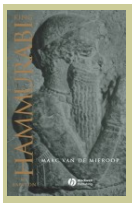


PAKPAS DELAWARE USA

PAKPAS BABYLON REFINERY

120.000 BPD

June 2009–Executive Summary of the Project

EXECUTIVE SUMMARY

8172.503.363

PAKPAŞ "Quality comes first"

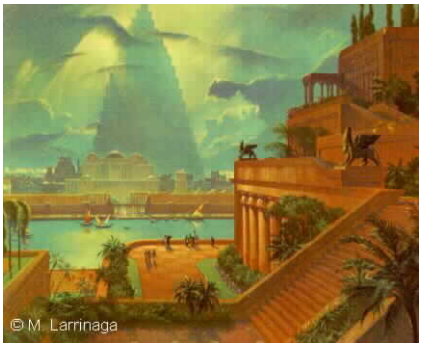
PAKPAS

Iraq

PAKPAS BABYLON REFINERY

BASRAH

120.000 bbl/day
19.000 m3/day



Existing Refineries in Iraq

- Basrah Refinery (INOC), 126,000 bbl/d (20,000 m³/d)
- Daurah Refinery (INOC), 100,000 bbl/d (16,000 m³/d)
- Kirkuk Refinery (INOC), 27,000 bbl/d (4,300 m³/d)
- Baiji Salahedden Refinery (INOC), 140,000 bbl/d (22,000 m³/d)
- Baiji North Refinery (INOC), 150,000 bbl/d (24,000 m³/d)
- Khanaqin/Alwand Refinery (INOC), 10,500 bbl/d (1,670 m³/d)
- Samawah Refinery (INOC), 27,000 bbl/d (4,300 m³/d)
- Haditha Refinery (INOC), 14,000 bbl/d (2,200 m³/d)
- Muftiah Refinery (INOC), 4,500 bbl/d (720 m³/d)
- Gaiyarah Refinery (INOC), 4,000 bbl/d (640 m³/d)

Washington
June 2009

History of Babylonia

Hammurabi After the collapse of the Sumerian civilization, the people were reunited in 1700BC by King Hammurabi of Babylon (1792-1750 BC), and the country flourished under the name of Babylonia. Babylonian rule encompassed a huge area covering most of the Tigris-Euphrates river valley from Sumer and the Arabian Gulf (Persian Gulf). He extended his empire northward through the Tigris and Euphrates River valleys and westward to the coast of the Mediterranean Sea. After consolidating his gains under a central government at Babylon, he devoted his energies to protecting his frontiers and fostering the internal prosperity of the Empire. Hammurabi's dynasty, otherwise referred to as the First Dynasty of Babylon, ruled for about 200 years, until 1530 BC. Under the reign of this dynasty, Babylonia entered into a period of extreme prosperity and relative peace.

Throughout his long reign Hammurabi personally supervised navigation, irrigation, agriculture, tax collection, and the erection of many temples and other buildings. Although he was a successful military leader and administrator, Hammurabi is primarily remembered for his codification of the laws governing Babylonian life. Under Hammurabi the two cultures which compose Mesopotamian civilization [the Assyrians and the Babylonians] achieve complete and harmonious fusion.

Hammurabi Code Hammurabi was a king and a great lawgiver of the Old Babylonian (Amorite) Dynasty. His law code was produced in the second year of his reign. Many new legal concepts were introduced by the Babylonians, and many have been adopted by other civilizations. These concepts include: Legal protection should be provided to lower classes; The state is the authority responsible for enforcing the law; Social justice should be guaranteed; The punishment should fit the crime.

Hammurabi Code, ("An eye for an eye, a tooth for a tooth.") is still quoted today attests to its importance, is a collection of the laws and edicts of the Babylonian king Hammurabi, and is considered the earliest legal comprehensive code known in history. A copy of the code is engraved on a block of black diorite nearly 2.4 m (8 ft) high. A team of French archaeologists at Susa, Iraq, formerly ancient Elam unearthed this block, during the winter of 1901-2. The block, broken in three pieces, has been restored and is now in the Louvre Museum in Paris.

