

UNION CARBIDE CORPORATION  
SPECIALTY CHEMICALS DIVISION  
Technical Center  
South Charleston, West Virginia

UCC BUSINESS CONFIDENTIAL

September 30, 1986

TO: J. F. Flynn  
A. Walker

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L. W. Phair  
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SUBJECT: Outline of Project  
Insulation Upgrade - Phase I  
Sistersville Plant

The subject Outline of Project describes the work planned to begin upgrading asbestos insulation for compliance with Occupational Safety and Health Asbestos Standard 1910.1001. This Phase I project will upgrade about 60% of the plant asbestos insulation and require a capital expense authorization of \$1,500M and a 838 expense authorization of \$600M. The project is planned to be executed over the period 4Q86 thru 2Q89 to ensure effective execution and spread the dollars expenditures.

In early 1989, funds for a Phase II Insulation Upgrade project will be requested to cover the remaining 40% of the plant insulation upgrade. This Phase II project will require about \$1,600M and \$600M of Capital and 838 Expense funds, respectively, and is planned to be implemented in 1989-1991.

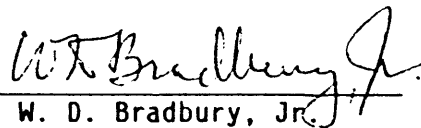
The scope of the Phase I project was defined by the Sistersville Plant Maintenance Department. Detail equipment and pipeline listings for each sub-section of the prioritized Unit Areas were defined in the Outline of Project. (A copy of the listing is available on request). These listings were then used to prepare manpower and materials requirement and the cost estimate for the project.

Plant Engineering will provide project management and engineering consultation to Plant Maintenance, who has field management and execution responsibility for the project.

The Outline of Project has been endorsed by:

|                     |               |
|---------------------|---------------|
| J. R. Barber        | R&D           |
| W. D. Bradbury, Jr. | Engineering   |
| D. Liebeskind       | HS&EA         |
| L. W. Phair         | Manufacturing |

This document is issued for your final endorsement and preparation of a Capital Budget Proposal.

  
W. D. Bradbury, Jr.

WDBJr:pr

SISTERSVILLE PLANT ENGINEERING  
SPECIALTY CHEMICALS DIVISION

OUTLINE OF PROJECT

INSULATION UPGRADE - PHASE I

SISTERSVILLE PLANT

SISTERSVILLE, WV

SEPTEMBER 29, 1986

UCC 020037

OUTLINE OF PROJECT

INSULATION UPGRADE - PHASE I  
SISTERSVILLE PLANT

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I. INTRODUCTION

Much of the insulation in the Sistersville Plant is asbestos and is in poor condition. The exposed asbestos presents a safety and health hazard associated with airborne particulate asbestos.

II. SUMMARY

The asbestos insulation throughout the Sistersville Plant must be upgraded to comply with the Occupational Safety and Health Administration (OSHA) standards. This project will upgrade approximately 60% of the asbestos insulation in the Sistersville Plant. The plan is to remove asbestos from idle equipment, replace asbestos insulation, where necessary, with an approved type, and cover asbestos insulation with an approved covering. This cost of the proposed project is:

|                      |             |
|----------------------|-------------|
| Capital ( $\pm$ 15%) | \$1,500,000 |
| Non Capital          | 600,000     |

The justification of this project is Occupational Health. The present OSHA Asbestos Standard, 1910.1001, revised July 1, 1986 specifies 0.2 fibers/cc as the maximum allowable exposure over an eight-hour period. The figure refers to fibers greater than five micrometers in length and would amount to 1.6 million fibers in that time period.

### III. SPONSOR'S OBJECTIVE

The basic objective of this project is to upgrade or eliminate 60% of the asbestos insulation in the Sistersville Plant to comply with OSHA Standards.

#### Completion

This Insulation Upgrade Project will be complete by June 1989.

Project will be executed on a continuous basis over the three-year period with curtailment during the bitter cold winter months.

#### Safety/Health

All Division Safety/Health Guidelines will be followed during asbestos removal, repair, and covering.

#### Government Regulations

Areas of the plant covered in this project will be in compliance with all applicable OSHA and U.S. Environmental Protection Agency (EPA) Regulations at project completion.

#### IV. FACILITIES

This Phase I project will replace asbestos insulation and jacketing in many areas of the Plant in accordance with the following area priority list:

1. Intermediates Area
2. Environmental Protection Area
3. Small Scale Production Area
4. Polymers II
5. 50% Silanes Reactor Tower

(Detailed listings of the equipment and pipelines in each of the sub-sections of the above areas are available in the project file).

