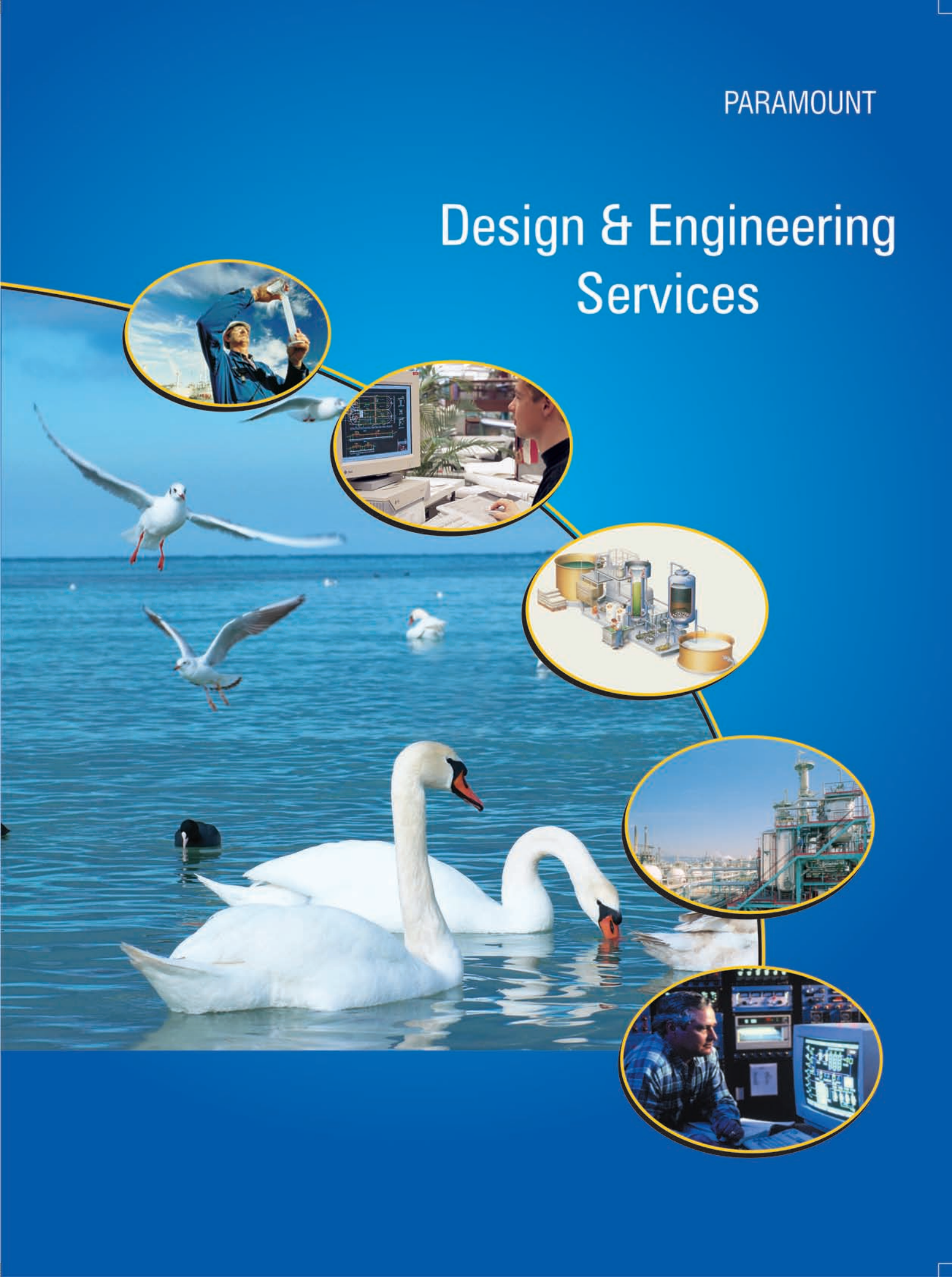


PARAMOUNT

# Design & Engineering Services



## About Us

PARAMOUNT LIMITED is a multi-disciplinary EPC & Manufacturing company which has the capability and professional skills to provide most advanced and cost effective solutions for the process and environmental needs.

With a 250+ Staff of committed water & environment experts Paramount brings into focus the combined experience and know how of more than hundreds international projects executed over more than 40 years.

Through a continued emphasis on Research and Development, the Company has made significant pioneering contributions in developing various processes which have been implemented commercially.

