CPPE Libya

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CPPE Libya

ABOUT CPPE

CPPE-Libya is focused and committed to Design, Engineering and Supply of Petroleum related equipment to fulfill the application requirements of its customers as well as construction, installation, erection, and commissioning of process plants.

CPPE, Canadian Petroleum Processing Equipment Inc. (the mother company) is engaged in Engineering, Procurement, Manufacture, and Supply of equipment for hydrocarbon processing serving the petroleum industries globally.

In addition CPPE engineering and design services has fabrication capabilities for variety of oil field equipment such as, heat exchangers, pressure vessels, manifolds, skid-mounted process units, and atmospheric vessels, along with material and equipment supply capabilities for mechanical materials, electrical materials, drilling equipment, instrument and controls, rotating equipment, and processing equipment through controlled outsourcing processes.

CPPE is an EPC (Engineering, Procurement and Construction) company with international projects in Engineering, Procurement, Manufacturing, and Supply of oil and gas production and processing equipment. We have served our global clients with a high quality product portfolio, value-added expertise, and unsurpassed customer care.

Through our alliances with global fabrication facilities, we have successfully completed design, fabrication, inspection, shipping, installation, and commissioning of a variety of processing equipment for oil and gas companies around the world.

OUR MISSION

We strive to maintain our “Best-in-Class” position through continuously improving our products and services by offering customized solutions to our clients and exceeding safety, health, environmental, budget, quality, and performance expectations.

CPPE Libya

OUR VISION

It is our vision to become the global “Contractor of Choice” for **Engineering, Design, Manufacturing, Procurement,** and **Construction** of oil and gas processing equipment and services.

OUR COMMITMENT

We are proud of our history in providing world class quality products to our customers, not only on time, but also at competitive prices. We are strongly committed to meeting worldwide demand for world class expertise, and customized solutions in design and manufacture of oil and gas production, and processing equipment in the most economical, environmental, and social manner. We will continue to maintain our “Best-in-Class” position, by operating at the highest professional and ethical standards to exceed our client expectations in safety, health, and environmental protection.

SCOPE OF WORKS

We use cutting edge technology, innovation and continuous improvement, as our vehicle to deliver quality products and services to our clients worldwide. **We design, fabricate, inspect, supply, install and commission oil and gas processing equipment, and also design and build complete production facilities.**

OUR LOCATION

CPPE caters to its global clients from the headquarters in North America and utilize our alliance with international design and fabrication facilities to provide value-added solutions to meet our clients’ needs. Our headquarters are in Toronto and our offices are located in Houston Texas, USA and Calgary Alberta, Canada

CPPE-Libya is located in Tripoli, where our clients in Libya, North Africa and the Middle East, can easily reach us at their convenience.

Headquarters	350 Highway 7 East, Richmond Hill, Ontario, L4B 3N2, Canada
Calgary Office	79 Hampton Heath NW, Calgary, AB, T3A 5E7, Canada
Houston Office	2950 Mowery Road, Houston TX, USA 77045
CPPE-Libya	Meddneen St., Off Gergaresh Road Tripoli, Libya

CPPE Libya

SCOPE OF SUPPLY AND SERVICES

1- PROJECT MANAGEMENT & ADMINISTRATION

We have managed and administered contracts of various levels of complexity and implementation through successful negotiations with the following stakeholders:

- Clients
- Engineering Contractors
- Technology Licensors
- Construction Contractors
- Suppliers & Vendors

We have provided services that encompass every aspect of the work, from engineering and supply, to turnkey projects in the following market sectors:

- Oil Production & Processing
- Gas Production & Processing
- Oil Refining
- Chemicals & Petrochemical Industries
- Water & Wastewater Industries
- Energy Industries

Our project management expertise includes, but not limited to:

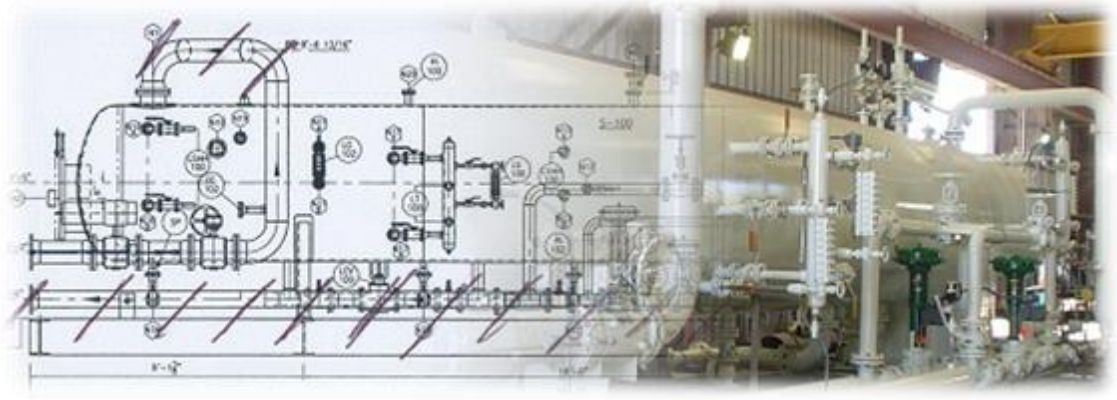
- Contract Management & Administration
- Human Resource Management
- Project Controls Management
- Estimating
- Planning & Scheduling
- Cost, Budget & Process Management
- Engineering Management
- Risk Management (including PHA and HAZOP facilitation)
- Procurement Management
- Cost Management
- Communications Management
- Integration Management

- Logistics & Customs Clearance
- Document Management
- Materials Management
- Environmental, Safety & Health Management
- Scope Management
- Quality Management
- Construction Management
- Construction Planning
- Shut Down Planning
- Cost, Budget & Progress Management
- Commissioning & Start-Up Management

CPPE-Libya has a pool of vastly experienced resources, knowledgeable in contract and project management principles and methodologies, and will use the tools, techniques, and processes, to ensure timely completion of the project deliverables, as per schedule and required quality.

Our contract management and consulting services covers all project requirements, including pre-feasibility study and conceptual design, to detailed design, licensor review and selection, procurement and supply, installation, commissioning, and turn over to operation.

2- TECHNOLOGY, DESIGN, & ENGINEERING



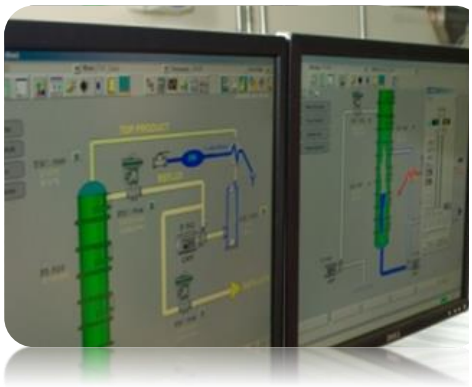
At CPPE-Libya we strive to continuously infuse state of the art technology into our engineering department, allowing for optimized design and engineering, modeling, and cost-estimation of projects. Our engineering department is comprised of a variety of simulation software and experienced engineers with years of expertise in design, engineering, and construction of various operating plants including:

- Oil Production & Processing
- Gas Processing
- Chemical/Petrochemical
- Refining

Our engineering department uses the latest software and hardware tools available.

CODES AND STANDARDS:

CPPE-Libya engineering is based on international standards (API, ASME, NFPA, ASTM, IEEE, NACE, etc.)



Process Simulation - Courtesy of Lambton College

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BASIC ENGINEERING

The basic engineering package includes, but not limited to the following:

- Conceptual Design (Process, Mechanical, Electrical, Civil, Etc.)
- Process Flow Diagram
- Piping & Instrument Diagrams (P&ID's)
- Process Simulation
- Heat & Material Balance
- Equipment Design & Sizing
- Line Sizing, Hydraulic Calculation, & Analysis
- Instrumentation Specification
- Equipment /Instrument Data Sheets
- Electrical Single Line Diagram
- Automation/Control
- HAZOP Review of the Design
- Process Description & Operation Manual

DETAILED ENGINEERING

Detailed engineering objectives are as follows:

Process Engineering:

- Conceptual Design
- Heat &Material Balance (HMB)
- Process Flow Diagram (PFD's)
- Process & Instrument Flow Diagram (P&ID's)
- Utility Flow Diagram (UFD'S)
- Line Sizing, Hydraulic Calculation, & Analysis
- PSV's Sizing, Relief Load Calculation, & Contingency Analysis
- Equipment & Instruments Data Sheet, Line Designation Tables
- Utility Calculation / Summary Table
- Process Description
- Process Simulation
- Material Selection Diagram (MSD's)
- PHA , HAZOP & Safety Review /Analysis
- Corrosion Protection Systems (Paints & Coatings)
- Commissioning, Start Up, Shut Down Procedure
- Operation & Maintenance Manual (O&M)
- Process Audit

Mechanical Engineering:

- Calculation of Pressure Parts Thickness, Pressure Rating Specification
- Bulk Material Take-off
- Piping Stress Analysis
- Detailed Engineering Drawings
- Welding Procedures (WPS)
- Equipment Test Procedures
- Installation Procedures Static & Rotary Equipment

Electrical:

- Skid Edge Junction Box Specification
- Power & Instrument Cable Tray Layout and Details
- Detailed Wiring Diagrams
- Power Distribution System, Substation & OHL
- Switchgear, Power Transformer,
- E-House, UPS, DC/AC System,
- Single Line Diagrams (SLD), Load List, Cable Schedule/Tray Layout
- Bill of Material (BOM / MTO)
- Elementary/Connection Wiring Diagrams (EWD & CWD)
- Synchronization Panel, Lighting System,
- Grounding System, Single Line Diagrams (SLD),
- Cable Specification, Cable Schedule/Tray Layout
- Power Distribution Design, Motor Control Centers (MCC)
- Auto Transfer System, Diesel Generator, MV & LV Motors, Fire Alarm System
- System Automation(SCADA, DCS, PLC)
- Hazardous Area Classification
- Start-Up, Commissioning, & Product Support
- Process Optimization & Trouble Shooting

Instrumentation and Control:

- Detailed Specification for Field Instruments
- Loop & Wiring Diagrams
- Power & Instrument Cable Tray Layout & Details
- Logic Description

- Logic Diagram
- Test Procedure for Instruments Loop
- Standard Instrumentation Installation Details for Off-skid Instrumentation

Civil Engineering:

- Site Investigation, Feasibility Study & Cost Analysis
- Topographical Work and Specifications
- Earth Works
- Design of Field Accommodation Buildings
- Equipment & Machinery Foundation & Concrete Structure
- Anchor Blocks for Piping
- Pipe Rack Foundations
- Rough Grading Drawings
- Finish Grading Drawings
- Equipment Foundation Drawings for
- Tank Farm Secondary Containment
- Evaporation Pond (off site)
- Technical Specification for Foundations
- Building Architectural & HVAC (MCC & Control room)

Structural Engineering:

- Pipe Rack Structural Steel Drawings & Details
- Standard Ladders, Platforms, Walkway & Stairway Drawings
- Structural & Architectural for the following buildings:
  - MCC and Electrical Sub-station
  - Power House
  - Maintenance Room
  - Office, including Living Quarters
  - Control Room
  - Service Facilities

Piping Design:

- Plant Layout & Piping Design
- Preparation of Plot Plan
- Piping Hydraulics Calculation
- Piping Material Specification
- 3D Models for Pipe Rack & Interconnecting Piping

- MTO of Pipe, Valves & Fittings
- Piping Plans & Elevations Cut from Model
- Off-skid Isometrics for 1 ½" and above Piping

MANAGING CONTRACTOR (MC)

Preparation & Planning phase

- Time Scheduling
- HSEQ Plan
- Work Package Planning & Calculation
- Agree on Interfaces – RASCI Chart
- Material Management
- Resource Planning (in steps)
- Infrastructure
- SD Planning & Support

Execution Phase

- Site Management
- Supervision & Coordination
- Execution and Project Process
- Operational and Progress Monitoring
- HSEQ Coordination & Observation

Finalization

- Technical Documentation
- Review Lessons Learned

We have formed successful alliances with specialty engineering design firms, original equipment manufacturers (OEMs), and reputable vendors and suppliers. Through this network, we are able to provide proposals, cost estimates, and budgetary quotes on a quick turn-around basis.

Our design engineering teams (with years of design, operation, and maintenance experience) are well-equipped to perform all required stages of the project life cycle, from pre-feasibility study to detailed engineering.

We perform our tasks with strong commitments to:

- Employ our distinctive and supportive culture to uphold the highest safety, health and environmental performance standards in the work we do.
- Full compliance to all relevant and applicable local, international and energy sector codes and standards.
- Utilize highest quality standards and monitor, measure, track, and report on quality performance, at all stages of projects.
- Retain and develop highly capable and competent human resources and facilitate their access to all state-of-the-art tools and software applications, to maintain the leading edge and competitiveness within the industry sector.
- Engage with, and give back to communities, through striking the right balance between best practices, socio-economic considerations, and available know-how to ensure safe, long, and reliable operation, of all we design and supply.

3- FABRICATION

CPPE-Libya operates a number of fabrication shops globally for fabrication of all sorts of petroleum related equipment, with a concentration located in the United States and Canada.

We have forged prosperous and rewarding partnerships with high quality and well-reputed global fabrication facilities. These facilities are located close to ports, for ease of export to various parts of the world, at very low shipping costs.

