WV-0144 #12

RECEIVED
APR 7 1987
PR KAVASMANECK

PLAINTIFF'S EXHIBIT
UC-3686

UNION CARBIDE CORPORATION
ENGINEERING, MANUFACTURING, AND TECHNOLOGY SERVICES
Central Engineering
South Charleston, West Virginia

UCC BUSINESS CONFIDENTIAL

April 6, 1987

TO: L. E. Calvert
S. W. Clark
G. B. Elder
R. W. Engle
S. S. Murphree

~~SWC~~
~~JEN~~
TEH

COPY TO: R. R. Allen
H. N. Baylor
D. J. Dickson
P. D. Franson
P. R. Kavasmaneck
J. G. Keeler
W. G. Lilly, Jr.
B. G. Perry
J. E. Sanders
S. W. Turicchi

Thanks for a good job
see p 2

RECEIVED
APR 23 1987
SAFETY/HEALTH

FROM: C. C. Neely

SUBJECT: Minutes of Task Group Meeting of March 17, 1987
Phaseout Use of Asbestos-Containing Materials in Work Place
Chemicals and Plastics Group

Following is an Executive Summary of the action/agreements resulting from the subject meeting. The detailed minutes prepared by the responsible Task Group member are attached for those who desire additional information.

Executive Summary

The "heart" of the C&P Group asbestos-usage phaseout program is the requirement that no asbestos-containing products be purchased after January 1, 1989. Consistent with this date, the Task Group agreed last fall when preparing the proposed program that the affected valve, piping, and process vessel Standard Practice documents must be revised to show substitute materials by July 1, 1988, and manpower estimates were made accordingly. However, because of the rapid (and very likely, continuing) reduction of suppliers of asbestos-containing materials due to liability insurance coverage problems, in combination with the desire of key plant personnel to cease using these materials at an early date, the Task Group

recommends that the responsible CED skill areas complete the required revisions to the affected Standard Practice documents by September 30, 1987.

Action H. N. Baylor R. R. Allen	This accelerated schedule will require additional technical assistance in the Piping Technology skill area. Preliminary discussions with R. R. Allen and R. W. Engle regarding the possibility of an accelerated schedule were held on March 23, 1987. Arrangements to obtain the needed technical assistance should now be made.
Action J. E. Sanders	The total CED cost of the accelerated program in 1987 over and above planned and budgeted T&S programs is estimated to be $34,000, much less than our earlier $93,000 estimate which was developed last September on the basis that much more work would be required. Funding for this activity is needed.
Action P. D. Franson D. J. Dickson	The Task Group requests the assistance of the Machinery Technology Group in identifying what actions, if any, are needed to assure that the broadly advertised aramid fiber nonasbestos asbestos gasket substitutes are not used in machinery items (e.g., pumps, compressors) for our process units. One of the major reasons these materials are generally considered unsuitable for gaskets is because they will not pass fire tests. The perception is that machinery manufacturers are using these materials without our knowledge and consent. Any costs associated with this request will be in addition to the $34,000 mentioned above.
Action J. E. Sanders	The Task Group requests advice as to where the now-approved asbestos-usage phaseout program documents will reside. It needs a permanent "home" within the TMS manuals system. S. W. Clark suggested it be included in Section 8 of the Safety Health manual - this is the Operation and Maintenance Section.

Stan
I guess this is done

The meeting agenda was based on the duties listed in our recommended program that are delegated to the Central Engineering Department. These duties are listed below along with a brief summary of the action/agreements reached:

Agenda Number	Responsibility ?	Duty and Action/Agreement
4.1	S. W. Clark/C&P Industrial Hygiene Department (Terry Hanning)	Identification of Asbestos Containing materials. C&P Industrial Hygiene Department estimates completion of Criteria Document 4Q87. No cost to CED.

As stated in Terry's letter he is the IH contact (in HS+FT) not C+P IH dept

Agenda Number	Responsibility	Duty and Action/Agreement
4.2	G. B. Elder	Replacement of Asbestos-Containing Insulation as Required to Maintain Structural and Functional Integrity. Responsibility of each location; CED-prepared criteria not required.
4.3	S. W. Clark/C&P Industrial Hygiene Department (Terry Hanning)	Removal, Modification, and/or Disposal of Asbestos-Containing Materials. Procedures already in place at all locations; no further action required.
4.4.1	G. B. Elder (Materials)	Use of Asbestos-Substitute Gaskets/Packing. Extended use of GRAFOIL™, spiral-wound with GRAFOIL™ or TEFLON™ fillers or reinforced TEFLON™ will cover our needs for now. Internal program of testing other non-asbestos substitute gasket materials not needed; will rely on test data developed by Materials Technology Institute (we are member) at no additional cost to CED. A concern was raised regarding the control of the use of the aramid-reinforced "nonasbestos" asbestos-substitute materials for gaskets in machinery items (e.g., pumps, compressors, etc.). These materials will not only not pass fire tests but will also perform poorly as gaskets because of their propensity to cold flow. The perception is that the vendors are making these substitutes without our knowledge and consent.
4.4.2	R. W. Engle (V&P Specs)	Two-to-three man-months of work is required to revise and issue valve manual and V&P Specifications. Can accomplish this with in-house staff by original July, 1988, target date; however, will probably need technical assistance to meet required September 30, 1987, completion date. Approximate additional cost to CED $20,000.

Agenda Number	Responsibility	Duty and Action/Agreement
4.4.3	C. C. Neely (COP Specs)	Modest additional manpower required to revise specs; however, printing/distribution cost of unplanned revision of COP Specs in 1987 not included in T&S budget. Estimated additional cost to CED: $8,000.
5	C. C. Neely	Conducting on-site seminars at major plants not required; Key plant personnel do not need to be "sold" on need to quit using asbestos-containing materials in favor of more costly substitutes. They are fed up to here with even more costly monitoring, record-keeping, disposal requirements for asbestos-containing materials, etc.; and hence, are desirous of having Standard Practice documents available to allow them to cease using these materials prior to the mandated January 1, 1989, cutoff date.
6	G. B. Elder (H. G. Clem)	Identification of Asbestos-Free Insulation. Will prepare Location Practices for inclusion in Insulation Manual as appropriate by end of third quarter. Estimated cost to CED: $6,000.
6.1	C. C. Neely	Next Meeting. Unless the need for an earlier meeting is identified, the next meeting of the Task Group will be held on August 4, 1987, at the South Charleston Technical Center in Room 3505. All members are requested to mark their calendars accordingly.

