

O U T L I N E

1. HISTORICAL PERSPECTIVE

Redacted

2. PIPECOVERER EDUCATION

Redacted

3. INDUSTRIAL HYGIENE

S-140 SAFETY STANDARD

}

Redacted

4. EPIDEMIOLOGY

Redacted

ST0005290

1. WHAT KIND OF A SURVEILLANCE PROGRAM DID WE HAVE IN THE PAST?
2. DID WE NOTIFY THE EMPLOYEES OF THE RESULTS INCLUDING THE PRESENCE OF X-RAY FINDINGS, SUCH AS PLUERAL PLAQUES?
3. DID WE EVERY SUMMARIZE THE RESULTS (E.G., HOW MANY PEOPLE POTENTIALLY EXPOSED TO ASBESTOS HAD PLEURAL PLAQUES.)?
4. DID WE DO ANY EPIDEMIOLOGICAL STUDIES ON ASBESTOS EXPOSURE AND CAUSES?

ST0005291

PIPECOVER (ASBESTOS) MONITORING

EARLY 1960s - CHEST X-RAYS AND VITALOMETERS.

LATE 1960s - NEW DATA PUBLISHED BY IRVIN SELIKOFF
AND OTHERS.

AUGUST, 1969 - PROJECT ASBESTOS ELIMINATION.

CHUCK KRAMER TO MT. SINAI FOR ONE WEEK WITH DR. SELIKOFF.

NEW PROGRAM STARTED:

- INITIAL SERIES OF 5 CHEST X-RAYS.
- PULMONARY FUNCTION.
- SMOKING HISTORY QUESTIONNAIRE.
- ACTIVELY WORKING PIPECOVERERS.
- FILMS READ BY DR. WILLIAM STRAUB, MIDLAND HOSPITAL.
- LETTER TO PIPECOVERER'S HOME ADDRESS AS TO RESULTS.
IF NEW FINDINGS, SEEN BY DOW M.D.
AUTHORIZED VISIT TO DR. QUINTER BURNETT, SAGINAW.
- OPEN DOOR POLICY.

ST0005292

PROJECT ASBESTOS ELIMINATION

Beginning on August 4, 1969 and continuing for four days thereafter a series of meetings were held in the conference room at 438 building. The people attending included all of the Coverers, Field Service Unit supervision and production personnel. Field Service Unit section managers were responsible for having the proper personnel at the meeting.

Subject: How does the handling of asbestos insulation affect me? What are the solutions: How do we implement these solutions?

Speakers: Redacted Moderator, Roy DeGesero - Environmental Health Aspects,
- The Hazards of Asbestos, Larry Warren - What We Can
- New Materials and Methods

The same presentation was given to the UMWA-Management Bargaining Committee (coverers request) on August 19th.

Conclusions: On August 11 it became mandatory that approved respirators be worn when working with asbestos-containing materials. Purchasing was instructed to notify Aircell DVS that we would purchase no more Aircell after 90 days and an intensive drive made to find a non-asbestos substitute for Calcium-Silicate. Careytemp 1500 was the most likely candidate and Phillip-Carey Company agreed to eliminate asbestos from this product on a trial basis. On October 29 the same procedure was instituted with regard to Calcium-Silicate. A continuing search is being made to come up with better material and techniques for insulation. We still are using asbestos-containing materials on high temperature applications and in oven insulating circuits.

7-17-70
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DOW 06611

MEDICAL INFORMATION

The Medical Department is concerned about the hazards of excessive asbestos exposure not only because of the possibility of developing asbestosis, a permanent scarring condition of the lungs, but also because of the increased risk of developing lung cancer. We know that cigarette smoking along with exposure to asbestos dusts increases the risk of developing lung cancer about 80 times. Therefore, it is against your best general interest to smoke from a health standpoint--more so, if you are a pipe coverer.

Always wear the proper protective equipment when working with asbestos containing insulation materials.

The Medical Department maintains surveillance of all pipe coverers through periodic chest x-rays, measurements of breathing ability and health screening examinations. After an initial series of chest x-rays are taken, if you are under 40 years of age or have been pipe covering less than 10 years, follow up x-rays will be taken every year. If you are over 40 years of age or have been pipe covering more than 10 years, follow up chest x-rays will be taken every 6 months.

ST0005294

In recent years we have markedly reduced the use of asbestos in the Midland Plant. Our long range plans call for complete elimination of asbestos; however, until this is possible through the substitution of other materials, you are urged to use extreme caution when working with asbestos containing insulation.

Should you have any question relating to your health in regard to the handling of these materials, please contact the Medical Department at 6-2243.

