Union Carbide Corporation
Metals Division
Niagara Falls, New York
September 29, 1975

MEMORANDUM

To: R. E. Byrne, Jr.
B. L. Ingalls
J. L. Myers
W. C. Thurber

From: H. B. Rhodes

Copies: File ✓

Subject: Visit to the 18th International Congress on Occupational Health - Brighton, England, September 14-19, 1975

The writer attended the above noted conference in Brighton. There were 22 papers directly relating to asbestos presented and about another 15 on occupational lung cancer generally attributed to various particular matter such as silica. Talc was covered in several of these. Abstracts of all papers are available and a complete set of papers will be published in some months.

The conference was attended by over 2000 delegates, including most of the big names in the asbestos controversy. I had the opportunity to talk informally with a number of them and their current views on the toxicology situation will be summarized.

In general, the conference produced only one bombshell in the asbestos area, a paper by Dr. M. Wasserman of Israel. It was in a different session on Geography and Occupational Health. He took a detailed look at about 40 mesothelioma deaths that have been recorded in Israel. There were several among small children, they were about equally distributed between men and women, a substantial proportion had no significant traceable occupational exposure, and the highest rates were not in the two regions of Israel where the plants which handle asbestos are located. He drew the conclusion that the cause was non-occupational exposure to asbestos.

The London Times reported this prominately. Both the AIC and Dr. Muriel Newhouse wrote letters of rebuttal which we assume will be published. Bob Mereness will report details via AIA/NA.

Overall, the mesothelioma situation for occupational exposure continues to look discouraging. The McDonalds opened the asbestos session with a survey of the available information on the incidence of this disease in various parts of the world. They found the incidence extremely high in three situations:

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1. Among insulators.

2. Among those who work or live in cities with ship yards.

3. Among those who work or live in certain cities with large asbestos plants.

The evidence for a gradation of effect for the various types of asbestos continues to be conflicting, except for the mining and milling operations. Here a clear pattern from crocidolite, amosite, chrysotile to anthophylite is found. They conclude that this pattern is generally true with some possible exceptions.

The data used in this study went up to 1972. Mr. John Marsh, (Raybestos-Manhattan) mentioned to me that there are a substantial number of new cases reported that could alter the rate of incidence considerably.

The TBA paper updating their mortality studies that followed was almost unbelievable. It was read by Dr. R. Doll who mumbled so fast that nobody understood a word he said. It was backed up by slides containing large tables of unreadably small figures. Bob Mereness is to get a copy of the paper as are a number of others who couldn't understand it.

I had the opportunity to discuss the Rochedale researches with Dr. Lewinsohn. The key controversy with Dr. Selikoff revolves around the reading of the x-rays. A panel of four, including Lewinsohn is now reading them and the results are being correlated. A meeting to discuss the results is scheduled for January. It looks like this will not be ready in time to help in the U.S. OSHA revision.

The discussions with Lewinsohn and his TBA associates brought out clearly another key point that I do not believe ever really spelled out in the OSHA hearings. This factory that forms the basis for the 2 fiber limit is just now getting their fiber levels down to 2 fibers. All of the mortality data that is being argued over is for exposures well above this.

This point was also emphasized by Dr. Steve Holmes.(Dr. Holmes testified at the OSHA hearings.) The limit is not really 2 fibers but 100 fiber - years based on an assumed 50 year exposure. This is tied to a very critical second condition that concentrations do not exceed 10 fiber/cc measured over a 10-15 minute period. These criteria do not consider mesothelioma.

The TBA paper was followed by Dr. Murial Newhouse with her lastest thinking on her cohort of 3600 asbestos textile workers. She had fitted a distribution function that had worked for other cancers and was predicting a 10-15% death rate from mesothelioma. This was in addition to 20% from lung cancer. This is a very substantial number and the rest of the British experts that I talked to questioned the validity of the extropolation. Interestingly enough, Dr. Selikoff arose and commented that he felt she was high by a factor of about 2. It was interesting to note in all of these discussions that the workers had heavy exposure for a least some period but no real attempt was made to correlate variations in exposure. Dr. Newhouse, however, continues to talk about a dose-response effect in mesothelioma.

Several other papers of particular interest in this seminar related to a cooperative effort to compare asbestos fiber counts by the techniques used in various countries. The general feeling was that the methods left considerable to be desired but in the light of our experiences the comparisons looked pretty good. A key difference found was with the

U.S. PAT samples that everybody but the U.S. laboratory counted very low. We can understand the problem from our own experience and have a real question in our own minds as to whether the PAT samples are really much more than a numbers game.

