FEASIBILITY STUDY REPORT

FOR

ETHYLENE AND VINYL CHLORIDE MONOMER PLANTS

IN

THE KINGDOM OF THAILAND

VOL. III

SUPPLEMENTARY STUDY

APRIL 1981

JAPAN INTERNATIONAL COOPERATION AGENCY





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ABBREVIATIONS AND SYMBOLS

Unit and Conversion

mm Millimeter
cm Centimeter
m Meter
km Kilometer

in Inch (1 in = 2.54 cm)

ft Foot (pl. feet) (1ft = 0.305m)

cm² Square centimeter m² Square meter

ha Hectare (1 ha = $10,000 \text{ m}^2 = 2.471 \text{ acres}$)

ft² Square foot $(1 \text{ ft}^2 = 0.0929 \text{ m}^2)$

Rai $(1 \text{ Rai} = 1,600 \text{ m}^2)$

m³ Cubic meter

Nm³ Normal cubic meter MMm³ Million cubic meters

ft³, cu ft Cubic foot (1 ft³ = 0.0283 m^3)

SCF Standard cubic foot

MMSCF Million standard cubic feet

l Liter

gal Gallon (1 British gallon = 4.546 liters, 1 U.S. gallon = 3.785

liters)

bbi Barrel (1 barrel = 42 U.S. gallons)

g Gram kg Kilogram t, T, ton, Ton, Metric ton

lb (s) Pound (1 lb = 0.454 kg)

LMT Liquid metric ton (50% aques solution of caustic soda)

sec Second
min Minute
h, hr, Hr Hour
d, D Day
m, M Month
y, Y Year

°C Degree centigrade °F Degree fahrenheit

cal Calorie Kcal, K cal Kilo calorie

BTU, Btu British thermal unit (1 BTU = 0.252 K cal)

MMBTU, MMBtu Million British thermal units

LHV Low heating value HHV High heating value

A Ampere
V Volt
W Watt
kW Kilowatt
mW Megawatt

kVA Kilo-volt ampere
mVA Mega-volt ampere
kWH, kWh Kilowatt-hour
mWG, mWh Megawatt-hour
HP, HP Horsepower
% Percent

ppm Parts per million

g/Nm³ Gram per normal cubic meter pH, PH Hydrogen ion concentration kg/cm² Kilogram per square centimeter

lb/in² pounds per square inch mmAq mm aqua (= water)

t/d, ton/day, T/D Tons per day t/y, ton/year, MTA, MT/Y T/Y Tons per year

MMSCFD,

MMscfd Million standard cubic feet per day

Technical Terms

ABS Acrylonitrile-butadiene-styrene copolymer

AS Acrylonittile-styrene copolymer

PE Polyethylene

HDPE High density polyethylene LDPE Low density polyethylene

PO Polyolefin
PP Polypropylene
PS Polystylene

FS Foamed polystyrene

GPPS (GP) General purpose polystyrene
HIPS (HI) High impact polystyrene

PVC Polyvinyl chloride
EDC Ethylene dichloride
EG Ethylene glycol
EO Ethylene oxide
SM Styrene monomer

VCM Vinyl chloride monomer
LNG Liquefied natural gas
LPG Liquefied petroleum gas

NG Natural gas

NGL Natural gas liquid

BOD Biological oxygen demand

COD Chemical oxygen demand

ISBL Inside battery limit
OSBL Outside battery limit

MSL Mean sea level

Financial and Economic Terms

DCF Discounted cash flow IRR Internal rate of return

EIRR Economic internal rate of return FIRR Financial internal rate of return

ROI Return on investment
GDP Gross domestic product
GNP Gross national product
C & F Customs, and freight

CIF Customs insurance and freight

FOB Free on board

Exchange Rate

Baht Thailand Baht (1 U.S. dollar = 20.5 Bahts)

\$, U.S.\$, U.S. dollar

yen Japanese yen (1 U.S. dollar = 215 yen)

Organization and Company

GOT The Government of Thailand
PTT Petroleum Authority of Thailand
BOI Office of the Board of Investment

NESDB Office of the National Economic and Social Development Board

DTEC Department of Technical and Economic Cooperation

MOI Ministry of Industry

ETO Express Transportation Organization of Thailand EGAT Electricity Generating Authority of Thailand

NEA National Energy Administration
PEA Provincial Electricity Authority

IEAT Industrial Estate Authority of Thailand
TAPLACO Thai Plastic and Chemical Co., Ltd.
THASCO Thai Asahi Caustic Soda Co., Ltd.
FOIS Fluor Ocean International Services Inc.
JICA Japan International Cooperation Agency

JETRO Japan External Trade Organization

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I. INTRODUCTION

This supplementary study is a comparative evaluation of ethylene plant production capacity, done independently of the study report proper and done on the basis of the assumption that the following conditions are met.

Conditions for the Supplementary Study

- A. Not only will feedstock ethane be recovered from the Phase I gas processing plant (350 MMSCFD) now being constructed but ethane from the Phase II plant to be constructed in the future is also to be used.
- B. Downstream plants for ethylene derivatives (LDPE, HDPE, VCM/PVC and EO/EG) are to be constructed in order to satisfy domestic demand by means of domestic production. That is, so that potential demand for ethylene is equivalent to effective demand, capacity of downstream plants will at all times exceed demand. 1)
- C. In the event that natural gas is used as feedstock for olefin production, the yield of propylene will be less than that of ethylene, resulting in a constraint on propylene production. Further, considering the pattern of petroleum refining in Thailand, recovery of a large quantity of propylene from refineries is not to be expected. Therefore the quantity of domestically suppliable propylene will be low, to the extent that it will not be sufficient to satisfy domestic demand. Therefore, there will be no choice but to meet the shortfall in supply by means of polyethylene as a substitute.

On the basis of projection of ethylene, assuming that the above conditions are satisfied, and using the forecast demand quantities, the economics of ethylene plant production scale is evaluated as given below.

¹⁾ For example, by expansion of capacity at the time that domestic demand exceeds production capacity, whereby overall utilization of capacity does not become 100%.

II. THE MARKET ASPECTS

1. DEMAND PROJECTIONS

1-1 PLASTICS MATERIALS

The possibility of substitution of polypropylene by polyethylene is examined in this section. Demand analysis and demand projections for plastics materials other than polypropylene and polyethylene are taken to be the same as given in the main text.

1-1-1 Replacement of Polypropylene by Polyethylene

(1) Competition between polyethylene and polypropylene

Both polyethylene and polypropylene have many characteristics in common and with the exception of certain special fields they are used in the same way in molding processes, and are used for many of the same purposes.

Table II-1 provides a comparison of the features of polyethylene and polypropylene products, by area of demand. Because polypropylene has many advantages which polyethylene does not have, demand for it is increasing on a global scale.

Demand for polypropylene in Thailand in 1970 was 5,700t but by 1979 annual demand had increased to the level of 54,000t, as the average annual growth rate during that period was 28%; this was more than 3 times as great as the average growth of demand of polyethylene which was 9% p.a. Therefore, the share of demand accounted for by polypropylene in all polyolefins rose from 13% in 1970 to 39% in 1979. This is a reflection of the speed with which polypropylene, on the strength of recognition of its advantages in processability and product quality, has penetrated the plastics industry in Thailand, and has been accepted there.

Furthermore, the price of polypropylene has declined to less than that of polyethylene, resulting in substitution of the latter by the former for production of film. Nevertheless, substitution effects caused by differentials in price are believed to be considerably weaker than technical factors such as examined in preceding pages. That is, if the share of polypropylenes in total polyolefins in Thailand is represented as W(%), the following linear regression equation is derived.

W = 14.67 + 1.98t - 0.29v(coefficient of correlation: 0.9566)

Table II—1 ADVANTAGES AND DISADVANTAGES OF POLYPROPYLENE IN APPLICATIONS WHERE IT COMPETES WITH POLETHYLENE

	Advantages	Disadvantages
Film	High rigidity.	
	Good transparency.	
	Productivity of CPP and OPP is high and OPP film is used as high-grade wrapping material in place of cellophane.	HDPE is superior for very thin film.
Woven bags	Nonslip quality; stacked bags stay in place.	Weaving is difficult because on high stiffness and nonslip qualities.
Rope, net		Somewhat stiff.
Injection molded	High stiffness.	
products	High surface hardness.	
	Good gloss.	
	Good anti-creep properties.	Homopolymers have low im-
	High hinge strength.	pact strength.
	Shrinkage during molding is less than that of HDPE; this with low directionality bias facilitate molding.	Molding of large products is difficult.
	Reinforcement with glass fiber is possible.	
Blow molded products	Stretched blow molding is possible.	Processability of blow-molded products is generally difficult inferior in impact strength.

Here,

t = number of years with 1970 = 0, and

v = ratio of the price differential between polypropylene and polyethylene to polyethylene price (%)

The equation indicates that the ratio of polypropylene demand to polyolefins demand increases 2% a year regardless of the price, and that the influence of price is about 0.3% for each 1% price difference.

Therefore, even if in the future the price of domestically-produced polyethylene becomes lower than the price of imported polypropylene, it will be difficult for that alone to cause substitution by polyethylene for polypropylene in a large number of the latter's applications.

Most of the areas of application shown in Table II-1, however, are applications for which polyethylene was used in Japan in the past, or for which polyethylene is used today in America, Europe and elsewhere, and logically substitution in these applications is feasible. It is therefore necessary to solve the technical problems involved in substituting polypropylene for polyethylene. Unless this is done even if there is a decline in quantity demanded of polypropylene because of insufficient supply, it will not mean that there will immediately result in an increase in polyethylene demand.

(2) Share of polypropylene in total polyolefins

The following comparison can be made of the shares of LDPE, HDPE and polypropylene in the three areas of greater polypropylene demand, namely film, injection molded products, and filament and fiber (spun; film) in Japan, America and West Europe (also refer to Table II-2.

(Unit: %)

	Japan		America		West Europe				
	LDPE	HDPE	PP	LDPE	HDPE	PP	LDPE	HDPE	PP
Film	59	18	23	90	5	5	91	4	5
Injection molded products	10	26	64	23	35	42	22	35	43
Filament, fiber	0	48	52	0	0	100	0	12	88

That is, 23% of film, which accounts for 36% of domestic Japanese demand for polyolefins, in accounted for by polypropylene, a level of demand for polypropylene which surpasses by far the 5% in America and West Europe. In Thailand, as is mentioned in the main text, the share of polypropylene as a material for production of film is very high. This indicates that it is possible that in Thailand a large portion of PP used for film can be replaced by LDPE.

Injection molded products account for shares of 27%, 20% and 23% respectively in polyolefin demand in Japan, America and West Europe. Polypropylene's share of estimated products is 64% in Japan, 42% in America and 43% in West Europe. In Thailand the polypropylene share is high, similar to the situation in Japan, indicating the possibility of being replaced by HDPE and LDPE in the future.

Table II—2 POLYETHYLENE AND POLYPROPYLENE CONSUMPTION IN MAJOR APPLICATION FIELD (1979)

(1) Japan

(Unit: 1,000 t/y) LDPE **HDPE** PP Total Blow Molding 49 119 25 193 Film 549 167 213 929 Coating 154 154 Wire and Cable 76 76 Injection Molding 67 178 441 686 Pipe 9 13 22 Fiber and Stretched Tape 1 116 127 244 Others 96 71 86 253 **Domestic Consumption Total** 1,001 665 892 2,558

Source: Association of Petrochemical Industries of Japan. (continued)

(2) America

			(U	nit: 1,000 t/y
· · · · · · · · · · · · · · · · · · ·	LDPE	HDPE	PP	Total
Blow Molding	26	764	28	818
Injection Molding	295	466	550	1,311
Extrusion Molding Coating	250	_	_	250
Film	1,941	102	123	2,166
Pipe	15	239	11	265
Sheet	13	30	15	58
Wire & Cable	191	59	5	255
Fiber & Filament		_	455	455
Others	36	20	28	84
Others	330	229	216	775
Domestic Consumption Total	3,097	1,914	1,431	6,442

(3) West Europe

			(U	nıt: 1,000 t/y
	LDPE	HDPE	PP	Total
Blow Molding	102	622	_	724
Film & Sheet	2,708	115	145	2,968
Coating	196	_	-	196
Injection Molding	329	513	633	1,475
Spun Fiber	_		155	155
Film Fiber		39	287	326
Pipe	122	89	-	211
Wire & Cable	167	10	-	177
Others	116	32		148
Total	3,740	1,424	1,220	6,384

Source: Modern Plastics International (Jan., 1980).

Filament, stretched tape and fiber in America and West Europe for the most part is made of multi-filament and substitution by polyethylene is not possible, but in Japan stretched tape (poly-rope, woven bags) is commonly used. Because conditions in Thailand are about the same as in Japan, it is thought to be possible for polypropylene to be replaced by HDPE to a certain extent.

At present the share of polypropylene in polyolefins is 40% in Japan, 22% in America, and 15% in France and West Germany (20% for West Europe as a whole) (see 1-1-1, in Chapter 1, Part II, in the main text), and in Thailand it is 40%, the same as in Japan.

Until Thailand begins production of LDPE and HDPE from domestic ethylene in 1985, it is thought that polypropylene will continue to be imported, and that the structure of demand will not change, but the ratio of polypropylene demand thereafter is presumed to be decreased to 20% in 1990, 1) assuming that a tax barrier of more than 40% (existing tariff) is applied to PP imports, suitable polyethylene price policy (for instance, price controll by the government is adopted and progress is made in the substitution of PP by PE.

