CNOC

Interoffice Communication

To Distribution

From D. E. Michels

Date May 18, 1984

Subject 1985 CAPITAL BUDGET PREPARATION

Attached are instructions for preparation of the 1985 Capital Budget and 1986 and 1987 Capital Budget projections. The first issue of each plant's Capital Budget is due in Houston at Chemicals' Headquarters by June 26, 1984. Plant Capital Budget reviews will be held and completed by July 10. The final issue of each plant's Capital Budget is due in Houston by July 25. In addition, final drafts of Headquarters' projects are due by July 25.

For the final issue of the budget, we will be requesting each plant to submit capital commitment and expenditure schedules. Particular attention to project scheduling and expenditure forecasting will be required. Format instructions for these two schedules and other required information will be issued in early June.

Please read the instructions carefully. Procedures are similar to those used in years past. The primary differences from last year are:

1) The old nomenclature for project categorization procedures will be followed. We will not use the DuPont categorizations employed last year.

2) The 1985 Capital Budget will be for the period of October 1, 1984 to September 30, 1985. All capital projects for which funds will be requested during fiscal 1985 should be described in the 1985 budget submittal. This includes items in the 1984 budget not AFE'd as of October 1, 1984.

Schedules concerning the issue of feedstock and product pricing forecasts are discussed in the contents of the instructions.

Douglas Michels

D. E. Michels

BUDG1/001

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1985 CAPITAL BUDGET

PREPARATION

1. 1985 Capital Budget items are to be numbered consecutively. Group into the following categories:

   A. Plant Expansion and Modernization
   B. Product Improvement
   C. Cost Savings - Energy
   D. Cost Savings - Other
   E. Pollution Abatement
   F. Safety & Health
   G. Miscellaneous

2. Under each category, list all items having economic returns first followed by items with no return. Environmental items are to be identified as air, water, or land. A sample listing is given in Exhibit 1.

3. Each item is to have a letter and number designation such as LC-1, A-10, B-3M (M for Memo), etc. Use A for Aberdeen, B for Baltimore, H for Hammond, LC for Lake Charles Chemical Plant, V for Lake Charles VCM Plant, D for Lake Charles Detergent Alkylate Plant, and OKC for Oklahoma City. Each item should be rounded off to the nearest $1,000.

4. The "Miscellaneous Projects under $15,000" budget item will be retained. As was done by each plant at the request of J. R. Pavao in March, 1983, estimate the amount of miscellaneous funds which will fall into each of the above main categories. In the project listing, include this amount under each category. Insert the total amount under the total budget amount. The format for this is shown in Exhibit 1. The basis for the category breakdown should be discussed in the project writeup for Miscellaneous Projects (last budget item as in previous years).

5. Project writeups and economics in support of proposed capital commitments should be in sufficient detail that the item needs no further explanation to support the need for capital funds. The writeup must include:

   A. The overall rationale or objective of the project.

   B. The relationship of the proposed project to other investments or operations. For example, indicate the relationship of the project or program to the latest Long Range Plan. If a project is a portion of a program resulting from a major planning study, indicate the relationship of the project to the study.

   C. Alternatives that were considered in developing the project.

D. An analysis of environmental considerations including an estimate of the time needed to secure required permits.

E. Quality of investment and design.

F. Who prepared the estimate and design (i.e., plant, PED, CED, contractor bids, etc.).

G. Expected AFE date and startup date.

H. Basis of assumptions for operating costs, netbacks and sales volumes. Information on netback assumptions related to incremental sales should be included.

I. Capital related expense requirements connected with the project.

J. For projects in the energy savings category, identify the energy savings in MMM BTU per year and the monetary savings basis per MMM BTU.

K. If a project's justification is partially due to energy savings or has energy savings associated with it (even though it may not be categorized as an energy savings project), identify the savings as in Item J. Also, identify the amount of capital investment associated with the energy savings portion of the project. A rough ballpark estimate is adequate.

L. If a project's capital requirement includes partial funds for environmental concerns, identify the amount included.

M. An example of a project writeup and associated economics is given in Exhibit 7.

6. The computer program % IRR* available on TSO is to be used to calculate the Internal Rate of Return (IRR) on projects with economic payouts. Use of this program will insure consistency of calculation and is identical to the program used last year. To use the program, follow the instructions provided by PED in Exhibit 2. The program is based upon the July 9, 1982, update of the Conoco Investment Appraisal Manual and incorporates the following:

A. Ordinary income is to be taxed at an effective rate of 48 percent.

B. For asset depreciation, the schedule shown on Exhibit 11 should be used.

C. The same depreciation schedule and investment tax credit option (Schedule A) is applicable to transportation capital. However, railroad tank cars are depreciated over a 10 year period while all other forms of transportation including railroad bulk hopper cars are depreciated over the five year period. To handle this,

the % IRR* program requests input concerning the mode of transportation.

D. Year-end discount factors are to be used.

E. Purchase of equipment should be used in the evaluation of project economics unless leasing is the only method of obtaining use of the equipment in question.

F. Unless there are unusual considerations, evaluate all items on a ten year economic life basis.

G. The discounted payback period should be calculated using a 15 percent time value for money. (This figure has been incorporated into the % IRR* economics computer program.)

H. Incremental corporate overhead (i.e., pre-tax administrative and services expense) should not included in project economics for the first issue. Depending upon the nature of individual projects, this instruciton may be altered for the final issue.

I. The IRR should be rounded off to the nearest one-tenth of on percent.

J. The calculation of the Capital Productivity Index (CPI) has been added to the % IRR* program and is done automatically along with the IRR calculation. The CPI is the ratio of the present value of cash inflows to the present value of cash outflows, both discounted at the cost of capital (currently 15 percent). It is a measurement of the attractiveness of a project in terms of the present value added per dollar invested and measures the "safety margin" over a project's expected return and the cost of capital. A CPI of 1.00 is equivalent to an IRR of 15 percent while a CPI of greater than 1.00 would indicate the relative safety "margin" over the cost of capital.

