABA employees the picture may be: respiratory cancer deaths - 829, mesothelioma deaths - 286, pneumoconiosis deaths - 214, total blue asbestos related deaths - 1,329. Compare this mortality picture to that of the chrysotile asbestos miners and millers of Quebec. So far 4,463 of the 10,939 employees followed had died, 239 (5.4%) due to lung cancer, 9 due to mesothelioma (0.20%, excludes two deaths of employees who also worked in a blue asbestos fabricating plant during WWII), and 46 due to pneumoconiosis (1.0%). Another study concerning mesothelioma in Western Australia which I refer you to is by Langlois et al. (Australian Radiology, vol. 22, p. 305-314, 1978) and describes 12 cases from Wittenoom including 2 women who had no occupational exposure. The experience in Wittenoom is very similar to that in the blue asbestos mining region of the North Cape of South Africa were several hundred cases of mesothelioma have been reported in absestos miners as well as in residents of the area who were not employed in the asbestos industry.

Lastly, to convince you that my concerns about blue asbestos are not just a "notion" (page 2, line 25 of your letter) I bring to your attention the Advisory Committee on Asbestos Final Report, Oct. 1979, vol. 1, 100 pp., vol. 2, 103 pp. for Great Britain (known also as the Simpson report). In this report crocidolite (blue asbestos) is repeatedly singled out as especially dangerous. Its complete ban is proposed. The special concern with crocidolite is exemplified by a proposed regulation on page 84 of volume 1 of the Simpson report - L5, The main requirements of the regulations are: Before any process involving crocidolite is begun (including the removal of lagging containing crocidolite) not less than 28 days written notice must be given to the local District Inspector of Factories.

In the final part of your letter you state that you firmly believe that the basic determinants for biological activity of any fibrous material is durability and fiber dimensions. I assume that you base your "beliefs" on the work of the late Mearl Stanton of NCI - who implanted various fibers in the pleural space of animals. In essence then it is not just asbestos, according to your "belief", but particles of any kind which meet certain size, shape, and durability criteria which cause disease. Should you be correct then would it not seem reasonable that the incidence of lung cancer, asbestosis, and mesothelioma in the blue asbestos mining regions of South Africa and Western Australia be mirrored in the mills of Globe, Arizona, the mines and mills of Thetford Mines, Black Lake, and Asbestos, Quebec, in the taconite mines of Minnesota, in the

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chrysotile mines and mills of Vermont, in the huge Bingham open pit copper mine in Utah, in the Homestake gold mine of Lead, S.D. - in fact wherever there is hardrock mining? As one who knows a great deal about the mineral composition of rocks and the shapes and sizes of minerals I can say that in the mine dust of most hardrock mines one will find mineral particles which, according to your criteria, constitute an "asbestos health hazard." So why are there only two mining areas in the world where mesothelioma is reported as a significant disease? And these two areas are where blue asbestos is mined.

And asbestos substitutes - what about them? Who knows what the health effects might be of some of the exotic new fibers being developed by many companies so that they will not have to face the legal implications of asbestos-bearing products. How does Johns-Manville expect to show that these new products are safe? If the Director of NIOSH calls for the complete elimination of asbestos from our environment (AIA meeting, September, 1979) would he also not wish to eliminate all other fibers man-made as well as naturally occurring? When we now know how to handle chrysotile asbestos with complete safety, why would we wish to substitute a fiber with an unknown health effect? Yet the U.S. public knows nothing of the health studies done in Quebec. In the many meetings that I have attended on asbestos and health I have never heard one official from a U.S. regulatory or health agency or from the Johns-Manville Corporation review the Quebec work.

When the public is being continually reminded by the press of the extraordinary dangers of even small amounts of asbestos while 90 to 95% of the asbestos in our environment is chrysotile asbestos, when mothers are told by prominent medical authorities that because their children played on crushed stone parking lots, the stone containing about 0.5% chrysotile asbestos, these children may grow up only to die as young adults of mesothelioma, when residents of a trailer park in Globe, Arizona, which is situated close to a small chrysotile asbestos tailings pile, are told that they may get asbestos related diseases from casual exposure to this asbestos, when the mother of a two-year old child living in the same trailer park is told that her daughter may well get lung cancer at the age of 22, when many women throughout the U.S. who use hair dryers which contain a piece of chrysotile asbestos paper are led to believe that exposure to the few particles emitted from the dryer may cause cancer, when such a scare about hair driers could cause recall of every other product containing "white" chrysotile asbestos and thus causing much additional fear and expense, when residents in California are being told that it is dangerous to live on serpentinite rock (the ubiquitous "state rock" of California which usually contains small amounts of chrysotile asbestos), when fear of asbestos is now causing some municipalities to consider taking up asbestos cement water pipe, when fear of asbestos causes other mineral industries to suffer such as the talc, vermiculite, gold mining, and iron ore industry, and when no one from the federal health or regulatory establishment nor from the United States asbestos industries explains to the public the exact nature of the health studies accomplished in Quebec that would allay the public's fears to a large extent over the form of asbestos that they are usually exposed to -- I must make some kind of protest.

The economic implications of the complete elimination of asbestos from our environment is frightening; recall of all asbestos-bearing products, removal of all asbestos in schools, public buildings, and even private homes, removal of cement water pipe, elimination of chrysotile asbestos braking linings -- if

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all this were done at once I believe the U.S. economy would not survive the blow. Yet most of this recall would be unnecessary if all of the health data were clearly presented to the public.

Lastly, in this letter to you Jim, I wish to address myself to the implications to the entire United States mining industry of the J-M policy of assuming all natural mineral fibers which have a certain size and shape cause the same diseases as commercial asbestos - with the added implication that commercial asbestos may soon be regulated out of existence. As you may not know, there are many minerals which have fibrous habits. The mine dust from most hardrock mines will contain some particles which fit the size and shape criteria of asbestos, even as defined by the Mearl Stanton animal implantation experiments. I thus foresee the elimination of significant portions of our hardrock mining industry when these industries are assumed to be mining "asbestos". In fact the talc, vermiculite, and taconite iron ore industries are already being considered asbestos operations. The zeolite and attapulgite industries are also suspect. Do the officials of J-M understand the implications of all of this to our national economy and even to national security?

Jim, you may believe that my efforts are a "great disservice," and I am sorry for that, but I think the greater disservice to the public is the failure of a segment of industry to tell the whole story even if it means accepting responsibility for consequences of past action.

One last item in your statement - "we do appreciate the fact that someone in a responsible position is willing to speak out in favor of asbestos fiber. However, the interests of the industry can best be served using scientifically supportable arguments." Be assured I am not speaking in behalf of either your company or your industry or in favor of "asbestos fiber." I am speaking as a scientist and contrary to your implications I am using scientifically supportable arguments based on all the data not just selected portions of it. The interests of the people of this nation are my only concern. Some forms of asbestos are both useful and usable without public risk; one is not. If good substitutes for chrysotile asbestos could be found which would save more lives and cause fewer deaths I would recommend them, but I know of none nor do I believe does anyone else.

Since I believe what I write here is of extraordinary importance I am taking the liberty of sending copies of this letter to my superior and to yours.

Sincerely,

Malcolm Ross
Research mineralogist

Enclosure

Copies to: John A. McKinney, President, Johns-Manville Corporation
Dallas L. Peck, Chief Geologist, U.S. Geological Survey