Crude Distillation Unit **CDU (100)**

HISTORY

1962 Commissioned at 68,500 BPSD capacity

1969 Debottlenecked to 100,000 BPSD
- added second parallel preheat exchanger train
- doubled overhead cooling capacity, and
- installed booster feed pump

Installed new desalter

1975 Modified tower internals removed two trays and replaced two others with packed section and bubble cap tray

1992 CDU Encon Project Phase-1
- installed four preheat exchangers (two new and two idle)
- modified tower internals, and
- raised gas oil draw

1994 CDU EnCon Project Phase-II
- installed six new preheat exchangers

1997 CDU Tower Modifications
- installed new sieve trays at stripping section
- installed new steam distributors at stripping section
- installed new VEP type gravity liquid distributor
- removed random packing and
- removed bubble cap tray no 6 installed new low pressure drop de-entrainment tray
- installed new HGO draw nozzles

CUTS

	ASTM end point ^{o}C	**Light products**
Isa naphtha	71	
swing stream # 1	82	minimum gasoline
swing stream # 2	104	
h s e naphtha	154	
swing stream # 3	160	maximum gasoline
swing stream # 4	171	
swing stream # 5	182	
kerosene	271	jet A – 1
kerosene	310	product kerosene
swing stream # 6	310	diesel

gas oil	388
swing stream # 7	396
swing stream # 8	400 – 410
residuum	410

Naphtha Catalytic Hydrodesulphurization Unit **NCHD(200)**

HISTORY

1962 Commissioned at 19,000 BPSD capacity

1969 Debottlenecked to 21,700 BPSD
- added preheat exchangers

1998 Debottlenecking to 24,000 BPSD has been implemented
- 3 ea new preheat exchangers has been installed

UNIT CAPACITY 24,000 BPSD 158.9 m3/hr

CATALYST

Akzo KJ-752-3Q		7,560 kg
Criterion C-448 TL	+	7,780 kg
Total		15,340 kg

Platinum Reforming Unit **PtR (300)**

HISTORY

1962 Commissioned at 8,000 BPSD capacity

1970 Installed spare smaller capacity recycle gas compressor

1991 Expanded to 14,000 BPSD
- re-trayed stabilizer tower
- added five new exchangers, and
- added fourth reactor (radial flow)

1996 New Recycle gas compressor shifted

UNIT CAPACITY 14,000 BPSD 92.7 m3/hr
six – month cycle @ 96 RON clear severity

CATALYST U O P R – 62 P t / R h :

		kilograms
in spherical reactor # 1 (D-300)		6,000
in spherical reactor # 2 (D-301)		6,617
in spherical reactor #3 (D-302)		6,645
in new radial reactor # 4 (D-351)	+	29,956
		49,218

(Regenerated in October 2001)

Kerosene Catalytic Hydrodesulfurization Unit **KCHD (400)**

HISTORY

1962	Commissioned at 8,000 BPSD capacity Designed for mild desulfuriszation of kerosene
1969	Expanded to 12,000 BPSD kerosene Diesel specification reduced to 0.7 %wt. Began desulfurizing gas oil at 10,000 BPSD maximum in blocked operation.
1988	
1997	Dense loading of reactor performed. New distributior tray installed.

UNIT CAPACITY

12,000 BPSD Kerosene:	79.5 m3/hr
10,000 BPSD Gas oil:	66.25 m3/hr

CATALYST

Liquefied Petroleum Gas Unit **LPG (600)**

HISTORY

1967	Commissioned at 2,800 BPSD capacity Designed for mild desulfurization of kerosene
1970	Expanded to 4,000 BPSD along with PtR

UNIT CAPACITY

4,000 BPSD	26.5 m3/hr

Sulfur Recovery

20 tons/day of sulfur produced by running 100 TBD highest sulfur crude through existing facilities to produce 0.7 wt% sulfur APD. This matches the desulfurizing capability of the existing KCHD at a 65% sulphur removal rate.

Amine Treating Unit **ARU(700)**

HISTORY

Commissioned to treat 18,500 m3/hr fuel gas containing 26 kgmoles/hr HZS. Specified to meet 0.4 – 5.0 %vol H2S in fuel gas (- 2 tons/day)

UNIT CAPACITY

18,500 M3/HR Fuel Gas

Sulfur Recovery Unit **SRU (800)**

HISTORY

1995 Commissioned to recover 20 tons/day sulfur

- Three-converter Claus plant, single train: 6.6 to 1 turn-down ratio. Incinerator but no tail gas unit
- Sulfur Recovery is 97% at SOR, 96% at EOR
- SO_2 emission < 1 kg mole/hr

UNIT CAPACITY

20 tons/day

Solid Sulfur Forming Unit **Flaker (900)**

HISTORY

1995 Commissioned to process 30 tons/day liquid sulphur solid sulfur flakes