The detailed minutes are attached for those interested in more complete information.

Respectfully submitted,



C. C. Neely for the Task Group

CCN:at
Attachments
4314I

UNION CARBIDE CORPORATION
ENGINEERING, MANUFACTURING AND TECHNOLOGY SERVICES DEPARTMENT
HEALTH, SAFETY AND ENVIRONMENTAL TECHNOLOGY
South Charleston, West Virginia

BUSINESS CONFIDENTIAL MEMORANDUM
March 23, 1987

Agenda Item 4.1
Agenda Item 4.3

TO: C. C. Neely

COPY: L. E. Calvert
S. W. Clark
G. B. Elder
R. W. Engle
P. R. Kavasmaneck
S. S. Murphree
J. E. Neff

RECEIVED
MAR 24 1987
CCN

FROM: T. E. Hanning

SUBJECT: Asbestos Implementation Task Group
March 17 Meeting Minutes

Clyde,

The following information is being forwarded for issue as part of the subject minutes and represents those items tagged for responsibility by the Industrial Hygiene contact on the Asbestos Implementation Task Group.

Also please find attached SH-256, Removal and Handling Asbestos-Containing Materials, which is a Standard Practice of the C&P Safety/Health Technology Manual. Section 2.6 of this standard deals with the EPA regulations for removal and handling of asbestos materials and has not been updated with respect to recent EPA asbestos proposals. The sections dealing with OSHA regulations have been updated. SH-256 has been volatile and will be revised when needed as part of my responsibility as a member of the Safety/Health Standards Team.

Identification of Asbestos-Containing Materials

A goal of the asbestos task group is to establish a program so that asbestos will not be purchased after January 1, 1989. A C&P criteria (guideline document) for the identification of asbestos-containing materials is needed as part of the overall program. A consensus of C&P Industrial Hygiene Departments will be sought as a basis for the criteria. The criteria will provide recommended techniques and when to use them, pricing, timing and accuracy of results, and other subjective information. Polarized light or scanning electron microscopy are two identification techniques that can provide fast and accurate confirmation for the presence of asbestos.

This assignment will have the following estimated schedule and cost.

Schedule: 4Q 1987.
Cost: None, cost will be part of normal Safety/Health Standards Team Work.

Removal, Modification, and/or Disposal of Asbestos-Containing Materials

The need for a protocol to sample asbestos at the new 0.2 fibers per cubic centimeter of air exposure level was discussed. The protocol would be used to establish asbestos exposure data from the storage (binders may deteriorate and release asbestos), cutting and changing out of asbestos gaskets and packing. After discussion with Industrial Hygiene representatives, the need to develop a generic test protocol for asbestos exposure is not warranted since the OSHA Asbestos Standard clearly defines the sample taking method that must be used. The Plant Industrial Hygienist is familiar with this method and can quickly outline a technician's job duties in taking air samples during storage, cutting and changing out of asbestos gaskets and packing. Additionally, the Plant Industrial Hygienist will be able to supply other recent asbestos exposure data from the plant monitoring strategy program, if available and applicable.

This action will have the following estimated schedule and cost.

Schedule: Sample taking can proceed immediately with the support of the location Industrial Hygiene area.
Cost: None, resources are outside this task group.

Sincerely,

Terry S. Hanning
2000/3628
Unicom 8-721-5903

REMOVAL AND HANDLING ASBESTOS-CONTAINING INSULATION MATERIAL

1 GENERAL

1.1 This Practice provides a procedure for the safe removal and handling of asbestos-containing insulation material and compliance with OSHA regulation 29 CFR 1910.1001 and 1926.58 and EPA regulation 40 CFR 61 Subpart M. The purpose of the Practice is to ensure the safety and health of employees directly involved with performing the work and of others, either in the immediate area or downwind, who may be exposed to residual dust/fibers. Insulation material containing asbestos is no longer installed by UCC; therefore, the concern of this Practice is to control renovation and demolition operations involving the removal of old, asbestos-containing insulation; in these activities OSHA Standard 29 CFR 1926.58 is applicable. For additional details, review the OSHA Standards.

All insulation materials approved through the use of UCC Insulation Standards have been specified asbestos-free since 1970.

2 STANDARDS

2.1 Permissible Exposure Limits

2.1.1 Employee 8-hour time-weighted average exposure to airborne concentrations of asbestos fibers shall not exceed 0.2 fibers, longer than 5 micrometers, per cubic centimeter of air.

2.1.2 An action level of 0.1 fibers, longer than 5 micrometers, per cubic centimeter of air has been set which triggers the monitoring, medical, and employee information and training requirements.

2.2 Work Practices

2.2.1 Insofar as practicable, demolition, removal or handling of asbestos-containing insulation shall be performed while the material is in a sufficiently wet state to prevent emission of airborne fibers exceeding exposure limits prescribed in 2.1.1 and 2.1.2. See Section 2.7.3 for the specific EPA regulations that control work practices. Wherever feasible, the employer shall establish negative-pressure enclosures before commencing removal, demolition, and renovation operations.

2.2.2 Caution signs shall be posted at all approaches to areas which may contain excessive concentrations of airborne asbestos fibers so that an employee may read the signs and take necessary protective steps before entering the area. The signs shall state:

DANGER-ASBESTOS;
CANCER AND LUNG DISEASE
HAZARD - AUTHORIZED PERSONNEL ONLY;
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

In addition to these signs, legible signs warning of the health hazards of asbestos shall be provided and displayed at each location where airborne concentrations of asbestos fibers may exceed the exposure limits listed in Section 2.1.1. See Section 2.6.4.4 for additional requirements for posting signs. Whenever feasible, a negative pressure enclosure must be established before commencing removal, demolition or renovation operation. Air exhausted from the enclosure must pass through a HEP filter (See 29 CFR 1926.58).

