

SHELL
DEER PARK MANUFACTURING COMPLEX
NORTH

PLAINTIFF'S EXHIBIT

SH-1921

ASBESTOS

SAFETY S-125
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JANUARY 10, 1984

I. SUMMARY

Asbestos is a health hazard when taken into the body. Asbestos is encountered frequently within the Complex as insulation and is a common component of some gaskets, building material and brakelinings purchased prior to 1973.

General practices and work practices are outlined in Sections III, IV and V of this order.

Demolition and disposal of asbestos materials is controlled by the EPA. Procedures for demolition and disposal are outlined in Sections VI and VII.

Information regarding medical exams and employee training is contained in Section VIII.

II. INTRODUCTION

Asbestos is a mineral silicate occurring naturally as a variously colored fiber. It is non-combustible, non-conducting, and resistant to deterioration and chemical attack. Because of these properties, it has found widespread use in thermal insulation, asbestos floor tile, roofing and transite materials, gaskets, coatings, plastics, and brake linings. Because of its fibrous nature, it can be woven into cloth, or used to add strength to other materials.

Asbestos is a health hazard when taken into the body in very low concentrations. The asbestos fibers are associated with a variety of diseases, including (1) Asbestosis - a non-malignant scarring of the lungs; (2) Bronchogenic Carcinoma - a malignancy (cancer) of the lung; (3) Mesothelioma - a malignancy of the lining of the chest cavity; and (4) cancer of the stomach, colon, and rectum. These diseases develop slowly, and usually do not become evident until many years after initial exposure. Asbestos fibers can enter the body via the breathing process or via eating/drinking. The lightweight, small asbestos fibers are easily "airborne" and can contaminate the work area. Recent scientific studies have shown that individuals who smoke and have exposure to asbestos have a significantly greater health risk than asbestos workers who don't smoke.

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Asbestos is most frequently encountered within the Complex as insulation on pipes and structures installed prior to 1973. While purchase of new insulation containing asbestos has been discontinued, asbestos insulation will be encountered in older units for many years to come.

III. GENERAL PRACTICES

- A. In general, handle asbestos-containing materials in a wet state, and use engineering controls, such as enclosure, exhaust ventilation, and dust collection to prevent or minimize asbestos exposure. When these methods are not feasible, or do not sufficiently reduce the asbestos exposure, respiratory devices are an approved method of protection. As a precaution, air purifying respirators shall be worn for all tasks which involve disturbance of materials containing asbestos. (Refer to the Respirator Safety Order for proper selection.)
- B. Wherever practicable, replace materials containing asbestos with non-asbestos substitutes. Insulation containing asbestos shall not be purchased, and asbestos blankets and insulating tape may not be used.
- C. In the absence of specific knowledge to the contrary, assume all insulation to contain asbestos. Insulation can be verified as non-asbestos material by (a) field tests performed by the Inspection Department, or (b) specific knowledge that the insulation was installed after 1973, which is the date when DPMC began using only non-asbestos insulation.
- D. Reinsulate equipment that is frequently maintained, such as control valve manifolds, pumps, etc., with non-asbestos insulation at an early opportunity. Equipment insulated with asbestos may be sent outside the Company for maintenance, providing the insulation will not be disturbed or removed for that maintenance, and providing that such equipment shall be accompanied by notification that the insulation contains asbestos. This notification shall include the standard asbestos caution label on the equipment (see Attachment I), and suitable notices accompanying the truck manifest, and the purchase order. Equipment insulated with asbestos that requires maintenance which will disturb the insulation shall have the asbestos thoroughly removed prior to leaving DPMC. Execution of these reinsulation programs and notification practices are the responsibility of the Shell supervisor or foreman most immediately involved in arranging for the equipment transfer.
- E. Use work permits to ensure compliance with asbestos work practices for maintenance tasks. It is the joint responsibility of maintenance and operating representatives to anticipate encountering asbestos when planning a job or preparing a work permit. When

asbestos will be encountered, the safe work permit shall specify "asbestos work practices in effect; respirator required".

