PLAINTIFF'S EXHIBIT

DOW-1338

THE DOW CHEMICAL COMPANY

MIDLAND DIVISION
July 30, 1969

INTRODUCTORY & SUMMARY REMARKS - M. T. Badley

Introduction:

Many of you gentlemen have waited some time for this get-to-gether. I'm sure the following presentations by Dr. Ducommun, from our Medical Dept., Roy DeGesero, from Environmental Research, Roy Anderson, from Agric. Chemicals Mtnce. and Larry Warren, now Supt. of Construction in CCP, will be of vital interest to you.

There are several reasons for this interest on your part - mainly however, a request by the coverers on "How Does the Handling of Asbestos Content Insulation Affect Me?" Other interests certainly will be, "What are the Solutions?" and "How Should We Implement the Solutions?" Solutions to a problem sometimes cause other problems -- a couple in which the production people here have a stake, such as technology and costs. This, obviously, is a matter of concern to them.

These fellows, that I named before, are going to present the problem to you -- the solutions, with time for questions.

I'm sure you -- especially the coverers -- will be listening carefully. I'm hopeful that by the end of these presentations and the Question & Answer Period, all of your questions will be answered.

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Mr. Ray Degesero - ENVIRONMENTAL

I would now like to introduce ~~DR. DUCOMMUN~~ from our ~~Medical~~ Dept. RESEARCH. Roy -

Mr. Degesero & Dr. Ducommun have presented the technical aspects to us with several recommendations - you might now be asking yourselves "NOW WHAT DO WE DO?"

LARRY WARREN will now discuss PERSONAL PROTECTION with us.

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SUMMARY:

1/2 HOUR

As you can see, the past ~~35 minutes~~ presentation, ~~questions and answers~~, affects ALL of us. Those of us in management have a moral and legal obligation to see that you have a safe environment in which to work. To continue our efforts to give you a safe place to work -- we are obviously going to eliminate any insulating material containing asbestos ASAP. Starting August 11, in specific areas, until adequate substitutions are acquired, approved respiratory equipment must be worn.

* TRANSPARENCY

Thank you for your attention.

INTRO. DR. KRAMER

We will now attempt to answer any question you might have at this time.

RECOMMENDATIONS

1. USE LOCAL VENTILATION

2. USE APPROVED RESPIRATORY PROTECTION

3. REPLACE INSULATING MATERIALS CONTAINING ASBESTOS

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SUMMARY

1. WE HAVE A KNOWN HEALTH PROBLEM.

2. THE SOLUTIONS MAY NOT BE POPULAR.

3. WE HAVE A CHOICE BETWEEN PROTECTING EMPLOYEE HEALTH - OR - OCCASIONAL DISCOMFORT.

WE ARE GOING TO PROTECT YOUR HEALTH!

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Good day, Gentlemen. My name is Roy DeGesero. Supervision requested an environmental study of Midland pipe coverers' exposures to dusts from insulating materials used here in Midland. These dusts contained asbestos and fiberglas. I shall present the results of the study, conducted from January to April, 1969, then turn the meeting over to members of Medical and management.

Before discussing what the exposures are, I'd like to define a term you'll hear several times today. That term is "time-weighting." "Time-weighting" means that we looked at what you do, and how often you do it, and how much of a certain dust you fellows are exposed to at these times.

We learned how often and how long pipe coverers perform the several most common jobs of pipe covering by talking to you men, your supervision, looking at the time study and from personal observations. We decided on this basis where to sample the air containing dusts caused by pipe covering. The sampling gave us a concentration number of millions of particles of dust per cubic foot -- an expression of how much dust is in the air you men breathe.

(SHOW SLIDE I)

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This table is a list of the most common operations pipe coverer's perform: removing old covers, mixing adhesives and so forth. Next to the operations are the % Day or estimated average time spent by a pipe coverer performing these operations. Then next to that are the mean concentrations in mppcf measured for each operation with each material listed, and the range of concentrations. Finally, we see a column with the fractional products of time x concentration, for each material in each operation. When this column of fractions is totaled, we have arrived at a time-weighted exposure, and can then discuss the significance of this number. For men working indoors, the time-weighted average exposure to asbestos containing dusts was 4.9 mppcf in the 8-hour day. The time-weighted exposure to fiberglas (dust) was 0.5 mppcf.