2.2.2.1 An appropriate barricade, using caution or barrier tape for example, shall be erected around the perimeter of outdoor areas as a supplementary, protective measure to discourage unauthorized entry.

UCC 005980

2.2.3 Insofar as practicable, removed insulation shall be wetted and placed directly into labeled plastic bags (or other suitable containers) for disposal at an approved landfill. Otherwise, place plastic sheeting beneath the job site, mist spray the removed insulation with water, amended water, or wetting agent and then place in plastic bags. When wet methods of removal/cleanup are impractical, e.g., when temperatures are below freezing, vacuuming or sweeping may serve as an effective alternate cleanup method. Sweeping compound shall be applied to the work area to prevent dust generation when sweeping. See Sections 2.7.3.7 and 2.7.4 for specific work practice requirements.

2.2.4 Label Specifications - Container caution labels shall be printed in letters of sufficient size and contrast as to be readily visible and legible. Where feasible, installed asbestos-containing products shall also contain a visible label. The label shall state:

DANGER - CONTAINS ASBESTOS FIBERS;
AVOID CREATING DUST;
CANCER AND LUNG DISEASE HAZARD

Where feasible, installed asbestos containing products should be labeled in accordance with 2.2.4.

2.2.5 Regulated Areas - Employers must identify as regulated areas any locations in their workplaces where there may be occupational exposures to airborne concentrations of asbestos above the PEL. Only authorized persons, with proper respiratory protection, may enter regulated areas which must be clearly posted. Eating, drinking, and smoking are prohibited in regulated areas.

2.2.6 Housekeeping - All external surfaces in any place of employment shall be maintained free of accumulation of asbestos fibers. Special attention should be given to cleaning scaffolds used in demolition work. Clean-up of asbestos dust is prohibited with compressed air, dry-sweeping or any dry clean-up process.

2.2.7 Waste Disposal - Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated disposable clothing, that is consigned for disposal and which may produce airborne concentrations of asbestos fibers in excess of permissible exposure limits, shall be collected and disposed of in sealed leak-tight containers to an approved landfill. See Section 2.6.4 for specific disposal requirements.

2.3 Personal Protective Equipment

2.3.1 Respiratory Protection - Employees engaged in the spraying [wetting-down] of asbestos, the removal; in the demolition of pipes, structures, or equipment covered or insulated with asbestos; and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment based on the air concentration in Table 1 and selected from among those approved by the Mine Safety and Health Administration, Department of the Interior, or the National Institute of Occupational Safety and Health, Department of Health and Human Services described in 30 CFR Part 11. Compliance with exposure limits prescribed in 2.1, Permissible Exposure Limits, shall not be achieved by the use of respirators, except:

1. During the interval necessary to install or implement feasible engineering and work practice controls,

2. In work operations such as maintenance and repair activities or other activities which the employer establishes that engineering and work practice control procedures are not feasible,

3. In work situations where feasible engineering and work practice controls are not yet sufficient to reduce exposure to or below the PEL,

4. In emergencies.

Where respirators are permitted the employer shall provide a powered, air purifying respirator in lieu of any negative pressure respirator specified in Table 1 whenever:

a. An employee chooses to use this type of respirator; and
b. This respirator will provide adequate protection to the employee.

UCC 005981

TABLE 1

RESPIRATORY PROTECTION FOR ASBESTOS, TREMOLITE, ANTHUPHYLLITE, AND ACTINOLITE FIBERS

Airborne Concentration of Subject Materials or Combination of These Materials	Required Respirator
1. Not in excess of 2 f/cc (10 x PEL)	1. Half-mask air-purifying respirator equipped with high-efficiency filters.
2. Not in excess of 10 f/cc (50 x PEL)	1. Full facepiece air purifying respirator high-efficiency filters.
3. Not in excess of 20 f/cc (100 x PEL)	1. Any powered air-purifying respirator equipped with high efficiency filters. 2. Any supplied-air respirator operated in continuous flow mode.
4. Not in excess of 200 f/cc (1000 x PEL)	1. Full facepiece supplied air respirator operated in pressure demand mode.
5. Greater than 200 f/cc (greater than 1,000 x PEL) or unknown concentration)	1. Full facepiece supplied air respirator operated in pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus.

2.3.2 Special Clothing - The employer shall provide and require use of special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed. Contaminated clothing must be stored in closed containers such as sealed lockers. It should be changed daily.

2.3.3 Hygiene Facilities and Practices - At any fixed place of employment exposed to concentrations of asbestos fibers in excess of permissible exposure limits, the employer shall provide change rooms for employees working regularly at the place. Two separate lockers or containers shall be provided each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes. Employees exposed to asbestos during their work shift must shower before leaving the plant and must not leave wearing contaminated work clothing. Employees working in asbestos areas must have ready access to filtered air lunchrooms and must wash their face and hands prior to eating or smoking. Protective clothing must not be worn in the lunchroom.

2.3.4 Laundering - Laundering of asbestos-contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of prescribed exposure limits. Those performing laundering of asbestos-contaminated clothing must be informed of all requirements listed in Section 2.3, Personal Protective Equipment. Contaminated clothing shall be transported in sealed impermeable containers and labeled in accordance with Section 2.2.5, Label Specifications. If disposable coveralls are used, they should be placed into containers with asbestos for disposal.

