PLAINTIFF'S EXHIBIT

UC-3592

UC 149-2

UNION CARBIDE

INTERNAL CORRESPONDENCE

Asbestos Strategy Plan

METALS DIVISION

270 PARK AVENUE, NEW YORK, NEW YORK 10017

To (Name) R. L. Folkman
Division
Location
Floor Number

Copy to W. G. Alesio
G. R. Bailey
R. W. Rebholz
F. J. Shortsleeve

Date April 28, 1980
Originating Dept. Financial Control
Floor Number
Answering letter date
Subject

RECEIVED
APR 28 1980
F. J. SHORTSLEEVE

Attached is the latest asbestos strategy package, which includes the revisions discussed at the March 28 review meeting.

A basic assumption of the plan is that OSHA TLV will be no more restrictive than 1.0 fiber per cc, compared to the current 2.0 fiber per cc level. Should the standard be revised to 0.5 fiber per cc, the strategy would have to be reconsidered with new sales demand and production cost imput. The estimated impact of a 0.5 fiber restriction on King City is an extra $1.5MM capital, plus an additional $0.27MM/yr. operating expense (per P.R. Sherman and W. B. DeAtley).

Very truly yours,

J. T. Kelly

JTK/ro
Attachment

INDUSTRY DEFINITION

Those enterprises engaged in the worldwide production and marketing of short fiber asbestos and/or viscosity control agents.

BUSINESS DEFINITION

The mining, milling, chemical treatment and worldwide marketing of high quality short fiber asbestos.

ASBESTOS - GENERAL

- TOTAL WORLDWIDE ASBESTOS SUPPLY/DEMAND

	MM TONS	
	PRODUCTION	CONSUMPTION
USSR	2.7	2.4
Canada	1.7	0.1
USA	0.1	0.7
Europe	0.2	0.8
Japan	-	0.3
S. Africa	0.4	1.7
Rhodesia	0.2	
Others	0.6	
TOTAL	5.9	6.0

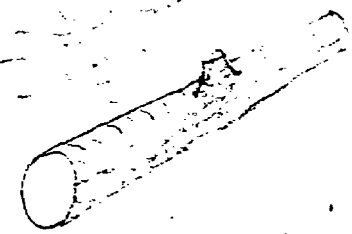
- SHORT FIBER ASBESTOS PRODUCTION

  -- APPROXIMATELY 30% of TOTAL ASBESTOS PRODUCTION IS SHORT FIBER GRADES

  -- MOST SHORT FIBER ASBESTOS IS OBTAINED AS A BY-PRODUCT FROM LONG FIBER OPERATIONS. NOT ALL IS CURRENTLY RECOVERED.

- MAJOR APPLICATIONS (SHORT FIBERS)

  -- FLOOR TILE, PLASTICS, ASPHALT, OIL-WELL MUDS.



UCC OPERATION

KING CITY, CALIFORNIA

"CALIDRIA" ASBESTOS

215 6

- MINING SITE AT COALINGA DEPOSIT, DISCOVERED IN 1957.

  TOTAL COALINGA RESERVES -- 3MM + TONS

  (100 + YEARS OPERATION)

- SHORT FIBER ASBESTOS ONLY. HIGH QUALITY (PURITY, FIBER CONTENT)

- MILLING OPERATIONS BEGAN IN 1963. CURRENTLY OPERATING AT 85% OF CAPACITY.

- MAJOR MARKET AREAS USA, JAPAN, EUROPE, AUSTRALIA.