OCTOBER, 1972:

Redacted HAND DELIVERS ALL
PIPECOVERER FILMS TO
CLEVELAND, OHIO.

DECEMBER 5 AND 6, 1972:

- Redacted VISIT TO MIDLAND TO
EVALUATE OUR MONITORING PROGRAM.
PLANT VISITS TO CHLORINE CELLS AND
PIPECOVERERS' WORKING AREAS.
- WHAT DOES PLEURAL CALCIFICATION (PLAQUES)
AND PLEURAL THICKENING REALLY MEAN?
- MEETING AT DOW SUITE.
- CONSULTATION WITH EACH COVERER REGARDING
Redacted FINDINGS.

ST0005295



11311 SHAKER BOULEVARD / CLEVELAND, OHIO 44104 / (216) 791-1000

November 20, 1972

D. J. Ducommun, M.D.
Medical Department
Dow Chemical Co.
Post Office Box 1693
Midland, Mich. 48640

Dear Dr. Ducommun:

Enclosed is a list of the men who show some abnormality that might be related to their exposure. Several of the others have some abnormalities but of a very minor or insignificant nature and in no way related to their occupation.

The reading on these films is consistent with that used in the ILO or UICC classification. Thus, 0/0 means that there is nothing in the lung parenchyma to suggest a pneumoconiosis. In contrast, 1/0 means that there is a pattern which could be consistent with the most minimal changes related to a pneumoconiosis and the more severe categories go on up to 3/3 and the size of the densities are also classed by letters.

As you can see, the bulk of the abnormalities had to do with changes in the pleura, only two men showing something that I thought was definitely in the lung parenchyma itself. I still utilize the term "asbestosis" to indicate only that kind of abnormality which is intra-parenchymal. I am aware that abnormal pleura thickening and calcification is related to asbestos exposure but I do not use the word "asbestosis" to cover pleura thickening. I take this attitude because the term "asbestosis" has far more clinical significance than simple thickening or plaque formation in the pleura. The latter, unless extraordinarily extensive, has no real clinical importance. This is a rather subtle point and if the word "asbestosis" is used to include such things as pleura changes, one has great difficulty in medical/legal, or even in patient/doctor relationships.

It is also interesting that none of the men under the age of forty showed any abnormality related to exposure and those who showed the most striking changes are all over the age of forty-five.

ST0005296

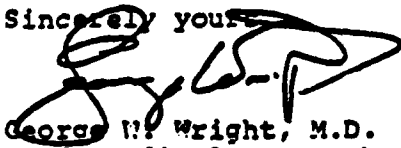
Page 2.

D. J. Ducommun, M.D.
November 20, 1972

It would be nice if you could pull these films and we could go over them together. Also, take any others out that you would like to discuss. I am looking forward to seeing you in December.

With best wishes,

Sincerely yours



George W. Wright, M.D.
Head, Medical Research
Division

GMW/b
enc:

ST0005297

AS YOU CAN SEE, THE BULK OF THE ABNORMALITIES HAD TO DO WITH CHANGES IN THE PLEURA, ONLY TWO MEN SHOWING SOMETHING THAT I THOUGHT WAS DEFINITELY IN THE LUNG PARENCHYMA ITSELF. I STILL UTILIZE THE TERM "ASBESTOSIS" TO INDICATE ONLY THAT KIND OF ABNORMALITY WHICH IS INTRA-PARENCHYMAL. I AM AWARE THAT ABNORMAL PLEURA THICKENING AND CALCIFICATION IS RELATED TO ASBESTOS EXPOSURE BUT I DO NOT USE THE WORD "ASBESTOSIS" TO COVER PLUERA THICKENING. I TAKE THIS ATTITUDE BECAUSE THE TERM "ASBESTOSIS" HAS FAR MORE CLINICAL SIGNIFICANCE THAN SIMPLE THICKENING OR PLAQUE FORMATION IN THE PLEURA. THE LATTER, UNLESS EXTRAORDINARILY EXTENSIVE, HAS NO REAL CLINICAL IMPORTANCE. THIS IS A RATHER SUBTLE POINT AND IF THE WORD "ASBESTOSIS" IS USED TO INCLUDE SUCH THINGS AS PLEURA CHANGES, ONE HAS GREAT DIFFICULTY IN MEDICAL/LEGAL, OR EVEN IN PATIENT/DOCTOR RELATIONSHIPS.

