

TO: LE Calvert
Clear Lake

UNION CARBIDE CORPORATION

Engineering, Manufacturing & Technology Services

1300 Hercules Avenue - Suite 202

Houston, Texas 77058

Larry - You transmitted 8/28/86
version rather than final draft
dated 9/29/86.

RECEIVED
MAY 1 1987

(Refer to first par CCN
of my Sept 30 '86 memo to JES).

Date: April 28, 1987

To: See Attached Distribution List

Copy to: See Attached Distribution List

Subject: Asbestos Gasketing and Packing

A copy of the 9/29/86 version
is attached, but you should
have a copy in your file.
No big deal, but someone
may ask you about it
if they notice the dates.

Rapid changes in the asbestos area are taking place and the rate of
change will probably stay high until the majority of asbestos is replaced.
This communication is an overview of current activities to help you meet
regulatory requirements.

Best regards

[Signature]

4 May 87

1989
A task group (C. Neely, et al) dealing with the phase-out of
asbestos containing materials in the work place for C&P, made their
recommendation to the Manufacturing Council via B. G. Perry, and it was
approved in March, 1987. (Recommendation attached) A key recommendation was
termination of purchase of asbestos containing materials, after January 1,
1987.

During the development of the original recommendation, the supply
world has changed. UCC's three major suppliers are no longer manufacturing
asbestos containing materials. No supplier is willing to make a firm
commitment to supply asbestos containing materials after the end of 1987,
because of the inability to get liability insurance. In addition, the cost of
asbestos has gone up 25% in the last twelve months. Therefore, the
recommended deadline for purchase cessation may be met by lack of supply.

- continued -

UCC 015814

October 1, 1987
(end of 3rd Qtr).

In order to help prepare for this change-over, the following actions are in progress:

1. The task force has initiated and expedited actions to do the engineering specification work for asbestos replacements for gasketing and packing. These C&P Engineering Standards will be available for each location by September, 1987. Specific questions before then should be discussed with Rex Engle at the South Charleston Tech Center.
2. Manufacturing Services - Maintenance working with UCC Carbon Products and Texas City Plant Maintenance is developing a video tape of "How-To's" for Grafoil installation in gasketing and packing applications. This videotape will be available thru Manufacturing Services - Maintenance in June, 1987 and you will be notified later how to obtain it. The videotape is designed to simplify the work of training your people. In addition to the use of the videotape, it would be wise to contact Jim Polomsky of Carbon Products to provide further follow-up, Hands-On Training. (713+852-9468 - Home - Houston, Texas or 1-800-822-4322 - Office - Cleveland, Ohio). See attached seminar content detail.
3. Exposure level data for situations of removing, cutting, and handling gasketing and packing is now being collected from several locations by Industrial Hygiene. With these data, the appropriate removal methods can be specified. Industrial Hygiene coordination of this data collection program should eliminate the need for each location collecting data.
4. We are representing maintenance for all C&P locations in the on-going review of the OSHA field compliance Instructions Draft. As conclusions are drawn we will let you know.

We are coordinating these efforts in order to speed communications and minimize the efforts for each location. For further assistance, please call Ashton Barefoot at UNICOM 529-6437 or 713+486-6437.


L. E. Calvert

LEC/6262L/cc

9/29/86

D R A F T
RECOMMENDED C&P PROGRAM
CHEMICAL AND PLASTICS BUSINESS GROUP (C&P)

GOAL: PHASEOUT USE OF ASBESTOS-CONTAINING MATERIALS⁽¹⁾ IN THE WORK PLACE

PURPOSE/BACKGROUND

The Corporate Charter (1.1) contains the following commitment to employees:

"To provide working conditions, programs of training and education, and persistent review and appropriate modification of facilities and practices to protect the health and safety of employees."

It also contains a social commitment to conduct business "in accordance with all the applicable national and local laws and regulations."

As a result of available evidence that airborne asbestos in the occupational environment had proven to be carcinogenic in man, all C&P Insulation Standards were revised in 1976 to specify only asbestos-free insulating materials; and new or replacement installations of these materials have subsequently been selected accordingly. Additionally, a Safety/Health Standard designated SH-256 was prepared covering the safe removal and handling (includes disposal) of asbestos-containing insulating material during renovation and demolition. The requirements of this Standard equal or exceed those of current applicable government standards.

OSHA's rule-making efforts relative to asbestos usage in the work place are mired in controversy. Hearings on the latest EPA proposal which includes the phaseout of all asbestos over a ten-year period are now in progress. The proposal states: "EPA is considering banning the manufacture, importation, and processing of asbestos construction products and asbestos clothing soon after the rule's promulgation with the category of asbestos friction products banned about five years later, and other asbestos products banned at a later time." Gaskets and packing that contain asbestos are in the category of "other asbestos products" that would apparently be banned after ten years. No peer company that we are aware of has a target date for removal of existing asbestos-containing insulation, gaskets, or packing; however, one major chemical company has recently discontinued the purchase of asbestos-containing gaskets and packing.

A cost analysis of pipe-size gaskets shows that GRAFOIL®, probably the most expensive of the acceptable gasket substitute materials, is, in fact, cost effective when the cost of mandatory work practices associated with the use of asbestos (e.g., wetting for removal or airborne fiber

⁽¹⁾"Asbestos-containing materials" include but are not limited to insulation, gaskets, packing, welding blankets, and construction products.

9/29/86

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-2-

exposure monitoring during removal, placing in labeled plastic bags after removal, landfill disposal, and record keeping) is considered. The same conclusion is drawn relative to valve packing when the additional considerations of improved service life and sealability are included.

Consistent with the aforementioned commitments and the economic use of materials, C&P has concluded that positive actions relative to asbestos-containing materials⁽¹⁾ should be taken.

RECOMMENDED C&P PROGRAM

Except as otherwise provided by applicable law, Chemicals and Plastics Business Group will:

Continue to phase out the use of asbestos-containing materials:

- Asbestos-containing insulation shall be replaced with asbestos-free materials as required to maintain structural and functional integrity.
- No asbestos-containing materials shall be purchased after January 1, 1989.
- C&P Standard Practices shall be employed for the identification, removal, modification, and/or disposal of asbestos-containing materials; and for use of asbestos-substitute materials.
- Evaluation of asbestos-substitute materials shall include consideration of health effects as well as suitability for intended service and cost.
- A variance approval procedure shall be employed to cover consideration of uncommon circumstances. Approval must always include endorsement of C&P HS&EA management.

SCOPE

This Recommended Program applies to all C&P operated/hosted facilities. Other components of the Corporation will be apprised of its content.

DELEGATION

The assignment of duties and authority to carry out the Recommended C&P Program defined herein is delegated as follows:

To Central Engineering Department

- Develop and maintain C&P Standard Practices covering:
 - Identification of asbestos-containing materials;

9/29/86

D R A F T

-3-

- Removal, modification and/or disposal of asbestos-containing materials; and
- Use of asbestos-substitute materials.

To Line Operations Management

- Implement C&P Standard Practices for the identification, removal, modification, and disposal of asbestos-containing materials.
- Implement C&P Standard Practices covering asbestos substitute material applications, and communicate the service experience with these materials.

To Manufacturing Services

- Monitor use of asbestos-substitute materials and communicate the service experience with these materials.

To C&P HS&EA

- Audit compliance with governmental regulations and C&P Standard Practices relating to asbestos-containing materials and, where applicable, their substitutes.

C. C. Neely
4707I



I N T E R N A L C O R R E S P O N D E N C E

Engineering, Manufacturing, and Technology Services
Central Engineering
Technical Center

Post Office Box 8361
Building 2000
South Charleston, WV 25303

October 16, 1986

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

COPY TO: Mr. C. C. Neely

SUBJECT: Recommended C&P Program - Phase-Out Use of
Asbestos-Containing Materials in Workplace

Gentlemen:

Attached is a copy of your recommendation covering asbestos usage which I transmitted to Bob Perry.

Thanks for your insights and efforts in pulling this together. I'll keep your team posted as the recommendation proceeds through the system.

Very truly yours,


J. E. Sanders

JES:he
Attachment
4704Y

OCT 15 1986

J. E. Sanders

UNION CARBIDE CORPORATION
Engineering, Manufacturing, and Technology Services
Central Engineering

P. O. Box 8361
So. Chas., WV 25303

BUSINESS CONFIDENTIAL

September 30, 1986

TO: Mr. J. E. Sanders

COPY TO: Mr. L. C. Calvert
Mr. S. W. Clark
Mr. G. B. Elder
Mr. R. W. Engle

FROM: C. C. Neely

SUBJECT: Final Draft of Recommended C&P Program
Phase-Out Use of Asbestos-Containing Materials in Work Place
Chemicals and Plastic Group

Attached herewith on behalf of the Special Working Group is a copy of the subject document dated 9/29/86. It is a slightly fine-tuned version of the 8/28/86 version which was transmitted to you under my transmittal also dated 8/28/86. The changes that have been made are of a clarifying rather than substantive nature.

