

Mobil Oil Corporation

PLAINTIFF'S EXHIBIT

MBL-56

150 EAST 42ND STREET
NEW YORK, NEW YORK 10017

October 29, 1976

Mr. W. E. Griffin
Mobil Chemical Company
P. O. Box 311
Nichols, Florida 33863

INDUSTRIAL HYGIENE SURVEY
EH 73-73
MOBIL CHEMICAL COMPANY
NICHOLS COMPLEX
September 15 - 17, 1976

Dear Mr. Griffin:

Attached please find the report of the Industrial Hygiene Survey of the Nichols Complex performed by E. R. Averill, Senior Industrial Hygienist, on September 15 - 17, 1976. The main purpose of this survey was to evaluate asbestos exposure and handling conditions.

The report indicates that none of the employees are exposed to levels in excess of the allowable OSHA limits. However, it is desirable to substitute the use of asbestos for the reasons stated in the report.

Please feel free to contact E. R. Averill on extension 321 in Edison if you need any further information or clarification.

Sincerely yours,

Lester Levin
Lester Levin

Chief Industrial Hygienist
Medical Department

cc: C. R. Eastman
H. Hattaway
B. N. Kightlinger, M.D.
B. G. Milner

LL:cd
Att.

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I. INTRODUCTION

At the request of local management, an evaluation of the asbestos exposures to the phosphorus furnace operators was undertaken by E. R. Averill, Senior Industrial Hygienist, at the Nichols, Florida complex on September 15 through 17, 1976.

The current OSHA regulation, effective July 1, 1976, has established a time-weighted average (TWA) airborne concentration to asbestos fibers of 2 fibers per cc of air. Recently OSHA has issued a proposed regulation where the TWA for asbestos exposures would be reduced to 0.5 fibers per cc of air.

II. SUMMARY AND RECOMMENDATIONS

A. Summary

The employees who handle asbestos are exposed to minimum amounts. By air sampling measurement, the daily TWA is estimated to be 0.03 fibers per cc of air. However, the actual exposure is much less because they only handle asbestos once a month.

B. Recommendations

Because of the difficulty of complying with the OSHA regulation, we recommend the following action be taken.

1. A substitute for the asbestos fibers and rope should be found and used.
2. All asbestos should be removed from the facility.
3. The asbestos storeroom should be cleaned and free of asbestos.
4. Additional air samples for asbestos should be taken by the local industrial hygiene technician, in the operator control room and the furnace floor.

III. INDUSTRIAL HYGIENE SURVEY

A. Method

Sampling was performed at a rate of 1.5 liters per minute in the breathing zone of the employees with a membrane filter of 0.8 microns porosity, mounted on an open face filter holder. Samples were taken during a simulated mixing of asbestos fibers for application to plug holes of the phosphorus furnace. The samples were then sent to Clayton Environmental Consultants for counting the asbestos fibers at a 400 to 450 magnification with a 4 millimeter objective of a phase contract microscope.

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B. Results

The results of the air samples are summarized below.

TABLE I

SUMMARY OF ASBESTOS AIR SAMPLES

<u>SAMPLE NO.</u>	<u>OPERATION</u>	<u>SAMPLE TIME</u>	<u>AIRBORNE CONCENTRATIONS</u>	
			<u>FIBERS/CC</u>	<u>TWA</u> [*]
1A	(E.W.) Mixing Asbestos Fibers	14 min.	0.91	< .05
2A	(F.M.) Mixing Asbestos Fibers	14 min.	0.49	< .05
1B	(E.W.) Patching Plug Holes	9 min.	0.18	< .05
2B	(F.M.) Patching Plug Holes	9 min.	< 0.20	< .05
3	Floor of Furnace	36 min.	0.04	< .05
4	Cutting and Packing Electrodes	-	0.55	< .05
5	Operator's Room	30 min.	0.54	< .05

* Based on 8 hours

Two employees simulated a typical operation in handling asbestos. Asbestos fibers were mixed by hand with soda silica. This operation took approximately 14 minutes and would be represented by samples 1A and 2A. The bucket of wet asbestos was then taken to the phosphorus furnace and applied at the plug holes. (samples 1B and 2B). In addition, a sample was taken on the floor of the phosphorus furnace. (sample 3) An asbestos rope is used to pack the electrodes on the furnace. A sample was taken in the prescribed manner in the breathing zone of an employee during the cutting of the rope and the packing of the electrodes. (sample 4) The employees handle asbestos fiber approximately once a month for about 1/2 hour. The packing on the electrodes are replaced once every three to four weeks.

All of the air samples indicate that the men's exposure to asbestos fibers during the mixing of the fibers and the application to the phosphorus furnace and the cutting of the rope and the packing of the electrodes, is minimum. Using this data, we can calculate a daily time-weighted average exposure of approximately 0.03 fibers per cc of air. The monthly time-weighted exposures would obviously be much less.

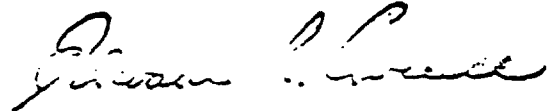
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Sample 5, taken in the control room, showed an asbestos fiber exposure of 0.54 fibers per cc of air, which is unusually high for the control room working environment and we would recommend that the certified local industrial hygiene technician resample the control room at least twice in the next month.

