Cabinet of Ministers

Egyptian Environmental Affairs Agency

Egyptian Pollution Abatement Project (EPAPII)

رئاســه مجلـس الوزراء جهــاز شـئون البيئــة مشره ع النحكم في التله ث الصناعي-المرحل

<u>Case Summary</u> Alexandria Petroleum Company. APC

Company Information:

Contact Person: Chem. / Mohamed El-gohary.

Position: Chairman.

Telephone: 03-4402833, 03-4402832

Fax: 03-4401605 Sector: Public Company.

Number of labors: 5365

Project Title: Replace FURFURAL by NMP IN Extraction unit

Type of Project: Cleaner production.

1 Basic Information

1.1 Main Products:

Main Products	Average Annual production (t/y)		
Bright stock oil	106000		
Hard Wax	5000		
Soft Wax	2350		
Extracts	18600		

1.2 Raw Materials (t/y):

Raw Material	Average Annual Quantity ton/year	
Crude Oil	206896	

1.3 **Project Location:**

El Max. - Alexandria

1.4 Project Objectives:

- Furfural is classified as toxic material especially during its manufacturing, which is against international trends to avoid pollution.
- NMP is a clean material recommended to be used instead of Furfural to prevent pollution. It has no side effects during manufacturing of handling.
- Increase the efficiency of the extraction process.

1.5 **Project Description**

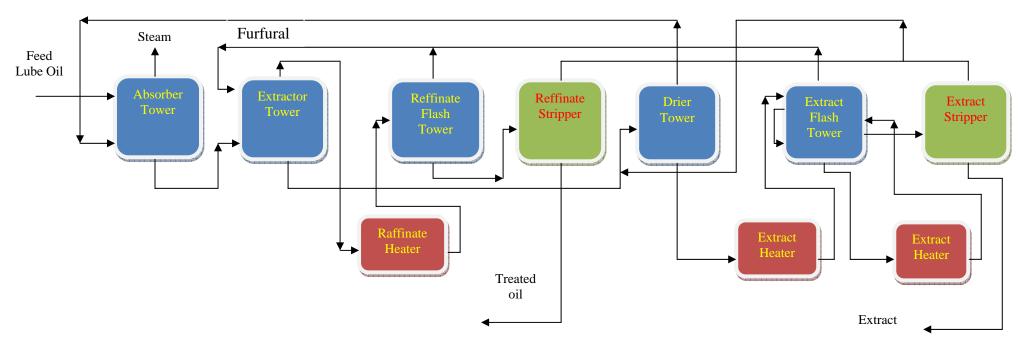
Company background:

 Alexandria Petroleum Company "APC" is considered one of the largest petroleum companies in Egypt. It is a subsidiary of the Egyptian General Petroleum Corporation (EGPC).

♣ Project Objectives:

- This project includes a total revamp for the existing furfural Extraction Unit (FEU) to NMP (N-Methyl-2-Pyrrolidone) Solvent.

Azeotropic Mix



Process Flow Diagram for existing Furfural Extraction Unit

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1.6 **Project Components:**

 A list of equipment has been proposed by APC for replacement of APC's FURFURAL Extraction Unit (FEU) to NMP refinery.

Sr.	Equipment	Sr.	Equipment		
1	Towers	2	Vessels		
3	Heat Exchangers	4	Vacuum package		
5	Chemical Injection	6	Relieve valves		
7	Fired heaters	8	API centrifugal pumps		
9	Control Valves	10	Instruments bulk materials		
11	Filters	12	Field instruments		
13	Piping bulk	14	Piping Valves		
15	UPS	16	Cable trays & accessories		
17	Grounding & lighting	18	Cables		
19	Switch Gear	20	Steal Structure		

1.7 <u>Estimated Project Cost:</u>

• The total estimated cost is US\$ 16.105 million with a finance from EPAP II co-financers about 7.8 million US\$ for the equipment.

1.8 EPAP Technical Support:

• The company hired a consultant (Self Finance) to prepare technical specification.

2. Eligibility Criteria

2.1 Environmental

- The Company has its own lab for air & water pollutants.
- Management is committed to perform self-monitoring concerning the project's performance, and to evaluate the technical performance of the project and its environmental benefits.
- The new industrial process would result in the Lube oil production complex being compliant with laws requirements.

2.2 Financial:-

- The total estimated cost is US\$ 16.105 million.
- The payback period is 15 Month.

3. Project procedures:-

3.1 Financial procedures

• PMU has received the credit worthiness certificate from NBE in 26/09/2012.

3.2 <u>Procurement procedures:</u>

According to the petroleum sector roles in Egypt, the APC used its commercial practices accepted by the Egyptian General Petroleum Company (EGPC) to procure the project through the following steps.

1. Contract with Enppi (self financed by APC):

• APC has contracted the consulting from Enppi to carry out Detailed Engineering, Assistance with Procurement, Construction Supervision and Commissioning and Start-of the project.

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2. <u>Licenses from Bechtel (self financed by the APC)</u>:

- APC has contracted with Bechtel Corporation to purchase a Process Licence Package for the Project, utilizing Bechtel's proprietary NMP Refining SM technology.
- The choice of technology to be utilised for the upgrading of the existing FURFURAL Extraction Unit at the APC has been made by APC on the basis of a bidding procedure which was carried out previously. The license agreement between APC and Bechtel is confidential. However, APC have informed EPAPII that the agreement does not include any special specifications which would limit the availability of the required equipment.

3. <u>Procurement of Equipment:</u>

APC decided to divide the equipment to allow supply from several sources of specialized manufacturers and suppliers, for these reasons:

- There is no single supplier/manufacturer for all project commodities
- Not all Invitations for Quotations or Bids would need to be issued at the same time, but the procurement of each item of equipment shall be based on completion of the detailed engineering for the item in question
- The evaluation of the bids/quotations for each item to be procured will be easier
- APC has shortlists of the potential suppliers for each of the items required for the project.

The procurement of the equipment required for the new extraction unit can proceed in accordance with the procedures used on EPAP II as follows:

- Equipment with an estimated cost below USD 500,000: Shopping (15 items)
- Equipment with an estimated cost of above USD 500,000 but below USD 8m: Limited Competitive bidding (5 items).

3.4.2 Status of Implementation:

Technical Document	submitted	Date				
Technical Document		Achieved	Planned			
Credit worthiness certificate	Y	26/09/2012				
Sub loan Agreement	N	N	Dec,2012			
Bidding document	N	N	Dec,2012			
Technical and financial Evaluation	N	N	June, 2013			
Awarding and Contracting	N	N	July, 2013			
Installation and Commissioning	N	N	Dec, 2013			
Monitoring:						
Q1:						
Q2:						
Q3:		_				
Q4:	<u>-</u>					

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