At this point, we have not made an effort to obtain broad, formal review of the subject program. However, Larry Calvert has discussed it briefly with the Maintenance APM's and Maintenance Managers. In addition, Stan Clark arranged for its review by the Safety, Health Advisory Committee (SHAC), and your staff has reviewed it. Feedback indicates these groups to be supportive of the concept, but some have expressed concern regarding the January 1, 1989 date specified for the discontinuance of the purchase of asbestos-containing materials, believing it to be optimistic. Some of the concern relates to the following:

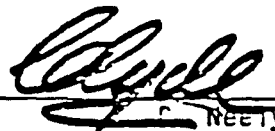
1. CED's ability to revise and reissue the V&P Specifications and the Valve Manual in time to support the deadline. The responsible CED specialists have carefully reviewed this matter and believe that reissuance of these Manuals by July 1, 1988 is realistic. This date has not been published, however.

UCC 015820

2. Belief that field testing of new gasket and packing materials will be required. Such testing will not be necessary since the plan at this time is to accommodate most of the substitutions by broadening the use of materials already in use, materials such as reinforced Teflon and GRAFOIL™. This plan has not been broadly disseminated, and we can fully appreciate the reluctance to agree to a purchasing cut-off date for asbestos-containing products without knowing what the substitutes are. We also appreciate that, once this material substitute plan is known, there will be a natural resistance due to the higher first cost of these substitute materials.
3. Some belief that installers will need special training to handle the new gasket and packing materials. For reasons cited in (2), we do not believe this requirement will be significant.
4. Perhaps lack of understanding that the January 1, 1989 date is the cut-off date for the purchase of asbestos-containing materials except as approved by a variance.
5. "Is this really necessary" attitude. The Special Working Group believes that OSHA's recently revised exposure limit of 0.2 fibers per cubic centimeter of air (was previously 2.0 fibers per cubic centimeter) add significant impetus to implement the proposed Recommended Program. According to Terry Hanning's September 5, 1986 memorandum (copy attached), labor union representatives do not believe that controlling the exposure limit to this lower level provides adequate protection.

The above concerns notwithstanding, the Special Working Group decided to submit the subject Recommended Program to you with the January 1, 1989 date included since we believe that, with proper communication with the key plant personnel responsible for its implementation, along with management support, this date is realistic and achievable. We are submitting under separate cover a proposed CED Technology Program which includes request for funds to cover the important communications aspect of the understanding, acceptance and implementation process.

Please let me know how we can be of further assistance regarding this matter.



C. NEELY

CCN:mr
4319I
Attachment

D R A F TRECOMMENDED POLICYCHEMICAL AND PLASTICS BUSINESS GROUP (C&P)

SUBJECT: USE OF ASBESTOS-CONTAINING MATERIALS⁽¹⁾ IN THE WORK PLACE

PURPOSE/BACKGROUND

The Corporate Charter (1.1) contains the following commitment to employees:

"To provide working conditions, programs of training and education, and persistent review and appropriate modification of facilities and practices to protect the health and safety of employees."

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As a result of available evidence that airborne asbestos in the occupational environment had proven to be carcinogenic in man, all C&P Insulation Standards were revised in 1976 to specify only asbestos-free insulating materials; and new or replacement installations of these materials have subsequently been selected accordingly. Additionally, a Safety/Health Standard designated SH-256 was prepared covering the safe removal and handling (includes disposal) of asbestos-containing insulating material during renovation and demolition. The requirements of this Standard equal or exceed those of current applicable government standards.

OSHA's rule-making efforts relative to asbestos usage in the work place are mired in controversy. Hearings on the latest EPA proposal which includes the phaseout of all asbestos over a ten-year period are now in progress. The proposal states: "EPA is considering banning the manufacture, importation, and processing of asbestos construction products and asbestos clothing soon after the rule's promulgation with the category of asbestos friction products banned about five years later, and other asbestos products banned at a later time." Gaskets and packing that contain asbestos are in the category of "other asbestos products" that would apparently be banned after ten years. No peer company that we are aware of has a target date for removal of existing asbestos-containing insulation, gaskets, or packing; however, one major chemical company has recently discontinued the purchase of asbestos-containing gaskets and packing.

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exposure monitoring during removal, placing in labeled plastic bags after removal, landfill disposal, and record keeping) is considered. The same conclusion is drawn relative to valve packing when the additional considerations of improved service life and sealability are included.

Consistent with the aforementioned commitments and the economic use of materials, C&P has concluded that positive actions relative to asbestos-containing materials⁽¹⁾ should be taken.

POLICY

Except as otherwise provided by applicable law, Chemicals and Plastics Business Group will:

Continue to phase out the use of asbestos-containing materials:

- Asbestos-containing insulation shall be replaced with asbestos-free materials as required to maintain structural and functional integrity.
- No asbestos-containing materials shall be purchased after January 1, 1989.
- C&P approved practices shall be employed for the identification, removal, modification, and/or disposal of asbestos-containing materials.
- Evaluation of asbestos substitute materials shall include consideration of health effects as well as suitability for intended service and cost.
- A variance approval procedure shall be employed to cover consideration of uncommon circumstances. Approval must always include endorsement of C&P HS&EA management.

SCOPE

This recommended policy applies to all C&P operated/hosted facilities. Other components of the Corporation will be apprised of its content.

DELEGATION

The assignment of duties and authority to carry out the policy defined herein is delegated as follows:

To Central Engineering Department

- Develop and maintain engineering standards covering:
 - Identification of asbestos-containing materials;

8/28/86

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- Removal, modification and/or disposal of asbestos-containing materials; and
- Use of asbestos-substitute materials.

To Site Management

- Implement policies and practices for the identification, removal, modification, and disposal of asbestos-containing materials.
- Use of CED Standards covering asbestos substitute materials and the communication of service experience with these materials.

To Manufacturing Services

- Monitor use of asbestos-substitute materials and the communication of service experience with these materials.

To C&P HS&EA

- Audit compliance with governmental regulations and CED-developed standards relating to asbestos-containing materials and, where applicable, their substitutes.

C. C. Neely
2073W



UNION CARBIDE CORPORATION
SPECIALTY PRODUCTS GROUP

FOR NAMES ON TRAINING, CONTACT:
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District Sales Mgr.
P. O. Box 94637
Cleveland, OH 44101
Ph 1-800-822-4322(0)
(713)+852-9468 (H)
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PHONE: (216) 529-3900
(800) 822-4322

GRAFOIL®
Flexible Graphite

A Union Carbide Corporation Trademark Product

GRAFOIL® SEMINAR OUTLINE

1. Solving your packing and gasketing problems.
2. Understanding Asbestos packings or gaskets.
3. The search for an asbestos replacement.
4. Current non-asbestos offerings.
5. Characteristics of Graphite.
6. How GRAFOIL® is processed from chrystalline graphite.
7. Characteristics of GRAFOIL® vs. Graphite
8. Chemical resistance of GRAFOIL®.
9. Fire testing and fire safety with GRAFOIL®.
10. Corrosion protection with GRAFOIL®.
11. Oxidation of GRAFOIL® --- Misconceptions????
12. Valves --- Packing Installation procedures and features.
13. Flanges --- Gasketing Installation procedures and features.
14. Gaskets --- GRAFOIL® laminate offering and SWG filler.
15. Product Offerings: Packings, gaskets, ribbons, and tapes.

The seminar includes demonstrations which assist the participant in his/her understanding of the product and lasts about 90 minutes.

NOTE***

Since several of the demonstrations require the use of an open flame, your management is requested to provide a conference room in which these demonstrations may be conducted without violating the safety regulations of your company.

GRAFOIL®

Brand Flexible Graphite

Newsletter

Number

PG 008 178

Your Seal of Assurance

SUBJECT: Special Gasketing Techniques With GRAFOIL® Flexible Graphite

INTRODUCTION

GRAFOIL® flexible graphite is a resilient form of graphite which has excellent properties as a gasketing material. By itself, GRAFOIL® flexible graphite seals about as readily as rubber. It is also fabricated into metal core laminates or into spiral wound gaskets, and significantly improves their characteristics. In general, GRAFOIL® gaskets will seal the maximum pressure specified on properly designed, correctly manufactured and suitable maintained equipment.

While being flexible and resilient, GRAFOIL® flexible graphite is still all graphite. It has no resins, binders or filler materials or other additives that might detract from the chemical inertness and temperature resistance of pure graphite. GRAFOIL® gaskets will not cold flow, become brittle, or vulcanize to gasketing surfaces in service. The unique chemical and physical properties of GRAFOIL® flexible graphite combine to make it a nearly universal gasketing material especially suitable to high temperature and cryogenic service and/or corrosive environments.

