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Mobil

Memorandum from T. E. ALLEN, M. D.
NEW YORK, N. Y.

Date 13 August 1973

To

Dr. H.H. Golz
API

Dr. Allen has asked me to send the attached to you for your information.

Joan DiGangi
Dr. Allen's Secretary

MBEA005792

Memo to File

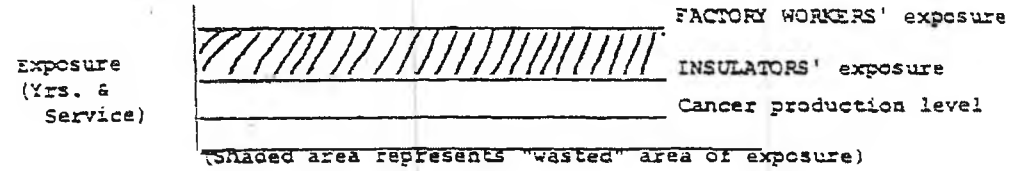
As noted in a memorandum dated 11 July 1973, a meeting was arranged, following an invitation from Dr. Irving Selikoff, to meet with him at the Mt. Sinai Medical Center. Attending the meeting were:

Dr. Harry Hermann - Associate of Dr. Selikoff - NY
Dr. W. Nicholson - Associate of Dr. Selikoff - NY
Dr. N. Roberts - Assoc. Medical Director, Exxon Corp.-NY
Dr. M. Goldman - Ass't. Medical Director, Exxon Corp.-NY
Dr. H.A. Sinclaire - Assoc. Medical Director, Mobil-NY
Dr. T.E. Allen - Medical Director, Mobil-NY

The purpose of the meeting was to present findings that Dr. Selikoff had made following examination of a group of represented Mobil employees (Paulsboro Refinery) on the request of the union at Paulsboro. In addition, Dr. Selikoff hoped that, on discussion of these findings, the group might be able to advise him whether such findings might be considered typical and usual of an average refinery population.

The meeting lasted approximately two and one half hours and consisted principally of a presentation of asbestosis as an occupational illness, with major points of same being illustrated by x-rays, statistics, and data gathered on the Mobil population examined. No list of examinees was given, and, at no time, was any data or x-ray identified by a specific name.

Initially, Dr. Selikoff gave a brief discussion of the disease, asbestosis. In this coverage, he covered the highlights of work being done here and in U.K. He mentioned historical work done in shipyards in USA and U.K. He made it clear that, during the discussions, he would be talking in terms of "insulators, brick workers, etc. in user companies," rather than in terms of "factory workers" (where asbestos products, piping, etc. are made such as Johns Manville, etc.). In spite of this, he pointed out that if exposure to asbestos fibers in insulators was enough to produce malignancy, the great exposure normally experienced in factory employees was "excess exposure" as far as cancer was concerned. Graphically shown, this would be as follows:




Dr. Selikoff pointed out that the typical x-ray findings in a case of asbestosis were:

1) General thickened pleura (the pleura is the thin, transparent covering of the lungs)
2) Pleural plaques (a concentration of thickening of the pleura in certain specific areas)
3) Reticular fibrosis (intensified marking throughout lung tissue, particularly in lower lung fields producing a

4) A shaggy appearance to the heart outline.
5) Blunting or even complete obliteration of the area where the diaphragm touches the rib area.

It was emphasized that the above findings were typical of but not pathognomonic (specifically distinctive or diagnostic) of asbestosis. These findings, along with an extensive work or exposure history, can be considered diagnostic. One does not necessarily need to have positive pulmonary function tests to clinch the diagnosis. The development of asbestosis need not produce death in any person sufficiently exposed, but, there is developed in cases of asbestosis susceptibility to lung cancer, and even to mesothelioma, a specific type of malignancy.

In regard to Mobil's employee group at Paulsboro, Dr. Selikoff stated he was requested by the "union" there to examine a group of represented employees. This group of employees was presented by the union to Dr. Selikoff who did not have a voice in the choice and he had no previous knowledge of the examinees' medical, work or social history. He stated emphatically that, as a result, the study was a biased one, but he could not state whether it was biased in favor of a sick, average or well group. The only point on which there was certainty was that all examinees had had at least 20 years of work in the refinery. On several occasions, the size of the examined group was stated to be 137, this is not quite accurate because only 118 were examined. The remaining 19 were those employees who, at an earlier date, had been seen only for a chest x-ray and chest examination and, on whom, the union requested the company x-rays be forwarded to Dr. Selikoff at his Paterson, N.J. office.