UCC 005982

UNION CARBIDE TMS
INTER DIVISION

2.4 Industrial Hygiene Responsibility

2.4.1 Monitoring - Employee exposure monitoring shall be conducted to determine compliance status with regard to permissible exposure limits and respiratory protection requirements. Environmental/Area monitoring shall be conducted along the periphery of the restricted area to assure that fugitive emissions exceeding permissible exposure limits do not extend past the demarcated area. Samples shall be collected using 25 mm diameter mixed cellulose filters and a 50 mm extension cowl. Samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. Monitoring is required at least every 6 months for employees whose exposures to asbestos is at or above the action level. Where construction standard 1926.58 is applicable, daily monitoring is required unless employees use supplied air respirators in a positive pressure mode. Samples must be analyzed using a phase contrast microscope calibrated using a phase shift test slide and equipped with a Walton-Beckett graticule. The filter samples must be prepared using acetone-triacetin clearing solution and be counted in accordance with the "A" rules contained in the NIOSH 7400 method.

2.5 Training

2.5.1 All employees who are exposed to airborne asbestos concentrations in excess of the exposure limit listed in Section 2.1.2 with or without the use of respirators shall participate in a training program at the time of or prior to initial assignment and at least annually afterwards that includes these information topics:

1. Health affects associated with asbestos exposure.

2. Relationship between exposure to asbestos and smoking in producing lung cancer.

3. Nature of operations which could result in exposure to asbestos and necessary protective steps to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping and protective clothing.

4. Purpose, proper use, fitting instructions, and limitations of the respirators used to protect against asbestos fibers.

5. Review of all provisions contained in 29 CFR 1910.1001, Asbestos.

6. Purpose for and description of the asbestos medical surveillance program.

7. Instructions for handling spills as well as emergency and clean-up procedures.

2.5.2 Training records shall be maintained by the location and shall be readily available to all affected employees and to OSHA personnel upon their request.

2.6 Medical Surveillance

2.6.1 Medical surveillance shll be provided to all employees where exposure, without regard to the use of respirator, is at or above the action level for 30 or more days per year.

2.7 Federal EPA Regulation, 40 CFR 61, Hazardous Air Pollutants; Subpart M - National Emission Standard for Asbestos

2.7.1 Applicability - These requirements apply to the demolition of structures or renovation of equipment and piping that involves removal of insulation that contains friable asbestos materials. Friable asbestos material means any material containing more than 1 percent asbestos by weight that hand pressure can crumble, pulverize, or reduce to powder when dry. Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations; on the other hand, renovation means to alter one or more facility components in any way without taking out load-supporting structural members. Planned renovation operations include scheduled and unscheduled operations in which the

UCC 005983

amount of friable asbestos material that will be removed or stripped within a given time period can be estimated or predicted based on operating experience. Adequately wetted means sufficiently mixed or coated with water or an aqueous solution to prevent dust emissions.

2.7.2 Key Notification Requirements

1. Timing - The EPA must be notified with a written notice of intention to demolish or renovate according to these timing requirements:

a. As early as possible before renovation begins if planned, but not necessarily scheduled, renovation operations are predicted to involve the stripping or removing of at least 260 linear feet on piping or 160 square feet on other facility components of friable asbestos materials within a year.

b. At least 10 days before a demolition operation that involves at least 260 linear feet on piping or 160 square feet on other facility components of friable asbestos materials.

c. At least 20 days before a demolition operation that involves less than 260 linear feet on piping or 160 square feet on other facility components of friable asbestos materials (EPA requires further advance notice for these demolitions that are shorter in duration).

d. As early as possible before a structurally unsound facility in danger of imminent collapse is demolished under an order of a state or local government agency.

2. Text of Notification Letter - A suggested notification letter for the demolition and/or renovation of facilities containing friable asbestos material per requirements of 40 CFR 61, Subpart M, Section 146 (c), is:

Form of Notification

NOTICE OF INTENT TO DEMOLISH OR RENOVATE STRUCTURES, EQUIPMENT OR PIPING INVOLVING FRIABLE ASBESTOS INSULATION

1.	Name of Owner	Union Carbide Corporation
2.	Address of Owner	(Location Street Address of facility being demolished or renovated).
3.	Description of Facility	Various buildings, equipment and piping used in manufacture and distribution of chemicals and plastics and also age, size and prior use of these facilities.
4.	Estimate of Quality of Asbestos	Approximate amount of friable asbestos material present in the facility and explanation of techniques of estimation if estimate for demolition operation is less than 160 square feet or 260 linear feet.
5.	Scheduled Start and Completion Dates	
6.	Method(s) of Demolition/Renovation	
7.	Compliance Procedures	How EPA regulations will be followed
8.	Disposal Site	Name and location of site where asbestos waste material will be deposited

Only parts 1 through 4 are necessary for demolition operations involving less than 260 linear feet or 160 square feet of friable asbestos material. The name, title, and authority of the State or local government representative who orders the demolition should be added to the notification for demolition of structurally unsound facilities. Some states, including Georgia, New York, North Carolina, and California, also require notification of demolition and/or renovation operations involving friable asbestos materials.

UCC 005984

2.7.3 Key Removal Requirements - For a planned demolition operation or for the total of scheduled renovation operations in which at least 260 linear feet or 160 square feet of asbestos material is removed:

1. Friable asbestos materials shall be removed before a demolition or renovation operation if the operation would likely break up or preclude access to the asbestos materials for subsequent removal unless the asbestos materials are on a facility component encased in a material such as concrete or are adequately wetted whenever exposed.

2. If a facility component is covered or coated with asbestos materials and is removed in sections or units, it shall be carefully lowered, not dropped or thrown, to the ground level and shall have any exposed asbestos materials adequately wetted while cutting or disconnecting.

3. Wetting is not required during renovations if the EPA is requested to confirm that wetting would unavoidably damage equipment. If the EPA confirms this, then a local exhaust ventilation and collection system must be used to collect asbestos particulates. The exhaust system must exhibit no visible emissions to the outside air or be designed and operated according to 40 CFR 61.154.

4. After sections or units of piping or equipment with asbestos materials have been taken out of the facility, the asbestos materials during stripping shall be adequately wetted or shall be collected by a ventilation and collection system as specified in 2.7.3.3.

