

INDUSTRIAL HYGIENE REPORT

TEXAS OPERATIONS

DOW CHEMICAL U.S.A.
AN OPERATING UNIT OF THE DOW CHEMICAL COMPANY

PLAINTIFF'S EXHIBIT

DOW-833

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TITLE:

ASBESTOS MONITORING DURING TRANSITE MODIFICATION
AT B-6803 BY THE PLANT B CARPENTERS

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SUMMARY

Short-term personal asbestos monitoring was done during a transite modification job at B-6803 by the Plant B Carpenters on November 9, 1988. The monitoring was done to ensure that the approved asbestos handling procedures would result in acceptable airborne concentrations of asbestos.

All measured asbestos concentrations were well below the OSHA STEL of 1.0 fiber per cubic centimeter (30 minute period) for employees performing the job. The highest personal short-term level found was 0.063 fibers/cc.

ST0015373

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**ASBESTOS MONITORING DURING TRANSITE MODIFICATION
AT B-6803 BY THE PLANT B CARPENTERS.**

INTRODUCTION

Personal monitoring for exposure to asbestos was done during the modification of transite siding at B-6803 by the Plant B Carpenters. The job consisted of cutting two holes measuring approximately 2 to 2 1/2 inches. The monitoring was done to ensure that the use of approved job procedures would result in acceptable airborne concentrations of asbestos.

CONCLUSIONS AND RECOMMENDATIONS

1. All measured asbestos concentrations were well below the OSHA Permissible Exposure Limit (PEL) of 0.2 fibers per cubic centimeter and the OSHA STEL of 1.0 fiber/cc for a thirty minute period. The highest level found was 0.063 fibers per cubic centimeter during the thirty minutes that it took to to drill holes in the transite. All exposures were potential since workers within the regulated areas wore half-face respirators with high-efficiency particulate air (HEPA) cartridges.
2. A local exhaust method was used during the drilling and removal of the transite material. The method used is described on Table I of this report. Texas Operations asbestos handling procedures must always be followed. The Texas Operations Asbestos Handbook and Safety Standard T-12 must be reviewed. These procedures are designed to make the transite removal jobs safe. If these procedures are not followed, a potentially serious exposure or safety situation may result. For this reason, the asbestos handling procedures must be reviewed, understood, and enforced by all personnel involved in the asbestos removal jobs.

RESULTS AND DISCUSSION

Table I shows the results of personnel monitoring during the drilling of transite siding. The highest potential personnel measurement was 0.063 fibers per cubic centimeter, for the 25 minute job. Results showed that measured short-term concentrations were well below the OSHA STEL of 1.0 fibers per cubic centimeters for a 30 minute period.

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**ASBESTOS MONITORING DURING TRANSITE MODIFICATION
AT B-6803 BY THE PLANT B CARPENTERS**

DISCUSSION AND RESULTS (CONT')

The results clearly show that the potential for harmful exposure to asbestos during the drilling and removal of transite jobs is very low when local exhaust ventilation is used when glove bag or enclosures are not feasible. However, improvement is needed in the asbestos handling procedures (i.e. pre-job meetings, ensuring job procedures are followed, etc.). These procedures are designed to make the transite removal jobs safe. For this reason, the asbestos handling procedures must be reviewed, understood, and enforced by all personnel involved in the asbestos removal jobs.

METHODOLOGY

Asbestos samples were collected using Gilian HFS 513A and 113A air sampling pumps. A known volume of air was pulled through a 25 millimeter mixed cellulose ester membrane filter, 0.8 micron pore size. Samples were collected at a flow rate of approximately 2.0 liters per minute. The pumps were calibrated before and after the sampling, and the samples were counted by McKee Environmental Health Services using phase contrast microscopy. NIOSH method 7400 used.

EVALUATION CRITERIA

The evaluation of exposure levels was based on the following criterion:

<u>AGENT</u>	<u>EXPOSURE GUIDELINE</u>	<u>SOURCE</u>
Asbestos	0.2 fibers/cc (8-Hr.TWA) 1.0 fibers/cc (30 minute)	OSHA (PEL) OSHA (STEL)

The OSHA Permissible Exposure Limit (PEL) is the time-weighted average concentration for a normal 8-hour workday, 40-hour work week, to which nearly all workers may be repeatedly exposed without adverse health effects. The OSHA Short-term Exposure Level (STEL) is the excursion limit averaged over a thirty minute period.

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TABLE I

ASBESTOS MONITORING DURING TRANSITE MODIFICATION
AT B-6803 BY THE PLANT B CARPENTERS

Master Number	Sample Number	Date	Sample Time (Min)	Concentration (fibers/cc) TWA
138138	CS6803-1	11-9-88	24	0.02
134272	CS6803-2	11-9-88	25	0.06
		OSHA STEL (30 MIN)		1.0

NOTE:

The following job procedure was used:

Two holes, approximately 2 to 2 1/2 inches, were drilled through a transite wall. The transite material was kept wet during the entire job. During the entire procedure a HEPA filtered vacuum was used to in the immediate area of the drilling to remove any contamination. All the requirements in Section XI, under Transite and asbestos shingles cutting, drilling, or abrading minimum requirements were followed during the job.

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INDUSTRIAL HYGIENE SAMPLE RECORD

Plant code 82006

FILE NO. <u>B1-3402</u>	PROCE: <u>Carpenters/Transite</u>	DC: <u>6803</u>	DATE <u>11-9-88</u>
MATERIAL <u>Asbestos</u>	SAMPLING METHOD <u>25mm filter</u>	TRAPPING MEDIUM <u>AIR</u>	
TYPE OF PUMP <u>GILIAN</u>	FLOW SET	FLOW RATE	FLOW FACTOR
REMARKS (VENTILATION, ETC.) <u>Carpenters cutting 2-2" holes in Transite</u> <u>to run condenser piping for AC -</u>			

SAMPLE NO	SAMPLE DESCRIPTION	ROTO-METER	TIME	TOTAL TIME (MIN)
CS6803 #1	PUMP S/N 2099	START		24
	Flow rate - 2028 cc/min			
	Master # 138138	STOP		TOTAL LITERS AIR: 49 Liters
	Cutting holes in Transite - used Hupa Vacuum to suck up drill fragments - Clean up -			
	2.18	.020		
CS6803 #2	PUMP S/N	START		25
	Flow rate 2046 cc/min			
	Master # 134272	STOP		TOTAL LITERS AIR: 51.0 Liters
	Worked with Alane pump -			
	2.92	.063		
CS6803 #3	PUMP S/N	START		
	Blank	STOP		TOTAL LITERS AIR :
	<.6			

SIGNATURE:

DATE:

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Post calibration for asbestos
11-9-88

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FLOW AVERAGE # SAMPLES

28020

2844	2844	01
2849	2847	02
2851	2848	03
2844	2847	04
2844	2846	05

FLOW AVERAGE # SAMPLES

2099

2822	2822	01
2833	2828	02
2826	2827	03
2832	2828	04
2829	2828	05