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RE: ASBESTOS
Ref: Engineering Standard

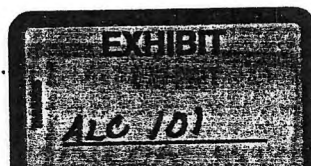
This will confirm a meeting to discuss the captioned on Monday, October 25, at 10 A.M., in the Medical Library, Room 652 of the Alcoa Building.

There has been a long-standing need for an Asbestos Engineering Standard and it is especially appropriate that we address this at this time relative to handling asbestos removal during renovation, demolition, etc. We do not plan to limit our meeting to just this aspect, but would also like to discuss other potential exposures, for example, during application of masonry paint.

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/eds

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REMOVAL OF
ASBESTOS-CONTAINING PRODUCTS

I. GENERAL

Various forms of asbestos products were previously used extensively as thermal insulation in areas such as (but not limited to) .trough linings, ductwork, pot covers, high temperature wiring, furnace lining, siphon gaskets, ladles, and general fireproofing. Because of the potential serious health hazards involved with excessive exposure to asbestos fibers, Alcoa implemented an Asbestos Replacement Program in 1978. Suitable replacements for most asbestos products have been found and are now being used.

*actually
started
about 1973 or so*

The objective has been to make Alcoa operations as free of asbestos or asbestos-containing materials as possible. In those few applications where substitutes have not been found, accurate records should be kept to identify any continuing use pending eventual renovation, demolition, etc.

*also older
applications
still in place*

While the Asbestos Replacement Program will minimize asbestos exposures significantly in the future, we currently have numerous applications of asbestos products which have been used in past construction. A potential health hazard exists during the renovation or demolition of asbestos-containing materials, or in the event that asbestos-containing materials become capable of fiber release (i.e., due to deterioration).

Prior to renovation or demolition, every project should be reviewed for potential asbestos-containing products. The Industrial Hygiene Division can assist in the project review; and, if asbestos products are suspected, a sample of material should be tested for positive identification. Alcoa's Environmental Health Laboratory is capable

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of making this determination. If the laboratory analysis confirms the presence of asbestos, the precautions outlined for asbestos removal in this standard should be closely followed to prevent asbestos exposure to any Alcoa employees whether they are working with asbestos or are in adjacent work areas.

II. SCOPE

This standard applies to the demolition, renovation, modification, or removal of asbestos-containing products. The Industrial Hygiene Division should be alerted when such a project is being planned so that appropriate precautionary measures can be implemented to avoid serious health hazards.

III. METHODS OF CONTROL

There are four approaches to controlling exposure of asbestos material. The selection of the method should evolve from the most efficient long-term solution after consideration of material condition, location, function, and cost.

A. Deferred Action

If the material is in good condition and the potential for fiber release is such that the exposure is negligible, or no exposure potential exists, corrective action can be deferred. However, a routine inspection program of the material should be implemented to insure that the situation does not change. Asbestos materials in good condition which do not represent likely exposures should not be removed.

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B. Enclosure

In some situations, it may be more practical to enclose the asbestos-containing material with barriers, such as suspended ceilings. This is only a temporary control measure since the asbestos material remains in the building.

C. Encapsulation

In certain situations where the material is in good condition and is not accessible to physical damage, the use of a bonding agent (sealant) may be used to coat or "encapsulate" the asbestos material. Sealants should not be used on friable, deteriorated, or water damaged asbestos material since adequate bonding would not be attained due to poor adhesive strength. Encapsulated material should be routinely inspected for damage or deterioration.

D. Removal

Removal is the only permanent method of asbestos control. In this method, all the asbestos material is taken off the underlying structure, collected, and disposed of by burial.

As one would expect, there is a significant potential for asbestos exposure during removal procedures. To minimize the exposure, personal protective equipment must be utilized and certain work practice controls should be followed.

The specifics of asbestos removal procedures will be explained in further detail in this standard.

IV. PERMISSIBLE EXPOSURE LEVELS

Exposures should be limited to an 8-hr. time-weighted average of no greater than 2 fibers, longer than 5 micrometers, per

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cubic centimeter of air. A level of 10 fibers, longer than 5 micrometers, per cubic centimeter of air should not be exceeded, even instantaneously. (Refer to Alcoa Material Safety Data Sheet #40 for additional information.)

It may be appropriate to perform personal or area air monitoring during asbestos removal. The industrial hygienist should be advised in advance of the project and can determine what air sampling is appropriate.