5. Dust-tight chutes or containers shall be used to lower asbestos material removed or stripped more than 50 feet above ground level and not removed in units or sections.

6. All friable asbestos materials that have been removed or stripped shall remain adequately wet until collected for disposal.

7. If the ambient temperature is below 0°C, then the only wetting requirements are those specified in 2.7.3.4 and 2.7.3.6. Equipment or piping coated or covered with asbestos materials shall be removed to the maximum extent possible.

8. For demolition of a structurally unsound facility under the order of a State or local government agency, the portion of the facility that contains friable asbestos materials shall be adequately wetted during the wrecking operation. The wetting requirements specified in 2.7.3.4, 2.7.3.5, 2.7.3.6, and 2.7.3.7 shall also apply to any emergency demolitions.

2.7.4 Key Disposal Requirements

1. Visible emissions shall not occur during the collecting, transporting, or disposal of any asbestos-containing waste material unless the air-cleaning methods specified in 40 CFR Part 61.154 are used to collect asbestos fibers before they escape to the outside air.

2. The disposal method for collecting and transporting asbestos-containing waste materials shall be approved prior to use by the EPA, unless either of these two EPA-approved methods are used:

a. Form all asbestos-containing waste material into nonfriable pellets or other shapes, or

b. Adequately wet and seal while wet in leak-tight containers all asbestos-containing waste material. The waste containers shall be labeled according to Section 2.2.4.

UCC 005985

3. The disposal site for asbestos-containing waste material shall have no visible emissions, or the disposed material shall be covered within 24 hours with at least six inches of nonasbestos-containing material or with an effective resinous or petroleum-based dust suppression agent (waste crankcase oil is not acceptable.) Alternative methods for controlling asbestos emissions must have EPA approval before being implemented.

4. Either a natural barrier or a fence shall adequately deter (as determined by the EPA upon request and supply of appropriate information) public access to the waste disposal site. If fenced, then warning signs (20" x 14") shall be posted at all entrances and at intervals no greater than 330 feet along the perimeter of the sections of the site where asbestos-containing material is deposited. The signs shall state:

ASBESTOS WASTE DISPOSAL SITE
DO NOT CREATE DUST
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

2.6 AUDITS

2.6.1 Each location shall periodically audit this procedure to ensure understanding and compliance.

UNION CARBIDE CORPORATION
ENGINEERING, MANUFACTURING, AND TECHNOLOGY SERVICES DIVISION
CENTRAL ENGINEERING
P. O. BOX 8361
SOUTH CHARLESTON, WEST VIRGINIA 25303

Agenda Item 4.2
Agenda Item 4.4.1
Agenda Item 6.

M E M O R A N D U M

BUSINESS CONFIDENTIAL

March 23, 1987

RECEIVED
MAR 25 1987
CCN

TO: Mr. C. C. Neely

FROM: G. B. Elder

SUBJECT: Input to Minutes, March 17 Meeting on Phase-Out of Asbestos-Containing Materials

Item 4.2, Replacement of Asbestos-Containing Insulation as Required to Maintain Structural and Functional Integrity.

Abestos-containing insulation becomes a hazard when the weather barrier becomes damaged or other conditions such as powdering of the insulation allows asbestos particles to become airborne. Corrective action would be removal of the insulation or sealing the barrier to prevent airborne dust.

The Task Group agreed that each location is responsible for and aware of the problem and that a criteria from the Task Group is not desirable.

Item 4.4, Use of Asbestos-Substitute Materials

1. Insulation

   a. Insulation materials that do not contain asbestos are the only materials currently specified and used, so no action is required.

2. Gaskets

   a. Suitable substitutes are available and already accepted in the specifications (Grafoil, Spiral-wound with Teflon or Grafoil, reinforced Teflon).

   b. Aramid-reinforced "nonasbestos" materials do not pass fire tests and have limited ability to maintain preload. A crash program to test these materials is not justified and a program currently sponsored by the Materials Technology Institute has promise of providing an inexpensive way to test such materials in the future.

c. New materials that may be introduced as asbestos substitutes will be tested as a normal technology activity.

3. Packing

a. Grafoil and graphite-fiber packing will be adequate, so no action is required.

4. Machine Gaskets

a. These gaskets are bought as sets for the machines and substitutes are selected by the machine manufacturer.

Item 6, Identification of Asbestos-Free Insulation.

a. Harold Clem's memorandum (attached) lists identifiers currently being used in insulation to show that it does not contain asbestos.

b. Harold Clem is polling the C&P locations to determine if they are currently using identification tapes, embossed or color-coded metal weather barriers or other methods to identify insulation containing asbestos and/or insulation free of asbestos. Location Practices documenting the identification codes will be issued in the Insulation Manual as appropriate.

Schedule:

Complete poll of identification codes - May 15.

Issue Location Practices - September 30.

Budget: $6000.

GBE/ds
2006H

BUSINESS CONFIDENTIAL

UNION CARBIDE CORPORATION
ENGINEERING AND HYDROCARBONS DIVISION
CENTRAL ENGINEERING
SOUTH CHARLESTON, WEST VIRGINIA

MEMORANDUM

February 13, 1987

RECEIVED
FEB 19 1987

TO: G. B. Elder, 511

CC: D. D. Barnette, 512
R. L. Boggess, 514
J. E. Boley, 380
D. L. Carrick, 519
A. W. Keene, 510
G. H. Reinhart, 312

L. E. Calvert, 511
S. W. Clark, 511
R. W. Engle, 511
T. E. Hanning, 511
D. J. Hymel, 515
R. W. Maddox, 511
D. D. Miller, 512
C. C. Neely, 511
M. Patel, 511
MOC

FROM: H. G. Clem

SUBJECT: IDENTIFICATION CODE FOR ASBESTOS-FREE INSULATION

This report is in response to your letter on asbestos identification concerns with insulation in our plants. Three primary issues, integral asbestos-free visual coding for insulation materials, weather barrier coding, and asbestos identification tests are discussed under separate headings:

1. Integral Non-Asbestos Identification of Calcium Silicate Pipe and Block Insulation

All of our approved vendors for calcium silicate pipe and block insulation have visual identification dispersed throughout the white product in the form of either gold colored mica flakes or black fibrous material to indicate that the insulation is asbestos-free as shown below:

0037J

Calcium Silicate Insulation	Manufacturer	Asbestos-Free Identification
Kaylo 10-AF	Owens-Corning Fiberglas Corp.	Mica Flakes
Thermo-12	Manville Corp.	Mica Flakes
Super Caltemp NA	PABCO	Black Fibers

Manufactuers of expanded perlite, Material Spec. 4, also have asbestos-free visual identification. The current approved material, Goodtemp 1500 from the Howred Corporation, has a uniform pink color throughout the material. Celotemp 1500, a formerly approved insulation that is no longer being manufactured, contained mica flakes like the current calcium silicates.

