SHELL OIL COMPANY

DATE FEBRUARY 2, 1979

TO MANUFACTURING - SAFETY & HEALTH - MANAGER - MR. R. L. BRUNNER

FROM MEDICAL DIRECTOR, OCCUPATIONAL HEALTH SURVEILLANCE - CORPORATE MEDICAL DEPARTMENT

SUBJECT MEDICAL SURVEILLANCE UNDER OSHA STANDARD FOR EXPOSURE TO ASBESTOS DUST

OSHA standards for health protection require that certain action be taken if workers are "exposed" to contaminants. For example, the Asbestos Standard, 29 CFR 1910.1001 (j) requires medical examinations for any employee "engaged in occupations exposed to airborne concentrations of asbestos fibers." In reference to the implementation of required medical examinations on the basis of "airborne concentrations," there has been considerable scientific debate, as well as litigation, regarding the interpretation.

A memo of December 12, 1977, from W. A. Carpenter, Jr., General Manager - Manufacturing, to Manufacturing locations, stated that on the basis of the opinions of the Corporate Medical Department and Head Office Legal, Manufacturing recommends for inclusion in the medical surveillance program "all employees who are regularly exposed to asbestos fibers greater than 5 microns long in concentrations above 0.1 fibers/cc for 8-hour TWA." Manufacturing further stated that "this is a reasonable level for defining 'exposure' quantitatively at this time." The intent of Mr. Carpenter's memo was also to include any person who works with asbestos-containing products on a regular basis.

Enclosed please find the attachment titled, "OSHA Program Directive #300-16" (October 11, 1978). In reference to definitions relating to medical examinations, the term ". . . exposed to airborne concentrations of asbestos fibers" is administratively interpreted to mean exposed to a minimum of 0.1 asbestos fibers longer than 5 micrometers per cubic centimeter of air, as determined by the sampling method prescribed in Section 4.C. of the attached Directive. The phrase "fibers longer than 5 microns per cubic centimeter of air" shall hereafter be abbreviated as "fibers/cc." Medical examinations as per 29 CFR 1910.1001 (j) (2), or (3), or (4) will be required for any 7-to 8-hour time weighted average concentration of 0.1 fibers/cc, or for a greater concentration.

One final important point relates to Mr. Carpenter's memo of 1977 where he stated, "it has been shown that people who both smoke and work with asbestos are several times more at risk to develop lung cancer than those who work with asbestos, but don't smoke. People who are identified as having asbestos exposure should be fully informed about this synergistic effect." We endorse this statement and, perhaps it is time that we should discuss the status of implementation of such an occupational health education program at Manufacturing locations.

C. E. Ross, D.O., F.A.C.Pr.M.

Attachment

cc: Messrs. W. A. Carpenter, Jr.
D. P. Atwood
B. F. Aurelius
W. M. Cunningham
H. L. Kusnetz
H. J. McDermott
R. E. Joyner, M.D.
F. R. Jonas, M.D.
B. J. Kern, M.D.
D. E. Miller, M.D. ← THIS COPY FOR
M. W. Davis, M.D.
W. M. Stumpe, M.D.

