

Case Summary
Egyptian Petrochemicals Company (EPC)

Company Information:

Contact Person: Chem /Salem Abdo
 Position: HSE Department
 Telephone: 034770435-01227331861
 Fax: 034770216
 Sector: Petroleum Sector
 Number of labors: 3323
 Project Title: Chlorine Plant Effluent Treatment System, continuous monitoring systems for stack emissions
 Type of Project: In process modification &Waste water treatment

1.Basic Information:

1.1 Main Products

Products	Actual Average Production, t/y
PVC Resin	77,500 t/y
Caustic Soda Solution	74,000 t/y
Sodium Hypochlorite Solution	9,800 t/y
Hydrochloric Acid	16,000 t/y

1.2 Raw Materials & Utilities

Raw materials		Current Consumption, t/y	
Salt, NaCl		126,600	
Ethylene, CH2 = CH2		45,300	
Sodium Sulphite, Na2SO3		17.9	
Sodium Carbonate, Na2CO3		1,430	
Sodium hydroxide Solution, NaOH		5,810	
Sulphuric Acid 96%, H2SO4		415	
Precipitant		2.4	
Other		10,700	
Utilities	Usage	Consumption, m3/y	Source
Water	Domestic	117,000	Municipal
	Industrial Water	9,400,000	Nubareya Canal
	Cooling Water	5,300,000	
	Demineralized – Water in Process	1,130,000	
	RO Water	1,300,000	
	Type	Consumption /y	
Fuel	Mazot (fuel oil), t/y	-----	
	Solar (diesel oil), t/y	-----	
	Natural gas, m3/y	198,000,000	
	Source	Consumption	
Electricity	National Grid	-----	
	Self generated	488,400 MWh/y	

1.3 Project Location:

- El-Nahda, Amrya, Km 36 Alexandria/Cairo Rd

1.4 Project Objectives:

- Reduce Waste Water emissions to comply with environmental law.
- Minimize losses in raw Material.
- Increase Process Efficiency.

1.5 Project Description:

The end-of-pipe of the Egyptian Petrochemical Company is not in compliance with Ministerial Decree (402/2009) with respect to TDS (800 mg/l law limit), COD (20 mg/l) law limit. These effluents are discharged to Al-Tahrir drain. According to the TDS measurements through the whole October 2010 and couple of days in November 2010, only in 25% of the days the general (end-of-pipe) effluent is complying with Ministerial Decree (402/2009) limit with respect to TDS, COD.

1.6 Project Components:

- Decanter tank
- Piping
- pumps
- General Pit including lining
- chemical dosing systems
- one automatic pH adjustor

1.7 Estimated Project Cost:

Total project cost US\$ 2,2 M. EPAP finance is US\$ 2 M .

1.8 EPAP Technical Support:

EPAP II TA Prepared the Environmental audit and CAP. The PMU assisted EPC Company in the preparation of bidding Document.

2. Eligibility Criteria

2.1 Environmental

- Currently the end-of-pipe of the Egyptian Petrochemical Company is not in compliance with Ministerial Decree (402/2009) with respect to COD (20 mg/l law limit), TDS. Out of the four company's divisions (Cl₂, VCM, PVC, and utilities).
- The VCM wastewater effluent is the main source responsible for the high COD concentrations encountered.
- The main cause of COD in the VCM effluent is the ethylene dichloride (EDC) contaminating the wastewater. Both the soluble and un soluble parts of EDC in water are responsible of the high COD (Solubility of EDC in water at 20 oC is 0.87g/100 ml).
- A pit called AD601 associated with EDC stripping unit is responsible for the separation of the insoluble EDC from water by decantation (EDC has a higher density of 1.25 g/ml than water).
- The lower layer (EDC) is recycled back to the old oxychlorination unit and the overflow is pumped to the wastewater effluent. However, since the flow to pit AD601 is now very high, the residence time in AD601 is not sufficient to completely separates EDC from water. Therefore, a portion of insoluble EDC flows to the effluent wastewater and raises the COD, TDS of this wastewater

2.2 Financial:

- Payback period: NA
-

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	Jan 2010
Compliance Action Plan (CAP)	Y	Y	Jan 2010
Environmental Impact Assessment (EIA)	N	N	
Technical Agreement	N	N	

3.4 Implementation Procedures:

3.4.1 Procurement Procedures:

The company followed its commercial practice (acceptable to EPAPII) to issue tender& quotations for Supply and Installation of the project equipment

3.4.2 Status of Implementation:

Technical Document	submitted	Date	
		Achieved	Planned
Credit worthiness certificate	Y	22/5/2012	
Sub-loan Agreement	Y		Nov 2012
1 st bid "Chlorine plant project"			
1 st Bid Document	Y	7/4/2013	Dec 2012
Technical Evaluation	Y	29/5/2013	Jan 2013
Financial Evaluation	Y	6/8/2013	
Awarding and Contracting	Y	16/12/2013	Feb. 2013
Installation and Commissioning	N		July 2013
2 nd bid "Monitoring stack emission devices"			
1 st Bid Document	Y	29/4/2013	Dec 2012
Technical Evaluation	Y	29/5/2013	Jan 2013
Financial Evaluation	Y	6/8/2013	Feb 2013
Awarding and Contracting	Y	26/12/2013	Mar. 2013
Installation and Commissioning	N		July 2013