Since apparently only solid white compositions like the early calcium silicates, 85% magnesia, and insulating cements for steam piping and boilers contained significant percentages of asbestos fibers, manufacturers of most other insulation materials have not adopted an asbestos-free coding system. Insulations with distinctive characteristics or appearance like cellular glass (UCC Spec. 1), polyurethane foam (UCC Spec. 3 and 7), performed fiber glass (UCC Spec. 6), flexible plastic foam (UCC Spec. 12), and mineral wool (UCC Spec. 14 and 40) never contained asbestos.

Of course, since the use of mica flakes and other visual coding was not widespread until the mid 1970's, most insulation in older units may require laboratory testing for possible asbestos content before replacement or modification.

2. Asbestos-Free Visual Indicator for Metallic and Mastic Weather Barriers

You asked for a durable visual indicator for metallic and mastic weather barriers to indicate that the insulation underneath did not contain asbestos. I have found that several methods are being used in the petrochemical industry, but there is no universal standard on this important subject. A summary of asbestos-free identification methods related to weather barriers is listed below:

Surface Texture Variations:

Reportedly, Tennessee Eastman, Eastman Kodak, and Amoco have adopted the use of a "stucco embossed" texture finish in either flat or 3/16" corrugated configuration for aluminum or stainless steel weather barriers on all insulation replacement projects. This method provides a distinctive visual coding that contrasts with the older smooth finish metal weather barrier sheet material.

Surface Texture Variations - Cont.

Only minor changes are required in installation procedures with this approach, and planned or inadvertent painting of the weather barrier will not affect the visual identification characteristics. The method is not applicable to mastics or plastic weather barriers, however.

Color Coding:

This procedure involves the use of factory finished weather barrier in a specific color to indicate that the insulation is asbestos-free. The colors most used for this purpose are white, green and blue. To be effective, this method would require coordination with existing UCC safety color coding in the plants.

Identification Tapes:

This method utilizes making tapes applied over standard weather barrier materials to indicate that the insulation either contains asbestos or is asbestos-free. E.I. DuPont de Nemours & Co. (Inc.) uses this method. A copy of the DuPont specification entitled "Identification for Installed Asbestos-Bearing Insulation" is attached for reference.

This type of identification tape is available from several suppliers. The DuPont tape features fade proof ink lettering and background with a clear polypropylene coating for chemical resistance and durability. The asbestos code lettering is combined with arrows to show the direction in which the indicated insulation runs.

The primary advantage of identification tapes is that any type of weather barrier may be marked whether new or existing. Entire sections of plant units can be defined as asbestos-free with this technique. The main disadvantage of tapes is that they may be inadvertently painted over or removed during routine maintenance activities.

Various versions of asbestos-free identification tapes are available from graphics label suppliers. In most cases, pressure sensitive vinyl is used for the tape material. Unlike the DuPont specification tape, the "ASBESTOS FREE INSULATION" labels and direction arrow tape are usually separate items, not combined. The blue background/white lettering is the same in most instances.

3. Asbestos Identification Methods

The identification and monitoring of asbestos fibers from insulation or other sources is the responsibility of UCC Industrial Hygiene Groups at our various locations. According to Mr. Manhel Patel at the Tech Center, several test methods are available to identify asbestos including colorametric test kits, microscopic examination with polarized light, scanning electron microscopy and transmission electron microscopy.

However, the colorametric technique is not as reliable as the microscopic methods because it only detects iron and magnesium from bulk samples; interference from related compounds can affect test results. The microscopic methods are approved by OSHA, EPA and NIOSH and represent the best current procedures available.

It is apparent that devising a better way to identify asbestos that meets government approval will be difficult. If quicker results are needed at our plants on insulation replacement jobs, consideration should be given to presampling the existing insulation well ahead of any planned work.

Conclusions and Recommendations

The visual asbestos-free coding methods of our calcium silicate and expanded perlite suppliers, ie mica flakes, black fibers, etc., will be included in our UCC Material Specifications 2 and 4 as suggested by Don Miller of the Institute Plant. This may provide some valuable assistance in the field identification of insulation materials.

Concerning the visual asbestos-free coding of weather barriers, it appears that no single identification procedure may be suitable for all conditions in our plants and other facilities such as laboratory buildings. One of the main problems is the diverse types of weather barriers encountered; aluminum, stainless steel, PVC, fiberglass laminate sheet, and mastics. Some differences are also evident in our options when we are replacing asbestos containing insulation versus simply labeling or marking a "good" existing asbestos-free system.

Current asbestos and asbestos-free insulation coding procedures at UCC locations range from no identification marking to marking all asbestos containing insulation with labeling tape and entering a code for asbestos replacement jobs in the computerized work orders for storage and retrieval. Before we introduce a UCC recommended practice or standard on weather barrier

identification coding, a poll or request for comments should be solicited from plant insulation representatives and other responsible parties. To assist in the proposed poll, actual samples of identification tapes and embossed metal weather barrier would also be sent to each respondent.

If there are further questions or comments, please call me.

