

CONOCO CHEMICALS
1984 CONSTRUCTION FORECAST
ABERDEEN CHEMICAL PLANT
 * (\$M)

<u>PRODUCT MIX/QUALITY IMPROVEMENTS</u>	<u>Construction Capital (1)</u>	
A-1 Bottle Compound Production	840	
A-2 Line III Metal Detector	29	
A-14 Miscellaneous	47	
TOTAL PRODUCT MIX/QUALITY IMPROVEMENTS	916	916
<u>COST REDUCTION</u>		
<u>Energy</u>		
A-3 Rotary Dryer Optimization	160	
	160	
<u>Other</u>		
A-4 Reactor Jacket Expansion Joints	40	
A-5 Office Systems Computer Installation	71	
	111	
A-14 Miscellaneous	28	
TOTAL COST REDUCTION		299
<u>NECESSITIES</u>		
<u>Safety And Health</u>		
A-6 Plasticizer Modernization - Phase III	85	
A-7 Reduction of VCM Exposure (Legal)	115	
A-8 Truck Loading Facilities For Silos	120	
A-9 Security Fence	50	
	370	
<u>Environmental</u>		
A-10 VCM Standard Compliance Improvements (Air-Legal)	160	
A-11 Plant Sewer Revisions (Water-Legal)	180	
A-12 City Water Backflow Prevention (Legal)	130	
	470	
A-14 Miscellaneous	190	
TOTAL NECESSITIES		1030
<u>REPLACEMENTS</u>		
A-13 Dryer Centrifuge Conveyor Assemblies	150	
A-14 Miscellaneous	130	
TOTAL REPLACEMENTS	280	280
TOTAL 1984 CONSTRUCTION FORECAST		2,525
A-14 Total Miscellaneous Projects Under \$15,000		395

(1) No Transportation Capital Required.

7/18/83

DTH 000099110

ABERDEEN CHEMICAL PLANT
(\$M)

[illegible]

Total	(1115.3)	(1002.5)	161.2	543.8	839.9	1073.2	1134.2	1210.7	1360.6	1439.1	1512.9	2375.1
Internal Rate Of Return: 30%												

DTH 000099111

1984 CONSTRUCTION FORECAST
COMMITMENT SCHEDULE
(\$M)

BUDGET ITEM	CATEGORY	IRR, %	NROI, %	1984 BY QUARTERS				TOTAL 1984
				1st	2nd	3rd	4th	
A-1	PMQI	53	47			840		840
A-2	PMQI	--	--	29				29
A-3	CR-E	48	34		160			160
A-4	CR-0	32	18		40			40
A-5	CR-0	32	7	71				71
A-6	N-SH	--	--			85		85
A-7	N-SH	18 ⁽¹⁾	8 ⁽¹⁾	115				115
A-8	N-SH	--	--	120				120
A-9	N-SH	--	--		50			50
A-10	N-E	--	--		160			160
A-11	N-E	--	--	180				180
A-12	N-E	--	--		130			130
A-13	R	--	--	150				150
A-14	PMQI	--	--	26		21		47
A-14	CR	--	--	14		14		28
A-14	N	--	--	95		95		190
A-14	R	--	--	65		65		130
Total				865	540	1,120		2,525

(1) Revenue Portion Of Project Only.

1985 CONSTRUCTION FORECAST
COMMITMENT SCHEDULE
(\$M)

BUDGET ITEM	CATEGORY	IRR, %	NROI, %	1985 BY QUARTERS				TOTAL 1985
				1st	2nd	3rd	4th	
A-1	N-SH	--	--	65				65
A-2	N-E	--	--	175				175
A-3	N-E	--	--		35			35
A-4	PMQI	--	--	25		26		51
A-4	CR	--	--	16		16		32
A-4	N	--	--	99		99		198
A-4	R	--	--	67		67		134
Undefined	--	--	--	300	600	910		1,810
Total				747	635	1,118		2,500

1986 CONSTRUCTION FORECAST
COMMITMENT SCHEDULE
(\$M)

<u>BUDGET ITEM</u>	<u>CATEGORY</u>	<u>IRR, %</u>	<u>NROI, %</u>	<u>1986 BY QUARTERS</u>				<u>TOTAL 1986</u>
				<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	
A-1	N-SH	--	--	35				35
A-2	PMQI	--	--	27		26		53
A-2	CR	--	--	18		18		36
A-2	N	--	--	104		104		208
A-2	R	--	--	69		69		138
Undefined	--	--	--	<u>400</u>	<u>700</u>	<u>1,030</u>		<u>2,130</u>
Total				653	700	1,247		2,600