GENERAL POINTS TO REMEMBER WHEN GASKETING WITH GRAFOIL® FLEXIBLE GRAPHITE

- 1.) The flange surfaces must be clean, free of nicks, scratches, burrs, metal fillings, scale or other foreign matter.
- 2.) Use a proper bolt tightening sequence to ensure a uniform load is applied to the joint (see Figure VI). The use of a torque wrench is advantageous to ensure that a uniform tensile stress is applied to each bolt.
- 3.) GRAFOIL® Grade GHE 316 Stainless Steel Tang Metal Inserted gaskets (Catalog Section G-8817 and G-8819) should not be used between any metal surfaces that are softer than the stainless steel (i.e. aluminum, brass, bronze), or between glass or ceramic surfaces. When GRAFOIL® Grade GHE gaskets are used, the metal tangs must be compressed such that the GRAFOIL® begins to seal. Due to the minimum seating stress recommended for these gaskets (i.e. 2500 psi), the metal tangs can make small indentations in the softer metal of the flange face. The tangs can also create stress concentration points on glass or ceramic surfaces.
- 4.) GRAFOIL® flexible graphite gaskets must be loaded with a net compressive unit load as shown in the Unit Load vs. Leak Pressure Curve, Figure I, and in GRAFOIL® Catalog Sections G-8816 and G-8817.
- 5.) The initial thickness of the GRAFOIL® gasket must be such that when it is compressed between two mating surfaces, the GRAFOIL® is strained sufficiently at all points in the joint to seal the maximum service pressure. If the flange surfaces are scratched, serrated, or warped, the initial gasket thickness must be large enough to completely fill and compensate for their effects when the joint is made and the gasket is compressed.



UNION CARBIDE CORPORATION

- 6.) The flatness of the flange surfaces is as essential to good gasketing practice as the proper gasket unit load. If gasketed surfaces are perfectly flat under operating conditions, the average unit load is also the minimum unit load. If, for any reason the gasketed surfaces are not flat while in service, the gasket unit load can be less at some point or points than the amount required to seal operating or test pressures.

In general, if when the flange faces are brought together (i.e. just touching and under no bolt load), a 0.001" feeler gauge can not be inserted anywhere around the circumference of the joint, then a 1/64 inch (0.015") thick GRAFOIL® gasket can always be used. If this criteria can not be met, then the thicker GRAFOIL® gasket will be required.

IMPORTANT POINTS CONCERNING FLANGE SURFACE FINISH AND "STANDARD" SERRATIONS

Under equivalent compressive unit loads, GRAFOIL® gaskets will seal where surface finishes range from 5 RMS (root mean square) to 125 RMS. Within that range any RMS finish will seal as well as any other.

Flanges ordered with "standard serrations" or a "standard finish" usually have finished surfaces machined in accordance with MSS Standard Practice SP-6 (1) which allows for considerable latitude in finish. The SP-6 Standard refers to AARH finishes or arithmetic average roughness. AARH values are different from RMS values for any given surface. RMS measurements can be made with stylus tracer instruments, whereas, AARH can not. AARH finishes are evaluated only by "sight and touch" comparisons with standard specimens.

The standard serrations may be concentric or spiral. If concentric, there may be up to 32 serrations per inch, and the depth of the serration may range from 0.005" to 0.015". The serration cross-section can range from a radiused "u" cut to a "v" cut.

Flange surfaces having the maximum serrations per inch at maximum depth can leave a "saw tooth" surface with little or no flat areas between the serrations. GRAFOIL® flexible graphite gaskets are not recommended for use with this type of flange finish.

Spiral serrations can range from 20 to 50 per inch in number and from 0.001" to 0.006" in depth. Again, the maximum number of serrations to maximum groove depth can produce a sharp, "saw tooth" surface. However, in contrast with concentric serrations, a spiral serration can form a continuous leak path if the gasket material does not deform and seal all the way to the bottom of the groove. Consequently, the greater the depth of the spiral serration, the greater the required thickness of the GRAFOIL® gasket in order to seal. The required thickness can be calculated in a manner similar to that shown in Case 3.

While serrations, in general, do not help GRAFOIL® gaskets to seal, GRAFOIL® gaskets with their unique physical properties will seal serrations more dependably than most other materials. If a flanged joint is being designed with the intent of using GRAFOIL® flexible graphite gaskets, it is recommended that the serrations and surface finish be dimensioned in detail, rather than left to the broad limits permitted by Standard Practice SP-6.

(1) Developed and approved by the Manufacturer's Standardization Society of the Valve and fittings Industry, 420 Lexington Avenue, New York, New York 10017.

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

M E M O R A N D U M

BUSINESS CONFIDENTIAL

March 27, 1987

RECEIVED

MAR 31 1987

CCN

TO: C&ME Personnel
COPY: Mr. C. C. Neely ✓
FROM: G. B. Elder
SUBJECT: Asbestos Containing Materials

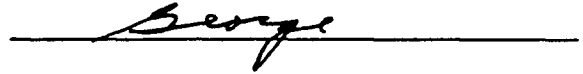
The C&P Manufacturing Council have endorsed the program to phase out asbestos containing materials in the workplace, and Clyde Neely is chairing a committee to implement the policy.

Attached is a copy of the final draft of the policy for your use. The key statement is that no asbestos containing material shall be purchased after January 1, 1989.

The biggest change will occur in the area of gaskets and packing. The approach for gaskets is to use Grafoil spiral-wound with teflon or Grafoil filler, or in some cases, reinforced teflon. The organic fiber reinforced "non-asbestos" materials do not pass fire tests and have very limited ability to maintain adequate bolt loads, so they are not being considered. Grafoil and graphite fiber will be used for packing.

The policy does not forbid the use of asbestos containing gaskets or packing and only states that we will quit buying it after January 1, 1989. However, EPA rules are making it increasingly difficult to remove and dispose of any asbestos materials including gaskets and packing. It makes sense to discourage the use of these asbestos materials starting now so that we minimize the removal and disposal problem. A second benefit of doing this will be to assist a change in the psychology and procedures over a longer period of time instead of having a crisis during 1988.

I realize that the change to other gasket and packing materials cannot take place over night and that you will be using additional asbestos materials. However, please don't recommend any asbestos gaskets or packing for any new installations and try to encourage the substitution of Grafoil and spiral-wound gaskets whenever you have the opportunity.

A handwritten signature, likely "George", is written in cursive above a horizontal line.

GBE/ds
2033H

D R A F T
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D R A F T

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C. C. Neely
4707I

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- No asbestos-containing materials shall be purchased after January 1, 1989.
- C&P Standard Practices shall be employed for the identification, removal, modification, and/or disposal of asbestos-containing materials; and for use of asbestos-substitute materials.
- Evaluation of asbestos-substitute materials shall include consideration of health effects as well as suitability for intended service and cost.
- A variance approval procedure shall be employed to cover consideration of uncommon circumstances. Approval must always include endorsement of C&P HS&EA management.

SCOPE

This Recommended Program applies to all C&P operated/hosted facilities. Other components of the Corporation will be apprised of its content.

DELEGATION

The assignment of duties and authority to carry out the Recommended C&P Program defined herein is delegated as follows:

To Central Engineering Department

- Develop and maintain C&P Standard Practices covering:
 - Identification of asbestos-containing materials;

D R A F T

-3-

- Removal, modification and/or disposal of asbestos-containing materials; and
- Use of asbestos-substitute materials.

To Line Operations Management

- Implement C&P Standard Practices for the identification, removal, modification, and disposal of asbestos-containing materials.
- Implement C&P Standard Practices covering asbestos substitute material applications, and communicate the service experience with these materials.

To Manufacturing Services

- Monitor use of asbestos-substitute materials and communicate the service experience with these materials.

To C&P HS&EA

- Audit compliance with governmental regulations and C&P Standard Practices relating to asbestos-containing materials and, where applicable, their substitutes.

C. C. Neely
47071

C. C. Neely
Loc. 511 2000/3336
Tech Center

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

M E M O R A N D U M

BUSINESS CONFIDENTIAL

February 25, 1987

RECEIVED

MAR 2 1987

CCN

TO: Mr. E. K. Harris- Bldg. 2000
COPY: MOC
FROM: A. J. Montero
SUBJECT: Materials of Construction Recommendations
for IBT (Isobutylaldehyde Trimer) Production

You are preparing a technology package to make UCAR Filmer IBT (isobutylaldehyde trimer). This product will be made by Haltermann, a custom processor in Houston, Texas. You asked me to provide you with a statement for the technology package regarding the materials of construction for the IBT process.

The materials of construction recommended for producing UCAR Filmer IBT are:

1. Storage of IBAL (Isobutylaldehyde) - fresh and recycled IBAL should be stored in 304 SS, 316 SS, or aluminum tanks. Steel tanks can be used but they must be lined with a compatible lining such as Plasite 3066 or Plasite 9500.
2. Reaction - carbon steel is the recommended material of construction for this part of the process. Types 304 SS and 316 SS are also acceptable materials of construction.
3. IBAL Recovery - carbon steel is also the material recommended for the recovery column and any equipment and piping associated with this column. Again, 304 SS and 316 SS are also acceptable materials.
4. Flash System - carbon steel is also the recommended material for all the equipment and piping in this system. Types 304 SS and 316 SS are also acceptable materials.
5. Refining System - carbon steel is the recommended material for this system. Type 304 SS and 316 SS are also acceptable materials.
6. Storage of IBT - carbon steel, 304 SS or 316 SS, or aluminum are can be used to store IBT.

