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Proving Grounds with Data Sheet



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PLAINTIFF'S EXHIBIT

FD-9a

Inter Office.

Personnel and Organization Staff

May 29, 1973

Mr. J. A. Keller
Personnel Services Supervisor
General Services Division

cc M. A. Harris, M.D.
S. M. Luke
P. R. Veazey

Subject: Asbestos Fiber Air Sampling - Arizona Proving Grounds

The Department of Labor, under the authority of the Occupational Safety and Health Act of 1970 (OSHA), in Section 1910.93a of the Federal Register dated October 18, 1972 has promulgated occupational health standards in relation to the use of asbestos and asbestos laden materials. In response to these standards, industrial hygiene studies were conducted on April 25-26, 1973, at the Arizona Proving Grounds to determine employee exposure to airborne asbestos fiber. Results of air samples taken and instrumentation used are attached.

Employee exposure at the Arizona Proving Grounds to asbestos fiber emanate from brake rebuilding, pipe covering, and truck noise suppression testing. General plant ventilation is the only engineering control used for these operations. Approved 3M, No. 8710, disposable respirators are used during mixing of asbestos mud for the truck noise suppression, but respirators are not worn during brake rebuilding or pipe covering.

Pipe covering and insulation work is a normal maintenance operation. The amount of pipe covering and insulation work is minimal and on a sporadic basis. It should be noted, that management at the facility was not aware of the industrial hygiene letter pertaining to proper procedures to be employed when using asbestos pipe covering or insulation. A copy of this letter is enclosed as part of the Plant Engineering letter attached.

The truck noise suppression project being conducted at the facility uses dry asbestos fibers to make mud which is applied to the truck engines that are then covered with fiberglass, sheet lead, and foil. The initial part of this project, which included covering the engines, was just being completed. The next phase of the project involves driving the trucks for several miles, and then removing coverings from various engine components to determine the relative contribution each engine component makes to the total noise level. During the removal phase of the project, asbestos fibers may become airborne and create a limited employee exposure varying in intensity with the method of removal.

Brake rebuilding of disc and conventional brakes on cars and trucks is done as part of the brake testing program and as routine maintenance. There is no set pattern to the type of brakes and vehicles involved, or to the frequency of the rebuilds. The frequency of rebuilds during our visit was three per week,

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but could go as high as 20 per week. Dust evolves from dropping wheels from the vehicle and blowing off brake assemblies and drums. The policy of this location is not to permit blow offs, but employees find it necessary to blow off truck brake assemblies and drums.

The provisions of the OSHA asbestos standard enumerated in Section 1910.93a of the Federal Register applicable to employee asbestos exposure at the Arizona Proving Grounds are:

1. A Threshold Limit Value (TLV) of five fibers greater than five microns in length per milliliter of air, and a ceiling concentration of 10 fibers greater than five microns in length per ml of air. The TLV will be reduced effective July 1, 1976 to two fibers greater than five microns in length per milliliter of air.
2. Local exhaust ventilation of tools and processes if airborne fiber concentrations exceed the TLV or ceiling concentration.
3. Special work practices such as wet methods and isolation if airborne fiber concentrations exceed the TLV or ceiling concentration.
4. Approved respirators varying with the intensity of the exposure shall be used when spraying, removing or demolishing equipment or structures covered with asbestos or asbestos laden materials.
5. Special clothing and change rooms must be furnished employees exposed to asbestos concentrations ~~exceeding~~ the ceiling concentration limit.
6. Special clothing furnished must be collected in sealed containers and labeled per labeling specifications stated in subparagraph (ii), page 22144, of the Federal Register. In addition, the laundry must be made aware of the asbestos hazard.
7. Air samples must be collected representative of employee breathing zone exposure at intervals no greater than every six months if the TLV or ceiling concentration limit may be expected to be exceeded.
8. If air samples taken indicate exposures greater than prescribed limits, then caution signs must be posted per pages 22143 and 22144 subparagraph g of the Federal Register and the area must be cordoned off.
9. Asbestos or asbestos laden waste materials must be cleaned by vacuum and disposed of in sealed containers and labeled per labeling specifications stated in subparagraph (ii), page 22144 of the Federal Register.
10. Employees exposed to concentrations of asbestos fiber exceeding prescribed limits must be notified in writing of the exposure and corrective action contemplated within five days of the finding.

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11. The employer shall provide or make available medical examinations to employees who may be exposed to concentrations exceeding prescribed limits. These examinations shall include a pre-employment, annual and termination examination consisting of posterior-anterior 14 x 17 inches chest roentgenogram and pulmonary function tests to include forced vital capacity FVC and forced expiratory volume at one second FEV. In addition, a history to previous exposure to carcinogens and smoking should be obtained.

Results of the air samples taken during our studies indicated an overexposure to the ten fibers greater than five microns in length per ml of air ceiling concentration limit prescribed by OSHA. This air sample was taken during blow off of truck brake drums and assemblies. The time weighted average exposure of this employee, who was performing brake rebuilding on trucks, was also significantly greater than employees performing brake rebuilding on passenger vehicles. The mitigating factor is blow offs are not performed during passenger vehicle brake rebuilding. The available literature pertaining to asbestos fiber exposure during brake rebuilding, concludes that asbestos fiber exposure is minimal when blow offs are prohibited or limited.

