WV-0228#24

UNION CARBIDE CORPORATION
Specialty Chemicals — Sistersville WV

DATE: August 18, 1987

MEMO TO: G W Wulfert

COPY TO: C A Gorrell
W C Nycz
W V Summers

SUBJECT: Insulation Upgrade Program

This is to set forth in more detail those items and areas in the plant which can be bid and contracted in the insulation upgrade areas of the plant. They are broken down in three catagories of identification.

1. Obsolete/Abandon and insulation that will not be replaced.

2. Insulation that is not imperative to be replaced immediately.

3. Insulation that must be replaced immediately to sustain operating integrity.

The listing that follows is by no means comprehensive, but is intended to stage the first two years work.

These are to be bid on a line item bases so that scheduling and spending may be controlled.

Keith Purinton

KBP/slm
Attachment

PLAINTIFF'S EXHIBIT
UC-3985

UCC 019816

1.0 Obsolete / Abandoned and not replacing.

1.1 Tank #4

1.2 Old thermanol line from Steam Plant to Monomers.

-May remove pipe and asbestos together.
-Patch adjacent steam lines in pipe trail.

2.0 Insulation that does not have to be replaced immediately.

2.1 Asbestos and condemned lines in Building 1.

2.2 Asbestos and comdemned lines in Building 43.

2.3 Lines in the Warehouse.

2.4 Identified lines in pipe trail leaving Poly II going north and in tank farm and going on across street.

3.0 Insulation that must be replaced immediately.

3.1 Asbestos on #1 Boiler.

3.2 Tank #228.

3.3 Tank #559.

3.4 Tank #463.

3.5 Tank #311.

3.6 4" line from T-279 to T-496.

3.7 Pipe from Building 21 to K-17.

3.8 Marked pipe along railroad track #3 and Ave B.

3.9 Identified pipe in tank farm north of 8" Mill room.

3.10 Marked lines in tank farm west of Poly I drum filling.

3.11 Identified pipes in the Capper production area.

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UCC 019818

feature report

How to remove asbestos from your plant —safely and permanently

Airborne asbestos is an insiduous in-plant health menace that should be eliminated. It takes planning, knowledge, special equipment and great care to do it right. This report reveals the intricate procedures.

NEARLY EVERY PLANT built from the turn of the century until the mid 1970's has asbestos-containing materials present that could release deadly fibers into the air.

To ensure that a plant or building meets OSHA and EPA requirements and to protect workers from one of today's greatest health hazards, plant engineers should undertake an ambient air measurement survey of their premises. This survey determines how much, if any, asbestos containing material exists, where it exists, and how accessible it is. Samples of suspect materials are collected and sent to the laboratory for analysis. Air sampling is made to determine ambient levels. The maximum allowable exposure to airborne asbestos, for instance, is 0.1 fiber per cc.

be simply pulled down and disposed of like any other construction material. This is illegal and extremely hazardous. Asbestos should only be removed by specialists in a manner known to be safe and effective and which meets EPA and OSHA requirements. The regional EPA office and local agencies must be notified in advance in writing. It's a federal crime to avoid doing so.

Initial air check

In a typical asbestos removal project, the first task is to have an independent company or lab take an ambient air measurement at the work site to establish the asbestos concentration before removal has begun. This measurement is compared to a measurement taken later after the asbestos has been removed.

tends up the walls for at least 24 inches. All walls in the work area are then covered with 4-mil sheet and taped. The floor and wall sheeting are inspected daily to determine that they are in place and undamaged.



he is under the shower upon leaving the work area.

Friable asbestos-containing materials are from ½ to 1-½ inches in thickness. They are removed wet to prevent dusting. A solution of water and a wetting agent is fine sprayed to saturate the asbestos material. Where the friable material is more than an inch thick, special techniques ensure the saturation necessary for this more difficult removal. In this case, periodic misting of the surrounding atmosphere with the water solution is required to reduce airborne concentrations.

Removing friable materials

The friable material is removed by scraping it from the substrate. Debris is never dropped or thrown. The removal material is packed and

be left in place during wetting. Once the asbestos has been saturated, the fasteners are cut and the insulation removed, lowered and bagged.

If the pipe insulation has been protected with a metal jacket, that jacket should be removed and the sections placed in a metal or fiber drum with a plastic liner for disposal.

While work is underway, air samples must be routinely taken.

When the asbestos removal work has been completed, a thorough cleanup and decontamination of the work area takes place, and this, too, is the job of a specialist. For an outside abatement job, the work site is swept, hosed down, and the barriers dismantled. Inside, a prescribed sequence of steps must be taken.

After these procedures the

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fiber per cc.

But the decision to protect workers should not be made on the basis of sampling alone. Removal of asbestos insulation is warranted "to avoid future liability considerations which in the aggregate are the largest financial issues facing American industry and its insurers."

Removal best solution

There are three ways to deal with the asbestos problem: 1) establish a monitoring program, 2) encapsulate, or 3) remove. Of the three, only removal is the certain way to eliminate the hazard permanently.

