

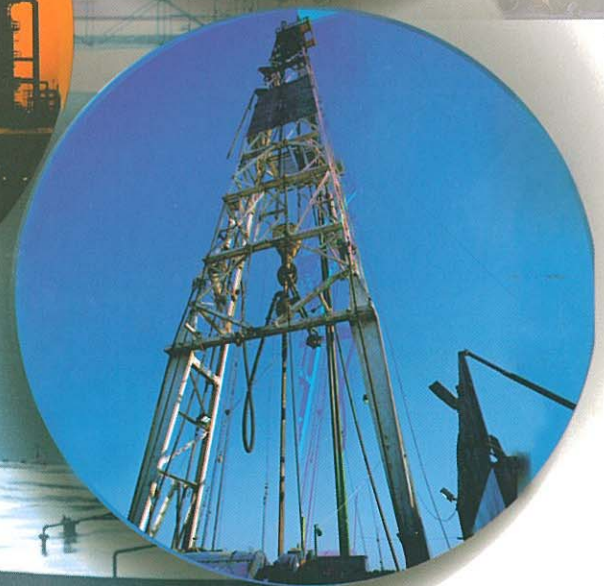
In collaboration with **PETROMAINT - EGYPT,**

**NCB provides..**

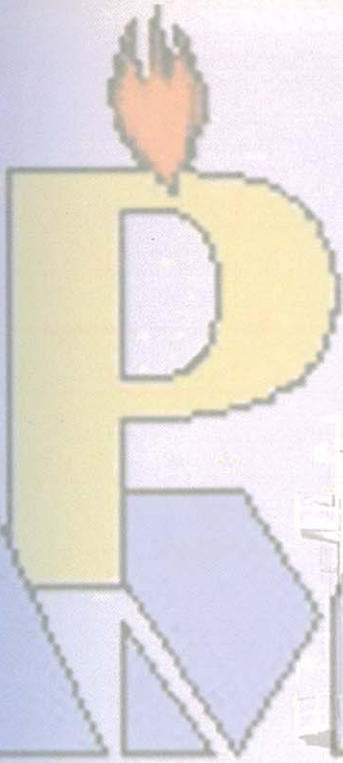
**Practical Hands - On Training in**

# **Oil Fields, Refineries & Petrochemical plants**

- Operation
- Maintenance
- Control
- Inspection



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NATIONAL CONSULTING BUREAU



PETROMAINT



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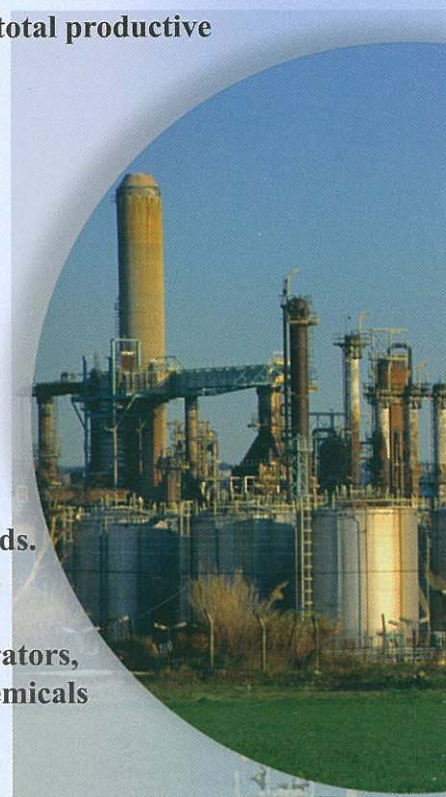


# PETROMAINT

Is an Egypt General Petroleum Corporation investment company established in accordance with the provision of investment law No. 8, 1997. The focus of Petromaint is to provide “State of the Art” maintenance, management systems and technical support for the petroleum chemical, gas processing, offshore and power sectors of Egypt.

