DELIVERABLE 18B

CAPITAL AND OPERATING COST ESTIMATES

VOLUME I OF IV

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AUGUST 1982

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PRELIMINARY DESIGN AND ASSESSMENT OF A 12,500 BPD COAL-TO-GASOLINE-TO-METHANOL PLANT

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SEP 10 1982

DATE

PREPARED FOR THE UNITED STATES
DEPARTMENT OF ENERGY
UNDER COOPERATIVE AGREEMENT NO. DE-FC01-80ET-14759

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United States
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DELIVERABLE 18B

MASTER

CAPITAL AND OPERATING COST ESTIMATES
VOLUME I OF IV

AUGUST 1982

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Keith A. Sil

PARSONS PROJECT DIRECTOR

AUGUST 6, 1982

DATE

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PRELIMINARY DESIGN AND ASSESSMENT
OF A 12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT

DELIVERABLE 18B

CAPITAL AND OPERATING COST ESTIMATES
VOLUME I OF IV

AUGUST 1982

THE RALPH M. PARSONS COMPANY
100 WEST WALNUT STREET
PASADENA, CALIFORNIA 91124

PREPARED FOR THE
UNITED STATES DEPARTMENT OF ENERGY
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W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
DELIVERABLE NO. 18B
CAPITAL AND OPERATING COST ESTIMATE

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INTRODUCTION

This Deliverable No. 18b - Capital and Operating Cost Estimates includes a detailed presentation of the 12,500 BPD coal-to-methanol-to-gasoline plant from the standpoint of capital, preoperations, start-up and operations cost estimation. The base capital cost estimate in June 1982 dollars was prepared by the Ralph M. Parsons Company under the direction of Grace. The escalated capital cost estimate as well as separate estimates for preoperations, startup and operations activities were developed by Grace.

The deliverable consists of four (4) volumes. Volume I contains details of methodology used in developing the capital cost estimate, summary information on a base June 1982 capital cost, details of the escalated capital cost estimate and separate sections devoted to preoperations, start-up, and operations cost. The base estimate is supported by detailed information on a unit basis which comprises Volumes II, III and IV. While the degree of detail available for some units was constrained, due to proprietary data, attempts have been made to exhibit the estimating methodology by including data on individual equipment pricing which, in accordance with equipment lists and engineering drawings, is combined into trains, modules, and units. Where such information cannot be presented due to proprietary limitations, a statement to this effect has been included. Proprietary detail has been developed and is available for inspection upon execution of nondisclosure and/or secrecy agreements with the licensors to whom the data is proprietary. Details of factoring certain pieces of equipment and/or entire modules or units from the 50,000 BPD capital estimate are also included.

In the case of the escalated capital estimate, Grace has chosen to include a sensitivity analysis which allows for ready assessment of impacts of escalation rates (inflation), contingency allowances and the construction interest financing rates on the escalated capital cost. Each of the estimates associated with bringing the plant to commercial production rates has as a basis the schedule and engineering documentation found in Deliverable No. 14b - Process Engineering and Mechanical Design Report, No. 28b - Staffing Plans, No. 31b - Construction Plan, and No. 33b - Startup and Operation Plan.

BASIS OF ESTIMATE

INTRODUCTION

The Basis of Estimate defines and explains in detail the methodology used to develop the Capital Investment Estimate for the 12,500-bpd Coal-to-Methanol-to-Gasoline Project at Baskett, Kentucky. The Basis of Estimate is used as a tool to guide estimating activities on this project as well as to give an in-depth understanding of the cost development of the project. The Basis of Estimate defines and describes the Capital Investment Estimate format and the different kinds of costs used in the estimate and gives unit-by-unit definition of scope of work.

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SECTION 1
INTRODUCTION

The basis of the base estimate defines and explains in detail the methodology used to develop the enclosed Capital Investment Estimate for the 12,500-bpd Coal-to-Methanol-to-Gasoline Project at Baskett, Kentucky. This base of estimate has been prepared by Parsons as a part of a subcontract to W. R. Grace & Co. for a preliminary design and assessment effort under Cooperative Agreement No. DE-FC01-80ET-14759 between W. R. Grace & Co. and the U.S. Department of Energy.

1.1 SCOPE OF WORK

Included in Parsons Statement of Work as it relates to the Capital Investment Estimate is the development of engineering design data and construction planning information to support a detailed capital investment estimate. Specific estimating methodologies, more detailed scope definitions, and listing of engineering support documentation are set forth in the following sections.

1.2 PROCESS DESCRIPTION

A combination of commercial processes comprises the Gasoline Plant from an integrated indirect liquefaction process. The Texaco Coal Gasification Process (TCGP) is used to convert the coal feedstock to a raw synthesis gas. This gas is then purified, prior to conversion to methanol, using conventional commercial technology. Next, the methanol is converted to gasoline utilizing the Mobil fixed-bed methanol to gasoline (MTG) technology.

Standard refining techniques are used to both upgrade the basic gasoline product and to separate by-product LPG. For purposes of preparing the capital estimate, each processing step or logically separable equipment function has been defined as a unit. Equipment size limitations and/or operational considerations resulted in the further breakdown of units into trains and modules. A pictorial representation of the plant makeup in terms of units, modules, and trains is shown on the process train configuration diagram (Attachment 7).

1.3 PURPOSE OF CAPITAL INVESTMENT ESTIMATE

The main purposes of the Capital Investment Estimate are to provide:

- (1) A primary document that establishes the investment level of the project.
- (2) A document for an economic evaluation of the project including discounted cash flow (DCF) analysis.
- (3) A budget control system for procurement and construction before a control estimate is completed.
- (4) A framework for estimating the detailed control estimate to be used during project execution.
- (5) Parameters for funding and cash flow requirements.

1.4 PURPOSE OF BASIS OF ESTIMATE

The basis of estimate is used by client and Parsons as a tool to guide estimating activities on this project as well as to give an in-depth understanding of the cost development of the project. In addition, it also

- (1) Furnishes formats and breakdowns of project costs.
- (2) Provides cost details.
- (3) Provides a vehicle to highlight estimating problems in advance.

1.5 PROPRIETARY DATA LIMITATIONS

The degree of detail to which support for the Capital Investment Estimate is included in this document has been limited for some units because of

confidentiality requirements with licensors of proprietary technologies. Thus, the estimate for certain units is in the form of total unit summaries only, without any details, due to secrecy agreement requirement with licensors. However, these estimates are prepared in detail, and they are available after meeting secrecy agreement requirements.

Attachment 1 summarizes the proprietary status of the different units of the estimate.

SECTION 2
CAPITAL INVESTMENT ESTIMATE DEFINITION

The Capital Investment Estimate is the detailed cost document for the Coal-to-Methanol-to-Gasoline Plant, structured in accordance with Parsons Code of Cost Accounts and summarized by cost centers or units.

The estimate is termed "capital investment estimate" and represents a combination of equipment estimates based on vendor quotes, factoring of certain equipment from the detailed estimate for the 50,000-bpd plant, factored bulk item estimates for the major processing areas, and material takeoffs and unit pricing for bulk items in the offsite and utility areas. Such estimating is consistent with a project, the engineering design for which has progressed to the level detailed in Deliverable No. 14B - Gasoline Plant Process Engineering and Mechanical Design Report.

2.1 ESTIMATING PHILOSOPHY

The 12,500-bpd Capital Investment Estimate can be divided into three major estimating philosophies as follows. However, certain unit estimates in the 50,000-bpd plant were developed in modules and trains. Wherever possible this modular concept is used in developing 12,500-bpd estimates by using one module or combination of module and trains of the 50,000-bpd plant estimate in which major equipment cost was individually priced based on vendor quotations and installation labor was factored based on Parsons standards. Then bulk commodity accounts were factored from the major equipment estimate.

2.1.1 FACTORED ESTIMATE

Some unit estimates were prepared by summarizing all the major equipment costs from vendor quotations and then factoring all the bulk commodities accounts and labor on the basis of Parsons experience and cumulative statistical history for similar jobs.

2.1.2 DETAILED ESTIMATES

Some unit estimates were prepared using major equipment costs secured from vendor's quotation and the associated labor costs based on Parsons standards. The bulk commodities estimates were developed from detailed material take-off. The pricing was based on vendor quotations and/or in-house cost data and labor costs as per Parsons standards.

2.1.3 COMBINED DETAILED AND FACTORED ESTIMATES

In this type of estimate, some of the bulk commodities were factored as per Parsons past experience and cumulative statistical history for similar jobs, and the balance of the estimate was based on detailed estimate philosophy.

2.2 TECHNICAL DATA USED FOR THE CAPITAL INVESTMENT ESTIMATE

2.2.1 PROCESS

- (1) Process Flow Diagrams
- (2) Process Specifications for Equipment
- (3) Licensor Process Flowsheets
- (4) Licensor Data Sheets and miscellaneous engineering documents
- (5) Heat and Material Balance

2.2.2 ENGINEERING - TOTAL PROJECT

- (1) Overall Site Plans
- (2) Master Specifications
- (3) Total Job Electrical Single-Line Diagram
- (4) Geotechnical Report
- (5) Topographic Documents
- (6) Meteorological Data
- (7) Engineering Equipment Data Sheets
- (8) Codes and Standards Data
- (9) Arrangement Drawings

- (10) Piping Layouts and Transposition Drawings
- (11) Material Application Diagrams

2.2.3 ENGINEERING - BY UNITS

- (1) Process Flow Control Diagrams
- (2) Plot Plans
- (3) Equipment Layout
- (4) Gravel, Piling and Road Layout
- (5) Equipment Lists
- (6) Equipment Data Sheets
- (7) Vessel and Tank Design Drawings
- (8) Electrical Single-Lines
- (9) Major Electrical Equipment Specifications
- (10) Performance Tests
- (11) Buildings Layout
- (12) Project Engineering Procurement and Construction Schedule
- (13) Project Engineering Procurement and Construction Implementation Plan
- (14) Material Takeoff for Bulk Commodities
- (15) Material Handling Drawings and Schedules
- (16) Bulk Commodities Materials Takeoff (MTO)
- (17) Instrument Philosophy
- (18) Process Train Configurations

2.2.4 PROCUREMENT

- (1) Vendor Quotations for Major Equipment and Bulk Materials
- (2) Major Equipment Bid Analysis and Recommendations

2.2.5 CONSTRUCTION

- (1) Construction and Erection Philosophy
- (2) Erection Implementation Plans
- (3) Temporary Facilities Layout and Plans

- (4) Construction Plans and Schedule
- (5) Construction Staffing Plans
- (6) Labor Rate and Craft Fringes for the Construction Area
- (7) Productivity Analysis for the Construction Area

2.2.6 OVERALL PROJECT

- (1) Overall Project Implementation Plan
- (2) Overall Project Schedule (Projects start May 1984 ending January 1990)
- (3) Permit Activities and Schedule
- (4) Commissioning and Startup Plans
- (5) Federal, State and Local Taxes
- (6) Current Government Documents

2.3 COST BASIS

Costs given in the worksheets and summaries are those applicable to June 1982. If the vendor quotations are of earlier dates, the cost is escalated to June 1982 according to Parsons escalation tables to reflect June 1982 cost.

Whenever possible, all equipment and material costs are based on the latest data solicited by the Parsons Procurement Department from suppliers and recommended in the Technical/Commercial Bid Analysis; when necessary, costs are supplemented by in-house data collected by estimators and specialist service personnel.

2.4 COST COVERED BY THE BASE CAPITAL INVESTMENT ESTIMATE

The following costs are covered by the Capital Investment Estimate:

- (1) Engineering, Procurement, and Management Services
- (2) Equipment and Materials
- (3) Erection of Equipment and Bulk Materials
- (4) Construction Management, Supervision, and Services

- (5) Site Preparation
- (6) Freight from Vendors to Jobsite
- (7) Temporary Construction Facilities
- (8) Marine and Builders All-Risk Insurance
- (9) Capital Spare Parts
- (10) License Fees and Permits
- (11) Federal, State, and Local Taxes
- (12) License Fees for Process Use
- (13) Subcontractors' Overhead and Profits
- (14) Land Purchase Cost
- (15) Cost to be Reimbursed to DOE
- (16) W. R. Grace Construction Management Cost

2.5 COST EXCLUDED FROM THE BASE CAPITAL INVESTMENT ESTIMATE

The Capital Investment estimate excludes the following costs:

- (1) Scope changes after June 1982
- (2) Costs for catalysts and chemicals (covered under Preoperations Estimate)
- (3) Costs for operating materials (covered under Preoperations, Startup and Operation Cost Estimates)
- (4) Extensive overtime premium for field labor
- (5) Delay costs due to inability to obtain permits, etc.
- (6) Air freight, if required
- (7) Costs for performance bonds
- (8) Building furniture and internal improvements
- (9) Escalation
- (10) Contingency
- (11) Construction Interest

SECTION 3
CAPITAL INVESTMENT ESTIMATE FORMAT

The Capital Investment Estimate format is developed by using Parsons Standard Code of Accounts for the cost development. The Parsons Standard Code of Accounts is enclosed herewith as Attachment 2.

The total project direct cost is broken down into the units as per Attachment 3. The direct cost for each unit is developed for each Standard Code of Account from the technical data input, vendor quotations, and bid analysis. In some cases the equipment labor and bulk commodities costs are factored in accordance with Parsons past experience in similar jobs and cumulative statistics. In other cases the equipment labor cost is developed as per Parsons standards, and bulk commodity costs are estimated in detail from the engineering material take-offs applying vendor quotations and Parsons standard labor.

Some units in the 50,000-bpd Capital Investment Estimate are broken down into trains and common equipment, which are then summarized. Module summaries are developed from combinations of trains and common equipment assigned to these modules as defined in the Equipment List. The unit summary is a summation of all the modules in that unit. The summary for all the units is the direct cost summary for the total project. Wherever possible this modular concept is utilized in preparing the 12,500-bpd plant estimates by using one module or combination of modules and trains of the 50,000-bpd plant estimate in which major equipment was individually priced based on vendor quotations and installation labor was factored based on Parsons standards. Then bulk commodity accounts were factored from the major equipment estimate. In certain cases, an adjustment for new capacity requirements is also applied.

From the total direct cost summary, the indirect costs are developed by factoring the direct cost. Ocean freight, which is not included with the direct cost, as well as capital spares and sales and nonpayroll taxes, are added to the direct and indirect cost, which sums up the total construction cost.

Land cost, process licensor fees, Parsons home office cost and fee, and Grace's construction management costs are further added to the total construction cost to develop the total June 1982 estimated cost.

3.1 ESTIMATING WORKSHEETS - EQUIPMENT

Parsons standard worksheets are used to format the estimate uniformly. Generally, each piece of equipment is described on an individual worksheet containing the following information:

- (1) Cost and technical information validity date
- (2) Type of estimate
- (3) Unit number and item number
- (4) Title of account
- (5) Source of technical data, when specific information is available
- (6) Brief description of the equipment type, size, weight, and materials of manufacture
- (7) Freight costs from vendor shops to fabrication sites
- (8) Design changes allowance
- (9) Erection hours, as applicable, for erection
- (10) Escalation as per Parsons standard tables to convert the costs data into June 1982 dollars.

The worksheets are summarized at account level for each unit, module, or train.

3.2 DIRECT BULK COMMODITIES

Generally, for those units in which the bulk commodities are not factored, the bulk commodities accounts are supplemented by detailed estimate worksheets. The bulk commodities costs are developed at unit level from the engineering materials take-off. Materials take-off quantities are listed on the estimate worksheets and priced using current cost data. The quantities are also assigned manhours to reflect the estimated work content as per Parsons standards.

3.3 DIRECT COST

Costs and manhours for each train, module, or unit are summarized by Code of Account to show direct cost for equipment, material, and labor. A productivity adjustment is added to reflect the complexity of job performance at

the jobsite, and labor hours are converted into dollars using local craft mixed crew labor rates.

On completion of all unit direct cost summaries, an Overall Units Summary tabulates the estimated Total Direct Costs by unit description and by the total major equipment, total materials, and total equipment and materials.

3.4 OTHER DIRECT COST

Individual worksheets for each account at project cost level are prepared to indicate:

- (1) Description of cost, service, or facility
- (2) Quantification of cost, service, or facility
- (3) Unit measure cost data
- (4) Manhours (where applicable)
- (5) Total cost of service or facility

3.5 FIELD INDIRECT COST

Standard worksheets are completed to include as many relevant descriptions and costs as are available. When applicable, manhours are listed for both craft and staff personnel.

3.6 PARSONS HOME OFFICE COST AND FEE

Parsons Standard Home Office worksheets indicate total hours by discipline and hourly rate per discipline. In addition to the direct salaries cost data, the worksheets show fringe benefits, other office costs, overheads, and fee. Home Office manhour requirements are determined by discipline section managers and priced from June 1982 in-house unit rate data.

3.7 OTHER COSTS

Standard estimate worksheets are used for such cost centers as:

- (1) Land
- (2) Commissioning and startup
- (3) Grace's Construction Management costs
- (4) Royalties/process licensor fees
- (5) Insurance
- (6) Taxes

3.8 LABOR COSTS

3.8.1 BASE MANHOURS

The craft labor manhours used for the Capital Investment Estimate are based on Parsons Standard Estimating Guide, which is developed from Parsons past experience on similar jobs and statistical data. When specific items of equipment, such as large compressors, are required for the project, individual manhours are estimated to suit the characteristics of the specific equipment. These manhours are then applied with estimate according to the estimator's judgment to determine the specific erection process.

3.8.2 LABOR RATES

Current field labor wage rates and fringe benefits and allowances for the local construction site were obtained from the local unions and craftsmen's information, Attachment 4.

Using the Parsons computer program, these direct craft wage rates are converted to mixed crew labor rates for each code of account, Attachment 5. These mixed crew labor rates were used in the detailing of the Capital Investment Estimate.

3.8.3 PRODUCTIVITY

The following productivity factors are used to adjust the base labor manhours in the Capital Investment Estimate to compensate for the

complexity of job, local union tradition in work performance, crafts labor habits, and other related items:

- (1) Base manhours = Parsons standard manhours
- (2) Bulk commodities where detailed estimates are prepared = .73
i.e., construction manhours = $\frac{\text{Parsons Standard Manhours}}{.73}$
- (3) All factored manhours = .86
i.e., construction manhours = $\frac{\text{Factored Manhours}}{.86}$

SECTION 4

DIRECT COSTS

The direct costs in the Capital Investment Estimate use the following criteria.

4.1 COMPARISON OF VENDOR QUOTATIONS

Bidding documents are tabulated for specific equipment, materials, and services by vendor and commodity costs. The tabulated bids are compared for cost conformance to specification and technical acceptability. In some cases adjustments in cost are made so that the costs conform to specification as required.

4.2 IN-HOUSE SPECIALIST ENGINEER/ESTIMATOR ASSESSMENTS

When the equipment or materials quotations are not available at the time of preparation of the Capital Investment Estimate, the specialist engineer and/or estimator determine suitability of the proposed component; ensure appropriate selection; and determine the equitable costs to be used in the estimate, based on historic or the latest available in-house data related to similar construction work.

4.3 PACKING AND FREIGHT

Packing, freight, and hauling costs are included in their respective codes of account. These costs are either supplied by the vendor with their quotation or developed by the estimators by applying percentages to the equipment and material costs.

4.4 MATERIALS TAKEOFF (MTO)

Specialist engineers have defined the quantities for direct bulk material accounts based on the engineering and other available technical documents, e.g., piping size and quantities, tonnage of steel, cubic yards of gravel and earthwork, etc.

SECTION 5
OTHER DIRECT COSTS

Other direct costs included in the capital investment estimate are as follows.

5.1 OCEAN FREIGHT (ACCOUNT 6000)

Certain items are shipped by ocean and hence will incur ocean freight charges. This cost is estimated and included in the Capital Investment Estimate.

5.2 CAPITAL SPARE PARTS (ACCOUNT 6100)

A list of the capital spare parts is developed, based on the future requirements. The costs for the same are included in the Capital Investment Estimate.

5.3 NONPRODUCTIVE TIME (ACCOUNT 6800)

Time cost for nonproductive time due to coffee breaks, showup time, portal-to-portal pay, etc., when labor wages are paid but no work is performed, is included as a percentage of the total labor cost by Parsons past experience on similar jobs.

5.4 SALES AND NONPAYROLL TAXES (ACCOUNT 6900)

The cost of sales, use, excise, and other nonpayroll taxes is included as required for the project.

SECTION 6
INDIRECT COSTS

Costs associated with construction-oriented activities are estimated in a direct basis, with an allowance for overhead and a fee for participating subcontractors. However, there are some costs, assigned to indirect costs, which are associated to total project and cannot be assigned to individual direct construction activities. These include temporary construction, cleanup, insurance and bonds, small tools and consumables, etc. These costs are included in the Capital Investment Estimate as a percentage of total direct labor.

6.1 TEMPORARY CONSTRUCTION (ACCOUNT 7100)

This account is applied only to items of a temporary nature required during field construction that do not become a permanent part of the plant, such as temporary facilities for weather protection; tool boxes, welding shelters, and workbenches; temporary field offices, warehouses, toolrooms, changerooms, sanitation facilities, and trailers; dewatering and snow removal facilities; and temporary roads, parking areas, fencing, scaffolding, slurring, and cribbing.

This cost is factored in the Capital Investment Estimate as a percentage of Direct Field Labor as per Parsons past experience on similar jobs and available data.

6.2 UNALLOCABLE LABOR - CRAFT (ACCOUNT 7300)

The costs for surveying and layouts, warehousing, plant security, truck drivers, janitors and job cleanup, welder qualifications, and safety are included in this account as a percentage of direct field labor as per Parsons past experience on similar jobs and available historical data.

6.3 WELFARE AND FRINGES CRAFT LABOR (ACCOUNT 7500)

The costs for welfare and fringe benefits as per local union contracts are included in this account and factored as a percentage of the craft labor costs.

6.4 PAYROLL INSURANCES AND TAXES - CRAFT LABOR (ACCOUNT 7600)

All costs for insurance premiums and payments under the Federal Income Contribution Act, the State Income Tax Act, the State Unemployment Insurance Act, and/or other tax payments which are craft payroll oriented are included in this account as a percentage of total craft labor costs.

6.5 OTHER INSURANCE (ACCOUNT 7700)

The costs for All Risk Insurance for the total plant as a percentage of the total construction cost, and marine insurance as a percentage of the total cost of the items for the ocean freight, are included in the Capital Investment Estimate.

6.6 ADVERTISING AND PUBLIC RELATIONS (ACCOUNT 7800)

A lump sum allowance for advertising and public relations including recruiting and labor relations for craft labor is included in the Capital Investment Estimate as per Parsons past experience on similar jobs.

6.7 FIELD ADMINISTRATION AND OFFICE EXPENSES (ACCOUNT 8100)

The costs of the following items for field, administration, and office expenses are included in the Capital Investment Estimate as a percentage of the Direct Field Labor cost as per Parsons past experience on similar jobs:

- Office supplies and equipment
- Telephone and telegraph, TWX, and the like
- Travel and transportation of the field staff
- Reproduction experience
- Photographic supplies and services
- Field office, postal and express charges
- Field general administrative expenses

- Payroll insurance - field staff
- Payroll taxes - field staff
- Payroll welfare - field staff
- General supervision - salary and wages
- Craft supervisors salary and wages
- Surveyors and welding inspectors on staff payroll - salary and wages
- Salaries and wages for clerical and field office personnel such as clerks, accountants, secretaries, nurses, etc.

6.8 CONSTRUCTION EQUIPMENT AND SERVICES (ACCOUNT 8300)

The cost for renting construction equipment such as cranes, trucks, welding machines, pickups, compressors, etc., both operated and nonoperated; the cost of all construction equipment purchased by Parsons for the specific job; and the cost for service and maintenance, including minor repairs of the construction equipment, are included in the Capital Investment Estimate as a percentage of the Direct Field Labor cost as per Parsons past experience on similar jobs.

6.9 SMALL TOOLS (ACCOUNT 8400)

The costs for small tool purchases and rentals are included in the Capital Investment Estimate as a percentage of the Direct Field Labor cost as per Parsons past experience on similar jobs.

6.10 CONSUMABLE SUPPLIES (ACCOUNT 8500)

The cost for all expendable field supplies such as fuels, welding electrodes, industrial gases, and construction aids (rags, chalk, etc.) are included in the Capital Investment Estimate as a percentage of the direct labor cost as per Parsons past experience on similar jobs.

SECTION 7
MISCELLANEOUS COSTS

7.1 LAND PURCHASE

The cost for total land purchase price less option payments credited toward purchase is included in the Capital Investment Estimate as per direction by W. R. Grace & Co. (letter No. CMG-433 dated February 26, 1982).

7.2 GRACE CONSTRUCTION MANAGEMENT COST

The cost for W. R. Grace & Co. construction management was provided by Grace and is included in the Capital Investment Estimate.

7.3 REIMBURSEMENT COST TO DOE

As per the Grace/DOE Cooperative Agreement, all costs incurred during the preliminary design and assessment phase will be reimbursed to DOE following commencement of operation of the Gasoline Plant. This cost as directed by W. R. Grace & Co. in its letter CMG-417 dated February 17, 1982, is included in the Capital Investment Estimate.

7.4 PROCESS LICENSOR FEES

Parsons has been advised by miscellaneous Process Licensors of their fees to be charged on this plant. These licensor fees are included in the Capital Investment Estimate.

7.5 PARSONS HOME OFFICE COST AND FEE

The Project Director provides instruction for the preparation of the Home Offices Services estimate, and responsibility for its completion is established for each unit of the project. Disciplines other than engineering are estimated using historical data.

The engineering manhours are estimated by each discipline leader, who details a plan of activities involving engineering documents such as drawings, specifications, data sheets, sketches, isometrics, requisitions, etc., and evaluates these activities for each unit. The accumulation of these manhours is evaluated by Parsons Engineering Department for validity compared to statistical data. The manhours were then priced using Parsons June 1982 manhour rates.

The estimate is further established by using factors for fringe benefits, including welfare, plus actual cost of payroll taxes and payroll insurance, overhead, and fees applied to base salaries.

Other direct costs (ODC) are factored according to historical data compiled on similar work. These ODC are generally for computer usage, travel costs, reproduction costs, and engineering consultants (professional services) used during the engineering, procurement, and construction services required for each unit.

SECTION 8
BASIS OF ESTIMATE AND SCOPE OF WORK BY UNITS

The following describes the basis of estimate, Scope of Work, methodology used, and unit summary built-up definition for individual units. However, all of the above are applicable to individual units also; only specifics that apply in addition to the above are included and described herein.

8.1 UNIT 11 - COAL AREA - COAL RECEIVING AND UNLOADING

8.1.1 MAJOR EQUIPMENT

In this unit, major pieces of equipment are defined and specified and individually priced based on vendor quotations.

The major equipment installation labor is per Parsons standard manhours. The bulk-commodity accounts - such as concrete, electrical, and buildings - are factored in accordance with Parsons standards.

8.1.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Process Flow and Control Diagrams:

<u>Title</u>	<u>Number</u>
Barge Unloading Plan	D-11-MH-101NP
Rail Unloading Plan	D-11-MH-103NP
Rail Unloading Elevation	D-11-MH-104NP
Coal Area - Barge Unloading and Sampling	D-11-MP-101NP
Coal Area - Train Unloading and Sampling	D-11-MP-102NP

8.2 UNIT 12 - COAL AREA - COAL CONVEYING AND STORAGE

8.2.1 MAJOR EQUIPMENT

In this unit, major pieces of equipment are defined and specified and in-house priced by Parsons.

The major equipment installation labor is per Parsons standard manhours. Bulk-commodity accounts - such as concrete, electrical, and buildings - are factored in accordance with Parsons standards.

8.2.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plans and Elevations:	D-12-MH-101NP
	D-12-MH-103NP
PFGD Storage Silos and Bunkers:	D-12-MP-101NP

8.3 UNIT 13 - COAL AREA - COAL STACKING AND RECLAIMING

8.3.1 MAJOR EQUIPMENT

In this unit, major pieces of equipment - such as stacker/reclaimer major conveyor components - are defined and specified. The stacker/reclaimer is individually priced based on vendor quotations. The other major pieces of equipment are priced in-house by Parsons.

The major equipment installation labor is per Parsons standard manhours. Bulk-commodity accounts - such as concrete and electrical - are factored in accordance with Parsons standards.

8.3.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plans and Elevations:	D-13-MH-101NP
PFCO Stacking and Reclaiming:	D-13-MP-101NP

8.4 UNIT 14 - COAL AREA - SLAG ASH AND BOILER SLUDGE COLLECTION AND DISPOSAL

8.4.1 MAJOR EQUIPMENT

In this unit, major pieces of equipment are individually priced based on vendor quotations.

The major equipment installation labor is per Parsons standards. Bulk-commodity accounts - such as concrete, electrical, and buildings - are factored in accordance with Parsons standards.

8.4.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Process Flow and Control Diagrams:	D-14-MP-101NP
	D-14-MP-102NP

General Arrangement Plans:	D-14-MH-101NP
	D-14-MH-102NP

8.5 UNIT 21 - PROCESS AREA A - COAL GASIFICATION AND WASTE HEAT RECOVERY

8.5.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 21 estimate is identical to Module 1 of the 50,000-bpd plant Unit 21 estimate, allowing for the scaling of equipment

common to more than one module. The majority of the equipment pricing reflects vendor quotes. Installation labor and bulk-commodity items are factored in accordance with Parsons standards.

In the 50,000-bpd plant Unit 21 estimate, the major pieces of equipment - such as vessels and heat exchangers - are defined and specified, and vendor quotes are obtained.

Using Parsons historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.5.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plan:	D-21-PD-101NP
Process Flow and Control Diagram:	
Gasifier	D-21-MP-101NP

8.6 UNIT 22 - PROCESS AREA A - OXYGEN

8.6.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 22 estimate includes one module of the 50,000-bpd plant Unit 22 estimate and one Derime System Package. Therefore, the major equipment is vendor-quoted. Equipment installation and bulk commodities are factored in accordance with Parsons standards.

In the 50,000-bpd plant Unit 22 estimate, the major pieces of equipment - such as compressors and the oxygen plant cold box package - are defined and specified, and vendor quotes are obtained.

Using Parsons historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.6.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:	D-22-PD-101NP
	D-22-PD-102NP
	D-22-PD-103NP

Process Flow and Control Diagrams:	
Air Compression	D-22-MP-101NP
Cold Box	D-22-MP-102NP
Cold Box	D-22-MP-103NP
Oxygen Compression	D-22-MP-104NP
Oxygen Plant	D-22-MP-105NP

8.7 UNIT 23 - PROCESS AREA A - CO SHIFT

8.7.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 23 estimate includes one module of the 50,000-bpd plant Unit 23 estimate. Therefore, the major equipment is vendor-quoted. Equipment installation and bulk commodities are factored in accordance with Parsons standards.

In the 50,000-bpd plant Unit 23 estimate, the major pieces of equipment - such as heat exchangers, vessels, and reactors - are defined and specified, and vendor quotes are obtained.

Using Parsons historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.7.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:	D-23-PD-101NP
	D-23-PD-102NP

Process Flow Control Diagrams:	
Gas Cooling	D-23-MP-101NP
Shift Section	D-23-MP-102NP

8.8 UNIT 24 - PROCESS AREA A - COAL GRINDING AND SLURRY PREPARATION

8.8.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 24 estimate is identical to Module 1 of the 50,000-bpd plant Unit 24 estimate, allowing for the scaling of equipment common to more than one module. The majority of equipment pricing reflects vendor quotes. Installation labor and bulk commodities are factored in accordance with Parsons standards.

In the 50,000-bpd plant Unit 24 estimate, the major pieces of equipment - such as pumps and material handling equipment - are defined and specified, and vendor quotes are obtained.

Using Parsons historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.8.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

General Arrangements:

Building Plans	D-24-MH-102NP
Building Elevations	D-24-MH-103NP
Slurry Tank and Pump Building Plans and Elevations	D-24-MH-104NP

Process Flow and Control Diagrams:

Coal Grinding	D-24-MP-101NP
Coal Grinding	D-24-MP-102NP
	D-24-MP-103NP

8.9 UNIT 25 - PROCESS AREA A - METHANOL SYNTHESIS

8.9.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 25 estimate is identical to Module 1 of the 50,000-bpd plant Unit 25 estimate and a 25% capacity cost scale-down of the Pressure Swing Absorption Package. Bulk commodities and installation labor are then factored in accordance with Parsons standards. All major equipment pricing except the PSA package reflects vendor quotes.

In the 50,000-bpd plant Unit 25 estimate, the major pieces of equipment - such as vessels, heat exchangers, and compressors - are defined and specified, and vendor quotes are obtained. Reactors and certain heat exchanger costs are provided by the process licensor.

Using Parsons historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.9.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:	D-25-PD-101NP
	D-25-PD-102NP

Process Flow and Control Diagrams:	
Gas Compression	D-25-MP-101NP
Gas Reaction	D-25-MP-102NP
Pressure Swing Absorption	D-25-MP-103NP

8.10 UNIT 26 - PROCESS AREA A - AMMONIA RECOVERY

8.10.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 26 estimate is prepared by cost scaling the 50,000-bpd plant vendor-quoted major equipment Unit 26 estimate for 25% capacity.

In the 50,000-bpd plant Unit 26 estimate, the major pieces of equipment - such as vessels, heat exchangers, and compressors - are defined and specified, and vendor quotes are obtained.

Using Parsons historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts - such as concrete, piping, and electrical - are factored and divided into material, field labor, and subcontracts.

8.10.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Process Flow and Control Diagram:

Ammonia Recovery

D-26-MP-101NP

8.11 UNIT 27 - PROCESS AREA A - EFFLUENT WATER TREATMENT

8.11.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 27 estimate is identical to Module 1 of the 50,000-bpd plant Unit 27 estimate, allowing for the scaling of equipment common to more than one module. The majority of the equipment pricing reflects vendor quotes. Installation labor and bulk-commodity items are factored in accordance with Parsons standards.

In the 50,000-bpd plant Unit 27 estimate, the major pieces of equipment - such as pumps and heat exchangers - are defined and specified, and vendor quotes are obtained.

Using Parsons historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.11.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plan:

Effluent Water Treating

D-27-PD-101NP

Process Flow and Control Diagrams:

Sludge Separation	D-27-MP-101NP
Ammonia Stripping	D-27-MP-102NP
Bio-Treatment	D-27-MP-103NP

8.12 UNIT 31 - PROCESS AREA B - METHANOL-TO-GASOLINE

8.12.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 31 estimate is prepared by incorporating the late changes in one of the modules of the 50,000-bpd plant Unit 31 estimate and then factoring it for 75% capacity.

Major pieces of equipment - such as vessels and heat exchangers - are defined and specified and individually priced based on vendor quotations.

Using historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.12.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plan:	D-31-PD-101NP
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Process Flow and Control Diagrams:

Methanol to Gasoline	D-31-MP-101NP
Conversion Reactors	D-31-MP-102NP
Regeneration	D-31-MP-103NP

8.13 UNIT 32 - PROCESS AREA B - GAS FRACTIONATION

8.13.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 32 estimate is prepared by factoring the 50,000-bpd plant Unit 32 estimate for 25% capacity.

Major pieces of equipment in the 50,000-bpd plant Unit 32 estimate - such as columns and vessels - are defined and specified and individually priced based on vendor quotations.

Using historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.13.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:	D-32-PD-101NP
	D-32-PD-102NP
Process Flow and Control Diagrams:	
Deethanization	D-32-MP-101NP
Depentanization	D-32-MP-102NP
Gasoline Splitter	D-32-MP-103NP
Depropanization	D-32-MP-104NP

8.14 UNIT 33 - PROCESS AREA B - HF ALKYLATION

8.14.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 33 estimate is prepared by factoring the 50,000-bpd plant Unit 33 estimate for 25% capacity.

Major pieces of equipment in the 50,000-bpd plant Unit 33 estimate - such as columns and vessels - are defined and specified and individually priced based on vendor quotations. The concrete tanks, calcium fluoride precipitator, and the HF acid neutralizer are priced in-house.

Using historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored from the equipment values. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.14.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:	D-33-PD-101NP
	D-33-PD-102NP

Process Flow and Control Diagrams:	
Acid System	D-33-MP-101NP
Fractionation	D-33-MP-102NP
Waste Disposal	D-33-MP-104NP

8.15 UNIT 34 - PROCESS AREA B - ACID GAS REMOVAL

8.15.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 34 estimate is developed by using major equipment for one module of the 50,000-bpd plant after adjusting for late changes. Major pieces of equipment - such as vessels and heat exchangers - are defined and specified and individually priced based on vendor quotations. Installation labor is factored based on Parsons standards. Bulk-commodity accounts are factored in accordance with Parsons standards.

8.15.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:	D-34-PD-101NP
	D-34-PD-102NP

Process Flow and Control Diagrams:

Acid Gas Removal	D-34-MP-101NP
Acid Gas Removal	D-34-MP-102NP
Acid Gas Removal	D-34-MP-103NP
Acid Gas Removal	D-34-MP-104NP
Methanol Storage	D-34-MP-105NP

8.16 UNIT 36 - PROCESS AREA B - SULFUR RECOVERY (CLAUS)

8.16.1 MAJOR EQUIPMENT

The 12,500-bpd plant estimate for Unit 36 is factored from the 50,000-bpd plant Unit 36 estimate by reducing the capacities of both modules to 25%.

Major pieces of equipment in the 50,000-bpd plant estimate for Unit 36 - such as heat exchangers and vessels - are defined and specified and individually priced based on vendor quotations. The compressor houses are priced in-house and are shown in Accounts 4100 and 4300.

Using historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored in accordance with Parsons standards. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

Unit 36 Modules 1 and 2 are identical. Hence, details are prepared for one and duplicated. Then, the combined bulk commodities are factored at the unit level.

8.16.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:	D-36-PD-101NP
	D-36-PD-102NP

Process Flow and Control Diagrams:

Sulfur Recovery	D-36-MP-101NP
Sulfur Recovery	D-36-MP-102NP
Sulfur Recovery	D-36-MP-103NP

8.17 UNIT 37 - PROCESS AREA B - SULFUR REMOVAL (BSRP)

8.17.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 37 estimate is factored from the 50,000-bpd plant Unit 37 estimate by reducing the capacities of both the modules to 25%.

Major pieces of equipment in the 50,000-bpd plant estimate for Unit 37 - such as columns and vessels - are defined and specified and individually priced based on vendor quotations.

Using historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored in accordance with Parsons standards. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.17.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Process Flow and Control Diagrams:

Tail Gas Reactor	D-37-MP-101NP
Sulfur Recovery	D-37-MP-102NP
Solution Regeneration	D-37-MP-103NP
Common Equipment	D-37-MP-104NP

8.18 UNIT 38 - PROCESS AREA B - HEAVY GASOLINE TREATING

8.18.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 38 estimate is factored from the 50,000-bpd plant Unit 38 estimate by reducing its capacity to 25%.

Major pieces of equipment in the 50,000-bpd plant Unit 38 estimate - such as vessels and heat exchangers - are defined and specified and individually priced based on vendor quotations.

Using historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored in accordance with Parsons standards. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.18.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Process Flow and Control Diagrams:

Heavy Gasoline Treating	D-38-MP-101NP
Heavy Gasoline Treating	D-38-MP-102NP

8.19 UNIT 39 - PROCESS AREA B - PROCESS WATER TREATMENT

8.19.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 39 estimate is factored from the 50,000-bpd plant Unit 39 estimate by reducing its capacity to 25%.

Major pieces of equipment in the 50,000-bpd plant Unit 39 estimate - such as vessels and heat exchangers - are defined and specified and individually priced based on vendor quotations.

Using historical data for like or comparable units, the costs of equipment installation, as well as the bulk-commodity accounts, are factored in accordance with Parsons standards. These commodity accounts - such as concrete, piping, and electrical - are divided into material, field labor, and subcontracts.

8.19.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plan:	D-39-PD-101NP
------------	---------------

Process Flow and Control Diagram:

Process Water Treatment	D-39-MP-101NP
-------------------------	---------------

8.20 UNIT 51 - UTILITIES AND OFFSITES - UTILITIES SUPPLY

8.20.1 MAJOR EQUIPMENT

This is a detailed estimate. Major pieces of equipment - such as vessels - are defined and specified and individually priced based on vendor

quotations. Installation labor is factored based on Parsons standards. Bulk-commodity accounts - such as concrete, piping, instruments, and electrical - are factored in accordance with Parsons standards.

8.20.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plan:	D-01-PD-101NP
------------	---------------

Civil Drawings:

Water Intake Pump Station	D-51-CE-101NP
Water Settling Ponds	D-51-CE-102NP
Water Relift Pump Station	D-51-CE-103NP

Utility Flow and Control Diagrams:

Raw Water Treatment	D-51-MP-101NP
Cooling Water Tower	D-51-MP-102NP
Cooling Water Tower	D-51-MP-103NP
Cooling Water	D-51-MP-104NP
Air Compressors	D-51-MP-105NP

Instrument Air Dryers	D-51-MP-106NP
Air Distribution	D-51-MP-107NP
High Pressure N ₂ Compressors	D-51-MP-108NP
High Pressure N ₂	D-51-MP-109NP
Miscellaneous N ₂ Compressors	D-51-MP-110NP
Breathing Air	D-51-MP-111NP
Fuel Gas	D-51-MP-112NP
Clarifier Feed Chemicals	D-51-MP-113NP
Treatment Chemicals Storage	D-51-MP-114NP
HF Alkylation Cooling Tower	D-51-MP-115NP

The electrical estimate includes all electrical equipment except the 480-V MCCs located within Process Units 21 to 39. The MCCs for those units are factored into its corresponding unit estimates.

The estimate includes overall job aboveground and underground utility piping. The estimate also includes utility interconnecting piping.

8.21 UNIT 52 - UTILITIES AND OFFSITES - STEAM GENERATION

8.21.1 MAJOR EQUIPMENT

In this unit, major pieces of equipment - such as vessels and heat exchangers - are defined and specified and in-house priced by Parsons. Installation labor is factored based on Parsons standards. Bulk-commodity accounts are factored in accordance with Parsons standards.

The prices for certain equipment in this unit are included with the package equipment price, as follows:

<u>Item Number</u>	<u>Package Equipment</u>
52-01 through 03-1101	52-01-2801
52-01-1214 and 1216	Accounts 4100 and 4300
52-01 through 03-1304	52-01-2801
52-01-1531 through 1545	52-01-2801
52-01-1556 through 1557	52-01-2814
52-02-1533 through 1537	52-01-2801
52-03-1533 through 1537	52-01-2801
52-01 through 03-1801	52-01 through 03-1601
52-01-1802 and 1803	52-01-2801
52-01 through 03-1804	52-01 through 03-1601
52-01 and 02-1805 and 1806	52-01 and 02-1401
52-01 and 02-1807 and 1808	52-01 and 02-1402
52-01-1904	52-01-2801

<u>Item Number</u>	<u>Package Equipment</u>
52-01 through 03-1905	52-01-2801
52-01-1906 through 1909	52-01-2801
52-01-2001 through 2004	52-01-2801
52-01-2008	52-01-2801
52-01-2101 through 2104	52-01-1601
52-02-2101 through 2104	52-02-1601
52-03-2101 through 2104	52-03-1601
52-01-2202 through 2205	52-01-2801
52-02-2202 through 2205	52-01-2801
52-03-2202 through 2205	52-01-2801
52-01-2214	52-01-2801
52-01-2401	52-01-2801
52-01 through 03-2402	52-01-2801
52-01-2403 and 2404	52-01-2801
52-01-2603 through 2606	52-01-2801
52-01 through 03-2701	52-01 through 03-1601
52-01-2702	52-01-2801
52-01-2903 through 2906	52-01-2801
52-01-3001	52-01-2801
52-01-5301	Accounts 4100 and 4300

8.21.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plans:

Steam Power Plant	D-52-PD-101NP
Steam Power Plant	D-52-PD-102NP
Steam Power Plant	D-52-PD-103NP

Process Flow and Control Diagrams:

Carbon Filters	D-52-MP-101NP
Demineralization	D-52-MP-102NP
Demineralization	D-52-MP-103NP
Demineralizer Chemicals	D-52-MP-104NP
BDW Deaerator	D-52-MP-105NP
Steam Generation	D-52-MP-106NP
Steam Distribution	D-52-MP-107NP
Condensate Collection	D-52-MP-108NP
Flue Gas Desulfurization	D-52-MP-109NP
Flue Gas Desulfurization	D-52-MP-110NP
Steam Balance	D-52-MP-111NP
Steam Balance	D-52-MP-112NP

8.22 UNIT 53 - UTILITIES AND OFFSITES - WASTE TREATMENT

8.22.1 MAJOR EQUIPMENT

In this unit, major pieces of equipment - such as vessels, pumps, and drivers - are defined and specified and in-house priced by Parsons. Installation labor is factored based on Parsons standards. Bulk-commodity accounts are factored in accordance with Parsons standards.

