PLAINTIFF'S EXHIBIT
UC-357

UNION CARBIDE CORPORATION
Chemicals and Plastics

Bound Brook, New Jersey

January 3, 1974

To: Mr. W. F. Ark
Mr. E. Bell
Mr. J. L. Goodson
Mr. E. W. Krummel - NY
Mr. L. Madestau
Mr. C. F. Tripp - NY

cc: Mr. R. A. DeCoudres
Mr. C. F. Martino
Mr. P. B. Potter - NY

CC-Bill Thurber

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JAN 8 1974
C. F. TRIPP

Attached is an updated economic analysis with recommendations of the Carey versus Calidria solutions for bulk handling of asbestos in the molding material department.

Over-riding this analysis, however, are two basic questions that I believe the Operations Team needs to address in order to validate the parameters of the analysis.

1. Will Union Carbide continue to supply asbestos filled molding materials?

2. Is there a long run future for Union Carbide in the molding material business?

I believe we need decisions in these critical areas so that good operating decisions can be made for the short term. We are at the point of wasting our limited manufacturing, marketing and development resources by working in the wrong areas.

R. T. Marold

RTM:eb
Attachment

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Bulk Handling Asbestos
Program Review
Phenolic Molding Compounds
Buildings 3 and 127
Bound Brook, New Jersey

INTRODUCTION

This report presents a cash flow and sensativity analysis of two alternative methods of bulk handling asbestos. (U.C.C. SG-200 Pelleted Asbestos versus Carey Floats Asbestos)

Since the original approval of the pelleted asbestos project, four factors have changed warranting this reevaluation. They include:

1. The existing resin grinder is not adequate for producing the necessary fine asbestos grind specification of SG-200 pellets and grind resin without plugging or changing screens. (Additional $42M)
2. To obtain storage for Calidria asbestos by the minimum cost approach of increasing the height of an existing silo ($18,000 vs. $67,000) will require a variance from the town of Piscataway. A recently enacted ordinance makes this solution a potential community relations problem.
3. The heat resistant SG-200 pelleted asbestos product reformulation program has resulted in a higher raw material cost product. (Additional 0.4¢/# on Product)
4. Specific research and marketing expense dollars to reformulate have been identified to complete the program ($39M and $10M respectively).

SUMMARY (See Summary Table)

The cash flows of the five cases presented in the molding material five year plan are used as the basis of the study. They are adjusted to include:

1. Forecasted growth of heat resistant sales.
2. Increased formulation costs of pelleted asbestos product.
3. Investment, research and marketing cost changes.
4. Bulk handling savings.
5. Credit for live bottom unloading equipment in new plant at sales above 55 million pounds.

CONCLUSIONS AND RECOMMENDATIONS

The Carey floats asbestos alternative has the most favorable cash flow in all cases but Case I. This case involves holding the status quo with no appreciable growth in sales rate. The other four cases all project some level of growth.

The Carey alternative has a later installation date but can adapt readily to the long range new plant proposal without sacrificing product quality.

We recommend that:

1. The $234,000 Carey asbestos bulk handling facility be approved in 1974.
2. The R & D program to replace Carey with Calidria asbestos in heat resistant products be terminated.
3. The R & D program to eliminate asbestos in non-heat resistant products should be continued. The Plant modification only supplies bulk handled asbestos to Unit B for the heavy asbestos containing heat resistant products.

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SUMMARY TABLE OF CUMULATIVE PRESENT VALUES PLUS SENSATIVITY ANALYSIS

	Cumulative Present Value 1974 - 1980	Assumptions	Completion Date	Advantages	Disadvantages
SG-200 Pelleted Asbestos					
Case I	($311,000)	Grinder can obtain necessary fine grind without additional screening.	8 Months	Asbestos R/M cost $ are kept inside U.C.C.	Slightly inferior product and potential sales loss. Two new raw materials.
Case II	($334,100)				
Case III	($337,300)				
Case IV	($344,400)				
Case V	($356,800)				
Carey Floats Asbestos					
Case I	($338,700)	Sealing method of van box to live bottom bin is adequate as provided by Florig design.	12 Months plus Carey delay.	Can be adapted to continuously unload W/F. Adapts to long range plant proposal. 40% more material in bulk. Meets long range goal of fewer raw materials.	May have up to 1 year delay in getting Carey Corp. commitment.
Case II	($259,700)				
Case III	($252,700)				
Case IV	($243,000)				
Case V	($235,800)				