The asbestos fiber and rope are stored in a small building next to the phosphorus furnace office. The building is marked and locked. However, it is evident that there is asbestos contamination in the area where the asbestos fibers are mixed with the soda silica and at the entry door. There were approximately 30 or 40 plastic bags of asbestos stored in this room. Many of the bags were broken and the housekeeping in this room was rather poor.

Even though our survey indicates that the employees' exposures are much below the present 2 fiber standard and even below the proposed 1/2 fiber standard, we would recommend that the use of asbestos be discontinued. Continued use of asbestos would require at least a semi-annual monitoring. In addition, a recent OSHA ruling would indicate that the recordkeeping and medical provisions of the asbestos regulation would have to be fulfilled if an employee handles any asbestos, regardless of the amount of asbestos an employee is exposed to. We would suggest that because of the difficulty of disposing of the asbestos, the supplier be contacted and asked if he would take back the present supply of asbestos without cost. In addition, we would recommend that a substitute for the asbestos rope be obtained. If we can make these two substitutions, we would not have to comply with the sampling requirements, recordkeeping and medical requirements of the asbestos regulations.



E. R. Averill
Senior Industrial Hygienist

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THE FINDINGS OF THE REPORT WERE DISCUSSED WITH THE PLANT MANAGER AT THE CONCLUSION OF THE SURVEY ON 9/17/76.

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March 19, 1976

Mr. E.R. Averill
Mobil Chemical Company
Research and Development Laboratories
P.O. Box 240
Edison, New Jersey 08817

INDUSTRIAL HYGIENE
MAR 2 1976
EDISON

Job No. 4141-376-LA
Date Received: 3/17/76

Clayton Environmental Consultants, Inc.

Dear Mr. Averill:

The filter sample and blank which you submitted to us have been analyzed as requested; the results are compiled below.

Lab No.	Sample Description	Asbestiform Fibers Greater Than 5 Micrometers in Length	
		(per total filter area - ml of air)	
96729	AA-04, Blank	- -	-
96728	AA-03, 64.8 liters	2900	0.04 - <i>Field</i>

The concentration of airborne asbestiform fibers greater than five micrometers in length per ml of air was calculated based on field sampling data supplied by Mobil Chemical Company.

It has been a pleasure to be of assistance to you. Please contact us if you have questions concerning any aspects of this report.

Very truly yours,



Robert D. Soule, P.E.
Vice-President
Director, Laboratory Services

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RESULTS OF ASBESTIFORM FIBER COUNT DETERMINATIONS
FOR
MOBIL CHEMICAL COMPANY

Job No. 4598-976-LA

Lab No.	Sample Description	Asbestiform Fibers Greater Than 5 Micrometers in Length	
		(per total filter)	(per ml of air)
103054	1-A, 25.2 liters	23,000	0.91 - <i>0.91</i>
103055	2-A, 22.4 liters	11,000	0.49 <i>0.49</i>
103056	1-B, 16.2 liters	2,900	0.18 - <i>0.18</i>
103057	2-B, 14.4 liters	<2,900	<0.20 <i>0.20</i>
103058	3, 54.0 liters	*	- - <i>0.54</i>
- - -	- , -3.0 liters	26,000	0.54 - <i>0.54</i>

* Void - Sampled material was too heavily deposited to permit a microscopic fiber count determination.

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C. Asbestos

Sampling for asbestos fibers was performed in the Control Room and Furnace Room using the membrane filter technique. Thirty minute air samples were taken on Millipore Type RA membrane filters and the resulting counts made using a Zeiss microscope with phase contrast illumination. Results of this survey are given in Table III.

TABLE III
ASBESTOS AIR SAMPLING

<u>Sample Number</u>	<u>Location</u>	<u>Number Fibers Greater Than 5 Microns per ml*</u>
1	Control Room, desk	< 1
2	Control Room, panel	< 1
3	Furnace Room	2.3
4	Furnace Room	2.8
5	Furnace Room	1.7
	Threshold Limit Value	5*

IV RESULTS & DISCUSSION

A tremendous improvement has been made at the Florida complex since our last Industrial Hygiene Survey (See E.R. 15-69). In particular, improvements have been made in the welding shop where additional ventilation has been installed to remove welding fumes. Additional toilet facilities have been added and are presently maintained at a high standard of cleanliness. Housekeeping throughout the Nichols and Fort Meade operations was particularly good. The following are the results of the present survey:

A. Noise

With the advent of the Federal Occupational Health & Safety Act of 1970, all Mobil operations must meet the requirements of the law pertaining to noise exposure. The following is a Table of the Permissible Noise Limits:

FEDERAL OCCUPATIONAL HEALTH & SAFETY ACT OF 1970
PERMISSIBLE NOISE EXPOSURE LEVELS

<u>Duration</u> <u>hours/day</u>	<u>Sound Level,</u> <u>A-scale, dB</u>
8	90
6	92
4	96
3	97
2	100
1-1/4	102
1	105
1/2	110
1/4 or less	115

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B. Results

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All of the air samples indicate that the men's exposure to asbestos fibers during the mixing of the fibers and the application to the phosphorus furnace and the cutting of the rope and the packing of the electrodes, is minimum. Using this data, we can calculate a daily time-weighted average exposure of approximately 0.03 fibers per cc of air. The monthly time-weighted exposures would obviously be much less.

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