7. Use project years, not calendar years, as the basis for the economics format.

8. Project year "1" is the first year of operation. All investments should be shown in the project year made, i.e., -1, -2, etc. With the use of year-end discount factors, year -1 has a discount factor of 1.0.

In some instances, an instantaneous input of capital will occur at startup or at "time zero" with revenues being generated immediately thereafter. In this case, the weighted average first year revenu s occur six months instead of one year after the weighted averag capital outlay in year -1. Usually, the effect of this timing upon the IRR will be negligible and th % IRR program can be used to calculate the IRR. Howev r, for some projects with short lives or high first or second year cash flows, the effect could be significant. One method to correct for this is to use a discount factor

of 1.0 for year -1 followed by mid-year discount factors thereafter. Examples follow:

A. The project purchases a special truck for hauling waste. Payment is made when the truck is delivered. Mid-year discount factors are used beginning in year 1.

Project Year	0	1	2	3
Cash Flow, $M	(30.0)	40.0	60.0	20.0
Discount Factor (at 20% DCF)	1.000	0.913	0.761	0.634

B. The project is building a new tank which takes one year to construct, but for which the materials must be ordered one year before construction starts, construction does not start befor all materials are delivered and payment for the materials is evenly divided over the period from date of order to date of delivery. Materials cost: $100 M, construction cost: $50 M. Year-end discount factors are used.

Project Year	-2	-1	1	2	3
Cash Flow, $M	(100.0)	(50.0)	25.0	25.0	40.0
Discount Factor (at 20% DCF)	1.200	1.000	0.833	0.694	0.580

The IRR calculation for Case A must be done manually or another computer program used. Please contact the writer of these instructions for further information if necessary.

9. Capital related expense should be identified separately on the heading page of each budget item writeup.

Capital related expense should be included in the project economics on an after-tax basis. This can be done by either showing the capital related expense as expense offset by a negative income tax or by entering 52 percent of the capital related expense requirements. For example, when capital related expense is $30 M:

Project Year	-1	1	2	3
Revenue, $M		200.0	200.0	200.0
Cost, $M				
Maintenance		10.0	10.0	10.0
Depreciation		30.0	44.0	42.0
Capital Related Expense	30.0	-	-	-
Total Cost	30.0	40.0	54.0	52.0
Taxable Income, $M	(30.0)	160.0	146.0	148.0
Income Tax, $M	(14.4)	76.8	70.1	71.0
Investment Tax Credit, $M	-	20.0	-	-
After-Tax Income, $M	(15.6)	103.2	75.9	77.0
Depreciation, $M	-	30.0	44.0	42.0
Operating Cash Flow, $M	(15.6)	133.2	119.9	119.0
Alternate				
Operating Cash Flow, $M				
Investment, $M	-	133.2	119.9	119.0
Construction $M	(200.0)			
Capital Related Expense $M	(15.6)			
Net Cash Flow, $M	(215.6)	133.2	119.9	119.0

10. If the project will create additional product, the project economics must consider the transportation equipment needed to move th product. In some cases, movements of additional product may be by barge or truck. In these cases, common carriers are available and the cost can be ignored. However, freight costs must be included in the economics. If the customer location and mode of transportation have not been definitely set, it should be assumed that, if we ship the product by rail today, all incremental product will also move by rail. The Investment Appraisal Manual requires that project economics assume that the railcars are purchased.

    The following information can be used to determine the number and cost of railcars:

PRODUCT	1984 CAR COST	TURNAROUND TIME, (DAYS)	CAR VOLUME
General Purpose Liquids	$52,000	Contact S&T	23 M Gal
Pressurized Liquids (X-VCM)	$65,000	"	33 M Gal
VCM	$62,000	"	26 M Gal
PVC	$58,000	"	5700 Cu. Ft.

Escalate car purchase costs at 7 percent per year and assume less than one year delivery, (I.e., cash out flow for cars is in year prior to when they are needed).

Example:

Project makes 150 MM lbs/yr of detergent alkylate; 39 day average turnaround time.

Cars needed:

23 M gal. x 7.5 lb/gal = 173 M lb/trip.
Each car makes 365/39 = 9.4 trips per year, or hauls 9.4 x 173 M = 1.63 MM lb/yr. Therefore, 150 MM/1.63 MM = 92 cars are needed. Total cost would be 92 x $52 M = $4,784M if purchased in 1984. 1986 cost would be 1.07 x 1.07 x $4,784M = $5,477M.

Please note that while transportation equipment is figured in the project economics cash flow, it should not be included in the total budget cash flow summary or expenditure tables.

Railcars generate revenue. The company is the recipient of this revenue and thus it is appropriate to credit the specific project with the anticipated railcar revenue from the sales carried by new railcars. Chemicals Supply and Transportation should be contacted for details on determining such revenue.

Transportation equipment investments should be identified separately in the budget item writeup heading.

Example: 1985 CAPITAL BUDGET

A-1

Aberdeen PVC Plant $465,000 Construction Capital

Plant Dryer Debottlenecking $155,000 Transportation Capital

11. Particular attention should be paid to working capital requirements on projects resulting in new or increased production. Items to be considered under working capital are:

ITEM	VALUE	EQUIVALENT VOLUME
1) Accounts Receivable	Selling Price	Normally 45 days Production
2) Accounts Payable (Credit)	Variable Cost	Normally 45 days Production
3) Feedstock Inventories Supplies, Stores	Delivered Purchase Price	Days of Inventory (Plant Experience)
4) Product Inventories	Manufacturing Cost	Days of Inventory (Plant Experience)
5) Cash	Manufacturing Cost less Depreciation	Six Days Production

The manufacturing cost in (4) includes financial depreciation (straight line) equivalent to a specific percentage of the capital investment. Use eight percent for all direct manufacturing facilities, seven percent for technical facilities, and six percent for power, general, and service facilities. For projects with a capital requirement of over $2 MM, call the writer of these instructions if there is any question concerning what percentage to use. When uncertain of what percentage to use, use the eight percent figure for smaller items. "Cash" is a working capital charge for the cost of doing business and accounts for non-interest bearing "ready cash" funds needed for payroll payments and other operating expenses.