RECEIVED
MAR 19 1987
CCN

9 Mar 87
TO: G B Elder

7. Condensers and Coolers - carbon heat exchangers which use cooling compatible with the process stream, compatible with the cooling water
8. Gaskets - compressed asbestos, Te acceptable for handling the raw m
9. O-ring and Elastomers - the only process streams is EPR (also known temperature is 45°C (113°F). Above

George -
Is Al aware of
our efforts to stop
using compressed asbestos
gaskets?
Regards
Clyde

The above recommendations were based on

1. To prevent iron contamination of the fresh and recycled carbon steel is not recommended. I amount of water and organic acid pr
2. Although there may be some isobutyric acid will not increase the corrosion neutralized in the reaction system w catalyst.
3. Compressed asbestos gaskets are normal service when the temperature is above aldehyde in the stream is greater than will not be made all the time, compressed for streams containing more than 10% aldehyde. Field experience shows that aldehyde to attack the binder in compressed asbestos with an EPR binder will give asbestos with other binders.

3/18/87
Clyde Neely
Al is aware of the
program. This was being
done by an outside company
(this equipment), so he just
assumed they would use
asbestos.
I'll get out publicity -
maybe the minutes of our
meeting - to tell our crew
to push EPR at now
and discourage asbestos
George

If you have any questions or comments concerning the above recommendations, please feel free to call.

Al Hyatt

AJM/ds
1919H

Index: B, 26, 28, 30, 32, 67, 71, 72,
81, 112, 113, 119, 120, 122, 131,
132, 138, 166, 187, 212, 273, 336

RECEIVED
MAR 19 1987 - 2 -

CCN

7. Condensers and Coolers - carbon steel tubes may not be acceptable for heat exchangers which use cooling water. As stated, carbon steel is compatible with the process streams. Whether carbon steel is or is not compatible with the cooling water has to be determined by Haltermann.
8. Gaskets - compressed asbestos, Teflon, and grafoil gaskets are acceptable for handling the raw material and the process streams.
9. O-ring and Elastomers - the only elastomer recommended for handling the process streams is EPR (also known as EPT and EPDM). The maximum temperature is 45°C (113°F). Above this temperature, Teflon is required.

The above recommendations were based on the following:

1. To prevent iron contamination of the fresh and recycled IBAL, bare carbon steel is not recommended. Iron contamination is affected by the amount of water and organic acid present in the aldehyde.
2. Although there may be some isobutyric acid in the IBAL, the isobutyric acid will not increase the corrosion rate of steel because it will be neutralized in the reaction system with the sodium hydroxide used as a catalyst.
3. Compressed asbestos gaskets are normally not recommended for aldehyde service when the temperature is above 100°C and the concentration of the aldehyde in the stream is greater than about 10%. However, since IBT will not be made all the time, compressed asbestos should be acceptable for streams containing more than 10% aldehyde and at temperatures above 100°C. Field experience shows that it takes several years for the aldehyde to attack the binder in compressed asbestos. Compressed asbestos with an EPR binder will give better service than compressed asbestos with other binders.

If you have any questions or comments concerning the above recommendations, please feel free to call.

Al Hyatt

AJM/ds
1919H

Index: B, 26, 28, 30, 32, 67, 71, 72,
81, 112, 113, 119, 120, 122, 131,
132, 138, 166, 187, 212, 273, 336



INTERNAL
CORRESPONDENCE

RECEIVED
MAR 26 1987

CCN

UNION CARBIDE CORPORATION TECHNICAL CENTER

P.O. BOX 8361, SOUTH CHARLESTON, WV 25303

To: See Distribution List (SHAC)

Date: March 24, 1987

From:

Originating Dept:

To:

Area:

Area:

Copy to: P. R. Kavasmaneck
D. C. Macauley
C. C. Neely*

Subject: Recommended C&P Program
Phase-Out of Asbestos-
Containing Materials in
Workplace

I have been informed that the Manufacturing Council has endorsed the subject program (copy attached for your convenience). It is the same one you reviewed in September.

What seems to be happening is that the vendors are moving ahead of us and have made gaskets and packing containing asbestos almost a special-order product. The plan to upgrade valve and piping specs by mid-1988 may have to be accelerated. I hear that the price of GRAFOIL™ Products dropped considerably.

Stan Clark
S. W. Clark

/jc
73620
Attachment
Letter only*

UCC 015838

TO: SAFETY & HEALTH ADVISORY COMMITTEE DISTRIBUTION

V. D. Dutcher	Cary, NC.
D. A. Gosselin	82/907
V. H. Johnkoski	82/4
C. P. Maxwell	511/701
O. P. Mukheja	500/L4
J. D. Nicol	500/P2
R. D. Ondocsin	500/P2
T. P. Raby	82/4
G. L. Rivera	515



INTERNAL CORRESPONDENCE

Engineering, Manufacturing, and Technology Services Post Office Box 8361
Central Engineering Building 2000
Technical Center South Charleston, WV 25303

October 16, 1986

RECEIVED

OCT 20 1986

CCN

TO: Mr. L. E. Calvert
562-5133 Mr. S. W. Clark
Mr. G. B. Elder
Mr. R. W. Engle

COPY TO: Mr. C. C. Neely ✓

SUBJECT: Recommended C&P Program - Phase-Out Use of
Asbestos-Containing Materials in Workplace

Gentlemen:

Attached is a copy of your recommendation covering asbestos usage which I transmitted to Bob Perry.

Thanks for your insights and efforts in pulling this together. I'll keep your team posted as the recommendation proceeds through the system.

Very truly yours,

J. E. Sanders

JES:he
Attachment
4704Y

Larry Calvert
available ^{wk of} Mar 16 @
earliest. Same also
for CCN & GBE!

Sherrie - will be in
Chas next week (1st wk Mar)
but comes to Chas often

UCC 015840

24 Feb 87
Joe Keeler X2114

Sharon (Sherrie) 527-5512 Texas City

→ S.S. Murphy - Community Manager

GR II (promoted Jan 87)

member of Quality Team

Responsible for sheets
& packings for all
C&P locations.



I N T E R N A L C O R R E S P O N D E N C E

Engineering, Manufacturing, and Technology Services
Central Engineering
Technical Center

Post Office Box 8361
Building 2000
South Charleston, WV 25303

October 14, 1986

TO: Mr. B. G. Perry

COPY TO: Mr. P. D. Franson
Dr. P. R. Kavasmaneck
Mr. W. G. Lilly, Jr.
Mr. C. C. Neely
Mr. S. W. Turicchi

RECEIVED
OCT 20 1986
CCN

SUBJECT: Recommended C&P Program - Phase-Out Use of
Asbestos-Containing Materials in Workplace

Bob:

In July of this year, you requested on behalf of the Manufacturing Council that a Task Group be assembled to evaluate the implications for Chemicals and Plastics of continued use of asbestos-containing materials in the workplace. You should be aware that asbestos-containing insulation materials were prohibited for new construction and for replacements beginning in 1976.

The Task Group, headed by Mr. C. C. Neely, Corporate Fellow - Engineering Mechanics, was comprised of the following individuals and areas of expertise.

L. E. Calvert	- Maintenance
S. W. Clark	- Health/Safety
G. B. Elder	- Corrosion-Materials
R. W. Engle	- Valve and Piping Technology

The Task Group has surveyed current and projected industry practices with regard to the use of asbestos-containing materials and has evaluated current government regulations and made judgements with regard to future regulations which could impact on the use of and cost of use of asbestos-containing materials. Additionally, the Group evaluated the availability and cost effectiveness of substitute materials.

Mr. B. G. Perry
Page 2
October 15, 1986

Based on available evidence that airborne asbestos in the occupational workplace has proven to be a carcinogen and that cost effective alternative materials are available, or can be developed with relative ease, the Team has recommended that C&P continue to phase out the use of asbestos-containing materials with no purchase or installation of asbestos-containing materials, without a formal variance, after January 1, 1989. Asbestos-containing materials that are in use and retain their structural and functional integrity need be replaced only if this integrity is compromised, or when normal maintenance occurs.

Other recommendations are contained in the attached draft of the C&P Recommended Program.

I want to thank the Task Group for their efforts in this study and for their breadth of judgement as reflected in the recommendation.

Please let me know of further work you require, or of any questions you may have.

