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UNION CARBIDE CORPORATION
Specialty Chemicals — Sistersville Plant

MEMORANDUM TO: L. E. Calvert

FROM: E. L. Doerflein

DATE: July 24, 1986.

SUBJECT: Asbestos Handling - Sistersville

COPY TO: W. V. Summers
G. W. Wulfert/W. C. Nycz

Per our discussion relative to your request for input to the group developing a recommended C&P asbestos policy, please find attached Sistersville's Asbestos Handling Procedure. This procedure covers both the personnel safety and disposal aspects of our asbestos related work.

Our current position on asbestos removal vs. continued use is:

- Purchase of asbestos-containing insulation was discontinued in 1973. The plant has requested $1.5MM to initiate a 3 year program to replace existing asbestos insulation. A description of our current philosophy is attached.

- There are no plans to phase out the current use of asbestos gaskets or packing.

- Asbestos building materials are no longer purchased.

Sistersville uses a training film produced by the International Association of Heat and Frost Insulators and Asbestos Workers in cooperation with the Worker's Institute for Safety and Health. We have added a review of the Plant's Asbestos Handling Procedure to the end of the film.

We have not had enough experience to draw any conclusions about the suitability of non-asbestos gasketing and packing in those areas where asbestos is now being used. In general, concern exist about finding acceptable alternatives for high temperature service. Also, we would expect to encounter problems with fitting replacement gaskets into existing piping systems because of differences in their thickness compared to the asbestos gaskets.

I hope this input will help you. If you have any questions, please call.

E. L. Doerflein

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PLAINTIFF'S EXHIBIT
UC-4076

UCC 022444

UNION CARBIDE CORPORATION
Specialty Chemicals — Sistersville, WV

February 5, 1986

MEMORANDUM TO: All Department Heads
Maintenance 2nd Line
Maintenance 1st Line
Operations Department Coordinators

COPIES TO: D. G. Beddow
K. F. Carroll
L. W. Phair
W. V. Summers

SUBJECT: Asbestos Insulation Philosophy - Sistersville Plant

Attached are the Sistersville Plant's Philosophies and Guidelines concerning asbestos insulation. Please make yourself familiar with these and execute accordingly.

G. W. Wulfert
Maintenance Manager

GWW:ts

Attachment

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SISTERSVILLE PLANT
PHILOSOPHIES AND GUIDELINES FOR ASBESTOS INSULATION

Following is the Sistersville Plant's philosophy concerning asbestos insulation:

Our plan is to identify all asbestos insulation, to seal where pratical, and to remove and replace with non-asbestos material where repair jobs require removal for completion of the job.

Maintenance Guidelines for Maintaining/Removing Asbestos Insulation:

(1) If the installed asbestos insulation has damage that can be patched, and sealed, do it rather than complete removal.

(2) If the installed asbestos insulation can be effectively sealed, do it versus replacement.

(3) If a repair job on pipe, equipment, or a tank requires the removal of asbestos insulation in order to get at the work, then replace the asbestos insulation with approved, non-asbestos type insulation. Proper procedures must be followed during the removal, and proper disposal methods used for the asbestos insulation.

(4) Maintenance Coordinators should fill out their Work Order requests with all the above in mind.

The Sistersville Plant is 30 years old, and being that old the piping and other equipment were originally insulated with asbestos. Much of the asbestos has been removed and safely disposed of in the landfill as repairs and replacements have occured. No insulation containing asbestos has been purchased since 1973, but some asbestos still remains.

Concern has been expressed that plant personnel are continually exposed to airborne asbestos fibers from unsealed insulation and dust from the entire plant surface. Monitoring conducted in a number of Plant locations, including some having unsealed asbestos nearby, has shown below the detectable limit of the analytical method. Sampling downwind of asbestos removal operations shows the same non-detectable levels. We believe this is because the Insulator Mechanics carefully follow the procedures that have been developed to prevent contamination of the environment and themselves while removing asbestos.

Maintenance Craftsmen (and Operators for that matter) may work along side of asbestos insulation. If they, or their

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Supervisors, feel that protective equipment is needed they can safely use throw-away coveralls and Comfo II Respirators. These are usually short duration jobs and certainly do not involve the potential of exposure as would an insulator whose job it is to remove and handle asbestos insulation.