Dr. Selikoff handed out six sheets showing in graph form some of the findings resulting from his examination of the 118 employees. (It should be noted that the examinations were done by a team of 9 people from Mt. Sinai Medical Center who, with the aid of mobile x-ray unit, completed these examinations during one week-end.) After the charts were handed out, discussion was so continuous that it was not possible to examine these charts thoroughly. Constant references were made to the charts, however, during the discussion.

On the days following the conference, when the undersigned was able to thoroughly review these charts, it was evident that there were many errors in calculation, as well as some ambiguity in reporting the population studied and the results found in same. A call was made to Dr. Selikoff's office and some corrections were offered via the phone, and others were made by sending revised charts to replace those in question.

Attached are copies of the revised tables issued to us at the meeting. Table VI was not given at the meeting. It was included in a later mailing to the undersigned. General comments on the tables, which are self-explanatory, include the following.

It will be immediately obvious from Table I that the medical review was not restricted to "active" employees as was first thought. We are told by Dr. Selikoff's office that the breakdown of the 137 examinees is as

follows:

| | |
|---|---|
| annuitants | 13 |
| "active" employees | 105 (full medical review) |
| "active" employees | 19 (partial medical review) |

The 19 employees listed above were employees (no annuitants) who were seen at an earlier date by Dr. Selikoff and on whom only a chest examination and a chest x-ray were done. This was the group of employees on whom the union requested their company x-rays to be sent to Dr. Selikoff.

We are not aware in which group, i.e. service, the 13 annuitants fall. We can assume they may be in the 30-39 and 40-49 because it is in this group that ages in excess of normal retirement age are listed. It is possible that some might be in the first service category, 20-29 yrs., if they retired at an age younger than 65 years.

The remaining tables are self-explainatory but indicate, among other things, that

1) none of the cases in this series showing classic signs of asbestosis are "serious" cases. There is no doubt that, in x-ray films shown to us (some taken in the mobile unit - some previously in the group of 19) there are some x-ray signs indicative of asbestosis. Unfortunately, we were not given the names of the patients represented in the x-rays shown as samples. Dr. Selikoff feels, from his long experience, that x-rays alone (if not correlated with pulmonary function tests, etc.) tend to "unread" the time picture of asbestosis.

2) Clinical findings such as bronchitis and positive x-ray findings and pulmonary function tests are higher in "smokers" than "non'smokers" and higher in "ex smokers" than in the group which has no smoking history.

3) A high percentage of this group are "no hisotry of smoking" (28%) and "ex smokers" (39%) making a total group of "non smokers" - 67%.

4) The study is unique in one aspect. With the expected exposure of this group of employees to firebrick, there is no indication of silicosis. Firebrick is about 85% quartz in composition.

We are not prepared, at this time, to dispute or confirm Table VI. It is interesting to note that cancer of the lung in this group studied is recorded as 0.8%. The national average of cancer of the lung (males) is 3+%.

Probably the most revealing and appropriate chart is Table VII. This shows that of all the categories of workers represented in the study, that of the insulators, masons and bricklayers (13), 81% show positive signs of both pleural and parenchymal involvement of asbestos exposure. This is markedly

higher than the findings in all other occupations represented. Again, it was stated by Dr. Selikoff that although asbestosis is unquestionably established as a diagnosis, these do not represent presently "serious" cases.

Attached with the statistical tables is a copy of the recording form used in the analysis of x-rays of patients whose occupation might make them liable to pneumoconioses (chronic fibrous reaction in the lungs to the inhalation of any type of dust) such as asbestos, iron dust, cloth fibers, and silica. It should be noticed that this form and its legend is the official classification established by the I.L.O., and generally accepted as a classification by most pulmonary and occupational health specialists.

Dr. Selikoff feels that, in an ideal program of preventive health, workers with 20 years or more exposure in jobs involving insulating materials, fire-brick and masonary cement, chest x-rays should be done every three months. He also thinks many other preventive procedures to protect their respiratory systems should be instituted. Thus, he advocates the administration of flu vaccine each year for such a group. Above all, he urges all workers to stop smoking.

Dr. Selikoff was most professional in his conduct during this session. At no time did he mention the company's name and only, as identification of location of the worker studied, was the name Paulsboro used. Furthermore, he feels that the union is unaware of "99% of the great work done by the company medical department." "They only see and talk about the bad things when they happen." He cited a common union complaint that "our men naturally are sick breathing in that contaminated air at the refinery every working day." He quickly referred again to Table V showing that chronic bronchitis, if the union complaint had merit, would be appearing in all represented employees, when actually his statistics show it occurs primarily and predominately in the "smokers."

