DOW CHEMICAL U.S.A.

cc: Aldus
Moore

TEXAS DIVISION
FREEPORT, TEXAS 77541

PLAINTIFF'S EXHIBIT DOW-115

April 12, 1976

Joseph M. Griffin
Legal Department
47 Building
M I D L A N D

cc: R. L. Buell
F. D. Hoerger
D. J. Roberts

ASBESTOS - WORK PRACTICE HISTORY - TEXAS DIVISION

In response to your telephone call on March 11, I have reviewed the information in our files and am forwarding copies of seven items that reflect our understanding of the health hazards of exposure to asbestos and actions taken to minimize employee risk.

Perhaps this will help you in your effort to determine Dow's liability risk from employee exposures to asbestos. If review of this information generates further questions I will be happy to try to answer them for you.

I have omitted the Asbestos Handling Policy for the Texas Division Chlor-Alkali plants. I understand that the Chlor-Alkali Tech Center is including this in their compilation of information for you.

R. L. Daniel

R. L. Daniel
Environmental Health Services

bbs

Enclosures (7)

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ASBESTOS AND HEALTH

Asbestos is an extremely useful mineral in our society--having more than 3,000 different applications.

Early in this century, a scarring disease of the lungs called "Asbestosis" was discovered. Control standards were established and, to my knowledge, no case of "classical" advanced asbestosis has occurred at our Company. This disease brought early death, usually in less than 20 years after first exposure.

Though there is no reason to believe we have ever exceeded the time-weighted average recommended for control of asbestos-containing dusts, it has now become apparent that these people exposed to the lower levels will develop various other forms of "asbestos disease" after a lapse period of 20 to 30 years. These diseases consist of

(1) thickening of the pleura or lining of the lungs,
(2) cancer of the lung,
(3) cancer of the gastrointestinal tract, and,
(4) malignant mesotheliomas--a deadly cancer of the lining of the lung or abdomen which is extremely rare except following asbestos exposure.

Studies by our Medical Department indicate that, though we thought our employees were exposed only to safe levels, the changing opinion of what constitutes a safe level has left us with a significant number of individuals who are potential victims of asbestos disease. We should therefore

(1) institute procedures to minimize future exposure,
(2) institute medical surveillance of the individuals at risk, and,
(3) institute a campaign among the previously exposed group to discontinue smoking, which habit vastly enhances the chances of developing cancer of the lung.

Some Divisions have ongoing control programs of excellent quality and I have no doubt their people will gladly share their experience with anyone who has not yet established control.

Continued public information on this topic could eventually result in another case of environmental hysteria--we hope if such occurs we can say everything that can be done has been done. Let us be sure that, in addition to controlling our plant environment, we also insure that we are adding no asbestos dust to the community environment.

Corporate Medical Department
July 17, 1970

CONFIDENTIAL

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THE DOW CHEMICAL COMPANY

TEXAS DIVISION
FREEPORT TEXAS 77541

DOW CONFIDENTIAL

September 11, 1970

B. J. Kinsel
B-108

cc: O. A. Easton

ASBESTOS INSULATION - STATUS REPORT

As of the date of this report, the Insulator Shop has discontinued the installation of most asbestos-bearing pipe insulation. In cases where the service requirements are greater than 1500°F., we are still installing Kaylo 20, a calcium silicate, asbestos reinforced material. This use is limited, mostly, to tube-turns on LHP cracking furnaces. This work only comprises about 2% of the jobs we currently install. This is expected to continue until an adequate high temperature substitute is found.

All of the Kaylo, a calcium silicate asbestos-filled insulation for temperatures to 1200°F., has been removed from the shelves in the shops and has been returned to locations as directed by Stores. The field stocks are being shipped to Stores as they are located. It is felt that approximately 80% of these field stocks have been removed to date. We are still in the process of locating and eliminating these small amounts of material.

Engineering standards of E & CS and Texas Division are in the process of being revised. It is felt that finalization of these standards will take about eight weeks longer. Contractors are still being allowed to install Kaylo and Kaylo 20 on new construction although most of the new installations are in Carey-temp, a non-asbestos material.

Technical Development is working in the area of finding substitutes for materials which contain asbestos such as transite, haveg, etc.

It is felt at this time that existing safety rules regarding the use of respirators for "hazardous dusts" are adequate to require the use of respirators by all personnel when dismantling the existing insulation materials. Subsequent to additional talks with the Safety Department, we expect to formally communicate with all supervisors involved. The Functional Superintendents have already talked with the Zone Superintendents regarding the use of respirators, when handling these products.

We had some minor difficulties with Purchasing's getting us into the Carey-temp business, but these were ironed out quickly. I feel that we are now "over the hump" as far as the change over occurs. There are a great many loose ends which still need to be gathered up. I will keep you informed as we change specifications, types of materials, handling procedures, etc.