## Petromaint Scope of Work

- Repair and maintain mechanical equipment (stationary & rotating).
- Repair, maintain and revamp of onshore, offshore oil & gas facilities
- Repair electrical, instrumentation equipment and civil works.
- Develop, implement and training for computerized maintenance management systems (CMMS) including:
  - Condition monitoring, reliability centered maintenance (RCM) and total productive maintenance (TPM) programs
  - Predictive maintenance programs
  - Daily maintenance scheduling programs
  - Rotating equipment vibration analysis programs
  - Shutdown / turnaround maintenance planning, scheduling and cost estimating, material control and procurement programs.
  - On stream inspection and equipment evaluation programs
  - Daily inspection programs
- Quality assurance / quality control programs
- Providing technical solutions and services for technical problems including the provision specialists & experts in different technical fields.
- Pre-commissioning & commissioning and startup contracts for oil & gas projects including operation staffing for these activities
- On the job & formal classroom training for engineers , technicians, operators, inspectors & supervisors in all activities related to oil, gas & petrochemicals industries from well to terminal.



# National Consulting Bureau (NCB)

- Established in 1986 to provide Management & Technical Consultation & training to major organizations in the GCC countries.
- NCB clients list include governmental bodies, authorities, oil & gas industries, refineries, petrochemicals & power plants.
- NCB conduct around 250 public & tailored In-House courses every year in the GCC countries & provide practical Hands-On training opportunities to Engineers & Technicians in Egypt.
- NCB is affiliated with many training centers, institutes, companies to provide their facilities & workshops for practical training of NCB nominees from the Gulf.
- More than 1500 instructors from world wide nationalities & institutes present NCB courses which cover wide range of management & technical skills such as

- 
- Organization Development
  - Management Skills Development
  - Behavioral Skills Development
  - Financial & Banking
  - Social Service Institutes
  - Hospital Management
  - Computer Application
  - Materials Management
  - Media Technology
  - Media Technology
  - Mechanical Engineering Applications
  - Civil Engineering Applications
  - Electrical Engineering Applications
  - Petroleum Engineering applications
  - Chemical Engineering Applications
  - Health, Safety & Environment
  - Instrumentation & Analysis
  - Automatic Process Control
  - Electronic Engineering Applications
  - Communication Technology

- NCB is a member in many international & regional institutes and professional societies .
- NCB has continuous participation in the GCC Regional Committee for High Voltage Electric Systems (GCC Cigre) activities, annual seminars & exhibitions
- Almost all oil, gas, refinery, petrochemical companies & power plants in the GCC countries benefited from NCB job-oriented courses through thousands of their employees attended NCB tailored & public courses in Kuwait, Abu Dhabi, Dubai, Ruwais, Das Island, Jubail, Dammam, Yanbu, Doha, Manama, Muscat, Beirut, Limasol & Cairo.

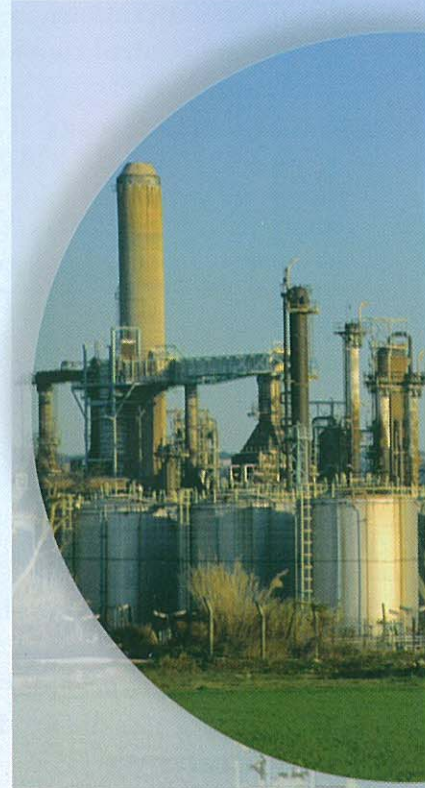
# PETROMAINT/NCB

PETROMAINT APPOINTED NCB as exclusive representative for PETROMAINT training services in the GCC countries . The services include In-House, public courses, practical Hands-On training opportunities in oil & petrochemical plants in Egypt .

According to this agreement NCB will discuss & identify training needs with the companies in the Gulf & coordinate with PETROMAINT to meet these needs in oil and gas fields (onshore and offshore) Refineries & petrochemical plants in Egypt for Engineers, Operators, Technicians & Quality assurance & inspection personnel.