## Technologies Offered

### Water Treatment

- Water Source Development, Transmission & Distribution
- Raw Water Treatment
- Water Softening, De-mineralization & Condensate Polishing
- De-Salination
- Cooling Water Treatment

### Waste Water Treatment

- Industrial Waste Water Treatment
- Sewage Treatment
- Wet Air Oxidation
- Bio Remedation
- VOC Control Systems

### Membrane Technology

- Recycle & Reuse System by Membrane Technology
- Reverse Osmosis / N.F. / U.F. / Micro Filtration Systems
- Solvent Dehydration by pervaporation
- Chemical Dewatering for R.O. Reject



### Emission Control Systems

- Gas Scrubbing Systems
- Flue Gas Desulphurization (FGD)/Double Alkali Process
- Hazardous Waste Incineration

## Scope of Services

Our services cover the whole field from consultancy & engineering to turnkey project implementation as well as equipment delivery. If desired we will be also delighted to take care of your operation and maintenance.

Whether you choose total turnkey implementation, or any other combination from our service pallet, professional project implementation is ensured by our commitment and experience.



## Engineering Services

Paramount Limited in the process of designing and executing a number of Projects on Hydrocarbons, Chemicals, Fertilizers, Water and Waste Water Treatment and Air Pollution Control Systems in a wide Spectrum of Industries over the last Five Decades have amassed a wealth of knowledge. With the use of the wide knowledge gained through actual experiences, integration of technologies and use of Design Software Skills, Paramount Limited Develops and Executes Design and Engineering for a Multitude of Industries in setting up of Process Plants/ OEM integrated engineering, wherein Cross Functional Engineering Functionality (such as Process, Civil, Mechanical, Piping, Electrical, Instrumentation and Project Management) is a core competency requirement.

Paramount Limited also stands up to the challenges in an environment wherein there is a limited availability of broad Spectrum Engineering consultants who can work right from the Process Development to delivery and installation capabilities.

**Paramount's Experience in Execution of Large EPC Projects has created an Automatic Skill in Providing,**

- Value Engineering in the Design and Engineering Services
- Constructability by Providing apt Scheme
- Strong interface Management with Inter and Intra Disciplinary Activities

**Paramount's Strength in Providing Value Engineering comes from,**

- Cost Effective System Design, supply and installation accrued from execution of a number of Large Projects in EPC model
- Paramount's Experience in Execution of Large EPC Projects

**Our Engineering Services Include,**

- Front End Engineering Development and Basic Engineering Packages
- Detail Engineering Packages
- Procurement Assistance

**Paramount Offers Front End Engineering Development (FEED) Packages in the following Technology areas:**

### **Municipal Projects**

- Water Treatment
- Sewage Treatment
- Waste Water Recycle

### **Industrial Projects**

- Desalination Plants
- Process Water Treatment
- Waste Water Treatment
- Produce Water Treatment
- Recycle & Zero Liquid Discharge

### **Emission Control Projects**

- Gas Scrubbing System
- Flue Gas Desulphurization System (FGD)

### **Hazardous Waste Incinerators Projects**

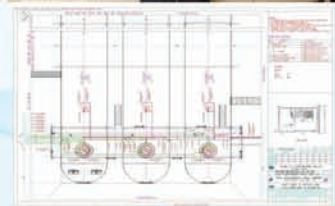
- Solid Waste Incinerators
- Liquid Waste Incinerators



## Process Engineering:

### Paramount's Process Engineering Services Include:

- Development of Process Schemes for FEED Packages Offered
- Heat and Material Balance Calculations
- Design and Sizing of Process Equipment
- Validation of unit sizes Proposed in FEED Documents of PMCs
- Development of Process Flow Diagrams (PFD/ PFS)
- Development of Process and Instrumentation Diagrams (P&ID/ PEFS)
- Development of Data Sheets for Equipment and Instruments
- Hydraulic Rising, Gravity and Hydraulic Flow Diagram
- Development of Process Control Philosophy
- Development of Process Safeguarding Schemes (PSFS) and Safeguarding Memorandum
- Development of Operation Manual
- Utility and Chemical Summary
- Safety and Hazards and Operability (HAZOP) Reviews