- F. All insulated equipment, pipe, etc. that is to be disposed via salvage shall have insulation removed at the originating location. Insulated equipment will not be accepted at the salvage yard. However, by special arrangement with Purchasing-Material Control, large pieces of equipment with non-asbestos insulation may be sent to salvage.

IV. WORK PRACTICES

The following work practices apply at DPMC:

1. Respiratory Protection - Wear respiratory protection during any operation where airborne asbestos fibers could be generated. The approved respirators include the 3M disposable dust mask (18710, or 9900); the MSA or Scott twin cartridge respirator equipped with dust and mist filter; or any supplied air respirator. Respirators are available from the green area respirator cabinets. (See Respiratory Protection Safety Order). Employees who use respirators are to be trained annually.
2. Wet Methods - The removal of asbestos insulation should be done in a wet state to prevent or minimize the formation of airborne asbestos fibers. Portable spray cans may be used. Wet clean work areas; dry sweeping or blowing may create airborne fibers. Special work situations where water cannot be used, such as those involving electrical systems, should be reviewed with the Health and Safety Department.
3. Identification of Work Area - Post signs (Attachment I), which are available from the tool room, at any location while involved in demolition of asbestos-containing insulation, or cutting of asbestos-containing transite. Wherever practical, work areas are to be roped off to minimize exposure to transient personnel.
4. Ventilation Systems - Inspect local ventilation equipment used to control asbestos fibers at least quarterly. Inspection records are to be maintained by the principal department using such equipment.
5. Cleanup - Clean the work area by wet sweeping and bagging of all asbestos debris, or by use of a vacuuming device which is approved by the Health and Safety Department. In all cases, the asbestos debris must be properly handled for disposal (see section entitled "Disposal"). Precautions should be used to minimize airborne asbestos during idle work periods. For example at the end of a workday, large pieces of unprotected insulation are to be moistened and loose insulation picked up. Final cleanup may be accomplished by washdown of the area. Dry sweeping or "blowing" are not permitted.

37 ~~Personal Activities - The storage, preparation, and consumption of food and beverages is not permitted in areas where exposure to airborne asbestos is encountered.~~ Personal hygiene is very important to protection from asbestos. It is the responsibility of all employees that work with asbestos materials to take reasonable cleanup precautions prior to eating, and also at the end of the work shift. As necessary, washup areas are to be provided for washing.

42 ~~Clothing - Employee personal street clothing is to be protected from visible asbestos contamination. Employees assigned to areas of tasks where airborne exposure or clothing contact with asbestos may reasonably occur shall wear coveralls.~~ As a minimum precaution outer disposable coveralls are to be worn. Efforts must be made to assure the effectiveness of the coveralls. The use of different size disposable coveralls will minimize tearing; all snaps or buttons shall be utilized as is necessary to protect undergarments. Torn or ripped paper coveralls shall not be continued to be worn. Where cloth coveralls are utilized, an appropriate change area must be provided.

Coveralls are not required for maintenance or operations tasks encountering incidental insulation removal, providing airborne asbestos and visible street clothing contamination is prevented by procedures outlined in the next section.

8. Asbestos-Containing Substances - Asbestos cement, mortar, grout, plaster, coatings, transite, or similar materials must be handled in accord with the above work practices to prevent or minimize exposure to airborne asbestos.

V. TASKS WITH INCIDENTAL INSULATION REMOVAL

Assume insulation to be asbestos-containing, unless known or shown to be non-asbestos material. Since insulation removal constitutes a relatively brief exposure on these tasks, the following work practices shall suffice.

1. Use wet methods to prevent airborne asbestos.
2. Wear respiratory protection (dust mask).
3. Bag and tag the asbestos debris, in keeping with the procedures outlined under "Disposal". Clean up the area and dispose of the bagged asbestos debris.

Coveralls are not required where the wet methods are used, and personal clothing is not contaminated. Normally, appropriate instructions on the work permit will preclude the need for the caution signs. The caution signs and rope barricades shall be used if the asbestos removal task will

last more than 1-2 hours, if other personnel are working in the immediate area, or if required to restrict the work area to other personnel.