LEGEND OF CASES

CASE I - Status Quo
CASE II - Maintain 12% Share of Conservative Forecast
CASE III - Maintain 12% Share of Most Probable Forecast
CASE IV - Maintain 12% Share of Optimistic Forecast
CASE V - Increase to 15% Share of Most Probable Forecast

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BACKGROUND

During April 1973, approval was requested and granted for a capital order request for $31,000 capital and $1,400 expense to bulk handle U.C.C. SG-200 pelleted asbestos on Unit B in the Thermosetting Compounds Department, Building 3 and 127, Bound Brook, New Jersey.

This project at that time was the cheapest most direct solution to the critical environmental problem with high asbestos filled heat resistant products. The project would increase the height of one existing woodflour storage silo, modify unloading piping, and modify an existing screw feeder. These modifications would permit unloading and storage of bulk rail shipments of asbestos in an existing silo. The stored asbestos could then be conveyed and ground through the existing resin grinder.

Since that time, several important factors have changed to warrant a reevaluation of our program to solve this critical problem. The factors are:

1. The existing resin grinder is not adequate for producing the necessary fine asbestos grind specification of SG-200 pellets and grind resin without plugging or changing screens. (Additional $42M)
2. Difficulties in obtaining a building permit from Piscataway appears to make it impossible to obtain asbestos storage by the minimum cost approach of increasing the height of an existing silo. (From $18M to $67)
3. The heat resistant SG-200 pelleted asbestos product reformulation program has resulted in a higher raw material cost product. (Additional 0.4¢/# on Product)
4. Specific research and marketing expense dollars to reformulate have been identified to complete the program ($30M and $10M respectively).

U.C.C. SG-200 PELLETED ASBESTOS PROPOSAL DESCRIPTION

This proposal includes the addition of two 25 foot silos in place of the existing silo expansion. The 25 foot silos will not require a Piscataway building variance. A new grinder and modified screw feeder would be installed for grinding the asbestos pellets. (See Table I for the equipment investment breakdown.)

CAREY FLOATS ASBESTOS PROPOSAL DESCRIPTION

To effectively unload fibrous asbestos a hydraulic platform with live bottom and feeder would be installed with auxiliary equipment. To provide adequate storage and a transportation medium, five modified truck vans would be purchased. These would be raised and mate with the live bottom for unloading. It is assumed that the proposed florig design for sealing truck van to hopper would be adequate. After airconveying the asbestos to Building 3, it would be separated and stored in a new line bottom bin with air release and feeder. (See Table II for the equipment investment breakdown.)

LONG RANGE PLAN

Presently a proposal is being developed for a single continuous molding material line of 80 to 100 million pounds. This line would be necessary in order to get beyond a 55 million pound molding material capacity. One of the key items in that proposal is the hydraulic live bottom unloading system. This system is the same as the one being presented here for the Carey asbestos case. The Carey asbestos proposal would therefore adapt to this long range plan by:

1. Providing experience with the hydraulic live bottom unloading system.
2. Reducing the new plant investment cost. The system would be useable for the new plant. The pelleted asbestos proposal would not reduce the new plant investment cost because its equipment is not an integral part of the new plant design.

