RECEIVED

NOV 6 1972

E. C. POWELL, JR.

DWM

PLAINTIFF'S EXHIBIT

UC-2360

MEMORANDUM

ASBESTOS GUIDELINES CLARIFICATION

October 27, 1972

The recently circulated Group I guideline on the OSHA asbestos standard has resulted in requests for clarification of the statement regarding the mandatory use of Type C respirators during demolition or removal of asbestos insulation or covering.

It is the opinion of the Group I Safety Office that this type work can be performed without respirator protection providing proper and careful monitoring proves that an exposure hazard does not exist. Two of our plants have determined that the level on small outdoor removal jobs has been below the 5-fiber TLV where care in removal, wetting down, and immediate cleanup were observed. It is emphasized that monitoring must be continued and records maintained to assure that a hazard does not develop. Different conditions such as a large demolition job or an inside job would have to be monitored and judged accordingly.

Group I Safety Department

RJT/ero
10/27/72

Distribution:
Industrial Hygienists
OSHA Representatives

UCC 003322

GUIDELINE FOR COMPLIANCE WITH OSHA ASBESTOS STANDARD

(Federal Register Vol. 37 No. 110, June 7, 1972)

SUMMARY Effective July 7, 1972 the exposure of employees must be kept below a time-weighted 8-hour limit of 5 fibers (longer than 5 microns) per cc of air. This limit changes to 2 fibers July 1, 1976. At no time may a maximum (ceiling) limit of 10 fibers be exceeded. Personal air sampling in the breathing zone of asbestos workers and air sampling in representative work areas is required. The samples are to be counted by phase contrast microscopy. The first personal and area air sampling surveys are to be made by December 7, 1972 and repeated at intervals not to exceed 6 months.

Records of personal and environmental air sampling must be kept for at least three years and made available to OSHA and NIOSH representatives and to the employee. Employees exposed to airborne asbestos in excess of the permissible limits must be notified in writing within 5 days of the finding. If exposure limits are exceeded a compliance program must be initiated. Feasible technological controls and appropriate work practices are required as the primary means of compliance.

Medical examinations must be provided or paid for by the employer within 30 days of an employee's first employment in a job involving exposure to asbestos, and within 30 days of termination. Medical examinations are to be provided annually starting on or before January 31, 1973. The complete records of these examinations must be kept for at least 20 years and made available to OSHA and NIOSH representatives and to the employee's physician.

DISCUSSION Monitoring of personal breathing zone air and of air in the work environment is a key requirement of this standard. The results of the fiber counts in the air will, in most cases, determine whether corrective and/or protective compliance efforts will be required and whether caution signs must be displayed. Unfortunately, the detailed information necessary for proper sampling and fiber counting is not included in the standard. Thus, this Guideline includes a section providing considerable information on air sampling and counting to supplement the standard. Other

Union Carbide trial exhibit UC-2360: Group I Safety Department Memorandum Clarifying Respirator Use for Asbest... Published by AsbestosClaims.Law
ACL Doc 17348 · Page 2 of 7 asbestosclaims.law/library/17348/2

sections of this Guideline deal in order, with Permissible Limits of Exposure, Monitoring and Associated Recordkeeping, Corrective and Protective Compliance Efforts, Medical Examinations and Records, and Signs, Labels, Housekeeping, and Waste Disposal.

Air Sampling and Fiber Counting. Use personal samplers fastened to the employee's clothing close to the breathing level as the first choice to assure compliance with the standard. If this is not practical, the next best choice is to follow the employee through his assigned task, holding the sampler as close to his breathing zone as possible (approximated personal sampling). Some area monitoring (fixed location) may be necessary, but in many instances it may not provide acceptable data.

To use the personal sampler:

1) Use the membrane filters, holders and personal sampling pump as specified in Laboratory Manual Method 38C-29X4-R1.

2) Fasten the filter and holder to employee's clothing as close to the breathing zone as possible.

3) Have the open face of the filter pointed downward.