UCC COMPETITORS

- SHORT FIBER ASBESTOS

	ESTIMATED SHORT FIBER CAPACITY, M TONS/YR
-- CAREY (Quebec, Canada)	230
-- JOHNS-MANVILLE (Quebec)	800
-- ATLAS (California)	25
KING CITY	33

- VISCOSITY CONTROL AGENTS

	PRODUCT	CURRENT OPERATING RATE % CAPACITY
DE GUSSA	TREATED SILICA	90-95
CABOT	TREATED SILICA	90-95
NATIONAL LEAD	TREATED CLAY	?
BAKER	MODIFIED CASTOR OIL	?
KING CITY	TREATED ASBESTOS	85

UCC MARKETS
SHORT FIBER ASBESTOS

	USA		JAPAN		TOTAL	
	TONS	% SHARE	TONS	% SHARE	TONS	% SHARE
CAREY	61,000	47	33,000	73	94,000	53
JOHNS-MANVILLE	30,000	23	5,000	11	35,000	20
ATLAS	15,000	11	-	-	15,000	9
UCC	25,000	19	7,000	16	33,000	18
	131,000	100	45,000	100	176,000	100

VISCOSITY CONTROL MARKETS

- MAJOR APPLICATIONS

  -- ADHESIVES, SEALANTS, COATINGS

- MARKET SHARE

	SHARES %			
	USA	JAPAN	EUROPE	TOTAL
DE GUSSA	25	70	70	40
CABOT	49	2	5	40
NATIONAL LEAD	10	2	3	3
BAKER	5	1	3	2
UCC	11	25	19	15

- UCC SUPPLYING THE ONLY ASBESTOS BASE PRODUCT.

PROSPECTS FOR INDUSTRY GROWTH & PROFITABILITY

- **SHORT FIBER ASBESTOS -- low to moderate**

  The question of health hazards and associated governmental regulatory action and potential third party liability are expected to result in a zero-volume growth rate for this industry. Limited number of competitors and favorable pricing history are positive factors. Applications for asbestos remain despite considerable effort to develop substitutes.

- VISCOSITY CONTROL AGENTS -- high

  The unfavorable asbestos publicity and restrictive government regulations have been less of a negative factor in customer consideration. Requirements for technical competence and capital investment in this area are high.

  Viscosity control products represent only 8% of the tonnage at King City, but account for 60% of the plant margin.

INDUSTRY PROFILE

SHORT FIBER ASBESTOS

CRITICAL ITEMS	INDUSTRY PROSPECTS HIGH	MODERATE	LOW
VOLUME GROWTH			X
VULNERABILITY TO SUBSTITUTION		X	
COMPETITION	X		
PRICING RESPONSE	X		
CUSTOMER NO./MIX	X		
GOVERNMENT INTERVENTION			X
ACTIVIST INFLUENCE			X
THIRD PARTY LIABILITY			X

VOLUME GROWTH			X
EARNINGS QUALITY		X	
OVERALL ASSESSMENT		X	

INDUSTRY PROFILE

VISCOSITY CONTROL AGENTS

CRITICAL ITEMS	INDUSTRY PROSPECTS HIGH	MODERATE	LOW
VOLUME GROWTH	X		
SUBSTITUTION	X		
COMPETITION	X		
BASIS OF PRODUCT COMPETITION	X		
CUSTOMERS	X		
VOLUME GROWTH	X		
EARNINGS QUALITY	X		
OVERALL ASSESSMENT	X		

ASBESTOS HEALTH EFFECTS

- MAIN EFFECTS OF ASBESTOS EXPOSURE

    ASBESTOSIS

        Result of very high past exposures.

    LUNG CANCER

        Mainly from interaction with smoking. (Non-smoking asbestos worker has little or no excess risk of lung cancer.)

    MESOTHELIOMA

        This cancer can result from low exposures and is not smoking related.

- LATENT PERIOD VARIES FROM ABOUT 15-50 YEARS.
- PRESENT REGULATORY ACTIONS AIMED AT REDUCING RISK OF LUNG CANCER AND MESOTHELIOMA
- THE EXTENT OF CANCER RISK AT VERY LOW EXPOSURES IS ESTIMATED, NOT MEASURED DIRECTLY.

    Definitive scientific answers will probably not be forthcoming in the near future.