## Plant Engineering:

### Paramount's Plant Engineering Services Include:

- Preparation of Conceptual Layout
- Development of Detailed Plant Layout
- Development of Civil and Structural Equipment General Arrangement and Layout
- Development and Hydraulics of Surface Drainage, Effluent Source Routing and Underground Drain Network to Treatment Facilities
- Preparation of Drainage Network Hydraulic Flow Diagram
- Preparation of Underground Foundation Projection Layout and 3D Layout Projections
- Development and Preparation of Process and Utility Building Layouts and General Arrangement (GA) Drawings
- Development and Preparation of Roads, Pavements and Service Area Layouts, General and Detail Arrangement Drawings
- Development of Fire Water Network for Plant, Cable Cellars and Buildings
- Interface of Plant Layout with Piping and Cable Layouts, Field Panel Distribution and Placement
- Safety and Hazards and Operability (HAZOP) Reviews
- Site Construction Support Services



## Mechanical Engineering:

### Paramount's Mechanical Engineering (Static and rotating) Services Include:

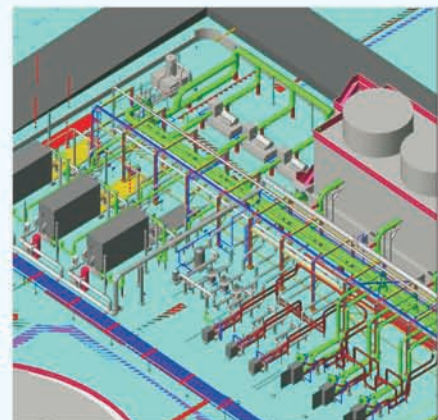
- Design Calculations of Static Equipment such as Vessels and Tanks, Reactors and Heat Exchangers, Columns and Gas Scrubbers, Strippers, Quench Towers, Vents and Stacks
- Design of Rotating Equipment such as Agitators and Mixers, Mechanisms for Clarifiers and Thickeners, Rotary Drum and Belt Filters, Lime Slaker Classifiers etc
- Design of Water and Waste Water Treatment Equipments like API Separator, Tilted/ Corrugated Plate Interceptors, Tube Settlers and Lamella Clarifiers, Clariflocculator Mechanisms, DAF Units etc
- Design of Material Handling Equipment such as Conveyors, Crushers, Elevators, and Cranes
- General Arrangement (GA) Drawings and Fabrication Drawings for Vessels and Tanks, Reactors and Heat Exchangers, Columns and Gas Scrubbers, Strippers, Quench Towers, Vents and Stacks
- General Arrangement (GA) Drawings and Fabrication Drawings for Agitators and Mixers, Mechanisms for Clarifiers and Thickeners, Rotary Drum and Belt Filters, Lime Slaker Classifiers etc
- General Arrangement (GA) Drawings and Fabrication Drawings for Water and Waste Water Treatment Equipments like API Separator, Tilted/ Corrugated Plate Interceptors, Tube Settlers and Lamella Clarifiers, Clariflocculator Mechanisms, DAF Units etc
- General Arrangement (GA) Drawings and Fabrication Drawings of Skid Mounted Units like Dosing Skids, Vessels, Pipe Flocculators, Package Treatment Plants etc
- Heat Exchanger Setting Plans
- Finite Element Analysis
- Preparation of Technical Specifications for Procurement of Equipment
- Material Take off
- Lubricant List and Schedules
- Noise Data Sheets
- Design of HVAC Systems – Heat load Estimation, System Design, Ducting Calculation and Routing



## Piping Engineering:

### Paramount's Piping Engineering Services Include:

- Plant Layout Services
- General Arrangement (GA) Drawings for Pump and Equipment Skids
- 2D and 3D Equipment and Piping Modeling
- Static and Dynamic Piping Stress Analysis
- Complete Piping Material Management Services, including Pipe Material Specification, Valve Material Specifications
- Preparation of Stage wise Piping Material Take off
- Procurement of Piping Materials and Specialty Items
- Site Construction Support Services



## Electrical Engineering:

### Paramount's Electrical Engineering Services Include:

- Electrical Load Data and Analysis
- Design of Electrical System Architecture including Substation Layouts, Cable Cellar Development, Transformer bays etc
- Motor Control Center and Substation Design
- Power Distribution System Design including Transformer Sizing
- Hazardous Area Classification
- Cable and Tray Routing, Sizing, Scheduling
- Sizing Calculations – Switch Gears and Boards, Lighting System, Earthing System, Transformers, UPS and Battery Charger
- Lighting Design and Local Panel Layout
- Protective Relay Coordination
- Grounding Design
- Cable Cutting Schedule
- Material Take off – Cables, Accessories and Electrical related bulk Material (like Cable Flags, Glands, Stantions etc)
- Procurement Services for all types of Electrical equipment
- Site Construction support Services