Very truly yours,



S. E. Sanders

JES:he
Attachment
4701Y

UNION CARBIDE CORPORATION

Engineering, Manufacturing, and Technology Services
Central Engineering

P. O. Box 8361

So. Chas., WV 25303

BUSINESS CONFIDENTIAL

September 30, 1986

TO: Mr. J. E. Sanders

COPY TO: Mr. L. C. Calvert
Mr. S. W. Clark
Mr. G. B. Elder
Mr. R. W. Engle

FROM: C. C. Neely

SUBJECT: Final Draft of Recommended C&P Program
Phase-Out Use of Asbestos-Containing Materials in Work Place
Chemicals and Plastic Group

Attached herewith on behalf of the Special Working Group is a copy of the subject document dated 9/29/86. It is a slightly fine-tuned version of the 8/28/86 version which was transmitted to you under my transmittal also dated 8/28/86. The changes that have been made are of a clarifying rather than substantive nature.

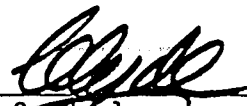
At this point, we have not made an effort to obtain broad, formal review of the subject program. However, Larry Calvert has discussed it briefly with the Maintenance APM's and Maintenance Managers. In addition, Stan Clark arranged for its review by the Safety, Health Advisory Committee (SHAC), and your staff has reviewed it. Feedback indicates these groups to be supportive of the concept, but some have expressed concern regarding the January 1, 1989 date specified for the discontinuance of the purchase of asbestos-containing materials, believing it to be optimistic. Some of the concern relates to the following:

1. CED's ability to revise and reissue the V&P Specifications and the Valve Manual in time to support the deadline. The responsible CED specialists have carefully reviewed this matter and believe that reissuance of these Manuals by July 1, 1988 is realistic. This date has not been published, however.

2. Belief that field testing of new gasket and packing materials will be required. Such testing will not be necessary since the plan at this time is to accommodate most of the substitutions by broadening the use of materials already in use, materials such as reinforced Teflon and GRAFOIL™. This plan has not been broadly disseminated, and we can fully appreciate the reluctance to agree to a purchasing cut-off date for asbestos-containing products without knowing what the substitutes are. We also appreciate that, once this material substitute plan is known, there will be a natural resistance due to the higher first cost of these substitute materials.
3. Some belief that installers will need special training to handle the new gasket and packing materials. For reasons cited in (2), we do not believe this requirement will be significant.
4. Perhaps lack of understanding that the January 1, 1989 date is the cut-off date for the purchase of asbestos-containing materials except as approved by a variance.
5. "Is this really necessary" attitude. The Special Working Group believes that OSHA's recently revised exposure limit of 0.2 fibers per cubic centimeter of air (was previously 2.0 fibers per cubic centimeter) add significant impetus to implement the proposed Recommended Program. According to Terry Hanning's September 5, 1986 memorandum (copy attached), labor union representatives do not believe that controlling the exposure limit to this lower level provides adequate protection.

The above concerns notwithstanding, the Special Working Group decided to submit the subject Recommended Program to you with the January 1, 1989 date included since we believe that, with proper communication with the key plant personnel responsible for its implementation, along with management support, this date is realistic and achievable. We are submitting under separate cover a proposed CED Technology Program which includes request for funds to cover the important communications aspect of the understanding, acceptance and implementation process.

Please let me know how we can be of further assistance regarding this matter.


C. C. ~~W. Joly~~

CCN:mr
4319I
Attachment

D R A F TRECOMMENDED C&P PROGRAMCHEMICAL AND PLASTICS BUSINESS GROUP (C&P)

GOAL: PHASE-OUT USE OF ASBESTOS-CONTAINING MATERIALS⁽¹⁾ IN THE WORK PLACE

PURPOSE/BACKGROUND

The Corporate Charter (1.1) contains the following commitment to employees:

"To provide working conditions, programs of training and education, and persistent review and appropriate modification of facilities and practices to protect the health and safety of employees."

It also contains a social commitment to conduct business "in accordance with all the applicable national and local laws and regulations."

As a result of available evidence that airborne asbestos in the occupational environment had proven to be carcinogenic in man, all C&P Insulation Standards were revised in 1976 to specify only asbestos-free insulating materials; and new or replacement installations of these materials have subsequently been selected accordingly. Additionally, a Safety/Health Standard designated SH-256 was prepared covering the safe removal and handling (includes disposal) of asbestos-containing insulating material during renovation and demolition. The requirements of this Standard equal or exceed those of current applicable government standards.

OSHA's rule-making efforts relative to asbestos usage in the work place are mired in controversy. Hearings on the latest EPA proposal which includes the phaseout of all asbestos over a ten-year period are now in progress. The proposal states: "EPA is considering banning the manufacture, importation, and processing of asbestos construction products and asbestos clothing soon after the rule's promulgation with the category of asbestos friction products banned about five years later, and other asbestos products banned at a later time." Gaskets and packing that contain asbestos are in the category of "other asbestos products" that would apparently be banned after ten years. No peer company that we are aware of has a target date for removal of existing asbestos-containing insulation, gaskets, or packing; however, one major chemical company has recently discontinued the purchase of asbestos-containing gaskets and packing.

A cost analysis of pipe-size gaskets shows that GRAFOIL®, probably the most expensive of the acceptable gasket substitute materials, is, in fact, cost effective when the cost of mandatory work practices associated with the use of asbestos (e.g. wetting for removal or airborne fiber

⁽¹⁾ "Asbestos-containing materials" include but are not limited to insulation, gaskets, packing, welding blankets, and construction products.

D R A F T

-2-

exposure monitoring during removal, placing in labeled plastic bags after removal, landfill disposal, and record keeping) is considered. The same conclusion is drawn relative to valve packing when the additional considerations of improved service life and sealability are included.

Consistent with the aforementioned commitments and the economic use of materials, C&P has concluded that positive actions relative to asbestos-containing materials⁽¹⁾ should be taken.

RECOMMENDED C&P PROGRAM

Except as otherwise provided by applicable law, Chemicals and Plastics Business Group will:

Continue to phase out the use of asbestos-containing materials:

- Asbestos-containing insulation shall be replaced with asbestos-free materials as required to maintain structural and functional integrity.
- No asbestos-containing materials shall be purchased after January 1, 1989.
- C&P Standard Practices shall be employed for the identification, removal, modification, and/or disposal of asbestos-containing materials; and for use of asbestos-substitute materials.
- Evaluation of asbestos-substitute materials shall include consideration of health effects as well as suitability for intended service and cost.
- A variance approval procedure shall be employed to cover consideration of uncommon circumstances. Approval must always include endorsement of C&P HS&EA management.

SCOPE

This Recommended Program applies to all C&P operated/hosted facilities. Other components of the Corporation will be apprised of its content.

DELEGATION

The assignment of duties and authority to carry out the Recommended C&P Program defined herein is delegated as follows:

To Central Engineering Department

- Develop and maintain C&P Standard Practices covering:
 - Identification of asbestos-containing materials;

9/29/86

D R A F T

-3-

- Removal, modification and/or disposal of asbestos-containing materials; and
- Use of asbestos-substitute materials.

To Line Operations Management

- Implement C&P Standard Practices for the identification, removal, modification, and disposal of asbestos-containing materials.
- Implement C&P Standard Practices covering asbestos substitute material applications, and communicate the service experience with these materials.

To Manufacturing Services

- Monitor use of asbestos-substitute materials and communicate the service experience with these materials.

To C&P HS&EA

- Audit compliance with governmental regulations and C&P Standard Practices relating to asbestos-containing materials and, where applicable, their substitutes.

C. C. Neely
2073W

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

UCC BUSINESS CONFIDENTIAL

March 26, 1987

TO: S. W. Clark
G. B. Elder
R. W. Engle

COPY TO: W. K. Norton, Jr.
J. E. Sanders

FROM: ✓ C. C. Neely

SUBJECT: EON - C&P Asbestos Usage
Phaseout Program Implementation

The EON for the subject activity is 15063. You will recognize this to be the same EON which we used last year to cover the program development costs.

C. C. Neely

C. C. Neely

CCN:at

4559I/14

Joe, I told WKN that the costs collected in this account would be charged to Departmental overhead unless we (meaning JES) could find a sponsor (a`la Gerry Viera).

UCC 015848

UNION CARBIDE CORPORATION

ENGINEERING, MANUFACTURING AND TECHNOLOGY SERVICES DEPARTMENT
HEALTH, SAFETY AND ENVIRONMENTAL TECHNOLOGY
SOUTH CHARLESTON, WEST VIRGINIA

MEMORANDUM

March 4, 1987

RECEIVED

MAR 6 1987

CCN

TO: J. E. Neff

CC: P. R. Kavasmaneck
C. C. Neely
H. W. Wegert

RE: C&P Asbestos Policy
Proposed Technology Program

The ad hoc asbestos team, chaired by C. C. Neely, has received word that the C&P Manufacturing Council has approved the policy we recommended last fall (copy attached).

Now we need to address the work that CED needs to do to support this policy (see Delegation Section of Policy and CCN's proposed program for 1987, which is also attached).

Clyde would like to meet on the morning of March 17 to review this program. Specifically, we need you to tell us about the Industrial Hygiene Group involvement.