The Hanging Gardens of Babylon On Hammurabi's death, however, a tribe known as the Cassites (Kassites) began to attack Babylonia as early as the period when Hammurabi's son ruled the empire. Over the centuries, Babylonia was weakened by the Cassites. Finally, around 1530 BC (given in some sources as 1570 or 1595 BC), a Cassite Dynasty was set up in Babylonia. The Mitanni, another culture, were meanwhile building their own powerful empire. They were having a "considerable, if temporary importance"--they were very powerful but were around for only about 150 years. Still, the Mitanni were one of the major empires of this area in this time period, and they came to almost completely control and subjugate

the Assyrians (who were located directly to the east of Mitanni and to the northwest of Cassite Babylonia).

The Assyrians, after they finally broke free of the Mitanni (who were having political troubles of their own), were the next major power to assert themselves on Babylonia. After defeating and virtually annexing Mitanni, the Assyrians, reasserted themselves on Babylonia. They weakened Babylonia so much that the Cassite Dynasty fell from power; the Assyrians virtually came to control Babylonia, until revolts in turn deposed them and set up a new dynasty, known as the Second Dynasty of Isin. Nebuchadnezzar the First, of this Dynasty, added a good deal of land to Babylonia and eventually came to attack Assyria, the land was under Assyrian rule for about two centuries.

The Assyrian culture showed a dramatic growth in science and mathematics, among the great mathematical inventions of the Assyrians was the division of the circle into 360 degrees and were among the first to invent longitude and latitude in geographical navigation. They also developed a sophisticated medical science, which greatly influenced medical science as far away as Greece. In the 6th century BC (586 B.C.), Nebuchadnezzar conquered Judea (Judah), destroyed Jerusalem; Solomon's Temple was also destroyed; Nebuchadnezzar carried away an estimated 15,000 captives, and sent most of its population into exile in Babylonia.

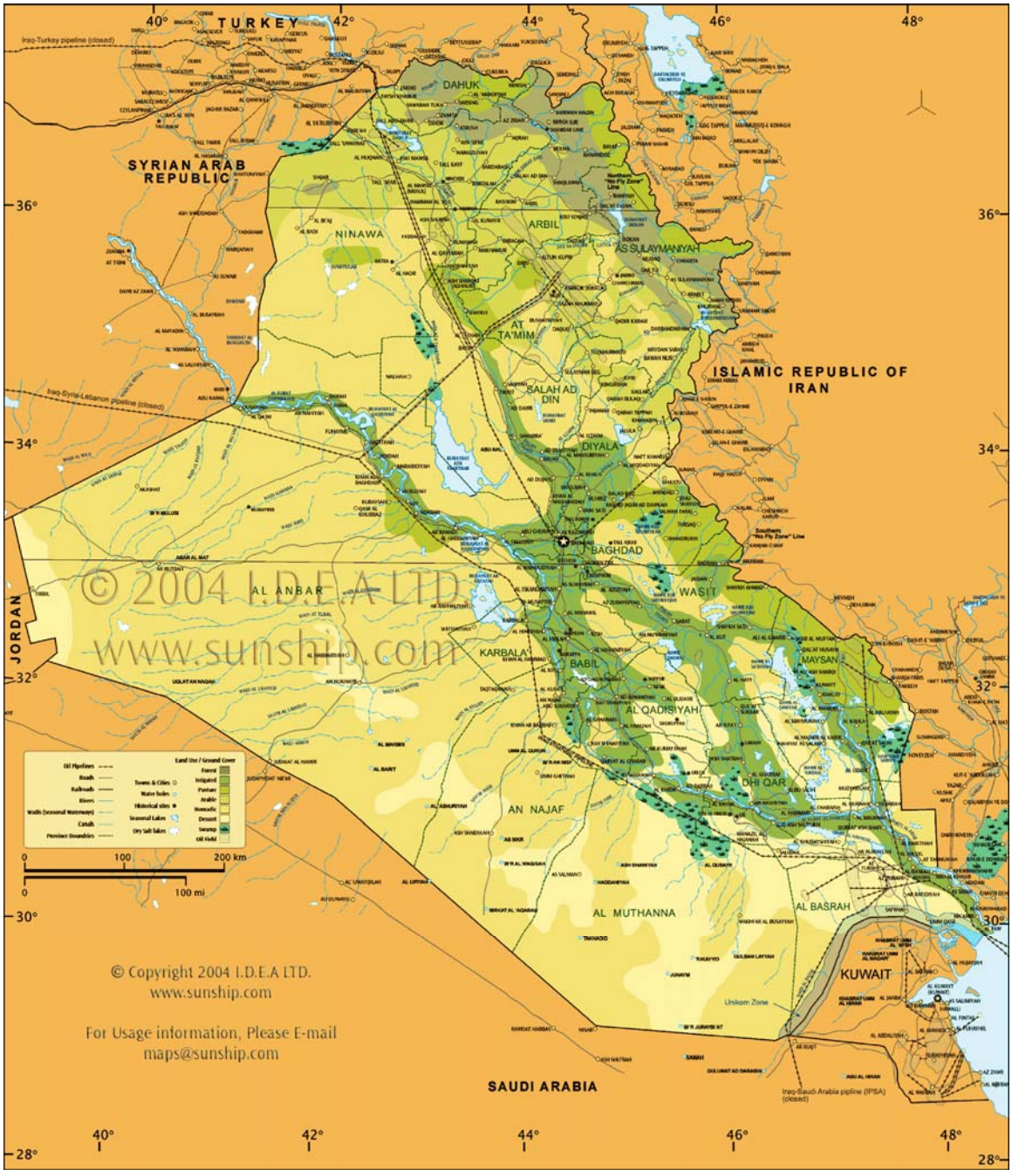
It was not until the reign of Naboplashar (625-605 BC) of the Neo-Babylonian dynasty that the Mesopotamian civilization reached its ultimate distinction. His son, Nebuchadnezzar II (604-562 BC) is credited for building the legendary Hanging Gardens, one of the seven wonders of the ancient world. It is said that the Gardens were built by Nebuchadnezzar to please his wife or concubine, Amyitis, who had been "brought up in Media and had a passion for mountain surroundings". He did this because his wife had lived in the mountains and she was homesick on the flat plains of Babylon. He planted a large amount of brightly colored tropical plants on the roof of the palace.