## Instrumentation and Control Engineering:

### Paramount's Instrumentation and Control Engineering Services Include:

- Instrument Selection Basis and Instrument Index
- Instrument Data Sheet
- Instrument Design and Specification
- Control Valve, Safety Valve Sizing and Selection and Preparation of Control Valve and Safety Valve Registry
- Instrument Air Consumption, Summary and Distribution Diagram
- Instrument Hook up Diagrams
- Cable and Tray Routing, Sizing, Scheduling
- Plant Communication System Design
- Analyzer Design Philosophy and Design of Sampling Fast Loop Network
- Complete Control System Design Philosophy and Architecture including Control Room Layouts
- Distributed Control System (DCS), Programmable Logic Controller (PLC) and Supervisory Control and Data Acquisition (SCADA) Design and Specification
- Logic and Loop Diagrams
- PLC/DCS Arrangement and Graphics Architecture
- Control Interface Diagrams
- Procurement Services for all types of Instrumentation and Control Equipment
- Site Construction Support Services



Our Instrumentation and Controls discipline Toolset includes AutoCad, Microstation, PDS, PDMS, SmartPlant Instrumentation, and SmartPlant3D

## Civil and Structural Engineering:

### Paramount's Civil and Structural Engineering Services Include:

- Site Grading Plan and Soil Distribution (Cut and Fill Design )
- Foundation Plan, Calculation and RCC Drawings for Equipment, Sumps, Pits and Buildings
- Technological Structure Design and General Arrangement Drawings including Structural Steel Connection Design and Detailing Services
- Building – Architectural Detailing and General Arrangement Drawing
- Sheds and Shades – Design and Arrangement Drawings
- Platforms and Stair ways – Design and Drawing with Bill of Material
- Support Detailing for Pipes, Panels and Cable ways
- Design and Construction Detailing of Road, Pathways, Pavement and Parking bay
- Bill of Material for RCC and Steel Structural
- Bar Bending Schedule



## Procurement services:

### Paramount's Procurement Services Include:

- Preparation of Material Requisitions
- Preparation of Vendor List
- Technical Bid Evaluations and Recommendation
- Technical discussions with Vendors for finalization of Technical suitability of Evaluated Vendor
- Preparation of Technical Purchase Requisition
- Vendor Document Review and Approval
- Meeting with Vendors and Clients for expediting Document Approval
- Manufacturing Clearance to Vendor
- Expediting Inspection Call
- Inspection at Vendor's Premise
- As-built Documentation follow up with Vendors



## Documents and Drawings Management:

Success of the project largely depends on effective control on the documentation process and procedure. Paramount has an impressive documentation and drawing management methodology to co-ordinate the various requirements and necessities within the project management.

Paramount embarks on a systematic in office and on site modern drawing and documentation management system to keep a close control of all changes and provide rapid access to all latest project related information. The Quality policy followed by the company are in line with the extensive ISO procedures that are practiced on a day to day affair between the various disciplines within the organization has greatly assisted in maintaining and control of the drawing and document management.

The drawing and document management as stipulated in the company procedures have the following features.

- Continuity in flow and updation of data information
- Strict adherence to control and record distribution of all drawings and documents
- Availability of historical data in a well maintained structure and one point access to all data
- Take ownership for offsite storage of all original documentation (electronic and paper)
- Provision of generic drawing and document numbering system and easy adaptability with clients numbering requirement
- Availability of Controlled documentation to all concerned departments
- Frequent review meetings on project changes and data changes for quicker adaptability with interdisciplinary drawings and documentation
- Convert formats to AutoCAD industry standard



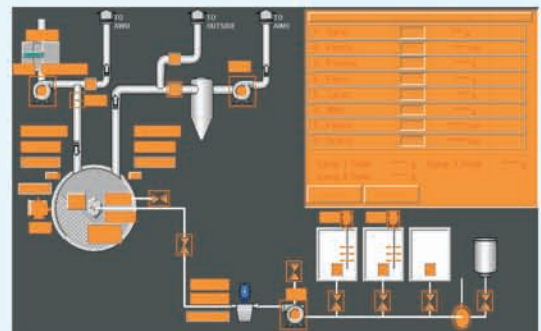
## Plant Commissioning & Training:

With the increasing complexity of control systems and the continual focus on production efficiency, operator familiarity and knowledge of processes and process equipment has become an essential part of plant management. Paramount's five decade experience in construction and commissioning plants in a multitude of industries has provided a vast network of checks and balances to culminate in a smooth commissioning activity.