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(SHOW SLIDE II)

This table represents the time-weighted exposures to asbestos containing dusts for men working outdoors. That number is 4.2 mppcf and reflects the fact that some air movement outdoors tends to dilute the dust. The time-weighted exposure to fiberglas dust was 0.4 mppcf.

After obtaining a time-weighted exposure, we then relate this exposure number to the best current information available on the health experience with asbestos and fiberglas. A group of advisors called the American Conference of Governmental Industrial Hygienists has gathered up as much sound data as is available from laboratory research and field experience on the health problems associated with insulating materials, and the ACGIH expresses this information in numbers called the Threshold Limit Values; asbestos has one TLV, and fiberglas has another, different TLV.

The Threshold Limit Value describes a (w) average concentration of dust to which men can be repeatedly exposed for 8 hours with no adverse effect on health. This average number can be exceeded for brief periods of time, provided such excesses are balanced by equally long periods of time when exposures are below the average Threshold Limit Value. For asbestos, the present TLV is 5 million ppcf, based on knowledge accumulated 30 years ago. Present experience with health problems in

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insulators and others working with asbestos has suggested that the Threshold Limit Value be lowered by 1971 from 5 mppcf to 2 mppcf, in light of very subtle health problems.

The TLV number represents good practice and is used by most governmental agencies in maintaining healthy work environments. As you can see, the time-weighted exposures we have measured for asbestos containing dusts are above this proposed TLV of 2 mppcf. The time-weighted exposures for fiberglas containing dusts are below the TLV for fiberglas dusts. That TLV is 15 mppcf.

The Environmental Research Laboratory has proposed to management, three ways of lowering pipe coverer's exposures to asbestos containing dusts to within the 1971 limit. They are:

(1) Use local ventilation (on the job air movers) to pull dusts away from the man's breathing zone, or

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(2) Use approved respiratory protection whenever men remove, cut, or apply, Aircell, Kaylo, High-Temp ~~or Thermobestos~~, or when they mix Webers and Armentite.

(3) Replace present insulating materials containing asbestos with materials which do not present the health problems of currently used materials containing asbestos.

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Table 1. TIME-WEIGHTED EXPOSURES OF PIPE COVERERS TO DUSTS FROM ASBESTOS CONTAINING MATERIALS

Operations	Materials	% Day	Concentrations (mppcf) Mean	Range	Time-weight Factor: Asbestos
Remove	Air cell	1.2	11.4	0.3-24.9	0.137
	Kaylo	1.6	11.2	3.7-20.5	0.179
	Mag oxide	0.2	2.8	1.8-4.6	0.006
	Fiberglas	2.0	13.7	1.2-33.7	---
Mix	No. 1 Plus	1.6	13.4	2.2-30.5	0.219
	Armentite	0.1	9.5	2.7-13.5	0.010
	Superpower	0.8	34.9	19.6-6.14	---
Cut	Air cell	5.9	3.0	0.6-6.2	0.177
	Kaylo	8.8	11.7	4.9-23.1	1.030
	Fiberglas	2.2	1.7	0.8-2.6	---
	Others	0.6	--	---	---
Apply	Air cell	15.8	5.7	0.2-16.4	0.901
	Kaylo	19.9	5.7	0.4-22.3	1.123
	Fiberglas	4.5	2.4	1.2-3.8	---
	Others	2.6	--	---	---
	No. 1 Plus	4.8	9.6	1.1-39.5	0.461
	Armentite/ Superpower	2.4	2.1	0.9-3.9	0.050
Clean up removed covers		3.0	8.5	2.4-24.6	0.255
Stocking; get new covers		2.0	1.0	0.1-2.3	0.020
Move to job, set up		5.0	2.0	1.4-2.9	0.100
Breaks, lavatory		15.0	1.4	0.1-3.9	0.210
Time-weighted exposure to asbestos containing dusts (indoor) in mppcf					= 4.9

