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from [illegible]

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CONSTRUCTION PRODUCTS DIVISION

W. R. Grace & Co.

1970 LONG RANGE PLAN

VOLUME I

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CONSTRUCTION PRODUCTS DIVISION

1970 LONG RANGE PLAN

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V. ONE YEAR OBJECTIVES AND ACTION PROGRAMS - WORK PLANS

1. ACCOMPLISHMENTS VERSUS 1969 OBJECTIVES

A. Zonolite:

1. SECURE CONTROL BY PURCHASING OR LEASING OF VERMICULITE DEPOSITS IN SOUTH CAROLINA.

   Target Date: April

   Progress:

   Our evaluation indicated that the reserves would support only a very small mill operation, which would not be capable of generating an adequate return on investment. We are focusing our efforts on evaluating the deposits in Virginia.

2. DESIGN MILL FACILITY TO UTILIZE VERMICULITE IN SOUTH CAROLINA.

   Target Date: March, dependent upon success of No. 1.

   Progress:

   Cancelled.

3. FURTHER EXPLORE VERMICULITE OCCURRENCES IN NORTH CAROLINA AND VIRGINIA.

   Target Date: April

   Progress:

   Drilling conducted in Virginia during June through September has given preliminary indication that this

deposit may warrant commercial development. Considerable testing and analysis must be done before making a final assessment. We may have to conduct further exploratory drilling next summer before determining whether this area should be commercially developed or abandoned.

4. IMPROVE PROCESSING METHODS AT LIBBY.

Target Date: September

Progress:

We have found a new reagent system which is much more selective than anything used to date for flotation separation of vermiculite from the gangue material. We are piloting new processing methods and circuits, which we expect to have firmed up to be able to start to engineer revisions to the plant by the end of 1969.

5. ATTEMPT TO MARKET A FIRE RESISTANT COMPOSITE CONTAINING A HIGH PERCENTAGE OF VERMICULITE DEVELOPED TO THE PILOT STAGE BY WRC.

Target Date: April

Progress:

We were unable to interest anyone in this project because comparable type materials can and are being made at lower cost using low density Perlite.

6. FURTHER DEVELOP PROGRAM FOR MARKETING DRI-PAC PERLITE-ASPHALT ROOF DECK SYSTEM.

Target Date: December

Progress:

We are progressing on schedule. We have obtained nine applicators as of October.

7. EXTEND THE TEST MARKETING PROGRAM ON REDI-EARTH TO ADDITIONAL AREAS.

Target Date: September

Progress:

We had inconclusive results and plan a new approach using cooperative advertising in 1970.

8. CLOSE THE SPOKANE, WASHINGTON AND THE PORTLAND, OREGON PLANTS AND REPLACE WITH ONE CENTRAL FACILITY.

Target Date: December

Progress:

Project delayed until 1971.

9. CONSTRUCT A NEW POLYSTYRENE PLANT AND NEW VERMICULITE WAREHOUSE IN ATLANTA.

Target Date: August.

Progress:

We extended the lease on the present polystyrene facility until August, 1970 and will construct new plant in 1970. This project was delayed pending the development of a manufacturing plan for the Southeastern part of the U.S.

10. CONSTRUCT NEW PLANT IN ELLWOOD CITY, PENNSYLVANIA.

Target Date: June

Progress:

This was accomplished July 10, 1969.

11. CLOSE MODESTO AND CONSOLIDATE WITH SOUTH GATE, CALIFORNIA.

Target Date: April

Progress:

The consolidation was accomplished in February, 1969.

12. CONSOLIDATE TWO PLANTS IN BOCA RATON AND ONE IN HIALEAH INTO ONE LOCATION IN SOUTH FLORIDA.

Target Date: December

Progress:

Rescheduled for 1970. This project was delayed pending the development of a manufacturing plan for the Southeast part of the U.S.

13. ORGANIZE AND STAFF A RESEARCH AND DEVELOPMENT PROGRAM.

Target Date: June

Progress:

Two research professionals have been assigned to Zonolite at Cambridge. Further emphasis on Zonolite research will be given by the former CMD research group, which now serves the entire Construction Products Division.

B. Construction Materials Division:

1. INCREASE EMPHASIS ON DEALER SALES OF SERVICISED AND HORN PRODUCT LINES.

Target Date: Continuing

Progress:

We now have three hundred combined dealers and distributor for our Horn and Servicised lines. This program will continue in 1970.

2. ACCELERATE THE SEALANTS PROGRAM.

Target Date: Continuing

Progress:

Sealants sales through September were 20 percent ahead of the same period of 1968. However, prices have deteriorated causing a reduction in gross margins and we have withdrawn the acrylic type sealant because of product failures.

3. PLACE HEAVY EMPHASIS ON BITUTHENE MOISTURE BARRIER.

Target Date: 1st Quarter

Progress:

Current estimated sales of Bituthene in 1969 are 52 percent over budget and 380 percent over 1968. We have met the 1969 objectives.

4. CONTINUE TO EMPHASIZE GROWTH IN DAREX ADMIXTURES.

Target Date: December

Progress:

We have purchased E. W. Zimmerman, one of the remaining Darex distributors. We plan to acquire J-W and A. H. Harris before mid-1970 to complete this program.

Field tests of two new Darex admixture formulations were not successful. These products have been returned to the laboratory for further development work. We will not make our December target date on them.

5. INCREASE SPECIFICATION EFFORT IN KEY CITIES AND WORK ON TARGET ACCOUNT LARGE JOB PROGRAM.

Target Date: 1st Quarter

Progress:

We have added personnel in key cities but have been only moderately successful in gaining increased specification effort. We have changed our marketing program from emphasis on direct sales to sales through dealers and distributors for the Horn and Servicised product lines.

6. IMPROVE THE MARKETING, ADVERTISING, PROMOTIONAL AND PRODUCT MANAGEMENT EFFORTS.

Target Date: Continuing

Progress:

We are continuing to phase out the low volume, marginally profitable products, especially in the Horn line, and

have focused the attention of product managers on the key products. Our advertising and promotional effort has been concentrated on Bituthene.

7. INTRODUCE TWO NEW ROCK PROCESSING CHEMICALS PRODUCTS.

Target Dates: 1st and 2nd Quarters

Progress:

We introduced DDA-7 in June. This was three months after the target date because of difficulty in obtaining ASTM acceptance. We have not yet introduced Hydrophobe, the second new product, because field tests to date have not yet confirmed the optimum formulation. We are continuing to work on this and expect that we will introduce a commercial product by the end of the year.

8. HOLD MAXIMUM RPC MARKET SHARE.

Target Date: Continuing

Progress:

Following the introduction of DDA-7, we have begun to regain customers that had been lost to competition and are holding other customers that were questionable.

9. BEGIN SELF-MANUFACTURE OF BITUTHENE.

Target Date: 4th Quarter

Progress:

We deferred this project to resolve plant location, formulation and equipment design questions.

10. IMPROVE CHICAGO PLANT OPERATION.

Target Date: Continuing

Progress:

An experienced plant manager was hired September 1. Two college graduates were added to the supervisory group and regular training meetings have been conducted with the entire supervisory group. We have improved our ability to meet promised shipping dates, but have not yet resolved this problem entirely. We have focused almost 90 percent of the Chicago laboratory effort on quality efforts and have made good progress with the outgoing quality level of sealants, PVC waterstops and rubber products. Before the end of the year, we will have completed or started cost reduction projects in the PVC, rubber, cutting and warehouse fabrication departments.

11. REDUCE INVENTORY LEVELS.

Target Date: 1st Quarter and Continuing

Progress:

We reviewed the product line to eliminate slow moving items and were able to sell off some of this obsolete inventory. However, there is still a considerable quantity of obsolete or slow moving inventory on hand. We did not accomplish other planned actions because management attention was redirected to other problems which must be solved before an effective inventory policy can be specified.

12. IMPROVE THE DIVISIONAL TOTAL DISTRIBUTION POLICY.

Target Date: 4th Quarter

Progress:

We did not hire an outside consultant as planned last year because we decided first to make changes in the product line and in the marketing organization. These and other changes will accomplish this objective without the need for an outside consultant.

13. FOCUS R&D EFFORT ON HIGHEST PROFIT PRODUCT LINES.

Target Date: Continuing

Progress:

We devoted more R&D effort to Rock Products Chemicals and to Darex admixtures as scheduled.

14. FOCUS R&D EFFORT ON NEW PRODUCT DEVELOPMENT.

Target Date: Continuing

Progress:

We have begun to work on several basic new products, including products in the roofing, wall panel and concrete forming areas, as scheduled.

15. CONDUCT R&D WORK ON THE BITUTHENE PROGRAM.

Target Date: Continuing

Progress:

We have worked on formulation modifications as scheduled.

2. OBJECTIVES FOR 1970

A. Division:

1. COMPLETE TECHNICAL/ECONOMIC EVALUATIONS OF THREE SPECIFIC NEW PRODUCT OPPORTUNITIES AND BEGIN PLANS TO ENTER FIELDS WITH GOOD INDICATED RETURN ON INVESTMENT.

(a) Foam forming system for poured concrete. Conduct market study and engineering design evaluation. If favorable, design molds and begin plant installation.

Target Date: 3rd Quarter

(b) Core materials for wall panels for housing. Conduct technical/economic evaluation of vermiculite molded with binders, including the "French Board" and other binder systems. Work with HUD "Operation Breakthrough" consortium to select most favorable for development and marketing.

Target Date: 3rd Quarter

(c) Inverted insulated roofing. Conduct technical/economic evaluation of combinations of Bituthene and Dyfoam, including outdoor weathering tests during winter, spring and summer, 1969/70. Make preliminary determination of commercial feasibility.

Target Date: 3rd Quarter

2. IDENTIFY AND APPROACH ACQUISITION CANDIDATES.

Study segments of the building and construction market for profitability and fit with CPD and to identify leading companies.

Target Date: Continuing

B. Canada:

1. CONCENTRATE SALES EFFORTS ON PRODUCTS WITH BEST VOLUME AND PROFIT POTENTIAL.

Eliminate lower margin buyouts and increase specification and sales efforts on admixtures, Bituthene and rock processing chemicals.