We also have alliances with third party inspection agencies that we utilize to carry out all relevant testing and inspections on fabricated products, before shipment to clients' facilities, as per our contractual obligations, codes & standards, and our own best practices. We operate facilities for design and manufacturing various oil and gas processing equipment and parts including:

- Heat Exchangers
- Pressure Vessels
- Skid-mounted Process Units
- Gas Sweetening Units
- Fractionation Columns
- Gas Conditioning Units
- Piping Spool Pieces and Manifolds
- Desalters
- Heater Treaters
- Atmospheric Vessels

We design and manufacture pressure vessels and process equipment at our fabrication facilities that are certified to the ASME Code, Section VIII, Division 1 and Section I.

FABRICATION FACILITIES

Our fabrication facilities are equipped with cutting edge technology, allowing us to excel in delivering the highest quality products and equipment to our global clients on time, on schedule, and per all applicable codes and standards. Our unsurpassed quality management systems and continuous improvement mentality, have contributed to attain and maintain our “Best-in-Class” position in SHE (safety, health and environment), quality, cost, and schedule performance.

Our fabricating equipment includes:

- Floor Horizontal Boring Machine (CNC) with Fanuc 15-MB-MA Controller
- Table Horizontal Boring Machine (CNC) with Heidenhain Controller (96” vertical, 180” horizontal)
- Vertical Boring Machine (264” table, 138” height)
- Vertical Boring Machine (72” table)
- Lathes of Various Dimensions
- Sub Arc Welding
- Arc Welding (250 to 1000 amp)
- Tig Welding (300 amp)
- Mig Welding
- Vertical Boring Mills (36”, 60” and 140”)

- Radial Drilling
- Turning Rolls (5 to 400 tons)
- Positioners (3,000 to 10,000 pounds)
- Hydraulic Tube Bending
- Electric & Pneumatic Tube Roller
- Cutting Equipment: Automatic Profile & Plasma
- Plate Rolls
- NDE Equipment, Hardness, Magnetic Particle, Ferrite, UV

DESIGN AND FABRICATION CODES & STANDARDS

We design and manufacture equipment in full compliance to:

- ASME Code Section I, “S” Stamp
- ASME Code Section VIII, Div. 1, “U” Stamp
- TEMA Standards for Heat Exchanger Design & Fabrication
- Other Relevant International Codes & Standards
- We Design & Fabricate Piping Systems & Manifolds to meet the following Codes:
  - ASME Code B31.1
  - ASME Code B31.3

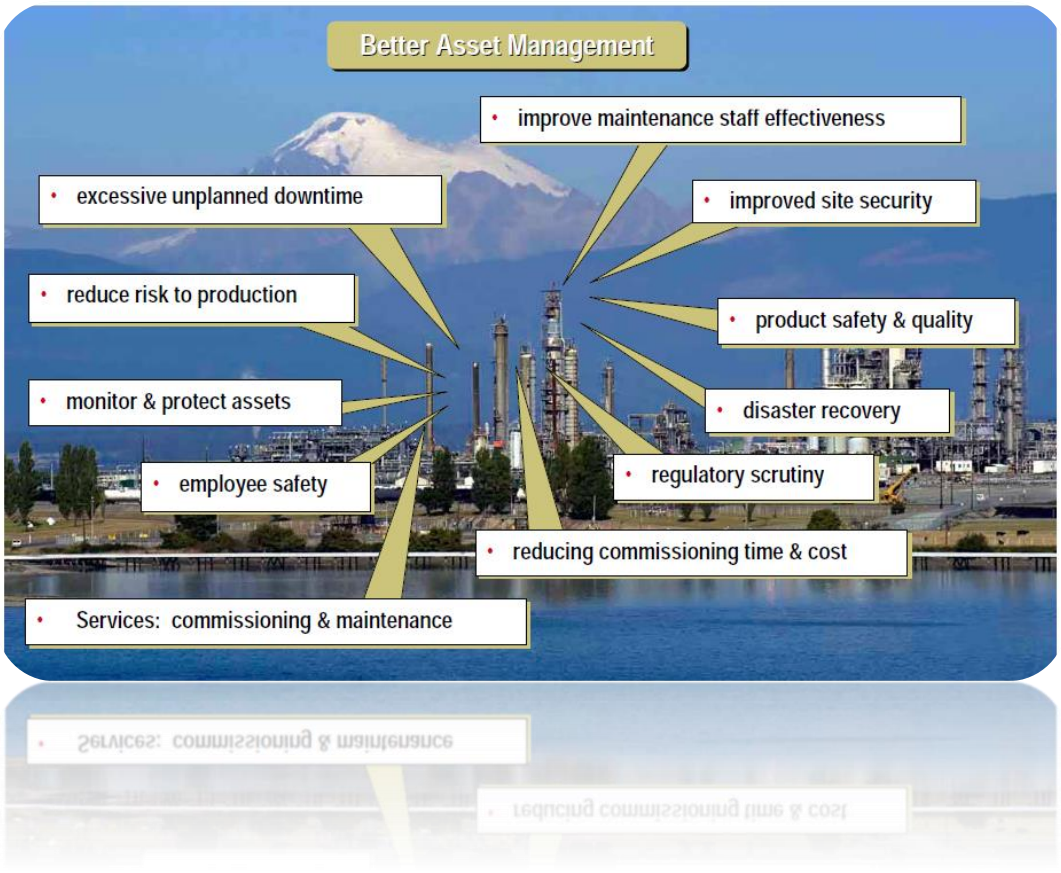
Two-Phase Separator, CPPE

4- MAINTENANCE AND TECHNICAL SERVICES

PROCESS OPTIMIZATION & TROUBLESHOOTING

CPPE-LIBYA possesses expertise to assist the client with technical services, ranging from trouble shooting to the existing plant revamping. Troubleshooting, includes environmental concerns solutions, flow regime identification and remedy, heat transfer fouling, mass transfer modification, and much more.

Revamping of the existing facility includes process automation, nameplate capacity augmentation, the pinch design method for heat exchanger networks, and improvement in energy efficiency.



Process Optimization and Asset - Courtesy of WebViews Integrated Information and Automation Control Systems

TURNAROUND & COMMISSIONING PLANNING AND EXECUTION

We have compiled invaluable experience through execution of plant shut down and commissioning in various refineries, petrochemical plants, and chemical manufacturing facilities, and utilities.

We have assisted our clients with planning and execution of all aspects of turnaround and commissioning planning and execution including, but not limited to the following:

- Identifying key stages of the commissioning process
- Developing overall commissioning strategy
- Constructing WBS (Work Breakdown Structure) and turnaround plan for input into turnaround plan
- Identifying specific equipment issues and developing required management plans, tailored for identified issues including safety and quality critical equipment
- Developing process and utility management plan
- Managing specific risks and hazards associated with turnaround and commissioning
- Developing contingency plans (backup power, firefighting and spill control, etc.)
- Developing communications plan (contractors, regulating authorities and public)
- Identifying all required maintenance tasks and incorporate into T/A plan including their corresponding resources, materials and spare parts
- Place orders for all required materials and parts, especially long lead items
- Develop activity progress charts
- Develop required training and project execution plans/strategies, on SHEQ (SHE, plant operating envelop, quality)
- Develop required procedures for shut-down, pre-commissioning and commissioning stages and plan/execute required training
- Develop safety procedures including:
- Process isolation and purging
- Confined space entry and use of portable monitoring systems
- Electrical tag out and lock out
- Execute, track and report cost, quality, lessons learnt and project metrics

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PROCESS PLANT MAINTENANCE PACKAGE

CPPE-Libya in alliance with HPI of Houston, USA a very reputable firm in maintenance and overhaul of rotating equipment, are pleased to offer a complete maintenance package proposal comprising of the following:

- Maintenance, Service & Overhaul.
- Supply of Spare Parts with very competitive price.
- Technical expertise including recruitment of required Engineers, Supervisors and Technicians.
- Training of Client Technical personnel on site.
- Full Logistic, Transportation and Accommodation support, through our local office in Libya, which will take care of all logistic services, including, but not limited to Insurance, Visa, Accommodation, etc.

CPPE-LIBYA/HPI is a leading provider of field services, parts, and component repair services for gas, reciprocating, and turbine compressor and generator applications. HPI offers a viable and comprehensive alternative to the OEM Long Term Service Agreement for most models of rotating equipment.

We offer the full range of Mechanical Field services to meet a variety of industry needs. We also offer component repair and field service support, from several bases of operation locations, strategically located around the world. Rotating equipment component repairs are performed at HPI's Houston-based partner facilities, while steam turbine component and rotor repairs, are completed at a HPI partner's facility, located in St. Louis, Missouri.

We also have agreements in place that allow us to utilize workshops in locations in Europe and Asia. In addition, our project management personnel will ensure all repairs are conducted in accordance with the OEM requirements and best industry standards.

Since 2002, we have provided successfully completed maintenance, repair and overhaul projects, with unparalleled quality, at a competitive price and with careful attention given to safety and environmental protection. We have earned a sterling reputation for delivering quality solutions, on time and on budget.

PROJECT EXECUTION

Upon award, CPPE-LIBYA/HPI will assign a Technical Director as the customer's main point of contact for the duration of the project. A pre-outage meeting will then be scheduled with the customer and CPPE-LIBYA/HPI's project management team to review lessons learned during previous outages, and ensure the project is planned to be completed, in an expedient and practical manner. This process has proven very successful for CPPE-LIBYA/HPI and allows all parties to learn from past maintenance evolutions, planned, and unplanned.

QUALITY MANAGEMENT

CPPE-LIBYA/HPI will track the success of the project from inception through planning and completion. In addition, we will establish Key Performance Indicators (KPIs) to ensure that all phases of the project process are being completed in a successful manner. Some KPIs to be used will include; milestones, interviews, surveys, and cost criteria. These KPIs will be set in different phases of the project and will allow HPI to evaluate the progress of the project, and how successfully the methodology being employed, is working. The goal is to perfect the process and strive for continuous improvement.

CPPE-LIBYA/HPI is a project-oriented company and thus has several in-house processes it uses to monitor all of it's projects. Throughout the project, we will check to ensure that the Project Management processes and principals are being utilized. Project-specific processes will be incorporated to guarantee that this project is managed in the most efficient method possible.

We understand that the key to each project is in the planning that goes into it, and will put control methods in place, to guarantee the success of the project. CPPE-LIBYA/HPI will develop an effective schedule and cost control system, that will enable the Project Team to know how the project stands at all times, while also allowing for the updates necessary in this dynamic environment.

SCOPE OF WORK

CPPE-LIBYA/HPI will perform all the detailed work scope as described in the tender documents.

PARTS, MATERIALS & TOOLS

As an option, CPPE-LIBYA/HPI can transport a full, trailer-mounted tool unit, complete with the general tooling and equipment required for the scope of work.

CPPE-LIBYA/HPI employs an Assistant Project Manager who is responsible to manage and coordinate the logistics and mobilization of CPPE-LIBYA/HPI personnel, to ensure that all facets of this work is managed to ensure the schedule is maintained.

Our employees will work closely with the CPPE-LIBYA/HPI Project Management team and the subcontractors, to ensure they each know their scope and schedule requirements. By utilizing one, dedicated person, CPPE-LIBYA/HPI is able to manage this critical function, to further ensure that the project will be delivered on or before schedule.

DAILY WORK PLAN

CPPE-LIBYA/HPI will provide one (1) Technical Director, one (1) Supervisor, and required Compressor Mechanics, for the inspection, repair, grouting, and overhaul work. During the project the crew will work one (1) shift of 7/12-hour work days.

SITE MEETINGS

CPPE-LIBYA/HPI's Management team proposes to have a daily scheduled meeting with the customer. This meeting will be used to review the schedule, discuss the upcoming shift's work, review and approve change orders, discuss HSE topics, and address any other pertinent issues. This will also ensure compliance with the customer bid specification, mitigate any potential issues, and ensure a smooth work flow, for the entirety of the project.

CHANGE ORDERS

The Project Management team will customize the standard CPPE-LIBYA/HPI systems to manage all changes and extras that occur during the outage. This system will utilize an agreed upon form, and will then be approved by the appropriate CPPE-LIBYA/HPI and customer personnel. The change will then be planned and added to the schedule. At the completion of the work, any additional labor and materials will be added to the extra work list. At the completion of the outage, all these items will be calculated and the customer will be invoiced accordingly.

CPPE-LIBYA/HPI PROJECT SAFETY PLAN

CPPE-LIBYA/HPI believes that no project is successful unless all of its employees leave in the same physical health in which they arrived. We believe that the key to the success of any project is planning for safety. CPPE-LIBYA/HPI will initiate a Safety Plan, to ensure that all the work on the project will be completed in a safe manner.

The safety plan will be completed and posted with all relevant parties and CPPE-LIBYA/HPI crewmembers. All employees will be trained in the safety plan. In addition to the safety plan, we will utilize other processes to ensure the project is completed injury free. It is imperative to instill a Safety First attitude, in all employees.

CPPE-LIBYA/HPI will accomplish this goal through training, daily tailgate meetings, weekly safety meetings, near-miss investigations, and a safety bonus program. All CPPE-LIBYA/HPI employees will go through a Basic Safety Training course, before they are allowed on the job site, to ensure that everyone understands the importance of safety and is intimately familiar with HPI safety and operating procedures.

CPPE-LIBYA/HPI is proud of its verifiable safety record and low EMR, as we strive to always work with our team and the client, to continue the successful record of both companies. To further this initiative, CPPE-LIBYA/HPI employs a full-time Safety Department. The Safety Department is given the responsibility to ensure all employees are trained to the highest safety standards and industry procedures. The Safety Department also monitors the safety performance of all subcontractors and approves their safety programs, before each project begins. Additionally, the Safety Department conducts Safety Audits, to ensure that all employees are wearing their correct PPE and are following all safety procedures, of all relevant agencies and parties.