He urged consideration of a joint management - union study of the asbestos workers (those who have been exposed during their work life) in at least five refineries, among which should be included the "best" (as far as modern, but not recent construction) and the "worse." Thus assumes more than one company would be so involved. The whole research project should be jointly sponsored - developed and each side totally aware of the progress from planning through completion stages.

Such a study can be done by any one of many agencies. There is no doubt that it could be done by the federal government - through the agency of NIOSH. If done by them, he feels it would be a fair, well done and complete study. However, NIOSH could and would probably look at such a project only once and not on a continuing basis, and this type of study needs at least a 20-30 year follow-up since this can be the "incubation" period of asbestosis.

The study could be done completely by any outside agency, such as an academic group or a private research group. Needless to say, choice of the group would have to be mutually agreeable.

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The ideal project, in Dr. Selikoff's opinion, is one planned with, guided and supervised by capable outside experts, but with all the examinations, x-rays, lab. work done by the company inplant medical department. He feels this is the only source of ongoing interested medical supervision available to the men. He does feel that, in Paulsboro's case, it may well take a gigantic effort to get the union and management to mutually trust each other in such an undertaking. He does not feel that it is impossible, and he feels every effort should be made to accomplish this goal. Again, he pointed out that, in the general male population of the USA, there is a 3-4% death rate due to lung cancer. Admittedly, there are multiple etiological factors in development of lung cancer. However, if and when lung cancer occurs in a company worker exposed to such materials as asbestos, the first and most obvious conclusion is that this is due to a carcinogenic material in the work environment. This is difficult to combat, and admittedly, can be unfair to managements. Research and careful clinical follow-up can establish data that could remove the haziness as to responsibility in all such cases.

In summation, Dr. Selikoff presented findings to the group in a most professional and non spectacular fashion. He admitted repeatedly the group studied is an ideal one in many respects. A more ideal study, jointly sponsored by management and union, should be undertaken. Mobil is not the only petroleum company with this problem (cases in Texaco were cited). Dr. Selikoff did not pretend to be an expert on refinery health since he has never had an opportunity to visit a refinery.

No commitment was made to him as to follow up to his presentation or suggestions.

After the close of the meeting, Dr. Selikoff was asked if he would explain his relationship to either OCAW or independent unions in the petroleum industry. He answered that he has no contract with OCAW or any union. OCAW and independent unions have and do request the Mt. Sinai Medical School - Department of Environmental Medicine to do projects for them as indicated in this study of some Paulsboro employees. He emphasized his commitment is not unilateral, and both the school and he, as an individual, are free at any time to consider research or consultant capacities with any agency, management, union or government.

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Table I

Age distribution of 137 refinery workers, by years since first exposure

| Years since first exposure | Length of exposure (years) | Number | Age range | Average age |
|---|---|---|---|---|
| 20-29 | 20-29 | 65 | 41-65 | 50.0 |
| 30-39 | 30-39 | 55 | 48-70 | 53.4 |
| | 15 | 1 | 81 | 81 |
| 40-49 | 40-47 | 12 | 59-66 | 63.1 |
| | 36-39 | 4 | 64-70 | 68.2 |

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Table II

Work Activities of 137 Production and Maintenance Employees

| Type of Work | Active | Retirees |
|---|---|---|
| "Clean Work" (Docks, Case-Can, Auto Shop) | 10 | 1 |
| "Dusty" Production Work (Bead Plant, Filter Dept.) | 5 | |
| Fume Exposure (All other production units) | 28 | 7 |
| Mixed Fumes and Dust | 6 | |
| "Clean" Maintenance (Carpenters, Machinists, Electricians, etc.) | 21 | 2 |
| High Asbestos Exposure (Insulators, Masons, and Bricklayers) | 13 | 3 |
| Other Maintenance (Pipefitters, Welders, and Boilermakers) | 41 | |
| Totals | 124 | 13 |