Delivering a smooth transition of a construction site to a commissioned site is a hall mark of Paramount services. We are adept at ensuring all systems and components of our clients' infrastructure, plants and equipment are designed, constructed and tested, to ensure all parts will function at optimum level once operation commences.

We use our knowledge and expertise in applying engineering techniques and processes to check, examine and test every operational component of the project, from a single function right through to a complex combination of functions. We also have experience in commissioning projects that are already in existence but are undergoing an expansion, renovation or are being entirely revamped.

Paramount also offers class room training and hands on training to the operating staff on the plant under commissioning. Training though vital, it is often impractical to train staff within a fully operational plant. Paramount certain ideal solution models in such cases for imparting training to the plant personnel.



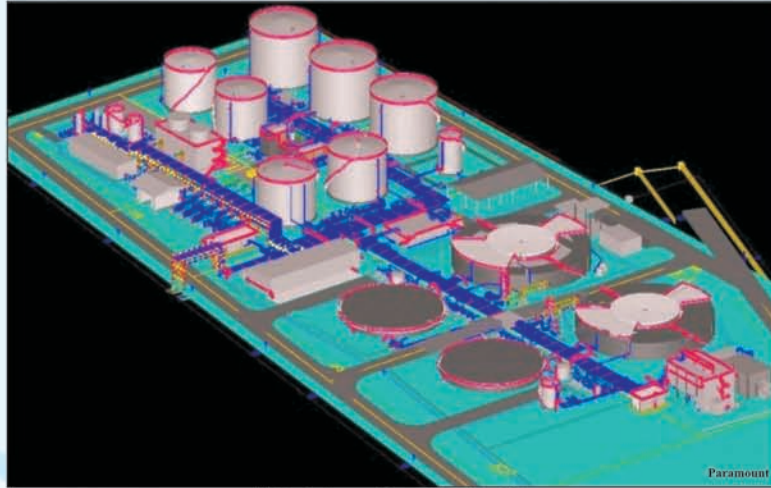


## KNPC, Kuwait – (Refinery Waste Water Treatment)

The entire ETP engineering design is as per Shell DEP for all new facility and as per KNPC standards for modification in existing Refinery area of all Refineries of MAA, MAB, SHU.

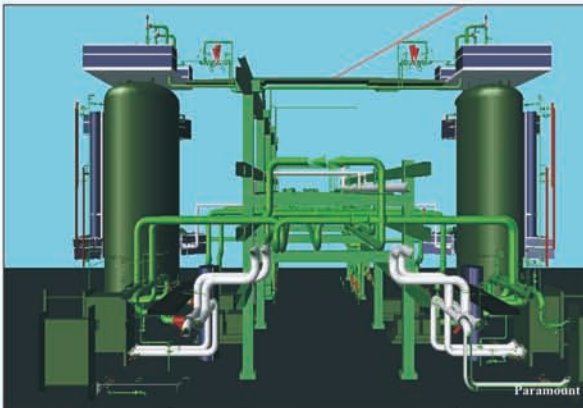
**Total Project Cost: US\$ 200 million**