SCOPE OF WORK ENGINE AND COMPRESSOR

The Maintenance Work will generally be conducted by the following tasks.

Pre-Mobilization

1. Assign Project Management team and crew for the project
2. Conduct Site Survey to assess available tooling, grouting requirements, etc. as detailed in the scope
3. Review previous report recommendations
4. Confirm unit release date
5. Supply Initial Outage Schedule and Project Plan
6. Outage Schedule and Project Plan, to be updated daily during the outage.

Pre-Outage Work

7. Technical Director to arrive at project site
8. Locate and visually inspect customer's spare parts
9. Set up parts bins and label for organized storage
10. Locate lay down blocking and bring to lay down area
11. Customer to locate special tooling, supplied with the unit and bring to work area
12. Put protective covering on lay down area as required
13. Mark off component designations on lay down area
14. Record as found running data
15. Witness shutdown checks
16. Take photographs of unit prior to disassembly
17. Review, with customer, of parts ON SITE
18. Review, with customer, new parts ordered and received on site

Engine and Compressor Overhaul

1. This section will be detailed in collaboration with the Field Management team as per terms of contract and scope of work.
2. Start and test run for 72 hours on load, check for water and oil leaks, and record all temperatures and pressures, checking and re-torqueing engine/compressor, where required

Grouting Work Scope

The grouting will generally be conducted with the following tasks and follow HPI's standard procedures and quality manual.

1. Reference mark the position of the frame
2. Remove holding down nuts
3. Refurbish existing jacking bolts
4. Removal of old frame
5. Remove all existing contaminated old grout
6. Sandblast area to be grouted
7. Clean and prepare area to be grouted
8. Carry out first grout pour (to correct elevation)
9. Position new frame and check frame is level
10. Mix grout as per manufacturer instructions and apply to area required, use shuttering to prevent grout run off
11. Allow 48 hours curing time before tightening down with hold down bolts
12. Cut out an open channel, in the concrete base, the length of the unit, to allow wash water and oil spillage to drain out from under the unit

5- ENVIRONMENTAL, SAFETY & HEALTH

CPPE group of companies/Senes Oman has compiled invaluable experience and knowledge of federal and provincial acts and regulations, as well as expertise in performing environmental assessments. Our expertise is further strengthened through acquiring well-reputed SENES Oman Consultants Ltd., enabling us to offer the following services:

TECHNICAL SERVICES IN PROCESS SAFETY AND RISK MANAGEMENT

Selected Hazard Analysis and Quantitative Risk Assessment Projects

- ORPIC Refinery Oman
- Shell Oil Fuel Terminal (Muscat)
- Northern Pipeline Company Petroleum Products Transmission Pipeline (Canada)
- Oman Oil Fuel Terminal (Muscat)
- Atlas Methanol (Trinidad and Tobago)
- Mitsubishi Methanol
- LNG Tankers in Canadian and US Waterways
- North Slope LNG Plant (Alaska, US)
- Transflo LPG Facility (Quebec, Canada)
- Rentech Ammonia Storage Facility, Texas, US

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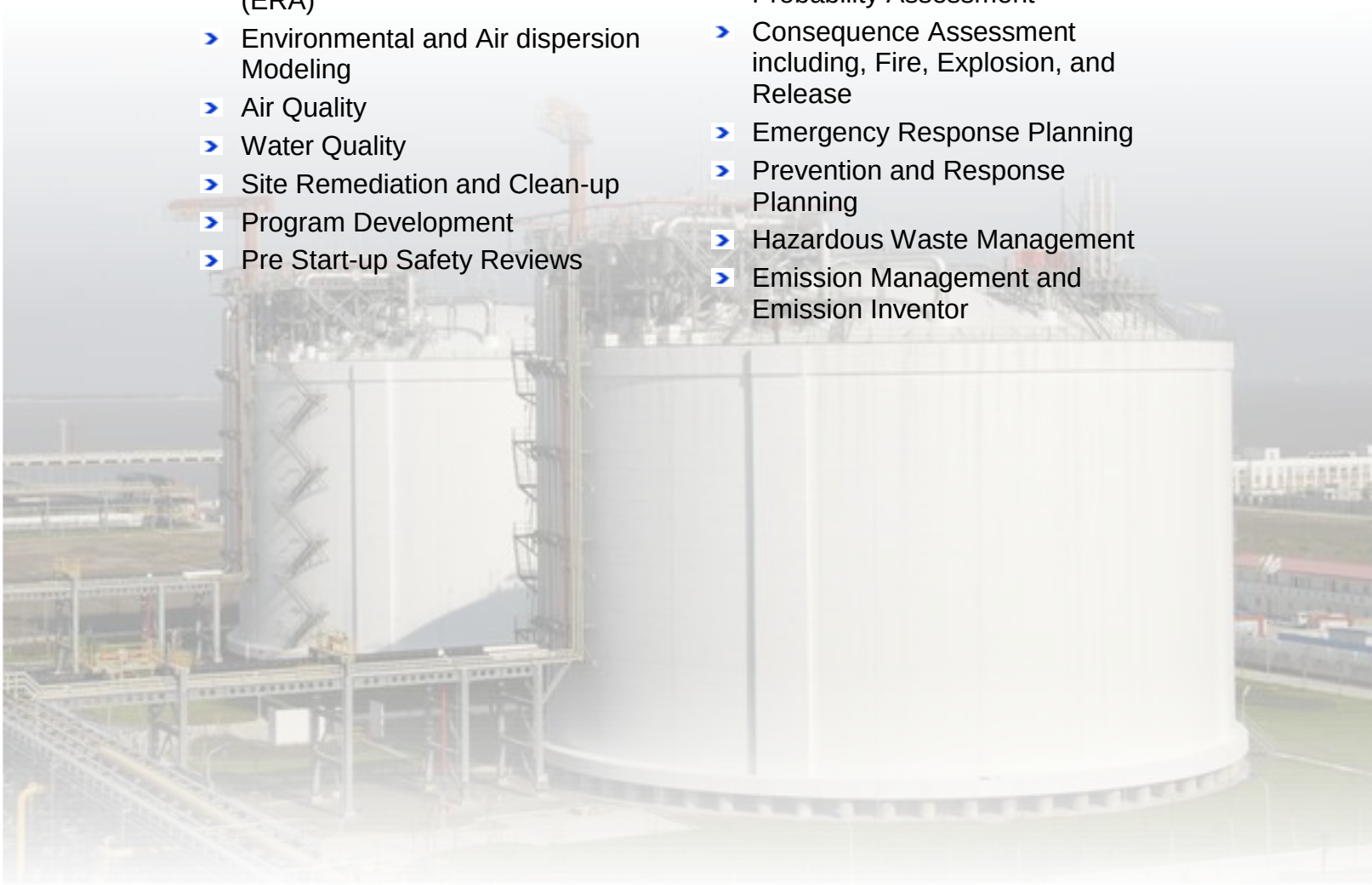
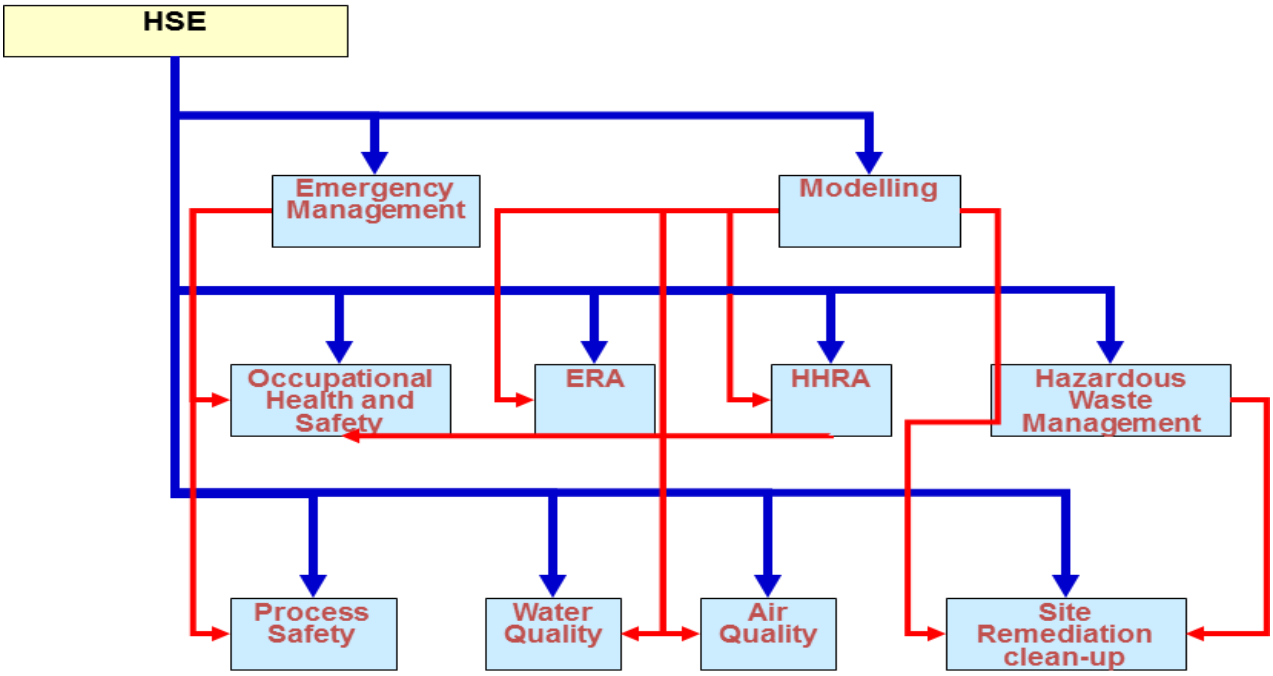
SCOPE OF WORKS AND SERVICES

- Natural Hazard Assessment
- Transportation Risk Assessment
- Occupational Health and Safety
- Process Safety
- Emergency Management
- Human Health Risk Assessment (HHRA)
- Ecological Risk Assessment (ERA)
- Environmental and Air dispersion Modeling
- Air Quality
- Water Quality
- Site Remediation and Clean-up
- Program Development
- Pre Start-up Safety Reviews
- Mechanical Integrity
- Incident Investigations
- HAZOP / HAZID / PHA / FMEA Study
- Quantitative Risk Assessment (QRA)
- Fault-tree and Event-tree Analysis
- Probability Assessment
- Consequence Assessment including, Fire, Explosion, and Release
- Emergency Response Planning
- Prevention and Response Planning
- Hazardous Waste Management
- Emission Management and Emission Inventor





Overview of our combined SHE Services - Courtesy of SENES Consultants Ltd.

Occupational Health and Safety

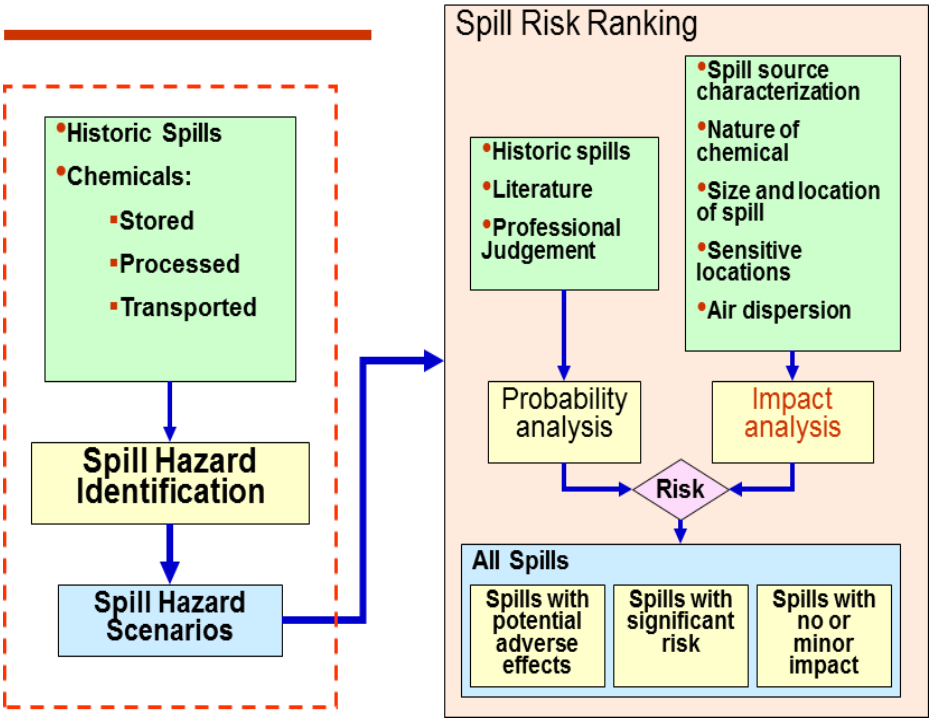
- Job hazard analysis (JHA)
- Worker health risk assessment
- Personal protection equipment (PPE) and procedures

Worker Health Risk Assessment

- International rules and regulations
- Workplace Hazardous Materials Information System (WHMIS)
- Evaluation of indoor air quality
- Evaluation of industrial ventilation
- Risk assessment
- Risk characterization

Process Safety

- Facility Risk Assessment
- Consequence assessment
- Probability Assessment
- Setting up Risk Assessment Team
- Selecting a Risk Assessment Methodology
- Identifying Potential Hazardous Events
- Identifying Associated Hazards
- Assessing the Risks Associated with the Occurrence of Hazardous Events
- Ranking the Hazardous Events According to the Associated Risk
- Identifying Control Measures to Address the Potential Hazards and azardous Events and Reducing the Risk



Spill Risk Assessment - Courtesy of SENES Consultants Ltd.