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X-ray changes

| Length of exposure (years) | Number of Persons | Parenchymal 1 | Parenchymal 2 | Pleural (only) | Total pleural changes | Total changes Parenchymal and/or pleural | No changes |
|---|---|---|---|---|---|---|---|
| 20-29 | 66 | 18 28% | 2 3% | 10 15% | 15 23% | 30 46% | 35 54% |
| 30-39 | 56* | 20 36% | 2 4% | 3 5% | 3 5% | 25 45% | 31 56% |
| >40 | 16 | 9 57% | 1 6% | 0 | 3 19% | 10 62% | 6 38% |
| Total | 136* | 47 34% | 5 4% | 13 10% | 21 15% | 65 48% | 72 52% |

* A X-ray of one individual was unsatisfactory and could not be read

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Table III

Pulmonary function abnormalities
in relation to X-ray changes
and smoking

| | Restriction | | | | Obstruction | | | |
|---|---|---|---|---|---|---|---|---|
| | Smokers | Ex-smokers | Non-smokers | Total | Smokers | Ex-smokers | Non-smokers | Total |
| Parenchymal and/or pleural changes<br>Number of persons 65 | 7<br>11% | 6<br>9% | 3<br>5% | 16<br>25% | 11<br>17% | 9<br>14% | 0 | 20<br>31% |
| No changes<br>Number of persons 71 | 2<br>3% | 2<br>3% | 2<br>3% | 6<br>9% | 8<br>11% | 5<br>7% | 3<br>4% | 16<br>22% |

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Table IV

Smoking Habits

| Length of exposure (years) | Number of Workers | Smokers | Ex-smokers | Non-smokers |
|---|---|---|---|---|
| 20-29 | 65 | 22<br>34% | 23<br>35% | 20<br>31% |
| 30-39 | 56 | 19<br>34% | 21<br>37% | 16<br>29% |
| 40+ | 16 | 4<br>25% | 10<br>62% | 2<br>13% |
| Total | 137 | 45<br>33% | 54<br>39% | 36<br>28% |

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Table V

Prevalence of Chronic Bronchitis

| Length of exposure (years) | Number of Persons | Smokers | Ex-Smokers | Non-Smokers | Total |
|---|---|---|---|---|---|
| 20-29 | 65 | 9 | 4 | 3 | 16<br>25% |
| 30-39 | 56 | 11 | 3 | 1 | 15<br>27% |
| 40+ | 16 | 1 | 1 | 0 | 2<br>12.5% |
| Total | 137 | 21 | 8 | 4 | 33<br>24% |

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Table VI

History of previous cancer in 118 refinery workers

| Cancer | Number of cases | |
|---|---|---|
| Skin | 2 | 1.6% |
| Bladder | 2 | 1.6% |
| Colon | 1 | 0.8% |
| Abdominal | 1 | 0.8% |
| Lung | 1 | 0.8% |
| Total | 7 | 6 % |

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T a VII

X-ray Results of Refinery Productio. .nd Maintenance Employees

| | Negative | | Positive | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ype of Work | 0/0 | 0/1 | 1/0 | 1/1 | 1/2 | 2/1 | 2/2 | Pleural | % Positive |
| 'Clean Work" (Docks, :nse-Can, Auto Shop | 5 | 4 | 1 | 1 | | | | | 18 |
| )ust (Dead Plant, 'ilter Dept.) | 1 | 3 | | | | | | 1 | 20 |
| 'umes (All other )roduction units) | 9 | 9 | 8 | 5 | | 1 | 1 | 1 | 47 |
| lixed Fumes and )ust | 1 | 3 | | | | 1 | | 1 | 33 |
| 'Clean"maintenance .Carpenters, Machin- .st, Electricians, .tc.) | 6 | 5 | 3 | 7 | | | 1 | 1 | 52 |
| .ther maintenance :Pipefitters, Welders, .nd Boilermakers) | 11 | 11 | 4 | 6 | 5 | | | 4 | 46 |
| nsulators, Masons, .nd Bricklayers | 3 | 1 | | 8 | 2 | | 1 | 2 | 81 |
| | | | | | | | | overall | 48 |

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# VIRONMENTAL SCIENCES LABORATORY

T SINAI SCHOOL OF MEDICINE OF THE CITY UNIVERSITY OF NEW YORK

Number

Research Group

ent:

C International Classification of Radiographs of Pneumoconioses BIT ILC Classification Internationale des Radiographies de moconios

| | ROUNDED SMALL OPACITIES | | | IRREGULAR SMALL OPACITIES | | | SMALL OPACITIES | LARGE OPACITIES | | PLEURAL THICKENING | | | | ILL DEFINED DIAPHRAGM | ILL DEFINED CARDIAC OUTLINE | PLEURAL CALCIFICATION | | | | | |
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