Consider each contribution to working capital carefully to see if it is applicable. The majority of plant incremental expansion type projects do not result in increased feedstock or product inventories.

12. Keep economic calculations, assumptions and sensitivity analyses on individual separate pages.

13. State any relationship to previous budget items in the project description. Is the item part of a total program? Will there be any additional related budget items in upcoming years?

14. In the Project Economic Summary for each capital budget item, mention should be made of any expected capital related expenses, and care should be taken that these expenses are also included in the plant's fixed cost budget.

15. A principal part of the project analysis for projects with economic returns is the Sensitivity Analysis. A sensitivity for capital investment should be included for all projects with capital requirements of $100M or more. The sensitivity range should reflect the accuracy of the investment estimate. Sensitivities may be advisable with respect to other key economic factors such as sales forecasts, product margins, raw materials, utility costs, working capital, escalation factors, etc. Particular emphasis should be paid to multiple sensitivities based on the likelihood they might occur. Likely sensitivities resulting in improved returns should not be ignored. Commentary on the probability of a combination of factors occurring should be provided where possible.

Since base case economics are evaluated using the best estimates of actual and future costs and prices, a sensitivity holding first year factors constant for the life of the project should be included.

16. All revenues and costs which result from each project should be clearly justified and elaborated upon. This is especially important when product volumes, netbacks, raw materials costs, and escalation factors are involved, since these items are often very subject to change. Complete documentation of the bases will make it easy to adjust the project economics should unforeseen changes in the proj ct economic environment occur betwe n budget preparation and final corporate budg t approval.

17. A net return on investment (NROI) will be shown for each project having an economic return for its third year of operation. This figure (a percentage) is simply the after-tax income in the third year of operation divided by total investment. As above, financial depreciation is to be used for calculating the taxable income. Total investment equals the project's capital investment plus its accumulated working capital through the third year. Type in the NROI on the base case project economics computer printout summary sheet under the Capital Productivity Index. An example showing the calculation of an NROI is given in Exhibit 4.

18. For each plant, the net cash flows of (a) all projects with economic returns, (b) all projects without economic returns, and (c) all projects are to be combined and IRR's computed for them all. Until the final budget is issued by the plant, this table can be prepared on a project year basis (see Exhibit 10). The final budget issu by the plant should also include this summation on a calendar year basis. Any cash flow attributed to transportation equipment should be eliminated from these summary tables.

Example:

Projects summed by project year.

	-2	-1	1	2	3	4
A-1	(100.0)	(150.0)	20	40	60	60
A-2		(50.0)	10	5	6	6
	(100.0)	(200.0)	30	45	66	66

Project A-1 to start expenditures in fourth quarter, 1984, while project A-2 starts expenditures in third quarter, 1984. Expenditure schedule on A-1 is 24 months and A-2 is 12 months.

	1984	1985	1986	1987	1988
A-1	(25.0)	(187.5)	(32.5)	25.0	45.0
A-2	(25.0)	(20.0)	7.5	5.5	6.0
	(50.0)	(207.5)	(25.0)	30.5	51.0

19. By definition, a memo item is a proposed capital project of $300M or more which has at least a 50 percent probability of commitment in 1985 but which is not firm enough to be included in the regular Capital Budget. Memo items are to be included in the budget following the last regular project item.

20. A substantial amount of pricing information is required to properly evaluate capital projects. The following will serve as guidelines:

A. Selling, raw material, and fuel prices will be issued by Chemicals' Planning. Their schedule is as follows:

1) A pricing forecast will be issued during the week of June 4 for review by Chemicals Headquarters' personnel. Copies will also be sent to the plants. This forecast can be us d as the basis for each plants' preliminary capital budget issue. If information is required prior to then, contact Bill Ritter in Chemicals' Planning.

2) Once reviewed and approved, this forecast (still preliminary) will be reissued June 18. Unless a change has been made that would significantly change the economics of a specific project, there is no need to revise any economics for the preliminary issue of the budget.

3) A revision to the forecast will be reissued, if necessary, about July 10. The final issue of the budget which is due in Houston on July 25 must be consistent with this forecast unless more accurate information is available locally (for instance, fuel oil prices). You will be notified if no mid-June reforecast will be issued.

4) Address specific questions concerning pricing to Bill Ritter of Chemicals Planning at Timberway.

B. Contact your local electrical power company to obtain electrical pricing forecasts. Other pricing should also be obtained locally if dictated. For instance, nitrogen and water pricing can vary substantially throughout the United States.

C. Unless specific local information dictates otherwise, use the following escalation factors (specific questions should be addressed to R. W. Taylor of Chemicals Planning):

1) Taxes and Insurance - 4.8%
2) Wages - 5.5%
3) Maintenance Materials & Labor - 6.2%
4) Construction Capital - 6.6%
5) Miscellaneous Chemicals - 3.7%

21. 1986 and 1987 Projects

To the extent possible, each plant is to identify projects which will be AFE'd in 1986 and 1987 (i.e., budgeted for 1986 and 1987). Also, a brief one paragraph description of each project over $1,000,000 and each environmental and energy savings project over $100,000 will be required. Once this list has been prepared, add an estimated amount for undefined projects for each year.