Emergency Management

- Emergency Management
- Audit (ISO 14000) and Gap Analysis
- Fire Safety Plan
- Spill Response Plan
- Emergency Response Plan

Human Health Risk Assessment

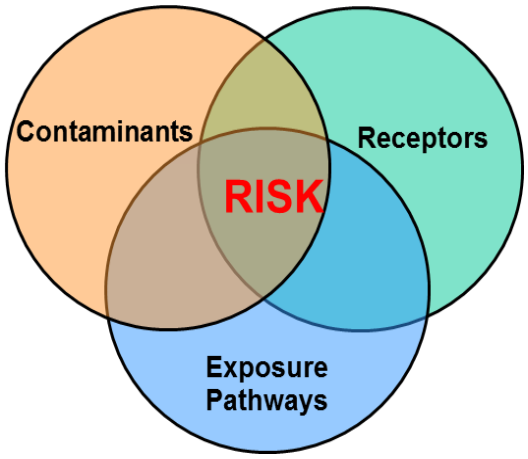
- Development of Conceptual Model
- Receptor Characterization
- Human Health Toxicity Assessment
- Exposure Assessment
- Identification of Health Benchmarks
- Risk Characterization

Ecological Risk Assessment

- Development of Conceptual Model
- Identification of Values Ecological Components (VEC's)
- Receptor Characterization
- Ecological Toxicity Assessment and Identification of Ecological Benchmarks
- Exposure Assessment
- Risk Characterization

Environmental Modeling

- Soil Modelling
- Groundwater Modelling
- Surface Water Modelling
- Source Characterization
- Meteorological Data
- Dispersion Modeling



Risk Components - Courtesy of SENES Consultants Ltd.

Air Quality

- Air Quality Monitoring
- Stack Monitoring
- Indoor Air (occupational)
- Air Quality Monitoring Equipment

Water Quality

- Water Quality Monitoring
- Water Quality Criteria
- Water Quality Results Analysis and Benchmarking
- Applications for Human Health Risk Assessment and Ecological Risk Assessment

Site Remediation and Clean-up

- Site Assessment (level I)
- Site Assessment (Level II)
- Site-Specific Risk Assessment
- Clean-up Criteria
- Clean-up Methods
- Waste Disposal

Hazardous Waste Management

- Establishing Waste Management Program
- Waste Classification
- Testing
- International Regulations
- Evaluation of Waste Disposal Methods
- Waste Handling
- Audits for Waste Management

Normally Occurring Radioactive Material (NORM) Management

- Dose Assessment for NORM Contamination
- Radiological Survey and Monitoring Programs for NORM
- Regulatory and Licensing Support
- NORM Removal
- NORM Storage and Management
- NORM Waste Clearance
- Waste Disposal

Commitment to the Environment

We work closely with our clients and partners, to develop and implement ecological risk assessment surveys, in order to understand our operating environments, and develop conceptual models of these environments, outlining variables, such as the presiding food chains, and transfer factors, for movement of contaminants.

Understanding of these models, in turn, assist us in the identification of the valued ecological components, such as surface and groundwater, which may serve as a source of drinking or irrigation water, and plant and animal species in the region.

REFERNCES

Accidental Release at Oil Refinery

- Assess risk of Caracara solution from an oil refinery (Unocal)
- Used a statistical approach to perform the risk assessment

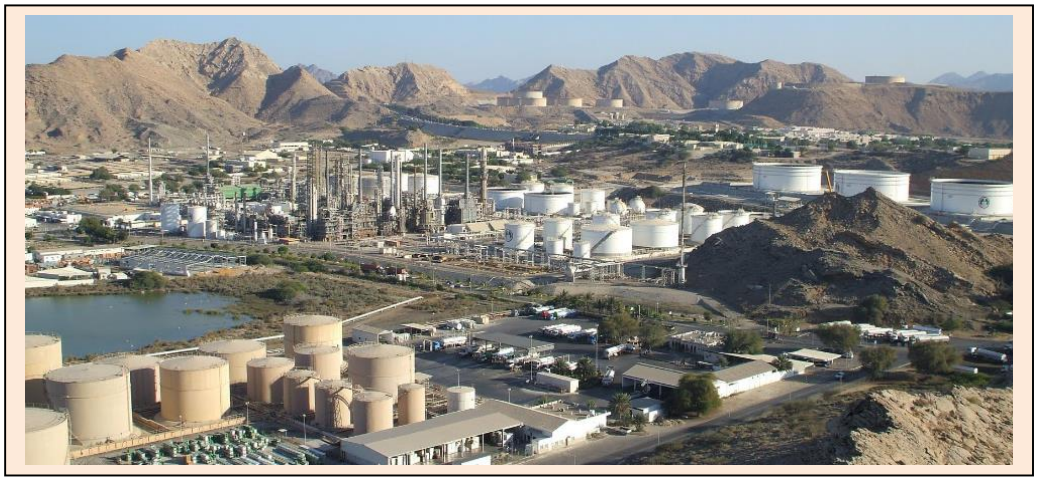
Golden Valley LNG Plant and Terminal Risk Assessment and

- Risk based Decision Support (Golden Valley LNG in Alaska)
- Risk evaluation of an LNG storage facility - two phases to assist in the assessment of potential risks, and to evaluate conformance with facility design requirements;

CPPE Libya

ORPIC Refinery, Shell Oil Tank Farms QRA

- Process Hazard Analysis
  Accident Scenario Development
- Probability Assessment
- Consequence Assessment
  - ✓ Fire Modelling
  - ✓ BLEVE
  - ✓ Explosion Modelling
  - ✓ Buncefield Explosion Analysis
- Risk Assessment
- Pre-Incident Planning
- Manual of Permitted Operation



YEC LNG Risk Assessment

- Yukon Energy – assess potential risks associated with accidents
  - ✓ Hazard Identification and Scenario Development;
  - ✓ Probability Assessment;
  - ✓ Consequence Assessment; and,
  - ✓ Risk Reduction Measures.

6- CONSTRUCTION

CPPE Group of Companies has performed site construction and installation of all supplied equipment for the Plant Facilities which include, but not limited to, the following:

CIVIL WORKS

- Topographical Survey;
- Geotechnical Survey including Borehole;
- Site Roads;
- Rough Grading Drawings;
- Finish Grading Drawings;
- Pipe Rack Foundations;
- Tank Farm Band Walls;
- Evaporation Pond (off site);
- Technical Specification for Foundations;
- Building Structural, Architecting and HVAC (MCC & Control room, MCC and Control Room, Gas Engine Gen Set, Maintenance Room, and Laboratory);
- Pipe rack Structural Steel Drawings and Details (field erected design);
- Standard Ladders, Platforms, Walkways;
- Drawings for Foundation of the Process Equipment Acquired.

MECHANICAL INSTALLATION

- Installation of all Process Equipment Skids
- Pipe Rack Fabrication and Assembly
- Prefabrication Installation of all Interconnecting Piping
- Erection of Flare Stacks
- Erection of all Pre-fabricated Storage Tanks

ELECTRICAL ACTIVITIES

- Skid Edge Junction Box Power and Instrument Cable Tray Layout and Details;
- Power, Control and Instrument Cable Tray Layout Drawings;
- Cable Tray Installation Details;
- Design for Supporting some Ship Loose Junction Boxes;
- Electrical Cable Schedule, Junction Box Design and MCC by others.
- Cable Trench Layout Drawings
- Cabling and Tie-in Connections
- MCC, Switchgear/Substation Installation
- Electrification of Switchgear/Substation

INSTRUMENTATION & CONTROL ACTIVITIES:

- Field Instruments Refurbishing;
- SAT for all Control Systems;
- Field Instrument Calibration;
- Power & Instrument Cable Tray Layout and Details;
- Cabling and Tie-in Connections;
- Standard Instrumentation Installation Details for Off-skid Instrumentation;
- PLC/DCS Installation and Testing;

PRE-COMMISSIONING / COMMISSIONING ACTIVITIES

- Flushing and Blow-out
- Rotary Equipment Free Test Run
- Continuity Test
- Field Instrument Calibration Check
- Valves Stroke Test
- Refractory Dry-out where Applicable
- Oxygen Scavenging where Applicable
- Start-up

EQUIPMENT

Type	Make	Capacity (ton)
Crawler Crane	DEMAG	600
Hydraulic Crane	DEMAG	500
Crawler Crane	DEMAG	300
Crawler Crane	MANITOOC	250
Hydraulic Crane	TADANO	150
Hydraulic Crane	KATO	120
Hydraulic Crane	KATO	100
Hydraulic Crane	TANDO	35-50
Hydraulic Crane & Forklift	-VARIES-	5-20
Total more than 40 cranes		

CERTIFICATES

Certifícate	Description	Certifying Body
ISO 9001:2000	Construction of Oil, Gas, & Petrochemical Plants	Moody International Co.
ISO 14001:2004	Environmental Management System	Moody International Co.
OHSAS18001:2007	Occupational Health & Safety Management System	Moody International Co.
ISO 9001:2008	Manufacturing of Oil, Gas, & Petrochemical Equipment	TUV NORD (Germany)
ISO 9001:2000	Trading of Oil, Gas & Petrochemical Products	TUV NORD (Germany)
HSE Procedure	Health, Safety & Environmental Management System	Moody International Co.
Grade Certificate	Grade A in Construction, Industry, Mine etc.	Vice Presidency Office in Strategic Planning & Control
APEC Member	APEC Membership Certificate	Association of Petroleum Industry, Engineering & Construction Companies

7- TYPICAL EQUIPMENT DESIGNED AND BUILT BY CPPE-LIBYA

OIL AND GAS MANIFOLDS

We have designed, fabricated, and installed numerous manifolds for use in upstream oil and gas production units. A manifold is typically a junction of pipes and valves which are used to safely divert oil or gas to various destinations without flow interruptions. The number of pipes and valves used depends on the size of the manifold.

Some applications of manifolds would be diversion of flow from a separator to burner(s) for disposal, to a tank for measurements or storage, or to a production line.

Manifolds can also be configured for specific functions such as choke manifolds used in well-control operations, and squeeze manifolds used in squeeze-cementing work. In each case, the functional requirements, as well as the control and automation methodologies, will be addressed in the configuration of the manifold.

Oil Manifold in Gathering Stations – CPPE

HEAT EXCHANGERS

CPPE-Libya is a designer of custom industrial heat exchangers with manufacturing and supply capabilities. Our heat exchangers are certified to ASME Code, Section VIII, Division 1 as well as TEMA requirements.

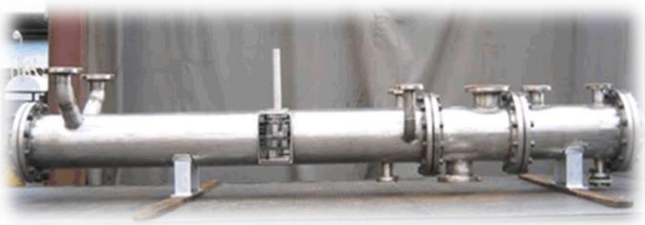
We are qualified to perform not only thermal and mechanical design in support of manufacturing shell and tube heat exchangers, but also the most updated process simulation software for performing heat and material balance.

Main users of our heat exchangers include:

- Space heating
- Refrigeration
- Air conditioning
- Power plants
- Utility plants
- Chemicals and petrochemicals plants
- Crude oil refineries

Stainless Steel Heat Exchangers - Courtesy of Fulton Industries T&T Ltd.

- Natural gas processing
- Waste water treatment facilities
- Our scope of capabilities includes:
  - TEMA “B”, “C” and “R”
  - Evaporators
  - Horizontal and vertical construction
  - Single, double and triple grooving
  - Welded tube-to-tube sheet construction
  - Replacement tubing bundles
  - API 660



Stainless Steel Heat Exchanger - Courtesy of Fulton Industries T&T Ltd.

SKID-MOUNTED PROCESS UNITS

- Gas Dehydration
- Crude Oil Desalting & Dehydration
- Gas Sweetening
- Fuel Gas Conditioning

- Pump & Compressor Skids

CPPE-Libya in association with Black, Sivalls & Bryson (BS&B), is proud to have developed superior experience over the years in the design, engineering, and fabrication of process system packages. CPPE-Libya/BS&B is involved in

Gas Separation Package – 87.8” ID x 360” T-T x 3.5” Thick
Courtesy of Fulton Industries T&T Ltd.

providing engineering services for projects involving de-bottlenecking, capacity increase, adequacy checks for existing units requiring new process conditions, and plant optimization, for various oil and gas processing facilities.

SKID-MOUNTED PROCESS UNITS (continued)

The major areas wherein CPPE-Libya/BS&B operate in the oil and gas upstream are;

- Engineering Services
- Multiphase Separation Systems
- Gas Dehydration Systems
- H_2S and CO_2 Removal
- Oil Conditioning and Dehydration
- Debottlenecking

Gas Conditioning Plant Layout

Direct-Fired Heater

TEST & PRODUCTION SEPARATORS

CPPE-Libya has designed and supplied horizontal, vertical or spherical two-phase and three-phase test and production separators. Our test separators have been used in oil fields for separation and measurement of flows of water, oil, and gas in crude oil mixtures, the results of which have contributed to:

- Diagnosis of well problems
- Evaluation of production performance of individual wells
- Management of reservoirs properly
- Prediction and planning of future production rates & well maintenance tasks

CPPE-Libya has also supplied numerous three-phase production separators that operate on the same basis as test separators; however, they are much larger in size and their feed consists of the combined crude from producing wells.

