PLAINTIFF'S EXHIBIT
DOW-114

THE DOW CHEMICAL COMPANY

TEXAS DIVISION
FREEPORT, TEXAS 77541

September 6, 1972

ST0013302

MAINTENANCE FOREMEN
MAINTENANCE MANAGERS AND SUPERINTENDENTS
SAFETY AND LOSS PREVENTION

GUIDELINES FOR HANDLING ASBESTOS MATERIALS

In order to obtain data on exposure levels during removal of asbestos-containing insulation, the Environmental Health Department must take several samples, during removal, of each type or class of asbestos insulation. This data must be obtained and evaluated prior to December 1, 1972.

Most high temperature insulations (above 800°F) installed prior to August, 1970, should be suspected of containing asbestos. Before removing this type material, the appropriate Plant A or Plant B Insulation Foreman should be advised of the job so that monitoring may be arranged as required. This information can most readily be conveyed through Cynthia Cervenka, 4636 for Plant A or Orville Smith, 2581 for Plant B.

A complete revision of the "Handbook for Handling Asbestos Materials" is attached; it defines the procedures and safeguards required for proper handling. It should be noted that precautions for sawing of transite (cement-asbestos board) are included.

All waste asbestos-containing material must be properly bagged and labeled for disposal by the Yard Department. Labeling tags have been ordered (see attached sketch) but are not yet available. In the interim, attach a plain tag or label that is readily visible and clearly legible stating:

CAUTION, CONTAINS ASBESTOS FIBERS

You will be notified as soon as printed tags are available.

J. W. Crouch

cc
attach

ST0013303

HANDBOOK
FOR
HANDLING
ASBESTOS MATERIAL

THE DOW CHEMICAL COMPANY
TEXAS DIVISION

Maintenance Department
Supporting Services

July 1972 Rev.

HANDBOOK FOR HANDLING ASBESTOS MATERIALS

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ST0013304

PURPOSE

The purpose of this handbook is to define safe handling procedures for asbestos materials used in the Texas Division. The intent is to control the exposure of employees to asbestos dust through the proper use of safe work procedures and by the substitution of non-asbestos containing materials.

Asbestos is widely used as structural wall board, insulation, and roofing material. Asbestos fibers are used as a mechanical reinforcing matrix in insulation, roofing paper, certain piping systems, etc. However, Dow Engineering Specifications were revised to exclude asbestos-containing insulation prior to installation of Federal regulations controlling the use and handling of asbestos. Eventually, the use of asbestos will be eliminated as the ultimate solution to the problem.

The OSHA standards which became effective July 7, 1972, define the precautions required for asbestos handling and the allowable safe working limits.

Should a hazard exist, and these procedures appear insufficient, contact the superintendent of the Plant A or B Functional groups for exceptions or variations.

These procedures will be reissued prior to 7 December 72 to incorporate revisions dictated by results obtained from the Division Monitoring Program.

ST0013305

SAFETY

The health of those who breathe asbestos dust may be seriously affected. Results can be similar but more serious than those caused by the more commonly known materials such as silica and coal dust. This phenomena has been observed for many centuries. Current medical discoveries show that handling of asbestos by a confirmed cigarette smokers is especially hazardous in the area of potentially serious lung disorders. It is recommended that those persons handling asbestos not smoke cigarettes in any quantity.

When working with materials which contain asbestos fiber, care must be taken to eliminate as much loose dust as possible. Wetting, isolating the work area, or other suitable procedures to eliminate the dust hazard are absolutely necessary. The main problem areas will be in removal of old, deteriorated insulation and the sawing of Transite.

Respiratory protection, dust collectors, blowers, etc., will be mandatory where asbestos-containing materials must be handled.

The two "nose and mouth" dust respirators which have been approved by the Safety Department are: (1) MSA Dustfoe 77, Dow Stock No. 15-26005, Cartridge No. 15-23775, and (2) Wilson Dust Respirator, Dow Stock No. 15-25460, Cartridge No. 15-23790.

Disposal of asbestos will be in polyethylene bags, Dow Stock No. 15-05080 for large bag and 15-04170 through 15-04185 for small bags.

As required, special protective clothing such as coveralls, head covering and gloves will be provided. Such requirements will be determined by the Division Monitoring Program.

Two lockers will be provided, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

Asbestos-contaminated clothing shall be placed in labeled, polyethylene bags for shipment to the laundry.

ST0013306

USE OF HANDBOOK FOR HANDLING ASBESTOS MATERIALS

The Safe Work Procedures outlined in this handbook are minimum requirements for working with asbestos containing materials.

