PLAINTIFF'S EXHIBIT

SH-1627

SHELL
DEER PARK MANUFACTURING COMPLEX
CHEMICAL PLANT AND REFINERY

ASBESTOS

SAFETY S-125
PAGE 1 OF 5
AUGUST 14, 1978

I. SUMMARY

Asbestos is a health hazard when taken into the body. Asbestos is encountered frequently within the complex as insulation 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 excessive amounts. 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.

The permissible exposure level for asbestos fibers, as established by the existing OSHA standard, is 2 fibers per cubic centimeter of air, as an 8-hour time weighted average; and a ceiling limitation of 10 fibers per cubic centimeter, as determined by a 15-minute sample.

Asbestos is most frequently encountered within the Complex as insulation on pipes and structures. 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

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, respirators shall be worn for all tasks which involve disturbance of materials containing asbestos.

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.

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.

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 appropriate maintenance supervisor.

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".

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.

For areas with specific asbestos uses (such as the CA unit), separate written procedures for handling asbestos are required, consistent with this order.

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 (#8710, or 9900); the Scott twin cartridge respirator equipped with dust and mist filter; or any supplied air respirator. (See respiratory protection Safety Order Attachment VIII).

2. Wet Methods - Whenever possible, handle asbestos materials in a wet state to prevent or minimize the formation of airborne asbestos fibers. Wet-clean work areas; dry sweeping or blowing create the hazard of airborne asbestos fibers.

3. Caution Signs - Post asbestos caution signs at each location where airborne concentrations of asbestos fibers may be in excess of the permissible exposure limits. The asbestos caution sign is shown in Attachment I.

   Post these signs, which are available from the tool room, at any location while involved in demolition of asbestos-containing insulation, or cutting of asbestos-containing transite.

4. Ventilation Systems - Inspect local ventilation equipment used to control asbestos fibers at least quarterly, and maintain inspection records.

5. Housekeeping - Clean the work area by wet sweeping and bagging of all asbestos debris, or by use of an approved vacuuming device. In all cases, the asbestos debris must be properly handled for disposal (see section entitled "Disposal"). Final cleanup may be accomplished by washdown of the area. Dry sweeping or "blowing" are not permitted.

6. 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. Employees that work with asbestos materials shall take reasonable cleanup precautions prior to eating, and also at the end of the work shift.

7. Clothing - Employees assigned to areas or tasks where exposure to airborne asbestos is encountered, shall wear coveralls. The coveralls shall be removed at the end of the shift and placed in a special, marked receptacle for laundering located in the change room. Coveralls are not required for maintenance or operations tasks encountering incidental insulation removal, providing airborne asbestos 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 shall not be required where the wet methods are effective in preventing airborne asbestos. Normally, appropriate instructions on the work permit will preclude the need for the caution signs. The caution signs shall be used if the asbestos removal task will last more than several hours, or if other personnel are working in the immediate area.

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, maintenance 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. One-month's advance notification to the Regulatory Affairs group is required. Separate written notification to the EPA may be requred for each job that involves long interunit pipelines, a column, or a large vessel. Smaller jobs will be covered by an annual notification described below. The Regulatory Affairs group is responsible for the EPA notifications.

The responsible maintenance 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.

VII. DISPOSAL

Place the wetted asbestos debris in sealed plastic bags and attach an absestos caution label to this bag. Place the sealed and tagged bag into a leaktight steel or fiber drum and attach a similar label on the outside of the drum. Bags, tags and ties are available in the tool rooms. The standard asbestos caution label is shown in Attachment I. Store these drums west of the warehouse in the open storage area bounded by Center, 11th, and X Streets in the Refinery and north of the "sandhouse" at the corner of N 30th/W 6th Streets in the Chemical Plant. These two sites are to be used for the interim storage of properly labled asbestos waste drums pending the accumulation of a full truck load. Notify the Refinery Material Control Foreman, Ext. 6214 at the Refinery; or the Chemical Material Control Foreman, Ext. 7031 at the Chemical Plant prior to taking drums to these areas. Major demolition and renovation jobs will ship their waste asbestos drums from the job site and are to use the interim storage sites only for those drums left over from full truck loads.

Purchasing is responsible for naming the authorized disposal site. Environmental Operations is responsible for the shipment of the asbestos waste to the authorized disposal site.

Dispose of nonasbestos 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.

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

Updating Responsibility
Superintendent - Safety & Industrial Hygiene

ATTACHMENT I

ASBESTOS CAUTION SIGNS AND LABELS

SIGN

Standard OSHA Caution Sign - 14" x 20" - with legend per OSHA Standard:

CAUTION
ASBESTOS
DUST HAZARD
AVOID BREATHING DUST
WEAR ASSIGNED PROTECTIVE EQUIPMENT
DO NOT REMAIN IN AREA UNLESS
YOUR WORK REQUIRES IT
BREATHING ASBESTOS DUST MAY BE
HAZARDOUS TO YOUR HEALTH

LABEL

Self-Adhesive Type Label, bearing legend per OSHA Standard:

CAUTION
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
BREATHING ASBESTOS DUST MAY CAUSE
SERIOUS BODILY HARM

file # 745.125

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For your information - a brief summary of the meeting held on May 29, 1980 on asbestos free insulation.

* Only non-asbestos containing insulation is being purchased by Shell DPMC. This insulation can be identified by gold flakes or green striping.

* At DPMC few people are making use of the inspection services available. Apparently better planning is required by maintenance to allow time for the identification of asbestos containing materials.