Include the tabulation and comments for the 1986 and 1987 projects at the back of the 1985 Capital Budg t (i.e., behind the last 1985

budget project writeup). A separate tabulation and comment sheet is to be included for each year.

For those projects needing a one paragraph project description and which have an economic payout, include an estimated IRR and NROI. If a project less than $1,000,000 but greater than $100,000 has energy savings or environmental (not its primary justification) associated with it, this paragraph is also required. In the description, state the MMM BTU/yr energy savings and portion of capital investment applicable to energy savings or environmental. Examples of the format for presentation of 1986 and 1987 projects are given in Exhibits 5 and 6.

22. In order to keep the writeups for the Proposed 1985 Profit Objective and Capital Budget uniform, the following guidelines have been established:

    A. Use a 12-pitch Artisan element.

    B. Single space, underlining each main heading.

    C. Left and right hand margins should allow at least one-inch area on each side.

    D. Top and bottom margins should also allow for at least one-inch area on each side.

    These guidelines must be followed to enable efficient reproduction of the preliminary and actual budget books. Note that tables should be typed or reduced to fit these margins also. The pages will be printed front and back; therefore, it is necessary to make sure you do not exceed the allowable margins.

    Included in the appendix (Exhibit 10) is a page which shows the maximum allowable typing area to be used. Use this page to measur table size and write-up size to keep within these guidelines.

23. Distribution of plant Capital Budgets should be as follows:

    A. J. D. Burns - Houston
    B. W. C. Kolar - Houston
    C. R. E. Lehmkuhl/J. J. Hall - Houston
    D. R. D. Gamblin - Houston
    E. J. R. Pavao - Houston
    F. G. W. Inbody - Houston
    G. D. E. Michels - Houston
    H. J. J. Lanford - Houston
    I. Appropriate Business Area and Product Managers

EXHIBIT 1
EXAMPLE
ONLY

CONOCO CHEMICALS
1985 CAPITAL BUDGET
ABERDEEN CHEMICAL PLANT
($M)

		CONSTRUCTION CAPITAL		TRANSPORTATION CAPITAL	EXPENSE
CAPACITY EXPANSION AND MODERNIZATION					
A-1	Resin Dryer Debottleneck	$1,500	$1,500	$200	$40
PRODUCT IMPROVEMENT					
A-2	Bottle Compound Production	600			20
A-3	Resin Gel Reduction	300			
A-15	Miscellaneous	44			
	TOTAL PRODUCT IMPROVEMENT		944		20
COST SAVINGS					
Energy					
A-4	Recovery System Improvements	147			10
A-5	Cold Water Rinse	41			
		188			10
Other					
A-6	Instrument Air Dryer	90			
A-7	Bulk AMS Storage	67			
		157			
A-15	Miscellaneous	26			
	TOTAL COST SAVINGS		371		
POLLUTION ABATEMENT					
A-8	EPA VCM Standard Compl. (Air)	107			15
A-9	Holding Pond Aerators (Water)	50			
A-15	Miscellaneous	40			
	TOTAL POLLUTION ABATEMENT		197		15
SAFETY AND HEALTH					
A-10	VCM Exposure Reduct.	96			
A-11	Vinyl Reactor Interlocks.	37			
A-15	Miscellaneous	40			
	TOTAL SAFETY & HEALTH		173		
MISCELLANEOUS					
A-12	DOP Storage Tank Rep.	40			5
A-13	Laboratory Equip.	20			
A-14	Building Improv.	20			
A-15	Miscellaneous	125			
	TOTAL MISCELLANEOUS		205		5
	TOTAL 1984 CAPITAL BUDGET		3,390	200	90
A-15	Total Miscellaneous Projects Under $15,000		275		

(1) Include only if applicable.

CCR 000019372

EXHIBIT 2

Interoffice Communication

To D. J. Lorine, Houston, Texas

From J. E. Nickerson, Ponca City, Oklahoma

Date April 12, 1983

Subject IRR PROGRAM REVISIONS

Summary

A new version of the DCF program, named IRR, has been created to conform to Investment Appraisal techniques. The new program, version number 83-4-5, is accessed as before by typing %PED followed by %IRR. The IRR program has the same options as the DCF program for file or conversational input and for sensitivity calculations. Previous data files for use with DCF will have to be slightly modified for use with this new version of IRR.

Changes

The following changes were made to the DCF program to develop the IRR program.

1. Discount factors were changed from mid-year to end-of-year.

2. A new input section was added to include corporate overhead costs. Additional input parameters must be added to input data files previously run on DCF, before these files can be used as input for the IRR program. (See attached page for explanation of required changes for data input files.) Sensitivities to corporate overhead cost changes can also be run.

3. The interest charge on working capital was removed from the discounted payback calculation.

4. Working capital was included in the total cash outlay for the discounted payback calculation.

5. The working capital input section was removed from the total budget summary. (Changes in the definition of discounted payback make working capital unnecessary for the calculation.)

6. The term "DCF" was changed to "IRR" throughout the program.

7. The IRR output value was rounded to the integer value.

8. The term "discounted payout" was changed to "discounted payback" throughout the program.

9. The transportation capital input section was changed to allow for the entering of two different types of transportation capital. The program requires an input for "tank car" capital and "other

transportation" capital for each year in which transportation capital is spent. This is necessary because the law requires that tank car capital be depreciated with a ten-year schedule while all other transportation capital can be fully depreciated in five years.

Program Input

The IRR program (like the DCF program) can accept either conversational input where the program asks for each item required or file input where the program reads data from a previously generated data file. The data file can be created by the program from conversational input or can be constructed manually.

To change a DCF file to work with the IRR program, the following data has to be added.

1. Transportation capital split into "tank car" and "other transportation" capital. These two values replace the single value for transportation capital in the old data file on the same line.