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# PETROMAINT / NCB OJT PROGRAMS

## 1- WELLHEAD & DOWNHOLE OPERATION TRAINING

- Well service procedures
- Surface & subsurface safety valves
- Pressure build- up
- Downhole equipment
- Blow out preventers
- Single / double strings
- Pressure measurement & gauges
- Chokes, valves and flow lines
- Temperature, level, flow measurements
- Natural production mechanisms
- Oil & Gas measurements
- Produced water disposal
- Manifold operations
- Wellhead control room operation
- Wellhead safety
- Malfunction & leaks

## 2- SURFACE FACILITIES OPERATIONS TRAINING

- Flow lines & manifolds
- Gas/ oil separators
- Oil/ water separators
- Emulsion treatment
- Chemical injection
- Desalter operation
- Gas dehydration by molecular sieves & ethylene glycols
- Gas sweetening
- P,T,L& F measurement
- Produced water disposal
- Water treatment
- Pump station
- Booster station
- Condensate / LPG separator
- Gas turbine operation
- Automatic control systems
- Power supply to the gathering center
- Control room operator
- Offshore / on share facilities
- Safety in the production facilities operations

### **3- TERMINAL OPERATIONS TRAINING**

- Procedures in marine terminals
- Flowlines & manifolds
- Loading & fire water pumping
- Crude & products storage tanks
- Tank gauging procedures & instruments
- Positive displacement & turbin meters & provers
- Tank & vessels isolation
- Oil measurement on tankers
- Purging & inerting
- P, T, L, F measurement & instrument
- Control loops & action
- PLC, DCS, SCADA Systems
- Oil spills abatement emulsions
- Booms & skimmer
- Environmental regulations
- Ship / shore documentation
- Safety in tank forms shipping & terminal operations

### **4- MECHANICAL TECHNICIANS TRAINING**

- All types of mechanical equipment pipelines isometric, sectioned & welding drawings interpretation
- Function, components installation , maintenance & repairs of major plant equipment such as (according to client request)
  - Pumps
  - Heat Exchangers
  - Storage Tanks
  - Valves
  - Boilers
  - Compressors
  - Gas Turbines
  - Steam Turbines
  - Furnaces & Heaters
  - Piping & Fittings
- Troubleshooting & Dignastic the techniques & principles
- Equipment systems
- Bearing - Mechanical seals
- Gaskets - Gears & Gear Boxes
- Industrial air-conditioning & refrigeration equipment
- Special maintenance procedures / condition monitoring
- Vibration measurement
- Lubrication methods & equipment
- Shaft alignment
- Hot tapping
- Scaffolding
- Rigging & lifting
- Welding & mechanical workshop procedures & equipment
- Types of maintenance systems, procedures & work control.

## **5- ELECTRICAL TECHNICIANS TRAINING**

- Reading & Interpreting electrical drawings, symbols & blueprints
- Hazardous area calculation & classification
- Electrical testing: equipment Procedures & calibration
- In – Plant power distribution systems
- Testing & Maintenance protective devices such as switchgears, circuit breaks & relays
- Electric motors; speed control, testing & maintenance
- Transformers testing & maintenance
- Generators testing, protection & maintenance
- Earthing techniques & regulations
- HV,MV,LV electrical safety
- Electrical equipment in hazardous locations
- Substation maintenance
- Electronics , semiconductors, microprocessors for electricians
- Handling work orders & maintenance procedures/ systems.

## **6- INSTRUMENTS TECHNICIANS TRAINING**

- Reading & interpretation of P&I diagrams
- Process flow diagrams
- Instruments symbols & abbreviations according to ISA
- Review on principles of electricity & electronics
- Measuring instruments function, principles of operation, calibration, testing & maintenance for
- Pressure
- Temperature
- Level
- flow
- Principles of automatic control including PLC DCS , SCADA systems
- Fire alarm and gas detection instruments
- Analyzers used in refineries, petrochemical & power plants such as:
- PH - Conductivity
- Sulphur - Oxygen
- Nitrogen oxides - Infrared
- Gas chromatography - Paleography
- Atomic absorption -Spectrophotometry
- Instruments maintenance work scheduling, systems & control