V. PERSONAL PROTECTIVE EQUIPMENT

Employees engaged in the removal or demolition of structures or equipment covered or insulated with asbestos should be provided with respiratory protection equipment and special clothing. With the assistance of the industrial hygienist, employees should receive instruction in the potential health effects of asbestos and the control methods to be utilized to circumvent such consequences. In the United States, specific OSHA regulations apply to the use of personal protection equipment. The industrial hygienist can provide assistance in this area.

A. Respirators

A NIOSH-approved air purifying or Type "C" supplied air respirator should be provided to reduce the concentration of airborne asbestos fibers in the respirator below the exposure limits prescribed in Section IV. Refer to Alcoa's Engineering Standard for Respiratory Protection (18.1.1) for further information.

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B. Clothing

Special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings should be provided for any employee exposed to airborne concentrations of asbestos fibers which exceed the 10 fibers per cubic centimeter of air level prescribed in Section IV. Exposures should be assumed to be excessive unless demonstrated otherwise.

Disposable coveralls, gloves, hair covering (under the hard hats), and respirators approved for asbestos should be worn at all times when work is in progress. The coveralls are to be taped at the ankles and wrists. All disposable clothing is to be removed and discarded each time an employee leaves the work area. Shoes should be wiped with a damp rag or vacuumed so that the immediate and surrounding areas are not contaminated. Before leaving the contaminated area for any reason, employees should vacuum the protective clothing, remove the head covering, unzip the coveralls and carefully peel them off, with gloves and shoe coverings remaining attached. The respirator is removed last. The disposable clothing and used filter cartridges should be disposed of in plastic bags, appropriately labeled for asbestos waste. Respirators should be cleaned and sanitized at the end of every shift. Employees must wash all skin surfaces that have been exposed to asbestos before eating, drinking, smoking, or leaving work. Any water that is used for these purposes should be placed in plastic bags and then into the drums with the contaminated clothing. No smoking or eating is permitted while in the work area.

VI. WORK PRACTICE CONTROLS

A. Restricted Area

The asbestos work area should be delineated with tape or rope and warning signs. In the United States, these signs should conform with the requirements of 21 CFR 1910.1001 (i) (ii) and should be posted at the work entrance. Only authorized personnel, wearing the protective clothing described in Section V, should be allowed in the work area. Where feasible or appropriate, plastic curtains, draped to enclose the work area, should be used to contain the asbestos fibers.

B. Wet Methods

Wet methods of handling asbestos are preferred over dry methods to prevent the emission of airborne fibers. However, for some applications, such as refractory linings with phosphate-containing bricks, wet methods are not advisable as the evolution of phosphine gas would present a serious health hazard. The Health & Safety Department should be involved in making the determination of wet vs. dry methods.

C. Dry Methods

This method is optimal where removal of asbestos-containing material is near live electrical apparatus. It may also be desirable in situations where the presence of large quantities of water would create difficulties or result in other hazards.

Asbestos material should never be dry swept. Local exhaust or vacuum methods should be utilized to collect fibers.

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VII. CLEANUP AND DISPOSAL

The disposal of all asbestos-containing waste material, as well as asbestos-contaminated material, requires special procedures. Asbestos-containing insulation, contaminated refractory rubble, used disposable clothing, loose material picked up with the vacuum cleaner, wiping rags, rinse water from wiping rags, and plastic enclosure sheeting should be packaged in plastic bags and then sealed in specially marked steel drums. Caution labels should be affixed to all scrap, waste, debris, and other products containing asbestos, or to their containers. All plastic bags and sealed steel drums should be affixed with labels which read:

<u>CAUTION</u> CONTAINS ASBESTOS FIBERS AVOID CREATING DUST. BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM.
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Final disposition of the material is governed by RCRA.

VIII. OUTSIDE CONTRACTORS

It is imperative that the outside contractor know he is dealing with asbestos. It is recommended that a copy of Alcoa Material Safety Data Sheet #40 (Asbestos) and this standard be included with either the specifications or the order. The contractor, as well as representatives from Construction and the Health & Safety Departments should immediately be alerted whenever asbestos is believed to be involved in a renovation or demolition project.

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The contractor will be required to meet all of Alcoa's
Engineering Standards for Asbestos Removal.

JOAN E. SANDER
REV. 1982 OCT. 26/eds