H. G. Clem

HGC:es

ATTACHMENT

18495 INDEX: 6, 7, 10, 23, 28, 30, 32
42, 43, 44, 44A, 62, 71, 81
112, 120, 121, 122, 127, 138
142, 180, 307, 318, 351

0037J

225

IDENTIFICATION FOR INSTALLED ASBESTOS-BEARING INSULATION

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATION

ISSUED	JULY 1975	[redacted]
THIS PAGE REVISED	APRIL 1984	
STANDARD REAFFIRMED	APRIL 1984	Page 1 of 2

1. SCOPE

1.1 This specification provides information for a standardized method of placing identification on installed insulation which contains free asbestos fibers or insulation of unknown asbestos content.

1.2 This specification is applicable only for identifying installed insulation which has a questionable free asbestos fiber content. Obviously, materials such as cellular glass, glass fiber, mineral wool, polyurethane foam, and polystyrene foam do not contain asbestos fibers and, therefore, do not need to be marked for identification.

1.3 Follow this specification only at locations where such identification is required by the operating department and the plant does not have a conflicting established identification procedure.

2. CONDITIONS

2.1 From an installed insulation viewpoint, specific areas on a site are classified as follows:

2.1.1 **Condition I.** New facilities on which no insulation containing free asbestos fibers was installed. This could be an entire site or a segregated building on a site.

2.1.2 **Condition II.** New additions to existing buildings which can be clearly defined by designated column lines or a defined plane through the building. The addition does not contain any insulation containing free asbestos fibers.

2.1.3 **Condition III.** Existing areas which are modified by the addition of insulated lines or equipment.

2.1.4 **Condition IV.** Existing areas in which existing insulation is being replaced.

3. TYPE OF IDENTIFICATION

For identification, place strategically located strips of appropriately marked tape around the circumference of the pipe finish or on the equipment finish. Position the tape so as to indicate the type of insulation used with the arrows pointing down the line in the direction in which the indicated insulation runs (see Figure 1).

4. PLACEMENT OF IDENTIFICATION – WHEN REQUIRED

4.1 **Condition I.** Individual insulated lines or equipment pieces in new facilities or segregated buildings in which no insulation containing free asbestos was installed, do not require identification. At turnover, the local construction organization is to notify the plant that the facility is free of materials containing free asbestos fibers.

4.2 **Condition II.** Individual insulated lines or equipment pieces in clearly defined additions in which no insulation containing free asbestos fibers was installed, do not require identification. In lieu of marking individual lines or equipment pieces, place strips of tape strategically along the plane that defines the building addition. Locate the tape on selected columns, beams, walls, or ceilings, to clearly identify the plane at which the asbestos-free insulation starts. Apply two parallel strips of tape. Position one piece of tape with the arrows orientated to indicate that, from that point on, all insulation is nonasbestos. Position a second piece of tape with the arrows orientated to indicate that, from that point back, the insulation may contain free asbestos fibers.

4.3 **Condition III.** Individually mark all new insulated lines and equipment pieces installed as additions or modifications in existing areas to indicate insulation asbestos content. Where asbestos-free insulation is installed on a pipeline, place a strip of tape around the circumference of the finish at the points where the pipe goes through a wall or partition. Orient the arrows to indicate that the line inside the room has asbestos-free insulation. Where a tie-in is made to a line insulated with a material of unknown asbestos content, identify the junction of the insulation by parallel pieces of tape around the circumference of the finish. Position one piece of tape to indicate that, from that point on, the insulation is asbestos-free. Place a second piece of tape with the arrows orientated to indicate that, from that point on, the insulation may contain free asbestos fibers.

4.4 **Condition IV.** Where insulation is being replaced in an area of unknown asbestos content, by asbestos-free insulation, identify the replacement insulation by a strip of tape placed around the circumference of the pipe finish or at strategic locations on equipment pieces. Where a line running from wall-to-wall is reinsulated, place a piece of tape at the points where the pipe goes through a wall or partition. Orient the arrows to indicate that the line inside the room has asbestos-free insulation. Where a portion of the insulation is replaced, identify the junction of the existing and replacement insulation by parallel pieces of tape around the circumference of the finish. Place one piece of tape to indicate that, from that point on, the insulation is asbestos-free. Place a second piece of tape with the arrows orientated to indicate that, from that point on, the insulation may contain free asbestos fibers.

UCC 005994

5. HANDLING INSULATION

When handling, fabricating, or removing insulation in the absence of positive knowledge that it is asbestos-free, assume that it contains free asbestos fibers, and follow S4T.

6. TAPE

6.1 Specifications (see Figure 1)

a. Supplied in rolls.

b. Pressure-sensitive contact cement backing – developed for aircraft use.

c. M–90 tape material – developed for aircraft use.

d. Provide slit in release paper for easy removal.

e. ASB letters and arrow red, repeated on 3-inch intervals, on white background. NA letters and arrow blue, repeated on 3-inch intervals, on white background. Letters are approximately 1-inch high.