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THE LUNG RESPONDS DIFFERENTLY TO DIFFERENT KINDS OF DUSTS. WHAT YOU SPIT OUT OR SEE ON YOUR HANDKERCHIEF DOES NO HARM. WHAT STAYS BEHIND IN THE LUNG MAY OR MAY NOT CAUSE HARM, DEPENDING UPON WHAT IT IS. TO UNDERSTAND THE DISCUSSION REGARDING ASBESTOS, WE WOULD LIKE YOU TO HAVE SOME UNDERSTANDING OF THE BASIC STRUCTURE OF THE LUNG.

HERE IS A SLICE OF ACTUAL NORMAL LUNG TISSUE. THINK OF IT AS BEING SIMILAR TO A SPONGE WITH MANY CELLS EXCEPT THAT IN THE LUNG THERE IS AN AIR TUBE GOING TO EACH AND EVERY ONE OF THE CELLS. THESE CELLS ARE CALLED ALVEOLI AND IT IS HERE WHERE THE GASEOUS EXCHANGE TAKES PLACE. THE AIR TUBES ARE KNOWN AS THE AIR-CONDUCTION SYSTEM OF THE LUNG. THEY BRANCH OUT AS THEY LEAVE THE NOSE AND THROAT BECOMING SMALLER IN SIZE AND LARGER IN NUMBER UNTIL THEY FINALLY REACH THE SMALL CELLS AT THE END. IN THIS PIECE OF LUNG TISSUE YOU CAN SEE CROSS CUTS THROUGH THE VARIOUS SIZES OF AIR TUBES.

IF YOU SPREAD OUT ALL OF THE ALVEOLI WHICH ARE THE EQUIVALENT TO THE CELLS IN THE SPONGE ON A FLAT SURFACE THEY WOULD OCCUPY AN AREA SOMEWHAT BIGGER THAN A BADMINTON COURT AND SLIGHTLY SMALLER THAN A TENNIS COURT. YOU CAN SEE THEN THAT THE LUNG SURFACE HAS A GREATER EXPOSURE TO THE OUTSIDE AIR THAN DOES THE SKIN, THE SKIN HAVING AN EXPOSURE AREA OF A FEW SQUARE METERS AT THE MOST.

THE AMOUNT OF DUST YOU BREATHE DEPENDS IN PART ON THE PARTICLE SIZE OF THE DUST. THE RANGE OF SIZE IMPORTANT HERE IS

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ONE-TENTH MICRON IN DIAMETER TO [illegible] MICRON IN DIAMETER. THE LARGER PARTICLES TEND TO BE TRAPPED IN THE UPPER PART OF THE BREATHING SYSTEM WHILE THE SMALLEST PARTICLES TEND TO MOVE IN AND OUT OF THE ALVEOLI WITHOUT BECOMING TRAPPED. THE PARTICLES IN BETWEEN THESE TWO EXTREME SIZES MAY BECOME TRAPPED ANYWHERE FROM THE NOSE AND THROAT TO THE ALVEOLI. THE RATE AND DEPTH OF BREATHING ALSO INFLUENCE DUST EXPOSURE; THE FASTER AND DEEPER YOU BREATH, THE MORE DUST YOU ARE LIKELY TO TAKE INTO YOUR LUNGS.

IN DEALING WITH DUSTS, THE LUNG HAS MANY PROTECTIVE MECHANISMS. THE COUGH REFLEX IS ONE OF THESE AND IS EFFECTIVE IN EXPELLING INHALED DUSTS WHICH IRRITATE THE TUBES OF THE AIR CONDUCTION SYSTEM. THE NOSE AND THROAT WARM AND CLEAN THE AIR OF LARGER PARTICLES BEFORE IT ARRIVES AT THE FIRST BRANCHING OF THE TUBES OF THE AIR CONDUCTION SYSTEM. THE LARGE HAIRS IN THE NOSE ACT AS A FILTER IN STOPPING THE LARGE DUST PARTICLES. IF YOU BREATHE THROUGH YOUR MOUTH RATHER THAN THROUGH THE NOSE, THIS PARTICULAR PROTECTIVE MECHANISM IS BYPASSED AND THEREFORE MOUTH BREATHING SHOULD BE AVOIDED. THE AIR DRAWN INTO THE LUNGS IS PROPERLY HUMIDIFIED IN ADDITION TO BEING WARMED TO PROTECT THE TISSUE FROM INJURY.