The Selikoff et. el. paper on TJC was well presented but looked like the same data as was given in Miami. Dr. Fishbein expanded on the short fiber question to the extent that Dr. George Wright got red and climbed all over him after the paper. George insists that there is no evidence that the short fibers are toxic and a great deal of evidence that they are not. Dr. Selikoff himself finally had to come over and smooth things out. As a consequence, I was only able to learn that they do have additional data but could get no details.

The brake lining paper from Mt. Sinai followed the same pattern as TJC with limited data and lots of concern. Dr. Lewinsohn commented privately that the 0/1, 1/0 and 1/1 x-ray changes that the Mt. Sinai group feature so prominently in their statistics are often more in the eye of the reader than in the film. You have to get into the "2" level before there is no question that a change has occurred. The U.K. public response was that dust was controlled in this application in the U.K.

The crocidolite vs other asbestos question was addressed by one paper from South Africa that argued that amosite plus chrysotile caused as much asbestosis as crocidolite. The statistics were based on the number of miners who came back out of the bush to make compensation claims after working for several years in the asbestos mines. There was considerable question regarding the validity of the cohort but it did bring out some background on the crocidolite situation. When the question of regulations came up in England it looked like the blue asbestos from South Africa would be replaced by better amosite and chrysotile from Rhodesia. It was sacrifices much like the spraying of insulation in the U.S.A. and then the Rhodesian sanctions upset the whole picture.

In summary, I get the overall impression that there is a great deal of concern that the mesothelioma and even the asbestosis picture will get worse before it gets better. There is a growing feeling that short, intense exposures which overwhelm the lung clearing mechanisms may be enough to cause serious harm. The question of how short is vague and depends to a considerable extent on the individual susceptibility. The only one I found who would take a firm stand on the 2 fiber limit was Alex Cross of Cane Asbestos and AIC who felt it was safe for mesothelioma as well.

If anyone would like to look at the abstracts, please let me know.

H. B. Rhodes

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HBR:pl

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VISION

OYAL AVE. P. O. BOX 579, NIAGARA FALLS, NEW YORK

Mr. W. C. Thurber
Metals Division
New York, NY

Date May 30, 1975
"Calidria" Asbestos
Orig. Dept. - TECHNOLOGY DEPARTMENT

Answering letter date

Messrs. R. E. Byrne
J. L. Myers
File

Subject OSHA Regulations - Asbestos
Use Warnings

This is in response to your request for comments on Marjorie Chamberlain's memorandum of May 5, 1975 on the above noted Subject. The suggestions made by the Law Department undoubtedly maximize protection against possible future product liability suits. On the other hand, cancer is a very emotional word and there is a strong possibility that people will react to it far beyond the real danger involved. This is particularly true when it appears on a label where the actual extent of the risk is not explained.

We cannot predict with certainty what effect the use of the proposed label will have on our business, but the general feeling here is that it is likely to vary somewhere between serious and fatal. RG-244 sales and the future of RG-600, where we have technical and economic advantages but also where substitutes are readily available, appear to be particularly vulnerable.

In view of this it is strongly recommended that the whole picture of business risks, medical risks and the potential liability risks be reviewed in detail and balanced against each other before we pioneer a new concept in asbestos warning labels.

In reality, the memorandum in question focuses on a problem that has been a major concern for the past several years; i.e., what is Union Carbide's basic position on the asbestos and health issue. In lieu of any specific definition of our own, we have been relying on the AIA/NA information which, as I understand it, can be summarized as follows:

1. The 2 fibers/cc limit is safe for chrysotile.

2. Increased incidence of lung cancer require <u>both</u> asbestos exposures sufficient to cause asbestosis <u>and</u> smoking. The effects of these two are synergistic, however.

3. Mesothelioma has only been clearly associated with crocidolite inhalation. There is a real doubt that it can be caused by inhalation of chrysotile fiber.

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The toxicological picture was outlined orally in general terms to Mr. Stephenson at an Asbestos Review Meeting in early 1974 and he found it acceptable. He also made it clear that Union Carbide Corporation should not be in a business that caused undue risks to people. It was also stressed that if any new medical information became available that would change the picture, we should review our position promptly.