The gardens were completed around 600 BC. The Hanging Gardens were built on top of stone arches 23 meters above ground and watered from the Euphrates by a complicated mechanical system. It was Nebuchadnezzar II who restored Mesopotamia to its former Babylonian glory and made Babylon the most famous city of the ancient world

The Hanging Gardens on the east bank of the River Euphrates, about 50-km south of Baghdad, Iraq, used to be considered as one of the Seven Wonders of the World. "Has plants cultivated above ground level, and the roots of the trees are embedded in an upper terrace rather than in the earth. The whole mass is supported on stone columns... Streams of water emerging from elevated sources flow down sloping channels... These waters irrigate the whole garden saturating the roots of plants and keeping the whole area moist. Hence the grass is permanently green and the leaves of trees grow firmly attached to supple branches... This is a work of art of royal luxury and its most striking feature is that the labor of cultivation is suspended above the heads of the spectators."

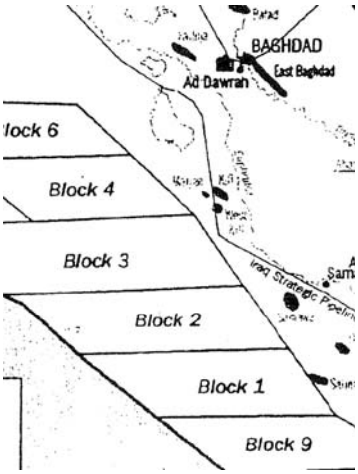
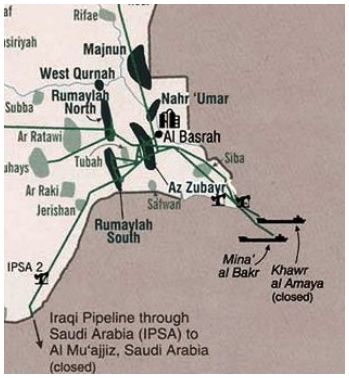
In 626 BC, the Chaldeans helped Nabopolassar to take power in Babylonia. At that time, Assyria was under considerable pressure from an Iranian people, the Medes

(from Media). Nabo-polassar allied Babylonia with the Medes. Assyria could not withstand this added pressure, and in 612 BC, Nineveh, the capital of Assyria, fell. The entire city, once a great capital of a great empire, was burned and sacked.



