INTEROFFICE CORRESPONDENCE

DATE September 12, 1974

TO E. T. Gellenbeck - Beaumont
Attn: G. P. Pepper

C.C. R. P. Medlin - Beaumont
D. E. Miller - New York
R. H. Murray, Jr. - New York
W. C. Selfridge - New York
Attn: W. T. Gregg
H. A. Sinclaire, M.D. - New York
Attn: E. K. Daniels

INDUSTRIAL HYGIENE SURVEY
WR-53-74
Asbestos Insulation Removal
Hydrogen Unit
Beaumont Refinery
Beaumont, Texas
August 1, 1974

Attached you will find an industrial hygiene survey conducted at the Beaumont Refinery which was conducted to determine airborne asbestos concentrations during the insulation removal process on a reactor vessel, performed by R. L. Witzke on August 1, 1974. The results of sampling indicated that asbestos fiber concentrations were below the current O.S.H.A. Standard of 5 fibers greater than 5 microns per cubic centimeter. Although all samples were below 5 fibers, some exceeded 2 fibers per cubic centimeter limit which will become effective in 1976.

The data presented in this report represents the most adverse conditions that could be expected. There were no wet control methods used to reduce fiber concentrations. Therefore, to insure work area asbestos fiber concentrations comply with the 1976 limit of 2 fibers, a wet control method should be used as required to reduce airborne asbestos fiber concentrations.

If further questions arise or further assistance be necessary, please contact this office or Mr. Witzke's in Beaumont, Texas.

Robert J. Potts, M.D.
Regional Medical Director

RLW:rm

Attachment

PLAINTIFF'S EXHIBIT
MBL-199

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MOBIL OIL CORPORATION
WESTERN REGION MEDICAL DEPARTMENT
DALLAS, TEXAS

HYGIENE AND TOXICOLOGY

WR-53-74
August 1, 1974

Industrial Hygiene Survey
WR-53-74
Asbestos Insulation Removal
Hydrogen Unit
North American Division
Beaumont Refinery
Beaumont, Texas

Report by: R. L. Whitt

Approved by:

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I. INTRODUCTION

An industrial hygiene survey was requested by Paul Pepper, Complex Plant Manager, to determine airborne fiber concentrations of asbestos emitted during the removal of asbestos bearing insulation. This study was performed by the undersigned on August 1, 1974 as part of the Medical Department's continuing surveillance of in-plant occupational health conditions in the Mobil North American Division facilities, to insure compliance with safety and health standards of the Occupational Safety and Health Act of 1970.

II. SUMMARY

The results of samples collected and analyzed for airborne concentrations of asbestos fibers greater than five microns in length, indicate that the levels were found below the current O.S.H.A. Standard limit of five fibers per cubic centimeter, as presented in Table I; although some of the breathing zone samples collected were found above the O.S.H.A. limit, which becomes effective in 1976, of two fibers per cubic centimeter.

At a distance of 25 feet downwind from the work area, with a 10 mile per hour wind, fiber concentrations were found 50 times below the current O.S.H.A. limit of five fibers per centimeter.

III. RECOMMENDATIONS

Based on the results of this survey, the eight-hour time-weighted average exposure of workers handling asbestos containing material were below current standards. No hazardous situation existed during this sampling episode.

Even though the data represents compliance with current standards, airborne concentrations did exceed the 1976 O.S.H.A. limits for an eight-hour time-weighted exposure. The present work policy of the refinery provides adequate personal protection to employees working in asbestos areas. All asbestos bearing insulation should be wetted to reduce air fiber concentration.

The distance to be designated as a dusty area will depend on the wind speed and height of the insulation being removed above ground. In this study, 25 feet was more than enough.

IV. INDUSTRIAL HYGIENE SAMPLING

In worker breathing zones and the general work area, air samples were collected to determine worker exposure levels to airborne asbestos dust concentrations. Air was drawn through an open-faced Millipore, type AA, 37 millimeter filter, at an airflow rate of 2.00 liters per minute by means of a small battery-operated pump (Mine Safety Appliance Company, Model G). Worker breathing zone samples were collected by placing the pump on the worker's belt and connecting the

sampling head to the worker's collar. Samples were then sent to a private analytical laboratory where they were analyzed for fibers greater than five microns in length and counted. A fiber is classified as having a ratio of 3 to 1 between its length and fiber diameter.

V. REPORT AND DISCUSSION

An industrial hygiene survey was performed during June of 1974 (WR-47-74) regarding the asbestos fiber concentrations emitted during pipe insulation removal. Again insulation was removed without wet control methods. The results of that survey showed all samples to be below two fibers per cubic centimeter.

A study at the Paulsboro Refinery showed no fibers were detected by sampling when a wet control method was used to reduce airborne dust concentrations.

There were eight workers, four pipe insulators and four laborers assigned to strip block-type insulation from the Methanator Reactor vessel walls. The vessel has a surface area of around 780 square feet of which 300 square feet was removed during the sampling duration. Insulation on upper portion of this vertical drum was removed. Insulators would loosen the insulation and hand it to laborers also located on the vessel scaffolding. The insulation was placed into burlap bags which had a polyethylene bag lining on the inside. When the bag was full, it would be lowered to the ground where a worker would shake the bag down, tie, and place a "Caution" tag on the bag. The material was then removed by truck for disposal.

A restrictive barrier was located at a distance of 20 feet around the vessel. The wind was blowing from the north at 10 miles per hour, which was sufficient to blow dust particles outside the perimeter of the restricted area. Asbestos samples collected 25 feet from the vessel showed very low asbestos fibers were among the dust particles present at that distance.

Russel L. Witzke
Assistant Regional Industrial Hygienist

RLW:rm

THESE RESULTS HAVE BEEN DISCUSSED WITH THE PLANT MANAGER BEFORE LEAVING THE PLANT.

MOBIL OIL CORPORATION

Industrial Hygiene Sample Summary Sheet

Plant: North American Division, Beaumont Refinery — By: R. L. Witzke

Process or Department: Hydrogen Unit, Methanator — Date: August 1, 1974

Materials: Asbestos fibers, Wind from the North at 10 m.p.h.

Sample No.	Time	Description	Sample Volume liters	Concentration Asbestos* fibers/CC
1	9:56 11:41		199.5	0.9
2	9:58 11:42		203.8	3.7
3	9:59 11:39	25 feet south of Methanator Reactor	230.0	0.1
4	9:59 11:39	15 feet west of Methanator Reactor	218.0	<0.1
5	9:57 11:42		157.5	0.4
6	9:56 11:40		249.6	4.2
		Acceptable eight-hour time-weighted average exposure level O.S.H.A. limit 1972		5
		O.S.H.A. level limit 1976		2

*Fibers greater than 5 microns in length with a ratio of at least 3 to 1 between the length and diameter of the fiber.

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