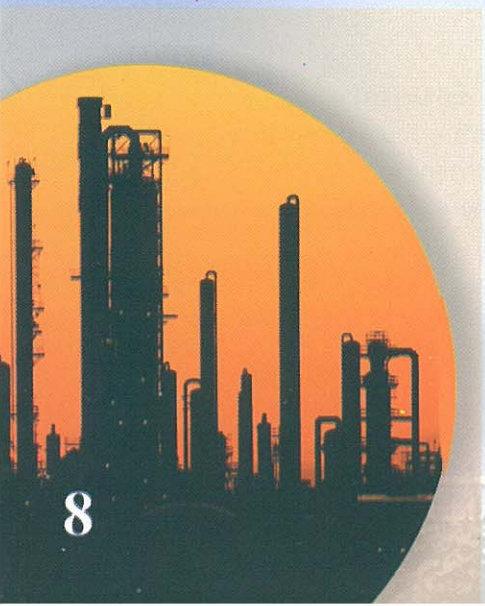
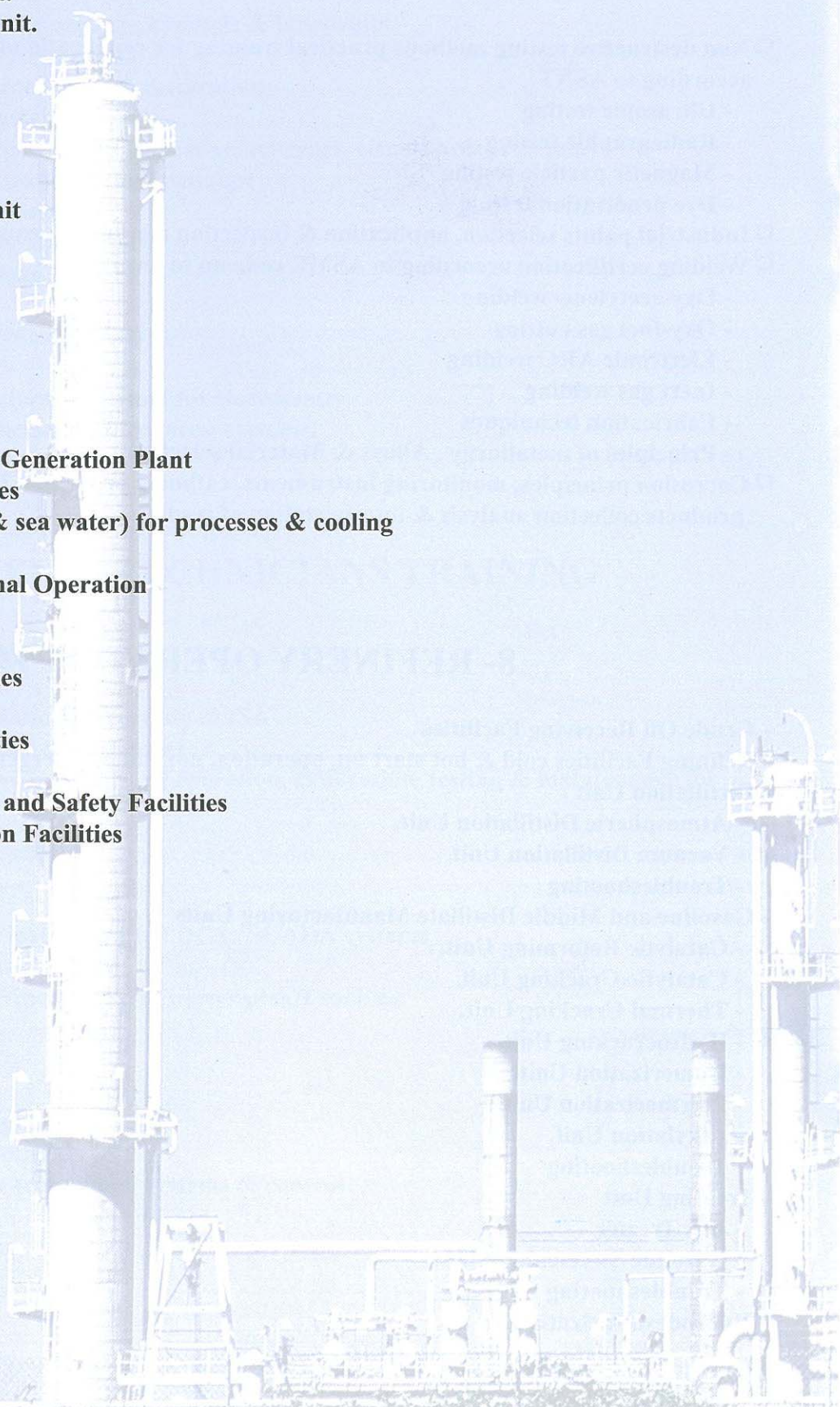
## **7- INSPECTION WELDING & CORROSION ENGINEERS/ TECHNIQUES TRAINING & CERTIFICATION**