Target Date: 2nd Quarter

C. Zonolite:

1. INCREASE VERMICULITE SUPPLY.

(a) Continue exploration in Virginia and initiate prospecting in Southern Ontario and Quebec.

(b) Install equipment at Libby to increase recovery rate.

(c) Install six D-18 furnaces in plants to improve the yield in bags obtained per ton of ore expanded.

Target Date: By end of year.

2. CONSOLIDATE MANUFACTURING AND DISTRIBUTION IN SOUTHEASTERN UNITED STATES.

Install a large-scale manufacturing plant with rail-trailer distribution terminals to serve a region now supplied by several obsolete local plants.

Target Date: 4th Quarter

3. IMPROVE AND EXPAND DYFOAM MANUFACTURING.

(a) Add a warehouse and block molding equipment at New Castle.

Target Date: 3rd Quarter

(b) Install equipment in a rental site in New England to serve the Northeastern seaboard market.

Target Date: 3rd Quarter

(c) Install a block laminating line for Vent Board and Tufhide.

Target Date: 3rd Quarter

(d) Improve output rates of plants by operating procedure changes.

Target Date: Continuing

4. IMPROVE THE BUILDING PRODUCTS SALES ORGANIZATION.

(a) Study territory coverage and district and regional control; realign and consolidate where appropriate to achieve more efficient sales coverage of the market.

Target Date: 3rd Quarter

(b) Reorganize our technical services and product manager group to improve their effectiveness and to replace the functions of the Vermiculite Institute. Appoint a Merchandise Manager.

Target Date: 2nd Quarter

5. IMPROVE THE CONCRETE PRODUCTS OPERATION.

Negotiate agreement with American Excelsior for lower cost supply at Brunswick and revamp the facilities at Terry to reduce labor.

Target Date: 3rd Quarter

D. Darex, Horn and Servicised:

1. REORGANIZE THE CAMBRIDGE AND FIELD ORGANIZATIONS TO FOCUS MANAGEMENT ATTENTION ON THE HIGH VOLUME, HIGH PROFIT MARGIN LINES AND ON THE PROBLEM LINES.

Eliminate the field regions and set up control at Cambridge separately over Darex admixtures, Bituthene waterproofing and Horn/Servicised building and engineering construction products.

Target Date: 1st Quarter

2. IMPROVE THE CHICAGO OPERATION.

Complete the reorganization of the manufacturing, order handling and inventory control operations.

Target Date: 2nd Quarter

E. Rock Processing Chemicals:

1. REGAIN MARKET SHARE.

Promote DDA-7 to regain customers lost to competition and to hold existing customers.

Target Date: Continuing

2. BEGIN SALES TO NON-CEMENT MINERALS PROCESSING INDUSTRY.

Devote sales effort to introducing products based on our existing dry dispersants technology to non-cement companies processing minerals by the dry grinding process.

Target Date: One significant new customer by end of year.

3. RESEARCH PROGRAM - 1970

Both expansion/new opportunity research programs and selected sustaining research projects that are of major importance are described in this portion of the Plan. Less significant sustaining research and technical service projects are omitted, but an estimate of their cost is given in the summary of the 1970 research department budget.

A. REVIEW OF 1969 RESEARCH PROGRAM

Accomplishments:

1. Bituthene

During 1969 a pilot line was installed and used to produce small quantities of Bituthene for field testing. The line employs crumb natural rubber instead of the latex emulsion currently being used in England. The former has performance advantages over the latter and manufacturing equipment to make it is simpler. A third method for rubberizing the bitumen was deve in the laboratory, which has possible patent protection. It will provide savings in manufacturing, and has performance advantages over both the latex and crumb rubber products. Manufacturing feasibility will be evaluated on the pilot line for field testing late in 1969 and early 1970. The R&D costs of this program were approximately $34,000.

2. DDA-7

Development work was completed and the product presented to the market at mid-year. This new interground addition should

aid CPD both to recover lost business and to penetrate the Type I cement market. The R&D costs of this program during 1969 were approximately $21,000. A program aimed at development of DDA-8 was started at mid-year and will be carried over into 1970.

3. Hydrophobe

This is a new interground air entraining agent/water repellent for masonry cement which is now being field tested. Total R&D costs, including 1968, were approximately $16,000. Annual sales potential is estimated at $200,000.

4. Zonolite Products

Asbestos fiber is a health hazard during the application of Mono-Kote. Work done late in 1969 to eliminate asbestos from the product indicates that a substitute has been found which does not deter from the properties of the original Mono-Kote. Fire tests are being conducted to confirm our findings and obtain product approval.

Serious air pollution at CPD plants where Zonolite masonry fill is produced is also hazardous to health. A new coating for the expanded vermiculite was developed which both lowers the cost of the final product and eliminates the pollution problem. The use of the new coating will require changes in manufacturing equipment which will carry over into 1970.

A portion of the mined vermiculite, Type III, cannot be used in the current product line because of its extreme friability and has, therefore, been stockpiled at both of Zonolite's mining operations. During 1969 several potential new uses were uncovered for Type III vermiculite which will be further investigated in 1970.

Disappointments:

1. WRC Liquid Curable Polymer - Sealant and Floor Coating

   Because of lack of long-term stability plus batch-to-batch inconsistency, none of the experimental polymers supplied by WRC during 1968 and 1969 could be compounded into a useful structural sealant and/or a floor coating. The R&D expenditure on this program during 1969 was approximately $10,000.

2. Room Temperature Acrylic Sealant

   Efforts to overcome certain of this product's undesirable performance characteristics were not successful and the product was withdrawn from the market at mid-year. The total R&D costs in this effort during 1968 and 1969 were approximately $35,000.

3. Concrete Admixtures

   In March, a patent was granted to Master Builders (Martin-Marietta) covering the use of compositions similar to those developed by CPD late in 1968. The priority given to con-

tinuation of our program resulted in a delay in the plans for developing:

(1) Admixture for specialty concretes,

(2) Polymer treated concretes,

(3) Concrete surface sealer.

The cost of this program in 1969 was approximately $26,000.

4. Surface Retarders

Problems in manufacture and field application forced us to withdraw the newly developed (1968 to 1969) line of concrete surface retarders from the market. Total research costs for this project were $10,000.

B. 1970 RESEARCH PROGRAM

Research effort in the expansion/new opportunity area during 1970 will be focused on four major projects.

1. Bituthene

Attempts to improve its properties, simplify its manufacture and provide patent coverage will be continued in 1970. In addition, possible modifications of Bituthene for use in roofing, pipe wrapping, and low cost damp-proofing will be examined. The estimated research and development expenditure on this project during 1970 is $50,000.

2. Roofing Systems

During the second half of 1969, experimental roofing systems using Permadeck, Bituthene, Dyfoam and vermiculite concrete were erected for performance studies in 1970 and 1971. All of the systems are designed to provide both waterproofing and insulation. An expenditure of $15,000 is planned in 1970 in the system evaluation.

3. Wall Panels

During 1969, CPD joined a consortium which submitted a proposal to HUD for participation in "Operation Breakthrough". Part of CPD's participation in the consortium involves developing wall panels for use in systems built housing. The principal goal in 1970 will be to attempt to develop a board using vermiculite that would have sufficient strength to serve as the core of the wall panel. Indoor/outdoor coatings, methods of fastening and sealing of joints between the panels will also be investigated. A small expenditure ($7,000) is tentatively planned for 1970, pending determination of the acceptance by HUD of the proposal submitted by our consortium.

4. Shrinkage Control - Mortar and Concrete

Basic work at WRC in 1964 to 1967 identified the causes of shrinkage of portland cement-based mortar and concrete and established several possible avenues of approach to control shrinkage through additives. A research expenditure of $20,000 is planned for 1970 to investigate these and other approaches.

Four major research projects in the Sustaining Research category will be conducted in 1970.

1. Concrete Admixtures

The setback in early 1969 caused by the issuance of Master Builders' patent was partially overcome by a strong research effort during the remainder of the year. This program will continue to have top priority during 1970, for which an R&D expenditure of approximately $50,000 is planned.

2. Type III Vermiculite

The program initiated in 1969 aimed at finding a use for Type III vermiculite will be continued in 1970 at an expenditure level of $25,000. One use that will be evaluated and that ties in with the wall panel project involves fabrication through the use of a suitable binder into insulating fireproofing cores for wall panels.

3. Admixtures for Specialty Concretes

During 1969 concrete made from specialty cements such as Chem Comp, PCA Jet Set Cement and Alpha Regulated Set Cement gained considerable attention. CPD must have admixtures that are compatible with these cements in order to maintain its position in the concrete industry. The planned R&D expenditure for 1970 on this project is approximately $37,000.

4. Grinding Aid and Pack Set Inhibitor for Portland Cement

During the second half of 1969, work was started towards developing DDA-8, the next generation of grinding aids for portland cement. The objective is to achieve equivalent performance at reduced cost. This work will be continued in 1970 on an expenditure level of about $30,000.

C. MAJOR RESEARCH DEPARTMENT PROBLEMS

1. Research Effort Balance

Because a good part of CPD's sales is predicated on efficient technical service, a considerable portion of the research department effort is in maintenance type research projects. In the past, this has distracted from the emphasis on new opportunity research projects. Although the magnitude of this problem was reduced in 1969, measures to control it further will be taken during 1970.

D. SUMMARY OF 1970 RESEARCH BUDGET

During 1970, the Construction Products Division will spend $863,000 in its research and development program. Research and development in the Construction Products Division includes technical service and sustaining research as well as new opportunities research, and in 1970 will also include process engineering work on new products. A breakdown of planned expenditures for 1970 compared with current estimate for 1969 is shown in the following table.

R&D EXPENDITURES

	Planned 1970 ($000)	CE 1969 ($000)
Expansion/New Opportunity Research	$162	$ 95
Maintenance/Sustaining Research:		
Sustaining Research	256	262
Technical Service	375	374
Sub-Total	631	636
R&D/Process Engineering	70	-
TOTAL RESEARCH	$863	$731

All of the planned increase in the total expendiutre is in the expansion/new opportunity research projects and the assignment of process engineering time to the product development program. The new opportunities projects have been described earlier in the research plan and all have considerable new sales potential for CPD. The work by process engineering will fill a gap in the program to take new products from the initial research stage through pilot manufacturing to ultimate commercialization. The expenditure in sustaining research and technical service will not change over that of 1969.

