

**Perbandingan
Kilang Yang Dibangun
Pertamina Dengan Caltex
Di Thailand
Pada Tahun Yang Sama**

CALTEX

Caltex Services Pte Ltd: Indonesia Representative Office --

Facsimile

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Date: May 27, 1998

To: PERTAMINA Fax: 3844690

Attn: Mr. Maskurun, Planning & Development Director

From: Albert R. Currie Tel: 3512080

Fax: 3512084

Message Priority: Urgent Routine No. of Pages (including cover): 02

Subject:

Comments: —

Dear Bapak Maskurun,

Referring to our conversation and your facsimiles dated May 13, 1998 regarding Data of Caltex Refinery in Thailand, please find attached the data requested.

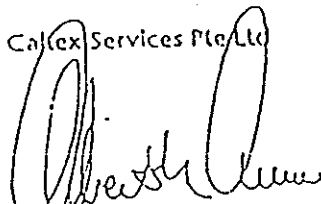
I trust you will appreciate the fact that the specifications, capacities and costs are specific to local conditions and may not entirely be appropriate to Pertamina's plans.

We apologise for not meeting your required deadline of May 15, 1998 due to the recent developments in the last two weeks and we sincerely hope that the information provided will still be beneficial for reference.

We look forward to having further cooperation with Pertamina in whatever expertise Caltex can provide.

Sincerely yours,

Caltex Services Pte Ltd



Albert R. Currie

LAMP. 3-2

SPRC THAILAND

PROCESS, UTILITIES & OFFSITE/Common FACILITY

	Capacity (MBSD,TON/MMSCFD)
I. Process Unit	
1. CDU	130 MBPSD
2. ARUIDM (Demetalization Unit)	None
3. Residue Catalytic Cracking/FCC	37 MBPSD (includes feed hydrotreating)
4. Hydrocracker	None
5. naphtha Hydrotreater	15 MBPSD
6. Catalytic Reformer	15 MBPSD
7. Gasoil/Light Cycle Oil Hydrotreater	57 MBPSD
8. Catalytic Polymerization	None
9. Naphtha/LPG treater	5 Units 49 MBPSD total
10. Sulfur Plant	2 x 135 MT each
11. Sour Water Stripper	2 units 128 m ³ /h total
12. Hydrogen Plant	None
II. Utilities	
1. Boiler	70 MT
2. Steam Generator	55 MT
3. Nitrogen Plant	None
4. Cooling water System	12,300 m ³ /h
III. Offsite	
1. Storage Tanks.	Crude 4.3mbbls Gasoline 0.7mbbls Diesel 0.5mbbls Fuel Oil 0.35mbbls LPG & Propylene 0.08mbbls
2. Spherical Tanks	
IV. Common Facility:	
1. SBM	Yes
2. Jetty	Yes
3. LPG Filling System	No
4. Waste Water Treatment	Tertiary with bioreactor
V. Owner Scope	
Total Investment (year established)	US\$1.9 billion

**PERBANDINGAN KILANG YANG DIBANGUN PERTAMINA
DENGAN CALTEX PADA TALIUN YANG SAMA :**

	<u>PERTAMINA</u>	<u>CALTEX</u>
Nama Kilang	EXOR BALONGAN INDONESIA	STAR REFINERY THAILAND
Talun Pembangunan	1991 - 1995	1991 - 1995
Fasilitas yang dibangun :		
I. PROCESS UNIT (Kap : BSD)		
1. Crude Distillation Unit	125.000	130.000
2. Vacuum Distillation Unit	-	49.300
3. Atmospheric : Residue Hydrodemetalization	58.000	-
4. Residue Catalytic Cracking	83.000	37.000
5. Naphtha HDT & Cat Reformer	-	15.000
6. Diesel Hydrotreater	32.000	57.000
7. Heavy Gas Oil Hydrotreater	15.000	28.000
8. Catalytic Polymerisation	13.000	-
9. Naphtha Treater	47.500	49.000
10. LPG Treater	15.00	17.000
11. Sulfur Plant (Ton/day)	28	270
12. Sour Water Treater	132	256
13. Hydrogen Plant (MMSCFD)	76	-
II. UTILITIES		
1. Boiler (Ton/hr)	5 x 115	4 x 65
2. Power Generator (MW)	4 x 22	3 x 15
3. Nitrogen Plant (M3/hr)	2 x 600	-
4. Cooling Water (M3/hr)	33.000	12.300
III. OFFSITE		
1. Storage Tanks (M3)	1.024.650	1.095.800
2. Spherical Tanks (M3)	18.000	12.800
3. SBM, Waste Treatment	Yes	Yes
4. Perumahan	Yes	Yes
IV. INVESTASI (Juta US\$)	2.138	1.900

Catatan: Unit ARHDM saja yang ada di kilang Balongan dan tidak ada di kilang Caltex di Thailand harganya diperkirakan US\$ 300 juta.