- **Non destructive testing methods practical training for certification to level 1& II according to ASNT**
  - Ultrasonic testing
  - Radiographic testing
  - Magnetic particle testing
  - Dye penetration testing
- **Industrial paints selection, application & inspection methods & equipment**
- **Welding certification according to ASME code up to level 6G**
  - Oxy acetylene welding
  - Oxy-fuel gas cutting
  - Electronic ARC welding
  - Inert gas welding
  - Fabrication techniques
  - Principles of metallurgy , Alloys & Material selection
- **Corrosion principles, monitoring instruments, cathodic protection inhibitors control, corrosion products collection analysis & interpretation of results.**

## **8- REFINERY OPERATOR TRAINING**

- **Crude Oil Receiving Facilities**
- **Refining Facilities cold & hot start up, operation, normal & emergency shutdown of**
- **Distillation Unit**
  - **Atmospheric Distillation Unit.**
  - **Vacuum Distillation Unit.**
  - **Troubleshooting**
- **Gasoline and Middle Distillate Manufacturing Units**
  - **Catalytic Reforming Unit.**
  - **Catalytic Cracking Unit.**
  - **Thermal Cracking Unit.**
  - **Hydrocracking Unit.**
  - **Isomerization Unit.**
  - **Polymerization Unit.**
  - **Alkylation Unit.**
  - **Troubleshooting**
- **Treating Unit**
  - **Gas Treater**
  - **Gasoline Sweetening Plant.**
  - **Troubleshooting**
- **Hydrodesulfurization**

- **Lubricating Oil Manufacturing Complex.**
  - **Vacuum Distillation Unit.**
  - **Propane Deasphalting Unit.**
  - **Solvent Extraction Unit.**
  - **Solvent Dewaxing Unit.**
  - **Hydrofinishing Unit.**
  - **Troubleshooting**
  
- **Asphalt Manufacturing Unit**
  
- **Hydrogen Producing Unit.**
  
- **Sulphur Recovery Unit.**
  
- **Blending Unit.**
- **Utility Facilities**
  - **Boiler and Home Power Generation Plant**
  - **Power Receiving Facilities**
  - **Water Facilities ( fresh & sea water) for processes & cooling**
  
- **Tanks/Tank forms / Terminal Operation**
  
- **Shipping Facilities**
  - **Marine Shipping Facilities**
  - **Land Shipping Facilities**
  - **Pipeline Shipping Facilities**
  
- **Environmental Protection and Safety Facilities**
  - **Environmental Protection Facilities**
  - **Safety Facilities**



## 9-PETROCHEMICAL PLANTS OPERATION TRAINING

- Ethylene plants
- Polyethylene plants
- Vinyl chloride monomers plant
- Polyvinyl chloride plant
- Fuel additive plants
- Synthetic lube oil plants
  - Operation
  - Maintenance
  - Instrumentation & control
  - Quality assurance & control
  - Terminal operations





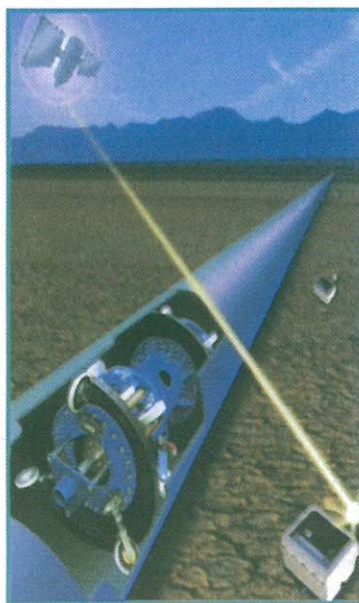
# PIPELINE INSPECTION

examples of Total Pipeline Integrity  
Modules and their components

|                |           |                 |                        |                |              |             |                      |
|----------------|-----------|-----------------|------------------------|----------------|--------------|-------------|----------------------|
| Rehabilitation | Upgrading | Risk Assessment | Parametric Maintenance | Life Extension | SCC Programs | New ??????/ | Specialist Solutions |
|----------------|-----------|-----------------|------------------------|----------------|--------------|-------------|----------------------|