The price for certain equipment in this unit is included with the package equipment price, as follows:

<u>Item Number</u>	<u>Packaged Equipment Item Number</u>
53-01-1203	53-01-3101
53-01-1204	53-01-3101
53-01-1205	53-01-3102/3103
53-01-1206	53-01-3102/3103
53-01 through 02-1212	53-01 through 02-2805
53-01-1213	53-01-2804

Item Number	Packaged Equipment Item Number
53-01 through 02-1301	53-01 through 02-2805
53-01-1532 through 1538	53-01-2803
53-02-1532 through 1536	53-02-2803
53-01 through 02-1577 through 1584	53-01 through 02-2805
53-01-1585 through 1588	53-01-2837
53-01-1589 and 1590	53-01-2839
53-01-1591 through 1597	53-01-2804
53-01-1802	53-01-3101
53-01-1803	53-01-3102/3103
53-01 through 02-1804	53-01 through 02-2805
53-01-1903 through 1908	Account 4100
53-01-1910	Account 4100
53-01-1911 and 1912	53-01-2803
53-02-1911 and 1912	53-02-2803
53-01 through 02-1917 through 1919	53-01 through 02-2805
53-01-1920 and 1921	53-01-2837
53-01-1922	53-01-2839
53-01-1923 and 1924	53-01-2804
53-01 through 02-2207	53-01-02-2805
53-01-2404	53-01-3101
53-01-2406	53-01-3102/3103
53-01-2407 and 2408	53-01-2803
53-02-2407 and 2408	53-02-2803
53-01-2409 and 2410	53-01-2837
53-01-2411 and 2412	53-01-2804
53-01 through 04-2601 through 2603	Accounts 4100, 4300
53-01-2604	53-01-2837
53-01-2811	53-01-2803
53-01-2813 through 2816	53-01-2803
53-02-2813 through 2816	53-02-2803
53-01 through 02-2828	53-01-02,-2811
53-01 through 02-2829	53-01-2812

Item Number	Packaged Equipment
Item Number	
53-01-2830 through 2831	53-01-2803
53-01-2837 through 2840	53-01-2804
53-01-2843 through 2844	53-01-2839
53-01-2846	53-01-2804
53-01-2848 and 2850	53-01-3101
53-01 through 02-2851	53-01 through 02-2805
53-01-3202 through 3205	Account 4100
53-01-3301	53-01-2837

8.22.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Process Flow and Control Diagrams:

Reverse Osmosis	D-53-MP-101NP
Reverse Osmosis	D-53-MP-102NP
Evaporation	D-53-MP-103NP
Evaporation	D-53-MP-104NP
Lime Slaking Sulfate Solution	D-53-MP-105NP
Neutralizer Pit and Belt Press	D-53-MP-106NP
Lime Slaking/Ferrous Sulfate	D-53-MP-107NP
Sodium Carbonate System	D-53-MP-108NP

Civil Drawings:

Overall Waste Water Management	
Block Flow Diagram	E-01-CE-102NP
Waste Treatment, Sheet 1	D-53-CE-101NP
Waste Treatment, Sheet 2	D-53-CE-102NP
Inert Solids Treatment System	D-53-CE-103NP
Dump Leachate Return Systems	D-53-CE-106NP

8.23 UNIT 54 - UTILITIES AND OFFSITES - SITE IMPROVEMENTS

8.23.1 MAJOR EQUIPMENT

This is a detailed estimate. It covers the roads, culverts, paving, gravel, and railroad for the overall project.

8.23.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Rough Grading	D-54-CE-101NP
Preloading Plant	D-54-CE-102NP
Site Preparation	D-54-CE-103NP
Site Preparation	D-54-CE-104NP
Underground Utilities	D-54-CE-107NP
Underground Utilities	D-54-CE-108NP
Underground Utilities	D-54-CE-109NP

8.24 UNIT 55 - UTILITIES AND OFFSITES - GASOLINE BLENDING

8.24.1 MAJOR EQUIPMENT

This is a detailed estimate. The major pieces of equipment such as vessels are defined and specified and in-house priced by Parsons. Installation labor is factored based on Parsons standards. The bulk-commodity accounts - such as concrete, piping, instruments, and electrical - are factored in accordance with Parsons standards.

8.24.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent document:

Utility Flow and Control Diagram:

Gasoline Blending	D-55-MP-101NP
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8.25 UNIT 56 - UTILITIES AND OFFSITES - INFRASTRUCTURE

8.25.1 MAJOR EQUIPMENT

This is a detailed estimate. It covers the full site as one module. The square-foot pricing of the buildings encompasses the complete building, including all components and fixtures. Certain units have buildings that are included in their units and are not a part of Unit 56.

8.25.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

<u>Document Number</u>	<u>Computer File Name</u>	<u>Document Title</u>	<u>Building Number</u>
D-56-AR-101NP	D56AR1.FP1	Administration Building First Floor Plan	56-4901
D-56-AR-102NP	D56AR2.FP2	Administration Building Second Floor Plan	56-4901
D-56-AR-103NP	D56AR3.FP1	Gasoline and General Laboratory Plan	56-4916
D-56-AR-106NP	D56AR6.FP1	Fire Station Floor Plan	56-4902
D-56-AR-119NP	D56AR19.FP1	Coal Sampling Laboratory and Control Room	56-4915
D-56-AR-120NP	D56AR20.FP1	Chemical Warehouse	56-4920
D-56-AR-122NP	D56AR22.FP1	Control Building Floor Plans	56-4903

<u>Document Number</u>	<u>Computer File Name</u>	<u>Document Title</u>	<u>Building Number</u>
D-56-AR-124NP	D56AR24.FP1	Gate House Plan	56-4940
D-56-AR-125NP	D56AR25.FP1	Railroad Unloading and Product Loading Office	56-4938
D-56-AR-128NP	D56AR28.FP1	Boiler Room Floor Plan	56-4913
D-56-AR-131NP	D56AR31.PS	Shelter Bus Stop	56-4933
D-56-AR-135NP	D56AR35.FP1	Main Substation Control Room	56-4939
D-56-AR-136NP	D56AR36.FP1	Operator's Changeroom Alkylation Plant	56-4937
D-56-AR-137NP	D56AR37.FP1	Control Center Plan Coal Grinding Slurry Building	56-4914
D-56-AR-138NP	D56AR38.FP1	Relift Pumping Station	56-4934
D-56-AR-139NP	D56AR39.FP1	Water Intake Pumping Station	56-4935
D-56-AR-144NP	D56AR44.FP1	Satellite Control Building	56-4908
		Satellite Control Building	56-4909
		Satellite Local Building	56-4910
		Satellite Local Building	56-4911
D-56-AR-149NP	D56AR49.FP1	Slurry Building	56-4932
D-56-AR-150NP	D56AR50.FP1	Shipping Building	56-4936
D-56-AR-151NP	D56AR51.FP1	Maintenance Building #1 (T-Shape w/Warehouse)	56-4917

<u>Document Number</u>	<u>Computer File Name</u>	<u>Document Title</u>	<u>Building Number</u>
D-56-AR-152NP	D56AR52.FP2	Maintenance Building #1 Mezzanine	56-4917
D-56-AR-155NP	D56AR55.FP1	Railcar Maintenance Building	56-4931
D-56-AR-156NP	D56AR56.FP1	Satellite Maintenance Building (Typical)	56-4921 through 56-4925
D-56-AR-157NP	D56AR57.FP1	Water Treatment Building #1	56-4941
D-56-AR-159NP	D56AR59.FP1	Emergency Electric Generator Building	56-4943
D-56-AR-160NP	D56AR60.FP1	Wastewater Reverse Osmosis Building	56-4944
D-56-AR-163NP	D56AR63.FP1	Waste Disposal Area Office	56-4948

8.26 UNIT 57 - UTILITIES AND OFFSITES - STORAGE AND SHIPPING

8.26.1 MAJOR EQUIPMENT

In this unit, major pieces of equipment - such as vessels, pumps, and storage tanks - are defined and specified and in-house priced by Parsons. Installation labor is factored based on Parsons standards. The bulk-commodity accounts - such as concrete, piping, and electrical - are factored in accordance with Parsons standards.

8.26.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plan:

Product Barge Shipping	D-57-PD-101NP
------------------------	---------------

Utility Flow and Control Diagrams:

Ammonia	D-57-MP-101NP
Sulfur	D-57-MP-102NP
LPG	D-57-MP-103NP
Isobutane	D-57-MP-104NP
Gasoline	D-57-MP-105NP
Chemical Storage	D-57-MP-106NP

8.27 UNIT 58 - UTILITIES AND OFFSITES - FIRE PROTECTION

8.27.1 MAJOR EQUIPMENT

This is a detailed estimate. It covers the full site as one module. The difference in pricing between the diesel-driven firewater pumps located at the plant (58-01-1502, 1503, and 1504) and the two located at the barge slip (58-01-1507 and 1508) results from the differences in length and type of intake barrel. The miscellaneous fire protection systems are factored to 50% capacity of the 50,000-bpd plant Unit 58 estimate. Instruments, controls, and underground piping are factored to 70% of the cost of the 50,000-bpd plant Unit 58 estimate according to Project Engineering.

8.27.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Utility Flow Diagram: D-58-MP-101NP

Underground Utilities: D-54-CE-107NP

D-54-CE-108NP

D-54-CE-109NP

8.28 UNIT 59 - UTILITIES AND OFFSITES - FLARE

8.28.1 MAJOR EQUIPMENT

This is a detailed estimate and includes one module of the 50,000-bpd plant Unit 59 estimate. The bulk commodities are factored from the 50,000-bpd plant Unit 59 estimate to 60%.

8.28.2 SCOPE OF WORK

This estimate represents a complete plant flare facility, as defined on the following pertinent documents:

Process Flow and Control Diagrams:

Flare Stacks D-59-MP-101NP

Flare Headers D-59-MP-102NP

Flare Headers D-59-MP-103NP

8.29 UNIT 60 - OFF-PLOT INTERCONNECTING PIPING AND PIPEWAYS

8.29.1 MAJOR EQUIPMENT

The 12,500-bpd plant Unit 60 estimate is developed from the 50,000-bpd plant Unit 60 estimate by using a factor of 60%.

The 50,000-bpd plant Unit 60 estimate is a detailed estimate of off-plot interconnecting piping and pipeways, including sleepers. It covers the complete project.

8.29.2 SCOPE OF WORK

This estimate represents the overall plant interconnecting pipeway systems.

Piping - Developed preliminary layouts and design on plot plans

Structural - Same as piping

8.30 UNIT 61 - BARGE DOCK

8.30.1 MAJOR EQUIPMENT

This is a detailed estimate for the docking facilities including mooring dolphins with fenders, unloading ramp, and a small slip.

8.30.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the preliminary design and quantities on detailed sketches developed by the Civil and Structural groups.

8.31 UNIT 62 - PLANT MAINTENANCE EQUIPMENT (MOBILE AND INSTALLED)

8.31.1 MAJOR EQUIPMENT

This is a detailed estimate. The plant maintenance shop equipment is defined and specified and individually priced based on vendor quotations. Subcontract installation labor is then factored based on Parsons past experience on similar projects.

8.31.2 SCOPE OF WORK

This estimate represents plant maintenance equipment, as defined in the attached Equipment List.

8.32 UNIT 63 - INTERMEDIATE TANKAGE

8.32.1 MAJOR EQUIPMENT

This is a detailed estimate. It covers the complete site, including storage tanks, charge pumps, feed pumps, filling pumps, piling, fireproofing, piping, grading, handrails, painting, instruments, electrical, and insulation.

The major pieces of equipment - such as pumps and storage tanks - are defined and specified, and vendor quotes are obtained. The bulk commodities are factored in accordance with Parsons standards.

8.32.2 SCOPE OF WORK

This estimate represents a battery-limits facility, and is defined in the following pertinent documents:

Plot Plan No. 2:	D-01-PD-111NP
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Process Flow and Control Diagram:	
Intermediate Tankage	D-63-MP-101NP

W. R. GRACE & CO.
COAL-TO-METHANOL-TO-GASOLINE PROJECT

BASIS OF ESTIMATE

LIST OF ATTACHMENTS

1.	Proprietary Status - Equipment Lists and Detailed Estimate Worksheets	A-2
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PROPRIETARY STATUS - EQUIPMENT

LISTS AND DETAILED ESTIMATE WORKSHEETS

The Capital Investment Estimate includes the following unit details due to proprietary status of the units as described below.

<u>Equipment List</u>	<u>Data Sheets</u>	<u>Inclusion Description</u>
P	P	Unit summaries are included without equipment count.
NP	P	Unit summaries and Equipment List are included with equipment prices on the Equipment List.
NP	NP	Unit summaries with all detail worksheets are included.

<u>Unit</u>	<u>Description</u>	<u>Equipment Lists</u>	<u>Detailed Estimate Worksheets</u>
11	Coal Receiving and Unloading	NP	NP
12	Coal Conveying and Storage	NP	NP
13	Coal Stacking and Reclaiming	NP	NP
14	Slag, Ash, Sludge Collection and Disposal	NP	NP
21	Coal Gasification and Waste Heat Recovery	P	P
22	Oxygen	NP	NP
23	CO Shift	NP	NP
24	Coal Grinding and Slurry Preparation	P	P
25	Methanol Synthesis	NP	P
26	Ammonia Recovery	NP	NP
27	Effluent Treatment	P	P
31	Methanol-to-Gasoline	P	P
32	Gas Fractionation	NP	NP

LISTS AND DETAILED ESTIMATE WORKSHEETS (Contd)

<u>Unit</u>	<u>Description</u>	<u>Equipment Lists</u>	<u>Detailed Estimate Worksheets</u>
33	HF Alkylation	NP	P
34	Acid Gas Removal	NP	P
36	Sulfur Recovery	NP	P
37	Sulfur Removal	NP	P
38	Heavy Gasoline Treating	P	P
39	Process Water Treatment	P	P
51	Utilities Supply	NP	NP
52	Steam Generation	NP	NP
53	Waste Treatment	NP	NP
54	Site Improvements	NA	NA
55	Gasoline Blending	NP	NP
56	Infrastructure	NA	NA
57	Storage and Shipping	NP	NP
58	Fire Protection	NP	NA
59	Flare	NP	NP
60	Off-Plot Interconnecting Piping	NA	NA
61	Barge Dock	NA	NA
62	Plant Maintenance Equipment	NP	NA
63	Intermediate Tankage	NP	NP

P = Proprietary

NP = Nonproprietary

NA = Not Applicable

PARSONS STANDARD CODE OF ACCOUNTS

<u>Major Account</u>	<u>Description</u>
0000	<u>GENERAL INFORMATION</u>
	<u>MAJOR EQUIPMENT</u>
0100	Power Generators and Drivers
0200	Electrical Equipment
0300	Open
0400	Open
0500	Process Feeders
0600	Control Panels and Computers
0700	Nuclear Fuel Handling Equipment
0800	Packaged Plants
0900	Samplers and Analyzers
1000	Hoists and Cranes
1100	Columns
1200	Vessels
1300	Heat Exchangers and Condensers
1400	Furnaces, Heaters, Burners and Stacks
1500	Pumps and Drivers
1600	Boilers
1700	Cooling Towers
1800	Compressors and Blowers
1900	Storage Tanks and Spheres
2000	Materials Handling Equipment
2100	Reduction Equipment
2200	Separation Equipment
2300	Concentration Equipment
2400	Agitators, Mixers and Blenders
2500	Reactors (All Types)

PARSONS STANDARD CODE OF ACCOUNTS (Contd)

Major
Account

Description

MAJOR EQUIPMENT (Contd)

2600	Hoppers, Bins, Chutes and Silos
2700	Classification and Screening Equipment
2800	Other Major Equipment
2900	Environmental and Process Ventilation Equipment
3000	Rod and Ball Handling Equipment
3100	Flotation Equipment
3200	Launders and Sumps
3300	Thickeners and Thickening Mechanisms
3400	Roasters, Ovens, Dryers and Kilns
3500	Loading and Unloading Equipment
3600	Transfer Equipment and Rolling Stock
3700	Mobile Mining Equipment
3800	Weighing and Packaging Equipment
3900	Maintenance Shop, Garage and Laboratory Equipment

DIRECT MATERIAL

4000	Open
4100	Concrete Work and Piling
4200	Pipe, Valves and Fittings - Aboveground
4300	Structural Steel
4400	Instruments and Controls
4500	Painting
4600	Electrical
4700	Insulation
4800	Roads, Parking, Paving, Railroads and Fencing
4900	Buildings
5000	Building Components and Fixtures

PARSONS STANDARD CODE OF ACCOUNTS (Contd)

<u>Major Account</u>	<u>Description</u>
<u>DIRECT MATERIAL (Contd)</u>	
5100	Large Specialty Structures
5200	Pipe, Valves and Fittings - Underground, Firelines, Sewers and Drains
5300	Other Civil Work (Dams, Docks, Dikes, Ponds, etc.)
5400	Open
5500	Open
5600	Open
5700	Open
5800	Open
5900	Open
<u>OTHER DIRECT COSTS</u>	
6000	Freight - Ocean
6100	Spare Parts
6200	Operating Materials
6300	Site Preparation
6400	Demolition, Dismantling and Relocation
6500	Startup Services
6600	Soil, Water and Other Investigations
6700	Premium Pay - Craft
6800	Nonproductive Time
6900	Nonpayroll Taxes, Duty and Custom Brokerage
<u>FIELD INDIRECT COSTS</u>	
7000	Open
7100	Temporary Construction

PARSONS STANDARD CODE OF ACCOUNTS (Contd)

<u>Major Account</u>	<u>Description</u>
<u>FIELD INDIRECT COSTS (Contd)</u>	
7200	Offsite Storage
7300	Unallocable Labor - Craft
7400	Open
7500	Welfare and Fringe Benefits - Craft Labor
7600	Payroll Insurance and Taxes - Craft Labor
7700	Other Insurance, Bonds and Permits
7800	Advertising, Public Relations and Other Costs for Craft Labor
7900	Open
8000	Open
8100	Field Administration and Office Expense (Including Staff Payroll, Insurance, Taxes and Benefits)
8200	Open
8300	Construction Equipment and Servicing
8400	Small Tools
8500	Consumable Supplies
8600	Subsistence and Lodging - Craft
8700	Transportation - Craft
8800	Open
8900	RMPCo Charges - All Locations
<u>OTHER</u>	
0001	Home Office
0002	Contracts

UNIT DESCRIPTIONS

The Coal-to-Methanol-to-Gasoline Plant comprises the following units:

<u>Unit No.</u>	<u>Description</u>
11	Coal Area - Coal Receiving and Unloading
12	Coal Area - Coal Conveying and Storage
13	Coal Area - Coal Stacking and Reclaiming
14	Coal Area - Slag, Ash and Boiler Sludge Collection and Disposal
21	Process Area A - Coal Gasification and Waste Heat Recovery
22	Process Area A - Oxygen
23	Process Area A - CO Shift
24	Process Area A - Coal Grinding and Slurry Prepa- ration
25	Process Area A - Methanol Synthesis
26	Process Area A - Ammonia Recovery
27	Process Area A - Effluent Water Treatment (Texaco)
31	Process Area B - Methanol-to-Gasoline
32	Process Area B - Gas Fractionation
33	Process Area B - HF Alkylation
34	Process Area B - Acid Gas Removal
36	Process Area B - Sulfur Recovery (Claus)
37	Process Area B - Sulfur Removal (BSRP)
38	Process Area B - Heavy Gasoline Treating
39	Process Area B - Process Water Treatment (Mobil)
<u>Utilities and Offsites</u>	
51	Utilities Supply
	Potable Water
	Raw Water Supply and Treatment

- 51 Utilities Supply (Contd)
 Cooling Water Supply and Cooling Towers
 Utility and Instrument Air
 Electrical Supply from Utility (161 kV) to Plant
 Switch Yard
 Electrical Distribution to Unit Substations
- 52 Steam Generation
 Steam Boilers
 Superheaters
 Boiler Feedwater - Treatment, Storage and Dis-
 tribution
 Steam Distribution
 Condensate System
 Flue Gas Desulfurization and Particulate Removal
- 53 Waste Treatment
 Boiler Blowdown
 Cooling Tower Blowdown
 Sanitary Wastes
 Solid Wastes
 Liquid Plant Wastes
- 54 Site Improvements
 Site Preparation
 Grading
 Drainage
 Roads
 Railroads
 Paving and Landscaping
- 55 Gasoline Blending

UNIT DESCRIPTIONS (Contd)

<u>Unit No.</u>	<u>Description</u>
56	Infrastructure Buildings Fences and Gates Street Lighting
57	Storage and Shipping Gasoline LPG Butane Sulfur Ammonia
58	Fire Protection Firewater System Foam Equipment Firehouse Fire Trucks Fire Fighting Equipment
59	Flare
60	Off-plot Interconnecting Piping and Pipeways
61	Barge Dock
62	Plant Maintenance Equipment (Mobile and Installed)
63	Intermediate Tankage

CRAFTSMEN'S INFORMATION

BY M. BrownDATE Feb 10, 1982JOB NO 6182-1010-16CUSTOMER W R Grace and CompanyLOCATION EVANSVILLE, Indiana

LEGEND																	
NOTE																	
E - ESTIMATED - - NOT REQUIRED AND/OR NONE																	
FORM MUST BE FILLED OUT COMPLETELY																	
		BOILERMAKERS	BRICKLAYERS	CARPENTERS	ELECTRICIANS	LABORERS	INSULATORS	OPERATING ENGINEERS	MILLWRIGHTS	PAINTERS	PIPEFITTERS	REINFORCING ROOMEN	IRONWORKERS	TEAMSTERS	SHEET METAL WORKERS	CEMENT MASONS	
JOURNEYMEN'S RATE	RATE PER HOUR AS OF	14 60	10 99	13 17	13 73	11 05	15 81	14 27	15 79	12 80	18 22	15 90	15 90	11 80	16 65	12 85	
	INCREASES IN CONTRACT	1	DATE		4/1/82		4/1/82	4/1/82	4/1/82								4/1/82
		AMOUNT			14 07		12 00	17 20	11 73								13 85
		2	DATE														
		AMOUNT															
	3	DATE															
	AMOUNT																
	DATE PRESENT CONTRACT EXPIRES																
	ESTIMATED ESCALATION AT EXPIRATION OF PRESENT CONTRACT	DATE															
	AMOUNT																
FOREMEN'S DIFFERENTIAL	ASSISTANT FOREMAN																
	FOREMAN	15 85	11 49	14 77	14 23			15 23	16 74	13 30	18 37					14 35	
	NUMBER OF MEN PER FOREMAN																
	GENERAL FOREMAN																
	NO OF FOREMEN PER GENERAL FOREMAN																
OVERTIME PROVISIONS	MONDAY THRU SATURDAY																
	SUNDAY AND HOLIDAY																
WORKDAY HOURS																	
SHIFT WORK DIFFERENTIAL	SECOND																
	THIRD																
SHOW UP TIME																	
TRAVEL TIME AND MILEAGE																	
TRAVEL AT START AND FINISH																	
DAILY TRAVEL EXPENSE																	
SUBSISTENCE PAYMENT																	
WELFARE AND BENEFITS	HEALTH AND WELFARE	1 17	.45	.80	.50	1 00	.75	.65	.80	.80	.70	.55	.55	.90	.75	1 15	
	PENSION	1 20	.40	1.00	3% NEIF	.75	1 25	1 20	.90	.60	1 10	1 05	1 05	\$51 wk	.84	.80	
	VACATION						(1 50)			(6%)	(10%)				(1 50)		
	APPRENTICESHIP	.04			1% NEIF	.09		.08			.08	.045	.045		.04		
	INCREASES IN CONTRACT	1	HEALTH AND WELFARE			.90		1 05		.80							
PENSION								1 25									
VACATION									10								
APPRENTICESHIP																	
2		HEALTH AND WELFARE															
		PENSION															
		VACATION															
		APPRENTICESHIP															
AVAILABILITY																	
PRODUCTIVITY RELATED TO																	
UNION	JURISDICTION																
	LOCAL NO	40	10	601	1701	561	37	181	1080	156				215	36	566	
	LOCATION																
BUSINESS AGENT ADDRESS & TELEPHONE		LOCIF - Lower Ohio Valley Construction Industry Fund Ind Ind Industrial Fund Ck off Check Off Dues Prom Promotional Dues SASHI - Stabilization Agreement of Sheet Metal Industry () out of gross wages															

THE RALPH M. PARSONS COMPANY

JOB NO: 6182-1010 ESTIMATOR: T. JUSTICE
 CLIENT: W. R. GRACE & CO. DATE OF RUN: 02/16/82
 PROJECT: COAL-TO-METHANOL-TO-GASOLINE
 LOCATION: KENTUCKY, BASKETT EFFECTIVE DATE: 02/16/82

SUBCONTRACT LABOR RATES PROGRAM

VERSION III - REV. 1 OF 10/25/76

SUBCONTRACT INPUT CHECKLIST

PERCENTAGE FOR PAYROLL INSURANCE AND TAXES: 19.09

COMPOSITE LABOR RATES

	<u>CRAFT</u>	<u>HOURLY</u> <u>RATE</u>	<u>WELF. &</u> <u>FRINGE</u>	<u>SUBS &</u> <u>LODG</u>	<u>TRANSP</u> <u>CRAFT</u>
(1)	BOILERMAKER	14.600	2.415	0.000	0.000
(2)	BRICKLAYER	10.990	0.860	0.000	0.000
(3)	CARPENTER	13.170	2.225	0.000	0.000
(4)	ELECTRICIAN	13.730	1.066	0.000	0.000
(5)	LABORER	11.050	1.890	0.000	0.000
(6)	INSULATORS	15.810	2.000	0.000	0.000
(7)	OPER. ENG.	14.270	1.960	0.000	0.000
(8)	MILLWRIGHT	15.790	1.730	0.000	0.000
(9)	PAINTERS	12.800	1.400	0.000	0.000
(10)	PIPEFITTERS	18.220	1.880	0.000	0.000
(11)	RODMAN	15.900	1.645	0.000	0.000
(12)	IRONWORKER	15.900	1.645	0.000	0.000
(13)	TEAMSTER	11.805	2.175	0.000	0.000
(14)	SHEETMETAL	16.650	2.320	0.000	0.000
(15)	CEMENT MASON	12.850	1.980	0.000	0.000

THE RALPH M. PARSONS COMPANY

JOB NO: 6182-1010 ESTIMATOR: T. JUSTICE
 CLIENT: W. R. GRACE & CO. DATE OF RUN: 02/16/82
 PROJECT: COAL-TO-METHANOL-TO-GASOLINE
 LOCATION: KENTUCKY, BASKETT EFFECTIVE DATE: 02/16/82

SUBCONTRACT LABOR RATES PROGRAM

VERSION III - REV. 1 OF 10/25/76

SUBCONTRACT LABOR RATES

ACCT <u>NO.</u>	ACCOUNT <u>NAME</u>	COMPOSITE <u>RATE</u>	SUBCON <u>RATE</u>	MULT. OVER <u>COMP. RATE</u>
100	- POWER GEN & DRIV.	15.98	30.76	1.93
200	- ELECT. EQUIP.	14.00	26.59	1.90
500	- PROC. FEEDERS	15.96	30.84	1.93
600	- CONTROL PANL.	15.84	30.26	1.91
700	- N. FUEL HDLG EQ.	15.48	29.88	1.93
900	- SAMPLERS & ANAL.	17.94	34.58	1.93
1000	- HOISTS & CRANES	15.74	30.45	1.93
1100	- COLUMNS	14.77	29.27	1.98
1200	- VESSELS	15.32	30.20	1.97
1300	- HEAT EXCH. S&T	17.32	33.52	1.94
1300	- HEAT EXCH. AIR	16.23	31.50	1.94
1400	- FURN & HTR-FFAB	15.72	30.80	1.96
1400	- FURN & HTRS-PKG.	15.34	30.25	1.97
1500	- PUMPS	16.32	31.51	1.93
1600	- BOILERS-FFAB	15.70	30.86	1.97
1600	- BOILERS-PKG.	17.17	33.32	1.94
1800	- COMPR & BLOWERS	16.30	31.44	1.93
1900	- STRG. TANKS	14.75	29.22	1.98
2000	- MATL HDLG EQ.	15.71	30.35	1.93

SUBCONTRACT LABOR RATES (Contd)

<u>ACCT</u> <u>NO.</u>	<u>ACCOUNT</u> <u>NAME</u>	<u>COMPOSITE</u> <u>RATE</u>	<u>SUBCON</u> <u>RATE</u>	<u>MULT. OVER</u> <u>COMP. RATE</u>
2100	- REDUCTION EQ.	15.60	30.31	1.94
2200	- SEPARATION EQ.	17.08	32.94	1.93
2300	- CONCENTR. EQ.	17.08	32.94	1.93
2400	- AGIT. & MIXERS	15.42	30.08	1.95
2500	- REACTORS	14.95	29.58	1.98
2600	- HOPPER, BIN, ETC.	15.36	30.25	1.97
2700	- SCREENING EQ.	15.69	30.48	1.94
2800	- OTHER MAJOR EQ.	17.19	33.17	1.93
2900	- ENVIROM. EQ.	15.23	29.90	1.96
3000	- ROD & BALL HDLG.	15.80	30.49	1.93
3100	- FLOTATION EQ.	15.36	30.09	1.96
3200	- LAUNDERS & SUMPS	15.73	30.87	1.96
3300	- THICKENERS	15.78	30.93	1.96
3400	- ROASTER, KILN	15.35	30.24	1.97
3500	- LOADING EQ.	15.35	29.72	1.94
3600	- TRANSFER EQ.	15.77	30.48	1.93
3700	- MOBILE MIN. EQ.	15.55	30.13	1.94
3800	- WEIGHING EQ.	15.97	30.85	1.93
3900	- MAINT & LAB EQ.	15.39	29.81	1.94

SUBCONTRACT LABOR RATES (Contd)

<u>ACCT</u> <u>NO.</u>	<u>ACCOUNT</u> <u>NAME</u>	<u>COMPOSITE</u> <u>RATE</u>	<u>SUBCON</u> <u>RATE</u>	<u>MULT. OVER</u> <u>COMP. RATE</u>
4100 -	FNDT W/OUT RB	12.33	23.16	1.88
4100 -	FNDT WITH RB	12.96	24.18	1.87
4100 -	STR W/OUT RB	12.77	23.96	1.88
4100 -	STR WITH RB	13.30	24.79	1.86
4200 -	PIPING A/G	17.76	37.65	2.12
4300 -	STR. STEEL	15.71	29.52	1.88
4400 -	INSTRUMENTS	18.28	30.65	1.68
4500 -	PAINTING	13.06	20.89	1.60
4600 -	ELECTRICAL	14.00	23.37	1.67
4700 -	INSULATION	16.13	27.70	1.72
4800 -	ROADS PAVING	12.26	23.53	1.92
4900 -	BUILDINGS	14.51	27.42	1.89
5200 -	PIPING U/G	15.62	30.22	1.93

NOTE: THOSE ACCTS FOR WHICH WE HAVE NO STD CREW COMPOSITION ARE EXCLUDED.
RATES DO NOT INCLUDE SUBCONTRACTORS MARKUP.

DEFINITION OF TERMS

In the preparation of memorandums, reports, and estimates there are many terms and definitions that exist and are utilized by Parsons. A listing of those terms is:

- (1) Average Wage Rate - This rate is calculated simply by dividing the direct labor dollars by direct labor manhours.
- (2) Contingency - This evaluated amount covers unknown items and conditions such as weather, labor problems, lack of firm pricing, etc.
- (3) Craft Welfare and Benefits - These amounts are set by Union Agreements and payable to the individual worker or to the union.
- (4) Direct Home Office costs - These costs represent the total of that portion of the Home Office direct payroll (including associated taxes and welfare benefits) and Home Office nonpayroll costs chargeable to the project being estimated.
- (5) Direct Labor - This term describes the total of Account Codes 0100 through 6900 in the Parsons Field Labor column on the Cost Estimate Summary.
- (6) Gross Profit - This cost is the sum of Home Office overhead and the fee for profit. Gross profit may be expressed as a percentage by dividing it by the total price of the project.
- (7) E&D Hours - This term expresses the total manhours estimated for a project for engineering management, project engineers, engineering job leader and specialists, and draftsmen.

DEFINITION OF TERMS (Contd)

- (8) Escalation - This is an amount calculated to cover known or expected cost increases beyond the base date of the estimate.

- (9) Field Costs - This term denotes the total of Account Codes 7000 through 8900 for columns headed Materials and Expense, Subcontract and Parsons Field Labor on the Cost Estimate Summary.

- (10) Fixed Costs or Nonreimbursables - This term describes costs covered by a lump sum contract. The term also includes those costs included in those portions of contracts covered by a target price or a guaranteed maximum.

- (11) Home Office Overhead (Normal) - This is a percentage of the total Home Office direct payroll and associated total payroll taxes and welfare benefits.

- (12) Insurance and Payroll Taxes - This term, listed under Account Codes 6900, 7500, 7600, 7700, 8181, 8182, and 8183 of the Cost Estimate Summary, includes Workmens Compensation, Bodily Injury, Property Damage, Auto Liability, All Risk, FICA, SUI, FUI, and Medicare which applies to all field payrolls. It also includes holidays, vacations, sick leave, major medical, Blue Cross and Life Insurance, applying to the Field Staff only.

- (13) Major Equipment - A term used to describe all items in Account Codes 0100 through 3900 on the cost Estimate Summary under the materials and the subcontract columns.

- (14) Direct Materials - A term used to describe all items in Account Codes 4100 through 5900 on the Cost Estimate Summary.

- (15) Other Direct Materials - A term used to describe all items in Account Codes 6100 through 6900 on the Cost Estimate Summary.

DEFINITION OF TERMS (Contd)

- (16) Percent of the Various Field Cost Accounts of Labor Costs - This is any Field Cost Account total divided by Direct Labor Costs.
- (17) Productivity Factor - This factor reflects the evaluation of all factors affecting the productivity of labor, such as project location, working conditions, quality and availability of labor.
- (18) Prorates - This term describes those account items which are accomplished across the board in support of all project activities. Such items are therefore "Prorated" against the total project. Prorated items are listed in Account Codes 6100 through 8900.
- (19) Ratio of Major Equipment to Construction - This term expresses the total construction cost divided by major equipment and major equipment subcontract costs.
- (20) Reimbursable Costs - These are costs for which the Company will be reimbursed under terms of a cost-plus-type contract.
- (21) Bulk Subcontracts - This term describes work done by others under subcontract on a Parsons job. The cost of this work is entered on the Cost Estimate Summary in Account Codes 4100 through 6900 in the Subcontract column.
- (22) Total Construction Costs - These costs are the total of all costs summarized under Major Equipment, Direct Materials, Other Direct Materials, Subcontracts, Direct Labor, and Field Costs, as defined herein.
- (23) Total Field Staff - These are all individuals listed in Account 8100 of the Cost Estimate Summary.

DEFINITION OF TERMS (Contd)

- (24) Total Home Office Costs - This is the total of the Direct Home Office Costs chargeable to the project plus the Home Office Overhead calculated as described in Item 11.

- (25) Total Price - This is the price proposed to the customer and is the sum of the total construction cost, total Home Office cost, escalation, contingency, special costs applicable, and fee for profit.

- (26) Unallocable Labor - This item, listed under Account Code 7300 of the Cost Estimate Summary, includes surveyors, warehousemen, utility drivers, guards, job cleanup, welder qualification and safety costs.

TOTAL PROJECT BASE CAPITAL ESTIMATE

INTRODUCTION

This section includes the Capital Investment Estimate Summary through Total Construction Cost, Parsons' home office services and late adjustments to the estimate. Contained herein also are miscellaneous costs accrued by Grace such as: confirmatory coal test run, reimbursement to DOE, land cost, process licensor fees and Grace construction management cost.

June 1982
Rev. 1 August 26, 1982
Rev. 2 August 27, 1982

W. R. GRACE & CO.

BASE CAPITAL ESTIMATE SUMMARY

12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT

BASKETT, KENTUCKY

Total Construction Cost	\$1,237,926,000
Home Office Services	<u>112,098,000</u>
Total Construction Plus Home Office Services	1,350,024,000
Confirmatory Coal Test Run	1,390,000
Reimbursement to DOE	11,300,000
Land Cost	10,845,000
Process Licensor Fees	19,132,000
Grace Construction Management Cost	16,700,000
Late Adjustments	<u>18,807,000</u>
Total June 1982 Estimate	1,428,198,000
Escalation	<u>Not Included</u>
Subtotal	1,428,198,000
Construction Interest	<u>Not Included</u>
Subtotal	1,428,198,000
Contingency	<u>Not Included</u>
Total Project Base Capital Estimate	<u><u>1,428,198,000</u></u>

COST ESTIMATE SUMMARYESTIMATE NUMBER 6182

REV. 1

FILE NUMBER _____

DATE JUNE 1982

CONSTRUCTION PERIOD: _____

FROM MAY '84 TO JAN '90LOCATION BASKETT, KENTUCKY 8-26-82PROJECT COAL-TO-METHANOL-TO-GASOLINEUNIT NUMBER ALLTYPE OF UNIT ALLCUSTOMER W. R. GRACE & CO.ESTIMATOR T. JUSTICECAPACITY 12,500 BPD PLANTCHECKED BY GTA**DOLLARS**

ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE			SUBCONTRACT			RMP CO FIELD LABOR			TOTAL		
	TOTAL DIRECT COST	491	303	000	319	624	000	172	264	000	983	191	000
6000	FREIGHT - OCEAN	3	939	000							3	939	000
6100	SPARE PARTS, CAPITAL	5	143	000							5	143	000
6200	OPERATING MATERIALS												
6300	SITE PREPARATION												
6400	DEMOLITION, DISM AND RELOCATION												
6500	START UP SERVICES												
6600	SOIL, WATER AND OTHER INVESTIG.												
6700	PREMIUM PAY, CRAFT												
6800	NON-PRODUCTIVE TIME							5	168	000	5	168	000
6900	SALES AND NON-PAYROLL TAXES	35	435	000							35	435	000
	TOTAL OTHER DIRECT COST	44	517	000				5	168	000	49	685	000
	TOTAL DIRECT COST	535	820	000	319	624	000	177	432	000	1032	876	000
7100	TEMPORARY CONSTRUCTION	5	496	000	10	990	000	2	463	000	18	949	000
7200	OFFSITE STORAGE												
7300	UNALLOCABLE LABOR - CRAFT		206	000		621	000	19	845	000	20	672	000
7500	WELF. AND FRINGES CRAFT LAB	23	569	000							23	569	000
7600	PAYROLL INS AND TAX-CRAFT	38	555	000							38	555	000
7700	OTHER INSURANCE AND BONDS	3	192	000							3	192	000
7800	ADVERTISING AND PUBLIC RELATIONS		200	000								200	000
8100	FIELD ADMIN. AND OFFICE EXPENS.	19	380	000				23	686	000	43	066	000
8300	CONSTR. EQUIPMENT AND SERVICING	3	110	000	27	395	000	2	225	000	32	730	000
8400	SMALL TOOLS	10	336	000							10	336	000
8500	CONSUMABLE SUPPLIES	13	781	000							13	781	000
8600	SUBSISTENCE AND LODGING - CRAFT												
8700	TRANSPORTATION - CRAFT												
8900	PARSONS CHARGES - ALL LOCATIONS												
	TOTAL FIELD INDIRECT COSTS	117	825	000	39	006	000	48	219	000	205	050	000
	TOTAL CONSTRUCTION COST	653	645	000	358	630	000	225	651	000	1237	926	000

COST ESTIMATE SUMMARYESTIMATE NUMBER 6182

CONSTRUCTION PERIOD: _____

FROM MAY '84 TO JAN '90UNIT NUMBER ALLTYPE OF UNIT ALLCAPACITY 12,500 BPDLOCATION BASKETT, KENTUCKY 8-26-82PROJECT COAL-TO-METHANOL-TO-GASOLINE ESTIMATOR T. JUSTICECUSTOMER W. R. GRACE & CO. CHECKED BY GTA

REV.1 FILE NUMBER _____

DATE JUNE 1982

MANHOURS

ACCOUNT CODE	DESCRIPTION		SUBCONTRACT	RMP CO FIELD LABOR	
	TOTAL DIRECT MANHOURS		5,539,300	10,370,200	
6000	FREIGHT - ALL TYPES				
6100	SPARE PARTS				
6200	OPERATING MATERIALS				
6300	SITE PREPARATION				
6400	DEMOLITION, DISM AND RELOCATION				
6500	START UP SERVICES				
6600	SOIL, WATER AND OTHER INVESTIG.				
6700	PREMIUM PAY, CRAFT				
6800	NON-PRODUCTIVE TIME			311,100	
6900	SALES AND NON-PAYROLL TAXES				
	TOTAL OTHER DIRECT COST			311,100	
	TOTAL DIRECT COST		5,539,300	10,681,300	
7100	TEMPORARY CONSTRUCTION		165,400	148,300	
7200	OFFSITE STORAGE				
7300	UNALLOCABLE LABOR - CRAFT		9,300	1,194,800	
7500	WELF. AND FRINGES CRAFT LAB				
7600	PAYROLL INS AND TAX-CRAFT				
7700	OTHER INSURANCE AND BONDS				
7800	ADVERTISING AND PUBLIC RELATIONS				
8100	FIELD ADMIN. AND OFFICE EXPENS.				
8300	CONSTR. EQUIPMENT AND SERVICING			*	
8400	SMALL TOOLS		412,300	134,000	
8500	CONSUMABLE SUPPLIES				
8600	SUBSISTENCE AND LODGING - CRAFT				
8700	TRANSPORTATION - CRAFT				
8900	PARSONS CHARGES - ALL LOCATIONS				
	TOTAL FIELD INDIRECT COSTS		587,000	1,477,100	
	TOTAL CONSTRUCTION COST		6,126,300	12,158,400	
			*NOTE:		
			Field Staff Manhours are		
			Excluded		

COST ESTIMATE SUMMARY

DIRECT COST

REV. 1 8-26-82

File No:

~~JUNE 1982~~

Date:

Estimator: T. JUSTICE/P. KUMA

Checked by: GT/GT

<u>Customer</u>	<u>Project</u>	<u>Location</u>
W. R. GRACE & CO.	COAL-TO-METHANOL-TO-GASOLINE	BASKETT, KENTUCKY