S. W. Clark

SWC:jwc
51180
Attachments

- UCC BUSINESS CONFIDENTIAL -
(TO BE OPENED BY ADDRESSEE ONLY)

February 19, 1987

TO: Mr. R. R. Bannister
Mr. R. A. Conway
Mr. P. D. Franson
Mr. D. L. Garrison
Mr. G. M. Keller
Mr. C. C. Neely ✓
Mr. J. E. Sanders
Mr. L. L. Simpson
Mr. W. J. Simmons

RECEIVED
FEB 20 1987
CCN

COPY TO: Mr. B. G. Perry
Mr. W. G. Lilly, Jr.
Mr. D. L. Runyon

FROM: P. R. Kavasmaneck

SUBJECT: J. E. Sanders Staff Meeting Minutes
February 19, 1987

1. Safety - January was a good month from the viewpoint of LWC and recordables and weather-related incidents. We had two OTJ random events. We also had one recordable illness, an allergy possibly related to the office environment.
2. SRA - SRA checks have been received; feedback needs to be completed by Tuesday, February 24. JES will participate in some. No announcements are planned. The event-related SRA program is still in place. Getting the event-related SRA does not automatically eliminate an individual from consideration for the annual award.
3. Salary - The exempt budget is coming "real soon" per G. M. Keller; the increase in range is 3% and budget is 5%.

Non-exempt salary budget - sentiment of the Tech Center Site Advisory Council is that we need to be more competitive in terms of wages; we seem to be on the high side in the Valley, especially at the entry level. Total budget is 4%; average range movement is 2% (none at entry level); 1-1/2% for Grade 7 and 1% for Grade 8.

Progression money and performance money will be available in the budget. Packages will be mailed on 2/19.

4. Asbestos - Clyde Neely's team recommended a phase-out by January 1989, and discontinue purchase. Manufacturers are actively seeking and suggesting alternatives. Bob Perry presented the recommendation to the Manufacturing Council, which accepted them, and we are to proceed with changing Engineering Standards to incorporate this recommendation.

JES suggested involvement of CED (materials of construction, piping); L. E. Calvert, Maintenance Group; and Purchasing. Clyde was requested to lead a team to undertake this implementation and propose resources and schedule.

5. Promotions - No DMT meeting was held yesterday, 2/18/87; however, promotions through Grade 11 are conceptually approved. (We need to revisit Janeshek and Delaney at a later date.) For promotions to Grades 12 and 14, JES will take up with DMT next month, but we should make plans to include them in the 1987 salary budget.

6. Greenwich Meeting - Mr. Kennedy had three key items to leave meeting with:

- 1) Know strategic intention of Corporation.
- 2) Have a knowledge of key businesses.
- 3) Be committed to the values of the Corporation. The mission and values are important and we need to buy into them.

Mr. Kennedy stressed the importance of the long term while meeting short-term objectives. Also, we need to get more value for assets; operate and produce, not liquidate. The role of the Corporation is to provide arena to be the best. Five values that need to be put in MOP's, strategic plans, etc., are: safety; customer focus; people excellence technology; simplicity.

Mr. Kennedy predicted businesses are going to be stronger, bigger in the next few years. During this time, our values will be identified with us and we with them; we will measure everything against the best.

7. Minutes of Last Meeting - GMK has asked the Kanawha Valley Non-Exempt Job Evaluation Committee to look at secretarial job posting descriptions to include Wang and shorthand capabilities.
8. Position Terms - PDF raised questions regarding use of titles on Technical Ladder, e.g., Engineering Consultant and Specialist. Vicky Hutchison will poll JES and WGL staff to see feeling of group.
9. Rhone-Poulenc Contract - DLG brought concern to the group regarding requests for source coding for IPES, UCPC, pressure vessel programs and title to CED computer programs. DLG recommended we not share this without fee. JES also asked us to review distribution lists for reports going to Rhone-Poulenc. CCN surfaced liability issues regarding Engineering advice provided to R-P resulting from incomplete control over final execution. GMK said all movement of non-exempt personnel between R-P and UCC ceased after the December 19 signing of the sales agreement.
10. India Trip - The Chemicals Unit at Trombay, India, has been phased down since last year. Utilities are functioning, but not much else. They are now getting ready to restart and DLG reviewed expansion for operating characteristics for several units he had familiarity with.

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

CC: GB
this CC.
page
only

MEMORANDUM

BUSINESS CONFIDENTIAL

February 9, 1987

RECEIVED

FEB 20 1987

TO: Mr. J. P. Hamilton - Danbury K-3 ✓
COPY: Mr. C. C. Neely
FROM: G. B. Elder
SUBJECT: Asbestos-Containing Materials in the Work Place

CCN

Attached is a copy of the proposed program to phase out asbestos-containing materials. I've also attached a copy of Clyde Neely's transmittal to Joe Sanders and his letter stating that it was transmitted to Bob Perry. Bob should be able to tell you where it has gone after it left his hands.

We would appreciate feed-back of any information you obtain on the current status of the proposed program.

D. B. Elder
2

GBE/ds
1910H

2/11

George - I spoke to Bob Perry about this today. He admitted that he was sitting on it. After I explained our concerns regarding gasket purchases, he agreed we needed to act promptly. You should see something coming from him soon. Let me know if you don't.

J. Hamilton
274?

UCC 015852

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

M E M O R A N D U M

BUSINESS CONFIDENTIAL

February 9, 1987

TO: Mr. J. P. Hamilton - Danbury K-3
COPY: Mr. C. C. Neely ✓
FROM: G. B. Elder
SUBJECT: Asbestos-Containing Materials in the Work Place

RECEIVED
FEB 10 1987
CCN

Attached is a copy of the proposed program to phase out asbestos-containing materials. I've also attached a copy of Clyde Neely's transmittal to Joe Sanders and his letter stating that it was transmitted to Bob Perry. Bob should be able to tell you where it has gone after it left his hands.

We would appreciate feed-back of any information you obtain on the current status of the proposed program.

D. B. Elder

GBE/ds
1910H

Discussed with JES
Mon 16 Feb 87

16 Feb 87

George Elder

J.P. (Pete) Hamilton, QA Mgr, Speciality Chemicals

Asbestos gaskets - What do we do?

GBE- ^{mentioned} proposed program - Asbestos phaseout - C&P
JPH requested copy

JPH contacted Bob Perry - found policy
on Perry's desk! Perry said he
didn't realize significance of document
in terms of impact.

Call GBE

① Attached - ^{what initiated} this memo?

② Travel schedule -
crosses Lake

Rusty Allen

Update V & P Specs - Graphoil vs Asbestos.
1 1/2 man-mo #6,500⁰⁰

19 Jan 87

29 Sept 86

Value and Pricing

See RWE's estimate

Arbitrarily increase Rex's \$4600 estimate to \$50,000 ←

$$\frac{50}{45.6} \times 1168 = 1280 \text{ m-Rx}$$

$$\frac{1280}{1800} = \underline{0.711} \text{ m-Rx} \quad \leftarrow$$

Mats & Engineering

GME estimate, approx 1/4 m-Rx

$$500 \times 1800 = 450 \text{ m-Rx}$$

$$450 \times 32 = \$14,400 \text{ say}$$

$$\underline{14,400}$$

Printing & Stationery (for RWE estimate)

$$\underline{1,000}$$

Preparation and Travel

Staff @ \$2000 each = 1000

Taft 400

Texas City 400

Smith Charleston (3hr x 24hr) = 50

Institute 500

Ogdenville 500

Preparation (40hr @ \$25/hr) = 1000

UCC 015856

$$\begin{array}{r} \$14,400 \\ + 1,000 \\ + 1,000 \\ + 50 \\ + 500 \\ + 500 \\ + 1,000 \\ \hline \$23,900 \text{ total} \end{array}$$

DETAIL SKETCH

ENGINEERING DEPARTMENT
UNION CARBIDE CORPORATION

INDEX NO.		DRAWING NUMBER	
LOCATION	SITE	SUBJECT	
JOB NUMBER		ZONE	AREA
DRAWN BY		CHECKED BY	REFER TO DRAWING

DESCRIPTION

IMPLEMENTATION - ASBESTOS STAND.

R.W. ENGLE

STANDARD LABOR RATES

9/29/86

YEAR	EXB (\$)	NEA (\$)
1987	32.10	23.75
1988	33.06	24.46

CATEGORY I

KNOWN CHANGES TO EXISTING STANDARDS
AND SPECIFICATIONS

	1987		1988		EXPENSES
	M. HRS.	\$ M	M. HRS.	\$ M	\$ M
EXB	150	4.8	100	3.2	6.0
NEA	350	8.3	150	3.6	—
TOTALS	500	13.1	250	6.8	6.0 ; $\Sigma = 25.9M$

15.0
1987

CATEGORY II

TRAINING ASSOCIATED WITH IMPLEMENTATION
OF NEW ASBESTOS STANDARD

	1987		1988		EXPENSES
	M. HRS.	\$ M	M. HRS.	\$ M	\$ M
EXB	—	—	148	4.9	6.0
NEA	—	—	20	0.5	—
TOTALS	—	—	168	5.4	6.0 ; $\Sigma = 11.4M$

5.0M
1970-80

Sheridan Engineering

WORK ORDER	2ND NO.	ISSUED FOR	DATE	REVISION	BY	CKD
		UCC 015857				

DETAIL SKETCH
ENGINEERING DEPARTMENT
UNION CARBIDE CORPORATION

INDEX N		ER		DRAWING NUMBER	
LOCATION	SITE	SUBJECT			
JOB NUMBER		ZONE		AREA	UNIT SYMBOL
DRAWN BY		CHECKED BY		REFER TO DRAWING	

DESCRIPTION

IMPLEMENTATION - ASBESTOS STAN.