Our design portfolio of separators, including 2 and 3 phase separators, test separators, filter separators, flash tanks, scrubbers/knock out drums, slug catchers, and gravity settlers, are based on utilizing the following main principles for efficient separation of gas, immiscible liquids, and solids:

- Momentum
- Gravity
- Coalescence (further induced and promoted by electrical fields)

3-Phase Separator - CPPE

TEST AND PRODUCTION SEPARATORS (Continued)

3-Phase Separator – Courtesy of BS&B

CPPE's design and fabrication alliance with BS&B, has been successful in design, fabrication, and commissioning of oil and gas processing equipment and plants, for clients in all of the major energy producing areas worldwide.

Our combined expertise includes separation, gas and liquid treating systems, sulphur recovery, gas and liquid dehydration, and gas liquids recovery topping and stabilization systems.

It is our goal to supply the highest quality process systems and equipment to meet client's specifications at competitive prices from clients' preferred country of origin.

BS&B's custom-engineered separators have exclusive design and operational efficiency throughout a long service life. The strength and pre-eminence of our experience with high volume crude oil streams, is proven, and includes separation of foamy and/or waxy crude oils using single vessel capacities to 600,000 BPD.

96"ID x 288"T-T Flare Scrubber - Courtesy of Fulton Industries T&T Ltd.

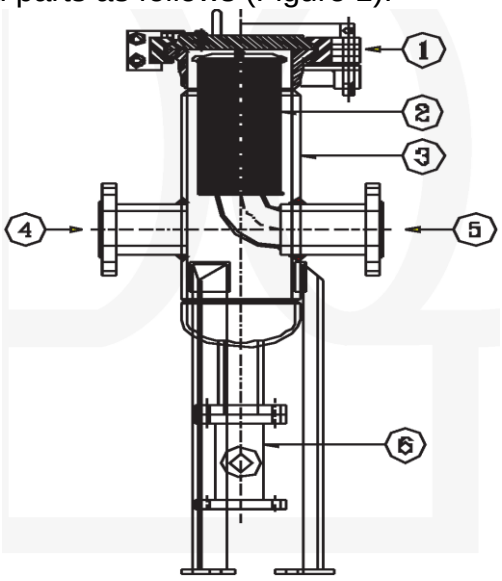
DRY GAS FILTER

CPPE-Libya designs and supplies dry gas filters in accordance with the project requirement as defined by our clients.

Application:

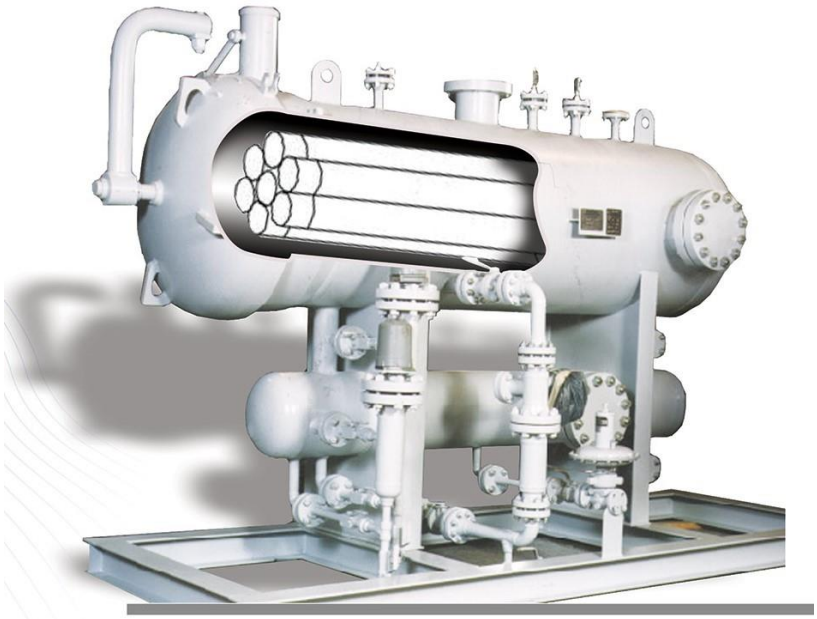
- Dry gas filters, generally installed in gas pressure reducing stations, are one of the most commonly used equipments for removing and filtering of fine solid particles from natural gas before consumption.
- Dry Gas Filters basically consist of several parts as follows (Figure 1):

1. Closure
2. Cartridge Element
3. Shell
4. Gas Inlet
5. Gas Outlet
6. Drain



Filter Separator:
The filter separator is a two-stage horizontal unit. It houses multiple replaceable cartridges in the first stage, and a vane mist eliminator pack in the second stage, designed for removal of 100% of the particles by weight of those larger than 5 microns.
The liquid sump will be divided into two sections to collect drained water in order to preclude any bypassing of the flowing gas from the first to the second stage.
Access to the replaceable first stage cartridges will be via a quick opening door, complete with an audible safety relief to prevent opening while still under pressure.

CPPE Libya



Gas Scrubber :

Scrubber/K.O. Drums are designed & manufactured for removal of heavy dust & moisture particles from gas stream through:

- Cyclones or multi-cyclones
- Dry or coalescing Filter Cartridges

Features:

- Range of inlet gas flow: 150 to 100,000 SCMH
- ANSI rating class: 600 lb

GAS DEHYDRATION

In collaboration with BS&B, CPPE-Libya offers a variety of gas dehydration units. Dehydration prevents the formation of gas hydrates and reduces corrosion. Natural gas in transit to market should be dehydrated to a controlled water content to avoid hydrate formation as well as minimize corrosion problems.

The major methods of dehydration are:

- Direct Cooling (Joules Thomson Expansion)

- Adsorption (or solid bed) Dehydration
- Pressure Swing Adsorption (PSA)
- Membrane Technology
- Absorption (in Glycols)

Gas Separator Package
Courtesy of Fulton Industries T&T Ltd.

Condensate Flash Drum
Courtesv of Fulton Industries T&T Ltd.

GAS DEHYDRATION (Continued)

Glycol dehydration units are most predominantly used for removing large amounts of water, and adsorption is used for cryogenic systems to reach low moisture contents.

A TEG dehydration unit is mainly a combined absorption/stripping type process. The wet gas is dehydrated in the absorber and the stripping column regenerates the TEG. Utilizing the CPPE-Libya design, we can achieve a water level as low as 1 Lb/MMSCF.

CPPE and its alliance partner, BS&B are particularly proud of BS&B's leadership in glycol dehydration.

In 1964, BS&B's engineers built the first experimental unit for service in the natural gas industry. Today, there are thousands of BS&B glycol dehydration units in operation, providing the most economical way to remove water vapour from natural gas streams.

BS&B's standard glycol units are guaranteed to produce 65°F dew point depressions. They feature an efficient tray-type absorber design to assure maximum gas-to-glycol contact and minimum glycol loss, and are available in a wide range of capacities.

BS&B's HI-CON™ units offer all the features of the standard unit, plus a guaranteed dew point depression as great as 140°F.

These units are equipped with a "super concentrator" which uses a small quantity of stripping gas to achieve glycol purities as high as 99.95%. No other system achieves the process efficiency of the HI-CON™ unit.

CRUDE OIL DESALTING & DEHYDRATION

Since raw crude oil naturally contains salty water, salt and water are removed to prevent corrosion, plugging, fouling of equipment, and poisoning of catalyst in processing units. Fresh water is added to the crude oil. Electrostatic grids promote coalescence of salty water droplets, which fall and discharge from the bottom of the desalter.

BS&B's Crude Oil Desalters are engineered to remove salt and other impurities from crude oil stocks which are ultimately charged to distillation equipment. These salts (chlorides of sodium, magnesium and calcium) normally are dissolved in the residual water contained in the crude oil. Typically, salt concentrations range from 15,000 ppm to 300,000 ppm (water basis).

In addition to water and chlorides, all crude oils contain suspensions of varying amounts of solid materials such as silt, iron oxides, sand, crystalline salts, carbon, and sulfur. Since most of these suspended impurities will be carried in the water phase or on the surface of the dispersed water droplets, a great proportion of them will be removed during the desalting process.

Crude Oil Heater Treater-CPPE

The contaminants, salts, water and solids, if not removed from the crude, can cause serious damage to pipelines and distillation equipment, limit "on-stream" time, and cause inefficient operation throughout the distillation unit. Some of the specific effects resulting from salts in crude are:

- The salts are converted to hydrochloric acid which can cause severe corrosion in distillation towers and lines.
- The salt acts as a catalyst for coke formation in furnace tubes and transfer inlet piping.

CRUDE OIL DESALTING & DEHYDRATION (Continued)

- Salts and solids are deposited in heat exchangers and furnace tubes causing plugging, reduced heat transfer rates in heat exchangers, and “hot spots” in furnace tubes.
- Salts and solids concentrated in the residuum of distillation towers result in high ash contents and degrade this product. Crude purchasers place limits on the amount of salt that can be in the crude they purchase, normally expressed in pounds per thousand barrels of crude (PTB).

We offer a wide variety of desalting & dehydration technologies for removing minerals from crude oil. As a minimum, our horizontal desalting & dehydration units will have the following internals:

- Inlet distributor
- Energized and grounded electrodes
- Product outlet collector
- Effluent water header
- Transformer with power entrance bushing

Crude Oil Desalter – Courtesy of Canada Gas Tech Inc.

The following steps summarize the electrostatic desalting process:

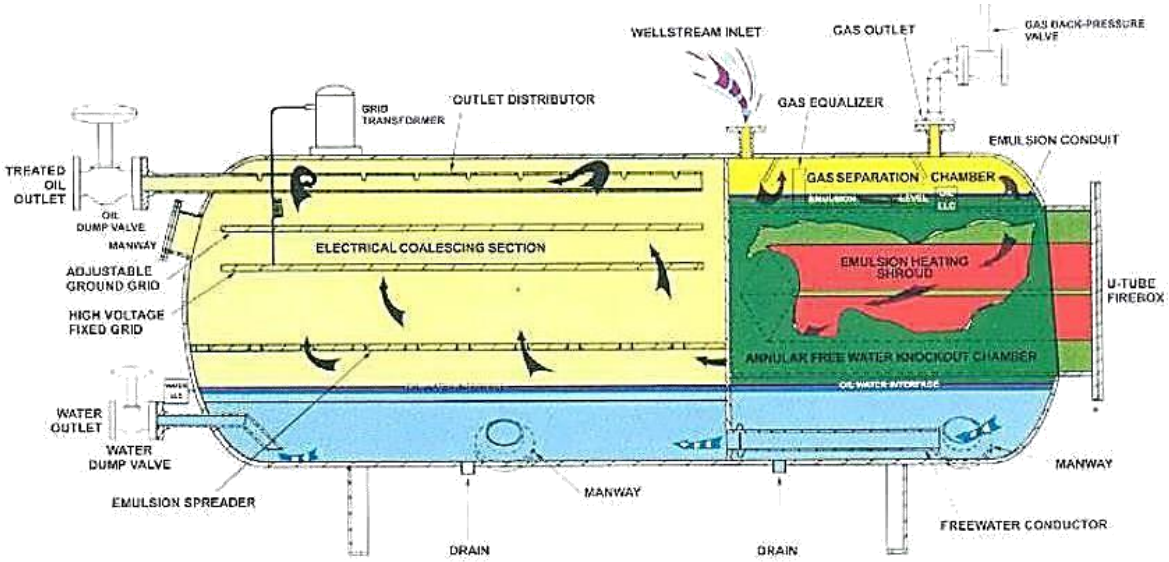
1. Untreated crude oil is introduced to the process vessel via the inlet distributor.

2. Some water droplets may be large enough to start settling immediately; however, most of the water droplets are too small to settle immediately. Many of these smaller droplets are electrostatically coalesced into large enough drops that settle from the crude oil as the untreated crude flows upward through the energized electrode and the grounded electrode.
3. Electrostatic treating reduces the viscosity of crude oil to desired levels which in turn, enhances electrostatic coalescing of water droplets in the crude oil.
4. Treated crude oil flows out through the Product Outlet Collector at the top of the vessel.
5. The two or three electrodes or grids will each have their own transformers. The higher grid(s) will continue to operate even if the lower grids short out.
6. Effluent water is removed via the effluent header at the bottom of the vessel.

HORIZONTAL ELECTROCHEMICAL TREATER (HET)

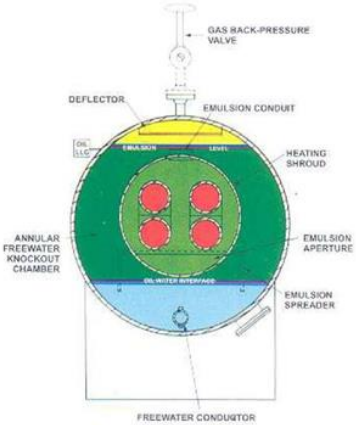
The BS&B HET electrochemical treaters, utilize patented design features in heat transfer flow distribution, and emulsion spreading, to improve gas separation and water knockout, before the wet crude reaches the heating zone and the subsequent electrostatic field. The remaining water coalesced from the crude, in the electrostatic field, falls naturally toward the free water at the bottom of the vessel, and flows horizontally to the water outlet.

Flow Pattern



Horizantal Electrochemical Treater – Courtesy of BS&B

The well stream enters at one end of the gas separation chamber, through the inlet at the top of the vessel. Gas freed at the relatively cold emulsion surface, gives up condensate, as it impinges on deflectors, and exits through the gas outlet at the other end of the gas separation chamber. The emulsion, flowing in the annular area between the heating shroud and the vessel wall, is subjected to effective free water removal through long residence in the annular volume and continuous contact with the large surface of the heating shroud.