## SERVICES

- Above ground surveys (CIPS, DCVG)
- ASPIRE (maintenance planning)
- Audit of pipeline records
- Certification
- Cleaning
- Consequence evaluation
- Corrosion prevention, control, monitoring
- Corrosion growth (RUNCOM)
- Crack inspection
- Crack propagation
- FFP assessment of inspection findings
- Failure investigation
- Fatigue assessment
- Finite element analysis
- Fracture mechanics
- GPS/GIS
- Hazard assessment
- Integrity management software
- Land use planning
- Maintenance management
- Materials selection
- Materials testing
- Metal - loss inspection
- Multivariate analysis
- Non - destructive testing
- Pipeline repair
- Probabilistic fracture mechanics
- Product change
- QRA - Quantitative risk analysis
- Re-coating
- Regulatory approval
- Rehabilitation planning
- Remnant life assessment
- RBI -Risk based inspection
- Route survey
- SCC risk control
- Sour service assessment
- Technology transfer
- Training



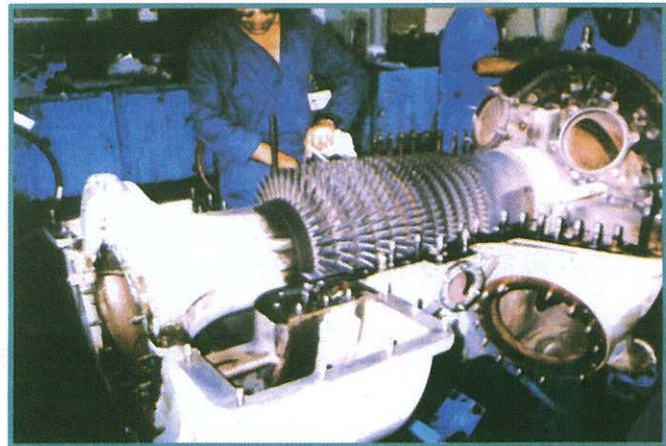
| Company | Pipe Diameter | Pipe Length | Product    | Location                   |
|---------|---------------|-------------|------------|----------------------------|
| P.P.C.  | 12 inch       | 69km        | Multiphase | Damanhour                  |
| P.P.C.  | 12 inch       | 88km        | Multiphase | Mostorod to Tanta          |
| P.P.C.  | 12 inch       | 69km        | Crude Oil  | Shukair, Hafair, Mostorod  |
| GUPCO   | 24 inch       | 265km       | Gas        | Abu El Gharadig ot Dashour |



# PREVIOUS EXPERIENCE

The Repair, Maintenance and Monitoring of Rotary Equipment :

Pumps, Compressors, Turbines & Rotary Vacuum Filters:.