I know of no new medical evidence to change this basic view. The Borel Case, however, seems to have altered the concurrent legal situations. The recommendations in the Chamberlain memorandum place the people in the asbestos business in the ambivalent position of being charged with the responsibility of maximizing the use of asbestos (in applications where it can be used in compliance with OSHA regulations) and simultaneiously being obligated to inform the potential customer that he should really use something else because asbestos "can cause cancer."

Actually this problem is not unique to asbestos even within Union Carbide. Vinyl chloride is in a very similar situation and styrene, vinyl toluene, and phenol appear to be close behind. In fact, it is my understanding that almost any organic chemical based on the aromatic ring can be considered as a suspected cancer-causing agent. It is suggested that we need to look to broad corporate policy in the area of marketing of potentially hazardous materials for guidance in our particular problem.

In this connection it is relevant to mention that the Union Carbide Corporation vinyl latex marketing group has met their problem by reducing the VC monomer content in the latex to a level where there is little chance for the user's exposure to exceed the OSHA action level. They are not labeling. A competitor also lowered the monomer content to a comparable level but a corporate decision was made that they would also label to be on the safe side. The net result of this was a large "label removing ceremony" with pictures and union representatives participating at the customer's (PPG) plant.

Returning to the immediate question of the assessment of the various risks, Union Carbide does not appear to have "in-house" the specialized medical expertise on asbestos to judge the merits of the minority position on asbestos hazards as expounded by the Mt. Sinai group. It is to be expected, however, that all of the latest research results will be argued in great detail in the next few months during the hearings on the proposed amendments to the OSHA asbestos regulations. It is strongly recommended that we do not take any unilateral action until we have the benefit of this information and the decision of the U.S. Government on what they consider to be a safe level. If appropriate, an outside consultant such as Dr. Wright or Dr. Weill might be used at that time for a final review of our position.

We have been in the asbestos business about ten years, are complying with the OSHA regulations and urging our users to do so, and are looking at the possibility of medical problems which take 15-30 years to develop. A period of 3-6 months to study the very complex medical, legal and ethical problems in sufficient depth to reach a proper decision does not seem unreasonable. It is also possible that the labeling question will be taken out of our hands in this time period and be covered by government mandate for the entire asbestos industry. This may occur in the revised OSHA regulations or as a result of two current government studies on the labeling of hazardous materials.

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To conclude these general comments, I would like to express two personal opinions which I am sure represent the attitude of the Asbestos Group at Niagara Falls:

1. If there is really an appreciable chance that the use of our product will result in serious injury to a substantial number of people we should not be supplying it for that end use.

2. If it should turn out that exposure to low levels of asbestos does cause serious injury to a substantial number of people, the courts will find a way to assign liability to the producer regardless of the type of warning labels and information dissemination that they may have used.

The first and most basic thing we need is our best assessment of the medical risk and our best judgment on the reliability of the assessment. When this is available, the legal and business problems can be examined in perspective and an objective decision made on the proper course of action.

The foregoing ideas have been used to prepare the attached commentary on Miss Chamberlain's letter. The comments are not intended to imply an adversary position with our Law Department at a time when communication and cooperation are urgently needed. It is my impression, however, that she was working without benefit of much information on the asbestos health controversy or on the nature of our business. One item not covered is our potential obligation to provide warning labels in the language of the countries to which we ship.

We must be sure that the conclusions drawn accurately represent our situation, so I suggest that we have a meeting with the Law Department soon after the new OSHA regulations are published.

H. B. Rhodes

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Attachment
/ds

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COMMENTARY ON MEMORANDUM OF APRIL 30, 1975

ON OSHA REGULATIONS-ASBESTOS USE WARNINGS

The commentary on the letter has been done in two parts; one covers the letter itself and the other presents specific remarks on the five recommendations. The memorandum opens with a discussion of §402A liability as it applies to a "defective" product. We are not selling a "defective" product so it is not clear how this is relevant to our problem. The real heart of the matter would seem to lie with comments k and l, i.e.,

> "recognition has been given to those products which are inherently dangerous, incapable of being made safe, and yet their utility to the consumer market counter-balances the risk."

There are two portions of this statement which deserve careful examination, 1) "incapable of being made safe," and 2) "consumer market." If "consumer market" means the general public, that is the type of end use now being studied by the CPSC and the FTC. Very little of our product reaches this market without being materially altered in ways to reduce the potential to produce airborne dust. If "consumer market" means industrial users the situation is obviously different. We need an interpretation of this relative to where our warnings should go.