The principal factors accounting for these variances are as follows:

1. Net Sales

CPD net sales in 1969 of $54,552,000 are expected to be $1,040,000 (1.9%) favorable to Budget. Zonolite net sales are estimated to be $1,782,000 (6.5%) over budget; but this overrun is expected to be substantially offset by underruns in Darex/Horn/Servicised ($671,000 or 3.3%), with the U.S. and Canada sharing about equally in the underrun), and Rock Processing Chemicals ($141,000 or 5.7%). The underrun in U.S. Darex/Horn/Servicised reflects an unrealistic Budget, while the Canadian underrun is due to 1) the loss of our Ontario admixture distributor in December, 1968, and 2) the failure of construction activity in Quebec to rebound from the post-"Expo" doldrums.

Compared to 1968, both Rock Processing Chemicals and Concrete Products are expected to have lower sales in 1969 (3.6% and 1.4% respectively), whereas Zonolite and Darex/Horn/Servicised sales are estimated to overrun 1968 (7.0% and 4.4% respectively).

2. Gross Profit Percent

Gross profit percent is 1.9% unfavorable to the 1969 Budget due to the following factors:

Factors Accounting for Unfavorable Gross Profit Percent

1969 Current Estimate Vs. 1969 Budget
($000)

Manufacturing Variances in Vermiculite Mining	$ 250
Manufacturing Variances at Chicago	175
Manufacturing Variances at Expanding Plants	110
Unrealistic Margin Budget for Darex/Horn/Servicised	120
Competition in Rock Processing Chemicals	75
Unfavorable Product Mix at BPD (primarily high sales of low margin glass fiber)	90
Higher Manufacturing Costs at Concrete Products, partially offset by a higher selling price	180
	$1,000

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Manufacturing variances are expected to add $350,000 to cost of sales at Libby, offset by $100,000 of favorable variances at South Carolina. The Libby variance primarily reflects the lower vermiculite content in the mill feed than contemplated in the Budget.

The manufacturing variances at Chicago are primarily due to continued production problems with PVC waterstops and bridge pads and to a lesser extent to unrealistic DMC's on paraplastics and sealants.

The variances at the expanding plants are primarily due to the age and poor condition of some of the older Model A expanding furnaces, six of which are budgeted for replacement in 1970.

Competition from Westvaco's REAX, Union Carbide's acetic acid, and the introduction of our new higher-cost grinding aid DDA-7 account for the drop in Rock Processing Chemicals gross profit percent.

3. Operating Expenses

Total operating expenses of $14,950,000 are $137,000 (.9%) favorable to Budget due to a $190,000 (1.6%) underrun in selling expenses more than offsetting a $69,000 (2.6%) overrun in G&A expenses.

4. Extraordinary Items - Other

The 1969 estimated results reflect the gains on the sales of Perl-Tile and the Ellwood City plant (totalling $134,000 after tax) partially offset by continued costs in early 1969 associated with Zonolite's move from Chicago ($14,000 after tax). These moving expenses are $36,000 favorable to the 1969 Budget ($50,000 after tax).

C. 1970 BUDGET

We expect only a minor increase ($22,000 or 1.1%) in the Grace share of

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after-tax profit from 1969 to 1970 although net sales are projected to increase substantially ($3,441,000 or 6.3%). The major reason for the low profit improvement is the necessity to spend heavily in 1970 on Zonolite programs to benefit future years. There is no question that the Zonolite business has been "milked" over the past several years. Research and process engineering have been neglected, and little has been done to upgrade manufacturing facilities. The 1970 Zonolite Budget includes $140,000 for non-standard and start-up expenses associated with upgrading these manufacturing facilities.

1. Net Sales

CPD net sales in 1970 of $57,993,000 are expected to be $3,441,000 (6.3%) over the 1969 Current Estimate as follows:

Elements of 1970 Net Sales Increase
($000)

	1970 Budget	Variance to 1969 Estimate	
	$	$	%
Darex/Horn/Servicised	$20,424	$1,027	5.3%
Rock Processing Chemicals	2,549	199	8.5
Zonolite	31,120	2,085	7.2
Concrete Products	3,900	130	3.4
Total	$57,993	$3,441	6.3%

Increased sales of Bituthene and admixtures account for the bulk of the Darex/Horn/Servicised increase. Bituthene gross sales are expected to increase $614,000 (110%) from $558,000 in 1969 to $1,172,000 in 1970. Gross sales of admixtures are expected to increase $427,000 (7.9%) from $5,407,000 in 1969 to $5,834,000 in 1970.

The Zonolite sales increase includes $650,000 of price increases on products sold by the Building Products group. Our ability to realize these increases is one of the greatest risks in this Budget. In addition, sales

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volume of all expanded vermiculite, perlite, glass and polystyrene products are expected to increase approximately 5.5%.

The 1970 Zonolite Budget also reflects $90,000 of price increases on ore concentrate to customers and licensees. However, the total tonnage sold to customers and licensees is expected to remain at the 1969 level of 105,000 tons.

Total ore tonnage to customers, licensees and expanding plants from South Carolina and Libby increases only 2,000 tons from 288,000 in 1969 to 290,000 in 1970. The small ore requirements increase in spite of a much greater demand for expanded vermiculite is due to savings of 10,000 tons reflecting yield improvements due to the installation of D-18 furnaces at our expanding plants and the installation of Eimco extractors at Libby and South Carolina.

Concrete Products' net sales are expected to increase $130,000 (3.[illegible]) in 1970. Price increases account for $60,000 of this increase and is the major risk in this Budget.

2. Gross Profit Percent

Gross profit percent is expected to drop .2% from 33.6% in the 1969 Current Estimate to 33.4% in the 1970 Budget in spite of the price increases noted above. The major factors affecting gross profit as a percent of net sales are shown in the following table:

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FACTORS AFFECTING GROSS PROFIT PERCENT

1970 Budget Vs. 1969 Current Estimate
($000)

UNFAVORABLE FACTORS	
Darex/Horn/Servicised	
Reduction in gross margin in the U.S. primarily due to increased sales of lower margin Bituthene and price erosion on admixtures	$ (80)
Wage rate increases at Chicago	(40)
Rock Processing Chemicals	
Reduction in gross margin primarily due to replacing HEA2 with higher cost DDA-7	(40)
Concrete Products	
Cement and excelsior cost increases and wage rate increases	(100)
Zonolite Expanding and Polystyrene Plants	
Wage rate increases	(200)
Increased direct labor headcount	(100)
Increased maintenance cost	(100)
Increased depreciation	(50)
Raw material (ex vermiculite) cost increases	(100)
Non-standard and start-up expenses	(100)
Zonolite Mines	
Increased Depreciation	(150)
Non-standard and start-up expenses	(30)
Wage rate increases	(150)
Total Unfavorable Factors	$(1,240)
FAVORABLE FACTORS	
Darex/Horn/Servicised	
Direct labor headcount and overtime reduction at Chicago	110
Increase in gross margin in Canada due to improved waterstop manufacture and to self-saturation of fiberboard	30
Concrete Products	
Price increases on Permadeck	60
Manufacturing cost reduction due to elimination of special trimming, reduction in direct labor headcount and rejects	110
Zonolite	
Price increases on expanded vermiculite and ore concentrate to customers and licensees	740
Other - net	50
Total Favorable Factors	1,100
Net - Unfavorable	$ (140)

3. Operating Expenses

Operating expenses are forecast to increase $911,000 (6.1%) from $14,950,000 in 1969 to $15,861,000 in 1970. As a percent of sales, operating expenses decrease slightly from 27.4% to 27.3%.

The increase in selling expenses of $435,000 (3.7%) reflects normal inflationary increases.

The increase in G&A expenses of $365,000 (13.5%) is due to 1) normal inflationary increases of $135,000 (5%), 2) the expenditure of $130,000 in 1970 on process development projects for polystyrene, vermiculite and Bituthene, and 3) market development effort ($100,000) on new products, including French Board and Foam Form.

The increases in R&D expenses of $108,000 (22.1%) include 1) a $64,000 increase for vermiculite ore prospecting on the east coast, 2) a $67,000 increase in admixtures to develop a new product in order to protect our future in this market, 3) a $30,000 increase to develop new cement grinding aids, 4) a $15,000 increase for additional research on vermiculite, 5) partially offset by a $68,000 decrease in research on Horn and Servicised products.

4. Other Income/(Expense)

Other income/(expense) is unfavorable $80,000 in 1970 over 1969 mainly due to increased absorption of Cambridge expenses ($57,000) resulting from the move of the Polyfibron Division from the Cambridge offices.

5. Extraordinary Items - After Tax

The absence of favorable extraordinary items after tax in 1970 results in $170,000 less after-tax profit in 1970 than 1969. This is due to the

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elimination of depletion and the gain on the sale of Ellwood City and Perl-Tile in 1969.

6. Management's Opinion of the 1970 Budget

The 1970 Budget is a tough target for our people to make and was purposely so set. We believe it is realistic but an important element to our success will be the level of construction activity in our areas of the market.

We expect to experience a downturn in general construction activity in 1970 from the level experienced in 1969. The curtailment of government construction spending will have an unfavorable effect on non-housing construction. The current high interest rates will also have some impact, although this factor is more severe in the new housing construction market, and only a small percentage of our total sales are tied to this market.

However, the price increases, increased sales of products with a low market penetration, such as Bituthene and polystyrene, and a more aggressive marketing program with vermiculite products are expected to more than offset the decline in construction activity.

Although we believe the 1970 Budget represents a realistic appraisal of the key factors which can affect our 1970 performance, there are certain unpredictable elements on the downside which could result in underrunning the 1970 profit Budget. These include 1) a severe downturn in non-housing construction activity, 2) strikes in the construction industry, 3) failure to make our price increases stick in Building Products ($650,000), 4) failure to make our Permadeck price increases stick due to increased competition from Elberton ($60,000), 5) failure of our new grinding aid, DDA-7, to perform as we expect relative to Westvaco's REA[illegible], and 6) failure to get the improvement in ore concentrate recovery at Libby [illegible]ons per day to 575 tons per day).

