

Case Summary
Abu Qir Fertilizers Company

Company Information:

Contact Person: Chemist / Amr El-Adawy.
Position: Utilities Sectors Head.
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Sector: Share hold private sector.
Number of labors: 3000 permanent employees
Project Title: Installation of IWWTP (Zero Liquid discharge)
Type of Project: Waste Water treatment.

1. **Basic Information:**

1.1 **Main Products:**

Products	Actual Average Production, t/y*
Abu Qir I	
Ammonia (Intermediate product)	363,000
Urea Prills (Final product)	511,500
Abu Qir II	
Ammonia (Intermediate product)	330,000
Nitric Acid(Intermediate product)	594,000
Ammonium Nitrate(Final product)	792,000
Abu Qir III	
Ammonia (Intermediate product)	396,000
Urea Granules(Final product)	660,000
N.P.K Unit	
N.P.K Fertilizers	132,000
U.A.N Unit	
UAN Solution	280,500

1.2 Raw Materials:

Raw materials		Current Consumption, t/y*
Abu Qir I		
Natural Gas at 15°C		268,767,180 Nm ³ /yr
Process Air		289,080,000 Nm ³ /yr
Ammonia Production Plant	Potassium Carbonate	36
	Hydrazine	7.8
	Potassium Metavenadate	1.2
	Antifoam	0.132
Urea Production Plant	Formaldehyde	1916.4
	Zinc Sulphate	96
Water Treatment Unit	Calcium Hydroxide (80%)	2229.6
	Aluminium Sulphate (liq.50% conc.)	226.8
	Potassium Permanganate	10.8
	Polyelectrolyte	1.044
	Chlorine (100%conc.)	163.2
Demineralization Unit	HCl 30% conc.	1439.3
	NaOH 50% conc.	1809.2
	NaCl	60
	HCl for EDR unit	68.4
Abu Qir II		
Natural Gas at 15°C		197,762,400 m ³ /yr
Process Air		285,120,000 Nm ³ /yr
Ammonia Production Plant	Potassium Carbonate	36
	Hydrazine	9.6
	Potassium Metavanadate	10.8
Ammonium Nitrate Plant	Dolomite	19,800
	Magnesium Oxide	3600
	Sulfonic Acid	427.2
	Aliphatic Amine	24.48
	Mineral Oil	230.4
Water Treatment Unit	Calcium Hydroxide (80%)	1389.72
	Aluminium Sulphate (liq.50% conc.)	136.8
	Potassium Permanganate	6.3
	Polyelectrolyte	0.66
	Chlorine (100%conc.)	153.6
Demineralization Unit	HCl 30% conc.	820.2
	NaOH 50% conc.	459.24
Abu Qir III		
Natural Gas		281,480,376 Nm ³ /yr
Process Air		340,560,000 Nm ³ /yr
Ammonia Production Plant	Hydrazine	12.72
	Antifoam	120 kg/yr
Urea Production Plant	Formaldehyde	4892.96
	Magnesium Sulphate	2244
Water Treatment Unit	Calcium Hydroxide (80%)	646.2
	Aluminium Sulphate (liq.50% conc.)	72
	Potassium Permanganate	2.4
	Polyelectrolyte	0.108
	Chlorine (100%conc.)	124.8
Demineralization Unit	HCl 30% conc.	676.2
	NaOH 50% conc.	170.4

1.3 Project Location:

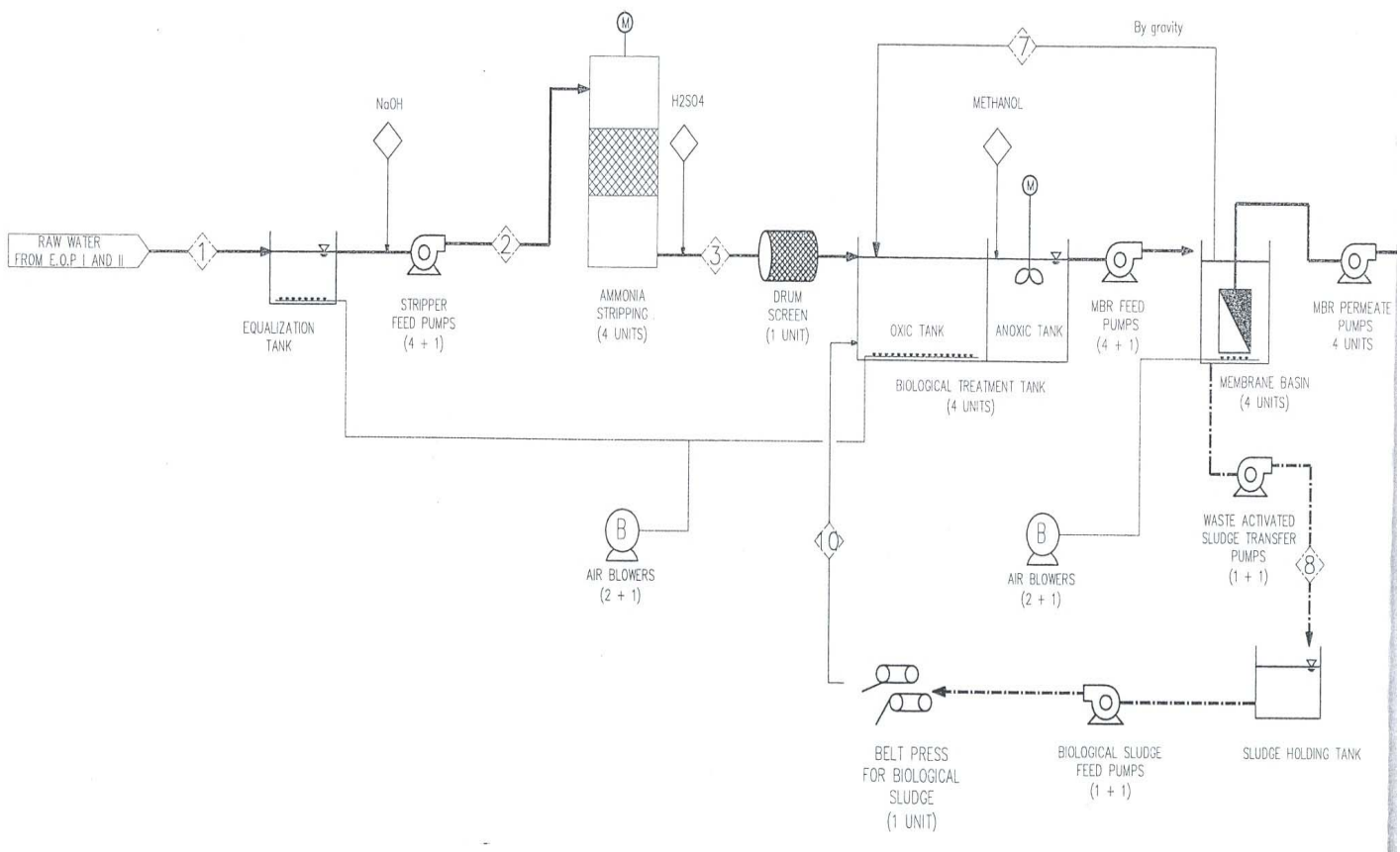
On the coast of Abu Qir Bay in El-Tabia area-Rasheed Road, 20 Km east of Alexandria.