The phrase "incapable of being made safe" also presents an interesting consideration. Dry, open, asbestos fiber has a definite tendency to become airborne when handled. We have a great deal of data that shows that our asbestos can be handled in a way that the airborne fiber levels are below the OSHA limits. The potential is constantly present, however, that the material can be mishandled to exceed these levels by a substantial amount.

It is technically feasible to treat our opened products to greatly reduce or eliminate their potential to cause airborne dust under normal handling situations (except abrasion when held by certain binders). One of our competitors, Johns-Manville, has already done this with a product used in the drilling industry and the patent literature contains a substantial amount of information on other applications. It would seem to me that treating our products to make them virtually dustless would be an outstanding defense under general liability. On the other hand, failure to do so, particularly in areas where others have, might leave us wide open to charges of defective product; i.e., one which could be rendered safe but was not, regardless of the extent of our warnings. Commentary on this by counsel is suggested.

The next section of the letter where a question occurs is in the discussion of compliance with OSHA regulations as a defense against strict liability. A number of cases "brought by a private citizen" are cited and the statement is made that "Section 16 of the OSHA regulations provides that states may assume jurisdiction where OSHA <u>does not apply</u>." This leads to the critical conclusion that we must do considerably more than comply with OSHA to avoid responsibility under strict liability.

The mention of "private citizen" and "where OSHA does not apply" leads to the following areas that need clarification:

1. Do the cases cited cover the situation where the exposure causing the alleged injury took place <u>only</u> in the industrial situation and where the appropriate state or federal regulations were complied with?

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2. Our products used in the United States will usually pass through an industrial handling that will be regulated by the Federal OSHA standards or by a state enforced standard that is at least as stringent as the Federal. We would not appear to be involved here with a situation here where the state is "assuming jurisdiction where OSHA does not apply." Is it correct that under these circumstances we can be sued for an occupational injury that occurs even though the employer complies with all applicable regulations?

3. Are we making a clear-cut distinction in our planning between an injury that occurs in an occupational setting and one which occurs to a private citizen who purchases a product containing our asbestos?

In essence, the thing that bothers me here is the situation where the Federal Government held extensive hearings, consulted a wide variety of experts, allowed cross-examination of witnesses, and, after evaluation of the input, promulgated a regulation that was required by law to protect the health and safety of the workers. The procedure used to arrive at the regulation was subsequently upheld in court. Is it really true that the company manufacturing asbestos must have superior wisdom and go beyond these regulations to protect itself against liability arising from occupational use of asbestos within the scope of the regulations?

The last general comment concerns the section that discusses "adequate warning" and concludes that the OSHA warning is obviously inadequate. The OSHA warning starts with the words "Caution" in capital letters on a single line. It is followed by the key statement:

"... breathing asbestos dust may cause serious bodily harm..."

In contrast the Borel label does not use any direct warning word, does not say that the effects may be serious and adds the qualifications of "excessive quantities" and "long periods of time." Thus:

"Inhalation of asbestos in excessive quantities over long periods of time may be harmful."

The OSHA wording is admittedly much less alarming than "can cause permanent lung damage such as asbestosis, mesothelioma or other cancers," but I submit that it is considerably stronger than the Borel label and it is by no means obvious that it is inadequate.

Comments on the specific recommendations are as follows:

1. There is no question that Union Carbide Corporation should continue to use the OSHA label.

2. The question of the second label has been discussed adequately elsewhere.

3. Regarding a literature file that includes both positive and negative articles, I feel that this is an ineffective way to handle the situation.

a. The positive articles are used to counter the massive negative publicity that appears in the press. The customer already has the other side.

b. Any customer who has the competence to read and evaluate the serious literature in the field already has access to it.

c. Unless we put together a specified balanced package and insist that the field representatives use it, the negative information will stay in the files.

It is suggested that literature like "Asbestos and Health" and concensus articles like the "WHO Summary" and the "NAS Report" are adequate and appropriate to do the job. A more complex approach would be a summary like "Asbestos and Health" edited to mention the adversary position. This would have to be blessed by some recognized medical authority like Dr. Wright.

4. Regarding the MSDS, I agree that there are certain statements that can be misleading and should be changed. The same comments made previously regarding the wording of the revised warning apply here.

5. Regarding our obligations to make a reasonable effort to "acquaint anyone who comes into direct contact with asbestos with the hazards," some definition is needed. This should certainly be limited to those whose contact is above the action level. The OSHA regulations proposed recently contain an employee information requirement. This may help take care of the problem for all users who handle fiber.

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