RWENGLE

(continued)

CATEGORY III - NEW STANDARDS FOR SAFE HANDLING
OF ASBESTOS

	1987		1988		EXPENSES
	M. HRS.	\$M	M. HRS	\$M	\$ M
EXB	40	.13	40	1.3	0.5
NEA	<u>60</u>	<u>1.4</u>	<u>60</u>	<u>1.5</u>	—
TOTALS	100	2.7	100	2.8	0.5 ; E = \$6.0M

SUPERVISION 50 HRS
(\$2.3 M)
GRAND TOTALS \$45.6 M
1168 M. HRS
(6.74 man months)

WORK ORDER	2ND NO.	ISSUED FOR	DATE	REVISION	BY	CKD
		UCC 015858				

Rusty Allen

14 Jan 87

200 V&P Specs - Updating req'd

In absence of Corporation direction
will upgrade V&P Specs

300 in Rifle out back
150 in Rex

Rex will develop no. of Δ hours.

~~⊗~~ ~~⊗~~
Revised Standards: 2 MM ≠ \$15,000 vs \$25,900

1 MM = \$5,000

WV-0137

#4



I N T E R N A L C O R R E S P O N D E N C E

Engineering, Manufacturing, and Technology Services
Central Engineering
Technical Center

Post Office Box 8361
Building 2000
South Charleston, WV 25303

February 19, 1987

TO: Mr. B. G. Perry
COPY TO: Mr. P. D. Franson
Mr. W. G. Lilly, Jr.
Mr. C. C. Neely
Mr. S. W. Turicchi

RECEIVED
FEB 23 1987
CCN

SUBJECT: Asbestos Usage

Bob:

We are proceeding to establish plans to implement the phase-out of asbestos-containing materials from C&P facilities. I have asked Clyde Neely to lead this effort which will require resources and input from Maintenance groups, Purchasing, Safety and Health as well as Engineering Technology skill centers. Clyde will, in the next couple of weeks, develop a plan outlining the general steps required for this program between now and January 1989. We'll keep you posted on progress.

Very truly yours,

J. E. Sanders

JES:he
4898Y(4)



I N T E R N A L C O R R E S P O N D E N C E

Engineering, Manufacturing, and Technology Services Post Office Box 8361
Central Engineering Building 2000
Technical Center South Charleston, WV 25303

October 16, 1986

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

COPY TO: Mr. C. C. Neely

SUBJECT: Recommended C&P Program - Phase-Out Use of
 Asbestos-Containing Materials in Workplace

Gentlemen:

Attached is a copy of your recommendation covering asbestos usage which I transmitted to Bob Perry.

Thanks for your insights and efforts in pulling this together. I'll keep your team posted as the recommendation proceeds through the system.

Very truly yours,


J. E. Sanders

JES:he
Attachment
4704Y



INTERNAL CORRESPONDENCE

Engineering, Manufacturing, and Technology Services
Central Engineering
Technical Center

Post Office Box 8361
Building 2000
South Charleston, WV 25303

October 14, 1986

TO: Mr. B. G. Perry

COPY TO: Mr. P. D. Franson
Dr. P. R. Kavasmaneck
Mr. W. G. Lilly, Jr.
Mr. C. C. Neely
Mr. S. W. Turicchi

RECEIVED
OCT 20 1986
CCN

SUBJECT: Recommended C&P Program - Phase-Out Use of
Asbestos-Containing Materials in Workplace

Bob:

In July of this year, you requested on behalf of the Manufacturing Council that a Task Group be assembled to evaluate the implications for Chemicals and Plastics of continued use of asbestos-containing materials in the workplace. You should be aware that asbestos-containing insulation materials were prohibited for new construction and for replacements beginning in 1976.

The Task Group, headed by Mr. C. C. Neely, Corporate Fellow - Engineering Mechanics, was comprised of the following individuals and areas of expertise.

L. E. Calvert	- Maintenance
S. W. Clark	- Health/Safety
G. B. Elder	- Corrosion-Materials
R. W. Engle	- Valve and Piping Technology

The Task Group has surveyed current and projected industry practices with regard to the use of asbestos-containing materials and has evaluated current government regulations and made judgements with regard to future regulations which could impact on the use of and cost of use of asbestos-containing materials. Additionally, the Group evaluated the availability and cost effectiveness of substitute materials.

Mr. B. G. Perry
Page 2
October 15, 1986

Based on available evidence that airborne asbestos in the occupational workplace has proven to be a carcinogen and that cost effective alternative materials are available, or can be developed with relative ease, the Team has recommended that C&P continue to phase out the use of asbestos-containing materials with no purchase or installation of asbestos-containing materials, without a formal variance, after January 1, 1989. Asbestos-containing materials that are in use and retain their structural and functional integrity need be replaced only if this integrity is compromised, or when normal maintenance occurs.

Other recommendations are contained in the attached draft of the C&P Recommended Program.

I want to thank the Task Group for their efforts in this study and for their breadth of judgement as reflected in the recommendation.

Please let me know of further work you require, or of any questions you may have.

Very truly yours,



S. E. Sanders

JES:he
Attachment
4701Y

UNION CARBIDE CORPORATION

Engineering, Manufacturing, and Technology Services
Central Engineering

P. O. Box 8361

So. Chas., WV 25303

BUSINESS CONFIDENTIAL

September 30, 1986

TO: Mr. J. E. Sanders

COPY TO: Mr. L. C. Calvert
Mr. S. W. Clark
Mr. G. B. Elder
Mr. R. W. Engle

FROM: C. C. Neely

SUBJECT: Final Draft of Recommended C&P Program
Phase-Out Use of Asbestos-Containing Materials in Work Place
Chemicals and Plastic Group

Attached herewith on behalf of the Special Working Group is a copy of the subject document dated 9/29/86. It is a slightly fine-tuned version of the 8/28/86 version which was transmitted to you under my transmittal also dated 8/28/86. The changes that have been made are of a clarifying rather than substantive nature.

At this point, we have not made an effort to obtain broad, formal review of the subject program. However, Larry Calvert has discussed it briefly with the Maintenance APM's and Maintenance Managers. In addition, Stan Clark arranged for its review by the Safety, Health Advisory Committee (SHAC), and your staff has reviewed it. Feedback indicates these groups to be supportive of the concept, but some have expressed concern regarding the January 1, 1989 date specified for the discontinuance of the purchase of asbestos-containing materials, believing it to be optimistic. Some of the concern relates to the following:

1. CED's ability to revise and reissue the V&P Specifications and the Valve Manual in time to support the deadline. The responsible CED specialists have carefully reviewed this matter and believe that reissuance of these Manuals by July 1, 1988 is realistic. This date has not been published, however.

September 30, 1986

2. Belief that field testing of new gasket and packing materials will be required. Such testing will not be necessary since the plan at this time is to accommodate most of the substitutions by broadening the use of materials already in use, materials such as reinforced Teflon and GRAFOIL™. This plan has not been broadly disseminated, and we can fully appreciate the reluctance to agree to a purchasing cut-off date for asbestos-containing products without knowing what the substitutes are. We also appreciate that, once this material substitute plan is known, there will be a natural resistance due to the higher first cost of these substitute materials.
3. Some belief that installers will need special training to handle the new gasket and packing materials. For reasons cited in (2), we do not believe this requirement will be significant.
4. Perhaps lack of understanding that the January 1, 1989 date is the cut-off date for the purchase of asbestos-containing materials except as approved by a variance.
5. "Is this really necessary" attitude. The Special Working Group believes that OSHA's recently revised exposure limit of 0.2 fibers per cubic centimeter of air (was previously 2.0 fibers per cubic centimeter) add significant impetus to implement the proposed Recommended Program. According to Terry Hanning's September 5, 1986 memorandum (copy attached), labor union representatives do not believe that controlling the exposure limit to this lower level provides adequate protection.

The above concerns notwithstanding, the Special Working Group decided to submit the subject Recommended Program to you with the January 1, 1989 date included since we believe that, with proper communication with the key plant personnel responsible for its implementation, along with management support, this date is realistic and achievable. We are submitting under separate cover a proposed CED Technology Program which includes request for funds to cover the important communications aspect of the understanding, acceptance and implementation process.