Monitoring and encapsulation do not eliminate an asbestos problem because the material is still in the environment. Asbestos contamination will probably become worse with time because the binders used to capture the material deteriorate, allowing fibers to be more easily released into the air. Asbestos materials on ceilings, walls, or pipes can be further disturbed by vibrations, repairs, renovations, impacts, and other damage, which invariably releases more fibers. As these releases continue, the concentration of asbestos fibers tends to build in the environment.

The best solution is to remove the material totally. Removal assures that no fibers will enter the air, no ongoing monitoring will be required, and no extensive changes in heating and lighting systems, as often required with encapsulation, will be needed.

Asbestos materials cannot be removed haphazardly. Special procedures must be followed to protect workers and the environment. Before any work begins, a containment area must be established. The first task is to isolate the area from the rest of the building. The second task is to seal off the area. If outside, warning flags and barriers are placed to surround the site. If indoors, protective measures are far more extensive.

Indoors, all furniture and equipment is wet cleaned and removed from the area before any work has begun. All nonremovable items are completely covered with a plastic sheeting that is at least six mils thick and securely taped in place. All light fixtures located on the asbestos material are removed, wet cleaned, sealed in plastic, and stored out of the work area.



The extricated asbestos material must be immediately contained in properly labeled bags.

To seal off the work area and provide for entry and exit of workmen, a personnel decontamination system must be constructed. It consists of four chambers.

Farthest from the work area is a clean room where workmen change from street clothes into protective gear. The next chamber is an air lock with double doors. One door always remains sealed. Next is a shower room.

Asbestos is a proven killer. It can result in a progressive, unstoppable lung destroying disease called asbestosis, which often does not become apparent until 10 years after first exposure.

Next, all detachable heating and ventilation equipment and other items located on asbestos bearing surfaces are removed, cleaned, bagged, and placed outside the area. Permanent items on the asbestos bearing surfaces are sealed so that they will not be damaged or contaminated. The HVAC system is shut down and all filters removed. Disposable filters are packed in sealable plastic, 6-mil bags for disposal in an approved manner. Permanent filters are wet cleaned and reinstalled at the conclusion of the project.

The floor of the work area is covered with 6-mil polyethylene sheeting, with all seams taped. This floor covering extends up the walls 6 in. and is also taped.

Between the shower room and the work area is an equipment room, which has its walls, ceiling, and floor covered with plastic sheeting. A plastic bag is provided in this area for workers, when leaving, to dispose of their articles of clothing.

Typically, the technicians wear disposable coveralls and an NIOSH approved respirator. If the density of the asbestos particles in thes air is moderate, the workman wears a conventional non-powered air purifying respirator; if concentrations are high, a powered respirator is necessary. The respirator is put on by the workman in the clean room and not removed again until all asbestos material is removed from the work area.

All asbestos material is packed and sealed in plastic bags immediately to prevent the asbestos from drying and possibly dusting. An OSHA approved warning label must be affixed to the exterior of the bag. All asbestos waste must be disposed at an approved waste disposal site. Each bag is wet sponged to remove gross fiber contamination before being transported to a holding area.

After the bulk material is removed all surfaces from which the asbestos was taken should be wire brushed, wet sponged, or both to remove residues. It is also recommended that the substrate be sprayed with sealant to encapsulate any remaining asbestos fibers.

Acoustical plaster, which is generally ⅛ to ¼ inch thick and more rigid than a friable material, is difficult to remove by the wet technique; therefore, removal is performed partially dry. Periodic misting of the air with the water solution is needed to reduce airborne asbestos fiber activity.

Removal is again performed by scraping the substrate and immediately placing the material in labeled plastic bags. The rest of the procedure is identical to those for friable materials.

The thickness and density of pipe insulation and lagging means that it seldom can be removed in a completely wet state. The cloth over the pipe insulation is cut along the top seam to allow the asbestos insulation to be wetted before removal. Fasteners used to fix the insulation material should be removed with a screwdriver. Then the insulation is cut away from the pipe and placed in bags. Finally, the pipe is wet sponged.

After those procedures the work area is then left undisturbed for 24 hours to allow dust to settle. No entry, activity, or ventilation is permitted.

Clean up and return

After the settling period, all surfaces in the work area are again wet cleaned, after which the work area is inspected. All ducts are inspected for debris-containing asbestos and are vacuumed with a HEPA vacuum cleaner or wet cleaned as necessary.

To complete the job, air samples are taken within the work area and immediately outside the work area within 48 hours of cleanup. Only after the work area is found to be in compliance is the HVAC system unsealed. The final step is to clean, disassemble, and remove the personnel decontamination system.

The extraordinary precautions needed in removing asbestos reflect the severity of an asbestos contamination problem. One reason for this article is to illustrate the seriousness of asbestos by detailing the sophistication of the removal process. The other reason is to help engineers realize that an abestos problem can be solved and that careful planning, beginning with a survey, is the way to start.

Technical assistance provided by Michael E. McGinnis, Brand Asbestos Control Co., Inc., Park Ridge, IL 60068. Free literature available.

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