ST0005298

DECEMBER 20, 1977:

- MEETING WITH DR. IRVIN SELIKOFF, MT. SINAI, N.Y.
- REVIEW OF MONITORING PROGRAM.
- RECOMMENDED ADDITIONS:
 - SPUTUM CYTOLOGY - FREQUENCY?
 - ANNUAL HEMOGLOBIN AND STOOL FOR OCCULT BLOOD.
 - ANNUAL URINALYSIS INCLUDING MICROSCOPIC.
 - ANNUAL EXAM OF MOUTH AND THROAT.
 - CHEST X-RAY INTERPRETATION USING ILO SYSTEM.
 - CONSIDER MAINTENANCE WORKERS IN SURVEY.

FEBRUARY 28, 1978:

- VISIT TO JOHNS-MANVILLE HEADQUARTERS, DENVER.
DR. GEORGE WRIGHT, DR. PAUL KOTIN, DR. WILLIAM PAUL
- SPUTUM CYTOLOGY PROGRAM:
 - NO VALUE IN PLEURAL MESOTHELIOMA.
 - DIFFERENCE IN PROGNOSIS AND LONGEVITY?
 - HAS ENCOURAGED SMOKERS TO STOP.
 - RESEARCH PROGRAM. 13 MONTHS.
 - COST.
 - RESULTS AFFECTED BY RESPIRATORY INFECTION
AS WELL AS SMOKING.

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JUNE, 1978:

- PIPECOVERERS' LETTERS DISCONTINUED.
- PIPECOVERERS' REVIEW WITH PHYSICIAN DOING PHYSICALS STARTED.

OCTOBER 6, 1982:

- ASBESTOS MSR APPROVED BY U.S. AREA MEDICAL DIRECTOR

NOVEMBER 11, 1982:

- PIPECOVERERS' REVIEW PROGRAM DISCONTINUED.

NOVEMBER 4, 1983:

- OSHA EMERGENCY TEMPORARY STANDARD CHANGES PEL FROM 2 FIBERS/CC TO 0.5 FIBERS/CC OF AIR (8 HOUR TWA).
- WE PROPOSE RETURNING TO PIPECOVERERS' REVIEW.

EST0005300

MEDICAL SURVEILLANCE REQUIREMENT
HEALTH SURVEILLANCE PROGRAM
DOW CHEMICAL U.S.A.
ASBESTOS

HEALTH HISTORY:	Annually
Physical Measurements	Every 2 years
BLOOD CHEMISTRIES:	Every 2 years
Alk Phosphatase, SGOT, SGPT, Total Bilirubin, Glucose, Cholesterol, BUN, GGPT, Total Protein, Globulin, Albumin, LDH, Serum Creatinine	
CBC & URINALYSIS:	Every 2 years
VISION:	Every 2 years
STOOL HEMOCULT:	Over age 40 - Every 2 years
TONOMETRY:	Over age 40 - Every 2 years
ELECTROCARDIOGRAM:	Under age 40 - Every 4 years Over age 40 - Every 2 years
CHEST X-RAY:	Annually
PULMONARY FUNCTION: FVC, FEV ₁ , FEV ₁ /FVC FEF ₂₅₋₇₅	Annually
AUDIOGRAM:	Every 2 years

EXIT

PERIODIC CORE EXAMINATION	Every 2 years
CHEST X-RAY	Annually

Health Surveillance Council
10-6-82

ST0005301

210-4

DOW 06619

LUNG CANCER

5 YEAR SURVIVAL IN LUNG CANCER PATIENTS HAS REMAINED 8-10%.

LUNG CANCER IS LEADING KILLER IN MEN NOW, AND WILL BE THE
LEADING KILLER IN WOMEN IN THE 1980's.

LUNG CANCER ACCOUNTS FOR 25% OF ALL CANCER DEATHS, 5% OF
ALL DEATHS.

IN THE PAST 5 YEARS MORE AMERICANS HAVE DIED OF LUNG CANCER
THAN WERE KILLED IN ALL THE WARS IN OUR NATION'S HISTORY.

IN THE U.S.A. CIGARETTE SMOKING IS RESPONSIBLE FOR MORE THAN
80% OF LUNG CANCERS.

RISK INCREASES RAPIDLY AFTER AGE 45 IN SMOKERS, ESPECIALLY IN
THOSE WHO SMOKE MORE THAN 1 PACK PER DAY. IF A SMOKER
QUITS, HIS RISK RETURNS TO BACKGROUND LEVEL IN 15 YEARS.