R. T. Marold

R. A. Ream

TABLE I:

U.C.C. PELLETED ASBESTOS SG-200
EQUIPMENT INVESTMENT

Silos Installed	$ 67,000
Grinder Installed	42,000
Screw Feeder Modification	9,000
Unloading Piping	7,000
	$125,000

TABLE II:

CAREY FLOATS ASBESTOS
EQUIPMENT INVESTMENT

Hydraulic Unloading Platform with Live Bottom & Feeder Installed	$ 69,000
Five Modified Trucks ($12,000 Each)	60,000
Storage Bin, Live Bottom, Air Release and Feeder Installed	105,000
	$234,000

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TABLE III
U.C.C. SALES - MM POUNDS PER YEAR[1]

	1974	1975	1976	1977	1978	1979	1980
Industry Sales							
Conservative(1)	410	420	432	444	456	468	480
Optimistic(2)	418	437	456	476	498	520	544
Most Probable(3)	412	426	439	454	468	483	499
U.C.C. Sales							
Case I	47	46	45	44	43	42	41
Maintain 12% Share on (1) Above							
Case II	49	50	52	53	55	56	58
Maintain 12% Share on (3) Above							
Case III	49	51	52.5	54.5	56	58	60
Maintain 12% Share on (2) Above							
Case IV	50	52	55	57	60	62	65
Increase Share To 15% on (3) Above							
Case V							
% Share	51	54.5	58	62	65.5	70.0	74.5

1 - Cases taken from July 1973 Marketing Plan for Thermosetting Composites.

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TABLE IV

U.C.C. HEAT RESISTANT SALES - MM POUNDS PER YEAR

	1974	1975	1976	1977	1978	1979	1980
% Heat Resistant Products	24	25	26	27	28	29	30
Case I	11.3	11.5	11.7	11.9	12.0	12.2	12.3
Case II	11.8	12.5	13.5	14.3	15.4	16.2	17.4
Case III	11.8	12.8	13.6	14.7	15.7	16.8	18.0
Case IV	12.0	13.0	14.3	15.4	16.8	18.0	19.5
Case V	12.2	13.6	15.1	16.7	18.3	20.3	22.4

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TABLE V
COST AND SAVINGS SUMMARY

Year Expended	R & D Expense	Marketing Expense	Handling Savings	Equipment Cost	New Plant Reuse Value
SG-200 Pelleted Asbestos			(1/2 Man)		
1974	($30,000)	($10,000)	$ 6,000	($125,000)	
1975	↑ Tech Service type work		6,000		
1976			6,000		
1977			6,000		
1978			6,000		
1979			6,000		
1980			6,000		
Carey Floats Asbestos			(1 Man)		$129,000
1974			$12,000	($234,000)	
1975			12,000		
1976			12,000		
1977			12,000		
1978			12,000		
1979			12,000		
1980			12,000		

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TABLE VI
RAW MATERIAL COST INCREASES

	1974	1975	1976	1977	1978	1979	1980
SG-200 Pelleted Asbestos (0.4¢/# Increase)							
Case I	(45.2M)	(46.0M)	(46.8M)	(47.6M)	(48.0M)	(48.8M)	(49.2M)
Case II	(47.2M)	(50.0M)	(54.0M)	(57.2M)	(61.6M)	(64.8M)	(69.6M)
Case III	(47.2M)	(51.2M)	(54.4M)	(58.8M)	(62.8M)	(67.2M)	(72.0M)
Case IV	(48.0M)	(52.0M)	(57.2M)	(61.6M)	(67.2M)	(72.0M)	(78.0M)
Case V	(48.8M)	(54.4M)	(60.4M)	(66.8M)	(73.2M)	(81.2M)	(89.6M)
Carey Floats Asbestos (0.03¢/# Increase)							
Case I	(3.4M)	(3.5M)	(3.5M)	(3.6M)	(3.6M)	(3.7M)	(3.7M)
Case II	(3.5M)	(3.8M)	(4.0M)	(4.3M)	(4.6M)	(4.9M)	(5.2M)
Case III	(3.5M)	(3.8M)	(4.1M)	(4.4M)	(4.7M)	(5.0M)	(5.4M)
Case IV	(3.6M)	(3.9M)	(4.3M)	(4.6M)	(5.0M)	(5.4M)	(5.9M)
Case V	(3.7M)	(4.1M)	(4.5M)	(5.0M)	(5.5M)	(6.1M)	(6.7M)

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