4) Set air flowrate through the filter at 2.0 liters per minute using a calibrated flowmeter.

5) Sampling times should be based on visual judgements of the airborne loading. Generally, a 15-minute or longer sampling period will provide a good basis for sampling. In very dusty areas a 5-minute sampling period may be necessary. In cases of doubt, take both a 15 minute and a shorter sample. (Note: If the filters are heavily loaded with dust, it is impossible to obtain a satisfactory fiber count.)

6) Remove the sampler from the employee at the end of sampling period and replace the top section on the filter holder.

The approximated personal sampling or the area monitoring may be performed with the same equipment used in the personal sampling.

The sampling for asbestos should be undertaken to yield the average exposure for an 8-hour day. By observing the complete cycle of an operation, it may be possible to select times which will be representative of a given phase of the operation. By selective sampling in each phase of an employee's shift, a time-weighted average concentration can be calculated for an 8-hour shift as follows:

Union Carbide trial exhibit UC-2360: Group I Safety Department Memorandum Clarifying Respirator Use for Asbest... Published by AsbestosClaims.Law
ACL Doc 17348 · Page 3 of 7 asbestosclaims.law/library/17348/3

$$\frac{C_a T_a + C_b T_b + \ldots . C_n T_n}{8} = \text{Time-weighted 8-hour exposure}$$

where

C_a = Concentration determined during time (T_a) of the working shift.

C_b = Concentration determined during time (T_b) of the working shift.

Unit for C is fibers longer than 5 micrometers per cc of air

Unit for T is hours

After completion of sampling, the membrane filters in the plastic holders should be taken to the laboratory for counting. The samples should be properly identified as to plant, sample number, and date. The samples must be counted by using phase contrast microscopy at 400-450 X magnification. The complete mounting procedure is detailed in the Laboratory Manual Method 38C-29X4-R1. This method gives the procedure for preparation of the mounting media as well as complete instruction on mounting and counting the asbestos filter samples.

A typical form for recording the results for asbestos sampling is attached. The top of the form should give complete information on the sample as to date, time, location, and type of sample. The microscope slides should be prepared in duplicate and 20 random fields counted on each slide. Space is provided on this form to complete this requirement. The calculation for determining the concentration of fibers per cc greater than 5 micrometers in length is detailed on this form.

Permissible Limits of Exposure. The permissible limits of exposure and the definition of "asbestos" and "asbestos fiber" are self-explanatory as contained in Section 1910.93 a(a) (1) (2) and (b) (1) (2) (3) of the standard published in the Federal Register June 7, 1972.

Monitoring and Associated Recordkeeping. The standard requires that in every work environment where asbestos fibers are released, personal air samples be taken in each of the employees breathing zones and in representative locations in the work environment. The first measurements are to be made by December 7, 1972 and are to be repeated at no less than 6 month intervals for employees whose exposure may reasonably be foreseen to exceed the permissible limits. The periodic sampling (both personal and area) shall be of such frequency to represent the varying levels of exposure associated with different work assignments and different operating conditions. The employee or his representative may observe the monitoring and have access to the resulting records of his own exposure measurements.

Union Carbide trial exhibit UC-2360: Group I Safety Department Memorandum Clarifying Respirator Use for Asbest... Published by AsbestosClaims.Law
ACL Doc 17348 · Page 4 of 7 asbestosclaims.law/library/17348/4

The required records of exposure measurements must be kept for a period of at least three years. The minimum information to be recorded includes the original data sheet described above in the Air Sampling and Fiber Counting section. In addition, it is almost always necessary to maintain summary sheets on which the results of the individual samples are shown together on a continuing record. This summary sheet should include the following information at a minimum:

1) Name of employee, if a personal sample
2) Description of work being done by employee
3) Location of an area sample
4) Work in progress at that location
5) Date sample taken
6) Time sample taken (time of day and length of sample time)
7) Concentration in sample (number of fibers longer than 5 microns per cc of air)
8) Exposure time for the described work (if a personal sample)
9) The calculated 8-hour time weighted average exposure for individual employees.