12,500 BPD PLANT		TOTAL MAJOR EQUIPMENT			
UNIT	DESCRIPTION	MATERIALS & EXPENSE	SUB CONTRACT	R.M.P. FIELD LABOR	TOTAL
11	Coal Receiving & Unloading	4,004,000	301,000	248,000	4,553,000
12	Coal Conveying & Storage	4,514,000	262,000	2,450,000	7,226,000
13	Coal Stacking & Reclaiming	5,287,000	76,000	692,000	6,055,000
14	Slag & FGD Disposal	3,248,000	---	610,000	3,858,000
	SUB-TOTAL 11 TO 14	17,053,000	639,000	4,000,000	21,692,000
21	Coal Gas. & Waste Heat Rec	43,415,000	7,200,000	4,554,000	55,169,000
22	Oxygen	80,098,000	---	4,656,000	84,754,000
23	CO Shift	9,724,000	56,000	678,000	10,458,000
24	Coal Grinding & Slurry Prep	14,992,000	551,000	1,569,000	17,112,000
25	Methanol Synthesis	16,384,000	760,000	762,000	17,906,000
26	Ammonia Recovery	282,000	---	26,000	308,000
27	Effluent Water Treatment	4,073,000	712,000	474,000	5,259,000
	SUB-TOTAL 21 TO 27	168,968,000	9,279,000	12,719,000	190,966,000
31	Methanol-to-Gasoline	26,139,000	---	1,216,000	27,355,000
32	Gas Fractionation	2,439,000	---	170,000	2,609,000
33	HF Alkylation	4,350,000	---	354,000	4,704,000
34	Acid Gas Removal	27,557,000	2,705,000	2,884,000	33,146,000
36	Sulfur Recovery (Claus)	1,852,000	358,000	237,000	2,447,000
37	Sulfur Removal (BSRP)	2,401,000	114,000	223,000	2,738,000
38	Heavy Gasoline Treating	1,431,000	---	67,000	1,498,000
39	Process Water Treatment	228,000	7,000	21,000	256,000
	SUB-TOTAL 31 TO 39	66,397,000	3,184,000	5,172,000	74,753,000
51	Utilities Supply	14,155,000	12,928,000	460,000	27,543,000
52	Steam Generation	9,579,000	57,909,000	1,150,000	68,638,000
53	Waste Treatment	15,272,000	8,919,000	1,454,000	25,645,000
54	Site Improvements	---	---	---	---
55	Gasoline Blending	18,000	---	2,000	20,000
56	Infrastructure	---	---	---	---
57	Storage and Shipping	1,488,000	8,853,000	51,000	10,392,000
58	Fire Protection	2,510,000	---	1,396,000	3,906,000
59	Flare	334,000	---	24,000	358,000
60	Off-Plot Intercon. Piping	---	---	---	---
61	Barge Dock	---	---	---	---
62	Plant Maintenance Equipment	1,664,000	61,000	---	1,725,000
63	Intermediate Tankage	114,000	762,000	7,000	883,000
	SUB-TOTAL 51 TO 63	45,134,000	89,432,000	4,544,000	139,110,000
	TOTAL	297,552,000	102,534,000	26,435,000	426,521,000

COST ESTIMATE SUMMARY
DIRECT COST

REV.1 8-26-82

<u>W. R. GRACE & CO.</u>	<u>COAL-TO-METHANOL-TO-GASOLINE</u>	<u>BASKETT, KENTUCKY</u>
Customer	Project	Location

Estimate No: 6182

File No:

Date: JUNE 1982

Estimator: T. JUSTICE/P. KUM

Checked by: GT/GT

12,500 BPD PLANT		TOTAL BULK MATERIAL			
UNIT	DESCRIPTION	MATERIALS & EXPENSE	SUB CONTRACT	R.M.P. FIELD LABOR	TOTAL
11	Coal Receiving & Unloading	553,000	3,628,000	375,000	4,556,000
12	Coal Conveying & Storage	7,238,000	4,257,000	5,469,000	16,964,000
13	Coal Stacking & Reclaiming	623,000	368,000	302,000	1,293,000
14	Slag & FGD Disposal	5,880,000	9,865,000	2,267,000	18,012,000
	SUB-TOTAL 11 TO 14	14,294,000	18,118,000	8,413,000	40,825,000
21	Coal Gas. & Waste Heat Rec	29,350,000	25,716,000	23,331,000	78,397,000
22	Oxygen	23,857,000	31,626,000	19,091,000	74,574,000
23	CO Shift	4,634,000	3,961,000	3,793,000	12,388,000
24	Coal Grinding & Slurry Prep	7,662,000	16,300,000	5,098,000	29,060,000
25	Methanol Synthesis	8,814,000	7,069,000	7,496,000	23,379,000
26	Ammonia Recovery	134,000	207,000	113,000	454,000
27	Effluent Water Treatment	2,919,000	3,161,000	2,215,000	8,295,000
	SUB-TOTAL 21 TO 27	77,370,000	88,040,000	61,137,000	226,547,000
31	Methanol-to-Gasoline	10,717,000	9,512,000	9,179,000	29,408,000
32	Gas Fractionation	1,787,000	1,286,000	1,412,000	4,485,000
33	HF Alkylation	3,679,000	2,264,000	2,747,000	8,690,000
34	Acid Gas Removal	14,106,000	11,151,000	12,432,000	37,689,000
36	Sulfur Recovery (Claus)	1,496,000	906,000	1,167,000	3,569,000
37	Sulfur Removal (BSRP)	2,378,000	1,201,000	1,691,000	5,270,000
38	Heavy Gasoline Treating	605,000	591,000	502,000	1,698,000
39	Process Water Treatment	645,000	68,000	1,381,000	2,094,000
	SUB-TOTAL 31 TO 39	35,413,000	26,979,000	30,511,000	92,903,000
51	Utilities Supply	26,970,000	3,523,000	17,674,000	48,167,000
52	Steam Generation	13,293,000	17,204,000	11,975,000	42,472,000
53	Waste Treatment	4,504,000	6,949,000	3,491,000	14,944,000
54	Site Improvements	1,288,000	28,056,000	359,000	29,703,000
55	Gasoline Blending	245,000	42,000	53,000	340,000
56	Infrastructure	---	17,959,000	---	17,959,000
57	Storage and Shipping	2,076,000	427,000	1,146,000	3,649,000
58	Fire Protection	6,361,000	5,000	2,836,000	9,202,000
59	Flare	4,991,000	660,000	3,610,000	9,261,000
60	Off-Plot Intercon. Piping	6,443,000	1,352,000	4,307,000	12,102,000
61	Barge Dock	---	7,376,000	---	7,376,000
62	Plant Maintenance Equipmen	---	---	---	---
63	Intermediate Tankage	503,000	400,000	317,000	1,220,000
	SUB-TOTAL 51 TO 63	66,674,000	83,953,000	45,768,000	196,395,000
	TOTAL	193,751,000	217,090,000	145,829,000	556,670,000

THE RALPH M. PARSONS COMPANY

COST ESTIMATE SUMMARY

DIRECT COST

REV. 1 8-26-82

<u>Customer</u>	<u>Project</u>	<u>Location</u>
W. R. GRACE & CO.	COAL-TO-METHANOL-TO-GASOLINE	BASKETT, KENTUCKY

Estimate No: 6182

File No:

Date: JUNE 1982

Estimator: T. JUSTICE/P. KUMA

Checked by: GT/GT

12,500 BPD PLANT		TOTAL EQUIPMENT & MATERIAL			
UNIT	DESCRIPTION	MATERIALS & EXPENSE	SUB CONTRACT	R.M.P. FIELD LABOR	TOTAL
11	Coal Receiving & Unloading	4,557,000	3,929,000	623,000	9,109,000
12	Coal Conveying & Storage	11,752,000	4,519,000	7,919,000	24,190,000
13	Coal Stacking & Reclaiming	5,910,000	444,000	994,000	7,348,000
14	Slag & FGD Disposal	9,128,000	9,865,000	2,877,000	21,870,000
	SUB-TOTAL 11 TO 14	31,347,000	18,757,000	12,413,000	62,517,000
21	Coal Gas. & Waste Heat Rec	72,765,000	32,916,000	27,885,000	133,566,000
22	Oxygen	103,955,000	31,626,000	23,747,000	159,328,000
23	CO Shift	14,358,000	4,017,000	4,471,000	22,846,000
24	Coal Grinding & Slurry Pre	22,654,000	16,851,000	6,667,000	46,172,000
25	Methanol Synthesis	25,198,000	7,829,000	8,258,000	41,285,000
26	Ammonia Recovery	416,000	207,000	139,000	762,000
27	Effluent Water Treatment	6,992,000	3,873,000	2,689,000	13,554,000
	SUB-TOTAL 21 TO 27	246,338,000	97,319,000	73,856,000	417,513,000
31	Methanol-to-Gasoline	36,856,000	9,512,000	10,395,000	56,763,000
32	Gas Fractionation	4,226,000	1,286,000	1,582,000	7,094,000
33	HF Alkylation	8,029,000	2,264,000	3,101,000	13,394,000
34	Acid Gas Removal	41,663,000	13,856,000	15,316,000	70,835,000
36	Sulfur Recovery (Claus)	3,348,000	1,264,000	1,404,000	6,016,000
37	Sulfur Removal (BSRP)	4,779,000	1,315,000	1,914,000	8,008,000
38	Heavy Gasoline Treating	2,036,000	591,000	569,000	3,196,000
39	Process Water Treatment	873,000	75,000	1,402,000	2,350,000
	SUB-TOTAL 31 TO 39	101,810,000	30,163,000	35,683,000	167,656,000
51	Utilities Supply	41,125,000	16,451,000	18,134,000	75,710,000
52	Steam Generation	22,872,000	75,113,000	13,125,000	111,110,000
53	Waste Treatment	19,776,000	15,868,000	4,945,000	40,589,000
54	Site Improvements	1,288,000	28,056,000	359,000	29,703,000
55	Gasoline Blending	263,000	42,000	55,000	360,000
56	Infrastructure	---	17,959,000	---	17,959,000
57	Storage and Shipping	3,564,000	9,280,000	1,197,000	14,041,000
58	Fire Protection	8,871,000	5,000	4,232,000	13,108,000
59	Flare	5,325,000	660,000	3,634,000	9,619,000
60	Off-Plot Intercon. Piping	6,443,000	1,352,000	4,307,000	12,102,000
61	Barge Dock		7,376,000		7,376,000
62	Plant Maintenance Equipment	1,664,000	61,000	---	1,725,000
63	Intermediate Tankage	617,000	1,162,000	324,000	2,103,000
	SUB-TOTAL 51 TO 63	111,808,000	173,385,000	50,312,000	335,505,000
	TOTAL	491,303,000	319,624,000	172,264,000	983,191,000

THE RALPH M. PARSONS COMPANY

COST ESTIMATE SUMMARY

DIRECT COST

REV. 1 8-26-82

Estimate No: 6182

File No:

Date: JUNE 1982

Estimator: T. JUSTICE/P. KUMAR

Checked by: GT/GT

<u>W. R. GRACE & CO.</u>	<u>COAL-TO-METHANOL-TO-GASOLINE</u>	<u>BASKETT, KENTUCKY</u>
Customer	Project	Location

12,500 BPD PLANT

[illegible]

P-C

DIVISION

JOB NO. 6182

FIRM NO.

BY W. R. GRACE & CO.

PROJECT COAL-TO-METHANOL-TO-GASOLINE

DATE 7-14-82

BY RJW

12,500 BPD PLANT

HOME OFFICE SERVICES

LOCATION KENTUCKY

TYPE ESTIMATE CAPITAL INVESTMENT

SCHEDULE

RATE BASIS JUNE 1982

67

ACCT.	DESCRIPTION	NO. OF DWGS	MANHOURS	RATE	COST	REMARKS
01-2230	PLANNING					
01-7110	ENGINEERING STAFF					
01-7120	TECHNICAL ADMINISTRATION		2 2 5 0 0	18.85	4 2 4 1 0 0	
01-7130	PRODUCTION ADMINISTRATION		1 1 2 5 0 0	7.80	8 7 7 5 0 0	
01-7210	ARCHITECTURAL		1 5 0 0 0	16.00	2 4 0 0 0 0	
01-7220	CIVIL - STRUCTURAL		2 6 2 5 0 0	16.70	4 3 8 3 8 0 0	
01-7230	ENVIRONMENTAL		3 0 0 0 0	17.00	5 1 0 0 0 0	
01-7240	PIPING		3 5 5 0 0 0	15.60	5 5 3 8 0 0 0	
01-7250	EQUIPMENT		1 1 2 5 0 0	16.00	1 8 0 0 0 0 0	
01-7260	ELECTRICAL		2 7 0 0 0 0	16.30	4 4 0 1 0 0 0	
01-7270	INSTRUMENTS		1 3 5 0 0 0	16.50	2 2 2 7 5 0 0	
01-7310	INDUSTRIAL		4 5 0 0 0	13.50	6 0 7 5 0 0	
01-7320	MECHANICAL		5 0 0 0 0	17.95	8 9 7 5 0 0	
01-7330	MECHANICAL PROCESS		9 0 0 0 0	15.60	1 4 0 4 0 0 0	
01-7400	QUALITY ASSURANCE					
TOTAL - DESIGN ENGINEERING			1 5 0 0 0 0 0	15.54	2 3 3 1 0 9 0 0	
01- 10	DIVISION MANAGEMENT					
01- 220	PROJECT MANAGEMENT		3 0 0 0 0 0	23.00	6 9 0 0 0 0 0	
01- 300	PROCESS		2 0 0 0 0	19.60	3 9 2 0 0 0	
TOTAL - STAFF			3 2 0 0 0 0	22.78	7 2 9 2 0 0 0	
TOTAL - DESIGN ENGINEERING AND STAFF			1 8 2 0 0 0 0	16.81	3 0 6 0 2 9 0 0	
01-7180	PROJECT STENO		1 5 0 0 0 0	7.00	1 0 5 0 0 0 0	
TOTAL DESIGN ENGINEERING, STAFF AND STENO			1 9 7 0 0 0 0	16.06	3 1 6 5 2 9 0 0	
01-7500	PROCUREMENT		5 0 0 0 0 0	12.75	6 3 7 5 0 0 0	
01-7600	CONSTRUCTION		4 5 0 0 0	25.00	1 1 2 5 0 0 0	
01-7700	COST ENGINEERING		2 2 0 0 0 0	15.50	3 4 1 0 0 0 0	
01-7800	ACCOUNTING		7 5 0 0 0	9.70	7 2 7 5 0 0	
01-7900	COMPUTER					
01-9000	OTHER SERVICES		2 0 0 0 0	9.20	1 8 4 0 0 0	
TOTAL - OTHER DEPARTMENTS			8 6 0 0 0 0	13.74	1 1 8 2 1 5 0 0	
TOTAL SALARY			2 8 3 0 0 0 0	15.36	4 3 4 7 4 4 0 0	
416	FRINGE BENEFITS				1 5 6 5 0 6 0 0	
TOTAL PAYROLL COST					5 9 1 2 5 0 0 0	
420	PROFESSIONAL SERVICES					
428	COMPUTER SERVICES					
429	REPRODUCTION					
430	STATIONERY AND OFFICE SUPPLY					
431	AUTOMOTIVE EXPENSE				1 5 3 7 3 0 0 0	
433	FREIGHT, EXPRESS, AND CARTAGE					
434	COMMUNICATIONS					
439	TRANSPORTATION					
440	SUBSISTENCE					
442	MISCELLANEOUS					
TOTAL OTHER COST					1 5 3 7 3 0 0 0	
TOTAL HOME OFFICE DIRECT COST					7 4 4 9 8 0 0 0	
OVERHEAD & Fee Allowance					3 7 6 0 0 0 0 0	
TOTAL HOME OFFICE COST					1 1 2 0 9 8 0 0 0	

PARSONS

M.T.O. BY		PRICED BY		P. KUMAR		DATE		JUNE 1982		SHEET		1 OF 1			
JOB NO.:		6182		CLIENT:		W. R. GRACE & CO.		TYPE OF ESTIMATE		CAPITAL INVESTMENT		CHECKED BY		T.J.	
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LABS		M/HR\$	DOLLARS	M/HR\$	DOLLARS				
CAPACITY		125000 BPD PLANT													
ACCNT															
CONFIRMATORY COAL TEST RUN		1	LOT				1390.00								
TOTAL		1	LOT				1390.00								

PARSONS

M.T.O. BY		PRICED BY		P. KUINIAR		DATE		JUNE 1982		SHEET		1 OF 1				
JOB NO.:		6182		CLIENT:		W. R. GRACE & CO.		TYPE OF ESTIMATE		CAPITAL INVESTMENT		CHECKED BY		T.V.		
UNIT/AREA		ALL		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT			LABOR			TOTAL DOLLARS
DESCRIPTION		COM-TO-METMANGL-TO-GASOLINE				MATL	M/H	LABS		M/HR\$	DOLLARS	M/HR\$	DOLLARS			
CAPACITY		12500 BPD PLANT														
ACCNT																
		REIMBURSEMENT TO DOE		1	LOT				11 300 000							

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET						
6182		P. KUMAR		JUNE 1982		1 OF 1						
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY						
6182		W. R. GRACE & CO.		CAPITAL INVESTMENT		T. J.						
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY												
ACCNT												
LAND COST												
NET OF TOTAL PURCHASE PRICE LESS OPTION PAYMENTS CREDITED TOWARD PURCHASE		1	LOT				10,845,000					
TOTAL		1	LOT				10,845,000					

PARSONS

M.T.O. BY		PRICED BY		DATE		SHEET	
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CAPITAL INVESTMENT	
UNIT/AREA		QUAN-TITY		UNIT		COST OR M/HR PER UNIT	
DESCRIPTION		MATERIAL		M/HR		LABS	
CAPACITY		M/HR		DOLLARS		M/HR	
ACCNT		DOLLARS		M/HR		DOLLARS	
PROCESS UNITS							
COAL-TO-METHANOL-TO-GASOLINE							
12 500 BPD PLANT							
PROCESS LICENSOR FEES		1 LOT				19132000	
TOTAL		1 LOT				19132000	

PARSONS

M.T.O. BY		PRICED BY		DATE		SHEET						
JOB NO.: 6182		CLIENT: W. R. GRACE & CO.		TYPE OF ESTIMATE		CAPITAL INVESTMENT						
CHECKED BY		T.J.										
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LABS	MATERIAL EXPENSE		M/HR\$	DOLLARS	M/HR\$	DOLLARS
CAPACITY												
ACCNT												
ALL												
COAL-TO-METHANOL-TO-GASOLINE												
12500 BPD PLANT												
GRACE CONSTRUCTION MANAGEMENT COST		1	LOT				16700000					
TOTAL		1	LOT				16700000					

PARSONS

M.T.O. BY		PRICED BY		DATE JUNE 1982 2 8-27-82				SHEET 1 OF 2				
JOB NO.: 6182		CLIENT: W. R. GRACE & CO.		TYPE OF ESTIMATE CAPITAL INVESTMENT				CHECKED BY GT				
UNIT/AREA ALL		QUAN- TITY	UNIT	COST OR M/HR\$ PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION COAL-TO-METHANOL-TO-GASOLINE				MATL	M/H	LABS		M/HR\$	DOLLARS	M/HR\$	DOLLARS	
CAPACITY 12,500 BPD PLANT												
ACCNT												
LATE ADJUSTMENTS												
CHANGE DESIGN CHLORINE CONCENTRATION FROM 0.2% TO 0.1% ON UNIT 27 - EFFLUENT WATER TREATMENT AND ON UNIT 53 - WASTE TREATMENT												
FOR 50,000 BPD PLANT DEDUCT \$27,574,000												
FOR 12,500 BPD PLANT USE 25% CAPACITY $(.25)^6 = .435$		.435	X				(27574000)					(11995000)
FROM SHEET 2 OF 2									30802000			30802000

ESTIMATE WORKSHEET

M.T.O. BY <u>J. BEJARANO</u>		PRICED BY <u>B.V.</u>		DATE <u>JUNE 82 / 8-27-82</u>		SHEET <u>2</u> OF <u>2</u>						
JOB NO.: <u>6182</u>		CLIENT: <u>W.R. GRACE & CO.</u>		TYPE OF ESTIMATE <u>CAP. INVESTMENT</u>		CHECKED BY <u>MC</u>						
UNIT/AREA <u>54</u>		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			SUBCONTRACT		LABOR		TOTAL DOLLARS	
DESCRIPTION				MATL	M/H	LABS	M/HR	DOLLARS	M/HR	DOLLARS		
CAPACITY <u>12.5 K BPD</u>												
ACCNT												
	LATE ADJUSTMENTS											
6300	SITE PREP.											
	<u>"ROUGH GRADING"</u>											
	TOTAL EXCAVATION (Millions)	3.12	C.Y.	2.43	.01756		7,581,600	54,787				
	TOTAL FILL (Millions)	2.61	C.Y.	0.591	.0153		1,542,510	39,933				
	PLACE & REMOVE PRELOAD (Millions)	0.51	C.Y.	3.28	0.58		1,672,800	295,800				
	SUB TOTAL						10,796,910	390,520				
	PROD. @ 73% $390,520 \div .73$	535,000	MH			2763		14,782,000				
	ALLOW. 10% ON MAT. FOR MOVE IN & OUT						1,079,690					
							11,876,600					
	S/C OH. & P. ON MAT. 10%						1,187,400					
	" " " ON LAB. 20%							2,956,000				
							13,064,000	17,738,000				
								13,064,000				
	TOTAL THIS SHEET							30,802,000				30,802,000

UNIT DIRECT COST SUMMARIES

INTRODUCTION

Herein contains all the Unit Direct Cost Summaries for the total project.

PARSONS

COST ESTIMATE SUMMARY

CONSTRUCTION PERIOD: _____

FROM MAY '84 TO JAN '90

UNIT NUMBER 11

TYPE OF UNIT COAL RECEIVING AND
CAPACITY UNLOADING

CUSTOMER W. R. GRACE & CO.

PROJECT COAL-TO-METHANOL-TO-GASOLINE

LOCATION BASKETT, KENTUCKY

ESTIMATE NUMBER 6182

FILE NUMBER _____

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY 24

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
1000	HOISTS & CRANES	21 000		1 000	22 000	1		EACH				100					
1100	COLUMNS							EACH									
1200	VESSELS							EACH									
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	2 000		1 000	3 000	1		EACH				100					
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT	236 000		151 000	387 000	5		EACH				9 600					
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT	25 000		2 000	27 000	1		EACH				100					
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS	161 000		44 000	205 000	2		EACH				2 800					
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	517 000		13 000	530 000	3		EACH				800					
2900	ENVIRONMENTAL	179 000	301 000	5 000	485 000	6		EACH		7 100		300					
3500	LOADING & UNLOADING EQUIP.	2 056 000		21 000	2 077 000	1		EACH				1 400					
3600	TRANSFER EQUIPMENT	807 000		10 000	817 000	2		EACH				600					
								EACH									
	TOTAL MAJOR EQUIPMENT	4 004 000	301 000	248 000	4 553 000	22		EACH		7 100		15 800					
4100	CONCRETE WORK AND PILING	191 000		249 000	440 000			CY				18 800					
4200	PIPE VALVES AND FITTINGS AG	64 000		34 000	98 000			L.F.				1 900					
4300	STRUCTURAL STEEL	196 000		75 000	271 000			TONS				4 800					
4400	INSTRUMENTS AND CONTROLS	95 000	50 000	17 000	162 000			EACH		500		900					
4500	PAINTING		92 000		92 000			SF		2 900							
4600	ELECTRICAL	7 000	305 000		312 000			HP		7 000							
4700	INSULATION		15 000		15 000			SF		200							
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS		3 166 000		3 166 000			SF		57 600							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	553 000	3 628 000	375 000	4 556 000					68 200		26 400					
	TOTAL EQUIPMENT AND MATERIAL	4 557 000	3 929 000	623 000	9 109 000					75 300		42 200					

PARSONS

COST ESTIMATE SUMMARY

12,500 BPD PLANT

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KIMAR

CHECKED BY *me*

CONSTRUCTION PERIOD

FROM MAY '84 TO JAN '90

UNIT NUMBER 12

TYPE OF UNIT COAL CONVEYING & STORAGE

CUSTOMER

W. R. GRACE & CO.

PROJECT

COAL-TO-METHANOL-TO-GASOLINE

LOCATION

BASKETT, KENTUCKY

CAPACITY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
500	PROCESS FEEDERS	101 000		20000	121000	6		EACH				1 200					
1000	HOIST AND CRANES	65 000		2000	67000	3		EACH				100					
1100	COLUMNS							EACH									
1200	VESSELS							EACH									
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	6 000		2000	8000	3		EACH				100					
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT	3 603 000		2346 000	5 949 000	32		EACH				149 300					
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT	21 000		2000	23000	1		EACH				100					
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS					13		EACH									
2700	CLASS AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	134 000		38000	172000	1		EACH				2 200					
2900	ENVIRONMENTAL & PROCESS EQUIP.	552 000	262000	37000	851000	43		EACH		4500		2 400					
3800	WEIGHING & PACKING EQUIP.	32 000		3000	35000	4		EACH				200					
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	4 514 000	262000	2 45000	7 226 000	106		EACH		4500		155 600					
4100	CONCRETE WORK AND PILING	996 000		1 148000	2 144000			CY				86 400					
4200	PIPE VALVES AND FITTINGS AG	200 000		100000	300000			L F				5 600					
4300	STRUCTURAL STEEL	5 136 000		4 125000	9 261000			TONS				262 400					
4400	INSTRUMENTS AND CONTROLS	703 000	150 000	88000	941000			EACH		1500		4 700					
4500	PAINTING		261000		261000			SF		8300							
4600	ELECTRICAL	76 000	2 488000		2 564000			HP		56800							
4700	INSULATION		45000		45000			SF		500							
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS		1 188000		1 188000			SF		15100							
5000	BUILDING COMPONENT AND FIXTURES	127 000	125000	8000	260000					1500		600					
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	7 238 000	4 257000	5 469000	16 964000					83800		359 700					
	TOTAL EQUIPMENT AND MATERIAL	11 752 000	4 519000	7 919000	24 190000					88500		515 300					

PARSONS

COST ESTIMATE SUMMARY

12,500 BPD PLANT

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KIMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 13

TYPE OF UNIT COAL STACKING & RECLAIMING

CAPACITY

CUSTOMER W. R. GRACE & CO.

PROJECT COAL-TO-METHANOL-TO-GASOLINE

LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
1000	HOISTS & CRANES	27 000		1 000	28 000	1		EACH				100					
1100	COLUMNS							EACH									
1200	VESSELS							EACH									
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS							EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT	3 779 000		679 000	4 458 000	4		EACH				43 200					
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT	21 000		2 000	23 000	1		EACH				100					
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS	22 000		2 000	24 000	1		EACH				100					
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
2900	ENVIRONMENTAL EQUIPMENT	38 000	76 000	3 000	117 000	3		EACH		1 400		200					
3700	MOBILE MINING EQUIPMENT	1 400 000		5 000	1 405 000	3		EACH				300					
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	5 287 000	76 000	692 000	6 055 000	13		EACH		1 400		44 000					
4100	CONCRETE WORK AND PILING	376 000		218 000	594 000			CY				16 800					
4200	PIPE VALVES AND FITTINGS AG	25 000		13 000	38 000			L.F.				700					
4300	STRUCTURAL STEEL	166 000		64 000	230 000			TONS				41 000					
4400	INSTRUMENTS AND CONTROLS	45 000	20 000	7 000	72 000			EACH				400					
4500	PAINTING		40 000		40 000			SF		200							
4600	ELECTRICAL	11 000	300 000		311 000			HP		6 900							
4700	INSULATION		8 000		8 000			SF		100							
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	623 000	368 000	302 000	1 293 000					7 200		58 900					
	TOTAL EQUIPMENT AND MATERIAL	5 910 000	444 000	994 000	7 448 000					8 600		102 900					

COST ESTIMATE SUMMARY

CONSTRUCTION PERIOD: _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER 14
 TYPE OF UNIT SLAG, ASH, & BOILER
 SLUDGE COLLECTION & DISPOSAL

CUSTOMER W. R. GRACE & CO. PROJECT 12,500 BPD PLANT
COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ESTIMATE NUMBER 6182
 FILE NUMBER _____
 DATE JUNE 1982
 ESTIMATOR T. JUSTICE/P. KIMAR
 CHECKED BY _____

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN- STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
800	PACKAGED PLANTS	233 000		27 000	260 000	2		EACH				1 800					
1100	COLUMNS							EACH									
1200	VESSELS							EACH									
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	2 000		1 000	3 000	3		EACH				100					
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT	899 000		512 000	1 411 000	16		EACH				32 600					
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS					6		EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
3600	TRANSFER EQUIPMENT	1 310 000		58 000	1 368 000	25		EACH				3 700					
3700	MOBILE EQUIPMENT	804 000		12 000	816 000	5		EACH				800					
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	3 248 000		610 000	3 858 000	57		EACH				39 000					
4100	CONCRETE WORK AND PILING	382 000		276 000	658 000			CY				21 300					
4200	PIPE VALVES AND FITTINGS AG	90 000		45 000	135 000			L.F.				2 500					
4300	STRUCTURAL STEEL	2 611 000		913 000	3 524 000			TONS				58 100					
4400	INSTRUMENTS AND CONTROLS	200 000	80 000	45 000	325 000			EACH		900		2 500					
4500	PAINTING		50 000		50 000			SF		1500							
4600	ELECTRICAL	657 000	1 721 000		2 378 000			HP		38100							
4700	INSULATION		60 000		60 000			SF		900							
4800	ROADS, PARKING, PAVING, RR	416 000	4 516 000	144 000	5 076 000			SF		72500		11 800					
4900	BUILDINGS		1 304 000		1 304 000			SF		14800							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS US	1 524 000		844 000	2 368 000							54 000					
5300	OTHER CIVIL WORK		2 134 000		2 134 000					23500							
	TOTAL BULK MATERIAL	5 880 000	9 865 000	2 267 000	18 012 000					152 300		150 200					
	TOTAL EQUIPMENT AND MATERIAL	9 128 000	9 865 000	2 877 000	21 870 000					152300		189 200					

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 21

TYPE OF UNIT COAL GASIFICATION & WASTE
HEAT RECOVERY

12,500 BPD PLANT

CUSTOMER W. R. GRACE & CO.

PROJECT COAL-TO-METHANOL-TO-GASOLINE

LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS & REACTORS	9 336 000	7 200 000					EACH		14 500							
								EACH									
								EACH									
1500	PUMPS AND DRIVERS	4 140 000						EACH									
1600	BOILERS, HEATERS & EXCHANGERS	23 041 000						EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	3 141 000						EACH									
1900	STORAGE TANKS	202 000						EACH									
2000	MATERIAL HANDLING AND			4 554 000	55 169 000			EACH				277 800					
2100	REDUCTION EQUIPMENT	3 111 000						EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS	274 000						EACH									
								EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT	126 000						EACH									
2800	OTHER MAJOR EQUIPMENT	44 000						EACH									
3200	SUMPS							EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	43 415 000	7 200 000	4 554 000	55 169 000			EACH		14 500		277 800					
4100	CONCRETE WORK AND PILING	2 162 000		3 072 000	5 234 000			CY				237 100					
4200	PIPE VALVES AND FITTINGS AG	11 125 000		12 937 000	24 062 000			L.F.				728 400					
4300	STRUCTURAL STEEL	6 472 000		1 882 000	8 354 000			TONS				119 800					
4400	INSTRUMENTS AND CONTROLS	7 206 000		2 793 000	9 999 000			EACH				152 800					
4500	PAINTING		3 742 000		3 742 000			SF		167 300							
4600	ELECTRICAL	616 000	14 049 000		14 665 000			HP		395 800							
4700	INSULATION		4 703 000		4 703 000			SF		122 500							
4800	ROADS, PARKING, PAVING, RR	404 000		706 000	1 110 000			SF				57 600					
4900	BUILDINGS		3 222 000		3 222 000			SF		36 000							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	1 365 000		1 941 000	3 306 000							124 200					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	29 350 000	25 716 000	23 331 000	78 397 000					721 600		1 419 900					
	TOTAL EQUIPMENT AND MATERIAL	72 765 000	32 916 000	27 885 000	133 566 000					736 100		1 697 700					

FROM DETAILED ESTIMATE

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER

TYPE OF UNIT 22

CAPACITY OXYGEN

CUSTOMER W. R. GRACE & CO.

PROJECT 12,500 BPD PLANT
COAL-TO-METHANOL-TO-GASOLINE

LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	155 000				3		EACH									
1300	HEAT EXCHANGERS	1 008 000				9		EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	38 000				6		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	34 778 000				15		EACH									
1900	STORAGE TANKS			4 656 000	84 754 000			EACH				277 200					
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT	506 000				6		EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	43 613 000				4		EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	80 098 000		4 656 000	84 754 000	43		EACH				277 200					
4100	CONCRETE WORK AND PILING	2 244 000		3 911 000	6 155 000			CY				301 800					
4200	PIPE VALVES AND FITTINGS AG	8 412 000		9 778 000	18 190 000			L.F.				550 600					
4300	STRUCTURAL STEEL	3 365 000		1 676 000	5 041 000			TONS				106 700					
4400	INSTRUMENTS AND CONTROLS	8 971 000		2 608 000	11 579 000			EACH				142 600					
4500	PAINTING		2 964 000		2 964 000			SF		130 400							
4600	ELECTRICAL	225 000	17 196 000		17 421 000			HP		462 800							
4700	INSULATION		7 449 000		7 449 000			SF		190 900							
4800	ROADS, PARKING, PAVING, RR	640 000		1 118 000	1 758 000			SF				91 200					
4900	BUILDINGS		4 017 000		4 017 000			SF		45 600							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALTY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	23 857 000	31 626 000	19 091 000	74 574 000					829 700		1 192 900					
	TOTAL EQUIPMENT AND MATERIAL	103 955 000	31 626 000	23 747 000	159 328 000					829 700		1 470 100					

FROM DETAILED ESTIMATE

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR J. JUSTICE/P. KUMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 23

TYPE OF UNIT CO SHIFT

CAPACITY

CUSTOMER W. R. GRACE & CO.

PROJECT 12,500 BPD PLANT

COAL-TO-METHANOL-TO-GASOLINE

LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	870 000				5		EACH									
1300	HEAT EXCHANGERS	7 235 000				25		EACH									
1400	FURNACES AND HEATERS	294 000				1		EACH									
1500	PUMPS AND DRIVERS	161 000				2		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS			678 000	10 458 000			EACH				40 400					
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS							EACH									
2500	REACTORS	1 164 000	56 000			1		EACH		800							
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	9 724 000	56 000	678 000	10 458 000	34		EACH		800		40 400					
4100	CONCRETE WORK AND PILING	350 000		497 000	847 000			CY				38 400					
4200	PIPE VALVES AND FITTINGS AG	1 945 000		2 261 000	4 206 000			L.F.				127 300					
4300	STRUCTURAL STEEL	933 000		272 000	1 205 000			TONS				17 300					
4400	INSTRUMENTS AND CONTROLS	1 167 000		452 000	1 619 000			EACH				24 700					
4500	PAINTING		540 000		540 000			SF		23 700							
4600	ELECTRICAL	20 000	2 517 000		2 537 000			HP		67 400							
4700	INSULATION		904 000		904 000			SF		23 200							
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	219 000		311 000	530 000							19 900					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	4 634 000	3 961 000	3 793 000	12 388 000					114 300		227 600					
	TOTAL EQUIPMENT AND MATERIAL	14 358 000	4 017 000	4 471 000	22 846 000					115 100		268 000					

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR J. JUSTICE/P. KUMAR

CHECKED BY

CONSTRUCTION PERIOD

FROM MAY '84 TO JAN '90

UNIT NUMBER 24

TYPE OF UNIT COAL GRINDING AND

CAPACITY SLURRY PREPARATION

12,500 BPD PLANT

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-INSTALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
0900	SAMPLERS & ANALYZERS	20 000						EACH									
1000	HOISTS & CRANES	386 000						EACH									
1100	COLUMNS							EACH									
1200	VESSELS & REACTORS							EACH									
								EACH									
								EACH									
1500	PUMPS AND DRIVERS	3209 000						EACH									
1600	BOILERS, HEATERS & EXCHANGERS	4 000						EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS		546 000					EACH		6 900							
2000	MATERIAL HANDLING AND							EACH									
	REDUCTION EQUIPMENT	272 000		1 569 000	17 112 000			EACH				98 600					
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS	305 000						EACH									
								EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT	251 000						EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
2900	ENVIRONMENTAL & PROCESS EQUIP.	21 000	5000					EACH		100							
3000	HANDLING EQUIPMENT	10444 000						EACH									
3200	SUMPS	57 000						EACH									
3800	WEIGHING EQUIPMENT	23 000						EACH									
	TOTAL MAJOR EQUIPMENT	14992 000	551 000	1 569 000	17 112 000			EACH		7 000		98 600					
4100	CONCRETE WORK AND PILING	2182 000		2 342 000	4 524 000			CY				180 700					
4200	PIPE VALVES AND FITTINGS AG	1088 000		1 265 000	2 353 000			L F				71 200					
4300	STRUCTURAL STEEL	2448 000		949 000	3 397 000			TONS				60 400					
4400	INSTRUMENTS AND CONTROLS	1119 000		325 000	1 444 000			EACH				17 800					
4500	PAINTING		575 000		575 000			SF		25 300							
4600	ELECTRICAL	701 000	2 782 000		3 483 000			HP		85 200							
4700	INSULATION							SF									
4800	ROADS, PARKING, PAVING, RR	124 000		217 000	341 000			SF				17 700					
4900	BUILDINGS		12 943 000		12 943 000			SF		158 100							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	7562 000	16 300 000	5 098 000	29 060 000					268 600		347 800					
	TOTAL EQUIPMENT AND MATERIAL	22654 000	16 851 000	6 667 000	46 172 000					275 600		446 400					

FROM DETAILED ESTIMATE

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR J. JUSTICE/P. KIMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 25

TYPE OF UNIT METHANOL SYNTHESIS

CAPACITY

CUSTOMER W. R. GRACE & CO. PROJECT 12,500 BPD PLANT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	890 000				5		EACH									
1300	HEAT EXCHANGERS	5 413 000				8		EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	23 000				3		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	3 190 000				2		EACH									
1900	STORAGE TANKS			762 000	17 906 000			EACH				47 600					
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS							EACH									
2500	REACTORS	6 862 000				2		EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	6 000	760 000			2	1	EACH		2 600							
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	16 384 000	760 000	762 000	17 906 000	22	1	EACH		2600		47 600					
4100	CONCRETE WORK AND PILING	771 000		1 097 000	1 868 000			CY				84 600					
4200	PIPE VALVES AND FITTINGS AG	3 515 000		4 087 000	7 602 000			L.F.				230 100					
4300	STRUCTURAL STEEL	1 671 000		648 000	2 319 000			TONS				41 200					
4400	INSTRUMENTS AND CONTROLS	2 194 000		638 000	2 832 000			EACH				34 900					
4500	PAINTING		952 000		952 000			SF		41 900							
4600	ELECTRICAL	3 000	3 726 000		3 729 000			HP		99 000							
4700	INSULATION		2 126 000		2 126 000			SF		54 500							
4800	ROADS, PARKING, PAVING, RR	274 000		478 000	752 000			SF				39 000					
4900	BUILDINGS		265 000		265 000			SF		2 400							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	386 000		548 000	934 000							35 100					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	8 814 000	7 069 000	7 496 000	23 379 000					197 800		464 900					
	TOTAL EQUIPMENT AND MATERIAL	25 198 000	7 829 000	8 258 000	41 285 000					200 400		512 500					

FROM DETAILED ESTIMATE

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KIMAR

CHECKED BY

CONSTRUCTION PERIOD

FROM MAY '84 TO JAN '90

UNIT NUMBER 26

TYPE OF UNIT AMMONIA RECOVERY

CAPACITY

CUSTOMER W. R. GRACE & CO. PROJECT 12,500 BPD PLANT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	8 000				3		EACH									
1300	HEAT EXCHANGERS	34 000				2		EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	5 000				2		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	233 000				2		EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT			26 000	308 000			EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT	2 000				1		EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	282 000		26 000	308 000	10		EACH				1 600					
4100	CONCRETE WORK AND PILING	10 000		15 000	25 000			CY				1 000					
4200	PIPE VALVES AND FITTINGS AG	55 000		64 000	119 000			L F				3 600					
4300	STRUCTURAL STEEL	21 000		8 000	29 000			TONS				500					
4400	INSTRUMENTS AND CONTROLS	33 000		17 000	50 000			EACH				900					
4500	PAINTING		16 000		16 000			SF		700							
4600	ELECTRICAL	9 000	48 000		57 000			HP		1 500							
4700	INSULATION		26 000		26 000			SF		700							
4800	ROADS, PARKING, PAVING, RR	2 000		4 000	6 000			SF				300					
4900	BUILDINGS		117 000		117 000			SF		1 000							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	4 000		5 000	9 000							400					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	134 000	207 000	113 000	454 000					3 900		6 800					
	TOTAL EQUIPMENT AND MATERIAL	416 000	207 000	139 000	762 000					3 900		8 400					

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 27

TYPE OF UNIT EFFLUENT WATER
TREATING

12,500 BPD PLANT

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS	468 000						EACH									
1200	VESSELS & REACTORS	111 000						EACH									
								EACH									
								EACH									
1500	PUMPS AND DRIVERS	614 000						EACH									
1600	BOILERS, HEATERS & EXCHANGERS	735 000						EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS		712 000					EACH		9 300							
2000	MATERIAL HANDLING AND			474 000	5 259 000			EACH				29 000					
	REDUCTION EQUIPMENT	137 000						EACH									
2200	SEPARATION EQUIPMENT	1 865 000						EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS	37 000						EACH									
								EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	106 000						EACH									
								EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	4 073 000	712 000	474 000	5 259 000			EACH		9 300		29 000					
4100	CONCRETE WORK AND PILING	259 000		367 000	626 000			CY				28 300					
4200	PIPE VALVES AND FITTINGS AG	1 315 000		1 253 000	2 568 000			L.F.				70 500					
4300	STRUCTURAL STEEL	503 000		250 000	753 000			TONS				15 900					
4400	INSTRUMENTS AND CONTROLS	717 000		278 000	995 000			EACH				15 200					
4500	PAINTING		354 000		354 000			SF		15 600							
4600	ELECTRICAL	87 000	1 162 000		1 249 000			HP		33200							
4700	INSULATION		445 000		445 000			SF		11400							
4800	ROADS, PARKING, PAVING, RR	38 000		67 000	105 000			SF				5 500					
4900	BUILDINGS		1 200 000		1 200 000			SF		12200							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	2 919 000	3 161 000	2 215 000	8 295 000					72 400		135 400					
	TOTAL EQUIPMENT AND MATERIAL	6 992 000	3 873 000	2 689 000	13 554 000					81 700		164 400					

FROM DETAILED ESTIMATE

COST ESTIMATE SUMMARY

CHECKED BY A

CAPACITY _____

LOCATION BASKETT, KENTUCKY

CAPACITY		DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN- STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	1 416 000						EACH									
1300	HEAT EXCHANGERS	12 989 000						EACH									
1400	FURNACES AND HEATERS	408 000						EACH									
1500	PUMPS AND DRIVERS	128 000						EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	4 891 000		1 216 000	27 355 000			EACH				74000					
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT	32 000						EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES	18 000						EACH									
2500	REACTORS	6 244 000						EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	13 000						EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	26 139 000		1 216 000	27 355 000			EACH				74 000					
4100	CONCRETE WORK AND PILING	823 000		1 170 000	1 993 000			CY				90 300					
4200	PIPE VALVES AND FITTINGS AG	4 574 000		5 319 000	9 893 000			L.F.				299 500					
4300	STRUCTURAL STEEL	1 764 000		684 000	2 448 000			TONS				43 500					
4400	INSTRUMENTS AND CONTROLS	2 718 000		790 000	3 508 000			EACH				43 200					
4500	PAINTING		1 451 000		1 451 000			SF		63 800							
4600	ELECTRICAL	54 000	5 252 000		5 306 000			HP		140 900							
4700	INSULATION		2 431 000		2 431 000			SF		62 300							
4800	ROADS, PARKING, PAVING, RR	314 000		547 000	861 000			SF				44 600					
4900	BUILDINGS		378 000		378 000			SF		2 600							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	470 000		669 000	1 139 000							42 800					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	10 717 000	9 512 000	9 179 000	29 408 000					269 600		563 900					
	TOTAL EQUIPMENT AND MATERIAL	36 856 000	9 512 000	10 395 000	56 763 000					269 600		637 900					

PARSONS

COST ESTIMATE SUMMARY

12,500 BPD PLANT

ESTIMATE NUMBER 6182

FILE NUMBER _____

DATE JUNE 1982ESTIMATOR T. JUSTICE/P. KUMARCHECKED BY 2

CONSTRUCTION PERIOD: _____

FROM MAY '84 TO JAN '90UNIT NUMBER 32TYPE OF UNIT GAS FRACTIONATION

CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS	1 318 000				4		EACH									
1200	VESSELS	66 000				7		EACH									
1300	HEAT EXCHANGERS	854 000				18		EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	136 000				18		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS			170 000	2 609 000			EACH				10 700					
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	65 000				1		EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	2 439 000		170 000	2 609 000	48		EACH				10 700					
4100	CONCRETE WORK AND PILING	132 000		187 000	319 000			CY				14 400					
4200	PIPE VALVES AND FITTINGS AG	899 000		855 000	1 754 000			L.F.				48 100					
4300	STRUCTURAL STEEL	274 000		106 000	380 000			TONS				6 800					
4400	INSTRUMENTS AND CONTROLS	351 000		102 000	453 000			EACH				5 600					
4500	PAINTING		135 000		135 000			SF	6 000								
4600	ELECTRICAL	26 000	752 000		778 000			HP	20 700								
4700	INSULATION		340 000		340 000			SF	8 700								
4800	ROADS, PARKING, PAVING, RR	39 000		68 000	107 000			SF				5 600					
4900	BUILDINGS		59 000		59 000			SF	400								
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	66 000		94 000	160 000							6 000					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	1 787 000	1 286 000	1 412 000	4 485 000					35 800		86 500					
	TOTAL EQUIPMENT AND MATERIAL	4 226 000	1 286 000	1 582 000	7 094 000					35 800		97 200					

PARSONS

COST ESTIMATE SUMMARY

12,5000 BPD PLANT

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY

CONSTRUCTION PERIOD _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER 33
 TYPE OF UNIT H. F. ALKYLATION
 CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS	1 739 000				3		EACH									
1200	VESSELS	790 000				8		EACH									
1300	HEAT EXCHANGERS	1 030 000		354 000	4 704 000	22		EACH				22 700					
1400	FURNACES AND HEATERS	565 000				1		EACH									
1500	PUMPS AND DRIVERS	226 000				10		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENTERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	4 350 000		354 000	4 704 000	46		EACH				22 700					
4100	CONCRETE WORK AND PILING	254 000		362 000	616 000	2						27 900					
4200	PIPE VALVES AND FITTINGS AG	1 531 000		1 457 000	2 988 000			L F				82 000					
4300	STRUCTURAL STEEL	653 000		253 000	906 000			TONS				16 100					
4400	INSTRUMENTS AND CONTROLS	940 000		273 000	1 213 000			EACH				14 900					
4500	PAINTING		241 000		241 000			SF		10 600							
4600	ELECTRICAL	38 000	1 349 000		1 387 000			HP		36 900							
4700	INSULATION		674 000		674 000			SF		17 300							
4800	ROADS, PARKING, PAVING, RR	87 000		152 000	239 000			SF				12 400					
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	176 000		250 000	426 000							16 000					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	3 679 000	2 264 000	2 747 000	8 690 000					64 800		169 300					
	TOTAL EQUIPMENT AND MATERIAL	8 029 000	2 264 000	3 101 000	13 394 000					64 800		192 000					

PARSONS

COST ESTIMATE SUMMARY

12,500 BPD PLANT

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KIMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 34

TYPE OF UNIT ACID GAS REMOVAL

CAPACITY

CUSTOMER W. R. GRACE & CO.