1-1-2 Olefin Demand Projections

(1) Polyolefins

Elasticity analysis was performed for the total of polyethylene (HDPE, LDPE) and polypropylene, in relation to real GDP and real prices.²⁾ The results of elasticity analysis are as follows.

```
logQ = -1.1076 + 1.7349 log\Theta - 1.2626 log p
```

where,

Q = Quantity of polyolefin demand (1,000 t/y)

 Θ = Real GDP (10⁹ Baht)

p = Real price (Baht/kg)

[Weighted average price of PE and PP]

Table II-3 gives the assumptions required for projection of demand. The results of demand projections are given in Table II-4.

(2) Polyethylene, polypropylene

It is assumed that the present trends of demand for both polyethylene and polypropylene will continue unchanged to 1985, and that the ratio of polypropylene demand in total polyolefin demand is 40%. The polypropylene ratio thereafter will decrease gradually, to 20% in 1990 and polypropylene demand was calculated on that basis (see Table II-5 and Fig. II-3).

It is though that supply of propylene in Thailand is about 40,000t, from FCC plants (including expansion at TORC). Therefore demand in 1990 for polypropylene is taken as about 48,000t including imports and the share in polyolefins is taken as 20%.

²⁾ See Part II, the main text.

The shares of HDPE and LDPE used are the same as the figures given in Table II-34, Chapter I, Part II, in the main text. Results of calculations are given in Table II-6.

Table II--3 REQUISITE CONDITIONS FOR DEMAND FORECAST FOR POLYOLEFINS IN THAILAND

6.5 %/y	
435.7	
817.9	
1.2523	
1,1217	
8.3 Baht/kg	

Source: Table II-29, Vol. I.

Table II-4 DEMAND FORECAST FOR POLYOLEFINS

	(Unit: 1,000 t/y)
1981	118.0
1982	127.7
1983	138.1
1984	149.5
1985	161.8
1986	175.0
1987	189.4
1988	204.9
1989	221.7
1990	239.9
1991	257.5
1992	276.4
1993	296.6
1994	318.3
1995	341.6
1996	366.6
1997	393.4
1998	422.2
1999	453.1
2000	486.3

Table II—5 ESTIMATED CONSUMPTION PATTERN OF POLYETHYLENE AND POLYPROPYLENE

(Unit: %)

	LDPE	HDPE	PP	Total
1981	36	24	40	100
1982	36	24	40	100
1983	36	24	40	100
1984	36	24	40	100
1985	37	23	40	100
1986	40	24	36	100
1987	43	25	32	100
1988	45	27	28	100
1989	48	28	24	100
1990	50	30	20	100
1001				
1991	51	29	20	100
1992	52	28	20	100
1993	52	28	20	100
1994	52	28	20	100
1995	52	28	20	100
1996	52	28	20	100
1997	52	28	20	100
1998	52	28	20	100
1999	52	28	20	100
2000	52	28	20	100

Table II—6 DEMAND FORECAST FOR POLYETHYLENE AND POLYPROPYLENE

(Unit: 1,000 t/y)

	LDPE	HDPE	PP
1981	42.5	28.3	47.2
1982	46.0	30.6	51.1
1983	49.7	33.1	55.2
1984	53.8	35.9	59.8
1985	59.9	37.2	64.7
1986	70.0	42.0	63.0
1987	81.4	47.4	60.6
1988	92.2	55.3	57.4
1989	106.4	62.1	53.2
1990	120.0	72.0	48.0
1991	131.3	74.7	51.5
1992	143.7	77.4	55.3
1993	154.2	83.0	59.3
1994	165.5	89.1	63.7
1995	177.6	95.6	68.3
1996	190.6	102.6	73.3
1997	204.6	110.2	78.7
1998	219.5	118.2	84.4
1999	235.6	126.9	90.6
2000	252.9	136.2	97.3

2. ETHYLENE DERIVATIVES PLANTS

Future new construction or expansion of derivatives production facilities as given in the main text is predicted on the assumption of prior emergence of a suitable corresponding volume of additional domestic demand (for example, at the point when the second phase plant is being operated at least 50% of capacity). Therefore, there would be, for a certain period of time, a shortfall in domestic supply capability, which would have to be compensated for by imports.

From the viewpoint of making effective use of ethylene, however, it is thought that there is no choice but to build a derivatives plant which has small initial scale, and increase its capacity at a later date, and to realize potential demand to the greater extent possible.

2-1 PLASTICS MATERIALS

2-1-1 Polyethylene

At the point when domestic demand exceeds the level of derivatives plant production capacity, newly provided expansion facilities go on stream, and the total plant facilities are operating at 75% of capacity or a higher rate, in view of the initial scale of 73,000 t/y of LDPE and 36,000 t/y of HDPE for the plant now being constructed, the additional capacity which will be required in keeping with the above demand projections is as follows (see also Fig. II-1).

	(Un	it: 1,000	t/y)
LDPE	1982	73	New plant construction, first phase
	1987	37	Expansion
	1990	50	Expansion
	1994	60]	Name along a superior and a base
	1998	80 }	New plant construction, second phase
HDPE	1983	36	New plant construction, first phase
	1985	14	Expansion with original 50,000t capacity
	1988	23	Expansion
	1992	37]	N
	1997	40 J	New plant construction, second phase

Among the above, it is thought that construction of 37,000 t/y and 50,000 t/y of LDPE capacity is not very likely to take place because of the high cost of the reactor and pelletizer construction, so that it is expected that the date for construction of new capacity will be moved up and that existing facilities will be modified so as to increase their capacity

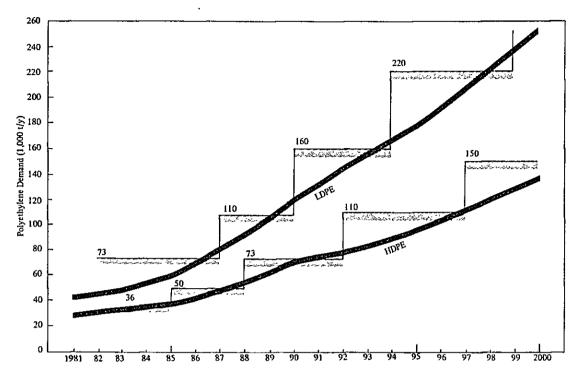


Fig. II—1 SUPPLY/DEMAND BALANCE OF POLYETHYLENE

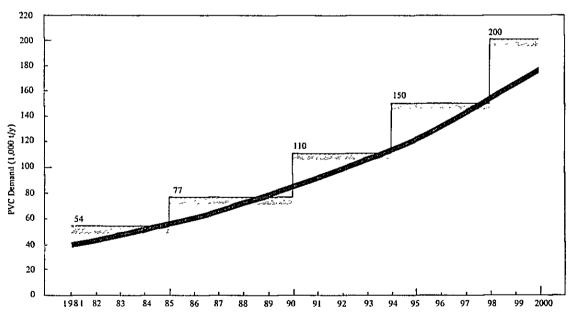


Fig. II-2 SUPPLY/DEMAND BALANCE OF PVC

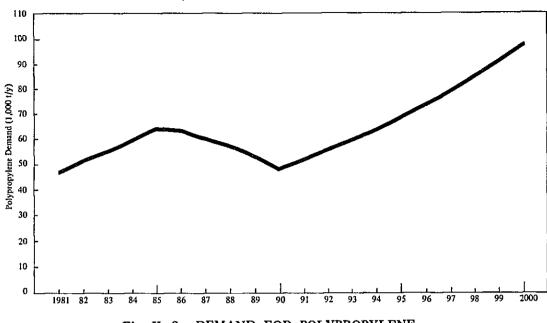


Fig. II-3 DEMAND FOR POLYPROPYLENE

prior to that construction. Because of that, it will be unavoidable for a gap of a certain extent to develop between domestic supply and demand of LDPE.

In the case of HDPE, in contrast to that of LDPE, the construction cost of the reacotr and pelletizer is not very great and even at the present time it is thought that the minimum economic scale for plant construction is about 30,000 t/y. Therefore, the likelihood is high that the above HDPE capacity expansion plan will be realized.

2-1-2 PVC

As is indicated in Fig. II-15, Chapter 2, Part II, Vol. II in Korea there have been several occasions in the past when there have addition of small scale increments, of about 50,000 t/y, and almost all of the domestic demand has been satisfied by this means. Imports have been only of limited grades of paste resins etc. In the case of Thailand, new construction would be needed as follows for PVC, along the same line of thinking as used above.

(Unit	1,000 t/y)	
Prior to 1984	54	
1985	23 Expansion	
1990	33 Expansion	
1995	10 New plant construction, second phase	
1998	50 New plant construction, second pha	se

Because it is possible to add relatively small scale plants in the case of PVC, an increase of 23,000 t/y in 1985 is feasible, and it will be feasible to provide the 33,000 t/y addition in 1990 by a scrap-and-build approach.

It is believed that construction of a new plant or entry of a new producer of PVC in Thailand will be in or after 1995.

2-2 ETHYLENE GLYCOL

It is reported that the ethylene oxide/ethylene glycol plant now being newly constructed is to have minimum and maximum capacities of 100,000 t/y and 300,000 t/y. However, in the case of Thailand from the viewpoint of efficient use of ethylene, it is thought that a plant having the capacity of about 60,000 t/y ethylene oxide equivalent will be constructed by 1985 (see Fig. II-4).

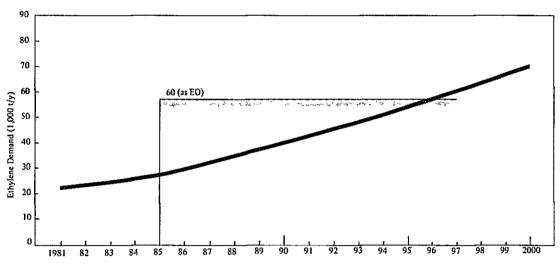


Fig. II-4 SUPPLY/DEMAND BALANCE OF ETHYLENE OXIDE

Demand for ethylene glycol in Thailand according to the projection made by the study team will be 30,000 t/y ethylene oxide equivalent in 1985, so that at the outset the plant would operate at about 50% of capacity, and reach the level of full use of capacity 10 years later, in 1995. If, provisionally, there are 40,000 t/y capacity at the beginning of operation, it would be necessary to expand to 60,000 t/y in 1991, so that it is desirable for the reactor to be of 60,000 t/y capacity from the beginning, and it is possible to increase the capacity of the distilling tower in keeping with the increase in production.

The problem encountered when a 60,000 t/y plant is operated at minimum load is that unit utilities costs are extremely high, and plant facilities depreciation and interest costs are high so that production cost is increased. In order to compensate for this, it is necessary to give consideration to the level of price at which ethylene is supplied.

3. QUANTITY OF ETHYLENE REQUIRED, AND PRODUCTION CAPACITY OF THE ETHYLENE PLANT

3-1 QUANTITY OF ETHYLENE REQUIRED

As is stated above if the derivatives plant is constructed so as to match increases in domestic demand levels, the quantity of ethylene demand will be as given in Table II-7 and Fig. II-5 (Case II). That is,

	(Unit:	1,000 t/y)
1985		157
1990		284
1995		402
2000		566

3-2 PRODUCTION CAPACITY OF THE ETHYLENE PLANT

Because the minimum level of capacity utilization of an ethylene plant is 50%, for the quantity of demand of 173,000 t/y^{1} of ethylene in 1986, as obtained from Table II-7, the maximum possible capacity of an ethylene plant completed during 1985 is 350,000 t/y.

Futher, it is desirable that in 1985 the ethylene plant have 5 furnaces (or an additional furnace for stand-by) and capacity of about 250,000 t/y, and that production capacity be gradually increased in keeping with the rise in the level of domestic demand.

In the event of completion during 1985, because there would be plant operation for only half a year, production in 1986 is used as the base.

Table II-7 ETHYLENE DEMAND

(Unit: 1,000 t/y)

	PE	PVC	Ethylene for EO	Ethylene Demand
1985	97.1	56.1	27.9	157.3
1986	112.0	61.0	30.0	177.5
1987	128.8	66.4	32.4	200.2
1988	147.5	72.2	34.8	225.1
1989	168.5	78.6	37.5	252.9
1990	191.9	85.6	40.4	283.8
1991	206.0	92.0	42.9	304.3
1992	221.1	99.0	45.6	326.3
1993	237.3	106.5	48.5	349.9
1994	254.6	114.5	51.6	375.0
1995	273.3	123.2	54.8	402.1
1996	293.3	132.5	57.6	430.5
1997	314.7	142.6	60.6	460.9
1998	337.8	153.4	63.7	493.6
1999	362.5	164.9	67.0	528.4
2000	389.0	177.4	70.5	565.9

Note: (Ethylene Demand) = (PE) $\times 1.05 + (PVC) \times 0.49 + (Ethylene for EO)$.