1.4 Project Objectives:

After installing the new IWWTP, it is expected that NH₃ will be reduced by about 99.2% of the present value also NO₃ will be eliminated by 72.8%, then the treated wastewater stream will be in full compliance with law and also the water will be decrease by 80% of water after recycled

Parameters	Before		After		Reduction
	Conc. (mg/l)	Load (tons/yr.)	Conc. (mg/l)	Load (tons/yr.)	
Total Ammonia	248	1129	3	13.6	98.8%
Total Nitrogen	54	246	10	45.5	81.5%

1.5 Project Description:



Process flow diagram for end of pipe treatment system

1.6 Project Components:

A list of equipment has been prepared by EPAP consultant for Installation of Industrial wastewater Treatment Plant.

Sr.	Equipment
1	Equalization /Mixing
2	PH adjustment
3	Decalcification, suspended solids and phosphate removal
4	Chemical-physical treatment for ammonia removal
5	Neutralization
6	De nitrification for Nitrate removal
7	Ultra filtration and two-staged Reverse Osmosis
8	Sea water blending and discharge to sea for the final concentrate
9	Sludge thickening and dewatering plant on WWTP site for sludge from de nitrification
10	Chemical dosage plants for sulphuric acid, caustic soda, ferric chloride, methanol and polyelectrolyte
11	Electrical rooms
12	Sludge dewatering on Abuqir 1&2 site for dewatering of the sludge from existing clarifiers 1&2 as well as the sludge from de calcification
13	Sludge dewatering on Abuqir 3 site for dewatering of the sludge from existing clarifier 3

1.7 Estimated Project Cost:

The total Project cost is 16 MUS\$ and actual estimated cost for mechanical equipment 7,89 MUS\$ with EPAP II finance 7,89 MUS\$ for the equipment.

1.8 EPAP Technical Support:

Technical Assistant (TA) had hired a local consultant to prepare the Environmental Audit, CAP and assist the company in procurement procedure.

2. Eligibility Criteria

2.1 Environmental:

Improving the waste water quality by reducing the ammonia and nitrate levels in the industrial effluent to comply with law (law 4/1994) amended with law 9/2009 for discharging into the Mediterranean.

2.2 Financial:

- The total estimated cost is 16 MUS\$ with a finance from EPAP II co-financers about 7.89million US\$ for the equipment.
- Loan agreement signed on 23/4/2013
- The payback period is 6 months.

3 Current status of project procedures

3.1 Steering committee approval: approved

3.2 Co-financers approval: N/A

3.3 Technical Procedures:

Technical Document	submitted	Approved	Date
Environmental Assessment	Y	Y	Oct 2011
Compliance Action Plan (CAP)	Y	Y	Oct 2011
Environmental Impact Assessment (EIA)	Y	N	---
Technical Agreement	N	N	---

3.4 Implementation Procedures:

3.4.1 Procurement Procedures:

The company used its own commercial practice under CCP and issued two stage bidding

3.4.2 Status of Implementation:

Technical Document	submitted	Date	
		Achieved	Planned
Credit worthiness certificate	Y	19/5/2011	
Financial Agreement	Y	23/4/2013	2012
Bidding document	Y	January 2012	2012
Technical and financial Evaluation	Y	3/1/2013	2012
Awarding and Contracting	Y	27/2/2013	2012
Signing of contract	N	17/7/2013	2013
Installation and Commissioning	N	N	2014
Monitoring:			
Q1:			
Q2:			
Q3:			
Q4:			

Conclusion:

It is clear that the tendering process has gone through proper channels and that the channels and the selection process was fair, unbiased and took into consideration the financial merits. The procurement procedures were according to the company's commercial practice cover EPAP II basic procurement principles Economy, efficiency, fairness and transparency.