7/18/83

DTH 000099113

1984 CONSTRUCTION FORECAST
CAPITAL EXPENDITURE SCHEDULE
ABERDEEN CHEMICAL PLANT

(\$M)

7/18/83

PRE-1984 CARRYOVER	AUTHORIZED BUDGETED	PRE-1984	1984 BY QUARTERS				TOTAL 1984	1985	1986	1987	TOTAL	(OVER) UNDER
			1	2	3	4						
PRODUCT MIX/QUALITY IMPROVEMENTS												
Dry Blend Silo	245	61	184				184				245	
Modifications To Make Profile												
Dry Blend	200	165	35				35				200	
Dry Blend Improvements - Phase II	244		51	75	44		170				170	74
Miscellaneous	44	31	13				13				44	
Subtotal	733	257	283	75	44		402				659	
COST REDUCTION												
Energy Monitoring Instrumentation	80	55	25				25				80	
Plasticizer Area Condensate Collection	55	30	25				25				55	
Recovery System Improvements	147	52	50	45			95				147	
Cold Water Rinse - Old Reactor Module	41	31	10				10				41	
Bulk AMS Storage And Handling	67	17	50				50				67	
Miscellaneous	26	19	7				7				26	
Subtotal	416	204	167	45			212				416	
NECESSITIES												
Reactor Pressure Relief Modifications	560	480	20	40	20		80				560	
Water Stripping	810	760	50				50				810	
Plasticizer Modernization - Phase I	240	60	70	70	40		180				240	
Plasticizer Modernization - Phase II	20	17	3				3				20	
Bulk Handling Of CTA	160			15	80	65	160				160	
Improved Compliance With EPA VOM												
Standard	107	11	50	30	16		96				107	
Remote Operating Valves And												
Instrumentation	130		50	50	30		130				130	
VOM Exposure Reduction	96		50	30	16		96				96	

7/18/83

DTH 000099114

1984 CONSTRUCTION FORECAST
CAPITAL EXPENDITURE SCHEDULE
ABERDEEN CHEMICAL PLANT

(\$M)

7/18/83

PRE-1984 CARRYOVER (Continued)	AUTHORIZED BUDGETED	PRE-1984	1984 BY QUARTERS				TOTAL 1984	1985	1986	1987	TOTAL	(OVER) UNDER
			1	2	3	4						
NECESSITIES (Continued)												
Safety Shower Revisions	50	27	23				23				50	
Vinyl Reactor Interlock Revisions	37	31	6				6				37	
Miscellaneous	180	128	52				52				180	
Subtotal	2,390	1,514	374	235	202	65	781				2,390	
REPLACEMENTS												
Line I Modernization	1,800	190	250	250	250	250	1,000	610			1,800	
Miscellaneous	125	90	35				35				125	
Subtotal	1,925	280	285	250	250	250	1,035	610			1,925	
TOTAL PRE-1984 CARRYOVER	5,464	2,255	1,109	605	496	315	2,525	610			5,390	74
1984 BUDGET												
PRODUCT MIX/QUALITY IMPROVEMENTS												
A-1 Bottle Compound Production	840				18	11	29	650	190		840	
A-2 Line III Metal Detector	29						37	10			29	
A-14 Miscellaneous	47			37	18	11	66	660	190		47	
Subtotal	916			37	18	11	66	660	190		916	
COST REDUCTION												
A-3 Rotary Dryer Optimization	160					20	20	140			160	
A-4 Reactor Jacket Expansion Joints	40					10	10	30			40	
A-5 Computer Installation	71				71		71				71	
A-14 Miscellaneous	28			22			22	6			28	
Subtotal	299			22	71	30	123	176			299	

