PLAINTIFF'S EXHIBIT
FD-1513

MODEL ASBESTOS BUILDING MATERIALS CONTROL PROGRAM

BACKGROUND

It has been Company practice since 1973 not to use asbestos insulating materials and to strive for eventual removal of all existing asbestos under appropriate circumstances. Details of this practice are contained in Industrial Hygiene Bulletin 4b, 23 August 1983, "Asbestos Insulation Removal and Repair" and Manufacturing Guidelines G3-19, September 1981, "Recommended Work Practices for Handling Asbestos".

PROBLEM IDENTIFICATION

The regulation of asbestos insulating materials is specified by standards promulgated by the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA) and their local governmental counterparts. In order to comply with existing standards all Company facilities (plants, office buildings, laboratories, etc.) should:

- Complete a thorough survey to identify where asbestos insulating materials are present. This survey must include piping, duct work, walls, ceilings, plenum chambers, mechanical rooms, fan station outer and inner coverings, and all other areas where insulation may have been used for fire protection, noise abatement, or thermal properties. This includes conventional and sprayed materials.

- Determine friability of asbestos materials found.

- Determine the structural integrity of the asbestos material and the surfaces to which it is attached.

- Develop a plan to remove, re-cover, encapsulate, or enclose asbestos materials as appropriate.

The survey to identify asbestos insulating materials should begin as soon as possible. The first step in the survey is to review facility specifications to determine where insulating materials are being used and their composition. Asbestos insulation, including sprayed insulation, was used in most buildings before 1970. If this information is not available, a complete inspection of the facility must be undertaken. Where the composition of insulating materials is not known, core samples must be taken to determine asbestos content. The asbestos analysis must be done by a certified laboratory using EPA polarizing light microscopy or X-ray diffraction methods. These analyses are available through the Company Industrial Hygiene Laboratory, and should outside laboratory service appear more appropriate, the Industrial Hygiene Section will designate the laboratories to be used. The survey will result in an assessment of the square feet of area involved, identity of types of applications, and the type of construction.

A core sample is obtained by cutting out a piece of the insulating material down to the substrate with a one-inch hole saw mounted on a ratchet or an extension (a power drill creates unnecessary dust exposure). A sufficient number of adequately labeled and recorded samples must be taken to be representative of a line, vessel, wall, ceiling, or other surface. This is important since repair over a number of years may have blended asbestos and non-asbestos material on the same surface.

Friability is a subjective determination. By definition, friable asbestos material is any material that contains more than one percent asbestos by weight and can be crumbled, pulverized, or reduced to a powder when dry, by average hand pressure. Notes as to friability and structural integrity of asbestos material and the surfaces to which it is attached should be made during the identification survey.

ASBESTOS CONTROL STRATEGY

Exposure to asbestos may cause lung disease and cancer after a long latency period. Further, there is a heated debate in the scientific community whether there is any safe threshold level at which asbestos does not cause cancer. Therefore, air samples are useful only to document present exposure levels and are of minimal use in determining an asbestos control strategy. The long-range objective of all facility plans should be the eventual complete removal of all asbestos materials. However, short- and mid-term goals should be based on immediacy of need and appropriate timing with other projects. The decision to remove, recover, encapsulate, or enclose shall be based on:

- Friability and conditon of the material
- Exposed surface area
- Occupancy and use
- Control of the access to the area
- Accessibility to the material
- Deterioration, delamination from substrate, physical or water damage
- Proximity to an air plenum or airstream
- Proximity to high activity areas and subjection to physical damage by employees, equipment or vibration
- Planned changes to the facility that will impact any of the above factors

If friable asbestos insulating material is in or near an air plenum or airstream, it shall be scheduled for removal as soon as possible. During the removal no airflow that could contaminante other areas of the facility can be allowed in this plenum. If asbestos is in an occupied high-activity area, is friable, damaged, and subject to further damage, it shall also be removed. In cases less severe than listed above, the occupancy, use, possible future friability, damage, and other factors that may contribute to causing asbestos fibers to become air-borne on a continuous or peak basis shall be weighed before a decision is made on a plan of action for asbestos fiber control.

OSHA and the EPA are specific in their requirements relative to asbestos. These requirements include: pre-notification of EPA with removal of 260 linear feet or more of pipe insulation or 160 square feet or more of boiler or surface insulation; air monitoring; specific respiratory protective equipment; job-site enclosure; posting of warning signs; worker training and education; medical examinations; indefinite record-keeping; and proper disposal of asbestos-laden materials. In order to insure these requirements are met, each division and individual facility should designate an employee as Asbestos Control Program Coordinator.

Because of the involved requirements associated with asbestos control, it is desirable, where local labor agreements permit, to utilize outside contractors. These contractors should be selected on their ability to satisfy the following:

o Remove, repair, recover, encapsulate, or enclose asbestos materials while meeting applicable OSHA and EPA standards. A copy of OSHA regulations 1910.1001 Asbestos, and EPA 40 CFR Part 61, Subpart B: National Emission Standard for Asbestos, shall be in the contractor's possession and available at the job site.

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- Utilize only employees thoroughly trained in the hazards and control of asbestos.
- Have at least four years experience as an asbestos control contractor.
- Provide all labor, materials, services, equipment, and insurance necessary to complete the specified project.
- Complete timely notification of the EPA and other appropriate agencies before commencing work on the project.
- Remove all asbestos wet after low-pressure fine spraying with a wetting agent of an equivalent to 50 percent polyethylene ester and 50 percent polyoxyethylene ether at a concentration of one ounce per five gallons of water.
- Prepare job site by providing for employee protective equipment and decontamination, job-site containment, material disposal, and job-site clean-up.
- Provide for air monitoring before removal is begun, during removal, and after removal completion. Air monitoring will be conducted inside the containment enclosure, outside the enclosure, and outside the facility.
- Provide a report signed by an American Board of Industrial Hygiene Certified Industrial Hygienist with experience in asbestos control verifying the results of air monitoring and attesting that the project was completed following OSHA and EPA requirements.

If local labor agreements will not permit the use of outside contractors, employees performing asbestos removal must first be trained in removal techniques consistent with OSHA and EPA regulations. Further provisions for all employee protection requirements and EPA pre-notification must be satisfied before the removal project is begun.

ASBESTOS CONTROL TECHNIQUES

As previously mentioned, four general approaches are available for controlling potential asbestos exposure from building materials:

- Removal: Asbestos material is soaked with a wetting agent and stripped from all surfaces and properly disposed. However, it should be noted that some amosite asbestos and encapsulated or tightly bonded material may not readily accept soaking.
- Encapsulation: Asbestos material is coated with a bonding agent called a sealant.
- Enclosure: Asbestos material is separated from the building environment by permanent barriers.
- Recovering: Asbestos material is repaired where damaged, coated with a bonding agent where necessary to seal fibers, and then re-covered with additional insulating material, synthetic cloth or hard cover such as PVC.

Because of routine maintenance tasks and utility installation or modification that result in drilling, sawing, or other dust generation operations, removal is the only control method that can guarantee the elimination of asbestos exposure. However, removal costs are high (estimates range as high a $10 per square foot), removal requires extraordinary safety and health precautions and may result in some interruption of building activities. Further, alternate materials may need to be installed as a replacement for the removed asbestos.

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