PROJECT COAL-TO-METHANOL-TO-GASOLINE

LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS	9 969 000				7		EACH									
1200	VESSELS	1 522 000				10		EACH									
1300	HEAT EXCHANGERS	6 816 000				22		EACH									
1400	FURNACES AND HEATERS	285 000	234 000			1		EACH		4 300							
1500	PUMPS AND DRIVERS	803 000				13		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	309 000				1		EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT			2 884 000	33 146 000			EACH				178 000					
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS		2 471 000			1		EACH		2 000							
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	7 853 000				1		EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	27 557 000	2 705 000	2 884 000	33 146 000	56		EACH		6 300		178 000					
4100	CONCRETE WORK AND PILING	1 116 000		1 586 000	2 702 000			CY				122 400					
4200	PIPE VALVES AND FITTINGS AG	6 062 000		7 049 000	13 111 000			L.F.				396 900					
4300	STRUCTURAL STEEL	2 273 000		881 000	3 154 000			TONS				561 000					
4400	INSTRUMENTS AND CONTROLS	3 665 000		1 826 000	5 491 000			EACH				99 900					
4500	PAINTING		1 529 000		1 529 000			SF		67 300							
4600	ELECTRICAL	274 000	6 120 000		6 394 000			HP		169 800							
4700	INSULATION		2 990 000		2 990 000			SF		76 600							
4800	ROADS, PARKING, PAVING, RR	220 000		385 000	605 000			SF				31 400					
4900	BUILDINGS		512 000		512 000			SF		4 000							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	496 000		705 000	1 201 000							45 100					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	14 106 000	11 151 000	12 432 000	37 689 000					317 700		75 800					
	TOTAL EQUIPMENT AND MATERIAL	41 663 000	13 856 000	15 316 000	70 835 000					324 000		929 800					

COST ESTIMATE SUMMARY

FILE NUMBER _____

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY CMC

FROM MAY '84 TO JAN '90

UNIT NUMBER 36 COMBINED MODULES 1 & 2

UNIT NUMBER 99 COMBINED PROCESS
TYPE OF UNIT SULFUR RECOVERY

CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

CAPACITY		DOLLARS						QUANTITY				MANHOURS				COST PER UNIT			
ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE	SUBCONTRACT			PARSONS FIELD LABOR	TOTAL	PARSONS IN- STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
			TOTAL	PER UNIT	TOTAL							PER UNIT							
										EACH									
										EACH									
1100	COLUMNS									EACH									
1200	VESSELS	336 000		90 000				10		EACH		2 000							
1300	HEAT EXCHANGERS	1 240 000		88 000				18		EACH		800							
1400	FURNACES AND HEATERS	72 000		180 000				2		EACH		2 200							
1500	PUMPS AND DRIVERS	20 000						8		EACH									
1600	BOILERS									EACH									
1700	COOLING TOWERS									EACH									
1800	COMPRESSORS AND BLOWERS	184 000				237 000	2 447 000	8		EACH				14 100					
1900	STORAGE TANKS									EACH									
2000	MATERIAL HANDLING EQUIPMENT									EACH									
2100	REDUCTION EQUIPMENT									EACH									
2200	SEPARATION EQUIPMENT									EACH									
2300	CONCENTRATION EQUIPMENT									EACH									
2400	AGITATORS, MIXERS AND BLENDEES									EACH									
2500	REACTORS									EACH									
2600	HOPPERS, CHUTES, BINS									EACH									
2700	CLASS. AND SCREENING EQUIPMENT									EACH									
2800	OTHER MAJOR EQUIPMENT									EACH									
										EACH									
										EACH									
										EACH									
										EACH									
	TOTAL MAJOR EQUIPMENT	1 852 000		358 000		237 000	2 447 000	46		EACH		5 000		14100					
4100	CONCRETE WORK AND PILING	126 000				220 000	346 000			CY				16900					
4200	PIPE VALVES AND FITTINGS AG	662 000				630 000	1 292 000			L.F.				35 400					
4300	STRUCTURAL STEEL	208 000				81 000	289 000			TONS				5 100					
4400	INSTRUMENTS AND CONTROLS	385 000				112 000	497 000			EACH				6 100					
4500	PAINTING			137 000			137 000			SF		6 000							
4600	ELECTRICAL	36 000		367 000			403 000			HP		10 700							
4700	INSULATION			402 000			402 000			SF		10 500							
4800	ROADS, PARKING, PAVING, RR	37 000				65 000	102 000			SF				5 300					
4900	BUILDINGS									SF									
5000	BUILDING COMPONENT AND FIXTURES																		
5100	LARGE SPECIALITY STRUCTURES																		
5200	PIPE, VALVES AND FITTINGS UG	42 000				59 000	101 000							3 800					
5300	OTHER CIVIL WORK																		
	TOTAL BULK MATERIAL	1 496 000		906 000		1 167 000	3 569 000					27 000		72 600					
	TOTAL EQUIPMENT AND MATERIAL	3 348 000		1 264 000		1 404 000	6 016 000					32 000		86 700					

PARSONS

COST ESTIMATE SUMMARY

12,500 BPD PLANT

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 37 COMBINED MODULES 1 & 2

TYPE OF UNIT SULFUR REMOVAL

CAPACITY

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS	720 000				4		EACH									
1200	VESSELS	88 000	18 000			2	REFRAC.	EACH		400							
1300	HEAT EXCHANGERS	329 000				13		EACH									
1400	FURNACES AND HEATERS	42 000	42 000			2	REFRAC.	EACH		800							
1500	PUMPS AND DRIVERS	324 000				30		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	122 000				6		EACH									
1900	STORAGE TANKS	59 000	54 000			4	2	EACH		900							
2000	MATERIAL HANDLING EQUIPMENT			223 000	2 738 000			EACH				14 000					
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT	510 000				6		EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEERS	207 000				17		EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
4100	BASINS		WITH BULK COMMODITIES A/C	4 000	4300	14		EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	2 401 000	114 000	223 000	2 738 000	98	2	EACH		2 100		14 000					
4100	CONCRETE WORK AND PILING	307 000		535 000	842 000			CY				41 300					
4200	PIPE VALVES AND FITTINGS AG	765 000		728 000	1 493 000			L.F.				41 000					
4300	STRUCTURAL STEEL	234 000		91 000	325 000			TONS				5 800					
4400	INSTRUMENTS AND CONTROLS	940 000		273 000	1 213 000			EACH				14 900					
4500	PAINTING		133 000		133 000			SF		5 900							
4600	ELECTRICAL	91 000	882 000		973 000			HP		25 800							
4700	INSULATION		186 000		186 000			SF		4 800							
4800	ROADS, PARKING, PAVING, RR	19 000		33 000	52 000			SF				2 700					
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	22 000		31 000	53 000							2 000					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	2 378 000	1 201 000	1 691 000	5 270 000					36 500		107 700					
	TOTAL EQUIPMENT AND MATERIAL	4 779 000	1 315 000	1 914 000	8 008 000					38 600		121 700					

COST ESTIMATE SUMMARY

CHECKED BY me

CAPACITY _____

[illegible]

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY *mc*

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 39

TYPE OF UNIT PROCESS WATER TREATMENT (MOBILE)

CAPACITY

CUSTOMER W. R. GRACE & CO.

PROJECT COAL-TO-METHANOL-TO-GASOLINE

LOCATION BASKETT, KENTUCKY

CAPACITY		DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN- STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	24 000	7 000					EACH									
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	68 000						EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	3 000						EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT			21 000	256 000			EACH				1 300					
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES	133 000						EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
4100	PITS, CLARIFIERS & BASINS							EACH						WITH BULK COMMODITIES ACCT. 4100 & 4300			
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	228 000	7 000	21 000	256 000			EACH				1 300					
4100	CONCRETE WORK AND PILING	476 000		1 290 000	1 766 000			CY				99 500					
4200	PIPE VALVES AND FITTINGS AG	50 000		48 000	98 000			L.F.				2 700					
4300	STRUCTURAL STEEL	77 000		29 000	106 000			TONS				1 800					
4400	INSTRUMENTS AND CONTROLS	24 000		7 000	31 000			EACH				400					
4500	PAINTING		13 000		13 000			SF		600							
4600	ELECTRICAL	13 000	37 000		50 000			HP		1 300							
4700	INSULATION		18 000		18 000			SF		500							
4800	ROADS, PARKING, PAVING, RR	2 000		3 000	5 000			SF				300					
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	3 000		4 000	7 000							300					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	645 000	68 000	1 381 000	2 094 000					2 400		105 000					
	TOTAL EQUIPMENT AND MATERIAL	873 000	75 000	1 402 000	2 350 000					2 400		106 300					

PARSONS

COST ESTIMATE SUMMARY

CONSTRUCTION PERIOD _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER 51
 TYPE OF UNIT UTILITIES SUPPLY
 CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT 12,500 BPD PLANT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ESTIMATE NUMBER 6182
 FILE NUMBER _____
 DATE JUNE 1982
 ESTIMATOR T. JUSTICE/P. KUMAR
 CHECKED BY *mc*

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	145 000		5 000	150 000	6		EACH				300					
1300	HEAT EXCHANGERS	399 000		10 000	409 000	16		EACH				600					
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	3 146 000		116 000	3 262 000	31		EACH				7 100					
1600	BOILERS							EACH									
1700	COOLING TOWERS		12 336 000		12 336 000		3	EACH		140 000							
1800	COMPRESSORS AND BLOWERS	2 875 000		127 000	3 002 000	9		EACH				7 800					
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENTERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	7 545 000		189 000	7 734 000	21		EACH				11 000					
3300	THICKENERS		592 000		592 000		2	EACH		6 900							
3800	WFIHING EQUIPMENT	45 000		13 000	58 000	1		EACH				800					
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	14 155 000	12 928 000	460 000	27 543 000	84	5	EACH		146 900		27 600					
4100	CONCRETE WORK AND PILING	3 867 000		2 226 000	6 093 000			CY				171 800					
4200	PIPE VALVES AND FITTINGS AG	3 370 000		2 777 000	6 147 000			LF				156 400					
4300	STRUCTURAL STEEL	660 000		228 000	888 000			TONS				14 500					
4400	INSTRUMENTS AND CONTROLS	126 000		36 000	162 000			EACH				2 000					
4500	PAINTING		304 000		304 000			SF		9 800							
4600	ELECTRICAL	14 990 000		10 971 000	25 961 000			HP				210 600					
4700	INSULATION		1 322 000		1 322 000			SF		25 400							
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS		1 897 000		1 897 000			SF		19 900							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	3 957 000		1 436 000	5 393 000							95 400					
	TOTAL BULK MATERIAL	26 970 000	3 523 000	17 674 000	48 167 000					55 100		650 700					
	TOTAL EQUIPMENT AND MATERIAL	41 125 000	16 451 000	18 134 000	75 710 000					202 000		678 300					

DETAILED ESTIMATE

WITH ACCOUNTS 4100 & 4300

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY *unc*

CONSTRUCTION PERIOD

FROM MAY '84 TO JAN '90

UNIT NUMBER 52

TYPE OF UNIT STEAM GENERATION

CAPACITY

12,500 BPD PLANT

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
1000	HOISTS & CRANES	9 000				1		EACH									
1100	COLUMNS					3		EACH									
1200	VESSELS	560 000				12		EACH									
1300	HEAT EXCHANGERS	158 000				5		EACH									
1400	FURNACES AND HEATERS	3 269 000	1 853 000			2	1	EACH		27 900							
1500	PUMPS AND DRIVERS	1 095 000				29	25	EACH									
1600	BOILERS		29 369 000				3	EACH		247 500							
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS						12	EACH									
1900	STORAGE TANKS		738 000				11	EACH		9 700							
2000	MATERIAL HANDLING EQUIPMENT		103 000				8	EACH		1 300							
2100	REDUCTION EQUIPMENT			1 149 000	68 638 000	12		EACH				70 900					
2200	SEPARATION EQUIPMENT					13		EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES						6	EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS						4	EACH									
2700	CLASS. AND SCREENING EQUIPMENT						4	EACH									
2800	OTHER MAJOR EQUIPMENT	4 487 000	25 846 000			7	7	EACH		215 000							
2900	ENVIRONMENTAL EQUIP.	1 000		1 000			4	EACH				100					
3000	ROD & BALL HANDLING EQUIP.						1	EACH						3001 INCLUDED WITH		2801	
5500	OTHFPP MAJOR EQUIPMENT					1		EACH						5301 INCLUDED WITH		4100	
								EACH									
	TOTAL MAJOR EQUIPMENT	9 579 000	57 909 000	1 150 000	68 638 000	60	111	EACH		501 400		71 100					
4100	CONCRETE WORK AND PILING	2 921 000		3 135 000	6 056 000			CY				241 900					
4200	PIPE VALVES AND FITTINGS AG	4 681 000		5 443 000	10 124 000			LF				306 500					
4300	STRUCTURAL STEEL	2 808 000		1 089 000	3 897 000			TONS				69 300					
4400	INSTRUMENTS AND CONTROLS	1 498 000		435 000	1 933 000			EACH				23 800					
4500	PAINTING		1 386 000		1 386 000			SF		61 000							
4600	ELECTRICAL		8 145 000		8 145 000			HP		216 300							
4700	INSULATION		5 804 000		5 804 000			SF		148 900							
4800	ROADS, PARKING, PAVING, RR	449 000		784 000	1 233 000			SF				64 000					
4900	BUILDINGS		1 869 000		1 869 000			SF		34 400							
5000	BUILDING COMPONENT AND FIXTURES													DETAILED ESTIMATE			
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	936 000		1 089 000	2 025 000							69 700					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	13 293 000	17 204 000	11 975 000	42 472 000					460 600		775 200					
	TOTAL EQUIPMENT AND MATERIAL	22 872 000	75 113 000	13 125 000	111 110 000					962 000		846 200					

PARSONS

COST ESTIMATE SUMMARY

12,500 BPD PLANT

CONSTRUCTION PERIOD: _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER 53
 TYPE OF UNIT WASTE TREATMENT
 CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ESTIMATE NUMBER 6182

FILE NUMBER _____

DATE JUNE 1982ESTIMATOR T. JUSTICE/P. KUMARCHECKED BY the

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-INSTALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
0500	PROCESS FEEDERS	39 000				6		EACH									
0800	PACKAGED PLANTS	39 000				1		EACH									
1000	HOISTS & CRANES	34 000				1		EACH									
1200	VESSELS	143 000				11		EACH									
1300	HEAT EXCHANGERS					2		EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	412 000				117		EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS	10 000				5		EACH									
1900	STORAGE TANKS		457 000				33	EACH		6 500							
2000	MATERIAL HANDLING EQUIPMENT	679 000				17		EACH									
2100	REDUCTION EQUIPMENT			1 454 000	25 645 000			EACH									
2200	SEPARATION EQUIPMENT	151 000				5		EACH				118 200					
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS	46 000				14		EACH									
2500	REACTORS					1		EACH									
2600	HOPPERS, CHUTES, BINS					7		EACH									
2700	CLASS, AND SCREENING EQUIPMENT	9 000				1		EACH									
2800	OTHER MAJOR EQUIPMENT	13 280 000	8 462 000			30	4	EACH		47 800							
2900	ENVIRONMENTAL	63 000				6		EACH									
3000	ROD & BALL HANDLING EQUIP.	106 000				1		EACH									
3100	FLOTATION EQUIPMENT	258 000				2		EACH									
3200	LAUNDERS & SUMPS	3 000				5		EACH									
	TOTAL MAJOR EQUIPMENT	15 272 000	8 919 000	1 454 000	25 645 000	232	37	EACH		54 300		118 200					
4100	CONCRETE WORK AND PILING	653 000		928 000	1 581 000			CY				71 400					
4200	PIPE VALVES AND FITTINGS AG	1 197 000		1 139 000	2 336 000			L.F.				64 100					
4300	STRUCTURAL STEEL	847 000			422 000	1 269 000		TONS				26 900					
4400	INSTRUMENTS AND CONTROLS	581 000		169 000	750 000			EACH				9 200					
4500	PAINTING		895 000		895 000			SF		39 400							
4600	ELECTRICAL	7 000	2 097 000		2 104 000			HP		55 800							
4700	INSULATION		1 814 000		1 814 000			SF		43 700							
4800	ROADS, PARKING, PAVING, RR		774 000		774 000			SF		24 700							
4900	BUILDINGS		1 369 000		1 369 000			SF		15 000							
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALTY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	1 219 000		833 000	2 052 000							53 300					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	4 504 000	6 949 000	3 491 000	14 944 000					178 600		224 900					
	TOTAL EQUIPMENT AND MATERIAL	19 776 000	15 868 000	4 945 000	40 589 000					232 900		343 100					

DETAILED ESTIMATE

COST ESTIMATE SUMMARY

CHECKED BY 2

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

12,500 BPD PLANT

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

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PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY GT

CONSTRUCTION PERIOD:

FROM MAY '84 TO JAN '90

UNIT NUMBER 55

TYPE OF UNIT GASOLINE BLENDING

CAPACITY

12,500 BPD PLANT

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	13 000		1 000	14 000	2		EACH				100					
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	5 000		1 000	6 000	6		EACH				100					
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENTERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	18 000		2 000	20 000	8		EACH				200					
4100	CONCRETE WORK AND PILING	11 000		4 000	15 000			CY				300					
4200	PIPE VALVES AND FITTINGS AG	65 000		39 000	104 000			L.F.				2 200					
4300	STRUCTURAL STEEL	2 000		1 000	3 000			TONS				100					
4400	INSTRUMENTS AND CONTROLS	167 000		9 000	176 000			EACH				500					
4500	PAINTING		3 000		3 000			SF			100						
4600	ELECTRICAL		39 000		39 000			HP			900						
4700	INSULATION							SF									
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	245 000	42 000	53 000	340 000						1 000	3 100					
	TOTAL EQUIPMENT AND MATERIAL	263 000	42 000	55 000	360 000						1 000	3 300					

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY GT

CONSTRUCTION PERIOD: _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER 56
 TYPE OF UNIT INFRASTRUCTURE
 CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT 12,500 BPD PLANT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

CAPACITY		DOLLARS				QUANTITY			MANHOURS				COST PER UNIT				
ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS							EACH									
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS							EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
								EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT							EACH									
4100	CONCRETE WORK AND PILING							CY									
4200	PIPE VALVES AND FITTINGS AG							L.F.									
4300	STRUCTURAL STEEL							TONS									
4400	INSTRUMENTS AND CONTROLS							EACH									
4500	PAINTING							SF									
4600	ELECTRICAL		2 023 000		2 023 000			HP		32 100							
4700	INSULATION							SF									
4800	ROADS, PARKING, PAVING, RR		1 603 000		1 603 000			SF		24 500							
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES		14 333 000		14 333 000					209 100							
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL		17 959 000		17 959 000					265 700							
	TOTAL EQUIPMENT AND MATERIAL		17 959 000		17 959 000					265 700							

PARSONS

COST ESTIMATE SUMMARY

CONSTRUCTION PERIOD: _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER 57
 TYPE OF UNIT STORAGE & SHIPPING
 CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ESTIMATE NUMBER 6182
 FILE NUMBER _____
 DATE JUNE 1982
 ESTIMATOR T. JUSTICE/P. KUMAR
 CHECKED BY GT

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	155 000		5 000	160 000	3		EACH				300					
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	572 000		39 000	611 000	42		EACH				2 400					
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS		8 853 000		8 853 000	15		EACH		112 600							
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	761 000		7 000	768 000	2		EACH				400					
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	1 488 000	8 853 000	51 000	10 392 000	47	15	EACH		112 600		3 100					
4100	CONCRETE WORK AND PILING	660 000		345 000	1 005 000			CY				26 600					
4200	PIPE VALVES AND FITTINGS AG	1 075 000		705 000	1 780 000			L.F.				39 700					
4300	STRUCTURAL STEEL	221 000		72 000	293 000			TONS				4 600					
4400	INSTRUMENTS AND CONTROLS	120 000		24 000	144 000			EACH				1 300					
4500	PAINTING		128 000		128 000			SF		4 100							
4600	ELECTRICAL		113 000		113 000			HP		2 800							
4700	INSULATION		186 000		186 000			SF		4 600							
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	2 076 000	427 000	1 146 000	3 649 000					11 500		72 200					
	TOTAL EQUIPMENT AND MATERIAL	3 564 000	9 280 000	1 197 000	14 041 000					124 100		75 300					

PARSONS

COST ESTIMATE SUMMARY

CONSTRUCTION PERIOD: _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER 58
 TYPE OF UNIT FIRE WATER SYSTEM
 CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT 12,500 BPD PLANT
COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

ESTIMATE NUMBER 6182
 FILE NUMBER _____
 DATE JUNE 1982
 ESTIMATOR T. JUSTICE/P. KIMAR
 CHECKED BY R J W

ACCOUNT CODE	DESCRIPTION	DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN-STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS					5		EACH						INCL.	WITH ACCOUNT 1500		
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	191 000		26 000	217 000	9		EACH				1 500					
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS. AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT	1 958 000		1 370 000	3 328 000	1		EACH				91 000					
3700	MOBILE EQUIPMENT	361 000			361 000	4		EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	2 510 000		1 396 000	3 906 000	19		EACH				92 600					
4100	CONCRETE WORK AND PILING							CY						INCL.	IN WATER INTAKE PUMP STA	UNIT 56	
4200	PIPE VALVES AND FITTINGS AG							L.F.						INCL.	IN ACCOUNT 2800 -	UNIT 58	
4300	STRUCTURAL STEEL							TONS									
4400	INSTRUMENTS AND CONTROLS	10 000		4 000	14 000			EACH				200					
4500	PAINTING		5 000		5 000			SF		200							
4600	ELECTRICAL							HP						INCL.	IN UTILITIES SUPPLY -	UNIT 51	
4700	INSULATION							SF									
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG	6 351 000		2 832 000	9 183 000							188 000					
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	6 361 000	5 000	2 836 000	9 202 000					200		188 200					
	TOTAL EQUIPMENT AND MATERIAL	8 871 000	5 000	4 232 000	13 108 000					200		280 800					

COST ESTIMATE SUMMARY

CONSTRUCTION PERIOD: _____
FROM MAY '84 TO JAN '90
UNIT NUMBER 59
TYPE OF UNIT FLARE
CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT 12,500 BPD PLANT
COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

TYPE OF UNIT		PAGE		DOLLARS				QUANTITY				MANHOURS				COST PER UNIT											
ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE			SUBCONTRACT			PARSONS FIELD LABOR			TOTAL			PARSONS INSTALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL		
		TOTAL	PER UNIT		TOTAL	PER UNIT		TOTAL	PER UNIT		TOTAL	PER UNIT															
																EACH											
																EACH											
1100	COLUMNS															EACH											
1200	VESSELS		58	000					2	000		60	000	1			EACH				100						
1300	HEAT EXCHANGERS																EACH										
1400	FURNACES AND HEATERS		273	000					21	000		294	000	1			EACH				1	300					
1500	PUMPS AND DRIVERS		3	000					1	000		4	000	2			EACH				100						
1600	BOILERS																EACH										
1700	COOLING TOWERS																EACH										
1800	COMPRESSORS AND BLOWERS																EACH										
1900	STORAGE TANKS																EACH										
2000	MATERIAL HANDLING EQUIPMENT																EACH										
2100	REDUCTION EQUIPMENT																EACH										
2200	SEPARATION EQUIPMENT																EACH										
2300	CONCENTRATION EQUIPMENT																EACH										
2400	AGITATORS, MIXERS AND BLENDERS																EACH										
2500	REACTORS																EACH										
2600	HOPPERS, CHUTES, BINS																EACH										
2700	CLASS, AND SCREENING EQUIPMENT																EACH										
2800	OTHER MAJOR EQUIPMENT																EACH										
																	EACH										
																	EACH										
																	EACH										
																	EACH										
	TOTAL MAJOR EQUIPMENT		334	000					24	000		358	000	4			EACH				1500						
4100	CONCRETE WORK AND PILING		168	000					83	000		251	000				CY				6	400					
4200	PIPE VALVES AND FITTINGS AG		4	712	000				3	488	000	8	200	000			L.F.				196	400					
4300	STRUCTURAL STEEL			92	000				35	000		127	000				TONS				2	200					
4400	INSTRUMENTS AND CONTROLS			19	000				4	000		23	000				EACH				200						
4500	PAINTING					643	000					643	000				SF		20	600							
4600	ELECTRICAL					17	000					17	000				HP		500								
4700	INSULATION																SF										
4800	ROADS, PARKING, PAVING, RR																SF										
4900	BUILDINGS																SF										
5000	BUILDING COMPONENT AND FIXTURES																										
5100	LARGE SPECIALITY STRUCTURES																										
5200	PIPE, VALVES AND FITTINGS UG																										
5300	OTHER CIVIL WORK																										
	TOTAL BULK MATERIAL		4	991	000		660	000	3	610	000	9	261	000					21	100		205	200				
	TOTAL EQUIPMENT AND MATERIAL		5	325	000		660	000	3	634	000	9	619	000					21	100		206	700				

COST ESTIMATE SUMMARY

FILE NUMBER _____

ESTIMATOR T. JUSTICE/P. KUMAR

ESTIMATION by Douglas A. Rosen
CHECKED BY RJW

FROM MAY '84 TO JAN '90

UNIT NUMBER
TYPE OF UNIT OFFPLOT INTERCONNECTING
PIPING AND PIPEWAYS

CUSTOMER

W. R. GRACE & CO.

PROJECT

12,500 BPD PLANT

COAL-TO-METHANOL-TO-GASOLINE

LOCATION

BASKETT, KENTUCKY

[illegible]

COST ESTIMATE SUMMARY

FILE NUMBER _____

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY _____

FROM MAY '84 TO JAN '90

UNIT NUMBER 61

UNIT NUMBER	1
TYPE OF UNIT	BARGE DOCK

CAPACITY _____

CUSTOMER W. R. GRACE & CO. PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

[illegible]

PARSONS

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

FILE NUMBER

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMAR

CHECKED BY RJW

CONSTRUCTION PERIOD

FROM MAY '84 TO JAN '90

UNIT NUMBER 62

TYPE OF UNIT PLANT MAINTENANCE EQUIPMENT

CUSTOMER

W. R. GRACE & CO.

PROJECT

12,500 BPD PLANT

COAL-TO-METHANOL-TO-GASOLINE

LOCATION

BASKETT, KENTUCKY

CAPACITY

CAPACITY _____		DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN- STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS							EACH									
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS							EACH									
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS							EACH									
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDEES							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
3900	MAINTENANCE EQUIPMENT	1 664 000	61 000		1 725 000	140		EACH		2 000							
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	1 664 000	61 000		1 725 000	140		EACH		2 000							
4100	CONCRETE WORK AND PILING							CY									
4200	PIPE VALVES AND FITTINGS AG							LF									
4300	STRUCTURAL STEEL							TONS									
4400	INSTRUMENTS AND CONTROLS							EACH									
4500	PAINTING							SF									
4600	ELECTRICAL							HP									
4700	INSULATION							SF									
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL																
	TOTAL EQUIPMENT AND MATERIAL	1 664 000	61 000		1 725 000					2 000							

COST ESTIMATE SUMMARY

FILE NUMBER _____

DATE JUNE 1982

ESTIMATOR T. JUSTICE/P. KUMA

CHECKED BY RJW

FROM MAY '84 TO JAN '90

UNIT NUMBER 63

TYPE OF UNIT INTERMEDIATE TANKAGE

CAPACITY _____

CUSTOMER W. R. GRACE & CO.

PROJECT COAL-TO-METHANOL-TO-GASOLINE LOCATION BASKETT, KENTUCKY

LOCATION BASKETT, KENTUCKY

CAPACITY		DOLLARS				QUANTITY				MANHOURS				COST PER UNIT			
ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL	PARSONS IN- STALLED	SUBCONTRACT	UNIT	PER PIECE OF EQUIPMENT	SUBCONTRACT		PARSONS LABOR		MATERIALS AND EXPENSE	SUBCONTRACT	PARSONS FIELD LABOR	TOTAL
										TOTAL	PER UNIT	TOTAL	PER UNIT				
								EACH									
								EACH									
1100	COLUMNS							EACH									
1200	VESSELS	5 000		1 000	6 000	1		EACH				100					
1300	HEAT EXCHANGERS							EACH									
1400	FURNACES AND HEATERS							EACH									
1500	PUMPS AND DRIVERS	109 000		6 000	115 000	8		EACH				300					
1600	BOILERS							EACH									
1700	COOLING TOWERS							EACH									
1800	COMPRESSORS AND BLOWERS							EACH									
1900	STORAGE TANKS		762 000		762 000		3	EACH		9 200							
2000	MATERIAL HANDLING EQUIPMENT							EACH									
2100	REDUCTION EQUIPMENT							EACH									
2200	SEPARATION EQUIPMENT							EACH									
2300	CONCENTRATION EQUIPMENT							EACH									
2400	AGITATORS, MIXERS AND BLENDERS							EACH									
2500	REACTORS							EACH									
2600	HOPPERS, CHUTES, BINS							EACH									
2700	CLASS, AND SCREENING EQUIPMENT							EACH									
2800	OTHER MAJOR EQUIPMENT							EACH									
								EACH									
								EACH									
								EACH									
								EACH									
	TOTAL MAJOR EQUIPMENT	114 000	762 000	7 000	883 000	9	3	EACH		9 200		400					
4100	CONCRETE WORK AND PILING	93 000		61 000	154 000			CY				4 700					
4200	PIPE VALVES AND FITTINGS AG	376 000		243 000	619 000			L.F.				13 700					
4300	STRUCTURAL STEEL	14 000		4 000	18 000			TONS				300					
4400	INSTRUMENTS AND CONTROLS	20 000		9 000	29 000			EACH				500					
4500	PAINTING		335 000		335 000			SF		10 700							
4600	ELECTRICAL		52 000		52 000			HP		1 300							
4700	INSULATION		13 000		13 000			SF		300							
4800	ROADS, PARKING, PAVING, RR							SF									
4900	BUILDINGS							SF									
5000	BUILDING COMPONENT AND FIXTURES																
5100	LARGE SPECIALITY STRUCTURES																
5200	PIPE, VALVES AND FITTINGS UG																
5300	OTHER CIVIL WORK																
	TOTAL BULK MATERIAL	503 000	400 000	317 000	1 220 000					12 300		19 200					
	TOTAL EQUIPMENT AND MATERIAL	617 000	1 162 000	324 000	2 103 000					21 500		19 600					

FIELD COSTS

INTRODUCTION

The Field Costs or Overhead Costs contained herein are additive costs associated with direct field labor or total craft labor, such as : non-productive time; temporary construction; unallocable labor; welfare and fringes; payroll taxes and insurance; field administration and office expenses; construction equipment and servicing; small tools and consumable supplies. Included herein also are other direct costs such as ocean freight (percentage of ocean freighted material), capital spares (detailed estimate), sales and non-payroll taxes (percentage of taxable material and subcontracts), other insurances (percentage of project value) and advertising and public relations (allowance).

COST ESTIMATE SUMMARYESTIMATE NUMBER 6182

REV. 1

FILE NUMBER

CONSTRUCTION PERIOD: _____

FROM MAY '84 TO JAN '90LOCATION BASKETT, KENTUCKY 8-26-82DATE JUNE 1982UNIT NUMBER ALLPROJECT COAL-TO-METHANOL-TO-GASOLINE ESTIMATOR T. JUSTICETYPE OF UNIT ALLCUSTOMER W. R. GRACE & CO.CHECKED BY G/ACAPACITY 12,500 BPD PLANT**DOLLARS**

ACCOUNT CODE	DESCRIPTION	MATERIALS AND EXPENSE			SUBCONTRACT			RMP CO FIELD LABOR			TOTAL		
	TOTAL DIRECT COST	491	303	000	319	624	000	172	264	000	983	191	000
6000	FREIGHT - OCEAN	3	939	000							3	939	000
6100	SPARE PARTS, CAPITAL	5	143	000							5	143	000
6200	OPERATING MATERIALS												
6300	SITE PREPARATION												
6400	DEMOLITION, DISM AND RELOCATION												
6500	START UP SERVICES												
6600	SOIL, WATER AND OTHER INVESTIG.												
6700	PREMIUM PAY, CRAFT												
6800	NON-PRODUCTIVE TIME							5	168	000	5	168	000
6900	SALES AND NON-PAYROLL TAXES	35	435	000							35	435	000
	TOTAL OTHER DIRECT COST	44	517	000				5	168	000	49	685	000
	TOTAL DIRECT COST	535	820	000	319	624	000	177	432	000	1032	876	000
7100	TEMPORARY CONSTRUCTION	5	496	000	10	990	000	2	463	000	18	949	000
7200	OFFSITE STORAGE												
7300	UNALLOCABLE LABOR - CRAFT		206	000		621	000	19	845	000	20	672	000
7500	WELF. AND FRINGES CRAFT LAB	23	569	000							23	569	000
7600	PAYROLL INS AND TAX-CRAFT	38	555	000							38	555	000
7700	OTHER INSURANCE AND BONDS	3	192	000							3	192	000
7800	ADVERTISING AND PUBLIC RELATIONS		200	000								200	000
8100	FIELD ADMIN. AND OFFICE EXPENS.	19	380	000				23	686	000	43	066	000
8300	CONSTR. EQUIPMENT AND SERVICING	3	110	000	27	395	000	2	225	000	32	730	000
8400	SMALL TOOLS	10	336	000							10	336	000
8500	CONSUMABLE SUPPLIES	13	781	000							13	781	000
8600	SUBSISTENCE AND LODGING - CRAFT												
8700	TRANSPORTATION - CRAFT												
8900	PARSONS CHARGES - ALL LOCATIONS												
	TOTAL FIELD INDIRECT COSTS	117	825	000	39	006	000	48	219	000	205	050	000
	TOTAL CONSTRUCTION COST	653	645	000	358	630	000	225	651	000	1237	926	000

COST ESTIMATE SUMMARY

ESTIMATE NUMBER 6182

CONSTRUCTION PERIOD: _____
 FROM MAY '84 TO JAN '90
 UNIT NUMBER ALL
 TYPE OF UNIT ALL
 CAPACITY 12,500 BPD

REV.1 FILE NUMBER _____
 LOCATION BASKETT, KENTUCKY 8-26-82 DATE JUNE 1982
 PROJECT COAL-TO-METHANOL-TO-GASOLINE ESTIMATOR T. JUSTICE
 CUSTOMER W. R. GRACE & CO. CHECKED BY GTΔ

		MANHOURS			
ACCOUNT CODE	DESCRIPTION		SUBCONTRACT	RMP CO FIELD LABOR	
	TOTAL DIRECT MANHOURS		5,539,300	10,370,200	
6000	FREIGHT - ALL TYPES				
6100	SPARE PARTS				
6200	OPERATING MATERIALS				
6300	SITE PREPARATION				
6400	DEMOLITION, DISM AND RELOCATION				
6500	START UP SERVICES				
6600	SOIL, WATER AND OTHER INVESTIG.				
6700	PREMIUM PAY, CRAFT				
6800	NON-PRODUCTIVE TIME			311,100	
6900	SALES AND NON-PAYROLL TAXES				
	TOTAL OTHER DIRECT COST			311,100	
	TOTAL DIRECT COST		5,539,300	10,681,300	
7100	TEMPORARY CONSTRUCTION		165,400	148,300	
7200	OFFSITE STORAGE				
7300	UNALLOCABLE LABOR - CRAFT		9,300	1,194,800	
7500	WELF. AND FRINGES CRAFT LAB				
7600	PAYROLL INS AND TAX-CRAFT				
7700	OTHER INSURANCE AND BONDS				
7800	ADVERTISING AND PUBLIC RELATIONS				
8100	FIELD ADMIN. AND OFFICE EXPENS.				
8300	CONSTR. EQUIPMENT AND SERVICING			*	
8400	SMALL TOOLS		412,300	134,000	
8500	CONSUMABLE SUPPLIES				
8600	SUBSISTENCE AND LODGING - CRAFT				
8700	TRANSPORTATION - CRAFT				
8900	PARSONS CHARGES - ALL LOCATIONS				
	TOTAL FIELD INDIRECT COSTS		587,000	1,477,100	
	TOTAL CONSTRUCTION COST		6,126,300	12,158,400	
			*NOTE:		
			Field Staff Manhours are		
			Excluded		

PARADIGM

w

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET					
JOB NO.:		CLIENT:		TYPE OF ESTIMATE		CHECKED BY					
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR			SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				PER UNIT			EXPENSE		M/HR		
CAPACITY				MATL	M/H	LABS					
ACCNT											
6100	CAPITAL SPARE PARTS										
<u>SUMMARY</u>											
SHEET 2 OF 3											
3 OF 3											
SUB TOTAL											
FREIGHT											
SUB TOTAL											
ESCALATE TO JUNE '82 02%											
TOTAL											

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET						
JOB NO.: 6182		CLIENT: W. R. GRACE & CO.		TYPE OF ESTIMATE CAPITAL INVESTMENT		CHECKED BY						
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY 12500 BPD PLANT												
ACNT												
6100	CAPITAL SPARE PARTS											
UNIT												
22	-01 -1801 AIR COMPRESSOR SPARE ROTOR	1	EA.				550000					
22	-01 -1802 OXYGEN COMPRESSOR SPARE ROTOR	1	EA.				400000					
T22	-01 -1801 AIR COMPRESSOR STEAM TURBINE SPARE ROTOR	1	EA.				990000					
T22	-01 -1802 OXYGEN COMPRESSOR STEAM TURBINE SPARE ROTOR	1	EA.				235000					
25	-01 -1801 MUG COMPRESSOR SPARE ROTOR	1	EA.				150000					
25	-01 -1802 RECYCLE COMPRES- SOR SPARE ROTOR	1	EA.				125000					
T25	-01 -1801 MUG COMPRESSOR STEAM TURBINE SPARE ROTOR	1	EA.				250000					
T25	-01 -1802 RECYCLE COMPRES- SOR STEAM TURBINE SPARE ROTOR	1	EA.				195000					
TOTAL							2,395,000					

ESTIMATE WORKSHEET

M.T.O. BY		PRICED BY		DATE		SHEET						
JOB NO.: 6182		CLIENT: W. R. GRACE & CO.		TYPE OF ESTIMATE CAPITAL INVESTMENT		CHECKED BY						
UNIT/AREA		QUAN- TITY	UNIT	COST OR M/HR PER UNIT			MATERIAL EXPENSE	SUBCONTRACT		LABOR		TOTAL DOLLARS
DESCRIPTION				MATL	M/H	LABS		M/HR	DOLLARS	M/HR	DOLLARS	
CAPACITY												
ACCT												
6100 CAPITAL SPARE PARTS												
UNIT												
31	-01-1801 RECYCLE COMPRESSOR SPARE ROTOR	1	EA.				475000					
31	-01-1802 REFRIGERATION COMPRESSOR SPARE ROTOR	1	EA.				300000					
T31	-01-1801 RECYCLE COMPRESSOR STEAM TURBINE SPARE ROTOR	1	EA.				515000					
T31	-01-1802 REFRIGERATION COMPRESSOR STEAM TURBINE SPARE ROTOR	1	EA.				165000					
T51	-01-1593, 1594 POWER GEN- ERATOR STEAM TURBINE SPARE ROTOR	1	EA.				285000					
52	SPARE BOILER ID FAN	1	EA.				350000					
11-14	COAL AREA BELT CONVEYORS AND MAJOR EQUIPMENT CAPITAL SPARE PARTS	LOT					360000					
TOTAL							1,459,000					

PARDONE7

PARTICONS

8

PARSONS

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PARADIGM

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PARADIGMS

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PARSONS12

PAPERWORK

[illegible]

ESTIMATE WORKSHEET

[illegible]

PARSONS15

DISCUSSION

16

PARADIGM

7

PAUSE

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TOTAL PROJECT ESCALATED CAPITAL ESTIMATE

This section details the various assumptions utilized in projecting an escalated capital cost estimate for the 12,500 BPD Gasoline Plant. The base cost, upon which the escalated cost estimates are founded, is detailed earlier in this document. In June 1982 dollars the base cost estimate is \$1,428,198,000. To this estimate amounts must be added to cover escalation, contingency and construction interest. Inasmuch as the parameters required for computation of each of these add-ons cannot be accurately quantified, the escalated capital cost projections presented herein have been developed allowing for ranges in each of the key parameters. The range of parameters considered and the resultant escalated estimates are provided for informational purposes only and in compliance with the Cooperative Agreement Statement of Work. Additional estimation of the most likely escalated cost will be required to reflect specifics of financing arrangements and economic projections when, or if, a decision to proceed with detailed engineering and construction is made.

Following a brief discussion of the computational bases employed in arriving at the escalated capital cost estimates, there are presented a series of computer printouts detailing such estimates.