ESTIMATE OF FURTHER REGULATORY IMPACTS

ON UCC ASBESTOS BUSINESS

1. ONE - THREE YEARS, POSSIBLY LONGER, OF UNSETTLED REGULATIONS.
2. NO SIGNIFICANT IMPACT DUE TO "RETROACTIVE" LEGISLATION.
3. MODERATE IMPACT OF BANS AND MANDATORY SUBSTITUTIONS.
4. OSHA NO MORE RESTRICTIVE THAN 0.5 FIBER/cc TWA. (NO SOONER THAN FIRST QUARTER OF 1981, COULD BE A YEAR OR MORE LATER.)
5. NUMERICAL AMBIENT AIR STANDARD AND MORE RESTRICTIVE WASTE DISPOSAL UNDER RECRA. (1-2 YEARS AWAY.)

UCC PRODUCT DIRECTIONS

- EMPHASIZE DUST CONTROLLED "CALIDRIA" ASBESTOS PRODUCTS.

- IMPROVE PACKAGING

- CONCENTRATE ON END USES WHERE FREE FIBER GENERATION IS MINIMIZED OR ELIMINATED.

FINANCIAL SUMMARY

"CALIDRIA" ASBESTOS

	1975	1976	1977	1978	1979
SALES ($MM)	4.3	4.9	5.3	7.2	6.4
NET INCOME ($MM)	0.1	0.5	0.6	1.2	1.0
(¢/SHARE)	0.2	0.8	1.0	1.9	1.5
ROS %	2.3	10.2	11.3	16.7	16.4
ROA %	1.6	10.5	12.9	25.4	19.8
CASH GENERATED ($MM)	0.2	0.1	1.1	1.0	1.2

SPU COMPETITIVE POSITION

- SHORT FIBER ASBESTOS -- STRONG/LEADING

  High level of product quality and service to a diverse customer base overcome the disadvantage on costs of competing against a by-product situation.

- VISCOSITY CONTROL AGENTS -- STRONG

  A strong technical service effort, versatile product line, and superior cost position have helped to offset the health factor, which has limited market share and remains a threat to future participation in these markets.

SPU COMPETITIVE PROFILE

SHORT FIBER ASBESTOS

CRITICAL ITEMS	LEADING	STRONG	FAIR	WEAK
MARKET SHARE		*————*		
PRODUCT LINE BREADTH		*————*		
BREADTH/CUSTOMER BASE		*————*		
COST POSITION			*————*	
TECHNOLOGY POSITION	*————	————*		
PRODUCT QUALITY	*————*			
SERVICE/RELIABILITY	*————*			
OVERALL	*————	————*		

Assessment of Principal Competitors
Relative to Key Competitive Factors

Asbestos Category

	UCC	Carey	Johns-Manville	Atlas
Market Share	Strong	Leading	Strong	Fair
Product Line Breadth	Strong	Strong/ Fair	Strong	Weak
Breadth Customer Base	Strong	Strong	Strong	Weak
Total Cost Position	Fair	Strong	Leading/ Strong	Weak
Technical Position	Strong	Weak	Strong	Weak
Product Quality	Leading	Strong/ Fair	Fair	Strong
Customer Service/Dependable Supplier	Leading	Weak	Strong	Weak
Overall	Leading/ Strong	Strong/ Fair	Strong	Fair/ Weak
Rank	1	3	2	4

SPU COMPETITIVE PROFILE

VISCOSITY CONTROL AGENTS

CRITICAL ITEMS	LEADING	STRONG	FAIR	WEAK
PRODUCT LINE BREADTH		*————*		
BREADTH/CUSTOMER BASE	*————*			
COST POSITION	*————*			
TECHNOLOGY POSITION	*——	——*		
PRODUCT QUALITY	*————*			
HEALTH FACTOR				*————*
OVERALL		*————*		