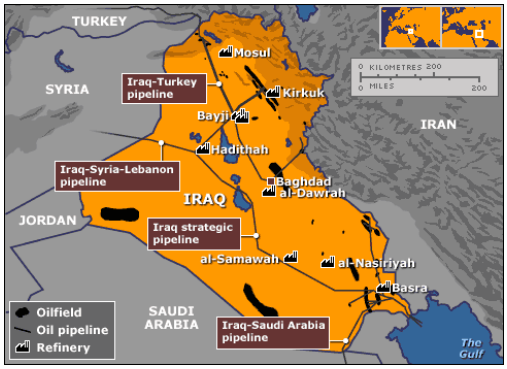

HOVEYZEH
HAMIDIYEH
AHVAZ
KUT-E 'ABDOLLAH
YAZAB
KUSHK
AHU
QAJARIYEH-YE DO
KARUN
HAWR AL 'AWDAH
AL UZAYR
AL GHARRAF
DHI QAR
ALBU SALIH
MUZAYBILAH
AN NASIRIYAH
AL CHABAISH
AL QURNAH
TURABAH
AL HAMMAR
AL FURAT (EUPHRATES)
AL MADINAH
SHATT AL ARAB
SUQ ASH SHUYUKH
QURYAT ASH SHAFI
DARKHOVEYN
MANAZIL AL HAJANAH
AL GHUBAYSHIYAH
HAWR AL HAMMAR
AL HARITHAH
SHADEGAN
JALIBAH
AR RUMAYLAH
AL MA'QIL
AT TANNUMAH
KHUR-E DOWRAQ
AT TUBAH
AL BASRAH (BASRA)
KHORRAMSHAHR
AZ ZUBAYR
ABU AL KHASIB
ABADAN
AS SIBAH
CHAVIB DEH
AR RAFIDIYAH
AL BASRAH
SAFWAN
KHOSROWABAD
MA'AMIR
30°
MAKHFAR AL BUSAYYAH
UMM QASR
AL FAW
KHABRAT UMM AL 'AYSH
QULBAN LAYYAH
KHABRAT UMM AL MADAFI'
AL HUJAYJAH
KUWAIT
AL BAHRAH
WADI AL BATIN
AL KUWAYT (KUWAIT)
nikom Zone
KHABRAT UMM AL HIRAN
AL JAHRA
AS SALIMIYAH
AD DAWHAH
HAWALLI
AL FINTAS
AL AHMADI
AL FUHAYHIL
AL ABDALIYAH
AR RUQ'I
SUBAYHIYAH
AD DARABIN
ABU AL HIRAN
AZ ZAWR
AL KHIRAN
Iraq-Saudi Arabia pipline (IPSA)
(closed)
AL WAFRAH
46°
48°
28°