Escalation Estimate

For purposes of recognizing the impact of escalation on the project capital cost, a range of average annual escalation rates from 4.0% to 10.0% has been utilized. The base capital estimate to which these escalation rates have been applied is detailed earlier in this document. A spending pattern for the base capital estimate has been developed,

taking into consideration the detailed construction schedules contained in Deliverable No. 31b - Construction Plan. The schedule for detailed engineering and construction of the Gasoline Plant spans a period of 4.25 years, commencing in October 1983 and extending through December 1987. To this schedule an additional six months has been added to allow for accounting closeout of the project. Based upon these schedules, computer-generated curves were employed to develop a spending pattern across the construction period expressed as a percentage of the total project capital. Inputs to the computer program included individual unit costs and projected start and mechanical completion dates for each unit. Additions to the combined percentages developed in this manner were specific time-phased expenditures such as the quarterly Grace project management cost, license payments to Texaco Development Corporation and Phillips Petroleum, land purchase costs, and reimbursements to DOE for costs incurred under the Cooperative Agreement. Having thus developed the estimated base spending pattern totaling \$1,428,198,000 varying escalation rates were applied. Each calculation allows quarterly escalation from June 15, 1982, to the midpoint of the respective quarter in which spending occurs. Summarized in the table on the following page are the escalation allowances associated with the range of escalation rates utilized in this analysis.

ESCALATION IMPACT ON CAPITAL ESTIMATE

	(1)	(2)
<u>Line No.</u>	<u>Escalation Rate</u>	<u>Escalation Allowance (\$000)</u>
(1)	4.0%	\$ 216,232
(2)	6.0	333,623
(3)	8.0	457,541
(4)	10.0	588,254

Contingency

For purposes of the escalated capital estimate analysis presented here, contingency rates range from 5.0% to 10.0% where utilized. In assessing the contingency allowance it should be noted that the base capital estimate as detailed earlier in this document contains what has been characterized by Parsons as a Design Change Allowance. This allowance reflects an add-on to quoted equipment prices received by Parsons in recognition of historic differences between quoted and actual costs. The dollar value associated with this allowance is approximately \$39,090,000, or approximately 2.8% of the base capital estimate. Since the Design Change Allowance is included in the base to which the explicit contingency rate is applied, the actual contingency amount included in the estimate is compounded. Thus, effectively, an explicit allowance of 5.0% is, in fact, a 8.0% total base contingency allowance. The contingency calculation has been done in such a manner that the explicit contingency is calculated on the base capital spending and not subject to escalation. However, escalation is applied to that portion of the contingency included as the Design Change Allowance. The contingency allowance has been assumed to be cost incurred on a pro-rata basis across the spending schedule. A summary of the impact of

contingency allowances on the escalation capital estimate is given in the following table.

<u>CONTINGENCY IMPACT ON CAPITAL ESTIMATE</u>				
	(1)	(2)	(3)	(4)
Line		Explicit	Design	Effective
No	Contingency Rate	Contingency Allowance (\$000)	Change Allowance(a)	Base Contingency Rate
(1)	5.0%	\$ 71,410	39,090	8.0%
(2)	7.5	107,115	39,090	10.5
(3)	10.0	142,820	39,090	13.1

(a) Included in the base capital estimate of \$1.428 billion.

Construction Interest

Construction interest, as presented here, is an estimate of interest costs to be incurred during the constuction phase of a project. Key assumptions utilized in the calculation of construction interest were as follows:

1. Interest rates ranging from 10.0% to 14.0%,
2. A \$100 million front-end equity investment, and
3. Conversion of construction financing to long-term debt in the first quarter of 1988.

Detailed Calculation of Escalated Capital Investment Estimates

Immediately following are a series of computer-generated tables which depict the computational results of application of the foregoing parameters to the base capital estimate. Initially presented is a summary sensitivity analysis which indicates that for the range of parameters investigated, the escalated capital investment estimate for the 12,500 BPD Gasoline Plant ranges from \$2.0 billion to \$2.7 billion.

The lower of the above figures reflects a 4.0% escalation rate, 5.0% contingency allowance, and 10.0% construction financing interest rate, while the higher figure results from a 10.0% escalation rate, 10.0% contingency allowance and a 14.0% construction interest financing rate.

All possible combinations of the investigated parameters, recognizing preset incremental changes in each parameter, are depicted in the following charts. In addition to the summary table are two tables for each combination of parameters considered. The first of these tables details the entire escalated estimate from a cash outflow standpoint across the period of capital spending. The second table in each set exhibits the construction interest computational detail. The specific parameters applicable to each chart are listed on the chart.

W. R. GRACE & CO.
12,500 BPD COAL TO METHANOL TO GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE SENSITIVITY SUMMARY (a)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LINE NO	BASE CAPITAL ESTIMATE (b) (\$000)	ESCALATION RATE	ESTIMATE AMOUNT (\$000)	CONTINGENCY RATE	ESTIMATE AMOUNT (\$000)	CONSTRUCTION RATE	INTEREST AMOUNT (\$000)	TOTAL CAPITAL INVESTMENT (\$000)
(1)	\$1,428,198	4.00%	\$ 216,232	5.00%	\$ 71,410	10.00%	\$ 311,447	\$2,027,287
(2)	1,428,198	4.00	216,232	5.00	71,410	12.00	378,158	2,093,998
(3)	1,428,198	4.00	216,232	5.00	71,410	14.00	446,385	2,162,225
(4)	1,428,198	4.00	216,232	7.50	107,115	10.00	318,875	2,070,420
(5)	1,428,198	4.00	216,232	7.50	107,115	12.00	387,192	2,138,737
(6)	1,428,198	4.00	216,232	7.50	107,115	14.00	457,067	2,208,611
(7)	1,428,198	4.00	216,232	10.00	142,820	10.00	326,344	2,113,594
(8)	1,428,198	4.00	216,232	10.00	142,820	12.00	396,279	2,183,529
(9)	1,428,198	4.00	216,232	10.00	142,820	14.00	467,813	2,255,063
(10)	1,428,198	6.00	333,623	5.00	71,410	10.00	332,259	2,165,489
(11)	1,428,198	6.00	333,623	5.00	71,410	12.00	403,413	2,236,643
(12)	1,428,198	6.00	333,623	5.00	71,410	14.00	476,178	2,309,409
(13)	1,428,198	6.00	333,623	7.50	107,115	10.00	339,729	2,208,664
(14)	1,428,198	6.00	333,623	7.50	107,115	12.00	412,499	2,281,435
(15)	1,428,198	6.00	333,623	7.50	107,115	14.00	486,924	2,355,860
(16)	1,428,198	6.00	333,623	10.00	142,820	10.00	347,198	2,251,839
(17)	1,428,198	6.00	333,623	10.00	142,820	12.00	421,586	2,326,227
(18)	1,428,198	6.00	333,623	10.00	142,820	14.00	497,671	2,402,311
(19)	1,428,198	8.00	457,541	5.00	71,410	10.00	354,070	2,311,218
(20)	1,428,198	8.00	457,541	5.00	71,410	12.00	429,878	2,387,027
(21)	1,428,198	8.00	457,541	5.00	71,410	14.00	507,399	2,464,548
(22)	1,428,198	8.00	457,541	7.50	107,115	10.00	361,539	2,354,393
(23)	1,428,198	8.00	457,541	7.50	107,115	12.00	438,965	2,431,819
(24)	1,428,198	8.00	457,541	7.50	107,115	14.00	518,145	2,510,999
(25)	1,428,198	8.00	457,541	10.00	142,820	10.00	369,009	2,397,568
(26)	1,428,198	8.00	457,541	10.00	142,820	12.00	448,052	2,476,610
(27)	1,428,198	8.00	457,541	10.00	142,820	14.00	528,891	2,557,450
(28)	1,428,198	10.00	588,254	5.00	71,410	10.00	376,867	2,464,730
(29)	1,428,198	10.00	588,254	5.00	71,410	12.00	457,538	2,545,400
(30)	1,428,198	10.00	588,254	5.00	71,410	14.00	540,025	2,627,887
(31)	1,428,198	10.00	588,254	7.50	107,115	10.00	384,337	2,507,904
(32)	1,428,198	10.00	588,254	7.50	107,115	12.00	466,625	2,590,192
(33)	1,428,198	10.00	588,254	7.50	107,115	14.00	550,771	2,674,338
(34)	1,428,198	10.00	588,254	10.00	142,820	10.00	391,807	2,551,079
(35)	1,428,198	10.00	588,254	10.00	142,820	12.00	475,712	2,634,984
(36)	1,428,198	10.00	588,254	10.00	142,820	14.00	561,518	2,720,790

(a) COVERS CONSTRUCTION PERIOD FROM OCTOBER 1983 TO JUNE 1988.

(b) EXPRESSED IN JUNE 1982 DOLLARS.

W. R. GRACE & CO.
 12,500 BPD COAL-TO-METHANOL-TO-BASOLINE PLANT
 ESCALATED CAPITAL INVESTMENT ESTIMATE
 INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a-b)
 (\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 969	\$ 21,450	\$ 0	\$ 21,450
(2)	2	33,534	2,265	35,799	1,677	37,476	0	37,476
(3)	3	35,303	2,756	38,059	1,765	39,824	0	39,824
(4)	4	43,992	3,902	47,893	2,200	50,093	589	50,682
(5)	5	80,897	8,043	88,940	4,045	92,984	2,313	95,298
(6)	6	87,980	9,700	97,680	4,399	102,079	4,721	106,800
(7)	7	94,464	11,448	105,913	4,723	110,636	7,399	118,035
(8)	8	142,312	18,819	161,131	7,116	168,247	10,940	179,187
(9)	9	141,403	20,277	161,680	7,070	168,751	15,267	184,018
(10)	10	129,791	20,074	149,865	6,490	156,355	19,555	175,910
(11)	11	151,449	25,147	176,596	7,572	184,168	24,132	208,300
(12)	12	154,445	27,419	181,863	7,722	189,586	29,220	218,806
(13)	13	91,080	17,226	108,306	4,554	112,860	33,571	146,431
(14)	14	78,162	15,699	93,861	3,908	97,769	36,920	134,690
(15)	15	65,698	13,973	79,671	3,285	82,956	39,990	122,945
(16)	16	30,999	6,963	37,962	1,550	39,512	42,431	81,943
(17)	17	30,171	7,141	37,312	1,509	38,821	44,398	83,219
(18)	18	16,745	4,168	20,913	837	21,750	0	21,750
(19)	19	400	104	504	20	524	0	524
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$ 71,410	\$1,715,840	\$ 311,447	\$2,027,287

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD CO-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	RT	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 21,450	\$ 21,450	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	37,476	37,476	0	0	0	0	0	0	0
(3)	3	39,824	39,824	0	0	0	0	0	0	0
(4)	4	50,093	1,251	48,842	24,421	0	24,421	0	24,421	589
(5)	5	92,984	0	92,984	46,492	49,431	95,923	0	95,923	2,313
(6)	6	102,079	0	102,079	51,040	144,729	195,768	0	195,768	4,721
(7)	7	110,636	0	110,636	55,318	251,529	306,847	0	306,847	7,399
(8)	8	168,247	0	168,247	84,123	369,564	453,687	0	453,687	10,940
(9)	9	168,751	0	168,751	84,375	548,750	633,126	0	633,126	15,267
(10)	10	156,355	0	156,355	78,177	732,768	810,945	0	810,945	19,555
(11)	11	184,168	0	184,168	92,084	908,678	1,000,762	0	1,000,762	24,132
(12)	12	189,586	0	189,586	94,793	1,116,978	1,211,771	0	1,211,771	29,220
(13)	13	112,860	0	112,860	56,430	1,335,784	1,392,214	0	1,392,214	33,571
(14)	14	97,769	0	97,769	48,885	1,482,215	1,531,100	0	1,531,100	36,920
(15)	15	82,956	0	82,956	41,478	1,616,905	1,658,383	0	1,658,383	39,990
(16)	16	39,512	0	39,512	19,756	1,739,850	1,759,607	0	1,759,607	42,431
(17)	17	38,821	0	38,821	19,410	1,821,793	1,841,204	0	1,841,204	44,398
(18)	18	21,750	0	21,750	10,875	1,905,012	1,915,887	1,915,887	0	0
(19)	19	524	0	524	262	1,926,762	1,927,024	1,927,024	0	0
(20)	TOTAL	\$1,715,840	\$100,000	\$1,615,840	\$ 807,920					\$ 311,447

(A) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRAFF & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 969	\$ 21,450	\$ 0	\$ 21,450
(2)	2	33,534	2,265	35,799	1,677	37,476	0	37,476
(3)	3	35,303	2,756	38,059	1,765	39,824	0	39,824
(4)	4	43,992	3,902	47,893	2,200	50,093	702	50,795
(5)	5	80,897	8,043	88,940	4,045	92,984	2,760	95,744
(6)	6	87,980	9,700	97,680	4,399	102,079	5,642	107,721
(7)	7	94,464	11,448	105,913	4,723	110,636	8,861	119,496
(8)	8	142,312	18,819	161,131	7,116	168,247	13,122	181,369
(9)	9	141,403	20,277	161,680	7,070	168,751	18,342	187,092
(10)	10	129,791	20,074	149,865	6,490	156,355	23,540	179,895
(11)	11	151,449	25,147	176,596	7,572	184,168	29,109	213,278
(12)	12	154,445	27,419	181,863	7,722	189,586	35,316	224,902
(13)	13	91,080	17,226	108,306	4,554	112,860	40,677	153,537
(14)	14	78,162	15,699	93,861	3,908	97,769	44,872	142,641
(15)	15	65,698	13,973	79,671	3,285	82,956	48,759	131,714
(16)	16	30,999	6,963	37,962	1,550	39,512	51,919	91,432
(17)	17	30,171	7,141	37,312	1,509	38,821	54,537	93,358
(18)	18	16,745	4,168	20,913	837	21,750	0	21,750
(19)	19	400	104	504	20	524	0	524
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$ 71,410	\$1,715,840	\$ 378,158	\$2,093,998

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD ETHANOL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	PTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 21,450	\$ 21,450	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	37,476	37,476	0	0	0	0	0	0	0
(3)	3	39,824	39,824	0	0	0	0	0	0	0
(4)	4	50,093	1,251	48,842	24,421	0	24,421	0	24,421	702
(5)	5	92,984	0	92,984	46,492	49,544	96,036	0	96,036	2,760
(6)	6	102,079	0	102,079	51,040	145,288	196,328	0	196,328	5,642
(7)	7	110,636	0	110,636	55,318	253,010	308,328	0	308,328	8,861
(8)	8	168,247	0	168,247	84,123	372,506	456,629	0	456,629	13,122
(9)	9	168,751	0	168,751	84,375	553,875	638,250	0	638,250	18,342
(10)	10	156,355	0	156,355	78,177	740,967	819,145	0	819,145	23,540
(11)	11	184,168	0	184,168	92,084	920,862	1,012,946	0	1,012,946	29,109
(12)	12	189,586	0	189,586	94,793	1,134,140	1,228,932	0	1,228,932	35,316
(13)	13	112,860	0	112,860	56,430	1,359,041	1,415,471	0	1,415,471	40,677
(14)	14	97,769	0	97,769	48,885	1,512,578	1,561,463	0	1,561,463	44,872
(15)	15	82,956	0	82,956	41,478	1,655,220	1,696,698	0	1,696,698	48,759
(16)	16	39,512	0	39,512	19,756	1,786,934	1,806,690	0	1,806,690	51,919
(17)	17	38,821	0	38,821	19,410	1,878,366	1,897,776	0	1,897,776	54,537
(18)	18	21,750	0	21,750	10,875	1,971,724	1,982,599	1,982,599	0	0
(19)	19	524	0	524	262	1,993,473	1,993,736	1,993,736	0	0
(20)	TOTAL	\$1,715,840	\$100,000	\$1,615,840	\$ 807,920					\$ 378,158

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 969	\$ 21,450	\$ 0	\$ 21,450
(2)	2	33,534	2,265	35,799	1,677	37,476	0	37,476
(3)	3	35,303	2,756	38,059	1,765	39,824	0	39,824
(4)	4	43,992	3,902	47,893	2,200	50,093	813	50,906
(5)	5	80,897	8,043	88,940	4,045	92,984	3,202	96,186
(6)	6	87,980	9,700	97,680	4,399	102,079	6,556	108,636
(7)	7	94,464	11,448	105,913	4,723	110,636	10,316	120,952
(8)	8	142,312	18,819	161,131	7,116	168,247	15,303	183,549
(9)	9	141,403	20,277	161,680	7,070	168,751	21,423	190,174
(10)	10	129,791	20,074	149,865	6,490	156,355	27,550	183,905
(11)	11	151,449	25,147	176,596	7,572	184,168	34,137	218,305
(12)	12	154,445	27,419	181,863	7,722	189,586	41,496	231,082
(13)	13	91,080	17,226	108,306	4,554	112,860	47,914	160,774
(14)	14	78,162	15,699	93,861	3,908	97,769	53,016	150,785
(15)	15	65,698	13,973	79,671	3,285	82,956	57,791	140,746
(16)	16	30,999	6,963	37,962	1,550	39,512	61,754	101,266
(17)	17	30,171	7,141	37,312	1,509	38,821	65,115	103,935
(18)	18	16,745	4,168	20,913	837	21,750	0	21,750
(19)	19	400	104	504	20	524	0	524
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$ 71,410	\$1,715,840	\$ 446,385	\$2,162,225

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD CO-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	\$ 21,450	\$ 21,450	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	37,476	37,476	0	0	0	0	0	0	0
(3)	39,824	39,824	0	0	0	0	0	0	0
(4)	50,093	1,251	48,842	24,421	0	24,421	0	24,421	813
(5)	92,984	0	92,984	46,492	49,655	96,148	0	96,148	3,202
(6)	102,079	0	102,079	51,040	145,842	196,881	0	196,881	6,556
(7)	110,636	0	110,636	55,318	254,477	309,795	0	309,795	10,316
(8)	168,247	0	168,247	84,123	375,429	459,552	0	459,552	15,303
(9)	168,751	0	168,751	84,375	558,978	643,354	0	643,354	21,423
(10)	156,355	0	156,355	78,177	749,152	827,330	0	827,330	27,550
(11)	184,168	0	184,168	92,084	933,057	1,025,141	0	1,025,141	34,137
(12)	189,586	0	189,586	94,793	1,151,362	1,246,154	0	1,246,154	41,496
(13)	112,860	0	112,860	56,430	1,382,444	1,438,873	0	1,438,873	47,914
(14)	97,769	0	97,769	48,885	1,543,217	1,592,102	0	1,592,102	53,016
(15)	82,956	0	82,956	41,478	1,694,002	1,735,480	0	1,735,480	57,791
(16)	39,512	0	39,512	19,756	1,834,749	1,854,505	0	1,854,505	61,754
(17)	38,821	0	38,821	19,410	1,936,015	1,955,426	0	1,955,426	65,115
(18)	21,750	0	21,750	10,875	2,039,951	2,050,826	7,050,826	0	0
(19)	524	0	524	262	2,061,700	2,061,963	7,061,963	0	0
(20) TOTAL	\$1,715,840	\$100,000	\$1,615,840	\$ 807,920					\$ 446,385

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
 12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
 ESCALATED CAPITAL INVESTMENT ESTIMATE
 INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a)
 (\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 1,453	\$ 21,934	\$ 0	\$ 21,934
(2)	2	33,534	2,265	35,799	2,515	38,314	0	38,314
(3)	3	35,303	2,756	38,059	2,648	40,707	12	40,718
(4)	4	43,992	3,902	47,893	3,299	51,193	641	51,833
(5)	5	80,897	8,043	88,940	6,067	95,007	2,419	97,426
(6)	6	87,980	9,700	97,680	6,599	104,279	4,880	109,159
(7)	7	94,464	11,448	105,913	7,085	112,997	7,617	120,614
(8)	8	142,312	18,819	161,131	10,673	171,804	11,235	183,039
(9)	9	141,403	20,277	161,680	10,605	172,286	15,654	187,940
(10)	10	129,791	20,074	149,865	9,734	159,600	20,033	179,633
(11)	11	151,449	25,147	176,596	11,359	187,954	24,707	212,661
(12)	12	154,445	27,419	181,863	11,583	193,447	29,901	223,348
(13)	13	91,080	17,226	108,306	6,831	115,137	34,342	149,479
(14)	14	78,162	15,699	93,861	5,862	99,723	37,761	137,484
(15)	15	65,698	13,973	79,671	4,927	84,598	40,894	125,492
(16)	16	30,999	6,963	37,962	2,325	40,287	43,386	83,673
(17)	17	30,171	7,141	37,312	2,263	39,575	45,395	84,970
(18)	18	16,745	4,168	20,913	1,256	22,168	0	22,168
(19)	19	400	104	504	30	534	0	534
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$107,115	\$1,751,545	\$ 318,875	\$2,070,420

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD L-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 21,934	\$ 21,934	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	38,314	38,314	0	0	0	0	0	0	0
(3)	3	40,707	39,752	955	477	0	477	0	477	12
(4)	4	51,193	0	51,193	25,596	966	26,562	0	26,562	641
(5)	5	95,007	0	95,007	47,503	52,799	100,303	0	100,303	2,419
(6)	6	104,279	0	104,279	52,140	150,225	202,364	0	202,364	4,880
(7)	7	112,997	0	112,997	56,499	259,384	315,882	0	315,882	7,617
(8)	8	171,804	0	171,804	85,902	379,998	465,900	0	465,900	11,235
(9)	9	172,286	0	172,286	86,143	563,037	649,180	0	649,180	15,654
(10)	10	159,600	0	159,600	79,800	750,977	830,777	0	830,777	20,033
(11)	11	187,954	0	187,954	93,977	930,610	1,024,587	0	1,024,587	24,707
(12)	12	193,447	0	193,447	96,723	1,143,270	1,239,994	0	1,239,994	29,901
(13)	13	115,137	0	115,137	57,568	1,366,618	1,424,187	0	1,424,187	34,342
(14)	14	99,723	0	99,723	49,862	1,516,097	1,565,959	0	1,565,959	37,761
(15)	15	84,598	0	84,598	42,299	1,653,582	1,695,881	0	1,695,881	40,894
(16)	16	40,287	0	40,287	20,144	1,779,074	1,799,217	0	1,799,217	43,386
(17)	17	39,575	0	39,575	19,787	1,862,747	1,882,534	0	1,882,534	45,395
(18)	18	22,168	0	22,168	11,084	1,947,717	1,958,801	1,958,801	0	0
(19)	19	534	0	534	267	1,969,885	1,970,152	1,970,152	0	0
(20)	TOTAL	\$1,751,545	\$100,000	\$1,651,545	\$ 825,772					\$ 318,875

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID HANDLING-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 1,453	\$ 21,934	\$ 0	\$ 21,934
(2)	2	33,534	2,265	35,799	2,515	38,314	0	38,314
(3)	3	35,303	2,756	38,059	2,648	40,707	14	40,720
(4)	4	43,992	3,902	47,893	3,299	51,193	763	51,956
(5)	5	80,897	8,043	88,940	6,067	95,007	2,886	97,893
(6)	6	87,980	9,700	97,680	6,599	104,279	5,832	110,111
(7)	7	94,464	11,448	105,913	7,085	112,997	9,122	122,119
(8)	8	142,312	18,819	161,131	10,673	171,804	13,476	185,281
(9)	9	141,403	20,277	161,680	10,605	172,286	18,808	191,093
(10)	10	129,791	20,074	149,865	9,734	159,600	24,117	183,717
(11)	11	151,449	25,147	176,596	11,359	187,954	29,804	217,758
(12)	12	154,445	27,419	181,863	11,583	193,447	36,141	229,587
(13)	13	91,080	17,226	108,306	6,831	115,137	41,613	156,750
(14)	14	78,162	15,699	93,861	5,862	99,723	45,896	145,619
(15)	15	65,698	13,973	79,671	4,927	84,598	49,864	134,462
(16)	16	30,999	6,963	37,962	2,325	40,287	53,091	93,379
(17)	17	30,171	7,141	37,312	2,263	39,575	55,764	95,339
(18)	18	16,745	4,168	20,913	1,256	22,168	0	22,168
(19)	19	400	104	504	30	534	0	534
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$107,115	\$1,751,545	\$ 387,192	\$2,138,737

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

H. R. GRACE & CO.
12,500 BPD METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	YR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 21,934	\$ 21,934	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	38,314	38,314	0	0	0	0	0	0	0
(3)	3	40,707	39,752	955	477	0	477	0	477	14
(4)	4	51,193	0	51,193	25,596	968	26,565	0	26,565	763
(5)	5	95,007	0	95,007	47,503	52,924	100,428	0	100,428	2,886
(6)	6	104,279	0	104,279	52,140	150,817	202,957	0	202,957	5,832
(7)	7	112,997	0	112,997	56,499	260,929	317,427	0	317,427	9,122
(8)	8	171,804	0	171,804	85,902	383,048	468,950	0	468,950	13,476
(9)	9	172,286	0	172,286	86,143	568,329	654,472	0	654,472	18,808
(10)	10	159,600	0	159,600	79,800	759,422	839,222	0	839,222	24,117
(11)	11	187,954	0	187,954	93,977	943,139	1,037,116	0	1,037,116	29,804
(12)	12	193,447	0	193,447	96,723	1,160,897	1,257,621	0	1,257,621	36,141
(13)	13	115,137	0	115,137	57,568	1,390,485	1,448,053	0	1,448,053	41,613
(14)	14	99,723	0	99,723	49,862	1,547,235	1,597,097	0	1,597,097	45,896
(15)	15	84,598	0	84,598	42,299	1,692,854	1,735,153	0	1,735,153	49,864
(16)	16	40,287	0	40,287	20,144	1,827,316	1,847,460	0	1,847,460	53,091
(17)	17	39,575	0	39,575	19,787	1,920,695	1,940,482	0	1,940,482	55,764
(18)	18	22,168	0	22,168	11,084	2,016,034	2,027,118	2,027,118	0	0
(19)	19	534	0	534	267	2,038,202	2,038,470	2,038,470	0	0
(20)	TOTAL	\$1,751,545	\$100,000	\$1,651,545	\$ 825,772					\$ 387,192

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a, b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 1,453	\$ 21,934	\$ 0	\$ 21,934
(2)	2	33,534	2,265	35,799	2,515	38,314	0	38,314
(3)	3	35,303	2,756	38,059	2,648	40,707	16	40,722
(4)	4	43,992	3,902	47,893	3,299	51,193	885	52,077
(5)	5	80,897	8,043	88,940	6,067	95,007	3,348	98,355
(6)	6	87,980	9,700	97,680	6,599	104,279	6,778	111,057
(7)	7	94,464	11,448	105,913	7,085	112,997	10,621	123,618
(8)	8	142,312	18,819	161,131	10,673	171,804	15,717	187,521
(9)	9	141,403	20,277	161,680	10,605	172,286	21,969	194,255
(10)	10	129,791	20,074	149,865	9,734	159,600	28,226	187,826
(11)	11	151,449	25,147	176,596	11,359	187,954	34,953	222,907
(12)	12	154,445	27,419	181,863	11,583	193,447	42,467	235,914
(13)	13	91,080	17,226	108,306	6,831	115,137	49,019	164,156
(14)	14	78,162	15,699	93,861	5,862	99,723	54,229	153,952
(15)	15	65,698	13,973	79,671	4,927	84,598	59,104	143,702
(16)	16	30,999	6,963	37,962	2,325	40,287	63,151	103,438
(17)	17	30,171	7,141	37,312	2,263	39,575	66,584	106,159
(18)	18	16,745	4,168	20,913	1,256	22,168	0	22,168
(19)	19	400	104	504	30	534	0	534
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$107,115	\$1,751,545	457,067	\$2,208,611

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD C - TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	CTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 21,934	\$ 21,934	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	38,314	38,314	0	0	0	0	0	0	0
(3)	3	40,707	39,752	955	477	0	477	0	477	16
(4)	4	51,193	0	51,193	25,596	971	26,567	0	26,567	885
(5)	5	95,007	0	95,007	47,503	53,048	100,551	0	100,551	3,348
(6)	6	104,279	0	104,279	52,140	151,403	203,543	0	203,543	6,778
(7)	7	112,997	0	112,997	56,499	262,460	318,959	0	318,959	10,621
(8)	8	171,804	0	171,804	85,902	386,078	471,981	0	471,981	15,717
(9)	9	172,286	0	172,286	86,143	573,599	659,742	0	659,742	21,969
(10)	10	159,600	0	159,600	79,800	767,854	847,654	0	847,654	28,226
(11)	11	187,954	0	187,954	93,977	955,680	1,049,657	0	1,049,657	34,953
(12)	12	193,447	0	193,447	96,723	1,178,588	1,275,311	0	1,275,311	42,467
(13)	13	115,137	0	115,137	57,568	1,414,502	1,472,070	0	1,472,070	49,019
(14)	14	99,723	0	99,723	49,862	1,578,658	1,628,519	0	1,628,519	54,229
(15)	15	84,598	0	84,598	42,299	1,732,610	1,774,909	0	1,774,909	59,104
(16)	16	40,287	0	40,287	20,144	1,876,312	1,896,455	0	1,896,455	63,151
(17)	17	39,575	0	39,575	19,787	1,979,750	1,999,537	0	1,999,537	66,584
(18)	18	22,168	0	22,168	11,084	2,085,909	2,096,993	2,096,993	0	0
(19)	19	534	0	534	267	2,108,077	2,108,344	2,108,344	0	0
(20)	TOTAL	\$1,751,545	\$100,000	\$1,651,545	\$ 825,772					\$ 457,067

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID HANDLING-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 1,937	\$ 22,419	\$ 0	\$ 22,419
(2)	2	33,534	2,265	35,799	3,353	39,152	0	39,152
(3)	3	35,303	2,756	38,059	3,530	41,589	38	41,627
(4)	4	43,992	3,902	47,893	4,399	52,292	708	53,000
(5)	5	80,897	8,043	88,940	8,090	97,029	2,525	99,554
(6)	6	87,980	9,700	97,680	8,798	106,479	5,040	111,518
(7)	7	94,464	11,448	105,913	9,446	115,359	7,836	123,195
(8)	8	142,312	18,819	161,131	14,231	175,362	11,530	186,892
(9)	9	141,403	20,277	161,680	14,140	175,821	16,042	191,863
(10)	10	129,791	20,074	149,865	12,979	162,845	20,512	183,357
(11)	11	151,449	25,147	176,596	15,145	191,741	25,282	217,023
(12)	12	154,445	27,419	181,863	15,444	197,308	30,582	227,890
(13)	13	91,080	17,226	108,306	9,108	117,414	35,114	152,528
(14)	14	78,162	15,699	93,861	7,816	101,677	38,603	140,280
(15)	15	65,698	13,973	79,671	6,570	86,241	41,799	128,040
(16)	16	30,999	6,963	37,962	3,100	41,062	44,342	85,404
(17)	17	30,171	7,141	37,312	3,017	40,329	46,392	86,722
(18)	18	16,745	4,168	20,913	1,675	22,587	0	22,587
(19)	19	400	104	504	40	544	0	544
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$142,820	\$1,787,250	\$ 326,344	\$2,113,594

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

H. R. GRACE & CO.
12,500 BPD C-10-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LTNE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,419	\$ 22,419	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,152	39,152	0	0	0	0	0	0	0
(3)	3	41,589	38,429	3,160	1,580	0	1,580	0	1,580	38
(4)	4	52,292	0	52,292	26,146	3,198	29,344	0	29,344	708
(5)	5	97,029	0	97,029	48,515	56,198	104,713	0	104,713	2,525
(6)	6	106,479	0	106,479	53,239	155,752	208,992	0	208,992	5,040
(7)	7	115,359	0	115,359	57,679	267,270	324,950	0	324,950	7,836
(8)	8	175,362	0	175,362	87,681	390,465	478,146	0	478,146	11,530
(9)	9	175,821	0	175,821	87,910	577,357	665,267	0	665,267	16,042
(10)	10	162,845	0	162,845	81,422	769,220	850,642	0	850,642	20,512
(11)	11	191,741	0	191,741	95,870	952,576	1,048,447	0	1,048,447	25,282
(12)	12	197,308	0	197,308	98,654	1,169,599	1,268,253	0	1,268,253	30,582
(13)	13	117,414	0	117,414	58,707	1,397,489	1,456,196	0	1,456,196	35,114
(14)	14	101,677	0	101,677	50,839	1,550,017	1,600,856	0	1,600,856	38,603
(15)	15	86,241	0	86,241	43,120	1,690,297	1,733,417	0	1,733,417	41,799
(16)	16	41,062	0	41,062	20,531	1,818,337	1,838,868	0	1,838,868	44,342
(17)	17	40,329	0	40,329	20,165	1,903,741	1,923,906	0	1,923,906	46,392
(18)	18	22,587	0	22,587	11,294	1,990,463	2,001,756	2,001,756	0	0
(19)	19	544	0	544	272	2,013,050	2,013,322	2,013,322	0	0
(20)	TOTAL	\$1,787,250	\$100,000	\$1,687,250	\$ 843,625					\$ 326,344

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 1,937	\$ 22,419	\$ 0	\$ 22,419
(2)	2	33,534	2,265	35,799	3,353	39,152	0	39,152
(3)	3	35,303	2,756	38,059	3,530	41,589	45	41,634
(4)	4	43,992	3,902	47,893	4,399	52,292	843	53,136
(5)	5	80,897	8,043	88,940	8,090	97,029	3,013	100,043
(6)	6	87,980	9,700	97,680	8,798	106,479	6,024	112,503
(7)	7	94,464	11,448	105,913	9,446	115,359	9,385	124,744
(8)	8	142,312	18,819	161,131	14,231	175,362	13,832	189,194
(9)	9	141,403	20,277	161,680	14,140	175,821	19,275	195,096
(10)	10	129,791	20,074	149,865	12,979	162,845	24,695	187,540
(11)	11	151,449	25,147	176,596	15,145	191,741	30,500	222,240
(12)	12	154,445	27,419	181,863	15,444	197,308	36,966	234,274
(13)	13	91,080	17,226	108,306	9,108	117,414	42,551	159,965
(14)	14	78,162	15,699	93,861	7,816	101,677	46,922	148,599
(15)	15	65,698	13,973	79,671	6,570	86,241	50,970	137,211
(16)	16	30,999	6,963	37,962	3,100	41,062	54,264	95,327
(17)	17	30,171	7,141	37,312	3,017	40,329	56,993	97,322
(18)	18	16,745	4,168	20,913	1,675	22,587	0	22,587
(19)	19	400	104	504	40	544	0	544
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$142,820	\$1,787,250	\$ 396,279	\$2,183,529

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

H. R. GRACE & CO.
12,500 BPD OIL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a+b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,419	\$ 22,419	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,152	39,152	0	0	0	0	0	0	0
(3)	3	41,589	38,429	3,160	1,580	0	1,580	0	1,580	45
(4)	4	52,292	0	52,292	26,146	3,205	29,352	0	29,352	843
(5)	5	97,029	0	97,029	48,515	56,341	104,856	0	104,856	3,013
(6)	6	106,479	0	106,479	53,239	156,384	209,623	0	209,623	6,024
(7)	7	115,359	0	115,359	57,679	268,886	326,566	0	326,566	9,385
(8)	8	175,362	0	175,362	87,681	393,630	481,311	0	481,311	13,832
(9)	9	175,821	0	175,821	87,910	582,824	670,734	0	670,734	19,275
(10)	10	162,845	0	162,845	81,422	777,919	859,342	0	859,342	24,695
(11)	11	191,741	0	191,741	95,870	965,459	1,061,329	0	1,061,329	30,500
(12)	12	197,308	0	197,308	98,654	1,187,700	1,286,354	0	1,286,354	36,966
(13)	13	117,414	0	117,414	58,707	1,421,974	1,480,681	0	1,480,681	42,551
(14)	14	101,677	0	101,677	50,839	1,581,939	1,632,777	0	1,632,777	46,922
(15)	15	86,241	0	86,241	43,120	1,730,537	1,773,658	0	1,773,658	50,970
(16)	16	41,062	0	41,062	20,531	1,867,748	1,888,280	0	1,888,280	54,264
(17)	17	40,329	0	40,329	20,165	1,963,075	1,983,239	0	1,983,239	56,993
(18)	18	22,587	0	22,587	11,294	2,060,397	2,071,691	2,071,691	0	0
(19)	19	544	0	544	272	2,082,984	2,083,256	2,083,256	0	0
(20)	TOTAL	\$1,787,250	\$100,000	\$1,687,250	\$ 843,625					\$ 396,279

(b) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
 12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
 ESCALATED CAPITAL INVESTMENT ESTIMATE
 INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (P.H.)
 (\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,107	\$ 20,481	\$ 1,937	\$ 22,419	\$ 0	\$ 22,419
(2)	2	33,534	2,265	35,799	3,353	39,152	0	39,152
(3)	3	35,303	2,756	38,059	3,530	41,589	53	41,642
(4)	4	43,992	3,902	47,893	4,399	52,292	978	53,270
(5)	5	80,897	8,043	88,940	8,090	97,029	3,496	100,526
(6)	6	87,980	9,700	97,680	8,798	106,479	7,001	113,480
(7)	7	94,464	11,448	105,913	9,446	115,359	10,928	126,287
(8)	8	142,312	18,819	161,131	14,231	175,362	16,132	191,494
(9)	9	141,403	20,277	161,680	14,140	175,821	22,516	198,337
(10)	10	129,791	20,074	149,865	12,979	162,845	28,905	191,749
(11)	11	151,449	25,147	176,596	15,145	191,741	35,771	227,512
(12)	12	154,445	27,419	181,863	15,444	197,308	43,440	240,748
(13)	13	91,080	17,226	108,306	9,108	117,414	50,126	167,540
(14)	14	78,162	15,699	93,861	7,816	101,677	55,443	157,121
(15)	15	65,698	13,973	79,671	6,570	86,241	60,418	146,659
(16)	16	30,999	6,963	37,962	3,100	41,062	64,550	105,612
(17)	17	30,171	7,141	37,312	3,017	40,329	68,055	108,384
(18)	18	16,745	4,168	20,913	1,675	22,587	0	22,587
(19)	19	400	104	504	40	544	0	544
(20)	TOTAL	\$1,428,198	\$ 216,232	\$1,644,430	\$142,820	\$1,787,250	\$ 467,813	\$2,255,063

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD CATALYTIC CRACKING-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	DATE	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,419	\$ 22,419	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,152	39,152	0	0	0	0	0	0	0
(3)	3	41,589	38,429	3,160	1,580	0	1,580	0	1,580	53
(4)	4	52,292	0	52,292	26,146	3,213	29,359	0	29,359	978
(5)	5	97,029	0	97,029	48,515	56,483	104,997	0	104,997	3,496
(6)	6	106,479	0	106,479	53,239	157,008	210,248	0	210,248	7,001
(7)	7	115,359	0	115,359	57,679	270,488	328,167	0	328,167	10,928
(8)	8	175,362	0	175,362	87,681	396,775	484,456	0	484,456	16,132
(9)	9	175,821	0	175,821	87,910	588,269	676,179	0	676,179	22,516
(10)	10	162,845	0	162,845	81,422	786,606	868,028	0	868,028	28,905
(11)	11	191,741	0	191,741	95,870	978,355	1,074,226	0	1,074,226	35,771
(12)	12	197,308	0	197,308	98,654	1,205,867	1,304,521	0	1,304,521	43,440
(13)	13	117,414	0	117,414	58,707	1,446,615	1,505,322	0	1,505,322	50,126
(14)	14	101,677	0	101,677	50,839	1,614,155	1,664,994	0	1,664,994	55,443
(15)	15	86,241	0	86,241	43,120	1,771,276	1,814,396	0	1,814,396	60,418
(16)	16	41,062	0	41,062	20,531	1,917,935	1,938,466	0	1,938,466	64,550
(17)	17	40,329	0	40,329	20,165	2,023,547	2,043,712	0	2,043,712	68,055
(18)	18	22,587	0	22,587	11,294	2,131,931	2,143,225	2,143,225	0	0
(19)	19	544	0	544	272	2,154,518	2,154,790	2,154,790	0	0
(20)	TOTAL	\$1,787,250	\$100,000	\$1,687,250	\$ 843,625					\$ 467,813

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	4.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID-FUELS PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 969	\$ 22,010	\$ 0	\$ 22,010
(2)	2	33,534	3,420	36,954	1,677	38,630	0	38,630
(3)	3	35,303	4,171	39,474	1,765	41,239	23	41,262
(4)	4	43,992	5,920	49,911	2,200	52,111	674	52,785
(5)	5	80,897	12,233	93,129	4,045	97,174	2,490	99,665
(6)	6	87,980	14,790	102,770	4,399	107,169	5,014	112,183
(7)	7	94,464	17,499	111,963	4,723	116,686	7,834	124,520
(8)	8	142,312	28,838	171,149	7,116	178,265	11,579	189,844
(9)	9	141,403	31,149	172,553	7,070	179,623	16,173	195,796
(10)	10	129,791	30,915	160,707	6,490	167,196	20,745	187,941
(11)	11	151,449	38,826	190,275	7,572	197,847	25,646	223,493
(12)	12	154,445	42,441	196,886	7,722	204,608	31,117	235,725
(13)	13	91,080	26,732	117,812	4,554	122,366	35,810	158,176
(14)	14	78,162	24,424	102,587	3,908	106,495	39,433	145,927
(15)	15	65,698	21,795	87,493	3,285	90,778	42,762	133,540
(16)	16	30,999	10,890	41,889	1,550	43,439	45,411	88,850
(17)	17	30,171	11,197	41,368	1,509	42,876	47,547	90,423
(18)	18	16,745	6,551	23,296	837	24,133	0	24,133
(19)	19	400	165	565	20	585	0	585
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$ 71,410	\$1,833,231	\$ 332,259	\$2,165,489

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

H. R. GRACE & CO.
12,500 BPD OIL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,010	\$ 22,010	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	38,630	38,630	0	0	0	0	0	0	0
(3)	3	41,239	39,360	1,879	940	0	940	0	940	23
(4)	4	52,111	0	52,111	26,055	1,902	27,958	0	27,958	674
(5)	5	97,174	0	97,174	48,587	54,687	103,274	0	103,274	2,490
(6)	6	107,169	0	107,169	53,585	154,352	207,936	0	207,936	5,014
(7)	7	116,686	0	116,686	58,343	266,535	324,879	0	324,879	7,834
(8)	8	178,265	0	178,265	89,132	391,056	480,188	0	480,188	11,579
(9)	9	179,623	0	179,623	89,811	580,900	670,711	0	670,711	16,173
(10)	10	167,196	0	167,196	83,598	776,696	860,294	0	860,294	20,745
(11)	11	197,847	0	197,847	98,924	964,637	1,063,561	0	1,063,561	25,646
(12)	12	204,608	0	204,608	102,304	1,188,131	1,290,435	0	1,290,435	31,117
(13)	13	122,366	0	122,366	61,183	1,423,856	1,485,039	0	1,485,039	35,810
(14)	14	106,495	0	106,495	53,247	1,582,031	1,635,279	0	1,635,279	39,433
(15)	15	90,778	0	90,778	45,389	1,727,959	1,773,347	0	1,773,347	42,762
(16)	16	43,439	0	43,439	21,719	1,861,498	1,883,218	0	1,883,218	45,411
(17)	17	42,876	0	42,876	21,438	1,950,348	1,971,786	0	1,971,786	47,547
(18)	18	24,133	0	24,133	12,067	2,040,771	2,052,838	2,052,838	0	0
(19)	19	585	0	585	292	2,064,905	2,065,197	2,065,197	0	0
(20)	TOTAL	\$1,833,231	\$100,000	\$1,733,231	\$ 866,615					\$ 332,259