Assessment of Principal Competitors
Relative to Key Competitive Factors

Non-Asbestos Category

	UCC	Natl. Lead	Cabot	DeGussa	Baker
Product Line Breadth	Strong	Fair/ Weak	Fair	Fair	Fair/ Weak
Breadth of Customer Base	Leading	Fair	Strong	Strong	Fair
Total Cost Position	Leading	Strong	Strong	Strong	Strong
Technical Position	Leading/ Strong	Strong	Strong	Strong	Fair
Product Quality	Leading	Strong	Strong	Strong	Strong
Health Factor	Weak	Strong	Strong	Strong	Strong
Overall	Strong/ Fair (1)	Strong/ Fair	Strong	Strong/ Fair	Strong/ Fair
Rank	2	2	1	2	2

(1) The health factor was weighted at 4 to 1 against other factors in the overall rating for UCC.

PROSPECTS FOR LONG-TERM INDUSTRY GROWTH AND EARNINGS QUALITY

COMPETITIVE POSITION	HIGH	MODERATE	LOW
LEADING		(UCC)	
STRONG	CABOT NAT. LEAD UCC DEGUSSA BAKER	(J.M.) (CAREY)	
FAIR		(ATLAS)	
WEAK			

( ) ASBESTOS CATEGORY

NON-ASBESTOS CATEGORY

KEY EXTERNAL ASSUMPTIONS

VOLUME GROWTH:

- VISCOSITY CONTROL -- 8% PER YEAR
- SHORT FIBER ASBESTOS -- 0% PER YEAR

GOVERNMENT:

- CLEAR POSITION TAKEN ON HEALTH QUESTION WITHIN 2-3 YEARS.
- MODERATE IMPACT OF BANS OR MANDATORY SUBSTITUTION
- OSHA TLV NO MORE RESTRICTIVE THAN 1.0 FIBER/CC

COMPETITION:

- NO NEW MAJOR EXPLOITATION OF COALINGA DEPOSIT
- RUSSIANS DO NOT ENTER SHORT FIBER MARKET
- VISCOSITY CONTROL COMPETITORS DO NOT REDUCE PRICES
- MARKETING POLICY OF SHORT FIBER PRODUCERS UNCHANGED
- ATLAS OPERATES THROUGH AT LEAST 1981

CUSTOMERS:

- HEALTH FACTOR HAS NO SIGNIFICANT ADDITIONAL IMPACT ON SHORT FIBER ASBESTOS MARKET
- APPREHENSION OF CUSTOMERS IN THE VISCOSITY CONTROL AREA WILL SUBSIDE IN 2-3 YEARS

<u>CURRENT DIRECTION</u>

THE ASBESTOS BUSINESS HAS BEEN OPERATED TO MAXIMIZE EARNINGS AND CASH FLOW. AGGRESSIVE MARKETING AND PRODUCT DEVELOPMENT PROGRAMS HAVE BEEN MAINTAINED. CAPITAL INVESTMENT HAS BEEN LIMITED TO DUST CONTROL IMPROVEMENTS AND OTHER MINOR REQUIREMENTS.

-- MAINTAIN POSITION WHILE MINIMIZING RISK IN VIEW OF MARKET UNCERTAINTIES.

SALES HISTORY

	M TONS				
	1975	1976	1977	1978	1979
SHORT FIBER	28.5	22.5	22.8	32.9	26.5
VISCOSITY CONTROL	1.6	2.1	2.1	2.4	2.2
TOTAL	30.1	24.6	24.9	35.3	28.7

CONSTRUCTION EXPENDITURES

	$ M
1975	542
1976	197
1977	47
1978	77
1979	57

STRATEGY SELECTION

STRATEGY:	STRATEGIC DIRECTION	
	SHORT FIBER	VISCOSITY CONTROL
CONSTANT CAPACITY (BASE CASE)	Maintain Position	Concede Position
SHORT FIBER EXPANSION	Improve Position	Concede Position
VISCOSITY CONTROL EXPANSION	Maintain Position	Maintain Position
UNIT ABANDONMENT	-	-