Another project will be submitted in 1989 to upgrade asbestos insulation in the rest of the plant as follows.

1. 50% Silanes Reactor Tower
2. Polymers I
3. Miscellaneous areas; including Maintenance, Laboratory, Warehouse, etc.
4. Energy Systems area

This order of priority was established by the plant to correct the most critical needs first. The division into two projects is desirable to control the cash flow and for effective project execution.

This project will provide removal of asbestos from idle equipment, replacement where necessary, and recovering with an approved covering of an estimated 60 per cent of the asbestos insulation currently installed in the Sistersville Plant. The remaining asbestos insulation will be addressed by another project of approximately two thirds the cost of this one, to be executed in 1989, 1990, and 1991.

In the execution of this project non-asbestos type insulation will also be repaired or replaced to provide for an economical and complete project. Non-asbestos insulation work will constitute 15 per cent, or less, of the total project cost.

V. ENVIRONMENTAL PROTECTION/OCCUPATIONAL HEALTH AND SAFETY CONSIDERATIONS

This project will correct an Occupational Health concern by replacing or sealing exposed asbestos insulation in the Plant. When the insulation is being replaced or removed, Safety and Health Guidelines will be followed which includes: installing rope barricades and clearing the area of plant personnel, posting of warning signs, proper bagging and disposal of insulation, and monitoring of surrounding work areas. In addition, assuring that contractor personnel adhere to guidelines such as: wet clean-up, wearing of appropriate respirators, wearing and disposal of proper protective clothing, etc.

This project will be in compliance with all applicable OSHA and EPA Regulations. EPA reporting regulations will be followed.

VI. SUPPORTING FACILITIES

A. Distribution

The project will have no effect on Distribution facilities.

B. Energy Systems

The project will have no effect on Energy Systems requirements. However, Energy Conservation will be improved with this insulation upgrade.

C. Safety and Environmental Considerations

See Section V above.

## VII. PROJECT PLAN

The project survey, or scope, was prepared by the Maintenance Department over the last year. The priority of work is shown in the Facilities Section on page 3.

Insulation specification consultation will be supplied by Engineering. Field construction will be done by the Plant Maintenance Department, an outside contractor, or the Central Engineering Construction Group, and will be supervised by the Maintenance Department. The Maintenance Department will establish a dedicated crew to carry out the scope of this project.

Project Management, including cost control and reporting, will be provided by Plant Engineering.

The project organization follows:

### Steering Committee

|                            |                 |
|----------------------------|-----------------|
| Assistant Plant Manager    | W. V. Summers   |
| Maintenance Superintendent | G. W. Wulfert   |
| General Project Manager    | R. A. Hazlewood |

### Project Team

|                                    |             |
|------------------------------------|-------------|
| Maintenance Contractor Foreman     | J. E. Boley |
| Maintenance Coordinator/Supervisor | W. C. Nycz  |
| Project Manager                    | C. A. Eddy  |

## VIII. SCHEDULE

Key dates are:

|                             |              |
|-----------------------------|--------------|
| Outline of Project Approval | August 1986  |
| CBP Approval                | October 1986 |
| Mechanical Completion       | June 1989    |

IX. COST ESTIMATE

A. Summary

|                      | <u>Capital</u>     | <u>Removals<br/>Expense</u> |
|----------------------|--------------------|-----------------------------|
| • Construction Labor | \$1,109,000        | \$554,000                   |
| • Materials          | 241,000            | 21,000                      |
| • Engineering*       | 50,000             | 12,000                      |
| • Contingency        | 100,000            | 13,000                      |
| Total                | <u>\$1,500,000</u> | <u>\$600,000</u>            |

\* Insulation specification consultation, project management and field coordinator of contractor.

B. Basis for Estimate

The estimate for the work is based on a detailed scope provided by an insulation survey of each unit. The total man-hour estimate is 43,800 hours of work for both capital and expense.