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. BRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 969	\$ 22,010	\$ 0	\$ 22,010
(2)	2	33,534	3,420	36,954	1,677	38,630	0	38,630
(3)	3	35,303	4,171	39,474	1,765	41,239	27	41,266
(4)	4	43,992	5,920	49,911	2,200	52,111	804	52,914
(5)	5	80,897	12,233	93,129	4,045	97,174	2,972	100,146
(6)	6	87,980	14,790	102,770	4,399	107,169	5,993	113,163
(7)	7	94,464	17,499	111,963	4,723	116,686	9,382	126,068
(8)	8	142,312	28,838	171,149	7,116	178,265	13,890	192,155
(9)	9	141,403	31,149	172,553	7,070	179,623	19,431	199,054
(10)	10	129,791	30,915	160,707	6,490	167,196	24,973	192,169
(11)	11	151,449	38,826	190,275	7,572	197,847	30,936	228,783
(12)	12	154,445	42,441	196,886	7,722	204,608	37,607	242,215
(13)	13	91,080	26,732	117,812	4,554	122,366	43,386	165,752
(14)	14	78,162	24,424	102,587	3,908	106,495	47,922	154,416
(15)	15	65,698	21,795	87,493	3,285	90,778	52,133	142,911
(16)	16	30,999	10,890	41,889	1,550	43,439	55,560	98,999
(17)	17	30,171	11,197	41,368	1,509	42,876	58,397	101,273
(18)	18	16,745	6,551	23,296	837	24,133	0	24,133
(19)	19	400	165	565	20	585	0	585
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$ 71,410	\$1,833,231	\$ 403,413	\$2,236,643

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD ETHYLENE-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	DATE	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,010	\$ 22,010	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	38,630	38,630	0	0	0	0	0	0	0
(3)	3	41,239	39,360	1,879	940	0	940	0	940	27
(4)	4	52,111	0	52,111	26,055	1,906	27,962	0	27,962	804
(5)	5	97,174	0	97,174	48,587	54,821	103,408	0	103,408	2,972
(6)	6	107,169	0	107,169	53,585	154,967	208,552	0	208,552	5,993
(7)	7	116,686	0	116,686	58,343	268,129	326,473	0	326,473	9,382
(8)	8	178,265	0	178,265	89,132	394,198	483,330	0	483,330	13,890
(9)	9	179,623	0	179,623	89,811	586,353	676,164	0	676,164	19,431
(10)	10	167,196	0	167,196	83,598	785,407	869,005	0	869,005	24,973
(11)	11	197,847	0	197,847	98,924	977,576	1,076,499	0	1,076,499	30,936
(12)	12	204,608	0	204,608	102,304	1,206,358	1,308,662	0	1,308,662	37,607
(13)	13	122,366	0	122,366	61,183	1,448,574	1,509,757	0	1,509,757	43,386
(14)	14	106,495	0	106,495	53,247	1,614,326	1,667,574	0	1,667,574	47,922
(15)	15	90,778	0	90,778	45,389	1,768,742	1,814,131	0	1,814,131	52,133
(16)	16	43,439	0	43,439	21,719	1,911,654	1,933,373	0	1,933,373	55,560
(17)	17	42,876	0	42,876	21,438	2,010,652	2,032,090	0	2,032,090	58,397
(18)	18	24,133	0	24,133	12,067	2,111,925	2,123,992	2,123,992	0	0
(19)	19	585	0	585	292	2,136,059	2,136,351	2,136,351	0	0
(20)	TOTAL	\$1,833,231	\$100,000	\$1,733,231	\$ 866,615					\$ 403,413

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 969	\$ 22,010	0	\$ 22,010
(2)	2	33,534	3,420	36,954	1,677	38,630	0	38,630
(3)	3	35,303	4,171	39,474	1,765	41,239	31	41,270
(4)	4	43,992	5,920	49,911	2,200	52,111	931	53,042
(5)	5	80,897	12,233	93,129	4,045	97,174	3,448	100,622
(6)	6	87,980	14,790	102,770	4,399	107,169	6,965	114,134
(7)	7	94,464	17,499	111,963	4,723	116,686	10,924	127,610
(8)	8	142,312	28,838	171,149	7,116	178,265	16,199	194,464
(9)	9	141,403	31,149	172,553	7,070	179,623	22,697	202,320
(10)	10	129,791	30,915	160,707	6,490	167,196	29,227	196,423
(11)	11	151,449	38,826	190,275	7,572	197,847	36,278	234,125
(12)	12	154,445	42,441	196,886	7,722	204,608	44,187	248,795
(13)	13	91,080	26,732	117,812	4,554	122,366	51,102	173,468
(14)	14	78,162	24,424	102,587	3,908	106,495	56,615	163,109
(15)	15	65,698	21,795	87,493	3,285	90,778	61,784	152,562
(16)	16	30,999	10,890	41,889	1,550	43,439	66,076	109,515
(17)	17	30,171	11,197	41,368	1,509	42,876	69,714	112,590
(18)	18	16,745	6,551	23,296	837	24,133	0	24,133
(19)	19	400	165	565	20	585	0	585
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$ 71,410	\$1,833,231	\$ 476,178	\$2,309,409

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD CATALYTIC TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,010	\$ 22,010	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	38,630	38,630	0	0	0	0	0	0	0
(3)	3	41,239	39,360	1,879	940	0	940	0	940	31
(4)	4	52,111	0	52,111	26,055	1,911	27,966	0	27,966	931
(5)	5	97,174	0	97,174	48,587	54,953	103,540	0	103,540	3,448
(6)	6	107,169	0	107,169	53,585	155,575	209,160	0	209,160	6,965
(7)	7	116,686	0	116,686	58,343	269,709	328,053	0	328,053	10,924
(8)	8	178,265	0	178,265	89,132	397,320	486,452	0	486,452	16,199
(9)	9	179,623	0	179,623	89,811	591,783	681,595	0	681,595	22,697
(10)	10	167,196	0	167,196	83,598	794,103	877,701	0	877,701	29,227
(11)	11	197,847	0	197,847	98,924	990,526	1,089,450	0	1,089,450	36,278
(12)	12	204,608	0	204,608	102,304	1,224,651	1,326,955	0	1,326,955	44,187
(13)	13	122,366	0	122,366	61,183	1,473,446	1,534,629	0	1,534,629	51,102
(14)	14	106,495	0	106,495	53,247	1,646,915	1,700,162	0	1,700,162	56,615
(15)	15	90,778	0	90,778	45,389	1,810,024	1,855,413	0	1,855,413	61,784
(16)	16	43,439	0	43,439	21,719	1,962,586	1,984,305	0	1,984,305	66,076
(17)	17	42,876	0	42,876	21,438	2,072,101	2,093,539	0	2,093,539	69,714
(18)	18	24,133	0	24,133	12,067	2,184,690	2,196,757	2,196,757	0	0
(19)	19	585	0	585	292	2,208,824	2,209,116	2,209,116	0	0
(20)	TOTAL	\$1,833,231	\$100,000	\$1,733,231	\$ 866,615					\$ 476,178

() FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID HANDLING-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a+b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 1,453	\$ 22,494	\$ 0	\$ 22,494
(2)	2	33,534	3,420	36,954	2,515	39,469	0	39,469
(3)	3	35,303	4,171	39,474	2,648	42,122	49	42,171
(4)	4	43,992	5,920	49,911	3,299	53,211	741	53,952
(5)	5	80,897	12,233	93,129	6,067	99,197	2,597	101,793
(6)	6	87,980	14,790	102,770	6,599	109,369	5,174	114,543
(7)	7	94,464	17,499	111,963	7,085	119,048	8,053	127,101
(8)	8	142,312	28,838	171,149	10,673	181,823	11,874	193,697
(9)	9	141,403	31,149	172,553	10,605	183,158	16,561	199,719
(10)	10	129,791	30,915	160,707	9,734	170,441	21,224	191,665
(11)	11	151,449	38,826	190,275	11,359	201,633	26,222	227,855
(12)	12	154,445	42,441	196,886	11,583	208,469	31,799	240,268
(13)	13	91,080	26,732	117,812	6,831	124,643	36,582	161,225
(14)	14	78,162	24,424	102,587	5,862	108,449	40,274	148,723
(15)	15	65,698	21,795	87,493	4,927	92,420	43,667	136,087
(16)	16	30,999	10,890	41,889	2,325	44,214	46,367	90,581
(17)	17	30,171	11,197	41,368	2,263	43,630	48,545	92,175
(18)	18	16,745	6,551	23,296	1,256	24,552	0	24,552
(19)	19	400	165	565	30	595	0	595
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$107,115	\$1,868,936	\$ 339,729	\$2,208,664

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD CATALYTIC TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,494	\$ 22,494	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,469	39,469	0	0	0	0	0	0	0
(3)	3	42,122	38,037	4,085	2,042	0	2,042	0	2,042	49
(4)	4	53,211	0	53,211	26,605	4,134	30,739	0	30,739	741
(5)	5	99,197	0	99,197	49,598	58,086	107,684	0	107,684	2,597
(6)	6	109,369	0	109,369	54,684	159,879	214,564	0	214,564	5,174
(7)	7	119,048	0	119,048	59,524	274,422	333,946	0	333,946	8,053
(8)	8	181,823	0	181,823	90,911	401,523	492,434	0	492,434	11,874
(9)	9	183,158	0	183,158	91,579	595,220	686,799	0	686,799	16,561
(10)	10	170,441	0	170,441	85,221	794,939	880,160	0	880,160	21,224
(11)	11	201,633	0	201,633	100,817	986,604	1,087,421	0	1,087,421	26,222
(12)	12	208,469	0	208,469	104,235	1,214,459	1,318,694	0	1,318,694	31,799
(13)	13	124,643	0	124,643	62,321	1,454,727	1,517,048	0	1,517,048	36,582
(14)	14	108,449	0	108,449	54,224	1,615,951	1,670,176	0	1,670,176	40,274
(15)	15	92,420	0	92,420	46,210	1,764,674	1,810,884	0	1,810,884	43,667
(16)	16	44,214	0	44,214	22,107	1,900,761	1,922,868	0	1,922,868	46,367
(17)	17	43,630	0	43,630	21,815	1,991,342	2,013,158	0	2,013,158	48,545
(18)	18	24,552	0	24,552	12,276	2,083,517	2,095,793	2,095,793	0	0
(19)	19	595	0	595	297	2,108,069	2,108,367	2,108,367	0	0
(20)	TOTAL	\$1,868,936	\$100,000	\$1,768,936	\$ 884,468					\$ 339,729

(b) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRADE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 1,453	\$ 22,494	\$ 0	\$ 22,494
(2)	2	33,534	3,420	36,954	2,515	39,469	0	39,469
(3)	3	35,303	4,171	39,474	2,648	42,122	59	42,180
(4)	4	43,992	5,920	49,911	3,299	53,211	884	54,094
(5)	5	80,897	12,233	93,129	6,067	99,197	3,099	102,296
(6)	6	87,980	14,790	102,770	6,599	109,369	6,185	115,554
(7)	7	94,464	17,499	111,963	7,085	119,048	9,645	128,693
(8)	8	142,312	28,838	171,149	10,673	181,823	14,245	196,068
(9)	9	141,403	31,149	172,553	10,605	183,158	19,898	203,056
(10)	10	129,791	30,915	160,707	9,734	170,441	25,551	195,992
(11)	11	151,449	38,826	190,275	11,359	201,633	31,632	233,265
(12)	12	154,445	42,441	196,886	11,583	208,469	38,433	246,902
(13)	13	91,080	26,732	117,812	6,831	124,643	44,324	168,967
(14)	14	78,162	24,424	102,587	5,862	108,449	48,947	157,396
(15)	15	65,698	21,795	87,493	4,927	92,420	53,240	145,660
(16)	16	30,999	10,890	41,889	2,325	44,214	56,733	100,947
(17)	17	30,171	11,197	41,368	2,263	43,630	59,626	103,256
(18)	18	16,745	6,551	23,296	1,256	24,552	0	24,552
(19)	19	400	165	565	30	595	0	595
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$107,115	\$1,868,936	\$ 412,499	\$2,281,435

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

H. R. GRACE & CO.
12,500 BPD METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,494	\$ 22,494	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,469	39,469	0	0	0	0	0	0	0
(3)	3	42,122	38,037	4,085	2,042	0	2,042	0	2,042	59
(4)	4	53,211	0	53,211	26,605	4,143	30,749	0	30,749	884
(5)	5	99,197	0	99,197	49,598	58,238	107,836	0	107,836	3,099
(6)	6	109,369	0	109,369	54,684	160,533	215,218	0	215,218	6,185
(7)	7	119,048	0	119,048	59,524	276,087	335,611	0	335,611	9,645
(8)	8	181,823	0	181,823	90,911	404,780	495,691	0	495,691	14,245
(9)	9	183,158	0	183,158	91,579	600,847	692,426	0	692,426	19,898
(10)	10	170,441	0	170,441	85,221	803,904	889,124	0	889,124	25,551
(11)	11	201,633	0	201,633	100,817	999,896	1,100,712	0	1,100,712	31,632
(12)	12	208,469	0	208,469	104,235	1,233,161	1,337,395	0	1,337,395	38,433
(13)	13	124,643	0	124,643	62,321	1,480,063	1,542,384	0	1,542,384	44,324
(14)	14	108,449	0	108,449	54,224	1,649,030	1,703,254	0	1,703,254	48,947
(15)	15	92,420	0	92,420	46,210	1,806,426	1,852,636	0	1,852,636	53,240
(16)	16	44,214	0	44,214	22,107	1,952,086	1,974,192	0	1,974,192	56,733
(17)	17	43,630	0	43,630	21,815	2,053,032	2,074,847	0	2,074,847	59,626
(18)	18	24,552	0	24,552	12,276	2,156,288	2,168,564	2,168,564	0	0
(19)	19	595	0	595	297	2,180,840	2,181,138	2,181,138	0	0
(20)	TOTAL	\$1,868,936	\$100,000	\$1,768,936	\$ 884,468					\$ 412,499

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 1,453	\$ 22,494	\$ 0	\$ 22,494
(2)	2	33,534	3,420	36,954	2,515	39,469	0	39,469
(3)	3	35,303	4,171	39,474	2,648	42,122	68	42,190
(4)	4	43,992	5,920	49,911	3,299	53,211	1,024	54,235
(5)	5	80,897	12,233	93,129	6,067	99,197	3,596	102,793
(6)	6	87,980	14,790	102,770	6,599	109,369	7,188	116,557
(7)	7	94,464	17,499	111,963	7,085	119,048	11,231	130,279
(8)	8	142,312	28,838	171,149	10,673	181,823	16,614	198,437
(9)	9	141,403	31,149	172,553	10,605	183,158	23,244	206,402
(10)	10	129,791	30,915	160,707	9,734	170,441	29,905	200,346
(11)	11	151,449	38,826	190,275	11,359	201,633	37,096	238,730
(12)	12	154,445	42,441	196,886	11,583	208,469	45,160	253,629
(13)	13	91,080	26,732	117,812	6,831	124,643	52,210	176,853
(14)	14	78,162	24,424	102,587	5,862	108,449	57,829	166,278
(15)	15	65,698	21,795	87,493	4,927	92,420	63,099	155,519
(16)	16	30,999	10,890	41,889	2,325	44,214	67,475	111,689
(17)	17	30,171	11,197	41,368	2,263	43,630	71,185	114,815
(18)	18	16,745	6,551	23,296	1,256	24,552	0	24,552
(19)	19	400	165	565	30	595	0	595
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$107,115	\$1,868,936	\$ 486,924	\$2,355,860

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD CO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,494	\$ 22,494	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,469	39,469	0	0	0	0	0	0	0
(3)	3	42,122	38,037	4,085	2,042	0	2,042	0	2,042	68
(4)	4	53,211	0	53,211	26,605	4,153	30,758	0	30,758	1,024
(5)	5	99,197	0	99,197	49,598	58,388	107,986	0	107,986	3,596
(6)	6	109,369	0	109,369	54,684	161,180	215,865	0	215,865	7,188
(7)	7	119,048	0	119,048	59,524	277,737	337,261	0	337,261	11,231
(8)	8	181,823	0	181,823	90,911	408,016	498,927	0	498,927	16,614
(9)	9	183,158	0	183,158	91,579	606,453	698,032	0	698,032	23,244
(10)	10	170,441	0	170,441	85,221	812,855	898,075	0	898,075	29,905
(11)	11	201,633	0	201,633	100,817	1,013,201	1,114,018	0	1,114,018	37,096
(12)	12	208,469	0	208,469	104,235	1,251,931	1,356,165	0	1,356,165	45,160
(13)	13	124,643	0	124,643	62,321	1,505,559	1,567,881	0	1,567,881	52,210
(14)	14	108,449	0	108,449	54,224	1,682,412	1,736,636	0	1,736,636	57,829
(15)	15	92,420	0	92,420	46,210	1,848,690	1,894,900	0	1,894,900	63,099
(16)	16	44,214	0	44,214	22,107	2,004,209	2,026,316	0	2,026,316	67,475
(17)	17	43,630	0	43,630	21,815	2,115,898	2,137,713	0	2,137,713	71,185
(18)	18	24,552	0	24,552	12,276	2,230,713	2,242,989	2,242,989	0	0
(19)	19	595	0	595	297	2,255,265	2,255,563	2,255,563	0	0
(20)	TOTAL	\$1,868,936	\$100,000	\$1,768,936	\$ 884,468					\$ 486,924

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 1,937	\$ 22,979	\$ 0	\$ 22,979
(2)	2	33,534	3,420	36,954	3,353	40,307	0	40,307
(3)	3	35,303	4,171	39,474	3,530	43,004	76	43,080
(4)	4	43,992	5,920	49,911	4,399	54,310	808	55,119
(5)	5	80,897	12,233	93,129	8,090	101,219	2,703	103,922
(6)	6	87,980	14,790	102,770	8,798	111,568	5,334	116,902
(7)	7	94,464	17,499	111,963	9,446	121,410	8,271	129,681
(8)	8	142,312	28,838	171,149	14,231	185,381	12,170	197,550
(9)	9	141,403	31,149	172,553	14,140	186,693	16,949	203,642
(10)	10	129,791	30,915	160,707	12,979	173,686	21,703	195,389
(11)	11	151,449	38,826	190,275	15,145	205,420	26,797	232,217
(12)	12	154,445	42,441	196,886	15,444	212,330	32,480	244,810
(13)	13	91,080	26,732	117,812	9,108	126,920	37,353	164,273
(14)	14	78,162	24,424	102,587	7,816	110,403	41,116	151,518
(15)	15	65,698	21,795	87,493	6,570	94,063	44,572	138,635
(16)	16	30,999	10,890	41,889	3,100	44,989	47,324	92,312
(17)	17	30,171	11,197	41,368	3,017	44,385	49,542	93,927
(18)	18	16,745	6,551	23,296	1,675	24,971	0	24,971
(19)	19	400	165	565	40	605	0	605
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$142,820	\$1,904,641	\$ 347,198	\$2,251,839

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

H. R. GRACE & CO.
12,500 BPD C - TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,979	\$ 22,979	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,307	40,307	0	0	0	0	0	0	0
(3)	3	43,004	36,714	6,290	3,145	0	3,145	0	3,145	76
(4)	4	54,310	0	54,310	27,155	6,366	33,521	0	33,521	808
(5)	5	101,219	0	101,219	50,610	61,485	112,094	0	112,094	2,703
(6)	6	111,568	0	111,568	55,784	165,407	221,191	0	221,191	5,334
(7)	7	121,410	0	121,410	60,705	282,309	343,014	0	343,014	8,271
(8)	8	185,381	0	185,381	92,690	411,990	504,680	0	504,680	12,170
(9)	9	186,693	0	186,693	93,347	609,540	702,887	0	702,887	16,949
(10)	10	173,686	0	173,686	86,843	813,182	900,025	0	900,025	21,703
(11)	11	205,420	0	205,420	102,710	1,008,571	1,111,281	0	1,111,281	26,797
(12)	12	212,330	0	212,330	106,165	1,240,788	1,346,953	0	1,346,953	32,480
(13)	13	126,920	0	126,920	63,460	1,485,598	1,549,058	0	1,549,058	37,353
(14)	14	110,403	0	110,403	55,201	1,649,871	1,705,073	0	1,705,073	41,116
(15)	15	94,063	0	94,063	47,031	1,801,390	1,848,421	0	1,848,421	44,572
(16)	16	44,989	0	44,989	22,494	1,940,025	1,962,519	0	1,962,519	47,324
(17)	17	44,385	0	44,385	22,192	2,032,337	2,054,529	0	2,054,529	49,542
(18)	18	24,971	0	24,971	12,485	2,126,263	2,138,749	2,138,749	0	0
(19)	19	605	0	605	302	2,151,234	2,151,537	2,151,537	0	0
(20)	TOTAL	\$1,904,641	\$100,000	\$1,804,641	\$ 902,320					\$ 347,198

a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. BRACE & CO.
12,500 BPD COAL-TO-LIQUID HANDLING-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 1,937	\$ 22,979	\$ 0	\$ 22,979
(2)	2	33,534	3,420	36,954	3,353	40,307	0	40,307
(3)	3	35,303	4,171	39,474	3,530	43,004	90	43,095
(4)	4	43,992	5,920	49,911	4,399	54,310	964	55,274
(5)	5	80,897	12,233	93,129	8,090	101,219	3,226	104,445
(6)	6	87,980	14,790	102,770	8,798	111,568	6,376	117,945
(7)	7	94,464	17,499	111,963	9,446	121,410	9,907	131,317
(8)	8	142,312	28,838	171,149	14,231	185,381	14,600	199,981
(9)	9	141,403	31,149	172,553	14,140	186,693	20,366	207,059
(10)	10	129,791	30,915	160,707	12,979	173,686	26,129	199,815
(11)	11	151,449	38,826	190,275	15,145	205,420	32,327	237,747
(12)	12	154,445	42,441	196,886	15,444	212,330	39,259	251,589
(13)	13	91,080	26,732	117,812	9,108	126,920	45,262	172,182
(14)	14	78,162	24,424	102,587	7,816	110,403	49,972	160,375
(15)	15	65,698	21,795	87,493	6,570	94,063	54,346	148,409
(16)	16	30,999	10,890	41,889	3,100	44,989	57,906	102,895
(17)	17	30,171	11,197	41,368	3,017	44,385	60,854	105,239
(18)	18	16,745	6,551	23,296	1,675	24,971	0	24,971
(19)	19	400	165	565	40	605	0	605
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$142,820	\$1,904,641	\$ 421,586	\$2,326,227

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD L-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,979	\$ 22,979	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,307	40,307	0	0	0	0	0	0	0
(3)	3	43,004	36,714	6,290	3,145	0	3,145	0	3,145	90
(4)	4	54,310	0	54,310	27,155	6,380	33,536	0	33,536	964
(5)	5	101,219	0	101,219	50,610	61,655	112,264	0	112,264	3,226
(6)	6	111,568	0	111,568	55,784	166,100	221,884	0	221,884	6,376
(7)	7	121,410	0	121,410	60,705	284,045	344,749	0	344,749	9,907
(8)	8	185,381	0	185,381	92,690	415,361	508,052	0	508,052	14,600
(9)	9	186,693	0	186,693	93,347	615,342	708,689	0	708,689	20,366
(10)	10	173,686	0	173,686	86,843	822,401	909,244	0	909,244	26,129
(11)	11	205,420	0	205,420	102,710	1,022,216	1,124,926	0	1,124,926	32,327
(12)	12	212,330	0	212,330	106,165	1,259,963	1,366,128	0	1,366,128	39,259
(13)	13	126,920	0	126,920	63,460	1,511,552	1,575,012	0	1,575,012	45,262
(14)	14	110,403	0	110,403	55,201	1,683,734	1,738,935	0	1,738,935	49,972
(15)	15	94,063	0	94,063	47,031	1,844,109	1,891,140	0	1,891,140	54,346
(16)	16	44,989	0	44,989	22,494	1,992,518	2,015,012	0	2,015,012	57,906
(17)	17	44,385	0	44,385	22,192	2,095,412	2,117,605	0	2,117,605	60,854
(18)	18	24,971	0	24,971	12,485	2,200,651	2,213,137	2,213,137	0	0
(19)	19	605	0	605	302	2,225,622	2,225,924	2,225,924	0	0
(20)	TOTAL	\$1,904,641	\$100,000	\$1,804,641	\$ 902,320					\$ 421,586

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID (CTL) GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 1,667	\$ 21,041	\$ 1,937	\$ 22,979	\$ 0	\$ 22,979
(2)	2	33,534	3,420	36,954	3,353	40,307	0	40,307
(3)	3	35,303	4,171	39,474	3,530	43,004	105	43,109
(4)	4	43,992	5,920	49,911	4,399	54,310	1,117	55,428
(5)	5	80,897	12,233	93,129	8,090	101,219	3,744	104,963
(6)	6	87,980	14,790	102,770	8,798	111,568	7,411	118,980
(7)	7	94,464	17,499	111,963	9,446	121,410	11,537	132,947
(8)	8	142,312	28,838	171,149	14,231	185,381	17,029	202,410
(9)	9	141,403	31,149	172,553	14,140	186,693	23,791	210,484
(10)	10	129,791	30,915	160,707	12,979	173,686	30,584	204,270
(11)	11	151,449	38,826	190,275	15,145	205,420	37,914	243,334
(12)	12	154,445	42,441	196,886	15,444	212,330	46,132	258,462
(13)	13	91,080	26,732	117,812	9,108	126,920	53,317	180,237
(14)	14	78,162	24,424	102,587	7,816	110,403	59,044	169,446
(15)	15	65,698	21,795	87,493	6,570	94,063	64,414	158,477
(16)	16	30,999	10,890	41,889	3,100	44,989	68,874	113,863
(17)	17	30,171	11,197	41,368	3,017	44,385	72,656	117,040
(18)	18	16,745	6,551	23,296	1,675	24,971	0	24,971
(19)	19	400	165	565	40	605	0	605
(20)	TOTAL	\$1,428,198	\$ 333,623	\$1,761,821	\$142,820	\$1,904,641	\$ 497,671	\$2,402,311

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD C-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	STR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,979	\$ 22,979	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,307	40,307	0	0	0	0	0	0	0
(3)	3	43,004	36,714	6,290	3,145	0	3,145	0	3,145	105
(4)	4	54,310	0	54,310	27,155	6,395	33,550	0	33,550	1,117
(5)	5	101,219	0	101,219	50,610	61,822	112,432	0	112,432	3,744
(6)	6	111,568	0	111,568	55,784	166,785	222,570	0	222,570	7,411
(7)	7	121,410	0	121,410	60,705	285,765	346,470	0	346,470	11,537
(8)	8	185,381	0	185,381	92,690	418,712	511,403	0	511,403	17,029
(9)	9	186,693	0	186,693	93,347	621,122	714,469	0	714,469	23,791
(10)	10	173,686	0	173,686	86,843	831,607	918,450	0	918,450	30,584
(11)	11	205,420	0	205,420	102,710	1,035,876	1,138,586	0	1,138,586	37,914
(12)	12	212,330	0	212,330	106,165	1,279,210	1,385,375	0	1,385,375	46,132
(13)	13	126,920	0	126,920	63,460	1,537,673	1,601,133	0	1,601,133	53,317
(14)	14	110,403	0	110,403	55,201	1,717,910	1,773,111	0	1,773,111	59,044
(15)	15	94,063	0	94,063	47,031	1,887,356	1,934,387	0	1,934,387	64,414
(16)	16	44,989	0	44,989	22,494	2,045,833	2,068,327	0	2,068,327	68,874
(17)	17	44,385	0	44,385	22,192	2,159,695	2,181,888	0	2,181,888	72,656
(18)	18	24,971	0	24,971	12,485	2,276,736	2,289,221	2,289,221	0	0
(19)	19	605	0	605	302	2,301,706	2,302,009	2,302,009	0	0
(20)	TOTAL	\$1,904,641	\$100,000	\$1,804,641	\$ 902,320					\$ 497,671

() FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	6.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 969	\$ 22,575	\$ 0	\$ 22,575
(2)	2	33,534	4,589	38,123	1,677	39,800	0	39,800
(3)	3	35,303	5,611	40,914	1,765	42,679	61	42,740
(4)	4	43,992	7,983	51,974	2,200	54,174	776	54,950
(5)	5	80,897	16,536	97,433	4,045	101,478	2,672	104,150
(6)	6	87,980	20,043	108,023	4,399	112,422	5,315	117,737
(7)	7	94,464	23,773	118,237	4,723	122,960	8,281	131,241
(8)	8	142,312	39,274	181,586	7,116	188,701	12,239	200,940
(9)	9	141,403	42,529	183,932	7,070	191,002	17,112	208,114
(10)	10	129,791	42,316	172,107	6,490	178,597	21,981	200,578
(11)	11	151,449	53,278	204,727	7,572	212,300	27,224	239,524
(12)	12	154,445	58,388	212,833	7,722	220,555	33,099	253,654
(13)	13	91,080	36,871	127,951	4,554	132,505	38,154	170,659
(14)	14	78,162	33,775	111,937	3,908	115,845	42,068	157,914
(15)	15	65,698	30,217	95,915	3,285	99,200	45,676	144,875
(16)	16	30,999	15,137	46,136	1,550	47,686	48,548	96,234
(17)	17	30,171	15,605	45,775	1,509	47,284	50,864	98,148
(18)	18	16,745	9,154	25,899	837	26,736	0	26,736
(19)	19	400	231	631	20	651	0	651
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$ 71,410	\$1,957,149	\$ 354,070	\$2,311,218

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

H. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,575	\$ 22,575	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,800	39,800	0	0	0	0	0	0	0
(3)	3	42,679	37,626	5,053	2,527	0	2,527	0	2,527	61
(4)	4	54,174	0	54,174	27,087	5,114	32,201	0	32,201	776
(5)	5	101,478	0	101,478	50,739	60,064	110,803	0	110,803	2,672
(6)	6	112,422	0	112,422	56,211	164,214	220,425	0	220,425	5,315
(7)	7	122,960	0	122,960	61,480	281,951	343,431	0	343,431	8,281
(8)	8	188,701	0	188,701	94,351	413,193	507,543	0	507,543	12,239
(9)	9	191,002	0	191,002	95,501	614,133	709,634	0	709,634	17,112
(10)	10	178,597	0	178,597	89,298	822,247	911,545	0	911,545	21,981
(11)	11	212,300	0	212,300	106,150	1,022,825	1,128,975	0	1,128,975	27,224
(12)	12	220,555	0	220,555	110,278	1,262,348	1,372,626	0	1,372,626	33,099
(13)	13	132,505	0	132,505	66,252	1,516,002	1,582,255	0	1,582,255	38,154
(14)	14	115,845	0	115,845	57,923	1,686,661	1,744,584	0	1,744,584	42,068
(15)	15	99,200	0	99,200	49,600	1,844,575	1,894,175	0	1,894,175	45,676
(16)	16	47,686	0	47,686	23,843	1,989,450	2,013,293	0	2,013,293	48,548
(17)	17	47,284	0	47,284	23,642	2,085,684	2,109,326	0	2,109,326	50,864
(18)	18	26,736	0	26,736	13,368	2,183,831	2,197,200	2,197,200	0	0
(19)	19	651	0	651	325	2,210,568	2,210,893	2,210,893	0	0
(20)	TOTAL	\$1,957,149	\$100,000	\$1,857,149	\$ 928,574					\$ 354,070

() FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 969	\$ 22,575	\$ 0	\$ 22,575
(2)	2	33,534	4,589	38,123	1,677	39,800	0	39,800
(3)	3	35,303	5,611	40,914	1,765	42,679	73	42,752
(4)	4	43,992	7,983	51,974	2,200	54,174	926	55,099
(5)	5	80,897	16,536	97,433	4,045	101,478	3,189	104,667
(6)	6	87,980	20,043	108,023	4,399	112,422	6,354	118,776
(7)	7	94,464	23,773	118,237	4,723	122,960	9,919	132,879
(8)	8	142,312	39,274	181,586	7,116	188,701	14,682	203,383
(9)	9	141,403	42,529	183,932	7,070	191,002	20,560	211,562
(10)	10	129,791	42,316	172,107	6,490	178,597	26,461	205,058
(11)	11	151,449	53,278	204,727	7,572	212,300	32,838	245,138
(12)	12	154,445	58,388	212,833	7,722	220,555	40,001	260,557
(13)	13	91,080	36,871	127,951	4,554	132,505	46,224	178,729
(14)	14	78,162	33,775	111,937	3,908	115,845	51,121	166,966
(15)	15	65,698	30,217	95,915	3,285	99,200	55,680	154,879
(16)	16	30,999	15,137	46,136	1,550	47,686	59,390	107,076
(17)	17	30,171	15,605	45,775	1,509	47,284	62,462	109,746
(18)	18	16,745	9,154	25,899	837	26,736	0	26,736
(19)	19	400	231	631	20	651	0	651
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$ 71,410	\$1,957,149	\$ 429,878	\$2,387,027

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

H. R. GRACE & CO.
12,500 BPD OIL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,575	\$ 22,575	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,800	39,800	0	0	0	0	0	0	0
(3)	3	42,679	37,626	5,053	2,527	0	2,527	0	2,527	73
(4)	4	54,174	0	54,174	27,087	5,126	32,213	0	32,213	926
(5)	5	101,478	0	101,478	50,739	60,225	110,964	0	110,964	3,189
(6)	6	112,422	0	112,422	56,211	164,892	221,103	0	221,103	6,354
(7)	7	122,960	0	122,960	61,480	283,668	345,148	0	345,148	9,919
(8)	8	188,701	0	188,701	94,351	416,546	510,897	0	510,897	14,682
(9)	9	191,002	0	191,002	95,501	619,930	715,431	0	715,431	20,560
(10)	10	178,597	0	178,597	89,298	831,492	920,790	0	920,790	26,461
(11)	11	212,300	0	212,300	106,150	1,036,550	1,142,699	0	1,142,699	32,838
(12)	12	220,555	0	220,555	110,278	1,281,688	1,391,965	0	1,391,965	40,001
(13)	13	132,505	0	132,505	66,252	1,542,244	1,608,496	0	1,608,496	46,224
(14)	14	115,845	0	115,845	57,923	1,720,973	1,778,895	0	1,778,895	51,121
(15)	15	99,200	0	99,200	49,600	1,887,939	1,937,539	0	1,937,539	55,680
(16)	16	47,686	0	47,686	23,843	2,042,818	2,066,661	0	2,066,661	59,390
(17)	17	47,284	0	47,284	23,642	2,149,894	2,173,536	0	2,173,536	62,462
(18)	18	26,736	0	26,736	13,368	2,259,640	2,273,008	2,273,008	0	0
(19)	19	651	0	651	325	2,286,376	2,286,702	2,286,702	0	0
(20)	TOTAL	\$1,957,149	\$100,000	\$1,857,149	\$ 928,574					\$ 429,878

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
 12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
 ESCALATED CAPITAL INVESTMENT ESTIMATE
 INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
 (\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 969	\$ 22,575	\$ 0	\$ 22,575
(2)	2	33,534	4,589	38,123	1,677	39,800	0	39,800
(3)	3	35,303	5,611	40,914	1,765	42,679	84	42,763
(4)	4	43,992	7,983	51,974	2,200	54,174	1,073	55,247
(5)	5	80,897	16,536	97,433	4,045	101,478	3,700	105,178
(6)	6	87,980	20,043	108,023	4,399	112,422	7,385	119,807
(7)	7	94,464	23,773	118,237	4,723	122,960	11,550	134,510
(8)	8	142,312	39,274	181,586	7,116	188,701	17,124	205,825
(9)	9	141,403	42,529	183,932	7,070	191,002	24,016	215,018
(10)	10	129,791	42,316	172,107	6,490	178,597	30,969	209,566
(11)	11	151,449	53,278	204,727	7,572	212,300	38,509	250,809
(12)	12	154,445	58,388	212,833	7,722	220,555	46,998	267,553
(13)	13	91,080	36,871	127,951	4,554	132,505	54,441	186,946
(14)	14	78,162	33,775	111,937	3,908	115,845	60,389	176,234
(15)	15	65,698	30,217	95,915	3,285	99,200	65,981	165,180
(16)	16	30,999	15,137	46,136	1,550	47,686	70,623	118,309
(17)	17	30,171	15,605	45,775	1,509	47,284	74,556	121,840
(18)	18	16,745	9,154	25,899	837	26,736	0	26,736
(19)	19	400	231	631	20	651	0	651
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$ 71,410	\$1,957,149	\$ 507,399	\$2,464,548

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD C - TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	RTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 22,575	\$ 22,575	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	39,800	39,800	0	0	0	0	0	0	0
(3)	3	42,679	37,626	5,053	2,527	0	2,527	0	2,527	84
(4)	4	54,174	0	54,174	27,087	5,137	32,224	0	32,224	1,073
(5)	5	101,478	0	101,478	50,739	60,384	111,123	0	111,123	3,700
(6)	6	112,422	0	112,422	56,211	165,562	221,773	0	221,773	7,385
(7)	7	122,960	0	122,960	61,480	285,369	346,849	0	346,849	11,550
(8)	8	188,701	0	188,701	94,351	419,879	514,230	0	514,230	17,124
(9)	9	191,002	0	191,002	95,501	625,704	721,205	0	721,205	24,016
(10)	10	178,597	0	178,597	89,298	840,722	930,021	0	930,021	30,969
(11)	11	212,300	0	212,300	106,150	1,050,288	1,156,438	0	1,156,438	38,509
(12)	12	220,555	0	220,555	110,278	1,301,097	1,411,375	0	1,411,375	46,998
(13)	13	132,505	0	132,505	66,252	1,568,650	1,634,903	0	1,634,903	54,441
(14)	14	115,845	0	115,845	57,923	1,755,596	1,813,519	0	1,813,519	60,389
(15)	15	99,200	0	99,200	49,600	1,931,831	1,981,431	0	1,981,431	65,981
(16)	16	47,686	0	47,686	23,843	2,097,011	2,120,854	0	2,120,854	70,623
(17)	17	47,284	0	47,284	23,642	2,215,320	2,238,962	0	2,238,962	74,556
(18)	18	26,736	0	26,736	13,368	2,337,160	2,350,529	2,350,529	0	0
(19)	19	651	0	651	325	2,363,897	2,364,222	2,364,222	0	0
(20)	TOTAL	\$1,957,149	\$100,000	\$1,857,149	\$ 928,574					\$ 507,399

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
 12,500 BPD COAL-TO-LIQUID-TO-GASOLINE PLANT
 ESCALATED CAPITAL INVESTMENT ESTIMATE
 INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
 (\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 1,453	\$ 23,059	0	\$ 23,059
(2)	2	33,534	4,589	38,123	2,515	40,638	0	40,638
(3)	3	35,303	5,611	40,914	2,648	43,562	88	43,649
(4)	4	43,992	7,983	51,974	3,299	55,274	844	56,117
(5)	5	80,897	16,536	97,433	6,067	103,500	2,778	106,278
(6)	6	87,980	20,043	108,023	6,599	114,621	5,475	120,096
(7)	7	94,464	23,773	118,237	7,085	125,322	8,500	133,822
(8)	8	142,312	39,274	181,586	10,673	192,259	12,534	204,793
(9)	9	141,403	42,529	183,932	10,605	194,537	17,500	212,037
(10)	10	129,791	42,316	172,107	9,734	181,842	22,460	204,301
(11)	11	151,449	53,278	204,727	11,359	216,086	27,799	243,885
(12)	12	154,445	58,388	212,833	11,583	224,416	33,781	258,197
(13)	13	91,080	36,871	127,951	6,831	134,782	38,926	173,708
(14)	14	78,162	33,775	111,937	5,862	117,799	42,910	160,709
(15)	15	65,698	30,217	95,915	4,927	100,842	46,581	147,423
(16)	16	30,999	15,137	46,136	2,325	48,461	49,504	97,965
(17)	17	30,171	15,605	45,775	2,263	48,038	51,861	99,899
(18)	18	16,745	9,154	25,899	1,256	27,155	0	27,155
(19)	19	400	231	631	30	661	0	661
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$107,115	\$1,992,854	\$ 361,539	\$2,354,393

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

H. R. GRACE & CO.
12,500 BPD ETHYLENE-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,059	\$ 23,059	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,638	40,638	0	0	0	0	0	0	0
(3)	3	43,562	36,303	7,259	3,629	0	3,629	0	3,629	88
(4)	4	55,274	0	55,274	27,637	7,346	34,983	0	34,983	844
(5)	5	103,500	0	103,500	51,750	63,463	115,213	0	115,213	2,778
(6)	6	114,621	0	114,621	57,311	169,742	227,052	0	227,052	5,475
(7)	7	125,322	0	125,322	62,661	289,838	352,499	0	352,499	8,500
(8)	8	192,259	0	192,259	96,130	423,660	519,789	0	519,789	12,534
(9)	9	194,537	0	194,537	97,269	628,453	725,722	0	725,722	17,500
(10)	10	181,842	0	181,842	90,921	840,490	931,411	0	931,411	22,460
(11)	11	216,086	0	216,086	108,043	1,044,792	1,152,835	0	1,152,835	27,799
(12)	12	224,416	0	224,416	112,208	1,288,677	1,400,885	0	1,400,885	33,781
(13)	13	134,782	0	134,782	67,391	1,546,874	1,614,265	0	1,614,265	38,926
(14)	14	117,799	0	117,799	58,900	1,720,581	1,779,481	0	1,779,481	42,910
(15)	15	100,842	0	100,842	50,421	1,881,290	1,931,711	0	1,931,711	46,581
(16)	16	48,461	0	48,461	24,230	2,028,713	2,052,944	0	2,052,944	49,504
(17)	17	48,038	0	48,038	24,019	2,126,678	2,150,697	0	2,150,697	51,861
(18)	18	27,155	0	27,155	13,578	2,226,577	2,240,155	2,240,155	0	0
(19)	19	661	0	661	330	2,253,732	2,254,063	2,254,063	0	0
(20)	TOTAL	\$1,992,854	\$100,000	\$1,892,854	\$ 946,427					\$ 361,539

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 1,453	\$ 23,059	\$ 0	\$ 23,059
(2)	2	33,534	4,589	38,123	2,515	40,638	0	40,638
(3)	3	35,303	5,611	40,914	2,648	43,562	104	43,666
(4)	4	43,992	7,983	51,974	3,299	55,274	1,006	56,279
(5)	5	80,897	16,536	97,433	6,067	103,500	3,316	106,816
(6)	6	87,980	20,043	108,023	6,599	114,621	6,545	121,167
(7)	7	94,464	23,773	118,237	7,085	125,322	10,181	135,503
(8)	8	142,312	39,274	181,586	10,673	192,259	15,037	207,296
(9)	9	141,403	42,529	183,932	10,605	194,537	21,027	215,564
(10)	10	129,791	42,316	172,107	9,734	181,842	27,039	208,881
(11)	11	151,449	53,278	204,727	11,359	216,086	33,534	249,620
(12)	12	154,445	58,388	212,833	11,583	224,416	40,827	265,243
(13)	13	91,080	36,871	127,951	6,831	134,782	47,162	181,943
(14)	14	78,162	33,775	111,937	5,862	117,799	52,146	169,945
(15)	15	65,698	30,217	95,915	4,927	100,842	56,786	157,628
(16)	16	30,999	15,137	46,136	2,325	48,461	60,563	109,024
(17)	17	30,171	15,605	45,775	2,263	48,038	63,690	111,729
(18)	18	16,745	9,154	25,899	1,256	27,155	0	27,155
(19)	19	400	231	631	30	661	0	661
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$107,115	\$1,992,854	\$ 478,965	\$2,431,819

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

H. R. GRACE & CO.
12,500 BPD OIL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,059	\$ 23,059	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,638	40,638	0	0	0	0	0	0	0
(3)	3	43,562	36,303	7,259	3,629	0	3,629	0	3,629	104
(4)	4	55,274	0	55,274	27,637	7,363	35,000	0	35,000	1,006
(5)	5	103,500	0	103,500	51,750	63,642	115,392	0	115,392	3,316
(6)	6	114,621	0	114,621	57,311	170,458	227,769	0	227,769	6,545
(7)	7	125,322	0	125,322	62,661	291,625	354,286	0	354,286	10,181
(8)	8	192,259	0	192,259	96,130	427,128	523,258	0	523,258	15,037
(9)	9	194,537	0	194,537	97,269	634,424	731,693	0	731,693	21,027
(10)	10	181,842	0	181,842	90,921	849,989	940,910	0	940,910	27,039
(11)	11	216,086	0	216,086	108,043	1,058,870	1,166,913	0	1,166,913	33,534
(12)	12	224,416	0	224,416	112,208	1,308,490	1,420,698	0	1,420,698	40,827
(13)	13	134,782	0	134,782	67,391	1,573,733	1,641,124	0	1,641,124	47,162
(14)	14	117,799	0	117,799	58,900	1,755,676	1,814,576	0	1,814,576	52,146
(15)	15	100,842	0	100,842	50,421	1,925,622	1,976,043	0	1,976,043	56,786
(16)	16	48,461	0	48,461	24,230	2,083,250	2,107,481	0	2,107,481	60,563
(17)	17	48,038	0	48,038	24,019	2,192,274	2,216,293	0	2,216,293	63,690
(18)	18	27,155	0	27,155	13,578	2,304,003	2,317,580	2,317,580	0	0
(19)	19	661	0	661	330	2,331,158	2,331,488	2,331,488	0	0
(20)	TOTAL	\$1,992,854	\$100,000	\$1,892,854	\$ 946,427					\$ 438,965

() FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
 12,500 BPD COAL-TO-LIQUID-HANDLING-TO-GASOLINE PLANT
 ESCALATED CAPITAL INVESTMENT ESTIMATE
 INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
 (\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 1,453	\$ 23,059	\$ 0	\$ 23,059
(2)	2	33,534	4,589	38,123	2,515	40,638	0	40,638
(3)	3	35,303	5,611	40,914	2,648	43,562	121	43,682
(4)	4	43,992	7,983	51,974	3,299	55,274	1,166	56,440
(5)	5	80,897	16,536	97,433	6,067	103,500	3,848	107,349
(6)	6	87,980	20,043	108,023	6,599	114,621	7,608	122,230
(7)	7	94,464	23,773	118,237	7,085	125,322	11,857	137,178
(8)	8	142,312	39,274	181,586	10,673	192,259	17,539	209,798
(9)	9	141,403	42,529	183,932	10,605	194,537	24,563	219,101
(10)	10	129,791	42,316	172,107	9,734	181,842	31,648	213,489
(11)	11	151,449	53,278	204,727	11,359	216,086	39,327	255,413
(12)	12	154,445	58,388	212,833	11,583	224,416	47,971	272,387
(13)	13	91,080	36,871	127,951	6,831	134,782	55,549	190,331
(14)	14	78,162	33,775	111,937	5,862	117,799	61,604	179,403
(15)	15	65,698	30,217	95,915	4,927	100,842	67,296	168,138
(16)	16	30,999	15,137	46,136	2,325	48,461	72,022	120,483
(17)	17	30,171	15,605	45,775	2,263	48,038	76,027	124,065
(18)	18	16,745	9,154	25,899	1,256	27,155	0	27,155
(19)	19	400	231	631	30	661	0	661
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$107,115	\$1,992,854	\$ 518,145	\$2,510,999

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD ETHYLENE-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,059	\$ 23,059	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,638	40,638	0	0	0	0	0	0	0
(3)	3	43,562	36,303	7,259	3,629	0	3,629	0	3,629	121
(4)	4	55,274	0	55,274	27,637	7,379	35,016	0	35,016	1,166
(5)	5	103,500	0	103,500	51,750	63,819	115,569	0	115,569	3,848
(6)	6	114,621	0	114,621	57,311	171,167	228,478	0	228,478	7,608
(7)	7	125,322	0	125,322	62,661	293,397	356,058	0	356,058	11,857
(8)	8	192,259	0	192,259	96,130	430,575	526,705	0	526,705	17,539
(9)	9	194,537	0	194,537	97,269	640,373	737,642	0	737,642	24,563
(10)	10	181,842	0	181,842	90,921	859,474	950,395	0	950,395	31,648
(11)	11	216,086	0	216,086	108,043	1,072,963	1,181,006	0	1,181,006	39,327
(12)	12	224,416	0	224,416	112,208	1,328,376	1,440,585	0	1,440,585	47,971
(13)	13	134,782	0	134,782	67,391	1,600,763	1,668,154	0	1,668,154	55,549
(14)	14	117,799	0	117,799	58,900	1,791,094	1,849,994	0	1,849,994	61,604
(15)	15	100,842	0	100,842	50,421	1,970,497	2,020,918	0	2,020,918	67,296
(16)	16	48,461	0	48,461	24,230	2,138,635	2,162,865	0	2,162,865	72,022
(17)	17	48,038	0	48,038	24,019	2,259,118	2,283,137	0	2,283,137	76,027
(18)	18	27,155	0	27,155	13,578	2,383,183	2,396,761	2,396,761	0	0
(19)	19	661	0	661	330	2,410,338	2,410,669	2,410,669	0	0
(20)	TOTAL	\$1,992,854	\$100,000	\$1,892,854	\$ 946,427					\$ 518,145

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID HANDL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 1,937	\$ 23,543	\$ 0	\$ 23,543
(2)	2	33,534	4,589	38,123	3,353	41,476	0	41,476
(3)	3	35,303	5,611	40,914	3,530	44,444	114	44,558
(4)	4	43,992	7,983	51,974	4,399	56,373	911	57,284
(5)	5	80,897	16,536	97,433	8,090	105,523	2,885	108,407
(6)	6	87,980	20,043	108,023	8,798	116,821	5,635	122,456
(7)	7	94,464	23,773	118,237	9,446	127,683	8,719	136,402
(8)	8	142,312	39,274	181,586	14,231	195,817	12,829	208,646
(9)	9	141,403	42,529	183,932	14,140	198,073	17,888	215,960
(10)	10	129,791	42,316	172,107	12,979	185,087	22,939	208,025
(11)	11	151,449	53,278	204,727	15,145	219,872	28,374	248,247
(12)	12	154,445	58,388	212,833	15,444	228,277	34,462	262,739
(13)	13	91,080	36,871	127,951	9,108	137,059	39,698	176,757
(14)	14	78,162	33,775	111,937	7,816	119,753	43,751	163,505
(15)	15	65,698	30,217	95,915	6,570	102,485	47,486	149,970
(16)	16	30,999	15,137	46,136	3,100	49,236	50,460	99,696
(17)	17	30,171	15,605	45,775	3,017	48,792	52,859	101,651
(18)	18	16,745	9,154	25,899	1,675	27,574	0	27,574
(19)	19	400	231	631	40	671	0	671
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$142,820	\$2,028,559	\$ 369,009	\$2,397,568

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

H. R. GRACE & CO.
12,500 BPD CATALYTIC TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,543	\$ 23,543	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	41,476	41,476	0	0	0	0	0	0	0
(3)	3	44,444	34,980	9,464	4,732	0	4,732	0	4,732	114
(4)	4	56,373	0	56,373	28,187	9,578	37,765	0	37,765	911
(5)	5	105,523	0	105,523	52,761	66,862	119,623	0	119,623	2,885
(6)	6	116,821	0	116,821	58,410	175,269	233,679	0	233,679	5,635
(7)	7	127,683	0	127,683	63,842	297,725	361,566	0	361,566	8,719
(8)	8	195,817	0	195,817	97,909	434,127	532,035	0	532,035	12,829
(9)	9	198,073	0	198,073	99,036	642,773	741,809	0	741,809	17,888
(10)	10	185,087	0	185,087	92,543	858,733	951,277	0	951,277	22,939
(11)	11	219,872	0	219,872	109,936	1,066,759	1,176,695	0	1,176,695	28,374
(12)	12	228,277	0	228,277	114,139	1,315,005	1,429,144	0	1,429,144	34,462
(13)	13	137,059	0	137,059	68,529	1,577,745	1,646,274	0	1,646,274	39,698
(14)	14	119,753	0	119,753	59,877	1,754,501	1,814,378	0	1,814,378	43,751
(15)	15	102,485	0	102,485	51,242	1,918,006	1,969,248	0	1,969,248	47,486
(16)	16	49,236	0	49,236	24,618	2,067,976	2,092,594	0	2,092,594	50,460
(17)	17	48,792	0	48,792	24,396	2,167,672	2,192,068	0	2,192,068	52,859
(18)	18	27,574	0	27,574	13,787	2,269,323	2,283,110	2,283,110	0	0
(19)	19	671	0	671	335	2,296,897	2,297,233	2,297,233	0	0
(20)	TOTAL	\$2,028,559	\$100,000	\$1,928,559	\$ 964,279					\$ 369,009

() FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 1,937	\$ 23,543	\$ 0	\$ 23,543
(2)	2	33,534	4,589	38,123	3,353	41,476	0	41,476
(3)	3	35,303	5,611	40,914	3,530	44,444	136	44,580
(4)	4	43,992	7,983	51,974	4,399	56,373	1,086	57,459
(5)	5	80,897	16,536	97,433	8,090	105,523	3,443	108,966
(6)	6	87,980	20,043	108,023	8,798	116,821	6,737	123,558
(7)	7	94,464	23,773	118,237	9,446	127,683	10,444	138,127
(8)	8	142,312	39,274	181,586	14,231	195,817	15,392	211,209
(9)	9	141,403	42,529	183,932	14,140	198,073	21,494	219,567
(10)	10	129,791	42,316	172,107	12,979	185,087	27,617	212,704
(11)	11	151,449	53,278	204,727	15,145	219,872	34,230	254,102
(12)	12	154,445	58,388	212,833	15,444	228,277	41,653	269,930
(13)	13	91,080	36,871	127,951	9,108	137,059	48,099	185,158
(14)	14	78,162	33,775	111,937	7,816	119,753	53,171	172,925
(15)	15	65,698	30,217	95,915	6,570	102,485	57,893	160,377
(16)	16	30,999	15,137	46,136	3,100	49,236	61,736	110,972
(17)	17	30,171	15,605	45,775	3,017	48,792	64,919	113,712
(18)	18	16,745	9,154	25,899	1,675	27,574	0	27,574
(19)	19	400	231	631	40	671	0	671
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$142,820	\$2,028,559	\$ 448,052	\$2,476,610

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL EQUITY INVESTMENT (\$000)	10.00%
CONSTRUCTION FINANCING INTEREST RATE	\$100,000
	12.00%

H. R. GRACE & CO.
12,500 BPD METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,543	\$ 23,543	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	41,476	41,476	0	0	0	0	0	0	0
(3)	3	44,444	34,980	9,464	4,732	0	4,732	0	4,732	136
(4)	4	56,373	0	56,373	28,187	9,600	37,786	0	37,786	1,086
(5)	5	105,523	0	105,523	52,761	67,059	119,820	0	119,820	3,443
(6)	6	116,821	0	116,821	58,410	176,025	234,435	0	234,435	6,737
(7)	7	127,683	0	127,683	63,842	299,583	363,424	0	363,424	10,444
(8)	8	195,817	0	195,817	97,909	437,710	535,618	0	535,618	15,392
(9)	9	198,073	0	198,073	99,036	648,919	747,955	0	747,955	21,494
(10)	10	185,087	0	185,087	92,543	868,486	961,029	0	961,029	27,617
(11)	11	219,872	0	219,872	109,936	1,081,190	1,191,126	0	1,191,126	34,230
(12)	12	228,277	0	228,277	114,139	1,335,292	1,449,431	0	1,449,431	41,653
(13)	13	137,059	0	137,059	68,529	1,605,222	1,673,752	0	1,673,752	48,099
(14)	14	119,753	0	119,753	59,877	1,790,380	1,850,257	0	1,850,257	53,171
(15)	15	102,485	0	102,485	51,242	1,963,305	2,014,547	0	2,014,547	57,893
(16)	16	49,236	0	49,236	24,618	2,123,682	2,148,300	0	2,148,300	61,736
(17)	17	48,792	0	48,792	24,396	2,234,654	2,259,051	0	2,259,051	64,919
(18)	18	27,574	0	27,574	13,787	2,348,366	2,362,153	2,362,153	0	0
(19)	19	671	0	671	335	2,375,940	2,376,275	2,376,275	0	0
(20)	TOTAL	\$2,028,559	\$100,000	\$1,928,559	\$ 964,279					\$ 448,052

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GEORGE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (1,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,232	\$ 21,606	\$ 1,937	\$ 23,543	\$ 0	\$ 23,543
(2)	2	33,534	4,589	38,123	3,353	41,476	0	41,476
(3)	3	35,303	5,611	40,914	3,530	44,444	158	44,602
(4)	4	43,992	7,983	51,974	4,399	56,373	1,259	57,632
(5)	5	80,897	16,536	97,433	8,090	105,523	3,996	109,519
(6)	6	87,980	20,043	108,023	8,798	116,821	7,831	124,652
(7)	7	94,464	23,773	118,237	9,446	127,683	12,163	139,846
(8)	8	142,312	39,274	181,586	14,231	195,817	17,954	213,771
(9)	9	141,403	42,529	183,932	14,140	198,073	25,110	223,183
(10)	10	129,791	42,316	172,107	12,979	185,087	32,326	217,413
(11)	11	151,449	53,278	204,727	15,145	219,872	40,145	260,017
(12)	12	154,445	58,388	212,833	15,444	228,277	48,943	277,221
(13)	13	91,080	36,871	127,951	9,108	137,059	56,656	193,715
(14)	14	78,162	33,775	111,937	7,816	119,753	62,818	182,572
(15)	15	65,698	30,217	95,915	6,570	102,485	68,610	171,095
(16)	16	30,999	15,137	46,136	3,100	49,236	73,421	122,657
(17)	17	30,171	15,605	45,775	3,017	48,792	77,498	126,291
(18)	18	16,745	9,154	25,899	1,675	27,574	0	27,574
(19)	19	400	231	631	40	671	0	671
(20)	TOTAL	\$1,428,198	\$ 457,541	\$1,885,739	\$142,820	\$2,028,559	\$ 528,891	\$2,557,450

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD C-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,543	\$ 23,543	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	41,476	41,476	0	0	0	0	0	0	0
(3)	3	44,444	34,980	9,464	4,732	0	4,732	0	4,732	158
(4)	4	56,373	0	56,373	28,187	9,621	37,808	0	37,808	1,259
(5)	5	105,523	0	105,523	52,761	67,254	120,015	0	120,015	3,996
(6)	6	116,821	0	116,821	58,410	176,773	235,183	0	235,183	7,831
(7)	7	127,683	0	127,683	63,842	301,425	365,267	0	365,267	12,163
(8)	8	195,817	0	195,817	97,909	441,271	539,180	0	539,180	17,954
(9)	9	198,073	0	198,073	99,036	655,043	754,079	0	754,079	25,110
(10)	10	185,087	0	185,087	92,543	878,226	970,769	0	970,769	32,326
(11)	11	219,872	0	219,872	109,936	1,095,639	1,205,575	0	1,205,575	40,145
(12)	12	228,277	0	228,277	114,139	1,355,656	1,469,795	0	1,469,795	48,943
(13)	13	137,059	0	137,059	68,529	1,632,877	1,701,406	0	1,701,406	56,656
(14)	14	119,753	0	119,753	59,877	1,826,591	1,886,468	0	1,886,468	62,818
(15)	15	102,485	0	102,485	51,242	2,009,163	2,060,405	0	2,060,405	68,610
(16)	16	49,236	0	49,236	24,618	2,180,258	2,204,876	0	2,204,876	73,421
(17)	17	48,792	0	48,792	24,396	2,302,915	2,327,311	0	2,327,311	77,498
(18)	18	27,574	0	27,574	13,787	2,429,206	2,442,993	2,442,993	0	0
(19)	19	671	0	671	335	2,456,779	2,457,115	2,457,115	0	0
(20)	TOTAL	\$2,028,559	\$100,000	\$1,928,559	\$ 964,279					\$ 528,891

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	8.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 969	\$ 23,144	\$ 0	\$ 23,144
(2)	2	33,534	5,773	39,307	1,677	40,984	0	40,984
(3)	3	35,303	7,076	42,378	1,765	44,143	100	44,243
(4)	4	43,992	10,091	54,082	2,200	56,282	880	57,162
(5)	5	80,897	20,954	101,851	4,045	105,895	2,857	108,752
(6)	6	87,980	25,460	113,440	4,399	117,839	5,623	123,462
(7)	7	94,464	30,273	124,737	4,723	129,460	8,741	138,201
(8)	8	142,312	50,138	192,450	7,116	199,565	12,918	212,484
(9)	9	141,403	54,429	195,833	7,070	202,903	18,082	220,985
(10)	10	129,791	54,294	184,085	6,490	190,575	23,263	213,837
(11)	11	151,449	68,533	219,982	7,572	227,555	28,865	256,420
(12)	12	154,445	75,298	229,743	7,722	237,465	35,168	272,633
(13)	13	91,080	47,672	138,752	4,554	143,306	40,606	183,913
(14)	14	78,162	43,782	121,944	3,908	125,853	44,831	170,683
(15)	15	65,698	39,272	104,970	3,285	108,255	48,735	156,990
(16)	16	30,999	19,725	50,724	1,550	52,274	51,845	104,119
(17)	17	30,171	20,388	50,559	1,509	52,067	54,353	106,421
(18)	18	16,745	11,992	28,737	837	29,574	0	29,574
(19)	19	400	303	703	20	723	0	723
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$ 71,410	\$2,087,862	\$ 376,867	\$2,464,730

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

M. R. GRACE & CO.
12,500 BPD CUMULATIVE-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,144	\$ 23,144	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,984	40,984	0	0	0	0	0	0	0
(3)	3	44,143	35,873	8,271	4,135	0	4,135	0	4,135	100
(4)	4	56,282	0	56,282	28,141	8,370	36,511	0	36,511	880
(5)	5	105,895	0	105,895	52,948	65,533	118,480	0	118,480	2,857
(6)	6	117,839	0	117,839	58,919	174,285	233,204	0	233,204	5,623
(7)	7	129,460	0	129,460	64,730	297,747	362,477	0	362,477	8,741
(8)	8	199,565	0	199,565	99,783	435,948	535,731	0	535,731	12,918
(9)	9	202,903	0	202,903	101,451	648,432	749,883	0	749,883	18,082
(10)	10	190,575	0	190,575	95,287	869,417	964,704	0	964,704	23,263
(11)	11	227,555	0	227,555	113,777	1,083,254	1,197,032	0	1,197,032	28,865
(12)	12	237,465	0	237,465	118,733	1,339,674	1,458,407	0	1,458,407	35,168
(13)	13	143,306	0	143,306	71,653	1,612,307	1,683,960	0	1,683,960	40,606
(14)	14	125,853	0	125,853	62,926	1,796,220	1,859,146	0	1,859,146	44,831
(15)	15	108,255	0	108,255	54,128	1,966,903	2,021,031	0	2,021,031	48,735
(16)	16	52,274	0	52,274	26,137	2,123,893	2,150,029	0	2,150,029	51,845
(17)	17	52,067	0	52,067	26,034	2,228,011	2,254,045	0	2,254,045	54,353
(18)	18	29,574	0	29,574	14,787	2,334,432	2,349,219	2,349,219	0	0
(19)	19	723	0	723	362	2,364,006	2,364,368	2,364,368	0	0
(20)	TOTAL	\$2,087,862	\$100,000	\$1,987,862	\$ 993,931					\$ 376,867

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 969	\$ 23,144	\$ 0	\$ 23,144
(2)	2	33,534	5,773	39,307	1,677	40,984	0	40,984
(3)	3	35,303	7,076	42,378	1,765	44,143	119	44,262
(4)	4	43,992	10,091	54,082	2,200	56,282	1,050	57,331
(5)	5	80,897	20,954	101,851	4,045	105,895	3,410	109,306
(6)	6	87,980	25,460	113,440	4,399	117,839	6,723	124,562
(7)	7	94,464	30,273	124,737	4,723	129,460	10,470	139,930
(8)	8	142,312	50,138	192,450	7,116	199,565	15,498	215,063
(9)	9	141,403	54,429	195,833	7,070	202,903	21,726	224,629
(10)	10	129,791	54,294	184,085	6,490	190,575	28,004	218,579
(11)	11	151,449	68,533	219,982	7,572	227,555	34,817	262,372
(12)	12	154,445	75,298	229,743	7,722	237,465	42,500	279,965
(13)	13	91,080	47,672	138,752	4,554	143,306	49,192	192,498
(14)	14	78,162	43,782	121,944	3,908	125,853	54,473	180,326
(15)	15	65,698	39,272	104,970	3,285	108,255	59,402	167,657
(16)	16	30,999	19,725	50,724	1,550	52,274	63,416	115,690
(17)	17	30,171	20,388	50,559	1,509	52,067	66,738	118,805
(18)	18	16,745	11,992	28,737	837	29,574	0	29,574
(19)	19	400	303	703	20	723	0	723
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$ 71,410	\$2,087,862	\$ 457,538	\$2,545,400

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

H. R. GRACE & CO.
12,500 BPD OIL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,144	\$ 23,144	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,984	40,984	0	0	0	0	0	0	0
(3)	3	44,143	35,873	8,271	4,135	0	4,135	0	4,135	119
(4)	4	56,282	0	56,282	28,141	8,390	36,530	0	36,530	1,050
(5)	5	105,895	0	105,895	52,948	65,721	118,669	0	118,669	3,410
(6)	6	117,839	0	117,839	58,919	175,027	233,946	0	233,946	6,723
(7)	7	129,460	0	129,460	64,730	299,589	364,319	0	364,319	10,470
(8)	8	199,565	0	199,565	99,783	439,518	539,301	0	539,301	15,498
(9)	9	202,903	0	202,903	101,451	654,582	756,033	0	756,033	21,726
(10)	10	190,575	0	190,575	95,287	879,211	974,498	0	974,498	28,004
(11)	11	227,555	0	227,555	113,777	1,097,790	1,211,567	0	1,211,567	34,817
(12)	12	237,465	0	237,465	118,733	1,360,162	1,478,895	0	1,478,895	42,500
(13)	13	143,306	0	143,306	71,653	1,640,127	1,711,780	0	1,711,780	49,192
(14)	14	125,853	0	125,853	62,926	1,832,625	1,895,551	0	1,895,551	54,473
(15)	15	108,255	0	108,255	54,128	2,012,951	2,067,078	0	2,067,078	59,402
(16)	16	52,274	0	52,274	26,137	2,180,608	2,206,745	0	2,206,745	63,416
(17)	17	52,067	0	52,067	26,034	2,296,298	2,322,332	0	2,322,332	66,738
(18)	18	29,574	0	29,574	14,787	2,415,103	2,429,890	2,429,890	0	0
(19)	19	723	0	723	362	2,444,677	2,445,039	2,445,039	0	0
(20)	TOTAL	\$2,087,862	\$100,000	\$1,987,862	\$ 993,931					\$ 457,538

(c) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 969	\$ 23,144	0	\$ 23,144
(2)	2	33,534	5,773	39,307	1,677	40,984	0	40,984
(3)	3	35,303	7,076	42,378	1,765	44,143	138	44,281
(4)	4	43,992	10,091	54,082	2,200	56,282	1,217	57,499
(5)	5	80,897	20,954	101,851	4,045	105,895	3,958	109,853
(6)	6	87,980	25,460	113,440	4,399	117,839	7,815	125,654
(7)	7	94,464	30,273	124,737	4,723	129,460	12,192	141,653
(8)	8	142,312	50,138	192,450	7,116	199,565	18,077	217,642
(9)	9	141,403	54,429	195,833	7,070	202,903	25,380	228,282
(10)	10	129,791	54,294	184,085	6,490	190,575	32,776	223,351
(11)	11	151,449	68,533	219,982	7,572	227,555	40,829	268,384
(12)	12	154,445	75,298	229,743	7,722	237,465	49,931	287,397
(13)	13	91,080	47,672	138,752	4,554	143,306	57,934	201,240
(14)	14	78,162	43,782	121,944	3,908	125,853	64,344	190,197
(15)	15	65,698	39,272	104,970	3,285	108,255	70,385	178,640
(16)	16	30,999	19,725	50,724	1,550	52,274	75,401	127,675
(17)	17	30,171	20,388	50,559	1,509	52,067	79,649	131,717
(18)	18	16,745	11,992	28,737	837	29,574	0	29,574
(19)	19	400	303	703	20	723	0	723
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$ 71,410	\$2,087,862	\$ 540,025	\$2,627,887

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

H. R. GRACE & CO.
12,500 BPD OIL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	STR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,144	\$ 23,144	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	40,984	40,984	0	0	0	0	0	0	0
(3)	3	44,143	35,873	8,271	4,135	0	4,135	0	4,135	138
(4)	4	56,282	0	56,282	28,141	8,408	36,549	0	36,549	1,217
(5)	5	105,895	0	105,895	52,948	65,907	118,855	0	118,855	3,958
(6)	6	117,839	0	117,839	58,919	175,760	234,680	0	234,680	7,815
(7)	7	129,460	0	129,460	64,730	301,414	366,144	0	366,144	12,192
(8)	8	199,565	0	199,565	99,783	443,067	542,849	0	542,849	18,077
(9)	9	202,903	0	202,903	101,451	660,709	762,160	0	762,160	25,380
(10)	10	190,575	0	190,575	95,287	888,991	984,278	0	984,278	32,776
(11)	11	227,555	0	227,555	113,777	1,112,342	1,226,119	0	1,226,119	40,829
(12)	12	237,465	0	237,465	118,733	1,380,725	1,499,458	0	1,499,458	49,931
(13)	13	143,306	0	143,306	71,653	1,668,122	1,739,775	0	1,739,775	57,934
(14)	14	125,853	0	125,853	62,926	1,869,362	1,932,288	0	1,932,288	64,344
(15)	15	108,255	0	108,255	54,128	2,059,558	2,113,686	0	2,113,686	70,385
(16)	16	52,274	0	52,274	26,137	2,238,198	2,264,335	0	2,264,335	75,401
(17)	17	52,067	0	52,067	26,034	2,365,873	2,391,907	0	2,391,907	79,649
(18)	18	29,574	0	29,574	14,787	2,497,590	2,512,377	2,512,377	0	0
(19)	19	723	0	723	362	2,527,164	2,527,526	2,527,526	0	0
(20)	TOTAL	\$2,087,862	\$100,000	\$1,987,862	\$ 993,931					\$ 540,025

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	5.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 1,453	\$ 23,628	\$ 0	\$ 23,628
(2)	2	33,534	5,773	39,307	2,515	41,822	0	41,822
(3)	3	35,303	7,076	42,378	2,648	45,026	126	45,152
(4)	4	43,992	10,091	54,082	3,299	57,381	947	58,329
(5)	5	80,897	20,954	101,851	6,067	107,918	2,963	110,881
(6)	6	87,980	25,460	113,440	6,599	120,038	5,783	125,822
(7)	7	94,464	30,273	124,737	7,085	131,822	8,959	140,781
(8)	8	142,312	50,138	192,450	10,673	203,123	13,214	216,337
(9)	9	141,403	54,429	195,833	10,605	206,438	18,470	224,908
(10)	10	129,791	54,294	184,085	9,734	193,820	23,742	217,561
(11)	11	151,449	68,533	219,982	11,359	231,341	29,440	260,781
(12)	12	154,445	75,298	229,743	11,583	241,327	35,849	277,176
(13)	13	91,080	47,672	138,752	6,831	145,583	41,378	186,961
(14)	14	78,162	43,782	121,944	5,862	127,807	45,672	173,479
(15)	15	65,698	39,272	104,970	4,927	109,898	49,640	159,537
(16)	16	30,999	19,725	50,724	2,325	53,049	52,801	105,850
(17)	17	30,171	20,388	50,559	2,263	52,822	55,351	108,173
(18)	18	16,745	11,992	28,737	1,256	29,993	0	29,993
(19)	19	400	303	703	30	733	0	733
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$107,115	\$2,123,567	\$ 384,337	\$2,507,904

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD CO-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	OTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,628	\$ 23,628	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	41,822	41,822	0	0	0	0	0	0	0
(3)	3	45,026	34,550	10,476	5,238	0	5,238	0	5,238	126
(4)	4	57,381	0	57,381	28,691	10,602	39,293	0	39,293	947
(5)	5	107,918	0	107,918	53,959	68,931	122,890	0	122,890	2,963
(6)	6	120,038	0	120,038	60,019	179,812	239,832	0	239,832	5,783
(7)	7	131,822	0	131,822	65,911	305,634	371,545	0	371,545	8,959
(8)	8	203,123	0	203,123	101,561	446,415	547,977	0	547,977	13,214
(9)	9	206,438	0	206,438	103,219	662,752	765,971	0	765,971	18,470
(10)	10	193,820	0	193,820	96,910	887,660	984,570	0	984,570	23,742
(11)	11	231,341	0	231,341	115,670	1,105,221	1,220,892	0	1,220,892	29,440
(12)	12	241,327	0	241,327	120,663	1,366,003	1,486,666	0	1,486,666	35,849
(13)	13	145,583	0	145,583	72,792	1,643,178	1,715,970	0	1,715,970	41,378
(14)	14	127,807	0	127,807	63,903	1,830,139	1,894,043	0	1,894,043	45,672
(15)	15	109,898	0	109,898	54,949	2,003,618	2,058,567	0	2,058,567	49,640
(16)	16	53,049	0	53,049	26,524	2,163,156	2,189,680	0	2,189,680	52,801
(17)	17	52,822	0	52,822	26,411	2,269,006	2,295,416	0	2,295,416	55,351
(18)	18	29,993	0	29,993	14,997	2,377,178	2,392,175	2,392,175	0	0
(19)	19	733	0	733	367	2,407,171	2,407,538	2,407,538	0	0
(20)	TOTAL	\$2,123,567	\$100,000	\$2,023,567	\$1,011,783					\$ 384,337

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. ROSE & CO.
12,500 BPD COAL-TO-OIL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 1,453	\$ 23,628	\$ 0	\$ 23,628
(2)	2	33,534	5,773	39,307	2,515	41,822	0	41,822
(3)	3	35,303	7,076	42,378	2,648	45,026	151	45,177
(4)	4	43,992	10,091	54,082	3,299	57,381	1,130	58,511
(5)	5	80,897	20,954	101,851	6,067	107,918	3,537	111,455
(6)	6	87,980	25,460	113,440	6,599	120,038	6,915	126,953
(7)	7	94,464	30,273	124,737	7,085	131,822	10,732	142,554
(8)	8	142,312	50,138	192,450	10,673	203,123	15,853	218,976
(9)	9	141,403	54,429	195,833	10,605	206,438	22,194	228,632
(10)	10	129,791	54,294	184,085	9,734	193,820	28,583	222,402
(11)	11	151,449	68,533	219,982	11,359	231,341	35,513	266,854
(12)	12	154,445	75,298	229,743	11,583	241,327	43,325	284,652
(13)	13	91,080	47,672	138,752	6,831	145,583	50,130	195,713
(14)	14	78,162	43,782	121,944	5,862	127,807	55,498	183,305
(15)	15	65,698	39,272	104,970	4,927	109,898	60,509	170,406
(16)	16	30,999	19,725	50,724	2,325	53,049	64,589	117,638
(17)	17	30,171	20,388	50,559	2,263	52,822	67,966	120,788
(18)	18	16,745	11,992	28,737	1,256	29,993	0	29,993
(19)	19	400	303	703	30	733	0	733
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$107,115	\$2,123,567	\$ 466,625	\$2,590,192

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL EQUITY INVESTMENT (\$000)	7.50%
CONSTRUCTION FINANCING INTEREST RATE	\$100,000
	12.00%

H. R. GRACE & CO.
12,500 BPD CO-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,628	\$ 23,628	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	41,822	41,822	0	0	0	0	0	0	0
(3)	3	45,026	34,550	10,476	5,238	0	5,238	0	5,238	151
(4)	4	57,381	0	57,381	28,691	10,627	39,317	0	39,317	1,130
(5)	5	107,918	0	107,918	53,959	69,138	123,097	0	123,097	3,537
(6)	6	120,038	0	120,038	60,019	180,593	240,612	0	240,612	6,915
(7)	7	131,822	0	131,822	65,911	307,546	373,457	0	373,457	10,732
(8)	8	203,123	0	203,123	101,561	450,100	551,662	0	551,662	15,853
(9)	9	206,438	0	206,438	103,219	669,076	772,295	0	772,295	22,194
(10)	10	193,820	0	193,820	96,910	897,708	994,618	0	994,618	28,583
(11)	11	231,341	0	231,341	115,670	1,120,110	1,235,781	0	1,235,781	35,513
(12)	12	241,327	0	241,327	120,663	1,386,964	1,507,628	0	1,507,628	43,325
(13)	13	145,583	0	145,583	72,792	1,671,616	1,744,408	0	1,744,408	50,130
(14)	14	127,807	0	127,807	63,903	1,867,329	1,931,232	0	1,931,232	55,498
(15)	15	109,898	0	109,898	54,949	2,050,634	2,105,583	0	2,105,583	60,509
(16)	16	53,049	0	53,049	26,524	2,221,040	2,247,565	0	2,247,565	64,589
(17)	17	52,822	0	52,822	26,411	2,338,678	2,365,089	0	2,365,089	67,966
(18)	18	29,993	0	29,993	14,997	2,459,466	2,474,462	2,474,462	0	0
(19)	19	733	0	733	367	2,489,459	2,489,825	2,489,825	0	0
(20)	TOTAL	\$2,123,567	\$100,000	\$2,023,567	\$1,011,783					\$ 466,625

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. ROSE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 1,453	\$ 23,628	\$ 0	\$ 23,628
(2)	2	33,534	5,773	39,307	2,515	41,822	0	41,822
(3)	3	35,303	7,076	42,378	2,648	45,026	174	45,200
(4)	4	43,992	10,091	54,082	3,299	57,381	1,310	58,691
(5)	5	80,897	20,954	101,851	6,067	107,918	4,106	112,024
(6)	6	87,980	25,460	113,440	6,599	120,038	8,038	128,076
(7)	7	94,464	30,273	124,737	7,085	131,822	12,499	144,321
(8)	8	142,312	50,138	192,450	10,673	203,123	18,492	221,615
(9)	9	141,403	54,429	195,833	10,605	206,438	25,927	232,365
(10)	10	129,791	54,294	184,085	9,734	193,820	33,454	227,274
(11)	11	151,449	68,533	219,982	11,359	231,341	41,647	272,988
(12)	12	154,445	75,298	229,743	11,583	241,327	50,904	292,230
(13)	13	91,080	47,672	138,752	6,831	145,583	59,041	204,624
(14)	14	78,162	43,782	121,944	5,862	127,807	65,559	193,365
(15)	15	65,698	39,272	104,970	4,927	109,898	71,700	181,597
(16)	16	30,999	19,725	50,724	2,325	53,049	76,800	129,849
(17)	17	30,171	20,388	50,559	2,263	52,822	81,120	133,942
(18)	18	16,745	11,992	28,737	1,256	29,993	0	29,993
(19)	19	400	303	703	30	733	0	733
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$107,115	\$2,123,567	\$ 550,771	\$2,674,338

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

M. R. GRACE & CO.
12,500 BPD METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST (a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	RTP	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 23,628	\$ 23,628	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	41,822	41,822	0	0	0	0	0	0	0
(3)	3	45,026	34,550	10,476	5,238	0	5,238	0	5,238	174
(4)	4	57,381	0	57,381	28,691	10,650	39,341	0	39,341	1,310
(5)	5	107,918	0	107,918	53,959	69,342	123,301	0	123,301	4,106
(6)	6	120,038	0	120,038	60,019	181,366	241,385	0	241,385	8,038
(7)	7	131,822	0	131,822	65,911	309,442	375,353	0	375,353	12,499
(8)	8	203,123	0	203,123	101,561	453,763	555,324	0	555,324	18,492
(9)	9	206,438	0	206,438	103,219	675,378	778,597	0	778,597	25,927
(10)	10	193,820	0	193,820	96,910	907,743	1,004,652	0	1,004,652	33,454
(11)	11	231,341	0	231,341	115,670	1,135,017	1,250,687	0	1,250,687	41,647
(12)	12	241,327	0	241,327	120,663	1,408,005	1,528,668	0	1,528,668	50,904
(13)	13	145,583	0	145,583	72,792	1,700,235	1,773,027	0	1,773,027	59,041
(14)	14	127,807	0	127,807	63,903	1,904,859	1,968,762	0	1,968,762	65,559
(15)	15	109,898	0	109,898	54,949	2,098,225	2,153,173	0	2,153,173	71,700
(16)	16	53,049	0	53,049	26,524	2,279,822	2,306,346	0	2,306,346	76,800
(17)	17	52,822	0	52,822	26,411	2,409,670	2,436,081	0	2,436,081	81,120
(18)	18	29,993	0	29,993	14,997	2,543,612	2,558,609	2,558,609	0	0
(19)	19	733	0	733	367	2,573,605	2,573,972	2,573,972	0	0
(20)	TOTAL	\$2,123,567	\$100,000	\$2,023,567	\$1,011,783					\$ 550,771

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	7.50%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GEACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 1,937	\$ 24,112	\$ 0	\$ 24,112
(2)	2	33,534	5,773	39,307	3,353	42,660	0	42,660
(3)	3	35,303	7,076	42,378	3,530	45,909	153	46,062
(4)	4	43,992	10,091	54,082	4,399	58,481	1,015	59,496
(5)	5	80,897	20,954	101,851	8,090	109,940	3,070	113,010
(6)	6	87,980	25,460	113,440	8,798	122,238	5,943	128,181
(7)	7	94,464	30,273	124,737	9,446	134,183	9,178	143,361
(8)	8	142,312	50,138	192,450	14,231	206,681	13,509	220,190
(9)	9	141,403	54,429	195,833	14,140	209,973	18,858	228,831
(10)	10	129,791	54,294	184,085	12,979	197,064	24,221	221,285
(11)	11	151,449	68,533	219,982	15,145	235,127	30,016	265,143
(12)	12	154,445	75,298	229,743	15,444	245,188	36,530	281,718
(13)	13	91,080	47,672	138,752	9,108	147,860	42,150	190,010
(14)	14	78,162	43,782	121,944	7,816	129,761	46,514	176,275
(15)	15	65,698	39,272	104,970	6,570	111,540	50,545	162,085
(16)	16	30,999	19,725	50,724	3,100	53,824	53,757	107,581
(17)	17	30,171	20,388	50,559	3,017	53,576	56,349	109,924
(18)	18	16,745	11,992	28,737	1,675	30,412	0	30,412
(19)	19	400	303	703	40	743	0	743
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$142,820	\$2,159,272	\$ 391,807	\$2,551,079

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

H. R. GRACE & CO.
12,500 BPD METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 24,112	\$ 24,112	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	42,660	42,660	0	0	0	0	0	0	0
(3)	3	45,909	33,227	12,681	6,341	0	6,341	0	6,341	153
(4)	4	58,481	0	58,481	29,241	12,834	42,075	0	42,075	1,015
(5)	5	109,940	0	109,940	54,970	72,330	127,300	0	127,300	3,070
(6)	6	122,238	0	122,238	61,119	185,340	246,459	0	246,459	5,943
(7)	7	134,183	0	134,183	67,092	313,521	380,613	0	380,613	9,178
(8)	8	206,681	0	206,681	103,340	456,882	560,223	0	560,223	13,509
(9)	9	209,973	0	209,973	104,986	677,072	782,059	0	782,059	18,858
(10)	10	197,064	0	197,064	98,532	905,903	1,004,436	0	1,004,436	24,221
(11)	11	235,127	0	235,127	117,564	1,127,188	1,244,752	0	1,244,752	30,016
(12)	12	245,188	0	245,188	122,594	1,392,331	1,514,925	0	1,514,925	36,530
(13)	13	147,860	0	147,860	73,930	1,674,049	1,747,979	0	1,747,979	42,150
(14)	14	129,761	0	129,761	64,880	1,864,059	1,928,940	0	1,928,940	46,514
(15)	15	111,540	0	111,540	55,770	2,040,334	2,096,104	0	2,096,104	50,545
(16)	16	53,824	0	53,824	26,912	2,202,419	2,229,331	0	2,229,331	53,757
(17)	17	53,576	0	53,576	26,788	2,310,000	2,336,788	0	2,336,788	56,349
(18)	18	30,412	0	30,412	15,206	2,419,924	2,435,130	2,435,130	0	0
(19)	19	743	0	743	372	2,450,336	2,450,707	2,450,707	0	0
(20)	TOTAL	\$2,159,272	\$100,000	\$2,059,272	\$1,029,636					\$ 391,807

FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	10.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-LIQUID-MANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 1,937	\$ 24,112	\$ 0	\$ 24,112
(2)	2	33,534	5,773	39,307	3,353	42,660	0	42,660
(3)	3	35,303	7,076	42,378	3,530	45,909	182	46,091
(4)	4	43,992	10,091	54,082	4,399	58,481	1,210	59,691
(5)	5	80,897	20,954	101,851	8,090	109,940	3,665	113,605
(6)	6	87,980	25,460	113,440	8,798	122,238	7,106	129,344
(7)	7	94,464	30,273	124,737	9,446	134,183	10,995	145,178
(8)	8	142,312	50,138	192,450	14,231	206,681	16,209	222,889
(9)	9	141,403	54,429	195,833	14,140	209,973	22,661	232,634
(10)	10	129,791	54,294	184,085	12,979	197,064	29,161	226,225
(11)	11	151,449	68,533	219,982	15,145	235,127	36,209	271,336
(12)	12	154,445	75,298	229,743	15,444	245,188	44,151	289,339
(13)	13	91,080	47,672	138,752	9,108	147,860	51,067	198,927
(14)	14	78,162	43,782	121,944	7,816	129,761	56,524	186,285
(15)	15	65,698	39,272	104,970	6,570	111,540	61,615	173,155
(16)	16	30,999	19,725	50,724	3,100	53,824	65,762	119,586
(17)	17	30,171	20,388	50,559	3,017	53,576	69,195	122,771
(18)	18	16,745	11,992	28,737	1,675	30,412	0	30,412
(19)	19	400	303	703	40	743	0	743
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$142,820	\$2,159,272	\$ 475,712	\$2,634,984

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. R. GRACE & CO.
12,500 BPD METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 24,112	\$ 24,112	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	42,660	42,660	0	0	0	0	0	0	0
(3)	3	45,909	33,227	12,681	6,341	0	6,341	0	6,341	182
(4)	4	58,481	0	58,481	29,241	12,863	42,104	0	42,104	1,210
(5)	5	109,940	0	109,940	54,970	72,555	127,525	0	127,525	3,665
(6)	6	122,238	0	122,238	61,119	186,160	247,279	0	247,279	7,106
(7)	7	134,183	0	134,183	67,092	315,504	382,596	0	382,596	10,995
(8)	8	206,681	0	206,681	103,340	460,682	564,022	0	564,022	16,209
(9)	9	209,973	0	209,973	104,986	683,571	788,558	0	788,558	22,661
(10)	10	197,064	0	197,064	98,532	916,205	1,014,737	0	1,014,737	29,161
(11)	11	235,127	0	235,127	117,564	1,142,430	1,259,994	0	1,259,994	36,209
(12)	12	245,188	0	245,188	122,594	1,413,766	1,536,360	0	1,536,360	44,151
(13)	13	147,860	0	147,860	73,930	1,703,105	1,777,035	0	1,777,035	51,067
(14)	14	129,761	0	129,761	64,880	1,902,032	1,966,913	0	1,966,913	56,524
(15)	15	111,540	0	111,540	55,770	2,088,317	2,144,087	0	2,144,087	61,615
(16)	16	53,824	0	53,824	26,912	2,261,472	2,288,384	0	2,288,384	65,762
(17)	17	53,576	0	53,576	26,788	2,381,058	2,407,846	0	2,407,846	69,195
(18)	18	30,412	0	30,412	15,206	2,503,829	2,519,035	2,519,035	0	0
(19)	19	743	0	743	372	2,534,241	2,534,612	2,534,612	0	0
(20)	TOTAL	\$2,159,272	\$100,000	\$2,059,272	\$1,029,636					\$ 475,712

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	12.00%

W. B. GRACE & CO.
12,500 BPD COAL-METHANOL-TO-GASOLINE PLANT
ESCALATED CAPITAL INVESTMENT ESTIMATE
INCLUDING CONTINGENCY AND CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
LINE NO	QTR	BASE CAPITAL SPENDING	ESCALATION	ESCALATED SPENDING	CONTINGENCY	TOTAL CAPITAL SPENDING	CONSTRUCTION INTEREST	TOTAL CAPITAL INVESTMENT
(1)	1	\$ 19,374	\$ 2,801	\$ 22,175	\$ 1,937	\$ 24,112	\$ 0	\$ 24,112
(2)	2	33,534	5,773	39,307	3,353	42,660	0	42,660
(3)	3	35,303	7,076	42,378	3,530	45,909	211	46,120
(4)	4	43,992	10,091	54,082	4,399	58,481	1,403	59,884
(5)	5	80,897	20,954	101,851	8,090	109,940	4,254	114,194
(6)	6	87,980	25,460	113,440	8,798	122,238	8,261	130,499
(7)	7	94,464	30,273	124,737	9,446	134,183	12,806	146,989
(8)	8	142,312	50,138	192,450	14,231	206,681	18,907	225,588
(9)	9	141,403	54,429	195,833	14,140	209,973	26,474	236,447
(10)	10	129,791	54,294	184,085	12,979	197,064	34,133	231,197
(11)	11	151,449	68,533	219,982	15,145	235,127	42,465	277,592
(12)	12	154,445	75,298	229,743	15,444	245,188	51,877	297,064
(13)	13	91,080	47,672	138,752	9,108	147,860	60,148	208,008
(14)	14	78,162	43,782	121,944	7,816	129,761	66,773	196,534
(15)	15	65,698	39,272	104,970	6,570	111,540	73,014	184,555
(16)	16	30,999	19,725	50,724	3,100	53,824	78,199	132,023
(17)	17	30,171	20,388	50,559	3,017	53,576	82,591	136,167
(18)	18	16,745	11,992	28,737	1,675	30,412	0	30,412
(19)	19	400	303	703	40	743	0	743
(20)	TOTAL	\$1,428,198	\$ 588,254	\$2,016,452	\$142,820	\$2,159,272	\$ 561,518	\$2,720,790

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
CONSTRUCTION INTEREST(a,b)
(\$000)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LINE NO	QTR	TOTAL CAPITAL SPENDING	EQUITY	APPLICABLE TO LOAN	50% CURRENT DRAWDOWN	PRIOR DRAWDOWNS	GROSS LOAN DRAWDOWNS	CONVERSION TO LONG TERM DEBT	EFFECTIVE LOAN BALANCE	CONSTRUCTION INTEREST
(1)	1	\$ 24,112	\$ 24,112	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
(2)	2	42,660	42,660	0	0	0	0	0	0	0
(3)	3	45,909	33,227	12,681	6,341	0	6,341	0	6,341	211
(4)	4	58,481	0	58,481	29,241	12,892	42,133	0	42,133	1,403
(5)	5	109,940	0	109,940	54,970	72,777	127,747	0	127,747	4,254
(6)	6	122,238	0	122,238	61,119	186,971	248,090	0	248,090	8,261
(7)	7	134,183	0	134,183	67,092	317,470	384,562	0	384,562	12,806
(8)	8	206,681	0	206,681	103,340	464,459	567,800	0	567,800	18,907
(9)	9	209,973	0	209,973	104,986	690,047	795,034	0	795,034	26,474
(10)	10	197,064	0	197,064	98,532	926,495	1,025,027	0	1,025,027	34,133
(11)	11	235,127	0	235,127	117,564	1,157,692	1,275,255	0	1,275,255	42,465
(12)	12	245,188	0	245,188	122,594	1,435,284	1,557,878	0	1,557,878	51,877
(13)	13	147,860	0	147,860	73,930	1,732,348	1,806,278	0	1,806,278	60,148
(14)	14	129,761	0	129,761	64,880	1,940,357	2,005,237	0	2,005,237	66,773
(15)	15	111,540	0	111,540	55,770	2,136,891	2,192,661	0	2,192,661	73,014
(16)	16	53,824	0	53,824	26,912	2,321,445	2,348,357	0	2,348,357	78,199
(17)	17	53,576	0	53,576	26,788	2,453,468	2,480,256	0	2,480,256	82,591
(18)	18	30,412	0	30,412	15,206	2,589,635	2,604,841	2,604,841	0	0
(19)	19	743	0	743	372	2,620,047	2,620,418	2,620,418	0	0
(20)	TOTAL	\$2,159,272	\$100,000	\$2,059,272	\$1,029,636					\$ 561,518

(a) FOR PURPOSES OF THIS ANALYSIS THE FOLLOWING DATA APPLY:

JUNE 1982 BASE CAPITAL ESTIMATE (\$000)	\$1,428,198
AVERAGE ANNUAL ESCALATION RATE	10.00%
CONTINGENCY AS A PERCENT OF BASE CAPITAL	10.00%
EQUITY INVESTMENT (\$000)	\$100,000
CONSTRUCTION FINANCING INTEREST RATE	14.00%

Ready

PREOPERATION COST ESTIMATE

INTRODUCTION

The costs associated with the preoperation phase of the 12,500 Barrel-Per-Day (BPD) Coal-to-Methanol-to-Gasoline Plant at Baskett, Kentucky, encompass salary and wage-related costs of the plant operations work force from date of hire through mechanical completion of the plant, taxes on real and tangible property and operations support for the performance of certain in-plant activities required to bring the plant to a startup mode. Such costs, therefore, include contributions from labor, taxes and insurance, and costs associated with the in-plant preoperation support. The preoperation period is followed by startup and operation periods. Estimated costs for the startup and operation periods are presented in the next two sections of this deliverable. All costs presented in this section, unless specified otherwise, have been escalated from 1982 base dollars and are therefore as spent dollars.