STRATEGY ASSUMPTIONS

CONSTANT CAPACITY (BASE CASE):

- SHORT FIBER ASBESTOS

  --MARKET SHARE 18-20% OVER PLAN PERIOD

  -- TOTAL VOLUME RELATIVELY CONSTANT

- VISCOSITY CONTROL

  -- MARKET SHARE 15% THROUGH 1982, DROPS TO 12% BY 1988
  DUE TO CAPACITY LIMITATION OF CHEMICAL CURCUIT

SHORT FIBER EXPANSION:

- SHORT FIBER ASBESTOS

  -- INCREASE CAPACITY BY 25,000 TPY (75%) IN 1981,
  AT CAPITAL COST OF $6.3 MM

  -- MARKET SHARE EXPANDED FROM 18% TO 32% BY 1982
  (OBTAIN 12,000 TPY CONTRACT WITH GAF)

- VISCOSITY CONTROL

  -- SAME AS BASE CASE

VISCOSITY CONTROL EXPANSION:

- SHORT FIBER ASBESTOS

  -- SAME AS BASE CASE

- VISCOSITY CONTROL

  -- EXPAND CHEMICAL CURCUIT 1800 TPY (100%) BY 1983,
  AT CAPITAL COST OF $5.8 MM

  -- MAINTAIN MARKET SHARE AT 15% TRHOUGH THE PLAN PERIOD

STRATEGY ASSUMPTIONS

UNIT ABANDONMENT

A - SHUT DOWN OPERATION

- CLOSE KING CITY PLANT IN 1980
  - -- DECOMMISSION COST $1.2 MM
  - -- NET BOOK VALUE $2.6 MM

B - SELL OPERATION

- 1980 SALE AT $7 MM (7X EARNINGS)

RISK ADJUSTMENTS

DEPLETION ALLOWANCE

- ASSIGNED 25% PROBABILITY TO THE LOSS OF DEPLETION BY 1983

SALES

- SHORT FIBER ASBESTOS VOLUME REDUCED BY 7-10% STARTING IN 1984
- VISCOSITY CONTROL PRODUCTS GROWTH RATE LOWERED FROM 8% TO 6% FOR THE ENTIRE PLAN PERIOD

