Prompt and Successful Project Delivery

EPT

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ENERGY AND PLANT TECHNOLOGY LIMITED

CONSULTING | TECHNOLOGY | ENGINEERING | CONSTRUCTIONS

ENGINEERING, PROCUREMENT, CONSTRUCTION & INSTALLATION, COMMISSIONING & START-UP

- 3-Phase Separation and Crude Dehydration Systems
- Produced Water Treatment System
- Gas Processing Systems

FIELD SERVICES, OPERATIONS & MAINTENANCE

Produced Water Treatment Package

- We provide the following field services:
- Pre-commissioning and start-up services for an entire facility, platform or single skid packages.
- Daily operations and maintenance of oil and gas processing facilities.

TROUBLESHOOTING, INSTALLATION AND REPAIRS

- LACT Unit Controls and Control Panels
- Pipeline Pump Control Panels
- Forced Draft Burners and Control Panels
- Natural Draft Burners and Control Panels
- PLC and Pneumatic Control Panels
- SCADA Equipment
- Automation Controls
- Electrostatic Oil Treaters
- Glycol Dehydrators
- Desalters
- Salt Bath Heaters
- Line Heaters
- 2-Phase and 3-phase Separators
- Water Skimmers
- Coalescers
- HMI's
- EFM Systems

FACILITIES MAINTENANCE & COMPUTERIZED MAINTENANCE MANAGEMENT

- Very easy to use platform which provides a facilities management system
- Better communication across departments and tool to manage the maintenance department
- Multi User ,Multi location comprehensive facilities maintenance software
- It allows good communication across a number of different departments, with email updates when job status changes
- Simple, Effective and Efficient way to manage your facility
- Easy-to-use facilities management software with great support team
- Customizable to meet clients need

DESIGN AND ENGINEERING

3-D Modelling | 4-D Modelling | Process Flow Diagram
Piping and Instrumentation Dimension | Front End Engineering | Electrical Engineering | Civil Engineering | Piping and Instrumentation Engineering
Mechanical Engineering | Process Engineering | System Design

PIPING

- Piping Stress Analysis and piping flexibility calculations for new piping systems for code compliance issues
- Design, analysis and re-rating of piping systems based on ASME/ANSI B31.3
- Fatigue Analysis to calculate the fatigue life of Piping Systems with pressure cycles, temperature cycles and start-up shut-down cycles
- Finite Element Analysis for Piping and Piping components
- Preparation of P& ID, PMS and key plan
- Pipe routing and layouts
- Pipe Support Design
- Piping Isometric
- MTO
- Piping Construction Supervision and Follow-on Engineering

PROCESS PLANT OPTIMISATION

Oil Processing, Water Injection, Gas Processing and Gas Lift Systems

1. **Optimization Technologies**
   - Optimization Technologies for Process Plants
   - Elements of Process Plant Optimization Procedure
   - Constraints in Optimization: Production, Operation, Economy and Environment
   - Optimization Approaches: Mathematical Models and Physical Models – prototype units
   - Correlation between Process Optimization and Process Control in Typical Process Plant.

2. **Reliability, Availability and Effectiveness**
   - Relationship between Plant Reliability and Availability
   - Optimization of Plant Reliability
   - Optimization of Plant Availability through Improved Maintenance
   - Analysis of Effectiveness of Individual Equipment
   - Optimization of Overall Plant Effectiveness

3. **Best Practices for Energy Consumption**
   - Optimization Strategies Aimed at Energy Consumption Reduction
   - World Standards and Benchmarking Guidelines
   - Best Practices in Process Plant Energy Management
   - Energy Conservation Check List in Typical Industrial Plants
   - Optimization of Heat Production and Steam Distribution and Consumption

4. **Maintenance Management System**
   - Optimization of Utilization of Piping Systems and Pipelines
   - Optimization of Utilization of Pumps, Compressors and Fans
   - Optimization of Maintenance Management System and Frequency of Maintenance
   - Optimization of Spare Parts Management through Predictive Maintenance
   - Optimization of Repair and Alteration Programs in Accordance to Existing Codes

5. **Minimization of Equipment Failure**
   - Risk Based Inspection (RBI)
   - Procedures for Minimizing Risk of Equipment Failure
   - Fitness for Service (FFS) Analysis and Estimate of Remaining Life of Equipment
   - Optimization of Plant Economy through Planned Equipment Replacement

MECHANICAL ROTATING

1. **Pumps**
   - Different types of pumps, applications in the process industry.
   - Operating principle and technology of positive displacement pumps.
   - Performance curves of a centrifugal pump: head, efficiency, absorbed power, NPSH.
   - Technology of centrifugal pumps, different layouts.
   - Mechanical seals: different arrangements, related ancillary systems.
   - Operating limits: cavitation, hammer shock, priming issues, case of 2 pumps running together.
   - Start-up and operation monitoring: specific case of hot pumps, LPG pumps, vacuum pumps.
   - Troubleshooting and common failures. Safety and prevention.

Reciprocating & Rotary Positive Displacement Compressors
   - Different types of positive displacement compressors.
   - Reciprocating compressor architecture: number of stages, cylinders, overall layout, standard applications.
   - Technology of main components and ancillaries.
   - Influence of process conditions on compressor performance: suction or discharge pressure, suction temperature, gas composition.
   - Flow control, specific safety devices. Start-up procedures. Troubleshooting.

Kinetic Compressors
   - Description of different type of compressors: horizontal/radial split casing centrifugal compressors, axial compressors, integrated gear compressors
   - Technology of main components and ancillaries.
   - Pressure increase process for a compressor stage. Performance curves, influence of suction conditions and gas composition.
   - Operating window: low and high speed limits, stonewall, surge, typical anti surge protection systems.
   - Flow control: throttling valve, speed variation, inlet guide vanes. Specific precautions for start-up. Troubleshooting. Safety.

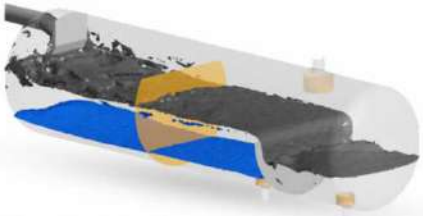
Turbines
   - Description of different turbines, different families, standard applications.
   - Steam turbines, gas turbines, turbo-expanders.
   - Operating principle, classification and technology: exhaust conditions, expansion process through the machine.
   - Operation: start-up and performance monitoring. Speed control, safety devices.

SYSTEM DESIGN

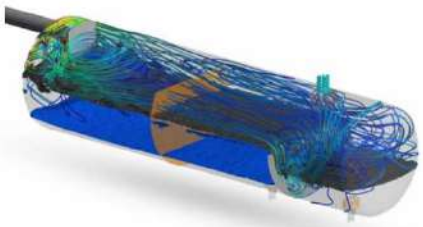
We provide system design as per customer requirements. Following are some examples:

- 3-Phase Separator Internals
- 3-Phase Separator
- Produced Water Treatment Plant
- Crude Oil Dehydrator
- Chemical Injection Plant
- Tank Farm

COMPUTATIONAL FLUID DYNAMICS



Separation of the oil-water mixture in the vessel



Gas pathway in the upper chamber of the Separator

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