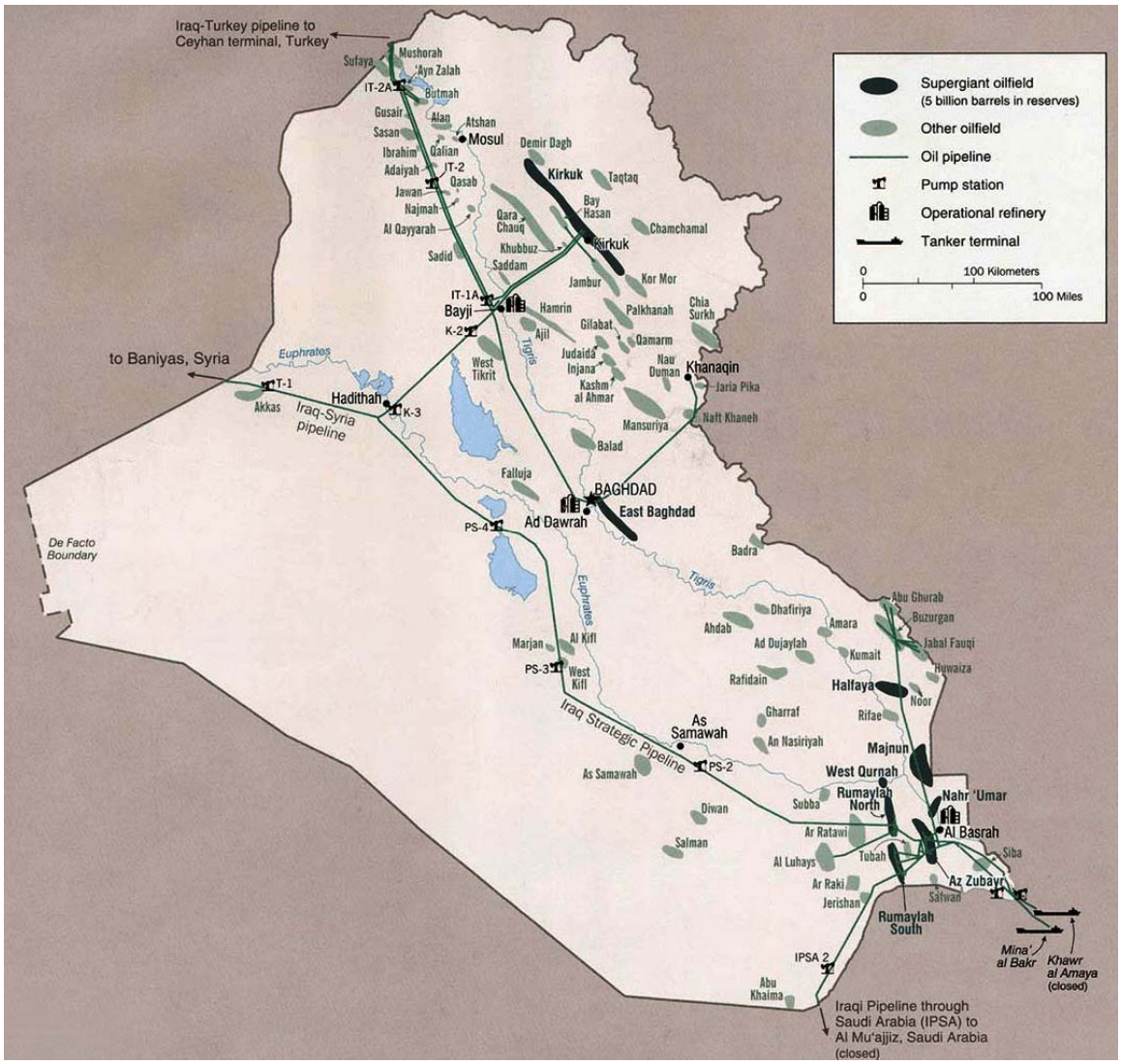
1.Project Idea	The aim of the Project is to build a refinery, to process Iraq Basrah Light Crude Oil of the region and to construct an oil storage terminal on the …… …….. Refinery complex design capacity will allows to process 120.000 BPD (19.000 m3/day) of crude oil (Basrah Light) Refinery will have below Units: 1. Atmospheric Distillation 2. Vacuum Distillation 3. FCC Unit 4. Hydrotreater Unit for Diesel Oil 5. Alkylation Unit 6. Merox Treater 7. Isomerization Unit 8. Merox Treating Unit 9. Utulities

2. Project area   	This place was chosen due to the following reasons: 1. Geopolitically very important place 2. Infrastructure is available. 3. Close to Basrah Oil Deposits, 4. Crude oil supply possibilities, price much lower than world market prices 5. Oil Terminal availability, gate of Iraq to world markets. 
3. Business plan availabilty	Yes-Available
4. Products	1. Gasoline (Benzine- A76/80 A91/92/93 AI 95/96 AI 98) 2. Gas Oil (DTL-DTZ-DTA) 3. Fuel Oil (M100-M40) 4. Kerosene 5. Bitumen 60/90 - 90/130 – 90/10 6. Propane / Butane Mix

