Ref.-No.:
ProOil-322

105,000 bpd Pre-Owned OIL REFINERY
For Sale and Relocation

1. History, Background

The Refinery was commissioned in the 1970s and had a crude oil throughput capacity of 155,000 bpd. The refinery is now an atmospheric/vacuum distillation refinery with FCC capabilities.

The refinery was designed to process light to heavy crude at its full nameplate capacity. More specifically, it can process crude with an API range of 19-44. These include heavier grades such as Castilla, Hamaca heavy and lighter crudes such as El Sharara, CPC and Sahara Blend.

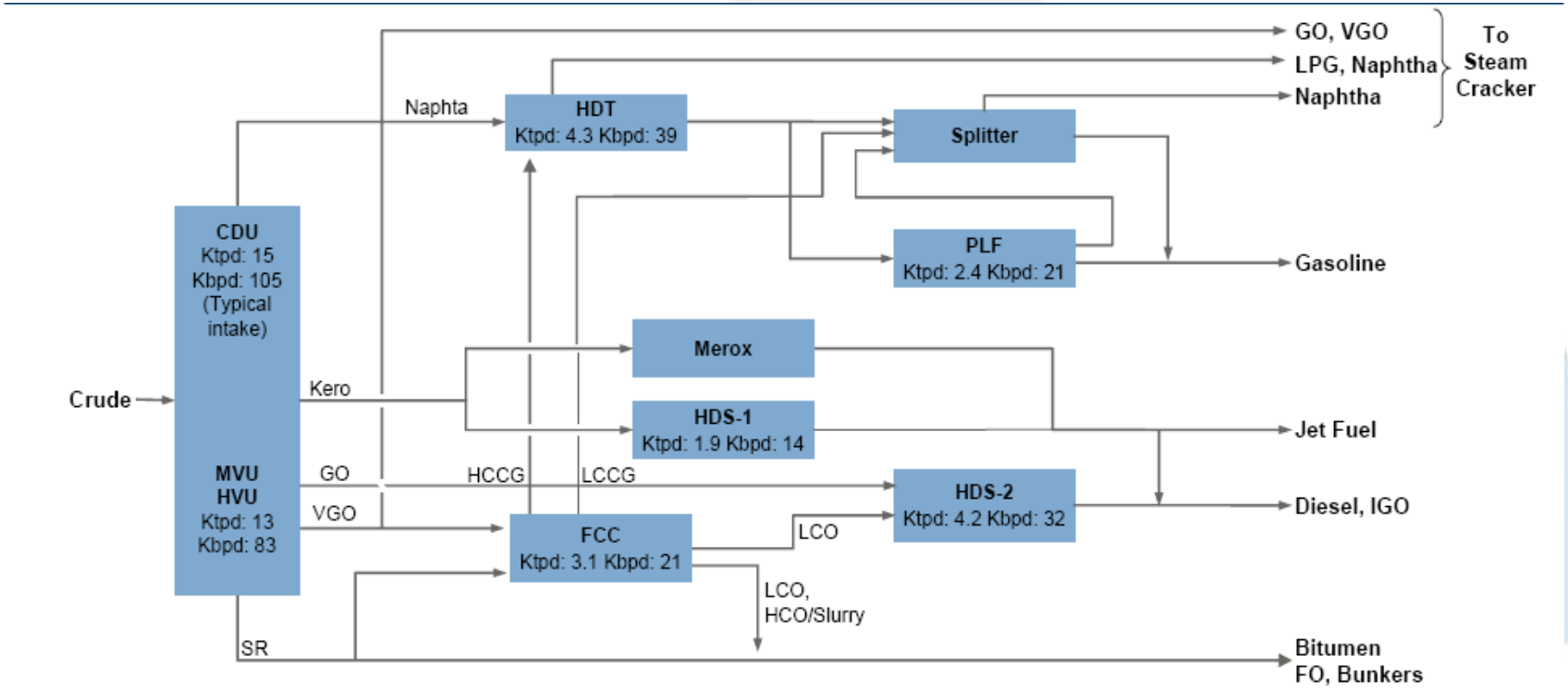
The processed crude qualities vary depending on which processing mode has been selected. The Refinery has four processing modes:

- Low Sulfur which maximizes production of road fuels;
- High Sulfur which focuses on producing commercial and off road fuel;
- Paraffinic which produces a high quality feedstock
- Bitumen/Asphalt which focuses on producing road paving materials.