Jack Crouch

F. B. Crouch

/wb

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ASBESTOS USAGE - STATE OF MAINTENANCE DEPARTMENT AT PRESENT

Briefly, we feel that the highest exposure rates are experienced by the Insulator Group which handles the material on a day-in and day-out basis, both maintenance and construction. The next highest group would be the Brickmasons who apply the loose asbestos fill used in the mag pot program. Next in the exposure-time-weighted factor would be the persons who occasionally fabricate asbestos-bearing materials such as transite, haveg, and the like. The last on the exposure list would be those persons who occasionally perform demolition of asbestos-bearing insulation within the plants such as removal to facilitate repairs, etc., and handling loose material torn off existing lines prior to sending to the dump grounds.

Presently, we have discontinued all purchasing of asbestos-bearing insulating pipe covering with exception of certain selected sizes of Kaylo 20, a high temperature pipe covering material, used for temperatures from 1200°F to 2200°F. Only use we are aware of for this material is certain light hydrocarbon plant furnaces tube-turn bends.

We have made a concerted effort to eliminate the small stocks of asbestos pipe covering which are scattered throughout the division. I believe we have accomplished this goal to the tune of about 95% complete. We have also returned all asbestos pipe covering from our supplier (Gulf Supply) back to the manufacturer.

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Presently, we believe that only about 2% of the insulators' work within the division is made up of asbestos pipe covering. ($4,000 to $5,000 to eliminate all existing stocks.)

Insulating materials we are using to replace asbestos are:

1. Fiberglass - both in "snap-on" and loose blankets, ambient to 350°F.
2. Foamglass - 450° to 800°F - also used where temperatures cycle excessively and for Dowtherm service. 15% more expensive than asbestos.

3. Careytemp 1500 - ambient to 1500°F - expanded pearlite - fiberglass reinforced. Some problems associated with application but best available at present. Same cost as asbestos.

Several other areas we are working on:

1. Have problems with loose fill insulation used when setting mag pots. This generates a terrific amount of dust when asbestos shorts are used. We have found that "Super 48" by "48 Insulations, Inc." mineral wool makes less dust than asbestos shorts and contains only about 10% asbestos. The texture is slightly damp or moist feeling, thus cutting down on the dust problem. When our brickmasons are using this material, they have been wearing respirators. We have been assured by the manufacturers of "Super 48" that by October 16 they will be producing an asbestos-free insulation in bags marked as such. The composition of this material is a mineral wool made from copper slag.
2. Fabricating of asbestos-reinforced plastics such as transite, haveg, micarta, where dusts become a problem in operations such as sawing and grinding. We have no problem with insulators wearing respirators when this work is going on. Saws have been developed with vacuum systems to reduce amount of dust, but we still wear respirators as we still get quite a bit of residual dust.
3. Our foremen have been notified that respirators are to be worn by the employees when significant amounts of insulation are to be removed when demolition occurs. We have not yet made it a firm rule to wear respirators in any situation where dusts of asbestos occur, but I believe this will be only a short time before we do. Due to gathering evidence

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of existing hazards.

The last principal area I want to cover is that of new construction.

We are currently in the process of changing the Texas Division standards which will require the elimination of Kaylo (asbestos-type pipe covering) from the list of approved material. The Construction Department is continuing with all new construction in asbestos in which the material is on the job site, but any other new work will have the Careytemp 1500 or expanded pearlite installed in lieu of asbestos. This change took place about the 5th of October.

This is a brief summary of where we stand in the Maintenance program of elimination of asbestos exposure hazards.

F. B. Crouch
/bs
October 13, 1970

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ASBESTOS USE - STATUS OF IN TEXAS DIVISION

We recently ran a survey of the use of asbestos in the Division with the object of answering 3 questions - 1) Where is asbestos used 2) What protective gear is being used and 3) What have people been told about asbestos.

Where is asbestos used? In addition to the use of asbestos containing materials for insulation purposes throughout the Division, asbestos is used in our chlorine areas for cell diaphragms in cell manufacturing. and repair facilities and in all chlorine plants for pulping cells. Asbestos is also used in the Mag Cell areas for insulationin pot settings and in numerous other ways for the sealing of leaks in the cells and vent systems.

In addition to the use of new asbestos, we also have the problem of tearing out of insulation throughout the plant as well as the disposing of used asbestos in the chlorine and magnesium areas.

There is also in use materials of construction such as transite and haveg that are asbestos containing materials.

What protective gear is being used?

In most of the areas where asbestos is being used, either installed or disposed, we now have some form of protective gear in use. Our insulators have been wearing respirators for sometime. Cell Manufacturing folks have had a good protective program for about the last 1½ to 2 years. Recently the Mag folks started using more pro-

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tective gear. I would say that the insulator and Cell Manufacturing and repair people have a good program with good supervisory control. With some of the other crafts who occassionaly remove and dispose asbestos materials, the use of protective gear is variable, probably relative to the degree of exposure. Contractors in the Division presently do not wear much in the way of protective gear.