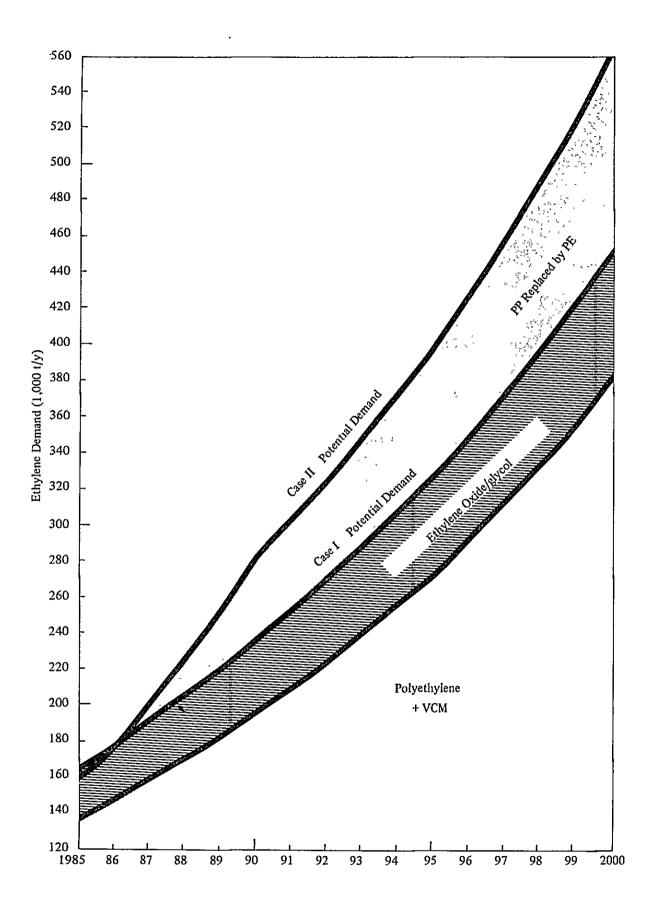


Fig. II—5 SUPPLY/DEMAND BALANCE FOR ETHYLENE $-\,18-$

III. TECHNICAL, FINANCIAL AND ECONOMIC STUDY

1. TECHNICAL STDUY

Details concerning the technical study are contained in the main text of the report. Therefore, here only the materials and utilities balance of a 300,000 MTA plant, and the cost breakdown, are given.

1-1 MATERIALS AND UTILITIES BALANCE

Table III-1 shows the materials and utilities balance for an ethylene plant of 300,000 MTA scale. The quantities of materials and utilities supplies for a 350,000 MTA plant, which are needed for financial and economic analyses, were calculated on the supposition that unit requirements are the same as for a 300,000 MTA plant.

1-2 INVESTMENT AMOUNT

The total required investment is as follows.

(US\$ thousand in constant 1980 prices)

Ethylene plant scale	Foreign portion	Domestic portion	Total
230,000 MTA	153,775	79,988	233,763
300,000 MTA	174,028	87,637	261,645
350,000 MTA	186,426	93,910	280,336

The breakdown of the capital investment for a 300,000 MTA plant is given in Table III-2.

(Unit. MT/H) 8,000 hrs/year basis Table III—1 ESTIMATED BLANCE AND REQUIREMENTS FOR RAW MATERIALS AND UTILITIES (ETHYLENE 300,000 MT/Y)

Companies,								Petroch	Petrochemical Complex., Total	mplex., T	otal							
Plants and Facilities				Pe	etroleum Authority of Thailand (PTT)	uthority o	f Thaila	ind (PTT)						Outsid	Outside of PTT		[u
/					Utilit	Utilities Center						نــــا	Thai	Thai VCM Co				oil y
Requirements of Raw Materials and Utilities	Ethylene plant	Raw Water Claiffer and Sand filter	-ils10nimed 195	Polisher	Deaerator & BFW pump & Drivers	Specifical Water motsy2	Portable Vater	Steam & Powet Genetation	Instrument & Plant Au Generation	Air Separa- non	Utilities Center Sub- total	-du& TTQ latot	VCM Plant	Chlor- Alkali Plant	That VCM Sub-total	HDPE Plant	fator-du2	lqqu2) letoT (əbizino
Ethylene	∆37.5										-	Δ37.5	4.75	 	4.75	-	,	Δ32.75
VCM	_										1	1	0.01		0.01 ₽	٥	△10.0	0.01△
Caustic Soda (as 100%)				-				•			ì	1	7	Δ6 45 Δ	Δ6 45	◁	6.45	∆6.45
Ethane	46 79						_	_			1	46.79						46.79
Salt											ı	ı		11.4	11.4		11.4	11.4
Chlorine											ı	1		0.90	1	_	1	ı
Hydrochloric Acid				-				_			ı	1	0.00	6:0	 I	_	1	ı
Fuel Gas (MMBTu/H)	59.5							227.5		_	227.5	287					1 1	287
Raw Water		530							-	_	530						!	530
Power (KW)	1535	303	113	57		623	6	∆3400		160	Δ1535		2367 1	17280 19647		_	24947	24947
Steam, 42K	18				3.52	14.68		∆48.54	3.64	_	Δ26.7	∇8.7			_	8.7	8.7	t
Steam, 15K					-			9.8∇			9.8∇	9.8∠	6.2	2.4	9.8		98	ļ
Steam, 2K				_	22.77	Δ14.68		28.95	Δ3 64		24.5	∆4.5	4.5		_		4.5 —	ı
Filtered Water		487.46	62.46			276	01			_	۸139	△139	- 08	14	94 	45	661	ı
DMW			449.97	40.17							8.6∇	8.60	-		86		8.6	ı
Condensate	A166			991							991	t			_		1	1
Polished Water				Δ203.52	203.52						1	1			_	_		ı
BFW	162				Δ229.71		_	67.71		-	۵10			•			1	1
Portable Water	'n						Δ10				Δ10	Δ5	2.5	2.5	S		5	ı
Cooling Water	7780					∆8280		320	20	100		1					1	ı
Instr. & Plant Air (Nm3/H)	1168	20	20	28	20	70		20	A2500	140		Δ1042	450	592 1	042	_	042	1
Oxygen (Nm3/H)				•••					-	△1050		01050	1050		020	_	020	ı
Inert Gas (Nm³/H)	200						_		_	Δ1130	Δ1130	DE 90	200		220		220	۵410
Catalysts Chemicals (\$/H)	187	6	12	3		38	-		_		62	249	=	148	159	-	65	408

Note : △ = Generation or production,

Table III-2 CAPITAL COST ESTIMATE FOR PTT ETHYLENE PROJECT (300,000 MT/Y ETHYLENE PLANT)

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thousand
(US\$

						ŀ									
		Ethylene		T	Tank Yard		Util	Utilities Center	tor		Offsite			Total	
	F.C3)	L.C ⁴)	Total	F.C	T.C	Total	F.C	T.C	Total	F.C	L.C	Total	F.C	L.C	Total
FOB Equipment1)	54,743	l	54,743	8,279	I	8,279	19,070	i	19,070	8,232	ı	8,232	90,324	t	90,324
License, Basic & Detail Engineering, Project Management	18,046	ı	18,046	605	1	909	2,186	I	2,186	2,093	1	2,093	22,930	i	22,930
Transportation	8,279	2,093	10,372	3,302	1,116	4,418	2,605	869	3,303	1,805	474	2,279	15,991	4,381	20,372
Supervising	4,744	869	5,442	814	116	930	1,860	279	2,139	814	116	930	8,232	1,209	9,441
Erection	3,298	11,679	14,977	1,065	4,098	5,163	1,553	5,981	7,534	721	2,581	3,302	6,637	24,339	30,976
	2,056	10,874	12,930	56	409	465	595	3,033	3,628	2,770	15,141	17,911	5,477	29,457	34,934
Plant Cost (as erected)	91,166	91,166 25,344	116,510	14,121	5,739	19,860	27,869	9,991	37,880	16,435	18,312	34,747 149,591	149,591	59,386	208,977
Land Cost													ı	373	373
Preoperation and Star-up Expenses													1,256	10,889	12,145
Interest during Construction													23,181	10,856	34,037
Total Fixed Capital													174,028	81,504	255,532
Initial Working Capıtal													ı	6,133	6,113
Total Capital Investment				:									174,028	87,637	261,645

Notes: 1) incld. spareparts and catalysts for 2 years operation 2) Incld. inland transportation.
3) Foreign currency portion.
4) Local currency portion.

2. FINANCIAL AND ECONOMIC STUDY

2-1 BASIS FOR FINANCIAL AND ECONOMIC STUDY

With the exception of the below-enumerated assumptions for the financial and economic analysis, the basis for the study is the same as that described in the main text of the report.

(1) Ethylene production and marketing plans

On the basis of the results given in Chapter 1 of this Supplementary Study report, the ethylene production and marketing plans are determined to be as shown in Table III-3.

(2) Ethylene and ethane prices

(financial analysis) (economic analysis)

Ethylene : \$ 700/T \$600/T Ethane : \$ 300/T \$240/T

(3) Capital source and financial conditions¹⁾

Equity/debt ratio: Entire capital requirement is met by borrowing

Interest:

Long-term interest; average 9.8% p.a. Short-term interest; average 18 % p.a.

Repayment period:

Long-term debt; 13 years including 3 years grace period

Short-term debt; Following year

¹⁾ Taking into consideration the opinion given at the meeting with PTT officials on March 5 and 6, 1981, in Bangkok, the tentative situation given here was used for the study.

Table III-3 PRODUCTION AND SALES PLAN

	Ethy.	Ethylene plant capacity 300,000 MTA	pacity	Ethyle	Ethylene plant capacity 350,000 MTA	aity	Ethy	Ethylene plant capacity 230,000 MTA	oacity 1
	Production	Sales	Inventory	Production	Sales	Inventory	Production	Sales	Inventory
1985	82,200	78,700	3,500	82,200	78,700	3,500	82,200	78,700	3,500
1986	177,500	177,500	3,500	177,500	177,500	3,500	177,500	177,500	3,500
1987	200,200	200,200	3,500	200,200	200,200	3,500	200,200	200,200	3,500
1988	225,100	225,100	3,500	225,100	225,100	3,500	225,100	225,100	3,500
1989	252,900	252,900	3,500	252,900	252,900	3,500	230,000	230,000	3,500
1990	283,800	283,800	3,500	283,800	283,800	3,500	230,000	230,000	3,500
1991	300,000	300,000	3,500	304,300	304,300	3,500	230,000	230,000	3,500
1992	300,000	300,000	3,500	326,300	326,300	3,500	230,000	230,000	3,500
1993	300,000	300,000	3,500	349,900	349,900	3,500	230,000	230,000	3,500
1994	300,000	300,000	3,500	350,000	350,000	3,500	230,000	230,000	3,500
1995	300,000	300,000	3,500	350,000	350,000	3,500	230,000	230,000	3,500
1996	300,000	300,000	3,500	350,000	350,000	3,500	230,000	230,000	3,500
1997	300,000	300,000	3,500	350,000	350,000	3,500	230,000	230,000	3,500
1998	300,000	300,000	3,500	350,000	350,000	3,500	230,000	230,000	3,500
1999	300,000	300,000	3,500	350,000	350,000	3,500	230,000	230,000	3,500

2-2 RESULTS OF FINANCIAL AND ECONOMIC STUDIES

The financial statements gained as a results of financial analysis are provided in the Appendix. Fig. III-1 illustrates the relation between the financial internal rate of return, the economic internal rate of return, and the production capacity of the ethylene plant. No significant difference can be discerned between the financial IRR and the economic IRR.

If opportunity loss¹⁾ which can be anticipated in connection with future supply and demand of ethylene is taken into account, the economic IRR of a 230,000 MTA plant is considerably lower than the economic IRRs of either a 300,000 MTA plants or a 350,000 MTA plant. The results of calculation of the economic IRR are shown in Tables III-4, 5, 6.

$$\sum_{m=1}^{15} (Qm - qm) (P_i - P_p) (Es)$$

Where,

Qm: The quantity of actual production of ethylene (tons) in the mth year after the start of operation of a 350,000 MTA plant.

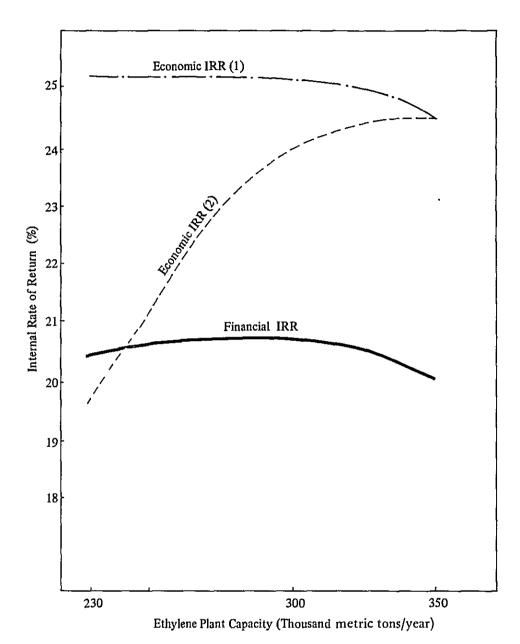
qm: The quantity of actual production of ethylene (tons) in the mth year after the start of operation of a 230,000 MTA plant.

Pi : Ethylene import price estimated at US\$1,000/ton.

Pp : Economic price of produced ethylene, US\$600/ton.

Es : Shadow exchange rate (20.5)/(0.791) = 25.91 Baht/US\$.

For example, the opportunity loss (when compared to that of a 350,000 MTA plant) for a 230,000 MTA ethylene plant is calculated by the following equation.