Please let me know how we can be of further assistance regarding this matter.


C. C. [unclear]

CCN:mr
4319I
Attachment

D R A F T

RECOMMENDED C&P PROGRAM

CHEMICAL AND PLASTICS BUSINESS GROUP (C&P)

GOAL: PHASE-OUT USE OF ASBESTOS-CONTAINING MATERIALS⁽¹⁾ IN THE WORK PLACE

PURPOSE/BACKGROUND

The Corporate Charter (1.1) contains the following commitment to employees:

"To provide working conditions, programs of training and education, and persistent review and appropriate modification of facilities and practices to protect the health and safety of employees."

It also contains a social commitment to conduct business "in accordance with all the applicable national and local laws and regulations."

As a result of available evidence that airborne asbestos in the occupational environment had proven to be carcinogenic in man, all C&P Insulation Standards were revised in 1976 to specify only asbestos-free insulating materials; and new or replacement installations of these materials have subsequently been selected accordingly. Additionally, a Safety/Health Standard designated SH-256 was prepared covering the safe removal and handling (includes disposal) of asbestos-containing insulating material during renovation and demolition. The requirements of this Standard equal or exceed those of current applicable government standards.

OSHA's rule-making efforts relative to asbestos usage in the work place are mired in controversy. Hearings on the latest EPA proposal which includes the phaseout of all asbestos over a ten-year period are now in progress. The proposal states: "EPA is considering banning the manufacture, importation, and processing of asbestos construction products and asbestos clothing soon after the rule's promulgation with the category of asbestos friction products banned about five years later, and other asbestos products banned at a later time." Gaskets and packing that contain asbestos are in the category of "other asbestos products" that would apparently be banned after ten years. No peer company that we are aware of has a target date for removal of existing asbestos-containing insulation, gaskets, or packing; however, one major chemical company has recently discontinued the purchase of asbestos-containing gaskets and packing.

A cost analysis of pipe-size gaskets shows that GRAFOIL®, probably the most expensive of the acceptable gasket substitute materials, is, in fact, cost effective when the cost of mandatory work practices associated with the use of asbestos (e.g. wetting for removal or airborne fiber

⁽¹⁾ "Asbestos-containing materials" include but are not limited to insulation, gaskets, packing, welding blankets, and construction products.

D R A F T

-2-

exposure monitoring during removal, placing in labeled plastic bags after removal, landfill disposal, and record keeping) is considered. The same conclusion is drawn relative to valve packing when the additional considerations of improved service life and sealability are included.

Consistent with the aforementioned commitments and the economic use of materials, C&P has concluded that positive actions relative to asbestos-containing materials⁽¹⁾ should be taken.

RECOMMENDED C&P PROGRAM

Except as otherwise provided by applicable law, Chemicals and Plastics Business Group will:

Continue to phase out the use of asbestos-containing materials:

- Asbestos-containing insulation shall be replaced with asbestos-free materials as required to maintain structural and functional integrity.
- No asbestos-containing materials shall be purchased after January 1, 1989.
- C&P Standard Practices shall be employed for the identification, removal, modification, and/or disposal of asbestos-containing materials; and for use of asbestos-substitute materials.
- Evaluation of asbestos-substitute materials shall include consideration of health effects as well as suitability for intended service and cost.
- A variance approval procedure shall be employed to cover consideration of uncommon circumstances. Approval must always include endorsement of C&P HS&EA management.

SCOPE

This Recommended Program applies to all C&P operated/hosted facilities. Other components of the Corporation will be apprised of its content.

DELEGATION

The assignment of duties and authority to carry out the Recommended C&P Program defined herein is delegated as follows:

To Central Engineering Department

- Develop and maintain C&P Standard Practices covering:
 - Identification of asbestos-containing materials;

9/29/86

D R A F T

-3-

- Removal, modification and/or disposal of asbestos-containing materials; and
- Use of asbestos-substitute materials.

To Line Operations Management

- Implement C&P Standard Practices for the identification, removal, modification, and disposal of asbestos-containing materials.
- Implement C&P Standard Practices covering asbestos substitute material applications, and communicate the service experience with these materials.

To Manufacturing Services

- Monitor use of asbestos-substitute materials and communicate the service experience with these materials.

To C&P HS&EA

- Audit compliance with governmental regulations and C&P Standard Practices relating to asbestos-containing materials and, where applicable, their substitutes.

C. C. Neely
2073W

UNION CARBIDE CORPORATION

ENGINEERING, MANUFACTURING AND TECHNOLOGY SERVICES DEPARTMENT
HEALTH, SAFETY AND ENVIRONMENTAL TECHNOLOGY
SOUTH CHARLESTON, WEST VIRGINIA

MEMORANDUM

September 5, 1986

TO: Mr. S.W. Clark
Mr. D.A. Gosselin
Mr. V.H. Johnkoski
Dr. P.R. Kavasmaneck ✓
Mr. J.A. Leonard
Mr. J.B. Leverton

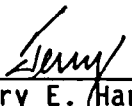
Mr. C.P. Maxwell
Mr. J.E. Neff
Mr. M.A. Patel
Mr. T.P. Raby
Mr. H.W. Wegert

FROM: T.E. Hanning

SUBJECT: Asbestos Update
For Your Information

Labor union representatives are currently endorsing a proposed asbestos ban by the Environmental Protection Agency. The unions contend that OSHA's permissible exposure limit of 0.2 fibers per cubic centimeter of air, effective July 21, provides insufficient worker protection.

The proposed EPA rule would ban completely, five asbestos products that have effective substitutes. These products are: roofing felts, flooring felts, vinyl-asbestos floor tile, asbestos clothing, and asbestos/cement pipe and fittings. Other asbestos uses would be phased out over 10 years.


Terry E. Hanning
Extension 5903

TEH/db
6209D

RECEIVED
SEP 10 1986
P.R. KAVASMANECK

RECEIVED

SEP 29 1986

CCN

CCN
Clyde
Perry



INTERNAL CORRESPONDENCE

Engineering, Manufacturing, and Technology Services
Central Engineering
Technical Center

Post Office Box 8361
Building 2000
South Charleston, WV 25303

October 16, 1986

RECEIVED

OCT 20 1986

24 Feb 87

Joe Keeler X2114

CCN

TO: Mr. L. E. Calvert
562-5133 Mr. S. W. Clark
Mr. G. B. Elder
Mr. R. W. Engle

COPY TO: Mr. C. C. Neely ✓

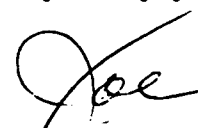
SUBJECT: Recommended C&P Program - Phase-Out Use of
Asbestos-Containing Materials in Workplace

Gentlemen:

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Thanks for your insights and efforts in pulling this together. I'll keep your team posted as the recommendation proceeds through the system.

Very truly yours,


J. E. Sanders

JES:he
Attachment
4704Y



UNION CARBIDE CORPORATION

1300 HERCULES AVENUE, SUITE 200
HOUSTON, TEXAS 77058

RECEIVED

JUN 1 1987

CCN

26 May 1987

TO: Attached List

CC: Attached List

SUBJECT: FINAL DRAFT OF RECOMMENDED C&P PROGRAM PHASE-OUT
USE OF ASBESTOS-CONTAINING MATERIALS IN WORK
PLACE - CHEMICALS AND PLASTICS GROUP

In the package I sent out April 28, 1987, I made two mistakes. Please note the corrections as follows.

- Paragraph two, last sentence should be 1989 not 1987. Although, as pointed out, it may not be pertinent that 1989 is the approved date.
- The recommended C&P Program attached was supposed to be the revised 9/29/86 draft, not the 8/28/86 draft. I have attached the 9/29/86 document. The key change is that the 9/29/86 document is defined as a program not a policy.

My apologies for the errors.

Larry E. Calvert

LEC:ka
Attachment
7212K

D R A F T
RECOMMENDED C&P PROGRAM
CHEMICAL AND PLASTICS BUSINESS GROUP (C&P)

GOAL: PHASEOUT USE OF ASBESTOS-CONTAINING MATERIALS⁽¹⁾ IN THE WORK PLACE

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(1) "Asbestos-containing materials" include but are not limited to insulation, gaskets, packing, welding blankets, and construction products.

D R A F T

-2-

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To Central Engineering Department

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 - Identification of asbestos-containing materials;

9/29/86

D R A F T

-3-

- Removal, modification and/or disposal of asbestos-containing materials; and
- Use of asbestos-substitute materials.

To Line Operations Management

- Implement C&P Standard Practices for the identification, removal, modification, and disposal of asbestos-containing materials.
- Implement C&P Standard Practices covering asbestos substitute material applications, and communicate the service experience with these materials.

To Manufacturing Services

- Monitor use of asbestos-substitute materials and communicate the service experience with these materials.

To C&P HS&EA

- Audit compliance with governmental regulations and C&P Standard Practices relating to asbestos-containing materials and, where applicable, their substitutes.

C. C. Neely
47071

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