In many cases the risks created by the removal would far exceed any which would arise if the insulation were left in place effectively sealed.

In conclusion, "The Plant does not intend to enter into a program for the wholesale removal of installed insulation for no other reason than that it contains asbestos."

George Wulfert

Ken Williams

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SUBJECT: Handling, installing, removing and/or disposing of material containing asbestos.

1.0 PURPOSE:

1.1 To provide a safe procedure for the handling of material containing asbestos. Asbestos is defined to include Chrysotile, Amosite, Crocidolite, Tremolite, Anthophyllite and Actinolite.

2.0 INTRODUCTION:

2.1 Excessive exposure to asbestos fiber is harmful to your health. These fibers have been associated with cancer of the lungs, throat, stomach, colon and rectum. The maximum permissible exposure is two (2) fibers, longer than five (5) micrometers, per cubic centimeter of air when averaged over 8 hours. At no point in time may an employee be exposed to greater than 10 fibers per cubic centimeter of air.

2.2 Asbestos fiber is found in insulation used on piping, equipment, etc., that was installed earlier than about 1973 or 1974. This was when the Sistersville Plant deleted asbestos containing insulation from Stores and went to an "asbestos free" insulation.

2.3 Asbestos fibers are found in some brake linings used on automobiles, trucks and our work vehicles.

2.4 Asbestos fibers can also be found in the wall coverings, insulation, etc., used in the construction industry on older buildings.

3.0 RESPONSIBILITY:

3.1 The appropriate first line supervisor and craftspersons are responsible for controlling the safe removal and disposal of asbestos-containing material.

3.2 Based on size, complexity and location, the Safety and Health Department shall be notified prior to the start of the job. At that time a decision will be made as to the need for and extent of any monitoring. The Supervisor of the personnel handling the asbestos-containing material and the actual individual shall request the monitoring.

3.3 Proper Housekeeping is the responsibility of each individual in performance of the work assignment. Appropriate equipment for prevention of dust release and clean-up after the job has been provided. Please use this equipment but never use a broom, brush or blow with air when handling materials containing asbestos.

Responsible for review and update of this procedure - Maintenance Department

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3.4 The Environmental Protection Control Staff shall notify the EPA of the annual amount of asbestos activity in the plant.

3.4.1 The EPA must also be notified prior to large scale jobs. These are defined as stripping of more than 260 linear feet of pipe insulation or more than 160 square feet. The Insulator Supervisor shall notify the EPA Staff prior to such jobs.

3.5 The responsible supervisor shall ensure that employees using asbestos-containing material have received proper training on the hazards of asbestos. This will be done every six months by the Insulator Supervisor or a designated training supervisor.

3.6 If an employee must wear respiratory protection, the supervisor shall assure that the employee is medically approved and has received proper training on the use of respiratory protection.

3.7 The individual craftsperson is responsible for wearing respiratory equipment when required. The first line supervisor in the operating dept. shall ensure that the operators know and follow the guidelines outlined in this procedure.

4.0 PROCEDURE:

4.1 All asbestos-containing material will be handled with extreme care and our goal is to take appropriate measures to eliminate all airborne asbestos fibers.

4.2 When asbestos is involved, barricade tape will be used to isolate the area and caution signs will be posted at all access routes to the work area. These signs will be located at a distance which allows an employee to take the necessary protective steps before entering the area. This sign will comply with OSHA specifications and shall read:

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

4.3 Asbestos-containing material will be handled, mixed, applied, removed, cut, or otherwise worked on in a wet state sufficient to prevent the emission of airborne asbestos fibers in excess of exposure limits.

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4.4 Asbestos-containing cement, mortar, coatings, plaster, wrappings, or other materials will not be removed from bags, boxes, or other containers, in which it was shipped, without first wetting, enclosing or ventilating.

4.5 Employees engaged in the handling or removal of asbestos-containing material will wear approved respiratory protection. The individuals will normally be insulators, insulator helpers, and vehicle mechanics. This respiratory protection is mandatory at this location for all exposures to asbestos-containing material. Two types of protection are possible.