PLANT COSTS

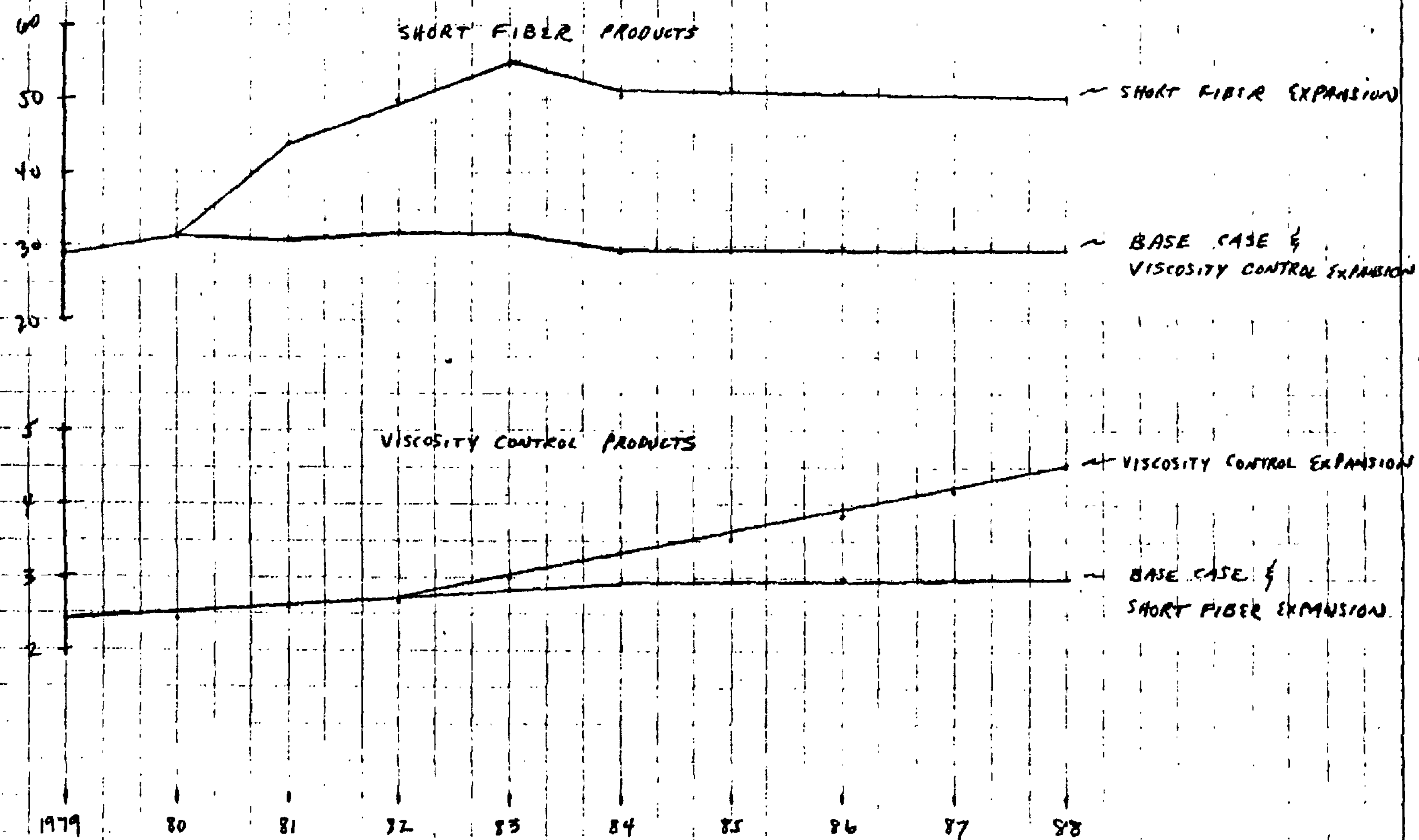
- INCREASED 3% ABOVE ANNUAL INFLATION RATE DUE TO TIGHTENING REGULATIONS

CAPITAL COSTS

- INCREASED 12.5% ABOVE PLAN

SALES VOLUME (RISK ADJUSTED)

M TONS



RISK ADJUSTED FINANCIAL SUMMARY -- ASBESTOS

STRATEGY	1979 - 1988 IMPACT				1988 ANNUAL RESULTS		
	CASH FLOW $ MM	EARNINGS $/ SHARE	AVERAGE ROA	CAPITAL $ MM	CASH FLOW $ MM	EARNINGS $/ SHARE	ROA
CONSTANT CAPACITY	12.0	.152	23	1.6	1.4	.017	36
SHORT FIBER EXPANSION	8.2	.128	10	8.5	1.8	.013	14
VISCOSITY CONTROL EXPANSION	7.8	.144	13	7.7	2.2	.021	19
UNIT ABANDONMENT -- SHUT DOWN	3.7	(.017)	-	0.3	-	-	-
-- SELL	8.0	.050	-	0.3	-	-	-

THIRD PARTY LIABILITY

CLASSES OF POSSIBLE PLAINTIFFS

- INSULATION WORKERS
  - -- UCC HAS NO EXPOSURE

- END USERS
  - -- LOW RISK TO UCC SINCE ASBESTOS IS "ENCAPSULATED" IN MOST CUSTOMER PRODUCTS
  - -- POSSIBLE EXCEPTION IS TAPE JOINT COMPOUNDS. CALIDRIA USED IN THIS APPLICATION FOR APPROX. 10 YRS.