ANOTHER VERY IMPORTANT PROTECTIVE MECHANISM THE LUNG HAS IS A SLIMY COATING CALLED THE MUCOUS BLANKET WHICH CONTAINS MANY HAIR-LIKE PROJECTIONS CALLED CILIA. THESE CILIA CONSTANTLY SWEEP UPWARD IN UNISON CARRYING INHALED DUST PARTICLES TO THE NOSE AND THROAT WHERE THE PARTICLES ARE SWALLOWED, SPIT OUT,

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OR BLOWN OUT THROUGH THE NOSE INTO YOUR HANDKERCHIEF. THIS SELF CLEANSING SYSTEM WORKS TWENTY-FOUR HOURS A DAY AND IS VERY EFFICIENT.

NOW SOME DUSTS ARE CONSIDERED NUISANCE DUSTS. THIS MEANS THAT NO MATTER WHAT THE QUANTITY OF DUST YOU BREATHE, THE LUNG IS CAPABLE OF CLEARING ITSELF OF THE DUST. NUISANCE DUSTS DO NOT CAUSE DISEASE AND THEY ARE NOT RETAINED IN THE LUNG IN SIGNIFICANT QUANTITIES. OTHER DUSTS ARE RETAINED IN THE LUNGS BUT CAUSE NO SIGNIFICANT CHANGES AND THE LUNGS CONTINUE TO FUNCTION AS THEY NORMALLY WOULD. FOR EXAMPLE, ONE OF THESE WOULD BE IRON DUST.

ON THE OTHER HAND, THERE ARE DUSTS WHICH ARE HARMFUL TO THE LUNG. [redacted] YOU HAVE ALL HEARD OF SILICOSIS, IT IS INTERESTING THAT WE DO NOT KNOW WHY THEY DO INJURY TO THE LUNG EXCEPT THAT THEY DO. DIFFERENT FORMS OF SILICA PRODUCE DIFFERENT DEGREES OF SILICOSIS AND SOME FORMS DO NOT PRODUCE ANY DISEASE AT ALL.

WITH THAT AS A BACKGROUND, LET US NOW TALK ABOUT ASBESTOS. ASBESTOS IS A MATERIAL WHICH IS FOUND IN NATURE AND IS MADE UP OF A GROUP OF FIBROUS MINERALS. IT'S CHEMICAL COMPOSITION VARIES. THERE ARE MANY KINDS OF ASBESTOS BUT AT LEAST FOUR ARE USEFUL IN INDUSTRY. THESE ARE BLUE AFRICAN ASBESTOS AND RED AFRICAN ASBESTOS MINED CHIEFLY IN SOUTH AFRICA AND TWO KINDS OF WHITE ASBESTOS, ONE OF WHICH IS MINED MAINLY IN EUROPE (ANTHROPHOLITE).

ASBESTOS HAS BEEN ASSOCIATED WITH A LUNG DISEASE WHICH WE CALL ASBESTOSIS. ASBESTOSIS WAS FIRST RECOGNIZED AS AN INDUSTRIAL

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DISEASE AT THE TURN OF THE CENTURY AND IS A SCARING CONDITION OF THE LUNGS WHICH IS PROGRESSIVE AND INTERFERES WITH THE EFFECTIVE EXCHANGE OF GASSES ACROSS THE PULMONARY MEMBRANE. THE ASBESTOS FIBERS ARE STIFF AND THEY SEEM TO MECHANICALLY IRRITATE THE LUNGS; THOSE THAT REMAIN IN THE LUNGS BECOME COATED WITH PROTEIN AND IRON SALTS. ~~OUR PRESENT INDUSTRIAL HYGIENE STANDARD OF FIVE MILLION PARTICLES PER CUBIC FOOT APPEARS TO ADEQUATELY PROTECT AGAINST THE DEVELOPMENT OF ASBESTOSIS.~~ THERE HAVE BEEN NO CASES OF ASBESTOSIS IN OUR PIPE COVERERS.