VI. DEMOLITION AND MAINTENANCE OF INSULATION

Demolition and maintenance of insulation and transite containing asbestos must be accomplished in accordance with OSHA and EPA regulations, and written notification to the EPA is required. Demolition of insulation may be encountered when process units are retired, when interunit insulated pipelines need replacement, or when individual columns or large vessels are replaced or retired. Maintenance of insulation may be encountered during upgrading of insulation, or during major turnarounds in some units. To prepare for asbestos demolition maintenance work, the responsible Process Manager, Supervisor, or Project Engineer shall contact the Inspection Department to determine whether the material contains asbestos. The Environmental Conservation Regulatory Affairs group shall then be advised if more than 250 square feet are involved. One-month's advance notification to the Regulatory Affairs group is required. Separate written notification to the EPA may be required for each job that involves long interunit pipelines, a column, or a large vessel. Small jobs will be covered by an annual notification described below. The Regulatory Affairs group is responsible for the EPA notifications.

The responsible foreman, supervisor, or project engineer shall prepare written instructions for the job. These instructions shall then be used as a basis for EPA notification, and for conducting the job. Environmental monitoring will normally be performed by Industrial Hygiene personnel for jobs that require EPA notification.

In July of each year, Regulatory Affairs will provide an annual notification to EPA, estimating the quantity of incidental asbestos removal that will be encountered during the year. This notification will then permit the Complex to accomplish all small demolition jobs involving asbestos without further EPA notification. Larger jobs will still require separate EPA notification by Regulatory Affairs.

Contractor pre-bid conferences held are to include the specific hazards of asbestos and required procedures. Also, advance notification of Purchasing - Procurement is necessary to allow sufficient time for contract preparation.

VII. DISPOSAL

Place the wetted asbestos in heavy duty plastic bags and seal them securely. An asbestos caution label, as shown in Attachment I, is required on each bag. The label may be pre-printed on the bag or may be on a tag attached to the bag. Each bag must also be marked for shipment to the disposal site as shown in Attachment II. The hazardous waste labels (which are provided by Environmental) must be marked, in indelible ink,

with the proper manifest document number and the date. A thirty cubic yard bin is located in the North Warehouse yard to receive bagged insulation for shipment to the site selected by Purchasing and Environmental Operations.

For small quantities of asbestos, the Foreman assigned responsibility for the job should contact the North Material Control Foreman (ext. 6214) to get the required manifest document number, get instructions for delivery to the bin and to give him an exact count of the bags.

A special bin will be provided, on request, by Environmental Operations for major demolition/renovation jobs. The hazardous waste labels and the manifest document number (which is different for each load) will be provided by Environmental to the job Foreman. The Foreman must see that each bag is properly labeled and marked. An accurate count of the bags placed into the bin must be kept and the number entered on the shipping manifest at the time of shipment.

Dispose of non-asbestos insulation wastes by placing them in the regular refuse bins.

VIII. ANNUAL MEDICAL EXAMS AND EMPLOYEE TRAINING

Annual medical examinations are provided to Shell employees engaged in activities regularly exposed to airborne concentrations of asbestos. The intent of this medical program is to include employees who work with asbestos-containing materials on a regular basis or who have had known exposure through previous assignments.

In addition, this order shall serve as a training instrument. Those employees that work regularly with asbestos materials shall be retrained annually, by reading and discussing this order and by viewing the asbestos slide tape which is available from Safety.

Key items to be emphasized in the training are:

1. The health hazards associated with asbestos.
2. The increased risk for smokers.
3. When exposure may occur.
4. Precautionary work practices.
5. Proper respirator use, fitting, and limitations of 3M dust mask.
6. A review of the OSHA Standard.
7. The use of warning signs where exposure may apply.

The manager shall retain appropriate training records documenting the names and dates of the training.

Updating Responsibility

Superintendent - Health, Safety, and Environmental