- CUSTOMER EMPLOYEES
  - -- DISSATISFACTION WITH LOW WORKERS' COMPENSATION AWARDS MAY LEAD TO LITIGATION AGAINST ASBESTOS SUPPLIERS

THIRD PARTY LIABILITY

- **WARNINGS TO UCC CUSTOMERS**
  - -- NO WARNING ON UCC PACKAGE FROM LATE 1963 TO JUNE 1968
  - -- "WEAK" WARNING LABEL USED ON UCC PACKAGING BEGINNING JUNE 1968
  - -- OSHA WARNING LABEL PRESCRIBED IN JUNE 1972. NOT AN ABSOLUTE BAR TO LIABILITY, AND HAS NOT BEEN TESTED IN COURTS
  - -- MASSIVE GOVERNMENT EDUCATION CAMPAIGN IN 1978 A FURTHER BASIS FOR CLAIMING PUBLIC HAS BEEN ADEQUATELY WARNED

THIRD PARTY LIABILITY

LAWSUITS

-- APPROXIMATELY 180 LAWSUITS HAVE BEEN FILED SINCE 1972, ALL BUT 5 OF WHICH HAVE INVOLVED EXPOSURE TO ASBESTOS INSULATION OR PIPING.

-- NONE OF THESE SUITS HAS PROCEEDED TO TRIAL AND THEY DO NOT REPRESENT AN ADEQUATE BASIS FOR PREDICTING THE OUTCOME OF FUTURE LITIGATION.

-- NO JUDGMENTS OR SETTLEMENTS AGAINST THE CORPORATION TO DATE.

-- OF THE 5 SUITS WHICH DO NOT INVOLVE ASBESTOS INSULATION OR PIPING, 1 SUIT HAS BEEN DISMISSED. THE OTHER 4 SUITS ARE CURRENT AND INVOLVE CUSTOMERS' EMPLOYEES. THE CORPORATION AND ITS DISTRIBUTOR ARE THE TARGET IN 2 OF THESE SUITS.

THIRD PARTY LIABILITY

LAWSUITS

-- APPROXIMATELY 180 LAWSUITS HAVE BEEN FILED SINCE 1972, ALL BUT 5 OF WHICH HAVE INVOLVED EXPOSURE TO ASBESTOS INSULATION OR PIPING.

-- NONE OF THESE SUITS HAS PROCEEDED TO TRIAL AND THEY DO NOT REPRESENT AN ADEQUATE BASIS FOR PREDICTING THE OUTCOME OF FUTURE LITIGATION.

-- NO JUDGMENTS OR SETTLEMENTS AGAINST THE CORPORATION TO DATE.

-- OF THE 5 SUITS WHICH DO NOT INVOLVE ASBESTOS INSULATION OR PIPING, 1 SUIT HAS BEEN DISMISSED. THE OTHER 4 SUITS ARE CURRENT AND INVOLVE CUSTOMERS' EMPLOYEES. THE CORPORATION AND ITS DISTRIBUTOR ARE THE TARGET IN 2 OF THESE SUITS.

RECOMMENDED STRATEGY

CONSTANT CAPACITY

- HIGHEST EARNINGS QUALITY
- LIMITED CAPITAL INVESTMENT
- LOW RISK (POTENTIAL THIRD PARTY LIABILITY LARGELY RELATED TO PRE-'77 OPERATION)

ANNUAL CHECK POINTS

- GOVERNMENT REGULATORY ACTION.
- STATUS OF ASBESTOS LITIGATION.
- MARKET DEMAND.

ACTION PLANS

- MAINTAIN STRONG TECHNICAL SERVICE IN VISCOSITY CONTROL AREAS.
- CONTINUE TO WORK WITH GOVERNMENT AGENCIES ON ASBESTOS REGULATORY MATTERS.
- SPONSOR RESEARCH ON UCC CALIDRIA.