OUR PIPE COVERERS ARE EXPOSED TO VARING AMOUNTS OF ASBESTOS DURING THE COURSE OF THEIR WORK AND AS YOU KNOW, WE HAVE RECENTLY UNDERTAKEN TO MEASURE THEIR EXPOSURE. AS MR. DEGESERO HAS POINTED OUT TO YOU, THE EXPOSURE LEVELS OF 4.9 MILLION PARTICLES PER CUBIC FOOT INDOORS AND 4.2 MILLION PARTICLES PER CUBIC FOOT OUTDOORS ARE WITHIN THE PRESENT STANDARD ESTABLISHED BY THE AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS AND UP TO THIS POINT WOULD HAVE BEEN CONSIDERED A SAFE STANDARD. IN FACT, IT IS STILL THE STANDARD USED BY MOST OF INDUSTRY. HOWEVER, THERE ARE MANY PEOPLE WHO FEEL THIS LEVEL IS TOO HIGH AND WILL HAVE TO BE LOWERED TO THE PROPOSED NEW STANDARD OF 2 MILLION PARTICLES PER CUBIC FOOT SCHEDULED TO TAKE EFFECT IN ABOUT TWO YEARS.

THERE ARE TWO OTHER LUNG DISEASES WE ARE CONCERNED ABOUT THAT APPEAR TO BE ASSOCIATED WITH EXPOSURE TO LOWER LEVELS OF ASBESTOS THAN THAT WHICH CAUSES CLASSICAL ASBESTOSIS.

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ONE IS A VERY RARE TUMOR CALLED A MESOTHELIOMA WHICH DEVELOPS FROM THE CELLS LINING THE CHEST AND ABDOMINAL CAVITIES. SOME RESEARCH WORKERS FEEL THIS DISEASE IS ASSOCIATED ONLY WITH EXPOSURE TO THE BLUE AFRICAN ASBESTOS, BUT THIS POINT IS NOT CLEAR: THE OTHER TYPES MAY CAUSE IT ALSO.

THE OTHER DISEASE IS LUNG CANCER WHICH YOU KNOW HAS BEEN ASSOCIATED WITH HEAVY SMOKING. IT HAS BEEN THOUGHT THAT HIGH EXPOSURE TO ALL TYPES OF ASBESTOS DUSTS OVER LONG PERIODS OF TIME INCREASED THE RISK OF LUNG CANCER. RECENTLY IT HAS BEEN REPORTED THAT THERE IS AN INCREASED RISK OF THIS DISEASE IN WORKERS WHO SMOKE AND MAY BE EXPOSED TO SOMEWHAT LOWER LEVELS OF ASBESTOS DUST. SMOKING SHOULD BE PARTICULARLY DISCOURAGED AMONG ASBESTOS WORKERS. SMOKING TENDS TO DESTROY THE HAIR-LIKE CELLS IN THE MUCOUS BLANKET THUS DEFEATING ONE OF THE LUNG'S MOST IMPORTANT DUST CLEARING MECHANISMS. IF SMOKING IS STOPPED. THE CILIA GROW BACK AGAIN.

EVEN THOUGH THE NEW STANDARD OF 2 MILLION PARTICLES PER CUBIC FOOT HAS NOT GONE INTO EFFECT, WE FEEL THAT WE SHOULD START NOW TO MEET THIS NEW STANDARD BEFORE IT BECOMES OFFICIAL. THIS WILL MEAN SOME INCONVENIENCE TO THOSE OF YOU WHO WORK WITH ASBESTOS AND IT WILL REQUIRE THE USE OF PROPER PROTECTION AT TIMES AS WELL AS MUCH MORE CAREFUL HANDLING OF THE MATERIAL. IT MAY ALSO REQUIRE THE USE OF SUBSTITUTE MATERIALS OTHER THAN ASBESTOS.