Horizantal Electrochemical Treater
Courtesy of BS&B

HORIZONTAL ELECTROCHEMICAL TREATER (Continued)

The free water descends to the bottom of the separator heater section, and flows horizontally through the free water conductor, into the water chamber at the bottom of the electrical coalescing section. The remaining emulsion in the separator heater section, enters the top of the heating shroud and flows downward and along the U-tube firebox in forced convection circulation, then exits in horizontal flow through the emulsion aperture at the bottom of the heat shroud and enters the electrical coalescing section above the oil water interface, but below the emulsion spreader plate. The emulsion in the electrical coalescing section rises by convection through the emulsion spreader and across the high voltage/low current electrostatic grids. Water particles remaining in the emulsion, are polarized in the alternating electrostatic field, and coalesce through agitation and collision. The coalesced water falls to the bottom of the vessel and joins the free water flowing to the water outlet. The treated oil, at the top of the electrical coalescing section, enters the outlet distributor and exits through the oil dump valve. The elaborate spreader and outlet distributor system assures uniform liquid flow across the entire electrostatic grid area, eliminating channelling. Installation of the oil level controller in the gas separation chamber, in conjunction with the oil dump valve in the treated oil outlet distributor, assures a fluid packed electrical coalescing section. An interface controller controls the water dump valve.

Advantages of Horizontal Electrochemical Treaters:

- Gas In large horizontal integral gas separators are cooler because no heated oil surface contacts the gas section. Cooler gas is drier and cleaner and fewer light ends are lost.
- Gas separated from the crude in the emulsion heating section, rises to mix with the cool inlet gas, giving maximum condensation and recovery of light ends.
- Emulsion heating section, features shroud, for uniform heat transfer and diagonal downward flow, for high efficiency forced convection heating.
- Free water knockout section provides even horizontal flow pattern, at the bottom of treater vessel, and is designed to prevent uncontrolled heat loss to water.
- Emulsion distributor-spreader uniformly distributes emulsion over entire electrostatic grid face.
- High voltage, low current electrostatic field, is created by rugged, heavy duty, externally adjustable grids.
- Minimum number of control valves, minimum baffling, and ample manways simplify accessibility, cleaning and coating.

GAS SWEETENING

We offer a variety of gas sweetening units for removal of acid gases (hydrogen sulfide and carbon dioxide). There are many processes that are available for this purpose, but amine treating (Mono-ethanolamine, MEA, or Di-ethanolamine, DEA) is the process that has historically been used.

Our acid gas removal units, target the following acid gases, to meet required specifications for storage or transmission of natural gases;

- Carbon Dioxide, CO_2
- Hydrogen Sulfide, H_2S
- Sulfur Dioxide, SO_2
- Carbonyl Sulfide, COS
- Mercaptans, RSH

We offer the following sweetening (acid gas removal) processes:

- Amine Treating (MEA & DEA)
- Benfield Process
- PSA Unit
- Sulfinol Process
- Polymeric Membranes

CPPE-Libya also offers processes for converting acid gases to sulphur products using the following technologies:

SULFUR UNITS

- Removed acid gases are routed into a sulfur recovery unit, which converts the hydrogen sulfide in the acid gas, into either elemental sulfur or sulfuric acid.

  There are a number of processes available for these conversions:

  - Claus Process: most well-known for recovering elemental sulphur, S
  - Conventional Contact Process: most used for recovering H_2SO_4
  - WSA Process: most used technologies for recovering H_2SO_4

TAIL GAS TREATING UNIT (TGTU)

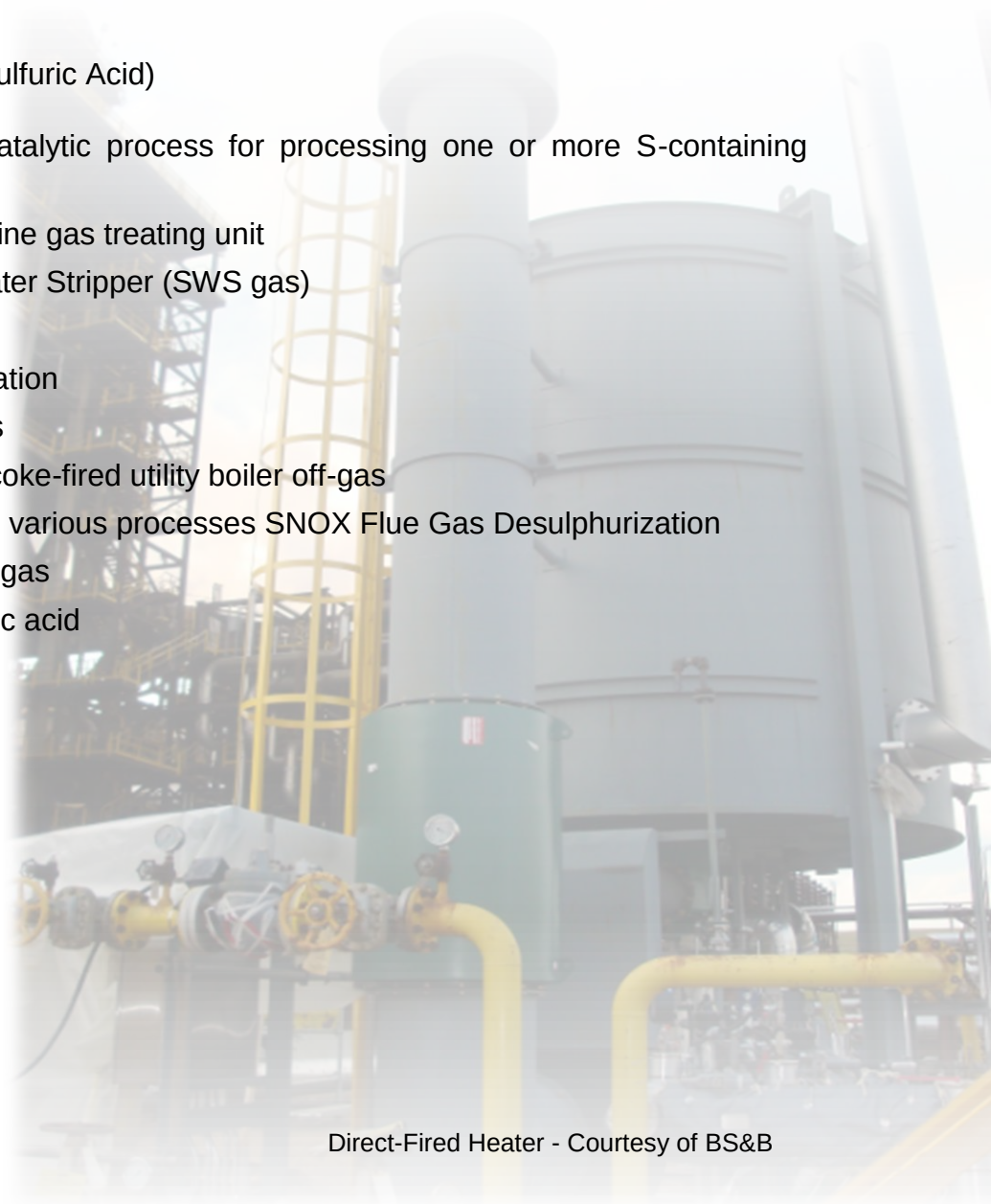
The residual gas from the Claus process (commonly called tail gas) is processed in a Tail Gas Treating Unit (TGTU) to recover and recycle residual sulfur-containing compounds, back into the Claus Unit.

We offer the following technologies for tail gas treating:

- Scott Process
- Claus Process
- WSA Process (Wet Sulfuric Acid)

We recommend WSA catalytic process for processing one or more S-containing streams such as:

- H_2S gas from e.g. amine gas treating unit
- Off-gas from Sour Water Stripper (SWS gas)
- Off-gas from Rectisol
- Spent acid from Alkylation
- Claus process tail gas
- Heavy residue or petcoke-fired utility boiler off-gas
- Boiler flue gases from various processes SNOX Flue Gas Desulphurization
- Metallurgical process gas
- Production of sulphuric acid



Direct-Fired Heater - Courtesy of BS&B

FUEL GAS CONDITIONING

Based on a full compositional analysis of available fuel gas and the required specifications of the end users (burners, boilers, gas engines, etc.), we design and fabricate skid-mounted fuel gas conditioning units, that are fit-for-purpose, and fully meet the tightest specifications requirements.

Associated gas (separated from crude oil in upstream separation banks) largely consists of Methane (CH_4), some Ethane (C_2H_6), and is typically water saturated, and depending on its source, could potentially contain varying amounts entrained contaminants. Contaminants must be removed and/or reduced to the levels prescribed by the manufacturers of fuel gas engines, to avoid adverse effects on power generation equipment such as:

- Corrosion of major engine parts
- Chocked spark plugs
- Plugged fuel systems
- Damaged cylinders, etc.

FUEL GAS CONDITIONING (Continued)

The contaminants of primary concern are moisture, sulfur, heavy hydrocarbons, entrained oil, and particulates.

We tailor our fuel gas conditioning units to the type and quantities of contaminants that are present in raw fuel gas, and also the required fuel gas specifications.

Typical contaminants and corresponding removal processes are listed here:

- **Water Removal**
- Contacting Methods
  - Specialized Internals
  - Traps
- Drying Methods
  - Refrigeration Dryers
  - Adsorption Dryers
  - Liquid Dryers
  - Salts

- **LPG & Heavy Hydrocarbons**
- Condensation Methods
  - Refrigeration Systems
  - Compression/Cooling Air
- Drying Methods
  - Solid Bed Adsorption
  - Liquid Absorption

- **Particulates/Entrainment Oil Removal**
- Contacting Methods
  - Specialized Internals

- **Sulfur Removal**
- Chemical Methods
  - Liquid Absorption
  - Solid Chemical Reactant Beds

- **Fuel Gas Max. Temperature Control**
- Cooling Methods
  - Air
  - Water

- **Fuel Gas Min. Temperature Control**
- Heating Methods
  - Electric
  - Fuel

ATMOSPHERIC VESSELS

We design and supply atmospheric vessels based on site requirements, appropriate to production volumes.

For ease of transportation, we pre-fabricate the large tanks in our workshops, and erect them at client plant site.

Acid Storage Tank – Courtesy of Fulton Engineered Specialties Inc.

Bolted Tanks

We design and fabricate bolted tanks due to their:

- Low-cost
- Fast field assembly
- Low maintenance
- Long operating life
- Reliable containment
- Ease of shipment to remote locations

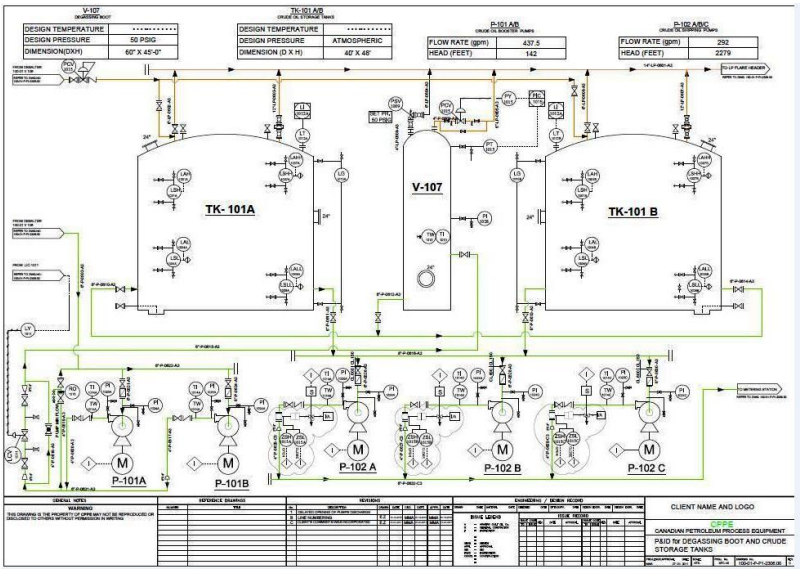
Bolted tanks incorporate a lap joint vertical wall seam layout, with a flanged horizontal wall seam. Synthetic rubber and elastomeric gaskets are used to seal the panel joints. Bolted tanks are suitable for various storage applications, and are offered in stainless steel, hot-dipped galvanized, thermoset powder coating, and turf glass tank coating.

Fire Water Storage Tank – Courtesy of Greatario Engineered Storage Systems

Mud Tanks

Our designed mud tanks are cubical containers that are fabricated from steel, either as open top or closed top. Mud tanks are used for the storage and/or active agitation of drilling mud or drilling fluid, near drilling rigs. Mud tanks are commonly divided into compartments designed for specific purposes, with some compartments being used as settling tanks, where the sand and solid particles float to the bottom, allowing clearer fluid to be transferred to another compartment.

Mud tanks - CPPE



Crude Oil Tanks Design – CPPE

OIL SKIMMERS

Main components of oil skimmers are:

- Oil and water inlet
- Oil receiving means
- Skimmer mechanism for moving the oil at the surface of the fluid in the container, into the oil receiving means
- Water outlet

Oil Skimmer – Supplied by CPPE

The skimmer mechanism operates by locating angularly-spaced apart blades inside a container, above the level of the oil receiving mean, and a ramp leading to the oil receiving means.

Each blade is formed by an arm, having a plurality of flexible blade members, extending downward from the arm, such that the blade members, engage the top surface of the ramp upon rotation of the blade means past the ramp, to move oil at the upper level of the fluid in the container, into the oil receiving means.