P. J. BROWNSON, M.D.

11-81

1. ARE DOW'S TESTS SUFFICIENT?
2. SHOULD DOW MEET MORE OFTEN WITH THE COVERERS?
3. IS YOUR X-RAY INFORMATION GIVEN TO YOU "CORRECT"
IN YOUR OPINION?
4. WOULD YOU LIKE YOUR OWN DOCTOR INVOLVED IN THE
MONITORING PROCESS?
5. SHOULD THE UNION REQUEST AN OUTSIDE RADIOLOGIST'S
REVIEW?

IST0005303

1. ARE DOW'S TESTS SUFFICIENT?
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REVIEW?

EST0005307

11-81

ASBESTOS

1907 - FIRST REPORT OF TOXICITY (ASBESTOSIS-FIBROSIS)

1941 - WORLD WAR II HEAVY USE IN SHIPBUILDING
25 YEAR LATENT PERIOD.

1960's FIRST REPORTS OF CARCINOGENIC HAZARD.

HEAVY ASBESTOS EXPOSURE → 5 X RISK OF LUNG CANCER.
CIGARETTE SMOKING ABOVE → 10 X RISK OF LUNG CANCER;
SMOKING & ASBESTOS EXPOSURE → 90 X RISK OF LUNG CANCER.

INCONCLUSIVE EVIDENCE REGARDING G.I. CANCER FROM
ASBESTOS.

MESOTHELIOMA -- "SIGNAL" CANCER FROM ASBESTOS, RARE, IS
DOSE-RELATED.

EST0005308

11-81

DOW SCREENING PROGRAMS

ASBESTOSIS SCREENING STOPPED IN EARLY 60'S
BECAUSE OF NEGATIVE STUDIES THEN.

NEW DATA FROM SELIKOFF IN 1969 ADVISED RENEWED
SCREENING; EVIDENCE OF HAZARDS AT EXPOSURE LEVELS
BELOW THE OLD TLV.

slides

EST0005309

DOW SCREENING FOR COVERER

ANUALLY OFFER: PULMONARY FUNCTION TESTS

P A CHEST X-RAY

HEALTH SURVEILLANCE EXAM

HISTORY

BLOOD TESTS

URINALYSIS

STOOL HEMOCCULT

IN ADDITION TO ABOVE, FOR THOSE OVER AGE 40, OR WITH MORE THAN
10 YEARS COVERING, OFFER EVERY 6 MONTHS:

PULMONARY FUNCTION TESTS

P A CHEST X-RAY

EST0005310

DATA REVIEW PROCESS:

X-RAY FILMS READ BY MICHIGAN DIVISION M. D. AND
AEL CHEST FILMS READ AGAIN BY CONSULTING RADIOLOGIST;
THEIR REPORTS REVIEWED BY THE DOW M. D.
PULMONARY FUNCTION TEST RESULTS COMPUTER ANALYZED
THEN REVIEWED BY DOW M. D.

ALL COVERERS ARE INVITED FOR INDIVIDUAL REVIEW OF
THEIR X-RAYS AND REPORTS, PULMONARY FUNCTION RESULTS,
AND HEALTH SURVEILLANCE DATA, USUALLY SCHEDULED
SEVERAL WEEKS AFTER THEIR X-RAYS.

ABNORMAL FINDINGS ARE REFERRED TO CONSULTING THORACIC
SURGEONS FOR EVALUATIONS - SOME CASES WILL HAVE ADDI-
TIONAL TESTS, SUCH AS TOMOGRAMS, CT SCANS, BRONCHO-
SCOPY WITH CYTOLOGIC WASHINGS, MEDIASTINOSCOPY,
BIOPSY.

EST0005311

DOW 06626

PULMONARY FUNCTION TESTING

NORMAL AGE EFFECT -- LOSE 25-30 CC/YR. IN VITAL CAPACITY

ASBESTOS EXPOSURE CAUSES DOSE-RELATED ACCELERATED
LOSS, WITH DIMINISHED FVC, REDUCED FEV₁, USUALLY
NORMAL RATIO FEV₁/FVC.

EST0005316

LUNG CANCER

1900 LESS THAN 80 CASES IN WORLD LITERATURE.

1912 400 CASES REPORTED.

1914 - 1917 WORLD WAR 1 MEN BEGAN SMOKING IN LARGE NUMBERS.

1930 2,357 DEATHS FROM LUNG CANCER.

1943 9,205 DEATHS FROM LUNG CANCER.

1950 18,313 DEATHS FROM LUNG CANCER.

1950 - 1975 185% INCREASE IN LUNG CANCER IN MEN.
239% INCREASE IN LUNG CANCER IN WOMEN.
ALL OTHER CANCER FELL FROM 1950-75 TO 1940 LEVELS.

EST0005317

LUNG CANCER

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