**Paramount PMC Cost : 45 Cr INR (US\$ 6.5 million)**



MAA Refinery (Kuwait): 818 m<sup>2</sup>/hr

## KNPC, Kuwait – (De-Hazing / Moisture Control System)



De-Hazing / Moisture Control System at Kuwait Refinery

Moisture Control and Dehazing for Refinery EGO & HSD Fuels, KNPC, Kuwait

**Project Value : 20 million USD**

**Paramount scope of PMC work for above both project includes :**

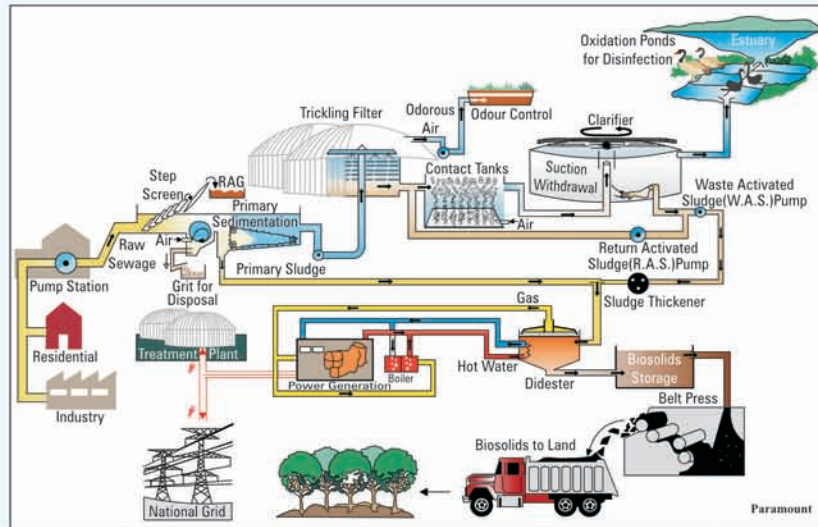
- Process Design
- Detailed Civil design
- Mechanical Equipment Engineering
- Piping Engineering
- Electrical Engineering
- Instrumentation Engineering
- Preparation and Finalization of the new RETF Plot Plan.
- Facilitation of HAZOP Study.

**Procurement Assistance including:**

Preparation of Specification for Mechanical Equipment, Piping, Valves & Special Electrical Equipment & Material, Instrument for Floating Inquiries.

- Technical Evaluation of Vendor offers, checking & review vendor prints.
- Meeting with end client (KNPC) to facilitate approval of documentation.
- Preparation of As built Drawing for all Disciplines.

## Ebara, Japan – 200 MLD Sewage Treatment Plant



**Detailed Engineering Services for 200 MLD Sewage Treatment Plant for EBARA Corporation Japan for city of Asthana – Kazakhstan with scope of work as under:**

- Process design
- Piping engg.
- Instrumentation engg.
- Mechanical equipment engg.
- Electrical engg.

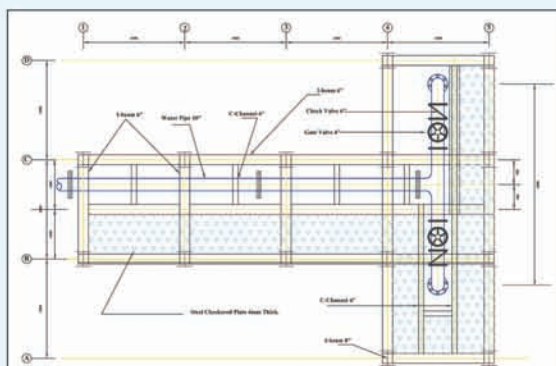
### **Procurement Assistance including:**

Preparation of specification for Mechanical Equipment, Piping, Valves & special Electrical Equipment & Material, Instrument for Floating Inquiries.

- Technical Evaluation of vendor offers, checking & review vendor prints.
- Preparation of As built drawing for all disciplines.

## Reliance Industries Limited, Gandhar – (Water Transmission)

**Indian Petrochemicals Corporation Ltd.**



Water Supply scheme for Gandhar Petrochemicals Complex Bharuch District

22.0 MGD (100.0 MLD)

- **Client :**  
Reliance Industries Limited (Formerly Indian Petrochemicals Corporation Ltd. (IPCL) Gandhar, Bharuch.)
- **Capacity :**  
22.0 MGD (100.0 MLD)
- **Project Cost :**  
16 Million US\$

- **Project :** Project Feasibility Study and finalization of Narmada Water Intake System, Pumping and Transmission of Water (70 kms) to Water Reservoirs at Plant site.
- **Scope of Work :**
  - Feasibility Study
  - Survey
  - Design, Detail Engineering & Construction Supervision

## Fields of Expertise

Traditionally we are strongly involved in all industries where water is an important resource, utility or by-product. Covering the field of water related aspects, from raw water intake, to make-up, distribution, wastewater treatment and water recycling, the hands-on experience makes us understand your needs and unspoken desires.

## Sectoral Experience of Water & Environmental Projects Executed

- Municipal Water Treatment
- Municipal Sewage Treatment
- oil & gas
- refinery
- petrochemicals
- metal & mining
- micro-electronic & semiconductor

- tanneries
- textile & dye manufacturing
- basic chemicals
- fine chemicals
- power generation
- food & beverage
- starch manufacturing

- off-shore operations
- pulp and paper
- fertilizer
- pharmaceutical
- municipalities & communities
- and many more



### **PARAMOUNT LIMITED**

(Formerly Paramount Pollution Control Limited)  
(An ISO 9001 Company)

#### **Corporate Office:**

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