5. Competitors	• Basrah Refinery (INOC), 126,000 bbl/d (20,000 m³/d) • Daurah Refinery (INOC), 100,000 bbl/d (16,000 m³/d) • Kirkuk Refinery (INOC), 27,000 bbl/d (4,300 m³/d) • Baiji Salahedden Refinery (INOC), 140,000 bbl/d (22,000 m³/d) • Baiji North Refinery (INOC), 150,000 bbl/d (24,000 m³/d) • Khanaqin/Alwand Refinery (INOC), 10,500 bbl/d (1,670 m³/d) • Samawah Refinery (INOC), 27,000 bbl/d (4,300 m³/d) • Haditha Refinery (INOC), 14,000 bbl/d (2,200 m³/d) • Muftiah Refinery (INOC), 4,500 bbl/d (720 m³/d) • Gaiyarah Refinery (INOC), 4,000 bbl/d (640 m³/d)
7. Yearly average sales	**ONE STREAM YIELD FIGURES**

Products	Yield %	Output bbl/day
Gasoline	31.60	37.929.00
Gas Oil	35.00	42.000.00
Fuel Oil	2.83	3396.00
Kerosene	16.00	19.200.00
Bitumen	1.50	1.800.00
LPG	4.58	5.496.00
Fuel Gas		Refinery Internal use
Total	91.51	bbl/day 109.821.00





8.Incomes (Yearly)

Oil prices fluctuating too much. This calculation has been up dated 18 June 2009 .
Number of working days of Refinery is accepted to be 335.
Prices average Russian Refineries day gate prices of this date and not including VAT, transport and sales profit.

Products	Output	Price	Income
	mton/day	$/ton	US$/year
Gasoline	5,267.00	637.00	3,355,665.04
Gas Oil	5,833.00	409.00	2,385,831.97
Fuel Oil	471.00	164.56	77,618.00
Kerosene	2,666.67	406,78	1,084,748.02
Bitumen	250.00	241,36	60,250.00
LPG	763.33.00	189,83	144,902.93
Fuel Gas			
Total			7,103,015.36

1 Year Products not including VAT+Transport+Profit=2,381,520,346.60

PAKPAŞ

9.Crude Oil Supply, There will be no supply problem. Crude cost received as of 18 June 2009. to be $ 69.00 (OPEC) Purchase price assumed 25% less than oil exchange.	**ONE STREAM YIELD FIGURES** Bbl | US$/bbl \| US$/day | US$/year 120,000 | 51.75 | 6,210,000.00 | 2,080,350,000.00 21 days crude storage tanks will be furnished. Product tanks will also have same capacity for each product. See dynamic excel pages for daily follow up.
10. Investment expenses, including the project funding (own means, loaned means, support)	Land and permissions has been given by local partner (or Iraq Government). Design has been studied by several US and Indian engineering companies, to be ready to start after having funded. Total Investment expenses including catalyst and all other oils, spare part, social premises etc is US$ …….. mio.
11. Project indicators	Equity US$ Loan US$ Cost of Loan US$ Pricipal+Cost US$ Total Investment US$ Net Profit +depreciation Return of Investment % NPV %6 (10 years) US$ IRR % Profitability of Investment % Profitability of Capital % Profitability (Net earning) % 25.95 Pay Back Period 3 Years

DESIGN BASIS

1.0	Plant Capacity	120.000 BPD (19.000 m3/year)
1.1	Service Life	The Plant will be designed for 25 years
1.2	Stream Factor	The Plant will be designed with a stream factor of 0.91 or 8000 hrs/year.
1.3	Design Capacity	Light Crude (BASRAH) 120.000 BPD
1.4	Plant Feed	34.1° API crude (Light Basrah local Crude) ~ R.V.P (Psi): 7.0 ~ Specific Gravity AT 15.6/15.8 C: 0.8546 ~ API Gravity AT 16.6 C: 34.1 ~ Water Content Vol %: 0.02 ~ Salt NA CL ppm: 5.0 ~ Sulphur Wt %: 1.1 ~ Asphaltenes Wt %: 1.2 ~ Pour Point: -27 ~ Kin. Vis. G: 0.06 ~ Gross Heating Value (cal/g): 10610 ~ Characterization factor (kuop): 12.0 ~ Carbon Residue (conradson) wt%: 3.95 ~ Metal Content ppm: * Vanadium Content ppm: 30.0 * Nickel Content ppm: 8.5 * Iron Content ppm: 1.6 * Copper Content ppm: 0.2
1.5	Codes and Standards	1. ASME Code Section VIII, Div.1 Pres Vessel 2. API-500A Electrical Equipments 3. API RP-520 Parts-I and II Pressure Relieving 4. ANSI B31.3 Piping and Valves 5. GOST Standards and CNIP requirements will be considered.