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D. FOUR-YEAR FORECAST

1. Net Sales

CPD's net sales are projected to increase $19,729,000 from $57,993,000 in 1970 to $77,722,000 in 1974, an average annual growth rate of 7.6%. During this period, Grace share in after-tax profit is projected to increase from $2,051,000 in 1970 to $4,109,000 in 1974, or at a rate of 19.0% per year.

Zonolite sales of $45,517,000 in 1974 are expected to be $14,397,000 (10.0% per year) higher than 1970. Approximately $4,000,000 of the sales increase is due to price increases on expanded vermiculite and perlite averaging approximately 3% per year. The balance of the Zonolite sales increase is due to 1) increasing the penetration of concrete aggregate (from approximately 2% to 4%) in the northern United States ($1,900,000), 2) sales of French Board, a new fireproofing product using vermiculite ($1,900,000), 3) sales of vermiculite "peat" pots, cattle feed roughage, and seed enscapulation products ($400,000), 4) normal growth of existing vermiculite, polystyrene and perlite products ($5,100,000), and 5) an increase in ore sales to customers and licensees ($1,100,000 of which $600,000 represents price increases.

Darex/Horn/Servicised sales are expected to increase $4,216,000 (4.8% per year) from $20,424,000 in 1970 to $24,640,000 in 1974. This increase is primarily due to Bituthene, admixtures, and to a lesser degree, Servicised products.

Rock Processing Chemicals sales are projected to increase $916,000 (an average annual increase of 8.0%) to $3,465,000 in 1974. Approximately two-thirds of this increase is expected to be sales of new products resulting from research efforts in the early 1970's.

2. Gross Profit Percent

Gross profit as a percent of sales is projected to increase from 33.4% to 34.1%, contributing $544,000 to pre-tax profits in 1974. Gross profit percent improves in all four profit centers as new, higher margin products, price increases and changing product mix more than offset higher depreciation from the capital spending program and other manufacturing cost increases.

3. Operating Expenses

Total operating expenses, although increasing $3,949,000 (average annual increase of 5.7% per year) decline as a percent of net sales from 27.3% in 1970 to 25.4% in 1974. The drop in selling and G&A expenses as a percent of net sales more than offset a small increase in research (from 1.0% to 1.4%), the latter being necessary to an aggressive new product development program, principally in finding new uses for vermiculite and prospecting.

E. CAPITAL BUDGET AND FORECAST

Total capital spending over the five-year period is estimated at $19,500,000 more than half of which ($12,100,000) will be spent in 1970 and 1971.

Spending on Zonolite maintenance, expansion and cost reduction projects amounts to $16,000,000, or 82% of the total over the five-year period. Of this, $8,200,000 is slated for the Libby ($7,000,000) and South Carolina ($1,200,000) mines and mills. Most of the South Carolina capital is for equipment replacement projects.

The situation at Libby has reached critical proportions. Prior to 1969, capital spending was mostly for replacement of equipment. For the past several years, the percentage of vermiculite in the mill feed has been declining, and

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mining and milling costs (particularly labor), have been increasing as has the demand for ore. Milling facilities were operating at capacity in 1969, and we still had to purchase 6,000 tons of ore from Africa and reduce our ore inventories at the mines.

We are now at the point where we must introduce labor saving projects increase the recovery of ore concentrate, reduce the rock content, and increase ore output to keep up with expected demand. We expect that projects currently underway (tranfer point, scrubbing and desliming, and extractor) will allow us to barely meet ore demand in 1970. We must make the investment at Libby in order to maintain and improve profitability.

The facilities situation is also critical at the vermiculite expanding and polystyrene plants. In the past, capital expenditures have been far below the level required just to maintain these facilities in current condition. Also, many of these plants do not have room for expansion. As a result, the capital budget and forecast contemplates $7,800,000 of spending for relocating and modernizing to eliminate safety hazards, introduce cost reductions, and increase capacity.

Other than Zonolite, the largest spending project is for a Bituthene facility. The capital budget and forecast includes $805,000 to be spent in 1970 and 1971 for the project, which includes the acquisition of a site near Chicago. This site will also be used to consolidate the present Chicago and Milwaukee Zonolite plants in 1971 (at an additional capital cost of $450,000).

F. RETURN ON GRACE CAPITAL EMPLOYED

The following table summarizes the returns on Grace Capital Employed for the period 1970 through 1974:

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Return on Grace Capital Employed

1970 - 1974

	Darex/Horn/ Servicised	Rock Processing Chemicals	Zonolite	Concrete Products	Total
1970	3.6%	21.9%	9.4%	7.2%	7.3%
1971	4.0	22.3	7.7	9.8	6.9
1972	5.1	23.1	9.0	11.3	8.1
1973	5.6	26.9	10.7	11.3	9.4
1974	6.5	30.9	12.3	11.3	10.8

The returns for each of the four profit centers are calculated based on operating profit taxed at 49.2% in 1970 and 48.0% in 1971-1974. In the case of Zonolite, however, the tax rate was adjusted for depletion. Items below the operating profit line were considered only in the consolidated Construction Products Division.

As mentioned in the BACKGROUND section, the budget and forecast assumes the status quo for the Darex/Horn/Servicised business.

The increase in returns on GCE from 21.9% to 30.9% in 1974 for Rock Processing Chemicals is primarily due to the introduction of new products in 1971 and 1972 resulting from our increased research effort.

The Zonolite return on GCE drops to 7.7% in 1971 increasing to 12.3% in 1974. This reflects the capital spending program and the consequent increase in depreciation, with the benefits of this program appearing in the latter part of the five-year period.

The Concrete Products improvement reflects 1) lower excelsior costs (principal raw material) from an agreement we expect to enter into with American Excelsior Co. and 2) improved manufacturing situation at the Terry, Mississippi, plant (elimination of unfavorable manufacturing variances and increased production capacity).

Percent of Net Sales					
1969 Estimate	1970 Budget	1971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast
100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
33.6	33.4	32.9	33.3	33.9	34.1
21.4	20.9	20.4	20.0	19.7	19.2
5.0	5.3	5.0	4.9	4.8	4.7
0.9	1.0	1.1	1.2	1.3	1.4
0.1	0.1	0.1	0.1	0.1	0.1
27.4	27.3	26.6	26.2	25.9	25.4
6.2	6.1	6.3	7.1	8.0	8.7
-	-	-	-	-	-
0.1	(0.1)	-	-	-	-
6.3	6.0	6.3	7.1	8.0	8.7
2.8	2.3	2.5	2.6	3.0	3.3
3.4	3.6	3.8	4.5	5.0	5.4
3.4	3.5	3.7	4.4	4.9	5.3
0.1	-	-	-	-	-
0.2	-	-	-	-	-
3.7	3.5	3.7	4.4	4.9	5.3

ce '69 Budget Favorable) %	1970 Budget	Variance '70 Budget Vs. '69 Estimate Favorable/(Unfavorable) Amount	%	1971 Forecast	1972 Forecast	1973 Forecast
1.9%	$57,993	$3,441	6.3%	$61,995	$66,931	$71,864
(3.5)	19,361	1,021	5.6	20,425	22,327	24,353
1.6	12,125	(435)	(3.7)	12,630	13,406	14,141
(2.6)	3,071	(365)	(13.5)	3,119	3,280	3,487
0.6	597	(108)	(22.1)	720	794	919
16.7	68	(3)	(4.6)	71	75	78
0.9	15,861	(911)	(6.1)	16,540	17,555	18,625
(13.3)	3,500	110	3.2	3,885	4,772	5,728
	(2)	3	-	(2)	(2)	(2)
	(55)	(80)	-	2	2	2
(12.0)	3,443	33	1.0	3,835	4,772	5,728
9.9	1,347	186	12.1	1,536	1,761	2,140
(13.7)	2,096	219	11.7	2,349	3,011	3,588
(14.2)	2,051	212	11.5	2,300	2,958	3,531
(50.0)	-	(70)	-	-	-	-
-	-	(120)	-	-	-	-
(9.2)	2,051	22	1.1	2,300	2,958	3,531
.4	28,206	(4,603)	(19.5)	33,444	36,412	37,414
	7.3%			6.9%	8.1%	9.4%
.3	45,872	(5,886)	(14.7)	53,043	58,360	61,966
	7.6%			7.3%	8.2%	9.2%

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SUMMARY OF PROFIT PLAN
($000)

REPORTING UNIT - CONSTRUCTION PRO

	1968 Actual	1969 Budget	1969 Estimate	'69 Fe
Net Sales	$51,964	$53,512	$54,552	
Gross Profit on Sales	17,963	18,998	18,340	
Operating Expenses				
Selling	11,452	11,880	11,690	
General & Administrative	2,423	2,637	2,706	
Research & Development	445	492	489	
Depreciation Not Charged to Production	73	78	65	
Total Operating Expenses	14,393	15,087	14,950	
Net Operating Profit	3,570	3,911	3,390	
Interest Income/(Expense)	3	(20)	(5)	
Other Income/(Expense)	(211)	(15)	25	
Net Income Before Taxes	3,362	3,876	3,410	
Taxes On Income	1,476	1,702	1,533	
Net Income After Taxes	1,886	2,174	1,877	
Grace Share in Net Income After Taxes	1,849	2,144	1,839	
Extraordinary Items (Grace Share)				
Investment Tax Credit	83	140	70	
Other - After Tax	(69)	(50)	120	
Grace Share in Total Net Income	1,863	2,234	2,029	
Grace Capital Employed (Average)	21,764	23,703	23,603	
Percent Return	8.6%	9.4%	8.6%	
Gross Assets (Average)	37,373	40,097	39,986	
Percent Return	9.6%	9.8%	8.5%	

	Percent of Net Sales					
et	1969 Estimate	1970 Budget	1971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast
0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
0	37.1	37.9	37.5	38.1	38.4	38.6
9	28.9	28.9	28.2	27.8	27.8	27.3
0	4.1	4.2	4.1	4.1	4.1	4.1
3	1.2	1.2	1.4	1.4	1.5	1.6
2	0.1	0.1	0.1	0.1	0.1	0.1
4	34.3	34.4	33.8	33.4	33.5	33.1
6	2.8	3.5	3.7	4.7	4.9	5.5
7	1.5	1.7	1.8	2.3	2.4	2.6
9	1.3	1.8	1.9	2.4	2.5	2.9