In some cases, job conditions may dictate more stringent requirements. These could include completely wetting down the area with water when removing old insulation, or completely isolating the work area with tarpaulins, etc. Specific requirements for each job will be detailed on the "Insulators Safety Check List."

Because Dow's Engineering Specifications have been revised to exclude use of asbestos-containing insulation, most of the Safe Work Procedures in this section of the Manual will seldom be referred to for new installations.

These procedures are to be used in conjunction with Plant Safety Rules, Maintenance Standard Safe Work Procedures for the Area, and Safety Standards.

ST0013307

SAFE WORK PROCEDURE

Subject: Shop Fabrication With Asbestos Materials

ST0013308

Minimum Safety Equipment Requirements:

1. Side Shield Goggles must be worn.

2. Approved "Nose and Mouth" Dust Respirator must be worn at all times. (See Page 3)

3. There shall be a Dust Collecting System on Power Equipment adequate to remove large amounts of dust generated.

4. An Insulator Safety Check List is to be filled out prior to the job and properly approved. Turn in to supervisor at completion of job.

Special Precautions:

1. Do not breathe asbestos dust.

2. Do not operate equipment if provision cannot be made to eliminate dust in a safe manner.

3. Normal precautions must be taken for working with power equipment. (See specific Safe Work Procedure for Operating Power Driven Tools if in doubt).

4. When cleaning out the vacuum system of the machines, a respirator must be worn. Wet down dust prior to handling. Place the wet material in polyethylene bags, seal, label and notify Yard Department that asbestos waste is ready for proper disposal at landfill.

5. Good housekeeping in the shop area is to be practiced. Asbestos dust must be vacuumed throughout the shop area if and when such conditions exist.

6. Keep all personnel not directly involved in the fabrication operation away from the area unless they observe minimum safety requirements and have been apprised of the hazards involved.

SAFE WORK PROCEDURE

Subject: Mixing Material Which Contains Asbestos

Minimum Safety Equipment Requirements:

1. Side Shield Goggles must be worn.

2. Approved "Nose and Mouth" Dust Respirator must be worn at all times. (See Page 3)

3. An Insulator Safety Check List is to be filled out prior to the job and properly approved. Turn in to supervisor at completion of job.

ST0013309

Special Precautions:

1. Do not breathe asbestos dust.

2. When mixing whole sacks, do not open sacks and dump into open mixing tray. Moisten asbestos by adding water through a small hole in sack until danger of dust is eliminated. Then the material can be removed if necessary to complete mixing operation to desired consistency.

3. Slipping or falling is a hazard to be considered when working around wet asbestos mud.

4. Back strains from handling containers of mixed mud are also a hazard. A means of handling this mixture may need to be provided, depending on the circumstances.

5. Keep all personnel not directly involved in the mixing operation away from the area unless they observe minimum safety requirements and have been apprised of the hazards involved.

6. All contaminated bags, boxes, waste, etc., shall be wetted, placed in labeled polyethylene bags and sent to landfill.

SAFE WORK PROCEDURE

ST0013310

Subject: Handling and Storing Asbestos Materials

Minimum Safety Equipment Requirements:

1. Side Shield Goggles must be worn.

2. Approved "Nose and Mouth" Dust Respirator must be worn at all times. (See Page 3)

3. An Insulator Safety Check List is to be filled out prior to the job and properly approved. Turn in to supervisor at completion of job.

Special Precautions:

1. Do not breathe asbestos dust.

2. Handle materials in such a manner as to minimize exposure to dust. Moisten material with water spray before removing from container if material will not be damaged.

3. Areas used to store asbestos containing materials should be marked "Asbestos Material".

4. Cartons, boxes, etc., that have contained asbestos materials should be wetted, broken and placed in labeled polyethylene bags for disposal.

5. Good housekeeping of shop areas is to be practiced. Clean up all loose dust on floor, machines, shelves, etc., by vacuuming. Wet down, place in labeled polyethylene bags and dispose of dust while damp. Notify the Yard Department to dispose by landfill while material is still damp.

SAFE WORK PROCEDURE

ST0013311

Subject: Sawing and Cutting by Hand

Minimum Safety Equipment Requirements:

1. Hard Hat must be worn.
2. Side Shield Goggles must be worn.
3. Approved "Nose and Mouth" Dust Respirator must be worn at all times. (See Page 3)
4. An Insulator Safety Check List is to be filled out prior to the job and properly approved. Turn in to supervisor at completion of job.
5. All other safety equipment which is required by job location must be used. (Read Area Safe Work Procedures.)