2. The corporate overhead option integer and cost data. These values precede the "other fixed costs" input section of the data file. The "other fixed costs" section is the last two lines of the data file except in the case where no "other fixed costs" are input. In that case the section consists of the single integer zero.

The basic operation of the IRR program is almost unchanged from that of the DCF program. If there are any questions, please contact me.

ORIGINAL SIGNED BY

J. E. Nickerson
Chemical Engineer
Chemicals Division
Process Engineering Department

pjc
Enc

IRR - VERSION 83-4-5 APRIL 14, 1983

EXHIBIT 3
EXAMPLE ONLY

ABERDEEN DRY BLEND DEBOTTLENECKING

CALCULATION OF PROJECT ECONOMICS (M$)

PROJECT YEAR	-2	-1	1	2	3	4	5	6	7	8	9	10
REVENUES												
MARGIN			296.0	296.0	296.0	296.0	296.0	296.0	296.0	296.0	296.0	296.0
COSTS												
MAINTENANCE			14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
INSURANCE AND TAXES			5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
CORPORATE OVERHEAD			2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
DEPRECIATION-CONSTRUCTION CAPITAL			42.7	62.7	59.8	59.8	59.8	0.0	0.0	0.0	0.0	0.0
DEPRECIATION-TRANSPORTATION CAPITAL			16.5	24.2	23.1	23.1	23.1	0.0	0.0	0.0	0.0	0.0
TOTAL COSTS			82.1	109.7	105.8	105.8	105.8	22.8	22.8	22.8	22.8	22.8
TAXABLE INCOME			213.9	186.3	190.2	190.2	190.2	273.1	273.1	273.1	273.1	273.1
INCOME TAX			102.7	89.4	91.3	91.3	91.3	131.1	131.1	131.1	131.1	131.1
INVESTMENT TAX CREDIT			39.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AFTER TAX INCOME			150.7	96.9	98.9	98.9	98.9	142.0	142.0	142.0	142.0	142.0
OPERATING CASH FLOW			210.0	183.7	181.9	181.9	181.9	142.0	142.0	142.0	142.0	142.0
INVESTMENT												
CONSTRUCTION CAPITAL	(0.0)	(285.0)										
TRANSPORTATION CAPITAL	(0.0)	(110.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
CAPITAL RELATD EXPENSE	(0.0)	(5.2)										
AFTER TAX STARTUP		(7.4)										
WORKING CAPITAL			(126.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
RECOVERED WORKING CAPITAL												126.0
NET CASH FLOW	(0.0)	(407.6)	84.0	183.7	181.9	181.9	181.9	142.0	142.0	142.0	142.0	268.0

INTERNAL RATE OF RETURN= 35%
DISCOUNTED PAYBACK PERIOD, YEARS= 4.7 BASED ON COST OF CAPITAL OF 15.0%

CAPITAL PRODUCTIVITY INDEX = 1.79
NET RETURN ON INVESTMENT = 24%

CCR 000019375

EXHIBIT 4
EXAMPLE
ONLY

NROI
CALCULATION

PROJECT - ABERDEEN DRY BLEND DEBOTTLENECKING - SEE EXHIBIT 4

	M$
TAXABLE INCOME (3RD YEAR)	190.2
PLUS TAX BASIS DEPRECIATION	82.9
MINUS FINANCIAL DEPRECIATION (1)	(31.6)
ADJUSTED TAXABLE INCOME	241.5
INCOME TAX	(115.9)
ADJUSTED AFTER TAX INCOME	125.6
PERMANENT INVESTMENT	
CONSTRUCTION CAPITAL	285.0
TRANSPORTATION CAPITAL	110.0
TOTAL	395.0
ACCUMULATED WORKING CAPITAL	126.0
TOTAL INVESTMENT	521.0

$$NROI = \frac{125.6}{521.0} X100 = 24.1\%$$

(1) Eight Percent of Permanent Investment

CCR 000019376

EXHIBIT 5
EXAMPLE
ONLY

CONOCO CHEMICALS
1985 CAPITAL BUDGET PROJECTION
LAKE CHARLES CHEMICAL PLANT
($M)

		CONSTRUCTION CAPITAL		TRANSPORTATION CAPITAL (1)
PLANT EXPANSION AND MODERNIZATION				
LC-1	ETO "Novel Catalyst"	$ 400	$ 400	$200
COST SAVINGS				
Energy				
LC-2	C_2 Unit Compressor Efficiency Improvements	2,500		
LC-3	ALFOL(R) 201 Turbine Replacement	450		
		2,950		
Other				
LC-4	Methane Offgas Expender	900		
LC-8	Miscellaneous	225		
	TOTAL COST SAVINGS		4,075	
POLLUTION ABATEMENT				
LC-5	Oil/Water Sep. (Overs (Air)	600		
LC-8	Miscellaneous	40		
	TOTAL POLLUTION ABATEMENT		640	
SAFETY & HEALTH				
LC-6	Benzene Abatement	150		
LC-8	Miscellaneous	30		
	TOTAL SAFETY & HEALTH		180	
MISCELLANEOUS				
LC-7	Laboratory Instruments	90		
LC-8	Miscellaneous	105		
	TOTAL MISCELLANEOUS		195	
	TOTAL-DEFINED PROJECTS	5,490		200
	UNDEFINED PROJECT ALLOWANCE	2,000		
	TOTAL 1986 CAPITAL BUDGET	7,490		200
LC-8	TOTAL MISCELLANEOUS PROJECTS UNDER $15,000	400		

(1) Include only if applicable.