Fluid flow directing device, is provided for directing fluid injected into the interior of the container, by way of the oil and water fluid inlet, downward and outward from the axis of the container.

Support means, is provided for supporting the container for pivotal movement about two axes, perpendicular to each other, for maintaining the dimension of the container, between upper and lower ends generally vertical, such that apparatus may be installed and operated on a boat.

CHEMICAL INJECTION SKIDS

We custom design and fabricate chemical injection skids, that are chemical dosing systems with wide applications in many industries, such as in oil and gas production, water injection, cooling towers, and corrosion control. They are used in the oil industry for improving the amount of oil extracted from reservoirs, controlling costs, and improving return on capital investments.

We utilize relevant chemical resistant materials for manufacturing chemical injection pumps. The units are designed and fabricated in accordance with the project requirements, as defined by our clients.

We design these systems, based on the purpose and the environment in which the units will be operating. Commonly used types in the petrochemical industry include:

- Gear pumps
- Centrifugal pumps
- Positive displacement pumps
- Diaphragm pumps, and
- Metering pumps

Chemical Process Skid Package – Courtesy of Fulton Engineered Specialties Inc.

FISCAL CUSTODY TRANSFER METERING

CPPE-Libya designs and supplies custody transfer metering stations mounted on skids. The choice of ultrasonic or turbine type of meter are available. Compact meter prover is connected in conformity with API standard requirements. The system is complete with all flow computers, PLC, and automatic valves, to enable operation by single touch of screen from a remote control room.

Fiscal flow metering application requires accurate and reliable fluid flow measurement. For this reason, meter calibration devices are needed to verify the accuracy of the measured flow. The master meter corrects the flow with regard to temperature, pressure, and density of the flowing fluid, by online measurement of temperature, pressure, and composition of the fluid to be measured. The resulting correction factor is transmitted to central flow computing system.

NC-100 Hamada Metering Station-CPPE

PIG LAUNCHERS & RECEIVERS

Pigging refers to real-time, in-line, internal inspection, and maintenance of pipeline systems, without interrupting or disrupting the flow of fluids in the pipeline. Modern pigging is performed using various types of smart “pigs” that contain sensors, electronics, and recording systems. Basic classes of pigs include:

Instrumented Pigs: Inspection of the inside surface of the pipe, through mapping of the pipeline centerline (configuration pigs) or measurement of radii from center of the pig, to the inside wall of the pipe (configuration pigs).

Smart Pigs: Inspection of full wall thickness for identification of cracks, metal loss corrosion, or other anomalies, utilizing non-destructive techniques.

Pig Receiver Package – Courtesy of Fulton Industries T&T Ltd.

Pig Launcher and Receiver - CPPE

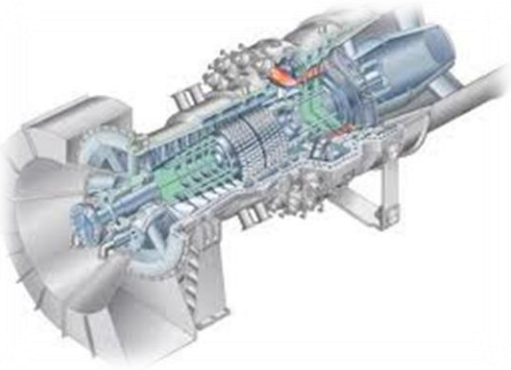
8- PROCUREMENT AND SUPPLY

ROTATING EQUIPMENT

In alliance with major Rotating Equipment OEMs and Service companies, we are capable of managing your Rotating Equipment by providing New Equipment, Spare Parts and all support services, that will enable safe, reliable, and cost effective operation. We take responsibility for the reliable and smooth operation and system reliability of your rotating equipment, applying our industry leading technical expertise.

CPPE-Libya has the capability to address and meet the challenges that are unique to your operations. We deliver value-added services to improve the performance and reliability of your Rotating Equipment. Our core services include:

- **Supply of New Rotating Equipment**
- **Capital spare part supply services, including new and used serviceable parts**
- **Advanced technology component repair services for Rotating Equipment**
- **Field services available for Rotating Equipment**
- **Rotating Equipment overhaul services, delivered on-site or from certified workshops**
- **Monitoring and diagnostics, including predictive maintenance services to improve the performance and reliability of your Rotating Equipment**



Whatever your location or scale of operation, we apply more than 25 years of management and field service experience in oil & gas, to deliver solutions focused on improving the availability of your critical Rotating Equipment to minimize production downtime.

Our engineers and technicians have significant experience of supplying new equipment to meet your application and managing mature equipment and

are skilled in applying the latest technologies to extend the life cycle of your assets and optimize productivity. Our global presence and established network of supply chain partners, will ensure you have reliable new equipment and maintenance partner, wherever you are in the world.

Our capabilities in design and supply of compressors extend to the following applications:

- Pipeline transport of natural gas to move the gas from the production site to the consumer
- Oil refineries, natural gas processing plants, petrochemical, and chemical plants
- Automotive and diesel engine turbo-chargers
- Oil field re-injection of high pressure natural gas to improve oil recovery (gas lift)

CPPE Libya

MULTI PHASE FLOW METERS

CPPE-LIBYA offers multiphase metering stations complete with all accessories and controls mounted on skid. Training and after sales services, ensures our quality assurance warranty. Our alliance with Agar Corporation, offers MPFM 50 that is a non-nuclear, versatile, three-phase flow meter, designed for true field conditions. It provides accurate, real-time measurements of oil, water, and gas flows, imultaneously without separation of the phases.

Specially designed for low maintenance and ease of operation, they require no field calibration or prior knowledge of fluid properties (such as fluid density and salinity) to attain the specified accuracies. The real-time data capabilities of these meters, allow for optimization of all types of critical production enhancement techniques.

Advantages of the Agar MPFM-50 series:

- Gas void fraction: 0-100%
- Water-cut: 0-100%
- Not affected by flow regimes
- High accuracy, real-time flow measurement
- High and low viscosities
- No nuclear (radioactive) sources
- Compact, portable, and easy to transport and install
- Wet gas application

MPFM-50
Courtesy of Agar Corp.

Temperature, Pressure, Level Transmitter
Supplied from reputable manufacturer including:

- Emerson (Rosemount)
- Magnetrol
- Vega
- Foxboro
- Cameron (Barton)
- Ashcroft
- Yokogowa

Flow Measurement Devices
Supplied from reputable manufacturer including:

- Emerson (Rosemount, Daniel)
- Cameron (Brooks)
- Yokogowa
- Magnetrol
- Brooks
- Foxboro

CPPE Libya

A-T CONTROLS

CPPE in alliance with A-T Control Inc. provide the following quarter turn butterfly and ball valves complete with pneumatic and electric actuators:

- TRIAC Actuator & Accessories
- Manual & Automated Valve Assemblies
- Automation Services for Quarter Turn Valves
- Pneumatic Rotary Actuators
- Electric Actuator

Trunnion Mounted Ball Valves
- 2 pc. Cast Soft Seat
- 3 pc. Forged Soft Seat
- 3 pc. Metal Seat

Control Valves
Supplied from reputable manufacturer including:

- Emerson (Fisher, DANIEL)
- Flowserve
- Samson
- Masoneilan
- Streamflo
- Cameron
- Parker
- KSB
- Limitork (electrical actuators)
- Rotork (electrical actuators)

Manual Valves
Supplied from reputable manufacturer including:

- Cameron
- KSB
- Crane
- GWC
- Kitz

Safety Relief Valves
Supplied from reputable manufacturer including:

- Farris
- Emerson
- Crosby

Flam & Gas Detection

Supplied from reputable manufacturer including:

- Det-Tronics
- Siemens
- Honeywell

Analyzers

Supplied from reputable manufacturer including:

- Daniel
- Yokogowa
- Foxboro

Switches

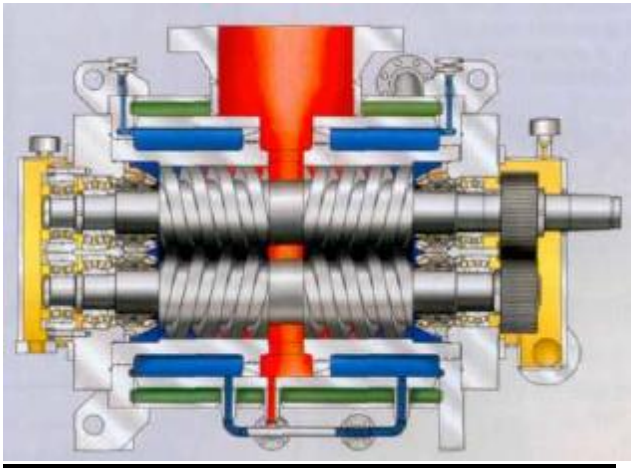
Supplied from reputable manufacturer including:

- Daniel
- Yokogowa
- Magnetrol

Multiphase Pumps and Spare Parts

Supplied from reputable manufacturer including:

- Flowserve
- Sulzer
- Leistritz



Centrifugal Pumps

Supplied from reputable manufacturer including:

- Flowserve (Durco Pumps, IDP)
- Sulzer
- KSB
- SPX (ClydeUnion)
- Goulds Pumps
- Ruhrpumpen
- Carver
- Apex
- Weir Pumps
- Peerless

Reciprocating Pumps and Spare Parts

- Flowserve (Worthington, Aldrich)
- SPX (ClydeUnion)
- Dawson
- FMC Technologies

In-line Pumps

Supplied from reputable manufacturer including:

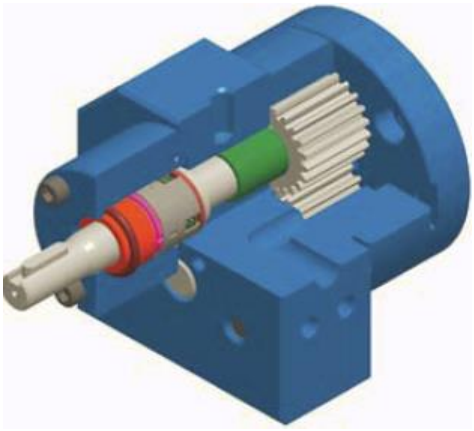
- Flowserve (Byron Jackson)
- Sulzer
- Ruhrpumpen
- Goulds
- KSB
- Clydunion
- Milton Roy

Metring Pump

- Milton Roy
- ProMinent
- Metex
- AxFlow

Gear (Rotary) Pumps

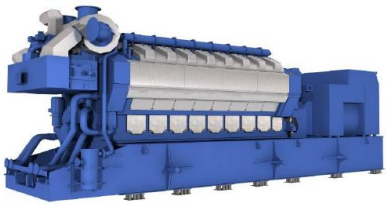
- Flowserve (Worthington, IDP)
- Sulzer
- KSB
- Parker
- PSG Dover
- Ultra Pompe
- Northern
- Marzocchi Pumps



ELECTRICAL ITEMS

Supplied from reputable manufacturer including:

1. **GAS ENGINE POWER GENERATORS:**



- GE
- Caterpilar
- Wartsila

2. **DIESEL POWER GENERATORS**

- Cummins
- Caterpilar
- Wartsila

3. **TRANSFORMERS:**

- ABB
- Moloney
- GE
- Hammond Power Solutions

4. SWITCHGEARS:

- ABB
- GE
- Westinghouse
- S&C
- SGC

5. MOTOR CONTROL CENTRE:

- GE
- ABB
- Siemens

6. SYNCHRONIZATION PANEL:

- ABB
- Siemens

7. RECTIFIERS:

- ABB
- Siemens

8. CONTROL PANEL:

- Siemens
- Honeywell
- Spartech

9- REFERENCES

OUR CLIENTS

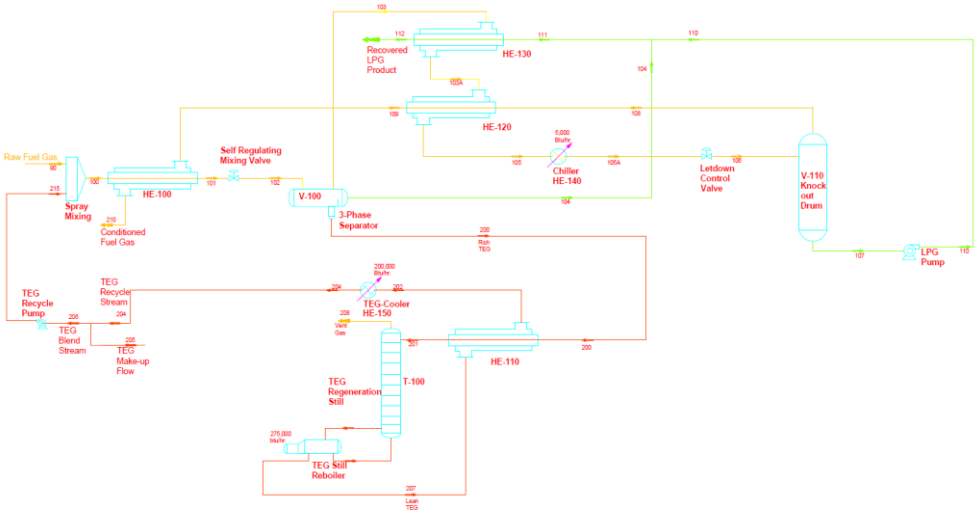
ARABIAN GULF OIL COMPANY	WAHA OIL COMPANY	HAROUGE OIL OPERATIONS
ZUETINA OIL COMPANY	MELLITAH OIL AND GAS	SIRTE OIL COMPANY
RAS LANUF OIL PROCESSING COPMANY	AZAWIYA REFINERY COMPANY	PETROMASILA

CPPE Libya

PROJECTS INVOLVING ENGINEERING & PROCUREMENT

Followings are list of projects executed in Libya in recent years:

Fuel Gas Conditioning Study for Harouge Oil Amal Oilfeild



Client: Harouge Oil Operations (HOO)
Year: 2012
Project Status: Basic Engineering was performed and presented /delivered to the client
Scope of Project:

The project is broken into three phases:

- Phase 1 of the project involves a field study and data gathering at each of the seven FGCU sites. The goal of Phase 1 is to determine the quality of the raw gas and also the specs required of the fuel gas for the engines (such as dew point, LHV, contaminant levels, etc).
- Phase 2 of the project would involve a study to determine the plausible solutions and the recommended option on a site by site basis to replace the old FGCUs with new ones.
- During Phase 3 (or Final Phase), CPPE would deliver complete and detailed Scope of Supply and Specification Package for use by HOO in carrying out the bidding of packaged units for each station. CPPE would also be required to provide preliminary layout drawings, recommended bidders, and safety zoning. The following document represents our response to the request by HOO for Phase I of the project.