If any employees are exposed to airborne concentrations in excess of the permissible limits they must be notified in writing not later than 5 days of the finding. For each of such employees an individual file or folder containing the notification of over-exposure, all exposure measurements for that individual and his history of work assignments are required. Individual files for persons never known to be over exposed would, in some instances, be highly desirable but optional.

Corrective and Protective Compliance Efforts. If the permissible exposure limits are exceeded, a corrective and protective compliance program must be initiated. Whenever feasible, engineering controls must be used to reduce the exposure to permissible levels. Appropriate work practices such as wet methods and proper removal from wetted, enclosed, or ventilated shipping containers are required. Personal (respiratory) protective equipment or rotation of employees may not be used in lieu of engineering or work practice control except under three circumstances, defined as:

1) Temporarily while engineering and work practice controls are being installed or instituted.
2) When the engineering and work practice controls are not feasible or not adequate. (Work rotation is preferred to use of respiratory protection.)
3) In emergencies.

Union Carbide trial exhibit UC-2360: Group I Safety Department Memorandum Clarifying Respirator Use for Asbest... Published by AsbestosClaims.Law
ACL Doc 17348 · Page 5 of 7 asbestosclaims.law/library/17348/5

Note that the results of air sampling and counting determine (with one exception) whether corrective or protective efforts, including respiratory protection is required. Further, the airborne concentration determines the type of respiratory equipment to use. [See Section 1910.93 a (d) (1) (2). The requirements for special clothing, change rooms, lockers, and laundering are covered in 1919.93 a (d) (3) (4).].

The one exception noted above is that type C supplied air respirators are required whenever employees are "engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings". Special clothing is also required in this case. [See 1910,93 a (c) (2) (iii).]

Employees shall not be assigned to work requiring the use of respiratory protective equipment if an examining physician determines that the employee will be unable to function normally wearing a respirator.

Medical Examinations and Records. The requirements for preplacement, annual, and termination examinations are described in 1910.93 a (j) (1) (2) (3) (4) (5). The medical records must be kept for at least 20 years and made available to OSHA and NIOSH representatives and to the employees physician. The requirements for record keeping and access to them are covered in 1910.93 a (j) (6) (i) (ii).

Signs, Labels, Housekeeping, and Waste Disposal. The results of air sampling and counting will determine where caution signs must be displayed. These will identify areas where the permissible exposure limits are exceeded. Caution labels are required on all products or containers of raw materials, mixtures, scrap, waste, debris, etc., containing asbestos. The requirements for signs and labels are in 1910.93 a (g) (1) (2).

Housekeeping (cleaning) and waste disposal requirements are given in 1910.93 a (h) (1) (2).

NHK:gk
Attachment
9-20-72

Union Carbide trial exhibit UC-2360: Group I Safety Department Memorandum Clarifying Respirator Use for Asbest... Published by AsbestosClaims.Law
ACL Doc 17348 · Page 6 of 7 asbestosclaims.law/library/17348/6

TYPICAL ASBESTOS DATA SHEET

Department_____ Bldg._____ Date_____ Time_____

Sampled By:_____ Analyzed By:_____ Method:_____

General Conditions:_____

FIBER COUNT (Fibers > 5μ in Length)

Slide 1				Slide 2			
1		11		1		11	
2		12		2		12	
3		13		3		13	
4		14		4		14	
5		15		5		15	
6		16		6		16	
7		17		7		17	
8		18		8		18	
9		19		9		19	
10		20		10		20	
Total		Avg.		Total		Avg.	

CALCULATIONS

SAMPLE VOLUME:_____Min. @_____LPM =_____LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air-Liters})(1000)} = \text{Concentration, Fibers per cc} > 5\mu$$

1. $\frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$ Fibers per cc > 5μ

2. $\frac{(\quad - \quad)(\quad)}{(\quad)(\quad)(1000)} =$ Fibers per cc > 5μ

Special Conditions:_____

Remarks:_____

UCC 003328