1971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast	1968 Actual	1969 Budget	1969 Estimate	Perc ly Bud
$21,255	$22,360	$23,345	$24,640	100.0%	100.0%	100.0%	100.
7,980	8,525	8,965	9,520	37.5	39.0	37.1	37.
5,985	6,222	6,477	6,742	29.1	27.9	28.9	28.
880	912	955	1,000	4.6	4.0	4.1	4.
294	323	358	403	1.6	1.3	1.2	1.
21	23	25	25	0.2	0.2	0.1	0.
7,180	7,480	7,815	8,170	35.5	33.4	34.3	34.
800	1,045	1,150	1,350	2.0	5.6	2.8	3.
384	502	552	648	1.1	2.7	1.5	1.
416	543	598	702	.9	2.9	1.3	1.
10,394	10,669	10,699	10,797				
4.0%	5.1%	5.6%	6.5%				
14,919	15,611	16,059	16,589				
5.4%	6.7%	7.2%	8.1%				

PROFIT PLAN DATA
(000)

WORN/SERVICISED

'69 Estimate	Variance '69 Estimate Vs. '69 Budget Favorable/(Unfavorable) Amount	%	1970 Budget	Variance '70 Budget Vs. '69 Estimate Favorable/(Unfavorable) Amount	%
397	$(671)	(3.3)%	$20,424	$1,027	5.3%
189	(634)	(8.1)	7,735	546	7.6
598	1	-	5,907	(309)	(5.5)
789	19	2.4	848	(59)	(7.5)
239	20	7.7	253	(14)	(5.9)
20	11	-	21	(1)	(5.0)
646	51	0.8	7,029	(383)	(5.8)
543	(583)	(51.8)	706	163	30.0
288	265	47.9	347	(59)	(20.5)
2..	(318)	(55.5)	359	104	40.8
450	(64)	(.7)	9,852	(402)	(4.3)
7%			3.6%		
404	(337)	(2.6)	13,988	(584)	(4.4)
1%			5.0%		

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SUMMARY OF PROFIT PLAN
($000)

REPORTING UNIT - DAREX/HORN/S

'69
Fe

	1968 Actual	1969 Budget	1969 Estimate
Net Sales	$18,578	$20,068	$19,397
Gross Profit on Sales	6,970	7,823	7,189
Operating Expenses			
Selling	5,414	5,599	5,598
General & Administrative	858	808	789
Research & Development	292	259	239
Depreciation Not Charged to Production	26	31	20
Total Operating Expenses	6,590	6,697	6,646
Net Operating Profit	380	1,126	543
Taxes on Income	205	553	288
Net Income After Taxes	175	573	255
Grace Capital Employed (Average)	9,069	9,386	9,450
Percent Return	1.9%	6.1%	2.7%
Gross Assets (Average)	12,781	13,067	13,404
Percent Return	3.0%	8.6%	4.1%

Percent of Net Sales					
1969 timate	1970 Budget	1971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast
00.0%	100.0%	100.0%	100.0%	100.0%	100.0%
39.3	37.7	38.2	38.0	37.9	38.2
14.9	14.4	14.4	14.8	14.2	13.7
4.3	4.3	4.3	4.2	4.1	4.0
3.3	4.3	4.7	4.5	4.3	4.2
0.1	0.1	0.2	0.2	0.1	0.1
22.6	23.1	23.6	23.7	22.7	22.0
1[illegible]	14.6	14.6	14.3	15.2	16.2
8.8	7.1	7.0	6.9	7.3	7.8
7.9	7.5	7.6	7.4	7.9	8.4

971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast	1968 Actual	1969 Budget	1969 Estimate	1970 Budget	19 For
				Percent of Net				
,675	$2,870	$3,165	$3,465	100.0%	100.0%	100.0%	100.0%	10
,020	1,090	1,200	1,325	44.2	42.7	39.3	37.7	3
385	425	450	475	11.3	13.2	14.9	14.4	1
115	120	130	140	3.4	4.1	4.3	4.3	
125	130	135	145	2.7	3.5	3.3	4.3	
5	5	5	5	0.1	0.1	0.1	0.1	
630	680	720	765	17.5	20.9	22.6	23.1	2
[illegible]	410	480	560	26.7	21.8	16.7	14.6	1
167	197	230	269	14.1	11.5	8.8	7.1	
203	213	250	291	12.6	10.3	7.9	7.5	
910	922	928	941					
.3%	23.1%	26.9%	30.9%					
,586	1,653	1,715	1,782					
.6%	24.8%	28.0%	31.4%					

PLAN DATA

:ESSING CHEMICALS

Variance '69 Estimate Vs. '69 Budget Favorable/(Unfavorable) Amount	Variance '69 Estimate Vs. '69 Budget Favorable/(Unfavorable) %	1970 Budget	Variance '70 Budget Vs. '69 Estimate Favorable/(Unfavorable) Amount	Variance '70 Budget Vs. '69 Estimate Favorable/(Unfavorable) %	1971 Forecast	1972 Forecast
$(141)	(5.7%)	$2,549	$ 199	8.5%	$2,675	$2,8[illegible]
(139)	(13.1)	962	38	4.1	1,020	1,09[illegible]
(21)	(6.4)	366	(16)	(4.6)	385	[illegible]
-	-	110	(9)	(8.9)	115	[illegible]
8	9.3	109	(31)	(39.7)	125	[illegible]
-	-	3	-	-	5	5
[illegible]	(2.5)	588	(56)	(10.5)	630	68[illegible]
(152)	(27.9)	374	(18)	(4.6)	390	[illegible]
80	27.9	184	23	11.1	187	[illegible]
(72)	(28.0)	190	5	2.7	203	[illegible]
32	3.8	866	(64)	(8.0)	910	92[illegible]
		21.9%			22.3%	23.[illegible]
(58)	(4.2)	1,495	(51)	(3.5)	1,586	1,65[illegible]
		25.0%			24.6%	24.[illegible]

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SUMMARY OF PROFIT PLAN
($000)

REPORTING UNIT - ROCK PROCESSI

	1968 Actual	1969 Budget	1969 Estimate
Net Sales	$2,437	$2,491	$2,350
Gross Profit on Sales	1,078	1,063	924
Operating Expenses			
Selling	275	329	350
General & Administrative	84	101	101
Research & Development	66	86	78
Depreciation Not Charged to Production	3	3	3
Total Operating Expenses	428	519	532
Net Operating Profit	650	544	392
Taxes on Income	343	287	207
Net Income After Taxes	307	257	185
Grace Capital Employed (Average)	693	834	802
Percent Return	44.3%	30.8%	23.1%
Gross Assets (Average)	1,383	1,386	1,444
Percent Return	47.0%	39.2%	27.1%

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Percent of Net Sales							
1968 Actual	1969 Budget	1969 Estimate	1970 Budget	For[illegible]	1972 Forecast	1973 Forecast	1974 Forecast
100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
33.1	33.6	32.5	31.4	30.6	31.0	31.9	32.2
19.7	20.2	18.4	17.5	17.2	16.8	16.5	16.1
4.7	5.6	5.5	5.8	5.5	5.4	5.3	5.1
0.3	0.5	0.6	0.8	0.9	0.9	1.0	1.2
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
24.9	26.5	24.6	24.2	23.7	23.2	22.9	22.5
8.2	7.1	7.9	7.2	6.9	7.8	9.0	9.7
— —	2.5	3.2	2.5	2.3	2.3	2.8	3.1
5.0	4.6	4.7	4.7	4.6	5.5	6.2	6.6

1971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast	1968 Actual	1969 Budget	1969 Estimate	Percent of Ne 1970 Budget	Fo
34,065	$37,601	$41,254	$45,517	100.0%	100.0%	100.0%	100.0%	1
10,435	11,672	13,148	14,656	33.1	33.6	32.5	31.4	
5,858	6,357	6,812	7,332	19.7	20.2	18.4	17.5	1
1,895	2,019	2,173	2,322	4.7	5.6	5.5	5.8	
301	341	426	541	0.3	0.5	0.6	0.8	
36	38	39	40	0.2	0.2	0.1	0.1	
8,090	8,755	9,450	10,235	24.9	26.5	24.6	24.2	2
2,345	2,917	3,698	4,421	8.2	7.1	7.9	7.2	
	852	1,144	1,431	3.2	2.5	3.2	2.5	
1,564	2,065	2,554	2,990	5.0	4.6	4.7	4.7	
0,291	22,977	23,946	24,383					
7.7%	9.0%	10.7%	12.3%					
3,615	38,073	41,069	43,645					
7.0%	7.7%	9.0%	10.1%					

FIT PLAN DATA

(EX CONCRETE PRODUCTS)

te	Variance '69 Estimate Vs. '69 Budget Favorable/(Unfavorable) Amount	%	1970 Budget	Variance '70 Budget Vs. '69 Estimate Favorable/(Unfavorable) Amount	%
35	$1,782	6.5%	$31,120	$2,085	7.2%
28	277	3.0	9,764	336	3.6
42	168	3.0	5,450	(108)	(2.0)
96	(82)	(5.4)	1,804	(208)	(13.0)
72	(25)	(17.0)	235	(63)	(36.6)
33	8	19.5	35	(2)	(6.1)
43	69	1.0	7,524	(381)	(5.3)
85	346	17.8	2,240	(45)	(2.0)
1	(237)	(35.0)	769	146	16.0
70	109	8.6	1,471	101	7.4
02	142	1.2	15,645	(4,143)	(36.0)
%			9.4%		
64	553	2.4	27,573	(5,209)	(23.3)
%			8.1%		

093983

SUMMARY OF PROFIT PLAN
($000)

REPORTING UNIT - ZONOLITE (EX CON

	1968 Actual	1969 Budget	1969 Estimate
Net Sales	$27,127	$27,253	$29,035
Gross Profit on Sales	8,975	9,151	9,428
Operating Expenses			
Selling	5,351	5,510	5,342
General & Administrative	1,284	1,514	1,596
Research & Development	87	147	172
Depreciation Not Charged to Production	41	41	33
Total Operating Expenses	6,763	7,212	7,143
Net Operating Profit	2,212	1,939	2,285
Taxes on Income	848	678	915
Net Income After Taxes	1,364	1,261	1,370
Grace Capital Employed (Average)	10,503	11,644	11,502
Percent Return	13.0%	10.8%	11.9%
Gross Assets (Average)	20,772	22,917	22,364
Percent Return	10.6%	8.5%	10.2%