EXHIBIT 6
EXAMPLE
ONLY

1985 CAPITAL BUDGET COMMENTS
LAKE CHARLES CHEMICAL PLANT

ITEM	$M
LC-2 ETHYLENE UNIT COMPRESSOR EFFICIENCY IMPROVEMENTS (2) Energy will be saved by installing a motor drive to replace an existing turbine and installing cooling tower improvements to lower the other two compressors' exhaust pressures (38% IRR, 25% NROI)	$2,500
LC-3 ALFOL(R) 201 TURBINE REPLACEMENT (2) Energy will be saved by replacing the hydrogenation reactor charge pump turbines with motor drives (38% IRR, 25% NROI)	$ 450
LC-4 METHANE OFF-GAS EXPANDER A turboexpander will be provided to improve low level refrigeration to recover 3.6MM lb/yr of ethylene (67% IRR, 52% NROI)	$ 900
LC-5 BENZENE ABATEMENT (1) This project involves repacking of the ethylene unit quench water stripping column, replacement of GA-105, an integral part of the quench water stripping system, and the replacement of single mechanical seals with double mechanical seals on the quench water circulation and heavy aromatic distillate pumps. All items will reduce benzene exposure.	$ 150
LC-6 OIL/WATER SEPARATOR COVERS Covers will be installed on four existing oil/water separation pits to reduce hydro-carbon emissions to meet Louisiana Air Control emission regulations.	$ 600
LC-8 MISCELLANEOUS PROJECTS UNDER $15,000 The $400M capital requirement is the plants historical funding requirement for such projects.	$ 400

(1) This project is also considered to be a pollution abatement project. Therefore, a brief description is required since its capital requirement exceeds $100M.
(2) Also state in description energy savings in MMM BTU per year.

EXHIBIT 7
EXAMPLE
ONLY

1984 CAPITAL BUDGET

Aberdeen PVC Plant — A-1

Plant Dryer Debottlenecking — $150,000 Construction Capital
$ 50,000 Transportation Capital

Project Description

This project will provide funds during 1984 to complete modifications to the existing plant dryers which will be begun during 1983. The modifications will improve dryer stream factor and drying rates. The improvements will debottleneck plant production by 5MM pounds per year.

The specific items included in this debottlenecking are:

1.	Dryer Feed System Improvements	$165,000
2.	V-10 Product Transfer Systems	$230,000
3.	Centrifuge Modifications	$ 70,000

We anticipate funding $315,000 for these modifications during the remainder of 1983 out of unallocated funds.

Problem Description

With the completion of the Capacity Replacement Project, plant reactor capacity exceeds plant dryer capacity. While reactor capacity is highly dependent upon resin product slate, this capacity is in excess of 335MM pounds per year using the 1984 resin product slate. Dryer capacity is limited to 330MM pounds per year with the present equipment.

The production limiting factors on the dryers relate to centrifuge throughput and mechanical stream factor downtime. This project will correct some of these problems with a resulting dryer productivity improvement of at least 5MM pounds per year.

The dryer centrifuges will be modified with a recently developed device which will allow higher centrifuge operating rates without shear pin or gear box failures. This modification will reduce mechanical downtime and potentially improve rates by 10 percent or more. A trial device has been tested in the plant with favorable results.

Dryer flameouts result in lost production due to the need for manual relighting. Installation of new control boxes and remote lighting switches, such as used in Oklahoma City, are proposed.

Product transfer from the V-10 dryer is rate limiting. Air distribution and instrumentation ar the cause. Failure of equipment at thes dryers often results in several hours of downtime for repair and cleanup.

Problem Description (Continued)

Replacement of the outlet dryer screening and transfer systems on these dryers with systems identical to those used in Oklahoma City will essentially eliminate the major stream factor penalties associated with these dryers.

Significant production rate and downtime penalties relate to the slurry pumping system to the dryers. Small resin shavings plug these pumps which reduces their pumping capacity. Installation of duplex type suction strainers on these pumps will solve this problem.

Alternatives

Installation of product transfer systems on the five V-11 dryers is desirable. The plant feels the capital required is too excessive results at V-10 are demonstrated.

Project Economics Summary

The economics of this project are based upon a 5MM lb/yr productivity improvement. It is expected the improvement will be in excess of this amount. The economics are shown based upon the total investment that is required to achieve the productivity improvement.

The 5MM pounds of additional production will generate first year revenues of $305,000 based upon all incremental product sold are pipe grade.

The total capital investment of $465M for construction and $155M for transportation has an IRR of 35 percent and a discounted payback period of 4.7 years.

The budget quality cost estimate was developed by CED from definitive and budget quality designs by the plant.

Parts of the project will be AFE'd in the last quarter of 1983 out of unallocated funds. We expect to AFE $315M with associated $105M in transportation capital this year. The remaining $150M construction capital with associated $50M transportation capital will be AFE'd in the first quarter of 1984. Project completion is expected in the first quarter of 1985.

IRR - VERSION 83-4-5 APRIL 15, 1983

PLANT DRYER DEBOTTLENECKING (A-1)

CALCULATION OF PROJECT ECONOMICS (M$)