7. TAPE SUPPLIERS (PARTIAL LIST)

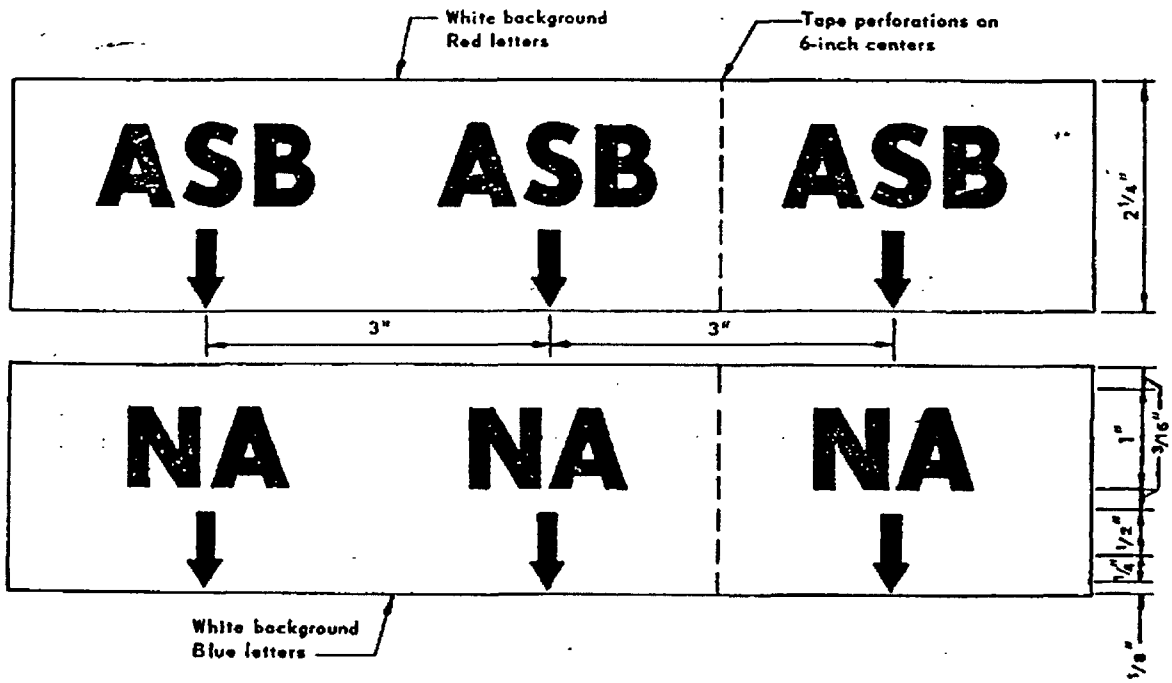
Davis Printing Co
P. O. Box 696
Camden, SC 29029
(803) 432 – 1901

Top Flight Corp
165 East 9th Avenue
York, PA 17404
(717) 843 – 9901

T & B Westline
Division of Thomas & Betts Corp
220 South Rose Street
Los Angeles, CA 90012
(800) 421 – 8618

Sheriden Safety Supply
7029 Huntley Road
Suite E
Columbus, OH 43229
(614) 888 – 8040

York Tape and Label Corp
P. O. Box 6805
Columbia, SC 29260
(803) 788 – 2635



Tape Legend: ASB = Asbestos Bearing
NA = Nonasbestos Bearing

FIGURE 1 – TAPE FOR IDENTIFICATION

UCC 005995

Agenda Item 4.3

PIPING TECHNOLOGY

MINUTES FOR INCLUSION IN ASBESTOS TASK FORCE
GENERAL MEETING MINUTES

Addressing Section 4.4.2 of the agenda listed in C. C. Neely letter dated 3/2/87 . . .

R. W. Engle presented proposed plans for modifying the Valve and Piping Specifications using strictly GRAFOIL™ products as the only replacement for asbestos. First step would entail developing new UCC "V-numbers" for those valves which are currently listed with asbestos packing and/or bonnet gaskets and no GRAFOIL™ alternate. Piping Technology will maintain the old numbers unique to aid in identification of existing valves. Once the new numbers are developed, they will be transferred to the affected piping specification sheets.

Secondly, as with the valves, the existing specification names will be maintained unique by cancelling the existing suffix letters and starting with the next available letter e.g., 1C2 though 1C2E will be listed as "cancelled" and the new listing will be started at "1C2F". The acceptable line gasket alternate for the asbestos ring will be the 1/16" thick GRAFOIL™ GHE and the acceptable replacement filler for spiralwound gaskets will be GRAFOIL™ Grade GTB.

The proposed schedule would target July 1988 for completion of issues to the manual; the proposed asbestos program would not be reviewed through normal Technology Manuals Standards (TMS) channels due to the nature of the changes. Piping Technology believes there to be 2-3 man-months ($5000.00/man-month) of work involved in the transition. Approximate printing/distribution cost would run in the $5000.00 range. An accelerated schedule may become necessary if vendors confirm earlier reports of supply problems and would definitely extend the estimated time into 3 man-months because additional technical manpower would be required. Sherry Murphree will continue to feedback on market conditions.

R. W. Engle/pae
March 24, 1987
AJ4:RWE

{Agenda Item 4.4}

WANG TO: C. C. NEELY - Location 511

From: S. S. Murphree - Loc. 515

Secretary - Anita Thaxton - 721-4802

Purchase of Asbestos - Substitute Material

The Chemicals and Plastics Division agreements for gasket and packing materials are due for renegotiation in second quarter 1987. The procurement plan and request for quotes have been issued. Bids are now being received and new agreements are expected by June 1, 1987.

The traditional method of predicting quantities, material types, and dollars for price agreements is past history and anticipated future activity. Our past history of gasket and packing usage shows a heavy dependance on asbestos at very low prices. We are already seeing a changeover to the Grafoil and teflon based material. The new agreements will be based on anticipated increased usage of these materials and dramatic decreases in asbestos use. Our expenditures will increase due to higher priced asbestos replacements, higher priced asbestos, and increased activity of a wide variety of materials.

Many of our traditional gasket and packing manufacturers are no longer in the asbestos business (Johns-Manville, John Crane, Allpax, etc.). The manufacturers who currently handle asbestos do not have assurance from their liability carriers that coverage will continue beyond the next twelve months. Parker Seals has announced July, 1987 as their cutoff date for asbestos manufacture. We have no certainty that asbestos will be available thru January, 1989. From the purchasing viewpoint new standards for gasket and packing should be expedited to the nearest feasible deadline.

After new gasket and packing standards are determined a tremendous effort will be required in the plant storerooms, purchasing groups, and maintenance departments. The effort will be three-fold:

1. Alternates to stocked and purchased material will be determined for each application.

2. New descriptions and usages will be determined and changes made. Major C & P locations have 2000 to 3000 separate line items. A plan for changeover from old to new material will be required.

3. Training and communications will be needed for every end user.

It is estimated that the effort for maintenance and materials management will require four to six months of work at each location.

Sherry S. Murphree 3/30/87

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