093984

			Percent of Net Sales				
968 Actual	1969 Budget	1969 Estimate	1970 Budget	1971 Forecast	1972 Forecast	1973 Forecast	1974 Forecast
0.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
4.6	26.0	21.2	23.1	24.8	25.4	25.4	25.4
0.8	12.0	10.6	10.3	10.1	9.8	9.8	9.8
5.2	5.8	5.9	5.9	5.7	5.6	5.6	5.6
-	-	-	-	-	-	-	-
-	-	0.2	0.2	0.2	0.2	0.2	0.2
5.0	17.8	16.7	16.4	16.0	15.6	15.6	15.6
3.6	8.2	4.5	6.7	8.8	9.8	9.8	9.8
4.2	4.3	2.4	3.3	4.2	4.7	4.7	4.7
4.1	3.9	2.1	3.4	4.5	5.1	5.1	5.1

get)	1970 Budget	Variance '70 Budget Vs. '69 Estimate Favorable/(Unfavorable) Amount	Variance '70 Budget Vs. '69 Estimate Favorable/(Unfavorable) %	1971 Forecast	1972 Forecast	1973 Forecast	197 Forec
	$3,900	$ 130	3.4%	$4,000	$4,100	$4,100	$4,1(
	900	101	12.6	990	1,040	1,040	1,0(
	402	(2)	(0.5)	402	402	402	4(
	229	(9)	(4.1)	229	229	229	2(
	-	-	-	-	-	-	
	9	-	-	9	9	9	
	640	(11)	(1.7)	640	640	640	64
	260	90	52.9	350	400	400	40
	128	(38)	(42.2)	168	192	192	19
	132	52	65.0	182	208	208	20
	1,843	6	.3	1,849	1,844	1,841	1,83
	7.2%			9.8%	11.3%	11.3%	11.3%
	2,816	(42)	(1.5)	2,923	3,023	3,123	3,22
	9.2%			12.0%	13.2%	12.8%	12.4%

093986

SUMMARY OF PROFIT PLAN
($000)

REPORTING UNIT - CONCRETE

'69 F

	1968 Actual	1969 Budget	1969 Estimate
Net Sales	$3,822	$3,700	$3,770
Gross Profit on Sales	940	961	799
Operating Expenses			
Selling	412	442	400
General & Administrative	197	214	220
Research & Development	-	-	-
Depreciation Not Charged to Production	3	3	9
Total Operating Expenses	612	659	629
Net Operating Profit	328	302	170
Taxes On Income	173	159	90
Net Income After Taxes	155	143	80
Grace Capital Employed (Average)	1,499	1,839	1,849
Percent Return	10.3%	7.8%	4.3%
Gross Assets (Average)	2,437	2,727	2,774
Percent Return	13.5%	11.1%	6.1%

	(38)	(39)	(40)	(41)
	Grace Capital Employed			
Constr.Goodwill % After-Tax Returns	Includ. Constr.Goodwill $000	Constr.Goodwill % After-Tax Returns	After-Tax Cambridge Allocation ($000)	Net Income After Cambridge Allocation ($000)
33.4%	$ -	- %	$ -	$ 296
26.5	-	-	-	262
20.3	2,370	10.9	-	258
4.4	2,510	2.5	24	30
9.3	2,599	5.3	26	113
10.4	2,939	6.5	38	154
6.7	2,940	4.2	42	81
9.7	2,943	6.0	46	132
12.4	2,949	7.8	47	182
13.8	2,944	8.7	47	208
13.9	2,941	8.7	47	208
13.9	2,936	8.7	47	208
	- %		NS	(22.8)%
	(.1)		2.3%	20.7
	(.3)		(10.5%)	(47.4)%
	.2 %		(9.5)	63.0

093989

(33)		(34)	(35)	(36)	(37)
		Gross Assets			Grace Capi
Net Income After Taxes ($000)		$000	% Pre-Tax Returns	Exclud. Constr.Goodwill $000	% After-Tax Returns
$ 296	1964	$ 1,850	30.4%	$ 886	33.4%
262	1965	1,930	25.3	988	26.5
258	1966	2,260	20.7	1,270	20.3
63	1967	2,237	5.0	1,419	4.4
139	1968	2,437	10.5	1,499	9.3
192	1969 B	2,727	13.7	1,839	10.4
123	1969 E	2,774	9.0	1,849	6.7
178	1970 B	2,816	12.4	1,843	9.7
229	1971 F	2,923	15.1	1,849	12.4
255	1972 F	3,023	16.2	1,844	13.8
255	1973 F	3,123	15.7	1,841	13.9
255	1974 F	3,223	15.2	1,836	13.9
(16.0)%	1946-1969 E	8.5%		15.8%	
15.7	1969 E-1974 F	3.0		(.1)	
(35.9)%	1969 E vs. 1969 B	(1.7%)		(.5)	
44.7	1970 B vs. 1969 E	(1.5)		.3	
% of Net Sales		Turnover		Turnover	
7.7%		2.1		4.3	
6.5		2.1		4.1	
5.6		2.0		3.6	
1.6		1.6		2.5	
3.6		1.6		2.5	
5.2		1.4		2.0	
3.3		1.4		2.0	
4.4		1.4		2.1	
5.7		1.4		2.2	
6.2		1.4		2.2	
6.2		1.3		2.2	
6.2		1.3		2.2	

	(29)	(30)	(31)	(32)
Other Income(Expense) ($000)	Net Profit Before Taxes ($000)	Federal Income Taxes ($000)	Net Profit After Taxes ($000)	Investment Tax Credit ($000)
$ (6)	$ 562	$ 270	$ 292	$ 4
14	489	235	254	8
7	468	225	243	15
12	111	53	58	5
(120)(3)	257	136	121	16
-	374	197	177	15
-	264 250	139 132	125 118	5
-	350	172	178	-
-	440	211	229	-
-	490	235	255	-
-	490	235	255	-
-	490	235	255	-
	(14.9)%	(13.3)%	(16.5)%	4.6%
	14.4	12.2	16.6	NS
-	(33.2)%	33.0 %	(33.3)%	(66.7)%
-	40.0	(30.3)	50.8	-

Net Sales		Effective Tax Rate	% of Net Sales
(.1)%	14.7%	48.0%	7.6%
.3	12.2	48.0	6.3
.1	10.2	48.0	5.3
.3	3.1	48.0	1.6
3.2)	6.7	52.8	3.2
-	10.1	52.8	4.8
-	6.6	52.8	3.1
-	9.0	49.2	4.4
-	11.0	48.0	5.7
-	12.0	48.0	6.2
-	12.0	48.0	6.2
-	12.0	48.0	6.2

Includes Terry plant Startup of $92,000

	(24)	(25)	(26)	(27)	(28)
	Operating Expenses ($000)				
	Selling	G & A	Total (2)	Operating Profit ($000)	Other Income (Expense) ($000)
1964	$ NA	$ NA	$ 551	$ 568	$ (6)
1965	NA	NA	583	475	14
1966	NA	NA	687	461	7
1967	NA	NA	617	99	12
1968	414	149	563	377	(120) (3)
1969 B	444	143	587	374	-
1969 E	394 402	141 147	535 549	250	-
1970 B	404	146	550	350	-
1971 F	404	146	550	440	-
1972 F	404	146	550	490	-
1973 F	404	146	550	490	-
1974 F	404	146	550	490	-
1964-1969 E	NS%	NS%	(.1)%	(15.1)%	NS
1969 E-1974 F	.1	(.1)	-	14.4	NS
1969 E vs. 1969 B	9.5 %	(2.8%)	6.5 %	(33.2)%	-
1970 B vs. 1969 E	(.5)	.7	(.2)	40.0	-
	% of Total Net Sales			% of Net Sales	
1964	NA%	NA%	14.4%	14.8	(.1)%
1965	NA	NA	14.5	11.9	.3
1966	NA	NA	15.0	10.1	.1
1967	NA	NA	17.2	2.8	.3
1968	10.8	3.9	14.7	9.0	(3.2)
1969 B	12.0	3.9	15.9	10.1	-
1969 E	10.7	3.9	14.6	6.6	-
1970 B	10.4	3.7	14.1	9.0	-
1971 F	10.1	3.6	13.7	11.0	-
1972 F	9.8	3.6	13.4	12.0	-
1973 F	9.8	3.6	13.4	12.0	-
1974 F	9.8	3.6	13.4	12.0	-

(2) Breakdown not available in 1964-67 or a comparable basis.

(3) Includes T

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(14)	(15)	(16)	(17)	(18)	(19)	(20)	
Product Line				Gross Profit by Product Line			
Concrete Slabs	Installation Materials	Erection	Total	Permadeck ($000)	Permadeck (¢/Sq. Ft.)	Concrete Channel Slabs	Insta Mat
37	$ 271	$ 293	$ 2,713	$ 1,009	8.7¢	$ 38	$
49	253	349	2,944	912	8.9	101	
60	331	526	3,428	968	7.7	134	
23	247	444	2,870	684	6.4	18	
20	235	279	2,882	805	6.6	17	
77	177	230	2,730	884	6.3	35	
30	191 165	196 230	2,971	804 794	5.6	(19) (10)	
30	165	230	3,000	885	6.1	-	
30	170	220	3,010	980	6.5	-	
80	170	250	3,060	1,010	6.7	20	
80	170	250	3,060	1,010	6.7	20	
80	170	250	3,060	1,010	6.7	20	
							Averag
	(9.4)%	(4.8)%	1.8%	(4.5)%	(8.4)%	(17.4)%	(19
	0.6	1.7	0.6	4.9	3.7	24.8	(3
							% Vari
.9%)	6.8%	-	(8.5)%	(10.2)%	(11.1)%	-	(16
-	-	-	(1.0)	11.5	8.9	-	
Product Line				% of Net Sales by Product			
.0%	77.0%	103.2%	70.8%	37.1%		8.0%	23
.4	81.1	104.2	73.6	37.9		10.6	18
.3	79.6	108.0	74.9	33.7		16.7	20
.7	79.4	112.7	80.0	29.2		3.3	20
.8	81.6	114.3	75.4	29.6		7.2	18
.5	80.8	100.0	74.0	29.1		16.5	19
.5	82.5	109.5	78.8	25.3		(4.5)	17
	82.5	109.5	76.9	27.1		-	17
	85.0	110.0	75.3	29.1		-	15
.3	85.0	108.7	74.6	30.0		6.7	15
.3	85.0	108.7	74.6	30.0		6.7	15.
.3	85.0	108.7	74.6	30.0		6.7	15.