PROJECT YEAR	-2	-1	1	2	3	4	5	6	7	8	9	10
REVENUES												
PRODUCTION			305.0	335.3	368.6	405.2	445.4	489.6	538.2	591.7	650.4	715.0
RAILCAR			5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
TOTAL			310.1	340.4	373.7	410.3	450.5	494.7	543.3	596.8	655.5	720.1
COSTS												
MAINTENANCE			11.7	12.5	13.4	14.3	15.3	16.4	17.6	18.8	20.1	21.5
INSURANCE AND TAXES			9.3	10.0	10.6	11.4	12.2	13.0	14.0	14.9	16.0	17.1
CORPORATE OVERHEAD			4.7	4.9	5.2	5.5	5.9	6.2	6.6	7.0	7.4	7.9
ADD. UTILITIES			4.0	4.3	4.6	4.9	5.3	5.6	6.0	6.5	6.9	7.4
DEPRECIATION-CONSTRUCTION CAPITAL			69.7	102.3	97.6	97.6	97.6	0.0	0.0	0.0	0.0	0.0
DEPRECIATION-TRANSPORTATION CAPITAL			23.2	34.1	32.5	32.5	32.5	0.0	0.0	0.0	0.0	0.0
TOTAL COSTS			122.6	168.1	164.1	166.4	168.9	41.3	44.1	47.2	50.4	5.
TAXABLE INCOME			187.4	172.3	209.6	243.9	281.6	453.4	499.2	549.6	605.1	666.2
INCOME TAX			90.0	82.7	100.6	117.1	135.2	217.6	239.6	263.8	290.5	319.8
INVESTMENT TAX CREDIT			62.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AFTER TAX INCOME			159.5	89.6	109.0	126.8	146.5	235.8	259.6	285.8	314.7	346.4
OPERATING CASH FLOW			252.5	226.0	239.2	257.0	276.7	235.8	259.6	285.8	314.7	346.4
INVESTMENT												
CONSTRUCTION CAPITAL	(0.0)	(465.0)										
TRANSPORTATION CAPITAL	(0.0)	(155.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
WORKING CAPITAL			(37.6)	(2.3)	(2.4)	(2.5)	(2.7)	(2.8)	(3.0)	(3.2)	(3.4)	(3.6)
RECOVERED WORKING CAPITAL												63.5
NET CASH FLOW	(0.0)	(620.0)	214.9	223.7	236.8	254.5	274.0	232.9	256.6	282.6	311.3	406.4

INTERNAL RATE OF RETURN= 37%
DISCOUNTED PAYBACK PERIOD, YEARS= 4.7 BASED ON COST OF CAPITAL OF 15.0%

CAPITAL PRODUCTIVITY INDEX = 2.01

NET RETURN ON INVESTMENT = 23%

CCR 000019381

PLANT DRYER DEBOTTLENECKING (A-1)

PROJECT ECONOMICS SENSITIVITY ANALYSIS

Base Case:	Construction Capital	$465,000	IRR - 37%
	Transportation Capital	$155,000	

Possible Variances

Minus	Plus		IRR Impaired To	IRR Improved To
+ 30%	- 15%	Construction Capital (1)	30%	39%
- 20%	+ 20%	Production Revenues	29% (3)	42% (2)

(1) Corresponds to accuracy range of budget quality estimates.

(2) Corresponds to a production increase of 6MM lb/yr or an improvement is gross margin of 20 percent.

(3) Corresponds to a production decrease of 4MM lb/yr on a gross margin penalty of 20 percent.

PLANT DRYER DEBOTTLENECKING (A-1)

PROJECT ECONOMICS ASSUMPTIONS

R venues

(1) This project will result in additional resin production. Project economics are based upon an additional 5.0 MM Lbs./Yr. of production.

(2) Revenues from production were determined from gross margin data developed by the Business Area. Margins are based upon all incremental sales as pipe grade 5385. This information is summarized on Table 1.

(3) Revenues from railcars are estimated by transportation at $1700 per car per year.

Costs

(1) Maintenance costs are not going to increase on replacement equipment involved in this project. Maintenance costs were assumed to be 5% of construction capital in the first year for the additional equipment involving certrifuge and dryer feed revisions. Maintenance costs were escalated at 7% per year.

(2) Insurance and taxes were assumed to be 2% of construction capital in the first year and were escalated at 7% per year.

(3) This project will result in better utilization of existing operating equipment. Other than additional steam for stripping the incremental 5 MM Lb./Yr., no other utility costs are applicable. Based upon current operation the additional steam costs will be $4000 per year in the first year. This cost was excalated at 7% per year.

Other

(1) An additional three resin railcars will be required to move the additional resin product.

(2) Working capital was assumed equivalent to 45 days of production revenues in the first year. Working capital was escalated at 6% per year.

(3) A salvage value of 5% of construction capital was used.

TABLE 1

PLANT DRYER DEBOTTLENECKING

BASIS OF PRODUCTION REVENUES

Project Year	Imcremental Production MM Lb./Yr.	Product Gross Margin ¢/Lb.	Production Revenue $M/Yr.
1	5	6.10	305.0
2	5	6.70	335.0
3	5	7.40	370.0
4	5	8.10	405.0
5	5	8.90	445.0
6	5	9.90	495.0
7	5	10.90	545.0
8	5	11.90	595.0
9	5	13.10	655.0
10	5	14.30	715.0

EXHIBIT 8
EXAMPLE
ONLY

1979 CAPITAL BUDGET

BALTIMORE PLANT — Item B-12

FIRE MONITOR ADDITIONS — $17,000 Capital

PROJECT DESCRIPTION

Install three fire hydrants and monitors at the following locations:

1)	North of API Separator	$9,000
2)	East of Multistage Alkylation Reactor R-6	$3,000
3)	North of STXS Plant	$5,000

PROBLEM DESCRIPTION

Marsh & McLennon, fire prevention consultants, have recommended the addition of fire monitors at the above locations. The recommendations are based upon a study done in late 1977 which revealed insufficient coverage at these locations.

PROJECT ALTERNATIVES

No alternatives were considered. The monitors are necessary to upgrade our fire fighting capabililities.

PROJECT ECONOMICS

This is considered to be a non-revenue generating project. The capital requirement is based upon a plant budget estimate. The monitors will be installed during the second quarter of 1979.