C. Cash Flow

|      | <u>CAPITAL</u> | <u>EXPENSE</u> |
|------|----------------|----------------|
| 1986 | \$150,000      | \$ 60,000      |
| 1987 | 500,000        | 200,000        |
| 1988 | 500,000        | 200,000        |
| 1989 | 350,000        | 140,000        |

SCD DIVISION  
WORKING BUDGET CAPITAL PROJECT ASSIGNMENT  
SISTERSVILLE PLANT

DISTRIBUTION:

To: PLE OR PROCESS ENGINEERING MANAGER R. A. Hazlewood MAINTENANCE TECHNOLOGY W. C. Nycz/G. Wulfert  
DEPARTMENT HEAD G. W. Wulfert CAPITAL WORKORDER BOOK C. K. Nicholson  
LEAD PROCESS ENGINEER L. G. Moody PROJECT TEAM (See Below)  
DESIGN SUPERVISOR M. E. Kim DESIGN TEAM (See Below)  
RECORDS CENTER DFE/BJS

TITLE: Asbestos Insulation Replacement

PROJECT SPONSOR: R. A. Hazlewood

DEPARTMENT SYSTEM: 327000

PROFIT CENTER/S 917 \$243,000

WORK ORDER SUBMISSION TO DANBURY 11/26

ENGINEERING JOB NO: EJ- 7564

EON FOR PREPARATION OF SCOPE 26205

EON FOR PREPARATION OF WORK ORDER 26205

EST. ENG. COMPLETION DATE 11/26  
(Signed Scope Document Issued)  
(C4 - 14 - 19)

PROJECT TEAM

PROJECT CONTROL ENGINEER W. M. Crandall  
ENGINEERING REPRESENTATIVE —  
OPERATING REPRESENTATIVE —  
MAINTENANCE REPRESENTATIVE W. C. Nycz  
DISTRIBUTION REPRESENTATIVE —  
R/D REPRESENTATIVE —  
CONSTRUCTION REPRESENTATIVE G. W. Wulfert  
COST ESTIMATOR C. A. Eddy

DESIGN TEAM

PROCESS —  
PROCESS SAFETY REVIEWER —  
SAFETY & FIRE PROTECTION —  
CIVIL/MECHANICAL —  
ELECTRICAL —  
CONTROL SYSTEMS —

Issued By: [Signature]  
Manager of Plant Eng.

Date: 11/19/86

*Bill Summers*  
*Gib Moody*  
SPECIALTY CHEMICALS DIVISION  
SISTERSVILLE PLANT ENGINEERING

June 25, 1986

*GW<sup>2</sup>*  
*7/3/86*

TO: J. F. Dodd (2)  
W. V. Summers  
G. W. Wulfert

CC: W. D. Bradbury, Jr.  
R. P. Leichter  
W. C. Nycz

SUBJECT: Sistersville Plant Insulation Upgrade

Attached is the Draft Outline of Project for the subject project for your review and comments.

Highlights are:

- Project Cost \$1,500,000 Capital, \$600,000 Expense over next three years.
- Advance funding is not available, so expenditure in 1986 is estimated at \$150,000.
- Estimate is based on detailed takeoff of Maintenance Department survey.
- Maintenance to supervise field construction.
- Project will meet all OSHA and EPA Standards.

*I'm afraid should say:  
all plant standards. can*

Please return comments to me, or I will schedule a meeting if there are significant comments to resolve.

*C/F/Boo all ...  
S/H Guidelines ...  
3 volume ... plant  
L. G. Moody*

LGM/kcs  
0723k

*We can insulate J A S O N  
5 months - no more!*

$\frac{\$150,000}{6,000} = 25 \text{ man months}$   
 $\therefore 5 \text{ insulators for 5 months}$   
 $\text{or prefer 6 for just a little over 4 months (4.2)}$

UCC 020046

George -

STATUS?

Bud  
11/19



ahead with the

request to develop an asbestos

repair project based on use of capital

dollars over a period you feel

appropriate

WTB

To: Jim Heilman

October 28, 1985

cc: John K.  
Bill N.  
Bill S.

Subject: Plant Insulation  
Upgrade

Need two project cost estimations:

1. To remove all loose & unrealizable asbestos insulation, and to re-insulate that which was removed (if needed). Tanks, equipment, pipelines and buildings. And, seal all other asbestos insulation. (re-seal)
2. To correct all Plant insulation needs. This would be item #1, plus all general insulation replacement and improvement needs for all the non-asbestos insulation.
3. Let me suggest doing this by areas defined by the General Plot Plan for the Plant that identifies 11-56 Zones (or 45 readily defined areas).
4. John Kyle is Key coordinator and may need to involve insulators to survey each of the 45 zones.
5. Completion by November 6<sup>TH</sup> with written proposal to me.

UCC 020048

George W. Winkler