1.1 Scope of Estimate

The preoperation phase of the project entails the hiring and training of the plant operations work force and certain in-plant engineering/check-out activities which precede plant startup. Based on Grace's past experience in constructing, starting up and operating large chemical plants, early staffing of key operations management positions is warranted. Thus, from a time standpoint, the preoperations phase extends from the commencement of detailed engineering in late 1983 through mechanical completion of the plant in December 1987. This schedule is consistent with the Master Milestone Schedule (MMS-101) which is detailed in Deliverable 31b -

Construction Plan, Volume II, and included as Figure 1 of this section. Specifics of the methodologies used in development of the preoperation cost estimate are addressed in the sections below. The narrative explanation is followed by the Preoperation Cost Estimate in Table 1.

1.2 Labor Costs

Operational manning for the 12,500 BPD plant includes a total of 532 positions - 166 salaried and 366 hourly paid. Labor costs in the preoperations phase involve 528 of these positions. For estimation purposes the plant manning is segregated into salaried, hourly I and hourly II designated employees as detailed in Table 2. Hourly II employees are the process operators and maintenance staff, with hourly I being the remainder of hourly wage compensated employees. The detailed labor hiring schedule which supports the preoperation cost estimate was prepared in conjunction with the organization charts and schedules presented in Deliverable No. 28b - Staffing Plan, Volume I. The hiring schedule reflects Grace's philosophy that key management positions should be filled concurrent with or as early as possible after the commencement of detailed engineering. Also, adequate time has been allowed for the training of operations and maintenance personnel prior to plant startup. Also supporting the preoperation estimate are the Major Milestone Schedule (MMS-101) and Critical Path Schedule (CPS-101) presented in Deliverable No. 31b - Construction Plan, Volume II, and the 12,500 BPD Plant Production Schedule presented in Deliverable No. 33b - Startup and Operation Plan. Copies of these

support materials are included as Figures 1, 2, and 3, respectively.

A detailed wage and salary plan was also prepared, with each position being separately priced. From this plan the average annual salary for all salaried positions was determined to be \$34,400 and an annualized wage estimate, allowing for overtime and shift differential, where applicable, found to be \$21,600 per year. Both of these figures are 1982 base dollars. To the total labor costs associated with the salary, and hourly I and II labor burden, a 20% payroll expense/benefit overlay was added. The sum of direct labor costs and the payroll expense/benefit overlay items constitutes the total plant labor cost.

1.3 Taxes and Insurance

During the preoperations phase of the project, it is assumed that the Commonwealth of Kentucky will impose taxes on real and tangible property. The acreage associated with the Gasoline Plant site and the value of fixed capital installed was assumed as the base upon which taxes will be levied. The tax rates used in the cost estimation reflect discussions with the Kentucky Department of Revenue in March 1982.

Since the preoperation period precedes mechanical completion, it is assumed that insurance costs are applicable to the construction contractor(s). Therefore, no provision for the payment of insurance premiums is included in this estimate.

1.4 Plant Operations Staff Support Costs

It is recognized that certain costs of a miscellaneous nature will be incurred to support the plant operations staff and that a minor cost for electricity, chemicals, etc., will result from operations support to the construction contractor's checkout of machinery and equipment. Detailed support for an estimate of these costs has not been developed. However, for purposes of recognizing this cost element in the projects economics, an estimate factored from the preoperations labor estimate has been included.

TABLE 1

W. R. GRACE & CO.
 12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
PREOPERATION COST ESTIMATE
 (\$000)

Line No.	Item	(1)	(2)	(3)	(4)	(5)
		Year				
		1983	1984	1985	1986	1987
	<u>Labor</u>					
(1)	Salary	\$46	\$ 687	\$1,442	\$3,796	\$ 7,372
(2)	Hourly I	11	67	246	641	1,754
(3)	Hourly II	-	-	-	275	6,771
(4)	Payroll Expense Benefits	<u>11</u>	<u>150</u>	<u>338</u>	<u>942</u>	<u>3,179</u>
(5)	Subtotal Labor	<u>\$68</u>	<u>\$ 904</u>	<u>\$2,026</u>	<u>\$5,654</u>	<u>\$19,076</u>
(6)	Taxes and Insurance	\$ -	\$ 38	\$ 41	\$ 114	\$ 1,053
(7)	Preoperation Support Costs	<u>14</u>	<u>181</u>	<u>405</u>	<u>1,131</u>	<u>3,815</u>
(8)	Total	<u>\$82</u>	<u>\$1,123</u>	<u>\$2,472</u>	<u>\$6,899</u>	<u>\$23,944</u>
(9)	Total Preoperation Cost (1983-1987)					<u>\$34,520</u>

TABLE 2
W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
LABOR HIRING SCHEDULE

	CY 1983 04	CY 1984				CY 1985				CY 1986				CY 1987				CY 1988				CY 1989
		01	02	03	04	01	02	03	04	01	02	03	04	01	02	03	04	01	02	03	04	
<u>Salaried</u>																						
Preoperations - Hiring Schedule	5	3	7	9		7	1	3	7	9	12	36	34	14	9	7	2					
- Accumulative	5	8	15	24	24	31	32	35	42	51	63	99	133	147	156	163	165					
Startup - Hiring Schedule																		165	165			
- Accumulative																						
Operations - Hiring Schedule																				1		
- Accumulative																				166	166	166
<u>Hourly I (Exempt)</u>																						
Preoperations - Hiring Schedule	2		1				5	3	5		9	11	15	2	14	1						
- Accumulative	2	2	3	3	3	3	8	11	16	16	25	36	51	53	67	68						
Startup - Hiring Schedule																		68	68			
- Accumulative																						
Operations - Hiring Schedule																						
- Accumulative																				68	68	68
<u>Hourly II (Maintenance & Operators)</u>																						
Preoperations - Hiring Schedule										3	12	4	161		88	27						
- Accumulative										3	3	15	19	180	180	268	295					
Startup - Hiring Schedule																		3				
- Accumulative																		298	298			
Operations - Hiring Schedule																						
- Accumulative																				298	298	298
Total	7	10	18	27	27	34	40	46	58	70	82	139	188	378	389	498	528	531	531	532	532	532

MASTER MILESTONE SCHEDULE

MMS-101

FIGURE 1

FIGURE 2

W. R. GRACE & CO.
12,500 BPD PLANT PRODUCTION SCHEDULE

FIGURE 3

STARTUP COST ESTIMATE

INTRODUCTION

The startup cost estimate for the 12,500 BPD plant includes production-related costs incurred between completion of construction, i.e., mechanical completion of the plant, and the establishment of full-scale commercial operating rates. The startup period is preceded by the preoperation period and followed by the operation period. Cost estimates for the preoperation and operation periods are presented in other sections of this deliverable. While it is assumed that commercial production rates are established at 75% of normal operating rates, the development of the startup estimate on a quarterly basis is such that full production rates are achieved prior to completion of the startup period. For cost estimating purposes, the Master Milestone Schedule (MMS-101) and the Startup Schedule (SUS-101) from Deliverable No. 31b - Construction Plan, Volume II, and the 12,500 BPD Plant Production Schedule from Deliverable No. 33b - Startup/Operation Plan, serve as the basis for defining the plant startup period. Copies of these schedules are included as Figures 1, 2 and 3, respectively. The escalated startup cost estimate presented in Table 1 includes fixed costs for labor, taxes and insurance, maintenance, depreciation, and general and administrative expenses, and variable costs associated with coal (both process and utility), electricity, chemicals, catalysts and royalties. All costs presented in this estimate are escalated (as spent) dollars unless otherwise specified.

1.1 Scope of Estimate

In accordance with the schedules presented as Figures 1, 2 and 3, the 12,500 BPD plant enters the startup mode in late 1987 with the

bringing on stream of the utility areas prior to commencement of gasoline production. Startup continues through the second quarter of 1988 during which time a production rate in excess of 75% of normal production will have been attained. The specific methodologies used to develop this startup cost estimate are segregated on the basis of applicability to either fixed or variable costs and are discussed in detail in the sections below.

1.2 Fixed Costs

The items estimated for fixed costs in the startup phase include labor, taxes and insurance, depreciation, minor maintenance expenses, and an allowance for general and administrative costs.

1.2.1 Labor

The labor costs associated with startup of the 12,500 BPD plant include all salaried and hourly employees. A 20% payroll expense/benefits overlay applicable to the total salary and wage cost is also provided. The startup, hiring and manning schedule is shown in Table 3, Labor Hiring Schedule. The labor cost component of the startup estimate is also supported by a complete salary and wage plan. The salary cost reflects an average salary rate of \$34,400 per year. Hourly employees are further segregated into hourly I and hourly II classifications. Hourly I positions are nonoperating and nonmaintenance job categories, costed at an average wage rate of \$21,600 per year. The hourly II designation consists of operators and mechanics (craftsmen, etc.) from the operations and maintenance departments as listed in Deliverable No. 28b, Volume I. The average wage

rate for this category is also \$21,600 per year. These average annual wage and salary rates are expressed in 1982 dollars which are escalated in computing the startup cost estimate.

1.2.2 Taxes and Insurance

The tax and insurance estimate for the plant during the startup phase is factored as 1.25% of the escalated capital estimate on an annual basis for the first full year of production (1989) and then deflated and reduced to reflect the six-month startup period occurring in 1988.

1.2.3 Maintenance

Maintenance expenses during the startup period for materials and supplies are assumed to be limited to a normal factored estimate based on the plant maintenance labor costs. It is assumed that no outside, contract maintenance is required during the startup period.

1.2.4 Depreciation

For production cost purposes, book depreciation of the plant during the startup phase is assumed to be based on a twenty-year straight-line recovery of the plant's installed capital cost, including construction interest. Details of the escalated capital estimate are presented earlier in this deliverable and are based on assumptions of a 6.0% annual escalation rate during the construction period, 5.0% explicit contingency allowance and a 10.0% construction loan interest rate. Utilizing these assumptions, the escalated capital estimate was computed to be \$2.16 billion.

1.2.5 General and Administrative

Certain costs normal to the operation of any manufacturing/ industrial facility are recognized through factoring of the plant's total payroll estimate.

1.3 Variable Costs

Variable costs are those defined as being fixed on a unit of production basis and, therefore, increasing or decreasing in direct proportion to the production rate. During the six-month startup phase, production rates are increased in steps such that full production (100% of normal operating rates) is achieved in the fifth month. Allowing for initial reduced production rates, the average rate over the six-month period is estimated to be 75%. Resultant production volumes during the startup period are as follows:

STARTUP PRODUCTION VOLUMES

<u>Product/By-Product</u>	<u>Units</u>	<u>Amount</u>
<u>Hydrocarbon Products</u>		
Gasoline	BBLs	1,770,525
Propane	BBLs	124,200
Isobutane	BBLs	113,400
Subtotal Hydrocarbons	BBLs	<u>2,008,125</u>
<u>Other Products</u>		
Sulfur	Tons	28,485
Carbon Dioxide	Tons	1,040,100
Ammonia	Tons	1,466
Gasifier Slag	Tons	127,980

The startup cost estimate for variable components also includes a factored recognition of startup inefficiencies in the form of usage factors in excess of those expected during normal operations.

Details of the variable cost startup estimate, including costs for

utility startup in late 1987, are given in Table 1 and are based on usage factors and unit prices presented in the following table.

STARTUP ESTIMATE VARIABLE
COST BASIS

<u>Component</u>	<u>Usage Factor</u>	<u>1988 Unit Cost</u>
Coal		
Process	0.5306 Ton/BBL Gasoline(a)	\$43.97/Ton
Utility	0.1295 Ton/BBL Gasoline(a)	43.97/Ton
Electricity	54.90 KWH/BBL Gasoline	0.0453/KWH
Catalyst, Chemicals and Royalties		\$6.07/BBL Gasoline(a,b)

(a) Includes recognition of startup inefficiency.

(b) Reflects composite of all catalysts, chemicals and royalties.

1.4 Revenues

Revenues generated during the startup period as a result of selling gasoline, LPG (propane), isobutane, sulfur, carbon dioxide and ammonia are exhibited in Table 2. The sales volumes indicated and the associated revenues take into consideration building of a 15-day inventory for all products except carbon dioxide. Although gasifier slag is considered to be a saleable by-product, all slag produced during the startup period is assumed to be stored in the onsite landfill, with sales of slag assumed concurrent with commencement of commercial operation in July 1988.

TABLE 1

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
STARTUP COST ESTIMATE
(\$000)

<u>Fixed Costs</u>	<u>1987(a)</u>	<u>1988(b)</u>
Labor:		
Salary	-	\$ 4,106
Hourly I	-	1,063
Hourly II	-	4,656
Payroll Expense Benefits	-	<u>1,965</u>
Subtotal Labor	-	<u>\$ 11,790</u>
Taxes and Insurance	-	\$ 12,532
Maintenance(a)	-	1,936 (c)
Depreciation	-	54,137
General and Administrative	-	<u>1,179</u>
Subtotal Fixed Costs	-	<u>\$ 81,574</u>
 <u>Variable Costs</u>		
Coal		
Process	-	\$ 41,306
Utility	\$1,673	10,081
Electricity	328	4,401
Catalysts, Chemicals, & Royalties	<u>438</u>	<u>10,744</u>
Subtotal Variable Costs	<u>\$2,439</u>	<u>\$ 66,532</u>
Total Startup Costs	<u>\$2,439</u>	<u>\$148,106</u>

(a) Utility startup.

(b) Six-month process startup.

(c) Does not include plant maintenance labor of \$2,904,040 which is included in the above labor estimate.

TABLE 2

W. R. GRACE & CO.
 12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
STARTUP REVENUE ESTIMATE(a)

Product	Units	Volumes			Price \$/Unit	Revenue (\$000)
		Production	Inventory	Sales		
Gasoline	BBLS	1,770,525	196,725	1,573,800	\$ 70.14	\$110,386
Propane	BBLS	124,200	13,800	110,400	36.96	4,080
Isobutane	BBLS	113,400	12,600	110,800	40.32	4,467
Ammonia	Tons	1,466	150	1,316	420.00	553
Sulfur	Tons	28,485	3,165	25,320	203.50	5,153
Carbon Dioxide	Tons	1,040,100	-	1,040,100	5.67	5,897
Total						<u>\$130,536</u>

(a) Startup covers first six months of 1988.

TABLE 3
W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
LABOR HIRING SCHEDULE

	CY 1983	CY 1984				CY 1985				CY 1986				CY 1987				CY 1988				CY 1989
	04	01	02	03	04	01	02	03	04	01	02	03	04	01	02	03	04	01	02	03	04	
<u>Salaried</u>																						
Preoperations - Hiring Schedule	5	3	7	9		7	1	3	7	9	12	36	34	14	9	7	2					
- Accumulative	5	8	15	24	24	31	32	35	42	51	63	99	133	147	156	163	165					
Startup - Hiring Schedule																		165	165			
- Accumulative																						
Operations - Hiring Schedule																				1		
- Accumulative																				166	166	166
<u>Hourly I (Exempt)</u>																						
Preoperations - Hiring Schedule	2		1			5	3	5		9	11	15	2	14	1							
- Accumulative	2	2	3	3	3	8	11	16	16	16	25	36	51	53	67	68						
Startup - Hiring Schedule																		68	68			
- Accumulative																						
Operations - Hiring Schedule																				68	68	
- Accumulative																						
<u>Hourly II (Maintenance & Operators)</u>																						
Preoperations - Hiring Schedule										3	12	4	161		88	27						
- Accumulative										3	3	15	19	180	180	268	295					
Startup - Hiring Schedule																		3				
- Accumulative																		298	298			
Operations - Hiring Schedule																						
- Accumulative																				298	298	298
Total	7	10	18	27	27	34	40	46	58	70	82	139	188	378	389	498	528	531	531	532	532	532

FIGURE 1

505-101

FIGURE 2

W. R. GRACE & CO.
12,500 BPD PLANT PRODUCTION SCHEDULE

FIGURE 3

OPERATION COST ESTIMATE

INTRODUCTION

This operation cost estimate covers the normal operation of the 12,500 BPD Gasoline Plant from the commencement of commercial operation in July 1988 through calendar year 1989 which is the first full year of production at normal operating rates. The operation period is preceded by preoperation and startup periods. Estimated costs for the preoperation and startup periods have been detailed earlier in this deliverable. Material and utility usages and production quantities during normal operations are consistent with the engineering documentation contained in Deliverable No. 14b - Process Engineering and Mechanical Design Report.

The schedule encompassed by this operation cost estimate is consistent with the Master Milestone Schedule (MSS-101) and the Startup Schedule (SUS-101) from Deliverable No. 31b, Volume II, and the 12,500 BPD Plant Production Schedule from Deliverable No. 33b - Startup and Operations Plan. Copies of these schedules are included as Figures 1, 2, and 3, respectively. The operation cost estimate presented in Table 1 reflects fully forward-priced costs. In support of development of the operation cost estimate, certain costs have been developed on a 1982 base and escalated to the normal production operations time frame. Table 5, Annual Maintenance and Tables 6 and 7, Catalyst Requirements, and Consumable Chemicals, respectively, are presented as 1982 base costs which were escalated for inclusion in the operation cost estimate.

1.1 Scope of Estimate

The 12,500 BPD Gasoline Plant is projected to attain a 100% production rate in May of 1988. Full capacity production rates are

maintained through June, at which time a one-month turnaround is scheduled. Upon restarting the plant, it is anticipated that normal operating rates will be accomplished consistent with Grace's prior experience in operating large chemical plants. The commercial operating period is assumed to begin in July of 1988. So as to allow assessment of production costs for a complete calendar year, this operation cost estimate includes presentation of costs for the second half of 1988 and the entirety of 1989. The following paragraphs delineate the methodologies utilized in estimating fixed costs associated with labor, taxes and insurance, maintenance, depreciation, and general and administrative expenses and variable costs for coal (both process and utility), electricity, catalysts, chemicals and royalties.

1.2 Fixed Costs

Fixed costs are those elements of expense which do not vary in proportion to production rates. For purposes of this estimate, the fixed cost component is comprised of labor-related costs, taxes and insurance, depreciation, maintenance, and an allowance for general and administrative costs. Details of each of these cost elements are given below.

1.2.1 Labor

The operational labor-related costs are based on the manning tables detailed in Deliverable No. 28 - Staffing Plans, Volume I and summarized in this section's Labor Hiring Schedule, Table 4. In accordance with these staffing plans, the manning required for operation of the Gasoline Plant

includes 166 salaried positions and 366 hourly paid jobs. All operational personnel are assumed to be charged to the operation cost account from July 1988 forward. The labor cost component of the operation cost estimate is supported by a complete salary and wage plan. The salary cost reflects an average salary rate of \$34,400 per year. The hourly I labor burden includes nonoperating and nonmaintenance job categories costed at an average wage rate of \$21,600 per year. The hourly II designation consists of production operators and maintenance mechanics (craftsmen, etc.) from the operating and maintenance departments as detailed in Deliverable No. 28b, Volume I. The wage rate for this personnel category is also \$21,600 per year and allows for overtime and shift differential where applicable. The preceding average salary and wage rates are expressed in 1982 dollars which are escalated to the proper time frame as a part of the operation cost estimate. A 20.0% factor has been added to the total payroll estimate in recognition of benefit costs.

1.2.2 Taxes and Insurance

An estimate of the costs associated with payment of taxes and insurance on the facility has been factored as 1.25% of the escalated capital estimate. This figure is applicable to the first full year of commercial operation (1989) and is, in part, based on discussions with tax authorities in the state of Kentucky. The tax estimate for the second half

of 1988 has been deflated from the 1989 estimate and reduced to reflect only a six-month operating period.

1.2.3 Maintenance

The annual Gasoline Plant maintenance estimate is based on engineering analyses of the thirty-two material handling, process and utility/offsite units comprising the plant facilities. These analyses produced estimated maintenance costs for individual units expressed as a percentage of the units' direct capital cost. The details of each units' maintenance allowance in 1982 dollars are contained in Table 5. The resultant weighted average maintenance expense for the entire plant applicable to the first year of commercial production, was determined to be approximately 3.5% of the base direct capital cost. For purposes of the escalated operating cost estimate, the base maintenance expense estimate was ratioed in direct proportion to the increase in the direct cost portion of the escalated capital cost estimate.

The maintenance estimate calculated in accordance with the preceding paragraph is assumed to include both maintenance performed by the plant's maintenance work force, as well as a significant amount of contract maintenance. The maintenance cost estimate includes salaries and wages of the plant's maintenance personnel. For presentation purposes, cost of in-plant maintenance has been included in the labor account and deducted from the maintenance account.

1.2.4 Depreciation

It is assumed that book depreciation of the facility is in accordance with a 20-year straight-line depreciation schedule. The depreciable base is the plant's installed capital cost, including construction interest. As detailed earlier in this deliverable, and allowing for assumptions of a 6.0% average annual escalation rate across the engineering and construction schedule, a 5.0% explicit contingency allowance and a 10.0% construction loan interest rate, the estimated capital estimate for the 12,500 BPD plant is \$2.16 billion.

1.2.5 General and Administrative

Certain costs of a general nature, normal to the operation of any manufacturing/industrial facility, are recognized through factoring of the plant's total payroll estimate.

1.3 Variable Costs

Variable costs are those defined as being fixed on a unit of production basis and thus increasing or decreasing with production rate. Production volumes applicable to the 1988 and 1989 operation cost estimates are exhibited in the following table.

OPERATION PRODUCTION VOLUMES

Line No.	Product/By-Product	(1) Units	(2) Amount		(3) 1989
			1988(a)		
	<u>Hydrocarbon Products</u>				
(1)	Gasoline	Barrels	1,967,250		4,327,950
(2)	Propane	Barrels	138,000		303,600
(3)	Isobutane	Barrels	126,000		277,200
(4)	Subtotal	Barrels	<u>2,231,250</u>		<u>4,908,750</u>
	<u>Other Products</u>				
(5)	Sulfur	Tons	31,646		69,621
(6)	Carbon Dioxide	Tons	1,155,677		2,542,488
(7)	Ammonia	Tons	1,629		3,584
(8)	Gasifier Slag	Tons	142,200		312,840

(a) Six month operation period of which one month is turnaround resulting in five months actual production.

Usage factors for coal and electricity utilized in the development of the operation cost estimate are consistent with the engineering documentation contained in Deliverable No. 14b - Process Engineering and Mechanical Design Report. These usage factors and a composite estimate basis for catalysts, chemicals and royalties are shown in the following table.

OPERATION ESTIMATE VARIABLE
COST BASIS

Component	Usage Factor	1989 Unit Cost
Coal		
Feedstock	0.4823 Ton/BBL Gasoline	\$47.96/ton
Utility	0.1083 Ton/BBL Gasoline(a)	47.96/ton
Electricity	54.90 KWH/BBL Gasoline(b)	0.0488/KWH
Catalyst, Chemicals and Royalties		\$6.11/BBL Gasoline(c)

(a) Allows 345-day-per-year boiler operation.

(b) Imported electricity only.

(c) Reflects composite of all catalysts, chemicals, and royalties.

1.3.1 Process Coal

Process coal consumed in the production of the synthesis gas is 6,326 tons per day and valued at \$27.00 per ton (1982 cost) delivered to the Baskett, Kentucky, site. Plant production is based on an equivalent 330-day-per-year operation.

1.3.2 Utility Coal

Coal is fed to the plant steam generation system at the rate of approximately 1,359 tons per day. The 1989 operation cost estimate assumes an equivalent 345-day-per-year operating period.

1.3.3 Electricity

In addition to in-plant electrical generation, the plant requires an average 30MW demand from the local utility supplier. This requirement exists during normal production or the equivalent of 330 days per year. A base (1982) electricity cost of \$0.02835/KWH was supplied by the local utility supplier and has been escalated to the operation time frame.

1.3.4 Catalyst, Chemicals, and Royalties

Catalysts and chemicals required in the production of gasoline from coal are detailed in Tables 6 and 7, respectively. Such requirements are based on catalysts and chemicals presented in Deliverable Nos. 14b - Process Engineering and Mechanical Design Report, 27b - Materials & License Report, and 33b - Startup/Operation Plan. The

production period, with regard to chemicals is assumed to be 330 days per year. Catalyst costs are amortized over the expected life expectancy of the catalyst.

Royalty costs, the details of which are confidential, have been lumped with catalyst and chemical costs.

1.4 Revenues

Revenue projections from the sale of all plant products and by-products during the 1988-1989 operation periods are detailed in Tables 2 and 3. Since inventories were built-up during the startup period, the entire production of saleable products during the operation period is included in the revenue calculation with the exception of gasifier slag. It is assumed that slag sales will be limited to 75% of production due to particle size or other physical properties.

TABLE 1

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
OPERATION COST ESTIMATE
(\$000)

<u>Fixed Costs</u>	<u>1988(a)</u>	<u>1989(b)</u>
Labor:		
Salary	\$ 4,131	\$ 8,799
Hourly I	1,063	2,263
Hourly II	4,656	9,918
Payroll Expense Benefits	<u>1,970</u>	<u>4,196</u>
Subtotal Labor	<u>\$ 11,820</u>	<u>\$ 25,176</u>
Taxes and Insurance	\$ 12,532	\$ 27,069
Maintenance	17,076(c)	36,171(d)
Depreciation	54,137	108,274
General and Administrative	<u>1,182</u>	<u>2,518</u>
Subtotal Fixed Costs	<u>\$ 96,747</u>	<u>\$199,208</u>
<u>Variable Costs</u>		
Coal		
Process	\$ 41,723	\$100,121
Utility	9,857	22,480
Electricity	4,890	11,597
Catalysts, Chemicals and Royalties	<u>11,445</u>	<u>26,425</u>
Subtotal Variable Costs	<u>\$ 67,915</u>	<u>\$160,622</u>
Total Operations Cost	<u>\$164,662</u>	<u>\$359,831</u>

(a) Six month operation period of which one month is turnaround.

(b) First year of full production.

(c) Excludes plant maintenance labor of \$2,904,040.

(d) Excludes plant maintenance labor of \$6,185,605.

TABLE 2

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
1988 OPERATION REVENUE ESTIMATE

<u>Product</u>	<u>Units</u>	<u>Sales Volumes</u>	<u>Price (\$/Unit)</u>	<u>Revenue (\$000)</u>
<u>Hydrocarbon Products</u>				
Gasoline	BBLs	1,967,250	\$ 70.14	\$137,983
Propane	BBLs	137,986	36.96	5,100
Isobutane	BBLs	125,987	40.32	5,080
Subtotal				<u>\$148,163</u>
Ammonia	Tons	1,629	420.00	\$ 684
Sulfur	Tons	31,645	203.50	6,440
Carbon Dioxide	Tons	1,155,577	5.67	6,453
Gasifier Slag	Tons	106,650 (a)	4.26	454
Subtotal				<u>\$ 14,031</u>
Total				<u>\$162,194</u>

TABLE 3

W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
1989 OPERATION REVENUE ESTIMATE

<u>Product</u>	<u>Units</u>	<u>Sales Volumes</u>	<u>Price (\$/Unit)</u>	<u>Revenue (\$000)</u>
<u>Hydrocarbon Products</u>				
Gasoline	BBLs	4,327,950	\$ 76.02	\$329,011
Propane	BBLs	303,600	40.32	12,241
Isobutane	BBLs	277,200	43.99	12,194
Subtotal				<u>\$353,446</u>
<u>Other Products</u>				
Ammonia	Tons	3,584	470.99	\$ 1,684
Sulfur	Tons	69,621	224.00	15,595
Carbon Dioxide	Tons	2,542,488	6.01	15,280
Gasifier Slag	Tons	234,630(a)	4.51	1,058
Subtotal				<u>\$ 33,617</u>
Total				<u>\$387,063</u>

(a) 75% of slag produced is sold.

TABLE 4
W. R. GRACE & CO.
12,500 BPD COAL-TO-METHANOL-TO-GASOLINE PLANT
LABOR HIRING SCHEDULE

	CY 1983 04	CY 1984				CY 1985				CY 1986				CY 1987				CY 1988				CY 1989
		01	02	03	04	01	02	03	04	01	02	03	04	01	02	03	04	01	02	03	04	
<u>Salaried</u>																						
Preoperations - Hiring Schedule	5	3	7	9		7	1	3	7	9	12	36	34	14	9	7	2					
- Accumulative	5	8	15	24	24	31	32	35	42	51	63	99	133	147	156	163	165					
Startup - Hiring Schedule																		165	165			
- Accumulative																						
Operations - Hiring Schedule																				1		
- Accumulative																				166	166	166
<u>Hourly I (Exempt)</u>																						
Preoperations - Hiring Schedule	2		1			5	3	5		9	11	15	2	14	1							
- Accumulative	2	2	3	3	3	8	11	16	16	16	25	36	51	53	67	68						
Startup - Hiring Schedule																		68	68			
- Accumulative																						
Operations - Hiring Schedule																				68	68	68
- Accumulative																						
<u>Hourly II (Maintenance & Operators)</u>																						
Preoperations - Hiring Schedule										3	12	4	161		88	27						
- Accumulative										3	3	15	19	180	180	268	295					
Startup - Hiring Schedule																		3				
- Accumulative																		298	298			
Operations - Hiring Schedule																						
- Accumulative																				298	298	298
Total	7	10	18	27	27	34	40	46	58	70	82	139	188	378	389	498	528	531	531	532	532	532

TABLE 5

ANNUAL MAINTENANCE
12,500 BPD PLANT
(1982 COSTS)

Unit No.	Description	Total Direct Cost (\$000)	% Factor	Total Annual Maintenance (\$000)
11	Coal Receiving & Unloading	\$ 9,109	5	\$ 455.45
12	Coal Conveying & Storage	24,190	5	1,209.50
13	Coal Stacking & Reclaiming	7,348	5	367.4
14	Slag & FGD Disposal	21,870	5	1,093.50
21	Coal Gas & Waste Heat Rec.	133,566	8	10,685.28
22	Oxygen	159,328	3	4,779.84
23	CO Shift	22,846	3	685.38
24	Coal Grinding & Slurry Prep.	46,172	4	1,846.88
25	Methanol Synthesis	41,285	3	1,238.55
26	Ammonia Recovery	762	3	22.86
27	Effluent Water Treatment	13,554	3	406.62
31	Methanol-to-Gasoline	56,763	3	1,702.89
32	Gas Fractionation	7,094	3	212.82
33	HF Alkylation	13,394	3	401.82
34	Acid Gas Removal	70,835	3	2,125.05
36	Sulfur Recovery (Claus)	6,016	3	180.48
37	Sulfur Removal (BSRP)	8,008	3	240.24
38	Heavy Gasoline Treating	3,196	3	95.88
39	Process Water Treatment	2,350	3	70.50
51	Utilities Supply	75,710	2	1,514.20
52	Steam Generation	111,110	2	2,222.20
53	Waste Treatment	40,589	2	811.78
54	Site Improvements	29,703	2	594.06
55	Gasoline Blending	360	2	7.20
56	Infrastructure	17,959	2	359.18
57	Storage and Shipping	14,041	2	280.82
58	Fire Protection	13,108	2	262.16
59	Fire	9,619	2	192.38
60	Off-Plot Intercon. Piping	12,102	2	242.04
61	Barge Dock	7,376	2	147.52
62	Plant Maintenance Equipment	1,725	2	34.50
63	Intermediate Tankage	2,103	2	42.06
Total		<u>\$983,191</u>		<u>\$34,531.04</u>

TABLE 6
12,500 BPD PLANT
GASOLINE PLANT CATALYST REQUIREMENTS
(1982 COSTS)

<u>Line No.</u>	<u>Material Item</u>	<u>Description</u>	<u>Unit</u>	<u>Yearly Cost(a) (\$000)</u>
(1)	BASF K8-11	Catalyst	23	\$ 268.75
(2)	Copper Based	Catalyst	25	588.67
(3)	Mobil-Dehydration	Catalyst	31	(b)
(4)	Mobil-Conversion ZSM-5	Catalyst	31	(b)
(5)	Mobil A	Catalyst	38	(b)
(6)	HF Acid (Anhydrous)	Catalyst	33	27.39
(7)	Platinum or Platinum Rodium	Catalyst	34	58.33
(8)	Kaiser S-201	Catalyst	36	29.10
(9)	American Cyanamide N-25 or Catalyst Chemicals Inc. C-24-2	Catalyst	37	30.78
(10)	Norton Co. Denstone 57-1/2"	Catalyst Support	37	4.39
(11)	Norton Co. Denstone	Catalyst Support	37	<u>3.58</u>
(12)	Total			<u><u>\$5,029.59</u></u>

(a) Allows for expected life and costs in accordance with
supplier recommendations.

(b) Confidential data.

TABLE 7
12,500 BPD PLANT
GASOLINE PLANT CONSUMABLE CHEMICALS
AND SUPPLY REQUIREMENTS
(1982 COSTS)

Line No.	Material Item	Description	(1)	(2)	(3)	(4)
			Unit	Yearly Consumption	Cost (\$000)	
(1)	Johnson March-MR	Dust Suppressant	11,12 and 13	4,620 gal	\$24.25	
(2)	Johnson-March-SP	Chemical Binder	12	3,630 gal	11.43	
(3)	American Cyanamid Superfloc 16 or 127	Flocculant	21	3,300	20.23	
(4)	Unit 24 Reagents	Grinding Aid	24	-	195.80	
(5)	NaOH (50%)	Neutralizing Agent	33	17,820	2.40	
(6)	Unit 27 Reagents	Wastewater Treatment	27	-	946.26	
(7)	CaCl ₂ (Solid Flake)	Precipitation Agent	33	15,840 lb	1.04	
(8)	KOH Solid Flake	Neutralizing Agent	33	16,500 lb	6.57	
(9)	Alumina (Solid)	Treating Agent	33	12,540 lb	7.90	
(10)	Na ₂ CO ₃ (Solid)	Treating Agent	33	990 lb	1.29	
(11)	ADA (2.7 Anthra- quinone disulfonic acid)	M. Chemical Co.	37	9,570 lb	64.12	
(12)	Vanadium-Murex Ltd.	Vanasol	37	6,930 lb	47.82	
(13)	Alkali	50% NaOH	37	434,280 lb	58.63	
(14)	Dimethylsulfide	Presulfide Agent	38	330 gal	0.23	
(15)	NaOH (50%)	Neutralizing Agent	38	3,630 gal	5.88	
(16)	NaOH (50%)	Neutralizing Agent	39	594,000 gal	962.28	
(17)	H ₃ PO ₄ (75%)	Nutrient Agent	39	11,880 gal	44.25	
(18)	Ammonia (Anhydrous)	Nutrient Agent	39	83,160 gal		
<u>Raw Water Treatment</u>						
(19)	Lime (93%)	Softening Agent	51	6,270 ton	386.23	
(20)	Polyelectrolyte Nalco 8103 (Liquid)	Coagulant	51	74,910 gal	370.80	
(21)	Ferrous Sulfate (Solid Monohydrate)	Coagulant	51	264 ton	42.24	
<u>Cooling Water Treatment</u>						
(22)	Sulfuric Acid 66° Be	pH Control	51	1,320 ton	99.20	
(23)	Phosphate (Solid)	Corrosion Inhibitor	51	66 ton	71.28	
(24)	Chlorine (Gas)	Algaecide	51	66 ton	14.19	

TABLE 7 (Cont'd)

Line No.	Material Item	(1) Description	(2) Unit	(3) Yearly Consumption	(4) Cost (\$000)
<u>Boiler Feedwater Treatment</u>					
(25)	Sulfuric Acid 66 ⁰ Be	Demineralizer Regeneration Agent	52	3,300 ton	248.00
(26)	NaOH (50%)	Demineralizer Regeneration Agent	52	412,500 gal	668.25
(27)	Phosphate (Solid)	Scale Inhibitor	52	3,300 lb	1.78
(28)	Hydrazine (35%)	Oxygen Scavenger	52	3,300 lb	4.37
(29)	Amine (Liquid)	Neutralizing Agent	52	25,080 lb	33.86
(30)	Sodium Sulfite (Solid)	Oxygen Scavenger	52	2,211 lb	2.32
<u>Flue Gas Desulfurization</u>					
(31)	Limestone	CaCO ₃ (92%)	52	69,000 ton	427.80
<u>Water Treatment</u>					
(32)	Lime (93%)	Coal Pile Runoff Treatment	53	11 ton	0.95
(33)	Sulfuric Acid 66 ⁰ Be	pH Adjustment for Waste Evaporators	53	47,520 gal	27.32
(34)	Sulfuric Acid 66 ⁰ Be	pH Adjustment for Cooling Tower R.O.	53	16,500 gal	9.49
(35)	MgO	Silica Reduction for Cooling Tower R.O.	53	231 ton	77.38
(36)	Lime (93%)	Silica Reduction for Cooling Tower R.O.	53	429 ton	37.15
(37)	Sodium Hexametaphosphate	Sequesterant for Cooling Tower R.O.	53	22,770 lb	12.12
(38)	Lime (93%)	FGD Sludge Stabilization	53	3,630 ton	314.36
(39)	Ferrous Sulfate (Solid - Monohydrate)	Coagulant	53	363 ton	58.08
(40)	NaOH (50%)	Neutralizing Agent	53	8,910 gal	14.43
(41)	Polyelectrolyte	Coagulant	53	825 gal	4.08

TABLE 7 (Cont'd)

Line No.	Material Item	Description	Unit	Yearly Consumption	Cost (\$000)
(42)	Sulfuric Acid - 66° Be	pH Adjustment for Water Treatment R.O.	53	41,250 gal	23.72
(43)	Sodium Hexameta- phosphate	Sequesterant for Water Treatment R.O.	53	79.20 ton	84.35
(44)	Sodium Chloride	Softening Agent Water Treatment R.O.	53	759 ton	21.63
(45)	Sodium Chloride	Softening Agent for Cooling Tower R.O.	53	165 ton	4.70
(46)	<u>Gasoline Blending</u> Butylated Ethyl- Methyl and Dimethylphenols Dupont AO-35 (Liquid)	Antioxidant Additive	55	34,650 lb	32.22
(47)	Xylene Alcohol, Mixed Amino Amide and Other Ingredients; Dupont DMA-54 (Liquid)	Multifunctional Additive	55	42,900 lb	42.47
(48)	Red B-Ethyl Corp. or DuPont (Liquid)	Gasoline Dye	55	4,290 lb	15.96
(49)	<u>Shipping and Storage</u> Activated Carbon	HC Vapor Adsorb- tion Agent	57	1,083 cu ft	18.07
(50)	<u>Fire Protection</u> All Purpose Liquid Foam (National Foam Systems, Inc. - Universal Type)	Fire Protection Foam	58	667 gal	<u>11.51</u>
(51)	Total				<u><u>\$5,579.69</u></u>

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FIGURE 1

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FIGURE 2

W. R. GRACE & CO.
12,500 BPD PLANT STARTUP SCHEDULE

FIGURE 3