Note: 1) Opportunity loss is not taken into account 2) Opportunity loss is taken into account

Fig. III—1 COMPARISON OF INTERNAL RATE OF RETURN FOR DIFFERENT PRODUCTION CAPACITIES OF ETHYLENE PLANT

Table III-4 COMPARATIVE ECONOMIC INTERNAL RATE OF RETURN (230,000 MTA ETHYLENE PLANT)

(Unit: Million Baht)

		Economic Cost	c Cost		Есопотіс	Discount	rresen (Discount R	Fresent value (Discount Rate = 0.192)
	Capital Cost	Operating Cost	Opportunity Loss	Total	Benefit	Factor	Economic Cost	Economic Benefit
1982	711			711		1.0000	711	
1983	1,611			1,611		0.8389	1,351	
1984	1,655			1,655		0.7038	1,165	
1985	938	622		1,560	1,224	0.5904	921	723
1986		1,416		1,416	2,760	0.4953	701	1,367
1987		1,568		1,568	3,113	0.4155	652	1,293
1988		1,734		1,734	3,500	0.3486	604	1,220
6861		1,761	237	1,998	3,577	0.2925	584	1,046
1990		1,761	558	2,319	35,77	0.2454	569	875
1661		1,761	770	2,531	3,577	0.2058	521	736
1992		1,761	866	2,759	3,577	0.1727	476	615
1993		1,761	1,243	3,004	3,577	0.1449	435	515
1994		1,761	1,244	3,005	3,577	0.1215	365	435
1995		1,756	1,244	3,000	3,577	0.1020	306	365
1996		1,750	1,244	2,994	3,577	0.0855	256	306
1997		1,750	1,244	2,994	3,577	0.0718	215	257
1998		1,750	1,244	2,994	3,577	0.0602	180	215
1999		1,750	1,244	2,994	3,731	0.0505	151	188
Total							10 163	371017

Table III-5 COMPARATIVE ECONOMIC INTERNAL RATE OF RETURN (300,000 MTA ETHYLENE PLANT)

		Economic Cost	Cost		Есопотіс	Discount	Present Value (Discount Rate = 0.240)	Present Value ount Rate = 0.240)
Year	Capital Cost	Operating Cost	Opportunity Loss	Total	Benefit	Factor	Economic Cost	Economic Benefit
1982	797			797		1.0000	797	ļ
1983	1,809			1,809		0.8065	1,459	
1984	1,860			1,860		0.6504	1,210	
1985	1,041	630		1,671	1,224	0.5245	876	642
9861		1,434		1,434	2,760	0.4230	209	1,167
1987		1,585		1,585	3,113	0.3411	541	1,062
1988		1,750		1,750	3,500	0.2751	481	963
1989		1,937		1,937	3,933	0.2218	430	872
1990		2,152		2,152	4,413	0.1789	385	789
1991		2,265	45	2,310	4,665	0.1443	333	673
1992		2,265	273	2,538	4,665	0.1164	295	543
1993		2,265	517	2,782	4,665	0.0938	261	438
1994		2,265	518	2,783	4,665	0.0757	211	353
1995		2,259	518	2,777	4,665	0.0610	169	285
9661		2,253	518	2,771	4,665	0.0492	136	230
1997		2,253	518	2,771	4,665	0.0397	110	185
1998		2,253	518	2,771	4,665	0.0320	89	149
6661		2,253	518	2,771	4,822	0.0258	71	124

Table III-6 COMPARATIVE ECONOMIC INTERNAL RATE OF RETURN (350,000 MTA ETHYLENE PLANT)

		Economic Cost	Cost		Economic	Discount	Present (Discount R	Present Value (Discount Rate = 0.245)
	Capital Cost	Operating Cost	Opportunity Loss	Total	Benefit	Factor	Economic Cost	Economic Benefit
1982	854			854		1.0000	854	
1983	1,938			1,938		0.8032	1,557	
1984	1,995			1,995		0.6451	1,287	
1985	1,110	637		1,747	1,224	0.5182	905	634
1986		1,451		1,451	2,760	0.4162	604	1,149
1987		1,602		1,602	3,113	0.3343	536	1,041
1988		1,767		1,767	3,500	0.2685	474	940
1989		1,954		1,954	3,933	0.2156	421	848
1990		2,170		2,170	4,413	0.1732	376	764
1991		2,313		2,313	4,732	0.1391	322	658
1992		2,467		2,467	5,074	0.1117	276	267
1993		2,632		2,632	5,441	0.0897	236	488
1994		2,633		2,633	5,443	0.0721	190	392
1995		2,626		2,626	5,443	0.0579	152	315
1996		2,620		2,620	5,443	0.0465	122	253
1661		2,620		2,620	5,443	0.0373	86	203
8661		2,620		2,620	5,443	0.0300	79	163
1999		2,620		2,620	5,601	0.0241	63	135
Total							8,552	÷8,550

Note: EIRR = 24.5%

ATTACHMENT III-1

FINANCIAL STATEMENTS FOR 230,000 MTA ETHYLENE PLANT PROJECT

- Income Statement
- Fund Flow Statement
- Balance Sheet
- Production Cost Statement
- IRR Calculation on Total Investment
- Profitability and Financial Indicators

(0001 550) *** FIRANCIAL PRIJECTIONS OF PTF ETHYLENE PLANT PROJECT ***
INCUME STATEMENTS (FOR YEARS ENDING DECEMBER 31)
(LASE : UTILITIES CLNTER IS INTEGRATED) (USS

				;							
23		230000.	230000.	230000.	230003.	230000.	230000-	230000.	230000.	230000.	230000.
PRODUCTION ASSESSACE TRANSMITCHES	42200.	17750G-	2602002	225106-	230000.	230000	230000-	230000-	230000.	230000.	230000-
, 1		i	200-001	225100-	230000	230000	230000	230000.	230000.	230000.	230000-
κεVĒNŬE 55	55050.	124250.	140140.	157570.	161000-	161000.	101000.	161000.	161000.	161000.	161000.
	45919-	101390.	110304.	120091.	121715.	121715.	121715.	121715.	121715.	121715.	110346.
MCRT12AT13W	31464.	68398.	77.511.	87398.	88722.	88722-	88722.	88722.	88722	88722-	88722.
ر ا	5128. -2042.	10 0	10255	10255.	10255.	I	10255.	10255.	10255.	10255.	10255.
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	71/1.	22doù•	2,0075.	3(4(30	39285	39285	39285	39285.	39285.	39285.	50654.
SALËS EKPENSES	955.	.8202	2206.	2402	24240	2434-	2434.	2434.	2434-	2434.	2207.
PP. 1 נוס (ריס אם וויים	4212.	20332.	27630	35077.	36851.	36851.	36451.	36851.	36351.	36851.	48447.
T CNG TERM CEET I HURT TERM CEST	11524.	600	21281.	19273.	16964.	14663.	12254	10053.	7748.	5443.	3138.
(LUSS) BEFORE TAX	1-1	-1708.	6350.	15405.	19883.	22188.	24493.	26798.	25103.	31408-	45305*
INCOME TAX		0.	0.	0.	0.	0	0.	0.	0	0	0.
FIT JK (L1355) AFTEN TAK =3	-3312-	-1768.	6350-	15905.	19883	22168.	24+93	26798.	251033	31408.	45309*

PRODUCTION AND SALES	PPOFIT CR (LISSI) AFTER TAX 58761. 59746. 00043. 60043.
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*** FINANCIAL PROJECTIONS OF PIT ETHYLENE PLANT PROJECT ***
FUNDS FLOW STATEMENTS (FOR YEARS ENDING DECEMBER 31)
(BASE : UTILITIES CENTER IS INTEGRATED) (US\$ 1000)

1661 1661 0661	59589. 59589. 59589	59589. 59589. 59589.	36851.	22737. 22737. 22737. 0. 0. 0. 0.		0. 0.	.	0.0	38039. 35734. 33429.	0, 0, 0.	 	0. 0. 0.	0.	* 0	0 0 0	0 0 0	0 0 0	0	. 35734. 3342	23376. 23376. 23376.	0	14663. 12358. 10053.	0	0 0 0	21549. 23854. 26159.
1989	59808.	59589.	36851.	22737-		0	o d	219.	40854-	0	ď	0.	0.	0	510.	463.	0	47.	40344	23376.	0.	16968.	0	•0	18954.
1988	59130.	57815.	35077.	22737.		0	• •	1321.	45239.	0	-0	0	ô	0.	2590.	2353.	0	237.	42049.	23376.	0.	15273.	0	0	.12841.
1961	51571.	50368.	27630.	22737.		ចំ	.	1203.	43001.	0	6	ő	0	°	2361.	2145.	0	216.	40639.	19359.	0-	21281.	0	0	8570.
1940	48555.	43569.	20832	22737.		0	.	4986-	44232•	0	-6	Ġ	0	ò	10244.	9337.	0	90B	33987.	11387.		22630.	.	Û	4324.
1985	64005-	19581.	8212.	11369. 40177.		10	-//104	4248.	61253.	37758.	10	27551.	5217.	4550	10262.	7437.	2045	783.	13233.	1708.	0.	11524.	0	0	2752
1984	19712.	0	0	0. 79712.		- 1-	19/12	0	79000.	79060	0	65312.	3130.	10018.	•0	0.	0	0.	*n	5	0	o o	· 0	٥.	652.
1983	79712.	0 *	0.	0. 79712.	-	Ole	.71/6/	0	76973.	76973.	0-0	65312.	1043.	10018.	0	Ċ	0	0.	0	0		ပံ င	0	ů	2735.
1967	7		0	.0 34162	-	0	.7914c	o	33.958.	33958.	373.	27991.	1043.	+550.	0	1	0.	0.	0	1	9	ပံ င	0.	0	205.
	SOUNCES OF FUNDS	GENERATED FACH OPERATION	PROFIT BEFORE TAX, INTEREST	IZATION		CAPAR CAPILAL	SADAT TERM DRBT	INCREASE IN ACCT PAYABLE	SES OF F	INVESTMENT IN FIXED ASSET	LANG AND SITE IMPROVEMENT	CCNSTRUCTED FACILITIES	PRE-INVEST. & START-UP EXP	INTEREST DUZING CONSTRUCTN IMUREASE IN CURRENT ASSET	OTHER THAN CASH	INCR(DECK) ACC 7 RECEIVABLE INCR(DECK) IN INVENTORIES		MATERIALS	DEBT SEFVICES	T OF LONG TERM	CF SHIRT TERM	ISTERMST ON LONG TEXT OFFICE INTERMOTION SPEET TEXT DEET		DIVIDENDS PAYMENT	CASH :NGREASE DR (CECREASE)

	5661	1994	1995	1990	1661	1558	1499
- ;	55549.	54589.	59816.	60043.	60043.	60043.	60043.
CASH GENERATED FAGM CREAATION	59589.	59589.	59816.	60043.	60043.	60043.	\$0043*
PROFIT BEFORE TAX, INTEREST	36851.	36851.	48447.	60043.	60043	60043	60043,
DEPRECIATION & AMORTIZATION FINANCIAL RESOURCES	22737.	22737.	11369.	0.0	00	0 0	0.0
SHAPE CAPITAL	0.0	0	0.0	-0		6.0	.0
	00	00	0 0	0 0	0 0	o c	000
PAYABLE	0	°	0	0	0.	ó	0.
USES OF FUNDS	31125.	28820.	24807.	13272.	4315.	0	• 0
INVESTMENT IN FIXED ASSET	0.	0.	0	0.	0	0.	0.
LAND AND SITE IMPROVERENT	0.0	0.0	0.0	0-0	0.0	0	
CCNSTRUCTED FACILITIES PRE-INVEST & START-HO EXP	•	6	0		0.0	Ö	°
INTEREST DUAING CONSTAUCTN					•	o	0.0
OTHER THAN CASH	0	0.	0.	0.	0.0	0	0.
INCRIDECK) ALC I RECEIVABLE INCRIDENCE INCRIDENCE	9	0	0	D	0	0	0.
1	3 5	00	00	0	0 0	0 0	0.0
DEST SERVICES	31125.	28820.	24607.	13272.	4315.	0.	0.
REPAYMENT OF LONG TERM CEBT	23376.	23376.	21008.	11989.	4018.	Ö	• 0
	77+8.	5443.	3138.	1233.	297.	0	0
PAYMENT	0	Ü	O.	0	0	0	0
ENES PAY 1ENT	}		0.	0	-0	0.	0.
CASH INCREASE ON (DECREASE)	28464.	30765	35009.	46772•	55749.	60043.	66043.
BEGINNING CASH BALANCE	123650-	152126.	182849.	217858.	264670.	320358.	3834+2.
ENDING CASH BALARL	152120.	- ASKSK -	217398	346.47.3	370394	380642	45.34.85