1984 CAPITAL BUDGET
NET CASH FLOW SUMMARY
($1000)

OKLAHOMA CITY CHEMICAL PLANT

PROJECT YEAR	-1	1	2	3	4	5	6	7	8	9	10
Projects With Economic Returns											
OKC-1	(25.0)	10.7	10.0	10.6	11.4	11.8	10.0	10.8	11.6	12.3	13.5
OKC-2	(135.0)	58.9	53.9	57.4	61.5	66.4	57.8	63.6	70.2	76.8	84.2
OKC-3	(120.0)	46.8	45.5	48.2	56.2	60.6	53.4	58.7	64.6	71.7	78.1
OKC-6	(80.0)	21.0	17.1	17.7	19.3	20.4	13.8	15.4	17.0	18.7	20.8
Subtotal	(360.0)	137.4	126.5	133.9	148.4	159.2	135.0	148.5	163.4	179.5	196.6
IRR = 37%											
Projects Without Economic Returns											
OKC-4	(80.0)	10.9	5.3	4.7	4.4	4.2	(4.2)	(4.6)	(5.0)	(5.3)	(5.8)
OKC-5	(40.0)	5.4	2.6	2.4	2.2	2.1	(2.1)	(2.3)	(2.5)	(2.6)	(2.9)
OKC-7	(35.0)	4.8	2.3	2.1	1.9	1.8	(1.8)	(2.0)	(2.2)	(2.3)	(2.5)
OKC-8	(160.0)	21.8	10.6	9.4	8.8	8.3	(8.5)	(9.1)	(9.9)	(10.6)	(11.5)
Subtotal	(315.0)	42.9	20.8	18.6	17.3	16.4	(16.6)	(18.0)	(19.6)	(20.8)	(22.7)
IRR = 0%											
Total	(675.0)	180.3	147.3	152.5	165.7	175.6	118.4	130.5	143.8	158.7	173.9
IRR = 19%											

EXHIBIT 9
EXAMPLE
ONLY

CCR 000019386

EXHIBIT 10

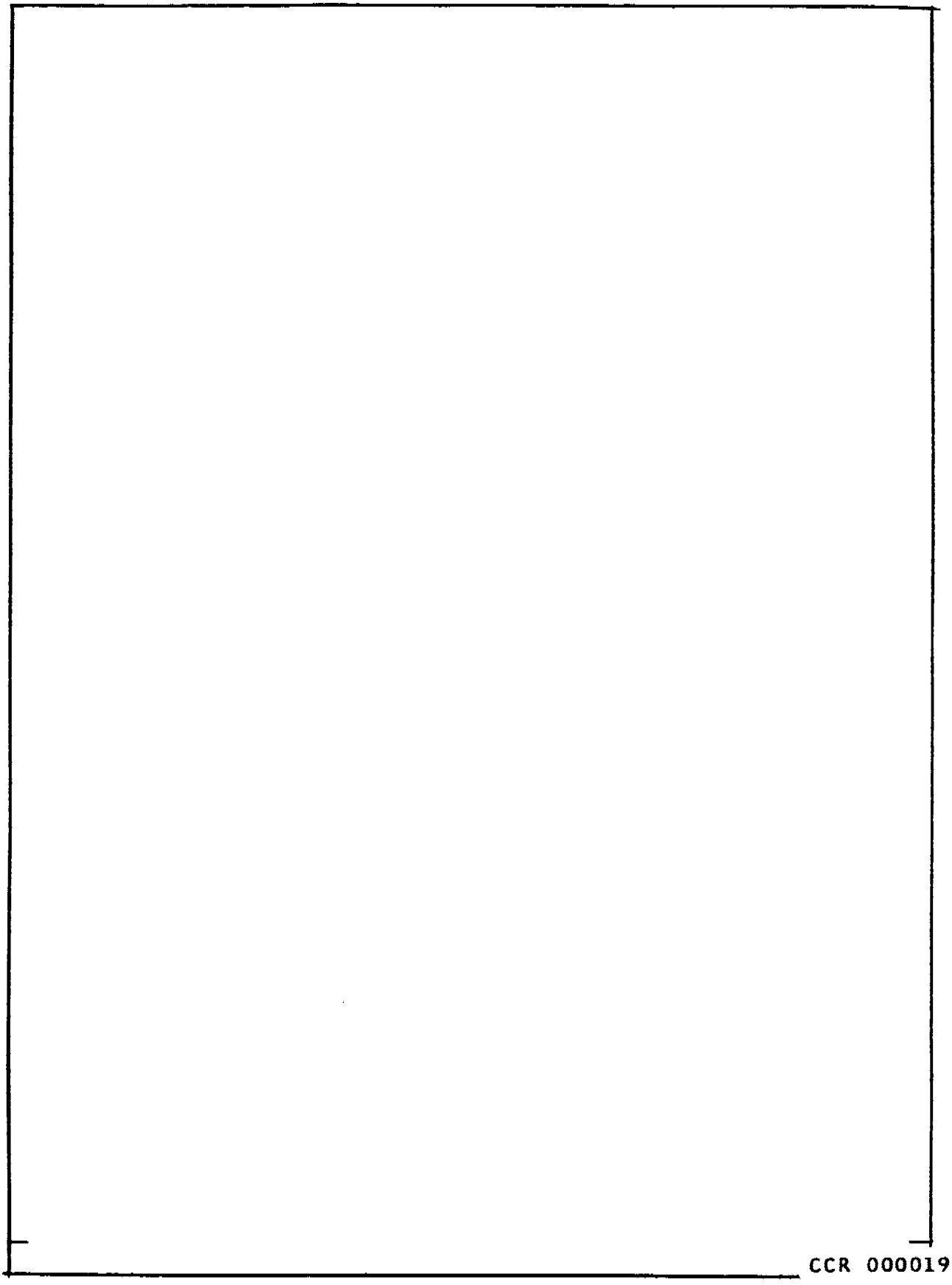

EXHIBIT 11

TAX DEPRECIATION SCHEDULES

SCHEDULE A

To be used with an eight percent investment tax credit:

YEAR	PERCENTAGE		
	3-YEAR	5-YEAR	10-YEAR
1	25	15	8
2	38	22	14
3	37	21	12
4		21	10
5		21	10
6			10
7			9
8			9
9			9
10			9