What have people been told?

Asbestos information which our folks have received varies widely. Some have been told little, if anything -- others that asbestos is hazardous to the lungs -- and others that it causes lung problems including cancer. Probably the best informed are those who have been under the periodic examination program where the doctors have apparently discussed asbestos candidly. Contractors probably have been told little about the hazards of asbestos.

Now, I'll turn this over to Jack Crouch who will discuss the effort by the Maintenance folks.in substituting some different materials for asbestos containing materials.

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RCW/ks
10/14/70
S & LP

ASBESTOS RECOMMENDATIONS

1. Develop a Dust-Asbestos informational type program for division employees and contractors. (Similar to other hazardous material programs which have been developed.)

2. Develop and audit safe work procedures for minimizing the generation of asbestos dust. Procedure must include protective gear as a final precaution.

3. Continue to pursue the replacement of asbestos with reasonable economic substitutes. (Recognize that asbestos is probably irreplaceable in certain applications.)

4. Develop procedures for accounting for asbestos used and in monitoring asbestos exposures.

5. Continue periodic physical program on division employees who have reasonable exposure to asbestos.

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D. J. Kilian, M. D.
F. B. Crouch
R. C. Walker

RCW/ks
10/15/70
S & LP

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Enclosure - 6

ASBESTOS USAGE IN THE TEXAS DIVISION

WHERE IS IT BEING USED	WHO IS USING IT	HOW USED	PROTECTIVE EQUIPMENT	WHAT ARE THE HAZARDS
Chlor-Alkali #1	Class 1 Operators	Pulp Cells - Dry & Wet	MSA Gasfoe mouthbit respirator-usually worn-for about 1 1/2 years	Hazardous to lungs.
Chlorine #1	Class 1 & 2 Operators	Pulp Cells-Dry & Wet	MSA Gasfoe Mouthbit-usually - for about 20 years.	Can cause lung problems and to wear when working with asbestos - 1 year ago.
Chlorine #3	Class 1 & 2 Operators, Control C operators, Class 1 Cell Mtc.	Drawing cathodes, pulp cells - dry & wet. Dismantle old cells	Acme Duo Seal or Welsh with dust pad. Dustfoe 77-MSA Gasfoe mouthbit when mix to pulp cells. Usually worn-for 1 year.	Causes lung problems.
Chlorine #4	Control C & Class 2 day Operators	Pulp cells - dry & wet	Welsh with dust pad - usually worn for about 8 months.	Can cause lung problems including cancer.
Chlorine #5	Class 1 Cell Mtc. Drawing cathodes & patch. Class 1 Operators & Utility Pulp.	Draw cathodes, pulp cells-dry & wet. Dismantle old cells.	Acme Duo Seal - usually worn - good control-for about 2 years.	In group meetings & job line-up. Can cause lung problems including cancer.
Cell Manufacturing	All Class 2 Operators (82 men rotate)	Draw cathodes. Seldom dismantle old cells	Dustfoe 77 - good control - also in job procedure. Used about 1 year.	Can cause lung problems including cancer.
Magnesium #1 Magnesium #3 Mag Chlor 1	Plasterers, building operators, running repair, brickmasons, utility.	Filled loose along Cell for insulation. Shoveled loose when pot is pulled & pumped into sludge chute Use paper for insulation, use rope to seal crucible cover & new anode seal.	Nose & mouth OVAG Carpenters & masons - dust respirators and is a requirement.	Nothing

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ASBESTOS USAGE IN THE TEXAS DIVISION

WHERE IS IT BEING USED	WHO IS USING IT	HOW USED	PROTECTIVE EQUIPMENT	WHAT WERE THE WORKERS TOLD
Low Carpenter Shop - Plant Wide	Insulators, yard, laborers, boilermakers, pipefitters, etc.	Mix & apply, remove the old.	Dust respirators by insulators for about 2 years. Usually nothing	Insulators - can cause lung problems & cancer - by Supv. & IND. Others--nothing.
Plant Wide by Contractors	Insulators, laborers, carpenters, fitters, masons, boilermakers.	Application, destruction, mix with Epoxy, cut siding, gasket material, stress relieving.	None	Nothing

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FORMS OF ASBESTOS

Bagged Shorts	Used in Chlorine Cell cathode drawing and dry pulping, Mag Cell insulation filler, filler for Epoxies, etc. Many forms.
Preformed Block (KAYLO-20 etc.)	High temperature (2200°F) insulation by Ovens-Corning. Now used only for greater than 1500°F service pipe insulation. Cutting must be done.
Transite	Cut in shop and on the job. Siding.
Pavez	Asbestos filled Phenolic Resin. Do much grinding. Are able to replace much if not all with Derakanes.
Rope	Used as gasketing, etc.
Gloves	For handling hot materials.
Gaskets	As filler and by itself.

JAB/tls
10/12/70