(3) Magnesium arsenate.
(4) Sodium arsenite.
(5) Zinc arsenate.
(6) Zinc arsenite.
(7) Zinc fluoroarsenate.
f. Manufacturers of desiccants.
Example : Orthosarsenic acid.
g. Manufacturers of wood preservatives.
Some examples of these products are as follows:
(1) Ammoniacal copper arsenite.
(2) Chromated copper arsenate.
(3) Mixture of chlorinated arsenate, fluoride and phenolic salts in aqueous solution.
(4) Zinc-chromium arsenate.
(5) Copperized zinc-chromium arsenate.
(6) Fluorchrome arsenate phenol.
h. Manufacturers of feed additives.
Some examples of these products are as follows:
(1) Arsanilic acid.
(2) 3-Nitro-4-hydroxyphenylarsonic acid.
(3) 4-Nitrophenylarsonic acid.
(4) 4-Ureido-1-phenylarsonic acid.
i. Manufacturers of pharmaceuticals for use in veterinary medicine.
Some examples of these products are as follows:
(1) Acetarsamide.
(2) Carbarsone.
(3) Dichlorophenarsine.
(4) Lead arsenate.
(5) Melarsonyl.
(6) Neoarsphenamine.
(7) Thiacetarsamide (Caparsolate).
j. Manufacturers of glass that use arsenic trioxide as a refining agent and a decolorizer.
k. Manufacturers of alloys of nonferrous metals and arsenic.
Some examples of products manufactured from these alloys are as follows:
(1) Lead shot.
(2) Cable sheathing (lead and arsenic).
(3) Battery grids (lead and arsenic).
(4) Battery electrodes (lead and arsenic).
(5) Speculum metal.
(6) Boiler tubes (Copper and arsenic).
(7) Arsenic bronze.
(8) Special solders such as used on body joints and seams in the automobile industry.
(9) Arsenic brass.
(10) Arsenical Babbitt.
l. Users of solders that contain arsenic as a component in the alloy.
Example: Automobile and truck body manufacturers.
m. Manufacturers and/or users of arsenic-based flotation reagents.
n. Miscellaneous.
Arsenic and/or arsenic-containing, inorganic compounds are used in each of the following types of establishments. However, every employer does not necessarily use them.
(1) Leather tanneries.
(2) Manufacturers of ceramics and ceramic or vitreous enamel.
(3) Manufacturers of analine colors.
(4) Manufacturers of pyrotechnics.
(5) Manufacturers of semiconductors.

OSHA PROGRAM DIRECTIVE #300-16
October 11, 1978

TO: REGIONAL ADMINISTRATORS/OSHA

Subject: 29 CFR 1910.1001(j)(2) or (3) or (4), Minimum Airborne Fiber Concentration for Initiating and Continuing Asbestos Medical Examinations.

1. *Purpose*
The purpose of this directive is to provide uniform inspection and compliance procedures for the medical examination requirement in the asbestos standard, 29 CFR 1910.1001(j)(2), or (3) or (4).
2. *Documentation Affected*
This directive supplements and provides reference for the OSHA Industrial Hygiene Field Operations Manual (IHFOM) and the OSHA Field Operations Manual (FOM).
3. *Background*
In 29 CFR 1910.1001(j)(2), or (3) or (4), Medical examinations, the term ". . . exposed to airborne concentrations of asbestos fibers. . . ." has been the subject of considerable discussion and debate as to the meaning or interpretation of "airborne concentrations."
4. *Action*
a. Definition.
In 29 CFR 1910.1001(j)(2), or (3) or (4), Medical examinations, the term ". . . exposed to airborne concentrations of asbestos fibers. . . ." is administratively interpreted to mean exposed to a minimum of 0.1 asbestos fibers longer than 5 micrometers per cubic centimeter of air, as determined by the sampling method prescribed in section 4.c. of this directive. The phrase "fibers longer than 5 micrometers per cubic centimeter of air" shall hereafter be abbreviated as "fibers/cc."
b. Scope and applicability.
Medical examinations as per 29 CFR 1910.1001(j)(2), or (3) or (4) will be required for any 7- to 8-hour time-weighted average concentration of 0.1 fibers/cc, or for a greater concentration.
c. Sampling information.
(1) Sampling procedures will follow Chapter X of the IHFOM., with the additional guidance of 4.c.(2) and (3) of this directive.
(2) Exposure to asbestos dust with low levels of contamination (e.g., mixed with other minerals).
(a) For exposures to dust that is mostly asbestos and is expected to be below the permissible exposure limit, the same filter should be used for the entire shift, but no longer than 8 hours.
(b) For exposures expected to be at or above the permissible exposure limit, several samples may be re-

quired during the shift to avoid overloading the filters.

(3) Exposures to asbestos dust with high levels of contamination.

(a) Several samples may be required during the shift to avoid overloading the filter.

(b) Filters should be changed only after a minimum of 1 hour of sampling time for exposures expected to be close to 0.1 fibers/cc. Seven or eight 1-hour samples can be collected during the day.

d. Examples of types of violations.

(1) Where an employer does not provide the required medical examinations, and an employee is exposed to 0.1 or more fibers/cc, it would be considered a "serious" violation of 29 CFR 1910.1001(j)(2), or (3) or (4).

(2) For definitions and guidance on "repeated," "willful," or a "failure to correct" violation, see the FOM, Chapter VIII.

5. *Effective Date*

This directive is effective immediately and will remain in effect until further notice.

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