4.5.1 Normal Exposure: This is where the concentration of asbestos fibers is reasonably expected to be less than 10 times the permissible exposure limit. In this case, use the Comfo II respirator with the Type H Ultra Filter.

4.5.2 Heavy Exposure: This occurs when the concentration of asbestos is reasonably expected to exceed 100 times the permissible exposure limit. In this situation, a type "C" supplied air respirator in the positive-pressure mode shall be used along with a full facepiece mask.

4.6 Wetting of asbestos-containing material will be done in such a manner as not to wash the fibers into the ground, drainage trenches or sewer facilities. Any fibers contacting the ground will be gathered up and disposed of in approved containers.

4.7 Special wetting agents for asbestos-containing material are available in the Sistersville Plant Store Room. This material is designed to bind the asbestos fibers and reduce or eliminate the potential of dust generation. This wetting material will be used where practical.

4.8 A special Vacuum Cleaner is available, with a special filter designed for 99.97% efficiency. This Vacuum Cleaner will be used where wetting is not appropriate, such as brake lining work, inside of structures, etc., and for removal of any asbestos-containing material on one's clothing.

4.9 Disposable Protective Clothing designed for exposure to asbestos-containing material will be used on all jobs involving the handling or removal of material containing asbestos.

4.9.1 Disposable Protective Clothing will be worn prior to contact with asbestos-containing material.

4.9.2 Disposable Protective Clothing will be removed at the work site and placed in approved containers.

4.9.3 Protective Clothing will be removed prior to coming in contact with other personnel, eating, smoking or using facilities used by other personnel.

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4.9.4 New Protective Clothing will be worn for each job or continuation of the job if the previously used Protective Clothing was removed.

4.10 Asbestos-containing material, including used disposable protective clothing, will be collected in impermeable, sealed bags or containers that are labelled according to Paragraph 4.12.

4.10.1 Within the shift that the job is completed, the craftsman or whoever collected the waste material will deliver the bags or containers to the asbestos waste area.

4.10.2 The appropriate supervisor will then notify the Contractor (Charlie Brown) within the same shift that asbestos waste has been delivered for burial.

4.10.3 The Contractor will bury the waste in compliance with federal regulations within 24 hours of being notified.

4.11 Contaminated clothing will be collected and transported in sealed impermeable bags or closed containers, properly labelled as described in Paragraph 4.12. This clothing will be sent to a commercial laundry which has facilities for handling asbestos contained clothing.

4.12 Disposal Containers or Laundry Bags shall read:

- Caution -

Contains Asbestos Fibers
Avoid Breathing Dust
Breathing Asbestos Dust
May Cause Serious Bodily Harm

4.13 When an employee has clothing (other than disposable type) contaminated or suspected to be contaminated with asbestos, the employee will:

4.13.1 Enter the "dirty room" facility provided for insulators and remove clothing.

4.13.2 Contaminated clothing will be placed in sealed containers and sent to laundry.

4.13.3 Enter the shower facility to wash off all asbestos fibers.

4.13.4 The employee will next enter the "clean room" facility and put on clean/uncontaminated clothing.

(P) 5.0 AUDIT:

5.1 The Dept. Head of Maintenance/Materials Management is responsible to audit performance as per "The Removal and Handling of Asbestos Materials" procedure using checklist audit form attached.

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Audit Checklist for the Removal and Handling of Asbestos Materials

1. Has operating area been notified that work will be performed in their area? Yes/No

2. Have operators been informed of procedures to follow? Yes/No

3. Is area adequately flagged off and signs placed in areas visible to foot traffic? Yes/No

4. Is the craftsperson wearing the proper equipment required for job? Yes/No

5. Has plastic been laid on ground to prevent contamination (where practical)? Yes/No

6. Has asbestos been wetted down prior to removal? Yes/No

7. Is material being placed in bags and sealed as it is being removed? Yes/No

8. Is contaminated clothing being removed and placed in bag prior to leaving job site? Yes/No

9. Has "dirty room" and shower procedure been followed? Yes/No

10. Has area been cleaned up and all flags and signs been removed? Yes/No

11. Has Charlie Brown been notified to bury the material? Yes/No

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