7/18/83

DTH 000099115

1984 CONSTRUCTION FORECAST
CAPITAL EXPENDITURE SCHEDULE
ABERDEEN CHEMICAL PLANT

(\$M)
7/18/83

1984 BUDGET (Continued)	AUTHORIZED BUDGETED	PRE-1984	1984 BY QUARTERS				TOTAL 1984	1985	1986	1987	TOTAL	(OVER) UNDER
			1	2	3	4						
NECESSITIES												
A-6 Plasticizer Modernization - Phase III	85				12	55		85			85	
A-7 Reduction Of VOM Exposure	115						67	48			115	
A-8 Truck Loading Facilities For Silos	120			30	70	20	120				120	
A-9 Security Fence	50			50			50				50	
A-10 VOM Standard Compliance Improvements	160				20	70	90	70			140	
A-11 Plant Sewer Revisions	180		18		90	72	180				180	
A-12 City Water Backflow Prevention	130					30	30	100			130	
A-14 Miscellaneous	190		5	70	262	77	152	38			190	
Subtotal	1,030		103			324	689	341			1,030	
REPLACEMENTS												
A-13 Dryer Centrifuge Conveyor Assemblies	150			38	86	26	150				150	
A-14 Miscellaneous Under \$15 M	130		10		45	49	104	26			130	
Subtotal	280		10	38	131	75	254	26			280	
TOTAL 1984 BUDGET	2,525		10	200	482	440	1,132	1,203	190		2,525	

7/18/83

1984 CONSTRUCTION FORECAST
CAPITAL EXPENDITURE SCHEDULE
ABERDEEN CHEMICAL PLANT

(\$M)

7/18/83

1985 BUDGET	AUTHORIZED BUDGETED	1984 BY QUARTERS				TOTAL 1984	1985	1986	1987	TOTAL	(OVER) UNDER
		1	2	3	4						
<u>PRODUCT MIX/QUALITY IMPROVEMENTS</u>											
A-3 Miscellaneous Projects	51						41	10		51	
Subtotal	<u>51</u>						<u>41</u>	<u>10</u>		<u>51</u>	
<u>COST REDUCTION</u>											
A-3 Miscellaneous Projects	32						26	6		32	
	<u>32</u>						<u>26</u>	<u>6</u>		<u>32</u>	
<u>NECESSITIES</u>											
A-1 Plasticizer Modernization - Phase IV	65						65			65	
A-2 Energy Absorbing Rapture Disc	175						175			175	
A-3 VOM Standard Compliance Improvements	35						35			35	
A-4 Miscellaneous Projects	198						158	40		198	
Subtotal	<u>473</u>						<u>433</u>	<u>40</u>		<u>473</u>	
<u>REPLACEMENTS</u>											
A-4 Miscellaneous Projects	134						107	27		134	
Subtotal	<u>134</u>						<u>107</u>	<u>27</u>		<u>134</u>	
UNDEFINED	1,810						652	1,158		1,810	
TOTAL 1985 BUDGET	2,500						1,259	1,241		2,500	

7/18/83

DTH 000099117

1984 CONSTRUCTION FORECAST
CAPITAL EXPENDITURE SCHEDULE
ABERDEEN CHEMICAL PLANT

(\$M)
7/18/83

1986 BUDGET	AUTHORIZED BUDGETED	PRE-1984	1984 BY QUARTERS				TOTAL 1984	1985	1986	1987	TOTAL	(OVER) UNDER
			1	2	3	4						
<u>PRODUCT MIX/QUALITY IMPROVEMENTS</u>												
A-2 Miscellaneous Projects	53								43	10	53	
Subtotal	53								43	10	53	
<u>COST REDUCTION</u>												
A-2 Miscellaneous Projects	36								28	8	36	
Subtotal	36								28	8	36	
<u>NECESSITIES</u>												
A-1 Plasticizer Modernization - Phase V	35								35		35	
A-2 Miscellaneous Projects	208								167	41	208	
	243								202	41	243	
<u>REPLACEMENTS</u>												
A-2 Miscellaneous Projects	138								110	28	138	
	138								110	28	138	
UNDEFINED	2,130								770	1,360	2,130	
TOTAL 1986 BUDGET	2,600								1,153	1,447	2,600	
TOTAL EXPENDITURES	13,089	2,255	1,119	805	978	755	3,657	3,072	2,584	1,447	13,015	74

7/18/83

DTH 000099118

CONOCO CHEMICALS
1984 CONSTRUCTION FORECAST
ABERDEEN CHEMICAL PLANT

Overall Economic Bases

1. Rated Production Capacity as of January 1, 1984, based on 1984 budgeted product mix and current rate limitations associated with low molecular weight resin and RP-200 production is:

	<u>MM Lb./Yr.</u>
Resin	425
Flexible Compound	55
Dry Blend	50
Plasticizer	25

2. Utility Costs

<u>Year</u>	<u>Electricity</u> <u>¢/KWH</u>	<u>Natural Gas</u> <u>\$ MCF</u>		<u>Steam</u> <u>\$/M Lb.</u>
		<u>Dryers</u>	<u>Boilers</u>	
1984	4.48	4.74	4.45	6.68
1985	4.74	5.12	4.81	7.21
1986	5.03	5.43	5.10	7.65
1987	5.33	5.76	5.41	8.12
1988	5.67	6.10	5.73	8.60
1989	6.01	6.47	6.07	9.11
1990	6.35	6.86	6.43	9.65
1991	6.73	7.27	6.82	10.23
1992	7.15	7.71	7.23	10.85
1993	7.57	8.17	7.66	11.49
1994	7.99	8.66	8.12	12.18

The electrical costs are based on the 1983 midyear cost escalated per information from TVA. The natural gas costs are based on the 1983 midyear cost escalated per information from North American Production.

3. Utility Requirements

	<u>Resin</u>	<u>Compound</u>	<u>Plasticizer</u>	<u>Dry Blend</u>
Electricity, KWH/Lb.	0.14	0.20	0.08	0.09
Natural Gas, CF/Lb.	0.90	--	0.01	--
Steam, Lb./Lb.	0.74	0.09	0.74	--

CONOCO CHEMICALS
1984 CONSTRUCTION FORECAST
ABERDEEN CHEMICAL PLANT

Overall Economic Bases (Continued)

4. Railcar Revenues

Railcar revenues are estimated to be \$2,500 per year. No escalation is assumed for railcar revenues.

	<u>Load Size</u> <u>Lb.</u>	<u>Turnaround</u> <u>Days</u>	<u>Miles per</u> <u>Trip</u>	<u>Revenue per</u> <u>Loaded Mile, \$</u>
Resin, Dryblend, or Compound	170,000	60	700	0.59

Information provided by Supply and Transportation Department.

5. Gross Margins (selling price minus variable cost) as supplied by the Business Area are as follows:

	<u>c/Lb.</u>				
	<u>Resin</u>	<u>Pipe</u>	<u>Dry Blend</u> <u>Fittings</u>	<u>RP-200</u>	<u>Compound (1)</u>
1984	5.9	4.2	7.4	12.7	12.5
1985	7.3	4.5	7.8	13.4	13.0
1986	7.7	4.8	8.3	14.3	13.8
1987	6.0	5.0	8.8	15.1	14.6
1988	6.5	5.4	9.4	16.1	15.5
1989	7.3	5.7	9.9	17.0	16.4
1990	7.7	6.0	10.5	18.0	17.4
1991	8.1	6.4	11.1	19.1	18.4
1992	8.5	6.8	11.8	20.3	19.5
1993	8.9	7.2	12.5	21.5	20.7
1994	9.4	7.6	13.2	22.7	22.0

(1) Flexible or bottle compound

6. Budget preparation per D. J. Lorine's memo dated April 18, 1983.

7/18/83

DTH 000099120

CONOCO CHEMICALS

1984 CONSTRUCTION FORECAST

ABERDEEN CHEMICAL PLANT

PROJECT CLASSIFICATION AND PRIORITY

(\$M)

"MUST DO" PROJECTS

CONSTRUCTION
CAPITAL

A-2	Line III Metal Detector	29
A-6	Plasticizer Modernization - Phase III	85
A-7	Reduction of VCM Exposure	115
A-8	Truck Loading Facilities For Silos	120
A-10	VCM Standard Compliance Improvements	160
A-11	Plant Sewer Revisions	180
A-12	City Water Backflow Prevention	130
A-13	Dryer Centrifuge Conveyor Assemblies	150
A-14	Miscellaneous Projects Under \$15,000	395
	Total	<u>1,364</u>

"OPTIONAL" PROJECTS

Priority

1	A-3 Rotary Dryer Optimization	160
2	A-5 Office Systems Computer Installation	71
3	A-4 Reactor Jacket Expansion Joints	40
4	A-9 Security Fence	50
5	A-1 Bottle Compound Production	840
	Total	<u>1,161</u>

7/18/83

DTH 000099121

DTH 000099122