	1942	1983	1984	1985	1486	1351	1588	6861	0661	1661	1992
ASS = 1.5	341624	113674.	143586.	232993.	224820.	213015.	200764.	203490.	202302.	203419.	206841.
CURKENT ASSETS	205.	2944.	3596.	16611.	31179.	42110.	58597.	78061.	99610.	123465.	149624.
ACCCUNTS RECEIVABLE	205.	2944.	3596.	6348. 7437.	10672.	19242.	33139.	52093. 21735.	73	97497.	123656.
INVENTURIES PRODUCTS MATERIALS	5 0	ن ه	00	2042.	2042.	2042.	2042-	2042.	2042.	2042-	2042.
NET FIXEC ASSETS	33956.	110930.	189990.	216379.	193642.	170904.	148167.	125429.	102692.	79954.	57217.
INVESTMENT	33958.	110930.	169990.	227748-	227748.	227748-	227744.	227748.	227748.	227748-	227748.
CONSTRUCTED FACILITIES	373.	n in in	373.	-	373.	373.		373. 180605.	373-	373.	373.
INTEREST DURING CONSTRUCTS	4550.	15108.	25786.	30336.	30336.	30336	30330	30336.	30336	30336.	30336.
LESS.GEPRECIATN & AMONTIO	0	0	0	11365.	34106.	56844.	19561	102319.	125056.	147794-	170531-
Liabilities	34162.	113374.	193586.	236302.	229901-	211746.	189681.	166533.	143157.	119781-	96405.
CURRENT LIABILITIES	2	0	1708.	15635.	28592.	33813.	35135.	35354.	35354.	35354.	35354.
ACCOUNTS PAYABLE	1	9.0	. c	4248.	9234.	10437.	11758.	11577-	11977.	11977.	11977.
OIVIDENDS PAYAGE		3	• •	o	0.	3	· o	•	0	0.	0
EKA CEST TEKA DEBT	ပီ ခါ	ပံ ပံ	1706.	11387.	19359.	23376.	23370. 0.	23376. U.	23376.	23376.	23376.
TIAKT GEXI	341624	113374.	151876.	20667	201309-	177532-	154556.	131180.	107403.	84427.	61051-
LCNG TEXA DEST BALANCE	34102.	113874.	1,1878.	223007.	201309.	177932.	154556.	131180.	107803.	84427.	61051.
STUCK HCLUERS SAUITY	•0	0	0.	-3112.	-50¤0•	1269.	17074.	36957.	59145.	83638.	110436.
ine Capital Talved Equings	0.0		000	-3312.	-50005-	1269.	1707.	36.357.	.0.	0. 83638.	0.

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CENTER IS INTEGRATEL.	1661	3407.94	346366.	320398. 21735.	2042.	373.	227748.	373- 136505- 10434- 30336-	227375.	11977-	11977.	11977.	0.	00.7	0	10	33.4762.	7	1
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		A58ETS	CURNENT ASSETS	RECEIVA	INVENTURIES PROCICTS MATERIALS	NET FIXEC ASSETS	INVESTMENT	LANG & SITE INFRCYERENT CONSTRUCTED FACILITIES PRE-INVEST, & SIARI-UP EXP INTEREST DURING CONSTRUCTN	SS.LEPRECIETA & AN	רושפורוויבפי	CURNENT LIABILITIES	INTS PAYABLE	CONTENT PORTION OF DEST	LUNC TERM DEST	FIXED LIABILITIES	LCNG TERM CEST o	STJCK HCLVERS EJULY		the state of the s

9330. 9330. 522. 1517. 110346-0-4758 115691 86089. 1610. 87699. 6279. 2245. 214. 156. 1023. 11369. 9.55 929. 1858. 5558. 2799. 2207. 84. 589. 1375. 926. 163. 230000 10255 1995 121715. 86089. 1610. 87699. 6279. 2245. 214. 156. 156. 18660. 1043. 3034. 22737. 925-1858-5558-2799-2434-421-11375-2161-1263-222-5443-230000. 22737. 929. 0.5634 129592. 88722 10255. 86089-1610-87699-6279-2245-2245-214-156-1023-929. 1858. 5598. 2799. 758-2161-2947-18660. 1043. 3034. 22737. 976 2434. 1600-282-7748-0.5735 230000 22737. 88722. 131397 10255. 1493 18660. 1043. 3034. 929. 1858. 5598. 2799. 80089. 1610. 87699. 6279. 2245. 214. 156. 2947. 3723. 1937. -675 3+L-10053-1023. 0.5035 230000. 88122. 22737. 22737. 10255 2434. 134202 0. 22737. 227... +03. 87699 6279 2245 2245 156 156 18660. 1043. 3034. 929. 1854. 5598. 2759. 121715. (15 \$ 1000) 22737. 130247 3643.0 230000. 88722. -625 2434. 10232 1661 230000. 220000. -7871. 1023. 1610. 1610. 87699. 185ë. 5558. 2795. 121715-14603. £279. 2245. 214. 156. 88124. 18660-1043-3034-22737. 926 1768. 4519. 5305. 2611. 0.6635 138812 22737 0551 10255. *** FINANCIAL FACULTIONS OF PIT ETHYLENE PLANT PROJECT PACIFICAL FACUCTION GOST STATEMENTS

(BASE 1 UTILITIES CENTER IS INTEGRATED) 18660. 1043. 3034. 22737. 86089. 1610. 87699. 6279. 2245. 214. 156. -676 121715-88722. 5548. 2749. 22737. 676 0 , 514. Loyod. 0.6136 1858. 10255. 2434. 2105. 5305. 6091. 1989 7947 01 3.6258 145. -7320. 1267. 3.5335 22737-22737. 925 5558. 2793. 225133-4709E. 1043. 3034. 2402-2442-6091-6877-£145. 2088. 10255. 41765. 30. 22757. 18600. 1043. 3034. 110304. 186. 133. -67.30. 24737. 424 162d. 5598. 2799. 5445 U. t. 63 2002302 2775. 401. 975 10255-.593. 21281. 7731I. 22ub. 663 5161 1881 1 40018. 66438. 1243. 67681. 101390. 1043. 22737. **68398** 10255. 7603. 177500. 22737. 5558. 2755. 593. 22000. 1762. 7d60. 2028 30767. 31343. 2244. 962. -2164. 423. 2754. 1460. 47501-1084. 257. 1154. 405. 465. 956 lod4. 42200-31+64. 11367. 11367 2120. 393u. 1930 ETHANE
CATALYSTS G CHEWICALS
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UTILITIES SALE (10 VCM/MLPC)
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DEPPECIATION (FRE-INVEST)
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*** FINANCIAL PHOJECTIONS OF PTT ETHYLENE PLANT PAUJECT ***
PREDUCTION CAST STATEMENTS
(DASE : UTILITIES CENTER IS INTEGRATED) (USS 1000)

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*** FIGANCIAL PACJECTICNS OF PIT ETHYLENE PLANT PROJECT ***

JAN CALCULATION ON TOTAL INVESTMENT

(BAS* : UTILITIES CENTER IS INTEGRATED)

(DAS* : UTILITIES CENTER IS INTEGRATED)

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Logci senj

1942 1940	10 10 10 10 10 10 10 10	14.00 14.0	1982 29407. 1983 68455. 1984 68442. 1985 39522. 1986 0. 1987 0. 1991 0. 1992 0. 1994 0. 1995 0. 1995 0. 1995 0. 1996 0. 1997 -6384. 1999 0. 19	164 00 -3312 -3312 -1768 -1768 -1768 -1768 -1768 -2716	EP. EC. ATN 0 0 11369- 22737- 22737- 22737- 22737- 22737- 22737- 22737- 22737- 11469- 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11.524. 11.524. 11.524. 12.560. 12.560. 12.560. 12.560. 12.560. 12.560. 13.56. 14.623. 17.48. 17.48. 17.48. 17.48. 17.48. 17.48. 29.7. 29.7. 20.6.	4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	20 08 8 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	100 EST. 25407. 55045. 47167. 22439. 0.0. 0.0. 0.0. 0.0. 0.0. 0.0. 0.0. 0	11.12.06.92 1.04.92 1.04.92 1.04.93 1.05.06.	TAAX	144x 143569- 19581- 43569- 59589-	1.0000 1.0000 0.8302 0.8302 0.5721 0.5721 0.1574 0.1576 0.1576 0.1556 0.1687 0.1687 0.0613 0.0613 0.0613	29407, 29407, 25085, 47167, 22439, 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	
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13.1 20.9 12.4 therefore 5.04 4.92 1.91 21./79, 58.3 576.2 13.5 18.4 13.4 therefore 10.18 10.10 2.41 2.7/94, 55.0 566.9 24.1 21.4 15.4 therefore 10.18 10.40 2.41 2.7/94, 55.0 566.9 30.5 21.4 25.1 therefore 10.7 17.91 4.52 0.7/100, 15.0 457.7 37.3 15.2 25.7 therefore 28.92 24.56 13.92 0.7/100, 15.0 457.7 37.3 15.2 25.7 therefore 33.93 33.59 therefore 10.7/100, 14.6 438.9 37.3 13.2 25.7 therefore 10.41 10.41 therefore 10.7/100, 14.6 438.9	13-1 20.9 12-4 #******* 5.04 4.92 1.91 21.7 79. 58.3 576.2 13-5 18.4 18.4 #****** 6.21 6.08 2.07 9.7 91. 55.0 566.2 24-1 21.4 25.4 #****** 10.18 10.40 2.41 2.7 92. 45.4 56.5 30-5 21.4 25.4 #***** 18.17 17.91 4.52 0.7 100. 16.0 457.7 37.3 15.2 25.7 #***** 28.92 24.56 13.92 0.7 100. 14.6 438.9 37.3 15.2 25.7 #***** 38.9 36.9 36.9 66.9 37.3 15.2 25.7 #***** 38.9 36.59 36.59 66.9 37.3 15.2 25.7 #****** 38.9 36.59 36.59 66.9 10.0 60.7 13.0 ##***** 10.61 10.43 ##***** 44.7 50. 49.9 566.9 20.2 15.7 13.0 ##***** 6.86 6.71 2.18 34.7 66. 34.7 60.7 15.0 ##***** 6.86 6.71 2.18 34.7 66. 34.7 60.7 13.0 ##***** 44.0 6. 45.0 6.0 6.7 35.3 34.7 60.7 13.0 ##****** 6.86 6.71 2.18 34.7 66. 34.6 60.7 13.0 ##****** 6.86 6.71 2.18 34.7 66. 34.7 60.7 60.7 60.7 60.7 60.7 60.7 60.7 34.8 60.7 6			11.5	*****	4-23	4-11	1.78		61.6	586.3	62.5
19.5 18.4 13.4 48880888 6.21 6.08 2.07 9.7 91. 55.0 566.2 24.1 21.4 25.4 4888888 10.18 10.40 2.41 2.7 52. 35.3 547.8 37.5 17.9 25.4 4888888 28.92 24.56 13.92 0.7100. 15.0 457.7 37.3 15.2 25.7 4888888 33.93 34.58888888888 0.7100. 14.6 438.9 37.3 13.2 25.7 4888888 38.94 34.58888888888 0.7100. 14.6 438.9 10.0 60.7 12.0 488888 10.61 10.4388888888 44.7 50. 49.9 566.9	19.5 18.4 13.4 ******** 6.21 6.08 2.07 9.7 9.7 9.5 5.0 56.2 24.1 21.0 15.4 15.3 15.3 15.3 15.3 15.7 8 37.1 17.9 25.1 ******* 10.18 17.91 2.7 9.7 10. 15.0 15.7 8 37.1 17.9 25.1 ******* 28.92 24.56 13.92 0.7100. 15.0 457.7 8 37.3 15.2 25.7 ******* 38.9 3 33.58******** 0.7100. 15.0 438.9 37.3 15.2 25.7 ******* 38.9 3 33.58******** 0.7100. 15.0 438.9 10.0 66.7 13.0 ******* 10.61 10.13******* 44.7 56. 49.9 566.9 20.2 15.7 13.0 ******* 6.86 6.71 2.18 34.7 66. 49.9 566.9	F66		12.4	***	5.04	4.92	16.1		58.3	576.2	59.2
26.1 21.0 15.4 \$25.4 \$25.4 \$25.4 \$2.7 \$6. 35.3 \$47.8 \$35.5 \$21.4 \$2.7 \$6. 35.3 \$47.8 \$35.5 \$21.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.4 \$25.5	26-1 21-0 15-4 \$****** 10-18 10-00 2-41 2-7 56. 35-3 547.8 30-5 21-4 25-1 ******* 10-18 10-00 2-41 2-7 56. 35-3 547.8 37-1 17-9 25-1 ******* 18-17 17-91 4-52 0-7100. 16-4 438.6 37-1 15-2 25-2 ****** 34-92 24.58****** 0-7100. 14-6 438.9 37-3 15-2 25-7 ******* 34-93 34.58******* 0-7100. 14-6 438.9 10-0 60-7 15-0 ******** 10-61 10-43******* 0-7100. 14-6 438.9 20-2 60-7 15-0 ************************************	į		13.4		6.21	80.0	2.07	- 1	55.0	566.2	55.9
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37.1 17.3 25.6 4****** 28.92 24.56 13.92 0.7100. 15.0 457.7 37.3 15.2 25.7 ******** 33.93 34.58******** 0.7100. 14.6 438.9 37.3 15.2 25.7 ******** 38.94 34.58******* 0.7100. 14.6 438.9 16.0 66.7 13.0 ************************************	37-1 17-3 25-6 ******* 28-92 28-56 13-92 0.7100. 15-0 457.7 37-3 15-2 25-7 ******* 38-93 33-58******** 0.7100. 14-6 438.9 37-3 15-2 25-7 ******* 38-94 36-59******* 44.7 50. 14-6 438.9 10-9 60-7 12-0 ******* 10-61 10-12****** 44.7 50. 49-9 566-9 20-2 15-7 13-0 *******	30		25.1	***	18.17	17.91	4-52	0./100.	16.4	496.6	33.5
37.3 13.2 25.7 ****** 38.94 34.59******* 0./100. 14.6 438.9 37.3 13.2 25.7 ******* 38.94 30.59******** 0./100. 14.6 438.9	10.0 60.7 13.0 ******* 38.94 30.59******** 0./100. 14.6 438.9 10.0 60.7 13.0 ******	37		25.¢	***	28.92	28-56	13.92	0.7100	15.0	457.T	20-7.
56.5 13.4 25.4 ****** 58.94 36.59****** 0./100. 14.6 438.9 14	10.0	, ,		7.27	****	33.43	33.28**			14.0	4.30.9	4-6
10.0 60.7 13.0 2828846 10.61 10.4327848888 44.750. 49.9 566.9 50	10-0 60-7 13-0 ******* 10-61 10-43***** 44. 50- 49-9 566-9 50 20-2 15-7 13-0 *******			13	* * * * * * * * * * * * * * * * * * * *	38-94	36.59**		001/-	14.6	~ I	•
	20.2 15.7 15.0 ******* 6.86 6.71 2.18 34.7 66. 10.1 SUM OF ANNUAL FIGURES OF PERCENTAUE AND RATIO IS DIVIDED BY NO. CF YEARS(SIMPLE AVERAGE)		ą o	13.0	***	10.61	10.4	*****	4.7 50	6*64	566.9	0
<0.2 15.7 15.0 ****** 6.86 6.71 2.18 34.7 66	(4VEHAGEI) : SUM CF ANNULL FIGUATES OF PENCENTAGE AND MATIO IS DIVIDED BY NO. CF YEARSISIMPLE		57	13.0	****	6-86	6.7	2.18	4.7 66)