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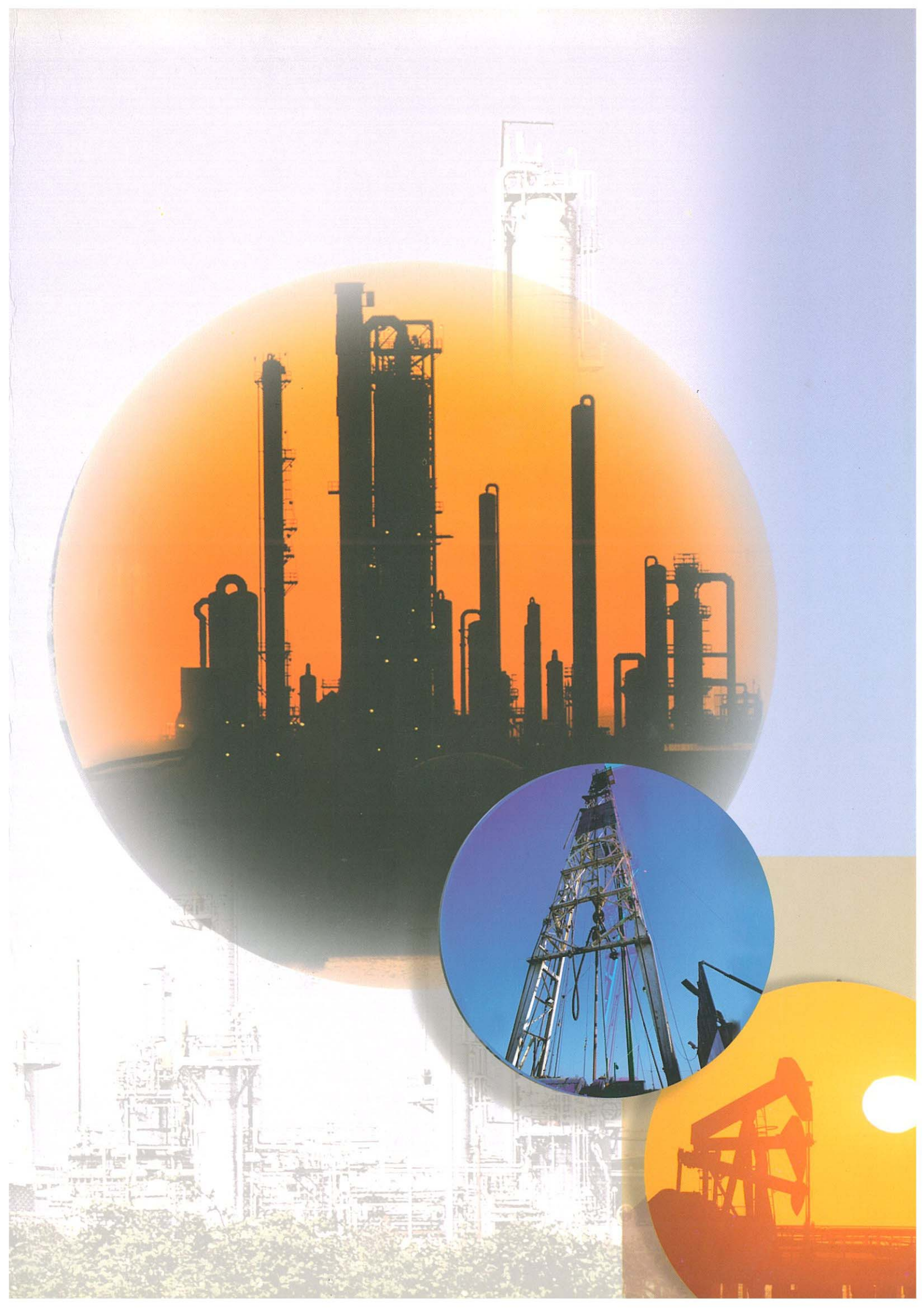
Please do not hesitate to contact us for any inquiries to the following addresses :

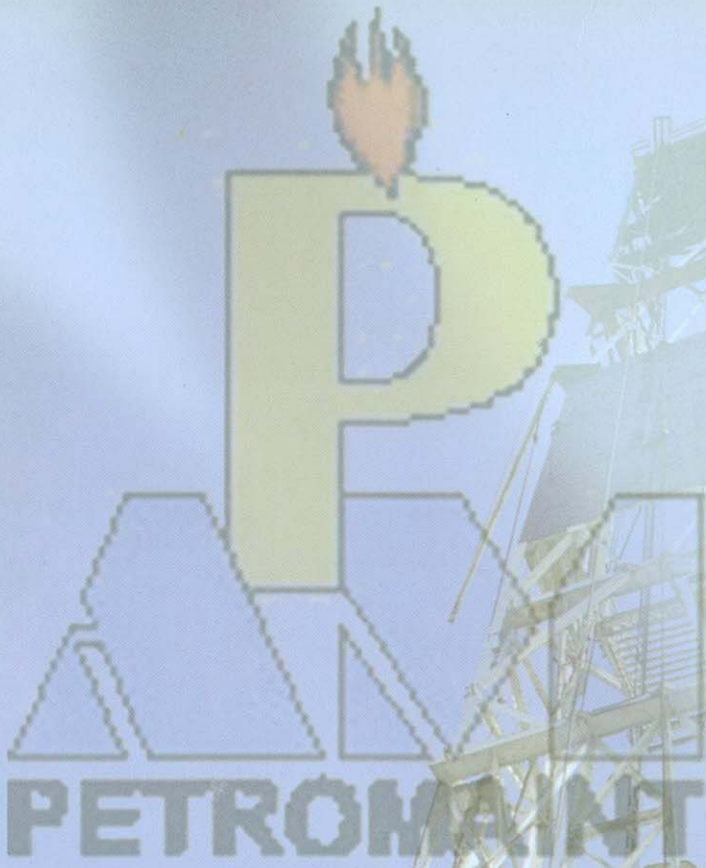
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