TECHNICAL ASPECTS
PROCESS UNITS PARTLY SKID MOUNTED

Short Introduction

Pakpas-Delaware USA and his JV Partner-USA specializes in building skid mounted modular crude oil refineries that process from 300 to 150,000 barrels per day of crude oil.

The basic crude oil atmospheric distillation unit (ADU) produces naphtha, kerosene, diesel and #6 fuel oil. Additional processing units will be supplied by Pakpas-Delaware USA JV that are capable of producing specification high-octane motor fuel, commercial jet fuel, low sulfur diesel, fuel oil and asphalt. Two times 60.000 BPD Unit will be supplied this will allows the simultaneous processing of more than one type of crude oil and one plant can still be in operation in the event that one plant is down. The plant sizes can be increased in stages.

Refinery will be designed for future expansions.

Plants:

- allow a four operator to restart the plant from a cold start in less than four hours and have the plant in full operation,
- are completely automated and once an operator sets all the controlling points, all product temperatures and flows are controlled automatically. If a product specification drifts off, or if a potentially hazardous condition develops, the plant automatically turns itself off to a safe condition without the help of an operator. A “First Out” annunciatior signals the reason for the shutdown by a flashing red light,
- require no water . (Air Cooled)
- special alloy construction for processing high sulfur crudes,
- desalter packages for removing salt from the crude for corrosion prevention,
- naphtha, jet fuel and diesel hydrotreaters for sulfur removal from the products,
- catalytic reformers for producing high octane gasoline motor fuels,
- gasoline stabilizers for reducing the Reid vapor pressure of gasoline,
- vacuum distillation units for producing paving grade asphalt (bitumen),
- sulfur plants for sulfur conversion and air emissions reduction that include an amine plant, a sulfur plant and a tail gas plant,
- winterized skids for operation in artic weather, and
- portable laboratory and control buildings with supplies.

Plant Feed and Products

Flexibility is incorporated in the design of this plant to process a variety of crude oils. The actual capacity of the plant will depend on the percentages of the fractions of the specific crude processed. Specifically, the plant is designed to process

2X60,000 barrels per day of 30° to 40° API crude

and the products from the plant are light naphtha, heavy naphtha, kerosene, diesel, gas oil and reduced crude (fuel oil). The plant can be operated at 33% of its rated capacity.

Turn-Down Ratio: %33

The ending True Boiling Point (TBP) cut point of the different products can be adjusted somewhat to maximize one cut over another. As an example, the heavy naphtha end point can be adjusted to 400 °F (205 °C) to maximize naphtha production while minimizing kerosene production. Conversely, the heavy naphtha end point can be reduced to 325 °F (163 °C) to minimize naphtha production and maximize kerosene production.

The starting TBP cut point of the diesel depends on the ending TBP cut point of the kerosene and the diesel product specifications. With the design basis crude, a starting TBP cut point of 300 °F (149 °C) to 400 °F (205 °C) and an ending TBP cut point of 600 °F (315 °C) to 680 °F (360 °C) is used with a minimum flash point of 125 °F (52 °C).

Reduced crude is the bottom of the barrel with a minimum flash point of 150 °F (66 °C) and is normally used as a #6 fuel oil.

The products will be furnished at the edge of the skid at the following pressures and temperatures:

Naphtha Product: a minimum of 50 feet (15 meters) of head and a maximum temperature of 20 °F (6.7 °C) above ambient temperature, or 100 °F (38 °C), whichever is higher.

Kerosene: a minimum of 50 feet (15 meters) of head and a maximum temperature of 100 °F (38 °C).

Diesel: a minimum of 50 feet (15 meters) of head and a maximum temperature of 125 °F (52 °C).

Reduced Crude (#6 Fuel Oil): a minimum of 50 feet (15 meters) of head and a maximum temperature of 250 °F (121)

°C).