ATTACHMENT III-2

FINANCIAL STATEMENTS FOR 300,000 MTA ETHYLENE PLANT PROJECT

- Income Statement
- Fund Flow Statement
- Balance Sheet
- Production Cost Statement
- IRR Calculation on Total Investment
- Profitability and Financial Indicators

*** FINANCIAL PROJECTIC+S OF PTT ETHYLENE PLANT PROJECT ***
INCL 4= STATEMENTS (FJR YEARS ENDING WECEMBER 31)

[@ASE : UTILITIES CENTER IS INTEGRATED 1. ____ (US*_1000).

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SALES REVENUE	\$5050	124250-	140140.	157570-	177050.	198660.	213000.	210000.	210000.	210000-	210000-
		104755.	-	123342.	134279.	146860.	153456.	153456.	153456.	153456.	140698.
	31270-	67977.	76837.	86565.	97501.	110082.	116673.	116678.	116678.	116678-	116678.
STHER FIXED COST TINC IN PACOUCT INVENTURES	5631. -2114.	11262.	11262.	11262.	11262.	11202.	11262.	11262.	11262.	11262-	11262
ı Lı	7546	7775	,6526	36671	15757	00418	1259	745.14	46.46	77275	49302
SALES EXPLASES	27.56	2055	2272-	2467.	2686.	2937-	3069.	3069.	3069.	3069.	28142
ra (LOSS)	6553.	17400.	24453.	31761.	4000p	40863.	5 34 75.	53475.	53475	53475.	66488
1935 INTEREST ON LUNG TERM DEET ON SHUNT TERM DEET	12059-	25254.	23014. 923.	215e3. 751.	18983.	16405.	13823.	11244.	8664.	6084.	3504.
DEFL-48 Tax	-0346-	-7054.	-463-	-0445	21363.	32400.	15052.	42231.	44411.	47391.	62984.
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ב אאז אפי אפיז אר נפפטטו אר זוקניק	63763	-7094-	-483	-9555	-ce <u>0</u> 17	32460.	33052.	42231.	44811.	47391.	62984

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*		\$ 7 E F
*** FINANCIAL PROJECTIONS OF PTT ETHYLENE PLANT PROJECT ***	FUNDS FLOW STATEMENTS (FOR YEARS ENDING DECEMBER 31)	こうかんしょうしょ コード・コード・コード・コード・コード・コード・コード・コード・コード・コード・
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	7957	1983	1967	5861	1946	1961	1999	6861	0661	1661	1992
SOURCES UF FUNCS	38330	89436.	89436.	67975.	52997.	55140	58290.	67.58.	70071.	79681。	78991.
ASH GENERATED FRO	0	0	0	19311.	42916.	45765	57277.	65582	74379.	78991.	78991.
PROFIT BEFORE TAX, INTEREST DEPRECIATION C AMORTIZATION INTANCIAL RESOURCES.	3634	99436	99,436 *	12758- 44443.	17400- 25510- 5120-	24253. 25516. 4175.	31761. 25516. D.	40066-25516-	48863. 25516.	53475. 25516.	53475. 25516.
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	040		88698	O I	48315.	53944.	55244.	48040.	45782.	41673.	374084
	38340	86265.	88698	42525.	.0-	ΰ	0.	0	0	0	0,
LAND AND SITE IMPROVEMENT	573	, ,	ی	0	0	0.	Q.	0	0	0	0
CCASTALCTED FACILITIES DESTINATION OF P	31347	73142	73142.	31347.	.	•	•	o c	•	.	• •
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	00	30	000	2114.	908	216.	237.	265.	294.	154.	60
DEST SERVICES	٥	0	0	14810-	38071.	51563.	52654.	45144	4256d.	39988-	37408-
LING TE	ی د	00		1916.	12777.	21720.	26165.	26165.	26165.	26165.	26165.
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CAR TAX PAYMENT	50	i	0	0		963.	ní 💮	0	0	0	0
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ECR 5.45.8.1	1	1 41	738-	300-	46.82.	1156.	39.462	15015.	30295.	38208.	41583.
BEGINNING CASH BALANCE	٥	-58C-	3457.	4155-	44.55	5177-	10375.	13719.	32737.	63032-	101241-
BIOLING CAUR ALLINCE	•66.2	3457.	4135.	4475.	9111.	10573.	13715.	32727.	63032.	101241	142823.

*** FIMANCIAL PROJECTIONS OF PTT ETHYLENE PLANT PROJECT ***
FUNCS FLOW STATEMENTS (FOR YEARS ENDING DECEMBER 31)
(BASE : UTILITIES CENTER IS INTEGRATED) (UNS 1000)

651 1651 1668 1699 c	6. 79531. 7950 <u>1</u> . 7950 <u>1</u> . 7950 <u>1</u> .	c. 79501. 79501. 79501. 79501.	79531. 7950	0 • 0	.0. C.	 	2. 14a16. 4773. 0. 0.		• • • • • • • • • • • • • • • • • • • •	. U. O. O.		0 0	U. C 0 0 0.	U. C. 0. 0. 0.		14816- 477	13188 6566	13388* +744* U.	1423 329 0.	0.000		0. 0. 0. 0.
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1443	1	1	53475. 25516.	ا!	0.	0	34328.			;	.	0.	100	***	0	J4828.	26.18.5	0.0	4000	0		
		1	PROFIT DEFORE TAX, INTEREST DEPRECIATION & AMORTIZATION	Thisancial Arounding	SHAPE CAPITAL	INCREASE IN ACCT PAYABLE	FUNCS	INVENTITION OF THE PROPERTY OF		LANC AND SITE IMPREVENT	CONSTRUCTED FACILITIES PARTINABLE & STAKTHUP MAP	ر روا	/1	INCALLECAT ACC TARCELVERE	PROCEST	SETIATE FEED	A A A A A A A A A A A A A A A A A A A	TERM	2 Y	TAX PAYALIT	DIV. CONES PAYSONT	

142823. 15752. 130148 130148-12145. 240308 191365. 176146. 2858. 64163. 2555324 180065. 161599. 136325. 1101EL. 41916. ċ 26165. 히 68245. 34037 1992 68245 373. 208577. 12145. 34037. 87516. 101241. 00 2858. 165853. 15752. o' 26165. 87516. 89679* 94409 224242 134563. 41916. 94409. ò 255532 1661 373. 208977-12145-41026. 48265. 2098642 63032. 26419. 94669. 2703. 213007. 242774. 217258. 191742. 166226. 140710. 115195. 140337. င်ဝ 34037. 14861-20105 146738- 120574-2114. 120574. 48265. 1990 255532. 255532. 11060. 13163. 00. 00. 373. 208577. 12145. 201870-32737-15805. . 10001 \$\$01 ... 2409-114822-61160-20105. 34037. 146738. 15805 6961 373. 204977. 12145. 34037. 2354.76. 83306. 39249. 2114--547d. 201255. 239766. 213754. 21272 255532 20105 172903. 172903. -5276. 1989 FI MANGIAL PROJECTIONS OF PTT ETHYLENE PLANT PROJECT.
EALANCE SHEET (FOR YEARS ENDING SECEMBER 31)
.... (. SACE.: UILLITIES.CENTER IS INTEGRATED.) 373. 208977. 12145. 34037. 10373. 0. 10373. 247014. 225056. 18919, 2114. 63750. -14724. 255532. 2555,22. 255532. 40712. 246952. 225234. 199067. 32313. 20165. 4175. -14724-1987 199067. 16734. 373-208917-12145-34031-36023. 5177. 0.5 5140. -14241--1+2+1-2114. 38274. -67177 29756. 225232-1940 į 373. 238477. 12145. 34037. ... o -0340-4495. 7437. 2114. 4221. 0. 0. 257604. 703. 12758. 263950. 17117 -6346-16598-246952 1985 373. 177634. 6073. 28931. 215236. lċ o O 217232. ္ခံ 215007. 21,7202. 000 0 4195 0 1910, إد 1916. 00 4195. 215280. 1584 1 31347. 104466. 1215. 2429. 5106. 17016. 34040. 124309. 147706. 3457. 0 3457. 127760. ö ö ئة ت 30330. 12770c. 124365 ċ 1000 ò 0 1 147760. 1483 00 i 1 1 296. 38330. **-**367 3 3 300 0. ဒ 00 **33040.** .00,00 3 5 3,3 30330. 7961 LAND 6 SITE IMPROVEMENT CONSTRUCTED FALILITIES PRETINUEST. 6 START-UP EXP INTEREST DURING CONSTRUCTN LESS. CaPaciatio AMSFILLT ACCOUNTS PAYABLE

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CLASS PAYABLE 36145 ACCCURIS RECEIVABLE INVENTORIES CUSAENT LIABILITIES E.L.1TY SHARE CAPITAL SET ALS Fixe Llacitaties LENG TEAM JEBT NET FIXEL ASSETS • CURRENT ASSETS MATERIALS PRCLUCTS INVESTAENT STOCK HOLDERS Lissicities CASH ASSETS į

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	(UAse	-	LITIES CENT	ENTER IS INT	INTECHATED)	n)	13\$ 1000)				
	Lyda	1,186	1987	1948	1989	0561	1551	7667	1993	1994	1995
PA JDUCTION	82260.	177500.	200200	225100.	252900,	283.800.	300000	30,000.	300000	300000	300000
ETHANE	30767.	66438.	74935.	84255	94660.	1062762	112290-	112290-	112290.	112290-	112290-
إوما	575	1243	-	15764	1770	1987	2100	2100.	Z100	2100	2100.
RAW MATEMIAL COST File GAS (1)	31343.	67081.	76336.	8583L	96431.	108213.	114390.	114390	114390	114390	114390
. – ،	902	1702.	1919.	209d.	2245	2245	2245	2245	2245.	2245	2245.
AAN NATER (2)	63.	122.	133.	145.	156.	156.	156.	156.	156.	156.	156.
UTILITIES SALE (TO MCKARDE) UTILITIES COST	_31 <u>04.</u> _73.	-6175- 256-	-673U. 50U.	-732U- 734-	-7871-	1869.	2288.	-7871. 2288.	-7471- 2288.	-7871-	-7871- 2288-
VARIABLE 105	31276	67977.	70837.	86565.	97501.	110082.	116678.	116678-	116678-	116678.	116678.
DEBLECTATION (PRICES DI SAT)	10440	20808	20804	20208	anger C	20408	20498	20808	20898	2089R	10449
シアレーツィム	607	1214.	1214.	1214-	1214.	1214*	1214.	1215.	1214	1214	607.
DEPRECIATION (INTEREST DUST)	1762.	3404	3404.	3404	3404.	3404	3404	3404	3404	3404	1702.
AMOPTIZATION	.0	0.0	.0	0	0.0	0.0	.0	0	0	0	•
DEPRESIDATION & APURTIZATION	12758.	25516.	25516.	25516.	25516.	25516.	25516.	25516.	25516-	25516.	12758-
LABLE CCST	465.	-576	976	-626	926	525	926	529-	956*	929-	525-
CANDARA CONTRACTOR OF THE CONT	465	929	929	-675 -676	427	929	929	25.0	929	929	929
	31.25	6265	65079	6265.	6269.	6269.	6269.	6263.	6269.	6269-	6269
	5,7°	!	31.35.	3135.	3135.	3135.	3135.	3135.	3135.	3135	3135.
		11262-	11202.	11262-	11202.	11262.	11262.	11262.	11262.	11262.	11262.
EX-FACTERY PRODUCTION COST	+9655.	164755.	113014.	123342.	134279.	146566.	1>3456-	153456.	153456.	153456.	140698.
ד באבדאונה כ	0.0041		0.5675	66.5479	0.5310	0.5175	0.5115	0.511	9115-0	0.5115	0695-0
- J.) - 7 J.) - 4 d.)	953.	2055-	24.72.	2407.	2686.	2957.	3069	3069	3069.	3069-	2814.
N L	1850	3450	3116	27-0-	2302.	1,484	1606.	1228-	850.	472-	96
がって マスコースト このはないとす	44044	Bala.	8598	7716.	683+	5,52	5071	4185	3307	2425	1543.
INTERMIST ON FORM AND	18,0.	3779.	5775.	3645.	3307.	2925-	*1557 *03	2173.	1795.	1417-	1039.
CN LONG-TEAM	12455-	25254.	23814.	21563.	18783.	16403.	13425.	11244.	8064.	6084	3504.
Taga Want I taga	0	0	923-			0	0	ò	0	ò	0
CLUCTICN COST	10000	1:2144.	140023.	14812	1559+7+	166200.	170343.	167769.	165189-	162505-	147016.