093993

(12)	(13)	(14)	(15)	(16)	(17)	(18)
Cost of Sales by Product Line						
Permadeck ($000)	Permadeck (¢/Sq. Ft.)	Concrete Channel Slabs	Installation Materials	Erection	Total	P ($000)
$ 1,712	14.8¢	$ 437	$ 271	$ 293	$ 2,713	$ 1,00
1,493	14.6	849	253	349	2,944	92
1,902	15.2	669	331	526	3,428	96
1,656	15.4	523	247	444	2,870	68
2,148	15.6	220	235	279	2,882	00
2,155	15.4	177	177	230	2,739	88
2,346	16.5	230	165	230	2,971	79
2,375	16.4	230	165	230	3,000	88
2,390	15.9	230	170	220	3,010	98C
2,360	15.7	280	170	250	3,060	1,01C
2,360	15.7	280	170	250	3,060	1,01C
2,360	15.7	280	170	250	3,060	1,01C
6.5%	2.2%	(12.0)%	(9.4)%	(4.8)%	1.8%	(4.5)
.1	(1.0)	4.0	0.6	1.7	0.6	4.9
(8.9)%	(7.1)%	(29.9%)	6.8%	-	(8.5)%	(10.2)
(1.2)	.6	-	-	-	(1.0)	11.5
% of Net Sales by Product Line						
62.9%		92.0%	77.0%	103.2%	70.8%	37.1%
62.1		80.4	81.1	104.2	73.6	37.9
66.3		83.3	79.6	108.0	74.9	33.7
70.8		96.7	79.4	112.7	80.0	29.2
70.4		92.8	81.6	114.3	75.4	29.6
70.9		83.5	80.6	100.0	74.0	29.1
74.7		104.5	82.5	109.5	78.8	25.3
72.9		-	82.5	109.5	76.9	27.1
70.9		-	85.0	110.0	75.3	29.1
70.0		93.3	85.0	108.7	74.6	30.0
70.0		93.3	85.0	108.7	74.6	30.0
70.0		93.3	85.0	108.7	74.6	30.0

(8)	(9)	(10)	(11)	
Net Sales by Product Line				
Concrete Channel Slabs	Installation Materials	Erection	Total	Year
$ 475	$ 352	$ 284	$3,832	1964
950	312	335	4,002	1965
803	416	487	4,576	1966
541	311	304	3,586	1967
237	288	244	3,822	1968
212	210	230	3,700	1969 B
220	200	210	3,770	1969 E
230	200	210	3,900	1970 B
230	200	200	4,000	1971 F
300	200	230	4,100	1972 F
300	200	230	4,100	1973 F
300	200	230	4,100	1974 F
	Average Annual % Increase/(Decrease)			
(14.2)%	(10.7)%	(5.8)%	(.3)%	1964-1969 E
6.4	-	1.8	1.7	1969 E-1974 F
	% Variance Favorable/(Unfav.)			
3.8%	(8.7)%	(8.7)%	1.9%	1969 E vs. 1969 B
4.5	-	-	3.4	1970 B vs. 1969 E
% of Total Net Sales				
12.4%	9.2%	7.4%	100.0%	1964
23.7	7.8	8.4	100.0	1965
17.6	9.1	10.6	100.0	1966
15.1	8.7	11.0	100.0	1967
6.2	7.5	6.4	100.0	1968
5.7	5.0	6.2	100.0	1969 B
5.8	5.3	5.6	100.0	1969 E
5.0	5.1	5.4	100.0	1970 B
5.7	5.0	5.0	100.0	1971 F
7.3	4.0	5.6	100.0	1972 F
7.3	4.9	5.6	100.0	1973 F
7.3	4.0	5.6	100.0	1974 F

sion 1970 B/F

	(2)	(3)	(4)	(5)
	rn U.S. Roof Deck Market	Permadeck (Conc.Prod. Min. Wood Fiber-M.W.F.)		
Roof[1] Ket Ft.)	Mineralized Wood Fiber Sales (000 Sq. Ft.)	Unit Sales (000 Sq. Ft.)	Gross Sales ($000)	Sales Deductions ($000)
	55,000	11,581	$ 2,740	$ 19
	60,000	10,231	2,422	17
	70,000	12,516	2,884	14
	60,000	10,720	2,360	20
	55,000	13,783	3,091	38
	57,000	14,000	3,054	15
	55,000	14,200	3,170	30
	55,000	14,500	3,290	30
	55,000	15,000	3,400	30
	55,000	15,000	3,400	30
	55,000	15,000	3,400	30
	55,000	15,000	3,400	30
Decrease)				
	-	4.2%	3.0%	9.6%
	-	1.1	1.4	-
.)				
	(3.5%)	1.4%	3.8%	(100.0)%
	-	2.1	3.8	-

% of Roof Deck Market	% So.East U.S. M.W.F. Sales	¢ Per Square Foot	% of Gross Sales
34.0%	21.1%	23.7¢	.7%
35.7	17.1	23.7	.7
38.0	17.0	23.0	.5
36.4	17.0	22.0	.8
32.4	25.1	22.4	1.2
31.7	24.6	21.8	.5
30.6	25.8	22.3	.0
30.6	26.4	22.7	.0
28.4	27.3	22.7	.0
28.4	27.3	22.7	.0
27.2	27.3	22.7	.0
26.2	27.3	22.7	.0

Buildings (type suitable for Permadeck)
d by Concrete Products.

093996

Construction Products Division 1970 B/F
Concrete Products

Year	(1) Southeastern U.S. Roof Deck Market — Available Roof Deck Market[1] (000 Sq. Ft.)	(2) Southeastern U.S. Roof Deck Market — Mineralized Wood Fiber Sales (000 Sq. Ft.)	(3) Permadeck (Conc — Unit Sales (000 Sq. Ft.)
1964	162,000	55,000	11,581
1965	168,000	60,000	10,231
1966	180,000	70,000	12,516
1967	165,000	60,000	10,720
1968	170,000	55,000	13,783
1969 B	180,000	57,000	14,000
1969 E	180,000	55,000	14,200
1970 B	180,000	55,000	14,500
1971 F	187,000	55,000	15,000
1972 F	194,000	55,000	15,000
1973 F	202,000	55,000	15,000
1974 F	210,000	55,000	15,000
Average Annual % Increase/(Decrease)			
1964-1969 E	2.1%	-	4.2%
1969 E-1974 F	3.1	-	1.1
% Variance Favorable/(Unfav.)			
1969 E vs. 1969 B	-	(3.5%)	1.4%
1970 B vs. 1969 F	-	-	2.1

Year	% of Roof Deck Market	% So.East U.S. M.W.F. Sales
1964	34.0%	21.1%
1965	35.7	17.1
1966	38.9	17.0
1967	36.4	17.0
1968	32.4	25.1
1969 B	31.7	24.6
1969 E	30.6	25.8
1970 B	30.6	26.2
1971 F	29.4	27.3
1972 F	28.4	27.3
1973 F	27.2	27.3
1974 F	26.2	27.3

(1) Selected non-residential buildings (type suitable for Permadeck) in the market area served by Concrete Products.

093997

CALCULATION OF INCOME TAXES
($000)

EXHIBIT V

REPORTING UNIT - CONSTRUCTION PRODUCTS DIVISION

Reconciliation of Book Income to Taxable Income	1969 Estimate	1970 Budget	1 For
Book Income Before Extraordinary Items - Pretax	$3,410	$3,443	$3
Extraordinary Items - Pretax	170	-	
Total Book Income	3,580	3,443	3
Less: Depletion Not Booked	552	677	
Excess of Tax Depreciation Over Book	60	40	
Gain on Disposition of Fixed Assets	220	-	
Reduction/(Increase) in Reserve for Bad Debts	(50)	50	
State Income Taxes	20	20	
Other	-	-	
Subtotal	2,778	2,656	3
Add: Amortization of Goodwill	20	23	
Domestic Dividends at 15%	2	2	
Other	-	-	
Taxable Income	2,800	2,681	3
Computation of Total Income Taxes			
Less: Income of Foreign Subsidiaries	210	220	
Taxable Income U.S. Co's	2,590	2,461	2
Tax at 48%	1,243	1,181	1
Less: Surtax Exemption on Non-Consolidated U.S. Subsidiaries	(13)	(13)	
Tax on Gain on Disposal of Fixed Assets			
Depreciation Recapture (50,000 x 48%)	24	-	
Balance at 25% (170,000 x 25%)	42	-	
Total U.S. Tax Before Surcharge and Investment Credit	1,296	1,168	1,
Add: Surcharge - 1969 at 10%; 1970 at 2.5%	130	29	
Less: Investment Credit	(70)	-	
Total U.S. Federal Tax	1,356	1,197	1
Deferred Income Tax on Excess Tax Depreciation Over Book - 1969 at 52.8%; 1970 at 49.2%; 1971 at 48%	32	20	
Foreign Income Tax	105	110	
State Income Tax	20	20	
Total Income Taxes	$1,513	$1,347	$1,

CAPITAL BUDGET AND FOREC
($000)

REPORTING UNIT: CONSTRUCTION PROD

TITLE OF PROJECT	Total Reqd for Project	Working Capital Required	Authorization Am Total Per RCA	Unexp Amo
A. UNEXPENDED AMOUNTS OF RCA'S (AS OF 1/1/70)				
ORE SCRUBBING AND DESLIMING EQUIPMENT - LIBBY, MONTANA, MILL - GRACE RCA #4			$ 153	$
NEW TRANSFER POINT FOR THE LIBBY, MONTANA, MINE - GRACE RCA #2			375	1
IMPROVE DDA-7 MANUFACTURING PROCESS - CHICAGO			30	
NEW ACETIC ACID TANK AND HYDROPHOBE R-4 STORAGE - CHICAGO			35	
RAILROAD TRACK SPUR - CHICAGO			40	1
TOTAL UNEXPENDED AMOUNTS OF RCA'S				28
B. 1970 CAPITAL BUDGET				
LIBBY MILL				
STORAGE AND BLEND FEED SYSTEM			700	
FINES CIRCUIT			330	
DUST COLLECTION			400	
DRYER AND BUILDING			150	
WASTE BELT			145	
DRY MILL ADDITION			100	
COST REDUCTION			90	
DUST COLLECTION - LOADING			75	
CAPACITY EXPANSION OF EXISTING BUSINESS			65	
CONCENTRATE HAUL TRUCK			55	
REPLACEMENT AND MAINTENANCE			20	