Special Precautions:

1. Do not breathe asbestos dust.
2. Wear the "Nose and Mouth" Dust Respirator when removing asbestos material from package, installing, or cutting.
3. Keep all personnel not directly involved in the operation away from the area unless they observe minimum safety requirements and have been apprised of the hazards involved.
4. Special precautions shall be taken when using "Skil-Saw" for sawing asbestos materials. To eliminate dust hazards and protect all people in the area, an air operated saw shall be used and the material shall be flooded with water.
5. If water will damage the material, a hand saw shall be used and sawdust collected with a portable vacuum whenever possible. If site work prohibits use of a vacuum pick-up, cuts should be made directly over a collection box or polyethylene bag.
6. All contaminated bags, boxes, waste, etc. shall be wetted, placed in labeled polyethylene bags and sent to landfill.

SAFE WORK PROCEDURE

Subject: Insulation Removal

Minimum Safety Equipment Requirements:

1. Hard Hat must be worn.

2. Side Shield Goggles must be worn.

3. Approved "Nose and Mouth" Dust Respirator must be worn at all times. (See Page 3)

4. An Insulator Safety Check List is to be filled out prior to the job and properly approved. Turn in to supervisor at completion of job.

5. All other safety equipment which is required by job location must be used. (Read Area Safe Work Procedure.)

Special Precautions:

1. Do not breathe asbestos dust.

2. Hazards from asbestos dust that falls, blows or may be scattered throughout the area must be eliminated.

3. Keep all personnel not directly involved in the insulation removal operation away from the area unless they observe minimum safety requirements and have been apprised of the hazards involved.

4. Use water to wet down the insulation before and during removal.

5. Seal all material in labeled polyethylene bags as removed. The Yard Department is to be notified for disposal at landfill.

ST0013312

INSULATOR SAFETY CHECK LIST

JOB DESCRIPTION: _____ DATE _____

LOCATION _____

I. AREA

		YES	NO
1.	Safe Work Permit Received	☐	☐
2.	Area Safe Work Procedure Known	☐	☐
3.	Nearest Phone _____		
4.	Nearest Eyebath and Safety Shower _____		
5.	Job Site in Safe Condition	☐	☐
6.	Is Pipe or Equipment Safe to Work On?	☐	☐
7.	Are Corrosive Chemicals Involved?	☐	☐
	a. Can lines or equipment be drained?	☐	☐
8.	Is Adjacent Piping and Equipment Safe	☐	☐
9.	Red Tags Needed?	☐	☐
10.	Burn Hazards Present?	☐	☐
11.	Craftsmen Lined Up With Check List?	☐	☐

II. ASBESTOS WORK

		YES
1.	Handbook for Handling Asbestos Materials Used?	☐
2.	Signs and/or Barricades Up to Warn Others ?	☐
3.	Has Disposal of Debris Been Arranged ?	☐
4.	Is Water Needed to Control Dust ?	☐
5.	Stencil on Job to Denote Materials Used ?	☐
6.	Have all Involved Personnel Been Informed ?	☐

III. Special Safety Equipment Requi

- ☐ Coveralls
- ☐ Chemical Goggles
- ☐ Face Shield
- ☐ Acid Hood
- ☐ Air Mask
- ☐ Dust Respirator
- ☐ Rubber Gloves
- ☐ Rubber Boots
- ☐ Slicker Coat
- ☐ Slicker Pants
- ☐ Safety Belt
- ☐ Hearing Protection
- ☐ Other: Specify _____

ST0013313

Special Hazards _____

Special Safety Precautions _____

Checked and Approved By:	DATE:
Supt. _____	
Foreman _____	
Crewleader _____	
Craftsman _____	

IV. Personnel on Job (Name)

		Expos Time
1.		
2.		
3.		
4.		
5.		
6.		

THRESHOLD LIMIT VALUE

No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air. The eight hour time-weighted average shall not exceed five (5) fibers per cubic centimeter.*

In order to assure compliance with these limits, the Environmental Health Group will make random samples. When special field testing is desired, call Environmental Health at 238-2121.

In order to keep asbestos dust concentration within the proper limits, any dusty conditions connected with the handling of asbestos materials must be kept to an absolute minimum. This must be done as outlined in the previous Safe Work Procedures by wetting down the area, pre-soaking the material, or vacuuming the material as it is cut. Each individual job should be planned with this uppermost in mind.

ST0013314

* Effective 1 July 1976, this limited is reduced from five (5) to two (2) fibers per cubic centimeter.

Color: Dark green background with white letters
Mtrl: Same as red danger tags cut with tourist wire instead of string.

CAUTION

Contains Asbestos Fibers

Avoid Creating Dust

Breathing Asbestos Dust May Cause Serious Bodily Harm

(SEE OTHER SIDE)

FRONT

CAUTION

This tag may be removed by authorized personnel only.

Attached by: _____ Date: _____

(SEE OTHER SIDE)

BACK

ST0013315