	1950	1461	1594	6561	
PRODUCTION	*00000f	3000c	300000	300000-	
	112256.	112250.	112290.	112290.	
CATALYSTS & CHEMICALS	2100.	2100-	2100.	2100.	وروان المراجعة والمراجعة و
FUEL GAS (1)	.0057 7500.	.0657	7500.	7500.	
FUEL GAS (2)	-245-	2245	2245.	2245.	
X18 50 00 (1)	25E.	25E-	2.56.	256.	
UTILITIES SALE (TC VCM/HUPE)	-7071-	-7071.	-7071.	-7671.	
 	248B.	2268.	2cdb.	2268.	
VARIABLE COST	116678.	116678.	116678.	116678.	
DEFRICATION (FRICAUN FIRST) DEFRECION (FRICALINALINALINALINALINALINALINALINALINALIN		. 6	. 0	• •	
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ARJA 1 1 2 AT 1 GN	0	0.	0	•	
1241	0	0.	0	0	
ļ.	928.	929	926.	929.	
CVERPEAC	-676	929	456	525	
MAINTENANCE COST	1358.	185E. 6269.	1658.	1858 . 6265.	
TAX E INSURANCE OTHER FIXED COST	3135.	3135.	3135.	3135.	
DIRECT FIXED COST	11262.	11262.	11262.	11/62.	
PACOUCTION COST	127940-	127940.	127940.	127540.	
ST	i	0.42	974-0	0.4265	
Exp.	.559	10	2559.	2555.	
	3	ئ ا	0	0	
INTEREST ON LEGIC MO.Z.	0°	. c	င်္ခ	ວ ບໍ່	
ST ON LOAN	041-	283.	2.0	o «	
INTERPOST ON LONG-TORM DUBLE	1426	45	0	30	
INTEREST ON SHOWT TERM DEET	5	† †	0	0	
TOTAL PRODUMENTO COST	131527.	130827.	130499.	130455.	
The state of the s				2, ,	

Y5.49	3	(7)		(+)	~~	(9)	(7)	(8)	*(6)		
	APT TAX	AFT TAK	HF4 TrX	AFT TAK	CURRENT	CUICK	DEAT	-1	PROFIT	- 1	CASH
	**CF17		P + C F + 1	_	RATIO	RATIO	SERVICE	-13- 57H = 1117Y	8. F. P.	8 E P	8.5.7
\$2	7:2	3/H EU011Y	INVES	S/CAPITAL			2		UTILIZE	ı	UTILIZE
] []	(PCT)	' t	(PCT)					(PCT)	(PRICE)	(PCT)
0.H5	5,11-	1000.0	1.0.6		78.0	07-0	30	- 1	0	449 3	22.3
9861	0	7.70	J ~~	***	. EB . O	0.12	1.13	107.7 -7.	67.8	672.7	53.9
1961	-0.3	3.3	Z-0-	***	0.82	U. 72	1.07		67.3	683.5	63.1
988	: 0	-175-0	3.4	***	1.04	0-92	1.18	103.7 -3.	2.49	6.033	65.4
596	1 t + 9	133.4	~. SJ	***	T-56	1-44	1.45		61.2	2.619	61.9
066	16.3	67.3	12.4	***	2,31	5-19	1 - 75	71./ 29.	58.7	587.9	59.5
1661	7. O.	1.07 1.07	7-61	****	12.5	٠ د د د د د د د د د د د د د د د د د د د	1.58		100	2.0.0	90,00
2661	21.3	35.4	1007	*****	5.26	200	7.7.	34.7 00.	50.2	552.8	51.1
7561	22.6	21-3	٠ د	*****	8 4 9	6,55	- 4-7		5.74	544	48.7
1995	30.05	22.1	24.1	*****	10.93	10.76	2.86	2.7 58.	30.4	528.4	43.1
950	31.2	21.5	F-67	****	18.96	18.73	5.37	0.7100	14.0	494.4	28.7
766	37.7	17.9	30•3	*****	70.67	28.76	16.66	0-/100	12.8	450.9	17.7
866	37.7	15-2	30.4	****	34-12	34.31*****	****	0./100.	12.4	435.0	12.4
666	37.9	13.2	30.4	***	39.17	36.85###############	**	0-/100-	12.4	435.0	12.4
AVERAG: 1	13.6	26.3	15.3	***	10.60	****************	***	46./ 54.	42.8	563.7	43.3
F 3 4 G = 2	5-17	21.1	3.	经证明的	7.14	66.9	2.40	32.1 6d.			

ATTACHMENT III-3

FINANCIAL STATEMENTS FOR 350,000 MTA ETHYLENE PLANT PROJECT

- Income Statement
- Fund Flow Statement
- Balance Sheet
- Production Cost Statement
- IRR Calculation on Total Investment
- Profitability and Financial Indicators



s and the second	5851	1986	1987	1548	1984	0561	1661	2641	1993	5661	1995
PRODUCTION AND SALES CAPACITY	350000-	350006.	350000.	350000.	350000.	350000.	150003.	350000-	350000.	350000.	350000.
CAPACITY UTICIZATION PRODUCTION	0.235 82200	177500	0.572	0.643	0.723	0.811	304300	0.932	1.000	350000-	1.000
INCREASE IN INVENTURIES SALES VOLUME	3500. 78700.	177500.	200200.	225100.	252900.	283800	304300.	326300.	349900	350000.	350000.
SALES REVENUE	55050	124250.	140140	157570.	177030.	198660-	213010.	228410.	244930.	245000.	245000.
COST OF SALES	48757.	107288.	116148.	125876.	136812.	149393.	157740.	160698.	176307.	176347	162657.
V4FI BLE CCST	31270.	67977.	70837.	86565	\$7501.	110062.	118429.	127386.	136995.	137036.	137036.
	13650. 596c.	27380.	27360.	27380.	27350.	27350.	27380.	- 1	27340-	27380-	11932.
(INC) IN PRODUCT INVENTUALES	-4160.	0.	0.	0	•	0	•0	•0	0	-0	0
ADSS PACEIT OF (LOSS) CV	6333.	10962-	426652	31054-	40218.	49267.	55273.	61712.	68623.	68653.	82343
LESS. SALES EXPENSES	101.		2323-	2510.	2730.	2568.	3155	3354	3526.	3527.	3253.
CR (LESS)	5.5	14816.	21609.	213	37482.	46275.	52115.	5a37a.	65097.	65126.	79089.
LESS. INTEREST JN LING TERM CEET AN CHILT TERM CLEAT	13021-	27100.	25512.	23098.	20334.	17570.	14406.	12341.	9277.	6513.	3749.
NET PROFIT ON (LOSS) BEFORE TAX	-8506-	-12481.	-5070-	3546.	14602.	28224.	37310.	40337.	55a20 -	58613.	75340.
- INCOME TAX	3	• 0	•0	•0	•0	0.	.0	•0	•0	•0	6
NET PACETT OR (235) AFTER TAX	-8506.	-12461.	-5670.	3540.	14662.	20224	37310.	46337.	55820.	58613.	75340-

*** FINANCIAL PROJECTIONS OF PIT ETHYLENE PLANT PACJECT *** INCLME STATEMENTS (FUR YEARS ENDING DECEMBER 31) — ALTERNATIVE ETHYCENE 350000 MI/Y	1999 1999	PROCUCTICA AND SALES CAPACITY CAPACITY CAPACITY OF THE STREET STRONG ST	S REVENUE 2450GG. 24500C. 245000.	SALES	VANITABLE CCST 137036. 137036. 137036. 137036. DEFRECIATION 4 AMORITZATION 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	GRUSS PRUFIT LA (LUSS) CN SALES 45032. 50032. 96032. 96032. LESS. LALES EXPENSES 2979. 2979. 2979.	#11NG PRJFIT LR (LCSS) 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 930533. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 93053. 9305	Profit JR (LOSS) BEFore TAX 91527. 92702. 93053.	NET PROFIT LK (LCSS) AFTER TAA 91547 93054.
		PROCUCTION AND CAPACITY CAPACITY UTI CAPACITY UTI PROCUCTION INCAEASE IN SALES VOLUME	ա	- 1	VANITBLE CCS DEFRECIATION OTHER FIXED (INC) IN PRO	GROSS PRUFIT CA LESS. CALES	OPEANTING PRUP	NET PROFIT OF (NET PROFIT LA (

	7067	FR 61	1984	5851	1986	1981	1988	1989	0661	1661	1992
		5655	-95059-	71614.	-00.25	64349.	71078.	69030-	75357.	80622.	86967-
CPEKATI	0.	0.		19004	42196.	45045.	56556.	64861.	73658.	79495.	85758
PROFIT BEFORE TAX. INTEREST	0.0	0.0	0.0	5315	14816	21665-	24177	37487	46279	52115	58278
DEPRECIATION & AMOPILZATION	0.	ō	I	13650.	273 do.	27380.	27380.	27380.	27380.	27380.	27380
FINANCIAL PESJUNCES	41125.	95955.	95959.	48386.	10149.	14105.	13809.	2693.	0	0	•
SHARE CAPITAL		0.		6	0.	Ü	0.	0	0	0	0
LCNG TERM CHOT	41125	.55959	•65654 0	47292.	0.0100	0.141	.0 1 3H00	0.0	0 0	d c	o c
INCHEASE IN ACCT PAYABLE	0	0	0	4221) 4. I	-,~- I	1313.	1476.	1698.	1127.	1209-
SES OF FUNDS	403	92475.	95158.	7203C.	52344.	63153-	70365.	67554.	51995.	44972.	42364.
INVESTMENT IN FIXED ASSET	40772.	247	95158-	45765.	0.	0.	0.	0.	0.	0	0
LANG AND SITE IMPROVERENT	373.	0.	ò	,	0	0	0.0	0	0	0	6
CLNSTACCTED FACILITIES DESCRIPTION OF PROPERTY OF STREET, TO SEE	33579.	78351.	78351.	33575.	0	0.0	ė e	o c	0.0	0.0	9.0
AING CONSTA	5.70.	12782.	12782-	5473.	o	•	o	0	ö	ó	o
OTHER TEAN CASH	0.	0	0	10385.	102-4.	2361.	2590-	2892.	3214.	2133.	2289.
INCRIDECAT ACC T RECEIVABLE INCRIDECATION IN TAVENTOATES	 	G	0	7437.	9337-	2145.	2353.	2627.	2920.	1937.	2019-
	၁ ဗ	6 0	ဒီဇ	2168.	908	0.2	0.0	0.	.0 294	9 5	0.0
Deat services	}	0	o	15877.	3	60752.	67775.	64062	48781.	42839.	40075
REPAYNENT OF LONG TERM FER	.00	٥	0 0	2056.	13708.	23364.	28034-	28034.	28034-	28034.	28034.
1112	د، د	ن ا		1,3821.	27100.	25512.	230582	20334	17570-	14406-	12041-
H X H X	20	ဝပ	0.0	1	157.	1827.	25.39.	2486.	485.	00	0
CIVILENES PAYMENT	ن د	0	0	0.	° -	0	0	•	0	0.	•
CASH :NÇRE4,SE_DA (CECREASE)	324.	3465	801.	-418.	4955	1146,	1313.	1976.	233624	35650.	44604.
BEGIVAING CASH BALANCE	0.	354.	3030.	4646.	4241.	-1115	10573.	11080.	13163.	36525	72174.
ENDING CASH SALANLE	154.	4.4.4	464	4 2 2 1	21 77	11.374	11484	13153	36375	72127	25.5