One of the skid ready for shipment

Environmental Impact

The Pakpas-Babylon Oil Refinery plant will not make a significant contribution of air contamination to the atmosphere. Fugitive emissions are minimal due to the small number of flanged connections and pumps. Since these plant use air cooling, the only other effects on the local environment are the products of combustion exhausted into the air by the plant heater and the water that is brought in with the crude oil.

The plant would not be characterized by the United States Environmental Protection Agency (US EPA) as a major source as defined in 40 CFR 70.2 of the Code of Federal Regulations. The plant would be eligible for permit exemptions under Federal and State Regulations, even for severe non-attainment locations.

Our emissions estimates are believed to be upper bound values based on the conservative application of emissions factors found in EPA AP-42 and other accepted procedures for calculating air emissions.

The estimated air emissions from the heater are based on each barrel (or ton) of crude processed as follows:

- Water Vapor: 4.625 lbs/bbl (15.5 kg/metric ton)
- CO2: 13.68 lbs/bbl (45.92 kg/metric ton)
- NOx: 57.34 lbs/bbl (192.5 kg/metric ton)
- SOx: 0.009 lbs/bbl (0.03 kg/metric ton) per 1/10th of 1% sulfur in the fuel

For each 1/10th of 1% of water in the crude feed, one barrel of distilled water will be produced for each 1000 barrels of crude processed (1 kg per metric ton). Since the water is in equilibrium with the distillate, the water may contain up to 500 mg per liter of total organic carbon (TOC).

If a desalter is used, depending on the amount of salt in the crude, from 30 to 130 gallons per hour of brine water is discharged per 1000 barrels of crude processed (from 0.9 to 4 liters per hour for each metric ton per day).

COST ITEMS

Cost items are given below to show scope of Supplier.

No	Description
1	Crude Distillation Unit
2	Naphtha Stabilizator
3	Desalter
4	IA/PA Unit
5	Steam Generation Unit
6	Control Room
7	Laboratory
8	Feed and Storage Tanks
9	Product Blending Facilities
10	Loading/Transferring
11	Service Water
12	Waste Water Treatment
13	Fire Fighting Facilities
14	Winterized Skid Shelter
15	Vent Slop Oil System
16	Electricity Incoming Facilities
17	Transformers/MCC
18	UPS System
19	Stand-By Generation
20	Pipe Rack between Plant and Tank Farm
21	Buildings
22	Ware House and Work Shop
23	Medical Units
24	Fence, Gate and CCTV
25	Landscape
26	Site Preperation
27	Soil Investigation
28	Topographical Survey
29	Piling
30	Utilities
31	Temporary Site Facilities
32	Temporary Utilities
33	Temporary Facilities for Commissioning
34	Plant Chemicals and other Consumables and Additives

No	Description
1.000	**EPC SCOPE**
1.100	Total Project Management
1.200	Basic Engineering
1.300	Detail Engineering
1.400	Supply of Material (Plant Equipment)
1.500	Supply of Material (Civil Works)
1.600	Marine Transportation
1.700	Inland Transportation
1.800	Unloading/Storage/Erection
1.900	Pre-commissioning
1.100	Commissioning and Start up
1.200	Guarantees
2.000	**TAXES** (It is not included EPC Scope of supply)
2.100	Income Taxes on corporation (R/NR)
2.200	Income Taxes on Individuals (R/NR)
2.300	Sales Taxes
2.400	Social Security
2.500	Stamp Duty
2.600	VAT
2.700	Others
3.000	**TRAINING**
3.100	On the job training
3.200	Vendor/Licensor Training
3.300	Trainer all expenses
4.000	**INSPECTION WITNESS**
4.100	By 3rd Party
5.000	**CUSTOM DUTIES** (It is not included EPC Scope of supply)
6.000	**PERMISSIONS / IMPORT LICENCES / APPROVALS** (It is not included EPC Scope of supply)
7.000	**INSURANCE**
7.100	CAR/EAR
7.200	Thirth Party Liability
7.300	Workers Compensation
7.400	Marine Cargo
7.500	Inland Transport
7.600	Construction Plant and Equipment
8.000	**ENVIRONMENTAL IMPACT STUDY**
9.000	**SPARES**
9.100	Commissioning Spares
9.200	Two Years Spares
10.000	**RECORD BOOKS**