Based on the results of our studies, it is our opinion that the following measures are required to comply with OSHA standards and to protect employee health.

1. All blow offs of brake drums and assemblies should be strictly prohibited. A review of current literature indicates that vacuuming with a brush attachment is a suitable alternative from the standpoint of dust and fiber control and does not materially hinder the brake rebuilding operation. If a portable vacuum is used, a high efficiency filter should be employed on the air discharge.
2. All waste materials which may contain asbestos should be cleaned up by vacuum and disposed of in properly labeled sealed containers.
3. The employee who was found to be exposed to asbestos fiber concentrations in excess of the ceiling concentration limit prescribed by OSHA should be notified in writing as stated in Mr. P. E. Toth's letter of May 16, 1973.
4. Employees whose job description includes brake rebuilding on heavy trucks should be given an immediate medical examination meeting the requirements specified by OSHA.
5. Until a substitute is found for the blow off procedure performed during truck brake rebuilding, respirators approved under schedule 21 and special clothing specified by OSHA should be worn by employees performing truck brake rebuilding. Other procedures prescribed by OSHA relative to special clothing must also be followed.
6. The single use respirator used during asbestos mud mixing for the truck noise suppression program should also be used when removing asbestos from engine components which have completed testing.

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7. Until a substitute is found for the blow off procedure performed during truck brake rebuilding, caution signs must be posted as specified by OSHA and the work area of the truck must be cordoned off.
8. Plant Engineering Letter No. 28, dated April 11, 1973, which contains industrial hygiene standard handling procedures for the use of asbestos pipe covering and insulation, should be implemented immediately.

Follow-up monitoring will be conducted during October 1973 to comply with the periodic air sampling requirements of OSHA.



Henry B. Lick
Industrial Hygienist
Industrial Hygiene Section
Employee Health Services Department

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Attachments (3)

Arizona Proving Grounds

Asbestos

Location	Concentrations of Fibers Greater than 5 Microns in Length/Milliliter of Air
OSHA Asbestos Threshold Limit Value (TLV)	
" " TLV effective July 1, 1976	5
" " Ceiling Limit	2
1. Truck noise suppression operation - employee D. Shaeffer, SS #7808 - breathing zone air samples (B.Z.) - employee wearing approved 3M respirator #8710.	10
a) Mixing asbestos mud, dry asbestos into a pail - peak concentration determination	0.1
b) " " obtaining and returning materials, carrying bag of asbestos, and cleaning up - time weighted average determination	0.9
2. Passenger vehicle brake rebuilding - conventional brakes - employee G. Chambers, SS #5124 - B.Z. - respirator not worn.	
a) Dropping wheels, tear down and rebuilding - time weighted avg. determination	0.3
b) Tearing down brakes and wiping out drums - peak air concentration "	0.4
c) Mounting wheels - " " "	0.5
3. Passenger vehicle brake rebuilding - disc brakes on all 4 wheels - employee G. Chambers, SS #5124 - B.Z. - respirator not worn.	
a) Dropping wheels, tear down, and obtaining materials	0.2
b) " " " " - peak air concentration determination	0.1
c) Micrometer measurements and rebuilding	0.1
d) " " " "	0.1
Calculated time weighted average concentration	0.13

Data Sheet #2

<u>Location</u>	<u>Concentrations of Fibers Greater than 5 Microns in Length/Milliliter of Air</u>
4. Louisville 750 truck brake rebuilding - conventional brakes - employee P. Wasilewski, SS #9799 (B.Z.) - respirator not worn.	
a) Dropping wheels and tear down	0.2
b) Blowing out drums, tear down, and obtaining parts	3.1
c) " " " - peak air concentration determination	1.6
d) " " " " " " "	12.2
Calculated time weighted average concentration	1.2
5. Louisville 750 truck brake rebuilding - same operation as item No. 4 - general air sample	0.1

Instrumentation: Mine Safety Appliances Model G Pumps with Millipore Type AA
Membrane Filters 0.8 micron pore size

Analysis: 430X Phase Contrast Microscopy by Environmental Health Laboratories, Farmington, Michigan

LETTER NO. 28
April 11, 1973

TO: Plant Engineers, All Plants
Division Plant Engineers
Plant Managers
General Manufacturing Managers

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R. F. Birdsall
R. F. Birdsall, Manager
Maintenance Department
Plant Engineering Office

PLANT ENGINEERING LETTER NO. 28
April 11, 1973

ASBESTOS PIPE COVERING AND INSULATION - STANDARD HANDLING PROCEDURES

The Federal Department of Labor under the authority of the Occupational Safety and Health Act of 1970 (OSHA) has promulgated specific standards for the use of asbestos.

Pipe covering and insulation materials may contain asbestos, particularly in older installations. Plants considering new pipe covering and insulation projects should investigate other non-asbestos materials such as calcium silicate and fiberglass.

The attached letter recommends procedures to be followed in plants using asbestos pipe covering and insulation to avoid potential health hazard to employees and to be in compliance with OSHA regulations.

Attachment