	1593	1994	1995	1996	1661	1996	6461
			*61176	-63U59-	93053.	93053.	93053.
Ş	157	13	92779.	93053	93053.	920534	93053.
PROFIL BEFORE TAX INTEREST DEPRECIATION & AMORTIZATION FINANCIAL RESOURCES	65057. 27380.	65126. 27380.	79089. 13690. 0.	93053	93053.	93053.	93053.
!					1		1 0
LCNG TERM DEAT	0	0.0	0.0	ចំ ៤	0.0	o a	ċ
PAYABLE	1297.	2 0	0	0	0	3	0.0
USÈS CF FUADS	39766.	34557.	29726.	15851	5079.	0	0.
INVESTMENT IN FIXED ASSET	0	0		0.	9.	0.	0.
LANC ANC SITE IMPROVAPENT	0.0		- 6	0.0	0.0	0-0	-0
CCNSIALCTED FACILITIES PRE-INVEST. E START-UP EXP	3 6	0 0	000	3 0	0	0	000
INTEREST GUAING CONSTRUCTN	0	o	· 0	o	0	o	0
UTHER THAN CASH	~	10.	0.	0.	0.	0	0.
INCRIBECA) ACC T RECEIVABLE INCRIBECA) IN INVENTORIES	2230.	-5	0.	-3	0	0.	0.
ł	0.	0.1	0 0	00	00	00	20
	37.311.	34247.	29720.	15851.	-6205	0	0.
Cc 8 7		28034.	25977.	14325.	4729-	• •	.00
	5277.	6513.	3749.	1520.	350.	66	• e
	د	0	o	3	o.	o	0.
	0.	O.	0*	0.	0.	0-	0.
CASH INCREASE ON (CECREASE)	5+306.	5745+-	63053.	17202.	8797+	53053.	-5059-
EGIYNING CASH ELLANCE	116 770.	170786.	24.87.40.	291753.	368945.	456569	553022.
VOLLO CASH BALLA ALC	171.756	3727	791704	349994	65.040	56.30.33	64.1075

		!				<u></u>		 			
	-	1583	1984	5851	1985	1461	1983	1989	1990	1661	1992
	41125.	137084.	233044.	275089.	262909.	239087.	215611.	192600.	191797.	202199.	221712.
CUKRENT ASSETS	354.	383E	4640.	14610.	29810.	33367.	37271.	41639.	68215-	105598	152890.
CASH ACCCUNTS RECEIVABLE		3838. 0.	4640.	4221.	9177.	10373. 18915.	11686.	13163.	36525.	72174.	116778.
INVENTURES PRODUCTS MATERIALS	ວ່ວ	ဝိပ	0	2166.	2168.	2108. 1907.	2164.	2168.	2168-	2168-	3108.
NET FIXEL ASSETS	40772-	133246.	228404*	260479.	233100.	205720.	174340.	150961.	123581.	96202.	68822-
	40774.	133246.	228404.	274165.	274169.	274169.	274169.	274169.	274169.	274169.	274169.
CONSTANCTED FACILITIES CONSTANCTED FACILITIES PRE-INVEST 6 STAPT-UP EXP	33575- 1342- 5578-	375- 111530- 2083- 18200-	373- 190281- 6708- 31042-	373 <u>-</u> 223400 <u>-</u> 13416 <u>-</u> 36520	373. 223860. 13416. 36520.	373. 223860. 13416. 36520.	373. 223860. 13416. 30520.	373. 223860. 13416. 36520.	373- 223860- 13416- 36520-	373. 223860. 13416. 36520.	373- 223860- 13416- 36520-
LESS.JEPARCIATN & AMDRILLTN	0.	0.	0.	13690.	41069.	68449-	95629.	123208.	150584.	177967-	205347.
3011	¥1125.	137384.	233044.	283595	283897.	205745.	238729.	201055.	172927.	145120.	118296.
UP AENT LIABILITIES		0	2056.	19024.	42630.	525114	53529.	4-889.	42895.	44021.	45231.
	00	0 0	3 °	4221. 0.	9177.	10573.	11080.	13163.	14861.	15988.	17197.
CIVICENDS PAYABLE CURPENT PRATISM OF DEBT	ó	Ġ	•	.	0	0	0.0	÷	•	•	ċ
1	°°°	υσ	2050.	13706.	23304.	26034. 14165-	28634. 13807.	28034-	280344	28034	28034.
EIXEC LIABILITIES	41125-	137664-	230987.	264571.	241267.	213233.	185200-	157166.	129133.	101099.	73065-
LONG TEAM DEST SALANCE	41165.	137084.	230987.	264571.	241267	213233.	135233.	157166.	125133.	101099.	73065
STOCK HULDENS EQUITY	0		0.	-8500-	-20987.	-20057.	-23117.	-4455-	169251	57079.	103416.
SHARE CAPITAL AET LINEU BANI'GS	0	00	0 7	-8500	-20907.	-26657.	-23117.	-8455	19769.	57079.	0.

	6561	682025.	681652.	643075. 33075.	2168.	373.	274169.	373.	13416. 36520.	273746.	18500.	14500-		0.	0.0		0.		0.000
A A	1948	586972-	568	550022.	3334.	375.	2741694	373.	36520.	273750.	18500.	18500.	18500.	0	00		ò	570472.	570477
Shoou MI/Y	1661	495919	495546.	456969.	3334.	373.	274109.	374- 223800-	13416. 36520.	273796.	18500	16500.	18500.	0	2 2	0	0.	417419.	477414
FUR YEARS ENG	1995	407545	407572.	368595	216B. 3334.	375.	274169.	373.	30520	273796.	23225	73	1850	0	4729.	0	0	344716.	384716
SHEET (FUR	1995	3307+3-	330370.	291793.	3554.	37.5.	274169.	375.	30520	273796.	37554.	- 52 87 c	8500.	0	14325.	4724.	4725.		0.2531.09
LALTEFNATI	44.4	-0e <u>r1</u> 97	267317.	33075.	2160-	14063.	274165.	373-	30520.	.301025	63532-	44477	0591	0.0	22977.	150	19054-	17048	2 H
1 4	1953	250 176 -	209355.	17078¢.	2166.	41446-	274165.	373.	30526.	232727.	91590-	1.	18494.	0	20054.	ļ		77651	1592.36
			ASSETS	CASH ACCOUNTS RECEIVABLE	INVENICATES PROCUCTS MATERIALS		INVESTMENT	LANG 6 SITE IMPROVEMENT CONSTRUCTED FACILITIES	PRE-INVEST & STANT-UP EXP INTEREST DUNING CONSTRUCTN	LESS.CEP.ECIN & AMORTILIA	LIABILITIES			DIVICENDS PAYABLE CURRENT PORTICY OF DEET		LITIES	LUNG TERM DEST SALANCE	TJCK ACLCENS SHUITY	SPENE (42): 141 At Aires 44: 1463

	1		 - -	 - - -	 						
	45.85	1586	1981	8851	6861	1990	1661	7651	1993	1994	1995
PRODUCTION	d 200.		-007ñ07	225100.	252900-	283800.	334300-	326300.	349900.	350000-	350000.
ETHANE	30767.	66438.	74935.	84255.		106226.	113899.	122134.	130968.	•	131005.
CATALYSTS & CHEMICALS	575.	1243.	1401-	1576.		1987.		2284-	2449.		2450
RAW MATERIAL COST Fuel GAS (1)	31343.	67081. 4437.	5005	85831.	36	108213.	116030.	124418.	133417.	,	133455
GAS (902.	1762.	1919.	2088.	2245.	2245.		2245.	2245.	2245-	2245.
(2)	6.3	144.	133.	145.	'	156.	1	156.	156.		156.
יארב ויט ענאליני. וזו	-3164.	-61/5-	500.	734.	10701	1865.	2399.	2968.	3578.	3581.	3581.
VARIABLE COST	31270.	-11619	76837.	86365	97501.	116082.	118429.	127386.	136995-	137036-	137036-
DEPRECIATION (FRUCESS PLANT)	11153.	22386.	22380.	22386-	22386-	22386.	22386.	22386.	22386-	22386.	11193.
DEPRECIATION (PAGE INVEST)	1826.	3652.	3652.	3652.	3652.	3652.	3652.	3652.	3052.	3652	1826.
DEPASCIATION AMORTIZATION	13690.	27380.	27,340.	27.280.	273 80.	27.380.	27380.	27.180.	27380.	27380.	13690.
0.0000000000000000000000000000000000000			1 1 1			3	,				
DEPARTAGE AFURILZATION	13050.	Stagt.	2(380.	2/380.	27380.	27360-	Z / 3 du.	27380.	27380.	27380.	13690.
LAGER CEST DV=AHEAE	4 4 6 6 6 6 6 6	928	929.	929	924.	925	429	929	929-	529	925.
EMPLOYMENT COST	424	1356.	1058	1858.	1858.	1858.	1858.	1858.	1858.	1858.	1858-
INSUR	1075.	3358.	3358.	3358.	335d.	3356.	3353.	3358.	3358	3358.	3358.
OTHER FIXED COST	ם י	0	`•0°	0	0	0	0	0	0	0	0
DIAE LT FIXED CUST	*29.5	11932.	11932.	11932.	11932.	(LL)	119.22.	11932.	11932.	11932.	11932.
ACTERY PRODUCTION CO	50925.	167248.	116148.	125870.	136814.	149353.	~	166698-	176307.	176347.	162657
UNIT DISECT CPURATING COST	0.6155	0.0044	0.5402	25550	6.5410	0.526+	0.5134	0.5109	0.5039	0.5038	0-4647
12.5	1015	2146.	23.23	2518.	`~~ u	2988-	3155.	3334	3526.	3527	3253-
INTEREST ON COAN NO. 2	+731.	9225	8279.	7333.	6367.	5440.	4494	3548.	2602	1656.	710.
INTEREST ON LOAN NO.3	47.31.	9462	9445.	6279.	7333.	6307.	54+3.	+464	3544	2602.	1650.
INTEREST ON LUAN NO.5		400 608	• 60 β•	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	5346.	471.	413.	350.	289.	228	1415
ON LUNG-TERM DEB	13821.	27100.	25514.	23094.	20334.	17570.	14000.	15041.	5277.	6513.	3749.
IN LEAST OF THE STATE OF THE ST))	136		- 2537.	- 99,42		9	0	0	0	• •
TOTAL PRODUCTION COST	62764-	130731.	145310	154630.	1623084	170436	172743.	182073.	1891104	186387	169660

	ALTEANAT	ALTENATIVE ETHYL		35000 FT/Y -	
	0657	1597	1590	6651	
	5005 F PD 0 C 5 F	35000c	350000.	\$50000¢	
ETHANE	131005.	131005.	131005.	131005.	
RAM MATERIAL COST	133455	133455	133455	133455.	
EVEL GAS (1)	8750.	8750	9750	8750	
FUEL GRS 127 RAM MATER (1.)	501.	501.	301.	361.	
(2) Sale (Tu VCM/HDPE)	156.	156.	150.	150.	
	1.!	3581	3581.	3581.	
41ABLE C	96	137036.	137036.	137036.	
DEPRECIATION (PAGGESS PLANDER)	0	0 0	0 0	•0	
DEPRECIATION (INTEREST JUNE)	9.0	0 (á	0	
1 1	0	0	5 5		
& AMDKTIZATION	ů.	.0	0.	0-	
LADGR CCST	425°	['J' D	.626 .026	925.	
EAPLIYMENT COST	1856.	1856.	1658	1858.	
TAX & INSCRANCE OTHER FIXED COST	3.58	3356	3350.	3358-	
DIRECT FIXED COST	11532.	11932-	11934.	11932.	
	144968.	1+8908.	148966.	1+8963.	
UNIT SIRECT CPERATING COST	0.4650	17.1	0-4256	0.4250	
HEAD DEFICE EXP	2973.	2979.	2979.	2975.	
INTEREST ON LOAN NO.2	710	0	5 0	• 0	
INTEREST OF CORE NO.4	716	304.	00	00	
	1520. G.	m	00	0.00	
L FREGULTILA C	1534730	152297.	151947.	1515474	
UNIT PROGUCTION CONT	U.+335	0.4351	1+6+-0	0.4341	

{7}	(3)	4	(5)	(9)	(7)		*(6)	* (01)	(11)*
1	<u></u>	A AFI AA PRUFIT	RATIO	RATIO	SERVICE		B.E.P.	B.E.P.	B.E.P.
ŀ		- 1			RAIID	S/F EQUITY	CAPACITY	SALES	CAPACITY
SALES REV S/H EQUITY (PCT) (PCI)	INVESTANT (PCT)	VT S/CAPITAL					UTILIZE (PCL)	PRICE	UTILIZE (PCT)
100	-3.0	***	0.37	0.61	1.20	103./ -3.	31.1	687.8	20-3
-10-0 -4-(1 21-3	7 C	*****	2 4	19.0	10.0	110-7-10-	62.4	208.0	58.7
) F	*****	0-10	0.62	1.06	114-/-14	0.19	687.2	61.6
	5.2	***	0.95	0.84	1.29	106./ -6.	58.5	9.449	59.1
14-2 142-8	10.1	****	1.59	1.48	1.60	. !	54.3	602.9	55.0
20.3 44.8	14.5	****	7.4T	3.26	2.14	41-7 59.	49.0	560.0	52.1 49.6
	19.9	****	4.50	4.38	2.48	l.	46.5	542.3	47.1
	20.9	*****	6.01	5.39	2.68		43.9	534.4	44.5
30.8 25.7	56.95	***	10.06	06*6	3.12	2./ 98.	28.0	519.8	39.8
	32.5	***	17.55	17.31	5.87	0.7100.	12.8	479.4	26,5
	13.1	***	26.79	26-49	18.32	0./100.	11.7	448.6	16.2
	33-2	***	31.82	3].52*****	***	0./100	7.	434-1	,
38.U 14.C	33.2	***	36.85	36.55*****	***	0./100.	11.4	434.1	11.4
17.4 27.1	£5.3	***	4.65	***65*6	*************	51.7 +9.	1-65	570.4	40.2
22.1 23.2	15.e	***	6.34	17.9	2.44	33.7 67.			



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