The Nelson Complexity Index of the refinery is 6.75

The normal crude throughput now is about 105,000 bpd.

2. Process Flow Diagram



CDU = Crude Distillation Unit
FCC = Fluid Catalytic Cracking (Unit)
HDT = Hydrotreating (Unit)
HVU = High Vacuum Distillation Unit

MVU = Mild Vacuum Distillation Unit
HDS1 = Hydrodesulphurisation
HDS2 = Hydrodesulphurisation
LPG = Liquefied Petroleum Gas

Splitter = Platformate Splitters
Merox = Mercaptan Oxidation (Unit)
PLF = Platformer (Unit)
GO = Gasoil

IGO = Industrial Gasoil
VGO = Vacuum Gasoil
FO = Fuel Oils
LCO = Light Cycle Oil
HCO = Heavy Cycle Oil

3. Process Units Summary

Main Units	Denomination	Technology	Design Capacity (Ktpd)	Design Capacity (Kbpd)	Year of Construction/ Start-up (Major Revamp)
Crude Distillation Unit	CDU	Shell	20.6	164	1971/1974
Mild Vacuum Distillation Unit	MVU	Shell	12.7	83	1971/1974
High Vacuum Disillation Unit	HVU	Shell	10.3	66	1971/1974 (major revamp 1983 & 1987)
Fluid Catalytic Cracking Unit	FCC	Shell	3.1	21	1970/1973 (dismantled) 1986/1987 (transfer)
Platformer Unit	PLF1	UOP	2.4	21	1963/1964 (major revamp 1985)
Hydrotrating Unit	HDT	Shell	4.3	39	1974
Hydrodesulphurisation	HDS2	Shell	4.2	32	1980/1981
Hydrodesulphurisation	HDS1	Shell	1.9	14	1965
Mercaptan Oxidation Unit	Merox	UOP	1	8	1978
Claus (2 Units)	Claus	Comprimo	N/A	N/A	1976/1982
Scot	Scot	Shell	N/A	N/A	2010

4. Refinery Arrangements

Area No. 1 Distillation

Atmospheric Crude Distillation (CDU)
Mild Vacuum Distillation (MVU)
High Vacuum Distillation (HVU)

Area No. 2 Conversion Units

Catalytic Cracking (FCCU)

Area No. 3 Upgrading

Platformer Unit (PLF1)
Hydrotreating Unit (HDT)
Hydrodesulphurisation (HDS 1&2)
Merox

Area No. 4 Utilities

Sulfur Recovery Units
Miscellaneous Units

5. Typical Product Portfolio

Product	Year 1	Year 2	Year 3	Year 4
LPG	5.59%	5.47%	4.28%	4.80%
Gasoline	8.81%	9.25%	8.96%	9.47%
Naphtha	15.88%	16.14%	15.52%	16.59%
Jet	6.14%	5.73%	5.63%	4.23%
Diesel	20.44%	22.22%	20.72%	20.97%
Gasoil	9.90%	13.73%	12.43%	18.98%
Base Gasoil/Heating Oil	6.64%	3.32%	4.28%	0.96%
VGO/Distillate	6.40%	4.77%	8.84%	4.96%
Bitumen	5.16%	5.34%	4.51%	2.39%
Internal Fuel Consumption	5.58%	6.45%	5.96%	5.66%
Residual Fuel	9.22%	7.31%	8.69%	10.76%
Sulphur	0.25%	0.27%	0.17%	0.24%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

6. Crude Distillation Unit

The crude distillation unit was constructed in 1971 and has a capacity of 21 kt/d. T

7. FCC Unit

The catalytic cracker FCC-2 was constructed in 1970 for another refinery and transferred to the Refinery in 1987 and has a capacity of 3.1 kt/d.

8. Hydrotreating and Hydrodesulfurisation 2

The HDS 2 and HDT were constructed in 1980 with 4.2 and 4.5 kt/d capacity, respectively.

8. Reformer und Hydrodesulfurization 1

The reformer and HDS 1 were constructed in 1963 with 2.4 and 1.9 kt/d capacity, respectively