FIBERGLAS WHICH YOU HAVE HEARD MENTIONED [redacted] BRIEFLY BY

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MR. DEGESERO IS ONE POSSIBLE SUBSTITUTE FOR ASBESTOS. SOME PEOPLE HAVE ACCUSED IT OF PRESENTING A PULMONARY HAZARD. FIBERGLAS DOES CAUSE ITCHING OF THE SKIN AND PRICKLING. IT CAN CAUSE SOME NOSE AND THROAT IRRITATION BUT ALL THE LITERATURE REVEIWED PARTICULARLY OF THE IMPARTIAL INVESTIGATORS IN THE FIELD, THOSE OF DR. GEORGE WRIGHT AND DR. PAUL GROSS INDICATES THAT THERE IS ABSOLUTELY NO PULMONARY HAZARD WHATEVER, AND DR. GROSS IS PRESENTLY SUGGESTING THAT FIBERGLAS BE CLASSIFIED AS AN INERT DUST, ONE OF THE NUISANCE DUSTS.

IT IS OUR FEELING THAT THIS IS IN THE BEST INTEREST OF THE HEALTH OF THE PIPE COVERING GROUP AND THAT THE RECOMMENDATIONS MADE BY MR. DEGESERO WILL HAVE TO BE ACTED UPON.

AND NOW BACK TO JACK.

ST0001250

Warren Portion of the Insulation Talks

After all of the explanation and facts concerning the hazards of asbestos I can imagine a lot of you are wondering "where do we go from here?"

For years and years, asbestos and insulation value have been almost synonymous. The higher the asbestos content the easier it was to sell. Most of us were aware of the health problem, covering asbestos, but it seemed rather insignificant as it didn't seem to be affecting us much.

Then there were a couple articles in our local paper concerning the affects of asbestos on the respiratory system. These were brought to my attention and I in turn brought it to the attention of the Medical Department & Invironmental Research.

We decided that each of the coverers should have a chest x-ray and at the same time we should have an invironmental research study to find out exactly what our exposure is.

We were very pleased to find that none of our coverers had asbestosis. But when the invironmental research findings were told to us we recognized that we do have the potential for lung deseases.

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The Doctor and Roy Degesro have explained the causes of the problem and the affect on the body. I'm here to tell you we expect to eliminate the problem. If you will remember Roy gave us three (3) things he thought we could do that would lower the parts per million of asbestos dust to a acceptable level.

1. Local ventialtion. You and I know this is not an acceptable method as it would be almost impossible to do this.

2. Use Bureau of Mines approved respiratory protection (show example). This is an acceptable method in most cases if we follow the chart I will now show on the screen. If you will notice the removing of aircell, Kaylo, high temp. and mag oxide have all been checked. All of you men who are in the trade I'm sure have seen the reason for this. Also checked is the applying of Kaylo and aircell. It was found the applying of either of these insulations caused the parts per million of dust in the breating area to to to 5.7 which is above the limit. This was almost 35% of your work day. The mixing of asbestos shorts or plus one is also checked for appar nt reasons.

You will notice that Fibriglas is not checked in any catagory. The reason for this has been pretty well covered by Roy & Dr. Ducommon. I will only say that I've heard

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many controversal words said about fibriglas, but never have I heard or read any thing by a reliable source, that said it was dedtrimental to your health. In fact I have with me a pamplet put out by the Industrial Hygiene Foundation of America from which I would like to read you a few excerpts.

I would say that under same circumstances that it is some what uncomfortable. According to most people who have studied its use, a person using Fibriglas insulation should wear loose fitting clothing, no tight belts or cuffs and they should keep clean.

Talking about cleanliness brings up another point that bears mentioning and that is that shower time for men using fibriglas is not and I repeat not, automatic or mandatory for health reasons. A supervisor will grant shower time if he feels the condtions warrent it.