L BUDGET AND FORECAST
($000)

TRUCTION PRODUCTS DIVISION

Authorization Amount Total Per RCA	Authorization Amount Unexpended Amount	Schedule of Expenditures 1970	1971	1972	1973	1974	% Return On GCE	Pay-Out Time
$ 153	$ 70	$ 70						
375	125	125						
30	12	12						
35	35	35						
40	40	40						
	282	282						

700	700		
330	330		
400	300	$ 100	
150	150		
145	145		
100	100		
90	90		
75	75		
65	65		
55	55		
20	20		

Construction Products Division 1970 B/F
Concrete Products

(42)

Earnings (Including Cambridge Allocation) Per Acq. Share (60,000 Shares)	
$4.93	1964
4.37	1965
4.30	1966
.65	1967
1.88	1968
2.57	1969 B
1.35	1969 E
2.20	1970 B
3.03	1971 F
3.47	1972 F
3.47	1973 F
3.47	1974 F

Average Annual % Increase/(Decrease)	
(22.8)%	1964-1969 E
20.8	1969 E-1974 F

% Variance Favorable/(Unfav.)	
(47.5)%	1969 E vs. 1969 B
63.0	1970 B vs. 1969 E

1964
1965
1966
1967
1968

1969 B
1969 E
1970 B

1971 F
1972 F
1973 F
1974 F

CAPITAL BUDGET AND FOREC
($000)

REPORTING UNIT: CONSTRUCTION PROD

TITLE OF PROJECT	Total Reqd for Project	Working Capital Required	Authorization A Total Per RCA	Unex Amc
LIBBY MINE				
POWER SHOVEL			$ 180	
TWO ORE HAUL TRUCKS			150	
ROTARY DRILL			95	
REPLACEMENT AND MAINTENANCE			30	
COST REDUCTION			12	
ENOREE MILL				
OFFICE BUILDING			54	
COST REDUCTION			62	
ENOREE MINE				
REPLACEMENT AND MAINTENANCE			132	
CAPACITY EXPANSION OF EXISTING BUSINESS			50	
CONCRETE PRODUCTS - TERRY				
EXCELSIOR ROOM REVISIONS			75	
COST REDUCTION			37	
REPLACEMENT AND MAINTENANCE			15	
POLLUTION CONTROL			15	
CONCRETE PRODUCTS - BRUNSWICK				
POLLUTION CONTROL			15	
DAREX/HORN/SERVICISED/RPC				
BITUTHENE MANUFACTURING FACILITIES			805	
DAREX MFG. FACILITY - ATLANTA			155	
REPLACEMENT AND MAINTENANCE			106	

:DGET AND FORECAST
($000)

:ION PRODUCTS DIVISION

Authorization Amount		Schedule of Expenditures					% Return	Pay-
Total Per RCA	Unexpended Amount	1970	1971	1972	1973	1974	On GCE	Out Time
$ 180		$ 180						
150		150						
95		95						
30		30						
12		12						
54		54						
62		37	$ 25					
132		132						
50		50						
75		75						
37		37						
15		15						
15		15						
15		15						
805		505	$ 300					
5		155						
106		106						

CAPITAL BUDGET AND FOREC
($000)

REPORTING UNIT: CONSTRUCTION PROI

TITLE OF PROJECT	Total Reqd for Project	Working Capital Required	Authorization A Total Per RCA	Unex Am
NEW PVC EXTRUDER - CHICAGO			$ 90	
HEA2/DDA-7 EQUIPMENT - NEWARK			80	
COST REDUCTION			64	
BITUTHENE PILOT LINE - CHICAGO			60	
COMMERCIALIZATION OF NEW RPC PROD.			100	
CAPACITY EXPANSION OF EXISTING BUSINESS			24	
EXPANDING PLANTS				
COMBINE JACKSONVILLE, BOCA RATON, TAMPA, AND HIALEAH FACILITIES			500	
MFG. FACILITY EXPANSION - KEARNEY			440	
FRENCH BOARD FACILITY			275	
RELOCATE DEARBORN, MICH., PLANT			405	
D-18, ORE HANDLING AND STORAGE - ST. LOUIS			95	
NEW DISTRIBUTION/WAREHOUSE FACILITIES - ATLANTA			75	
NEW SHOP EQUIPMENT - T.R.			61	
POLLUTION CONTROL			50	
REPLACEMENT AND MAINTENANCE			36	
POLYSTYRENE PLANTS				
EXPAND POLYSTYRENE FACILITIES - NEW CASTLE			459	
INSTALL POLYSTYRENE MFG. FACILITY - ATLANTA			210	
CUSTOM MOLDING FACILITIES			150	
INSTALL POLYSTYRENE MFG. FACILITY - NEW ENGLAND			120	

ION PRODUCTS DIVISION

zation Amount er	Unexpended Amount	Schedule of Expenditures 1970	1971	1972	1973	1974	% Return On GCE	Pay-Out Time
0		$ 90						
0		80						
4		64						
0		60						
0		50	$ 50					
4		24						
0		500						
0		440						
5		275						
5		150	255					
5		95						
		75						
		61						
		50						
		36						
		459	Diff 124					
		210						
		150						
		120						

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CAPITAL BUDGET AND FORE
($000)

REPORTING UNIT: CONSTRUCTION PRO

TITLE OF PROJECT	Total Reqd for Project	Working Capital Required	Authorization A Total Per RCA	Unex Ar
FLOTATION MOLDS - SOUTHGATE			$ 54	
REPLACEMENT AND MAINTENANCE			27	
CAPACITY EXPANSION OF EXISTING BUSINESS			20	
LOCAL RCA'S - PROJECTS UNDER $10,000				
LIBBY			51	
ENOREE			57	
CONCRETE PRODUCTS			133	
DAREX/HORN/SERVICISED/RPC			162	
EXPANDING PLANTS			335	
POLYSTYRENE PLANTS			50	
TOTAL CAPITAL BUDGET			8,301	
C. CAPITAL FORECAST				
NEW WET MILL - LIBBY			1,000	
COMBINE CHICAGO/MILWAUKEE			450	
COMBINE PORTLAND/SPOKANE			425	
PROJECTS - $300,000 OR LESS				
LIBBY			3,500	
ENOREE			875	
CONCRETE PRODUCTS			400	
DAREX/HORN/SERVICISED/RPC			1,250	

: AND FORECAST
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:C.1 PRODUCTS DIVISION

:rization Amount . Per :A	Unexpended Amount	Schedule of Expenditures 1970	1971	1972	1973	1974	% Return On GCE	Pay-Out Time
54		$ 54						
27		27						
20		20						
51		51						
57		57						
133		133						
162		162						
335		335						
-		50						
301		7,571	$ 730					
000			1,000					
450				$ 450				
425			425					
500			1,300	1,200	$ 600	$ 400		
875			275	200	200	200		
400			100	100	100	100		
250			350	300	300	300		

CAPITAL BUDGET AND FORECA
($000)

REPORTING UNIT: CONSTRUCTION PRODU

TITLE OF PROJECT	Total Reqd for Project	Working Capital Required	Authorization Am: Total Per RCA	Unexp: Amo:
EXPANDING PLANTS			$ 2,070	
POLYSTYRENE PLANTS			2,400	
TOTAL CAPITAL FORECAST			12,370	
TOTAL CAPITAL EXPENDITURES BEFORE PROBABILITY REDUCTION				$20,9
PROBABILITY REDUCTION				(1,4
TOTAL CAPITAL EXPENDITURES				$19,5

TAL BUDGET AND FORECAST
($000)

: STRUCTION PRODUCTS DIVISION

s l ed	Authorization Amount Total Per RCA	Unexpended Amount		Schedule of Expenditures 1970	1971	1972	1973	1974	% Return On GCE	Pay-Out Time
	$ 2,070				$ 620	$ 450	$ 500	$ 500		
	2,400				900	700	400	400		
	12,370				4,970	3,400	2,100	1,900		
		$20,953	$7,853							
		(1,453)	(1,453)							
		$19,500	$6,400	$5,700	$3,400	$2,100	$1,900			

C O N F I D E N T I A L

CONSTRUCTION PRODUCTS DIVISION

W. R. Grace & Co.

1970 LONG RANGE PLAN

VOLUME II

Cambridge, Mass.

October, 1969

Copy No.: 19

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COMMENTARY ON 1969 CURRENT ESTIMATE, 1970 BUDGET AND FORECAST

CONSTRUCTION PRODUCTS DIVISION

A. BACKGROUND

As part of our 1970 Budget analysis, a considerable amount of effort was spent reviewing 1) the various allocations to each of our major profit centers, and 2) the classification of elements of expense within the P&L's. This review resulted in several changes in the classification of expenses and the methods of allocating overheads.

In order to make the 1968 actual results and the 1969 Budget and Current Estimate comparable with the 1970 Budget and Forecast, the changes in expense classification and allocations were applied to these earlier periods. As a result, there are changes in operating profit by profit center from the 1968 Actual and 1969 Budget reported to New York a year ago. However, the total Construction Products Division remains the same. We believe these changes result in a more accurate financial picture of each individual business.

Also, the 1970 Budget and Forecast assumes the continuation of the Darex/Horn/Servicised business along the same lines as 1969. Our plans for solving this problem are not yet complete, and we decided not to reflect any changes in the Budget and Forecast at this time.

B. 1969 ESTIMATED RESULTS

1969 Currest Estimate of Grace share in after-tax profit is $2,029,000, which is $205,000 (9.2%) below the 1969 Budget and $166,000 (8.9%) ahead of 1968.