3. Replace our present asbestos containing insulation with materials that don't cause a health problem. We have all of our resources on the lookout for replacements now. Ray Anderson will cover this subject further later on.

These were Roys recommendations and starting August the 11th here is what we intend to do.

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a) [redacted] as much as possible with non asbestos [redacted] Fiberglas foam glas, cermic foam, polyurethane, etc.

b) When using insulation containing asbestos, [redacted] a bureau of mines approved [redacted] as per the chart. We will pass out a wallet size copy of the chart as you leave.

c) [redacted] for more [redacted] protection.

If we do these three things there is no doubt in my mind that we will be below the 2 M.P.P.C.F. limit that will go into affect soon.

Gentlemen, we have a problem; it isn't going away by itself. We feel we recognize the problem and we have the solution. You have heard the plans. We expect and insist that we get your full cooperation to implement these plans.

I'm sure some of you men are sitting there thinking about possible additional costs, and of the possible corrosion in some instances where a perfect weather barrier is not achieved. We know we have had some of these problems in the past; we recognize we will have some in the future.

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By working together we know that all the problems can be worked out. Our main objective today is to make the job safe for you men. The economics are important, but not of prime importance at this particular time.

Thank you for your attention, now here is Roy Anderson to talk about possible substitutes.

Remember August 11th is the day that we must wear respiratory protection when working with asbestos type insulation. The card is your guide.

Thanks again

Here's Roy.

ST0001255

THE DOW CHEMICAL COMPANY

July 17, 1969

As a result of his survey, Mr. DeGesero has made up a table showing under what conditions and with what materials an approved respirator must be worn. This table has been reproduced on a small card and each one of you will receive a copy. (Show transparency on the screen.)

I think you all know that there is a very good replacement for Aircell and that is Fiberglas. Fiberglas is more than twice as effective as Aircell as an insulating material and contains no asbestos. (K factor .61 versus .29) Fiberglas is being used in every Dow division except here at Midland. Actually, Aircell should not be used on any job except for personnel protection. It is not designed for temperatures higher than 200° F. and we know it is commonly used on lines traced with 150# steam (375°F.)

At the present time we are trying out an expanded silicone (perlite) type of insulation called Careytemp 1500. This material does contain about 6% asbestos which is about the same as Kaylo; however, it is not supposed to be nearly as dusty. The Phillip-Carey Company has been doing some work on eliminating completely the asbestos from this material. More information on this material will be forthcoming as soon as an evaluation can be made.

Hi-temp is a diatomaceous earth type of insulation which contains about 15% asbestos. There is no non-asbestos substitute for this material on very high temperature applications; however, its use is rather limited and it should not present a real problem.

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Mag Oxide is another fairly high asbestos containing insulation which, at present, is not being used to any great extent here in the plant.

Mineral wool insulating cement commonly known as Webber's Cement contains about 10% asbestos and is quite dusty when being mixed with water. It has been suggested that the dry material be made up in batches large enough to last for a week or two. This would eliminate the need for a respirator each time the material is used. The use of Armentite is small enough so that making up large batches would not be warranted except in special cases.

Every major manuracturer of insulation has been contacted with regard to new products available, etc. This practice will be continued and any time we can find a new product that will be more effective or easier to work with, it will be brought into the plant for your use.

Roy Anderson
Maintenance Engineer
222 Building
Phone 6-4456

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MINIMAL RESPIRATORY PROTECTION REQUIREMENTS

Material	Remove	Mix	Cut	Apply
Air Cell	X			X
Kaylo (Cal sil)	X		X	X
High Temp.	X			
Mag Oxide	X			
No. 1 Plus (Webbers)		X		
Armentite (Asbestos Shorts 352)		X		
Super Power				
Thermobestos				
Fiberglass				

1. You shall wear a respirator* when doing the above operations marked "X"

2. You should wear a respirator* [redacted]

*MSA Dustfoe or Sure Guard (R-2090) are the only allowed types.

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