Development of Early Production Facility (EPF) for GOSP-S & Satellites 'C', 'L' and 'Q', NC-100 HAMADA

Client: Arabian Gulf Oil Company of Libya (AGOCO)
Year: 2013
Project Status: All equipment and materials are at plant site waiting for installation
Scope of Project:
Design, Engineering, Procurement of material, Fabrication Inspection, Packing and Transfer of goods to the client's site, pre-commissioning/commissioning of new oil-field development in Hamada, Libya (Capacity: 25,000 BPSD).

Scope of work and supply included:

- Four six-slots manifolds
- One First-Stage, 3-Phase Separator
- One Second-Stage, 3-Phase Separator
- One Degassing Boot
- Oil Storage Tank
- Dehydrator
- Oil Heater/Treater
- Fiscal Metering Station
- One Chemical Injection Skid
- One Instrument Air System with Air Compressor, Receiver, etc.
- H.P. and L.P. Flare System
- Bolted Water Storage Tank
- Diesel Generator
- Gas Generator Firefighting System
- Distributed Control System (SCADA), Complete with Equipment and Control Rooms, as well as all Interconnecting Items
- CPPE Designed the Complete Electrical Switching Room, Motor Control Centre, Electrical Distribution System, and Specified Proper Cabling on Island-mode Basis

Compliance: API, ASME, ANSI, ASTM, ISA, IEEE, NEC, CSA, AISC, NACE, NFPA, SSPC, OSHA

CPPE Libya

Supply of Equipment and Material for New Satellite Stations at Sarir GC-2 and GC-4

Client: Arabian Gulf Oil Company of Libya (AGOCO)

Year: 2009

Project Status: All equipment and materials are at plant site
Test Separator has been installed and operational
The remaining equipment waiting for installation

Project Scope: Design, Engineering, Supply of Material, Fabrication and Coating of:

- One (1) Horizontal Test Separator (10,000 BPD)
- Manifolds for GC-2 Satellites: Eight (8) Fully Assembled, 6-Slot Skid Mounted Manual Manifolds
- Manifolds for GC-4 Satellites: Four (4) Fully Assembled, 6-Slot, Skid Mounted Manual Manifolds
- Instrument Air Package for GC-Satellite: One (1) Instrument Air Package, Consisting of an Air Compressor (Capacity of 25 SCFM)
- Chemical Injection Skid for GC-2 Satellite: Two (2) Chemical Injection Skids
- Chemical Injection Skids for GC-4 Satellites: One (1) Chemical Injection Skid
- Launcher/Receiver Skid Mounted Package: One (1) 16” x 12” (NPS) Scraper Launcher and One (1) 16” x 12” (NPS) Scraper Receiver

Compliance: API, ASME, ANSI, ASTM, ISA, IEEE, NEC, CSA, AISC, NACE, NFPA, SSPC, OSHA

CPPE Libya

Supply of 2-Phase Separator and Shipping Pumps at Sarir Field GC-3

Client: Arabian Gulf Oil Company of Libya (AGOCO)
Year: 2010
Project Status: All equipment and materials are at plant site waiting for installation

Project Scope:
Design, Engineering, Supply of Material, Fabrication and Commissioning of:

- One (1) Two Phase Separator including instrumentation, piping, paint, insulation, and skid assembly (Including two-year spare parts) (Capacity 120,000 BPD)
- Three (3) Shipping Pumps including explosion proof electrical motor driver and API base plate (Including two-year spare parts)

Compliance: ASME Section VIII Div. 1, ASME Section II, ASME B31.3, ASME B16.5/ASME B16.47, ASME Section IX, ASME Section V, ASME B16.9, ASME B16.11
API RP 520, API Recommended practice for Process and Instrumentation Safety

CPPE Libya

Supply of One (1) Two Phase First Stage and One (1) Three Phase Separators for 103A

Client: Zueitina Oil Company, Libya
Year: 2012
Project Status: All equipment and materials are at plant site waiting for installation

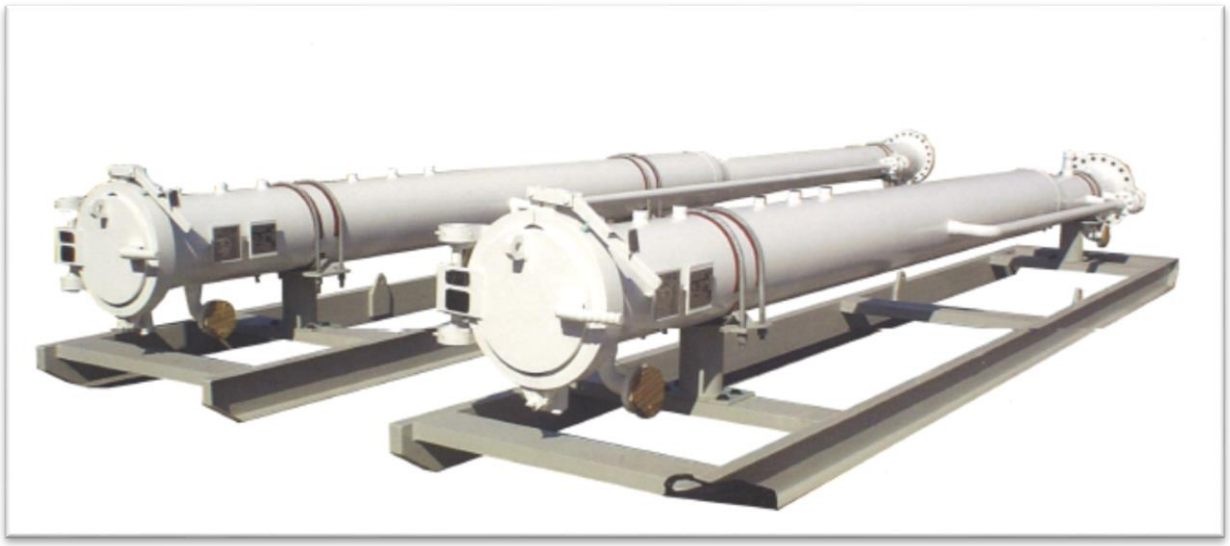
Project Scope:
Design, Engineering, Supply of Material, Fabrication and Commissioning of:

- One (1) Two Phase Vertical Separator (Capacity: 40,000 BPD) including Design, Engineering, Supply of Materials, Fabrication, Complete Mechanical, Instruments and Electrical Assembly, Protective Coating, Hydrostatic Testing, Inspection and Packing in Accordance with the Special Conditions.
- One (1) Three Phase Vertical Separator (Capacity: 50,000 BPD) Including Design, Engineering, Supply of Materials, Fabrication, Complete Mechanical, Instruments and Electrical Assembly, Protective Coating, Hydrostatic Testing, Inspection and Packing in Accordance with the SpecialC.

Compliance: ASME Section VIII Div. 1, ASME Section II, ASME B31.3, ASME B16.5/ASME B16.47, ASME Section IX, ASME Section V, ASME B16.9, ASME B16.11
API RP 520, API Recommended practice for Process and Instrumentation Safety

CPPE Libya

Three Pig Launchers and Three Receivers for Development of "O" Field and "UU" & "V", Messla Field



Client: Arabian Gulf Oil Company of Libya (AGOCO)
Year: 2013
Project Status: All equipment and materials are at plant site waiting for installation

Project Scope:
Engineering Design, Procurement of Material, Fabrication, Assembly, Testing, and Supply of Three Pig Launchers and Three Receivers for Development of "O" field and "UU" & "V" Messla Field.

Compliance: ASME B16.5, ASME B16.9, ASME B16.34, ASME B16.47, ASME B31.3, ASME B31.4, ASME B31.8, ASME VIII
API 5L, API 6D, API 602, API 1104
ASTM Standards Part I
NACE – MR 0175

CPPE Libya

Supply of Three (3) Fully Assembled, Skid Mounted Automatic Manifolds (Equipped for tie-in of six, 6" Flow Lines), Messla GC-7

Client: Arabian Gulf Oil Company of Libya (AGOCO)
Year: 2015
Project Status: All equipment and materials are at plant site waiting for installation

Project Scope:
Engineering Design, Procurement of Material, Fabrication, Assembly, Testing, Painting, Packing and Supply of Three (3) Complete Automatic Manifolds in Accordance with Client's Technical Specification. The Supplied Automatic Manifold included Piping, Fittings, Flanges, Mating Flanges, Gaskets, Insulating Sets, Stud Bolts, Nuts, Valves, Check Valves, SVs, PDT, PDI, HS, I/P, HIC, ZSs, ZIs, SVs, Tis, TWs, PSHs, PSLs, PALs, PAHs, etc., including all Skid Mounted and Remote Panel Mounted Instruments and all required S.S. Tubing/Fittings, S.S. Instrument Valves, Tubing Trays, I.A. Lines and I.A. Header, Cables, Wires, Junction Boxes, etc.

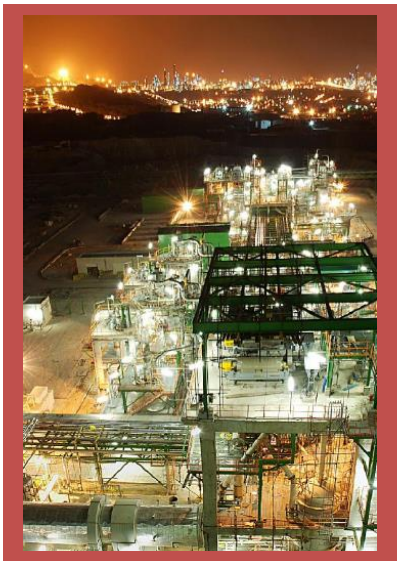
Compliance: API, ASME, ANSI, ASTM, ISA, IEEE, NEC, CSA, AISC, NACE, NFPA, SSPC, OSHA

In collaboration with RAMPCO Group, we have successfully designed and implemented projects of various sizes, budgets and degrees of complexity in different industrial sectors (refineries, petrochemicals, waste water treatment facilities, utilities and polymers supply chain).

Listed below are examples of a variety of recently completed projects in the past five years:

MEHR PETROCHEMICAL CO.

Project Name	HDPE
Capacity	300,000 T/Y
Location	Phase 2, Assaluyeh
Area	13.43 Hectare
Licensor	MQ (Mitsui, Japan)
Project duration	36 months
Starting Date of Erection:	Jan. 2007
Starting Date of Operation:	May. 2009
Excavation	73,853 m3
Steel Structure	3,408 Ton
Weight of Erected Equipment	2,956 Ton
Total Construction Man-Hour	4,500,000 Man-Hour
WID of Piping	270,OOOID



KAVIAN PETROCHEMICAL CO.

Project Name	11th Olefin Plant
Capacity	2 Million Tons Ethylene
Location	Phase D, Assaluyeh
Area	42.8 Hectare
Licensor	Technip
Rotary Equipment Installation	485 No.
Total Static Equipment Installation	518 No.
Installation Weight	74,500 Ton.
Total Man-Hour Work	9,300,000 H.

BUSHEHR PERTOCHEMICAL CO.

Project Name	Construction of BUPC Methanol Plant
Capacity	1,650,000 TIV
Location	Iran-Assaluyeh
Licensor	CASALE
Starting Date of Erection	2015
Starting Date of Operation	2017
Project Duration	20 months
Project Name	Construction of Bushehr CRFP Plant
Capacity	2447 MMSCFD
Starting date of Erection	2015
Starting date of operation	2017
Project duration	16 months

SARCHESHMEH SULPHURIC ACID PLANT

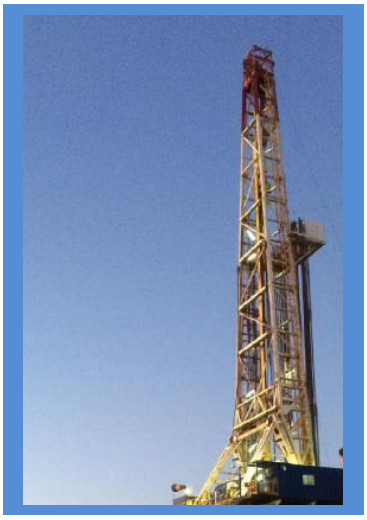
Client	National Iranian Copper Industries (NICICO)
EPC Contractor	RAMPCO/FAP
Licensor	Outotec Company, Germany
Location	Iran -Kerman
Type of acid plant	Metallurgical sulfuric acid plant
Capacity	3,100 TonS/Day
Purity of acid	98.50%
Main Process area	Wet Gas Cleaning System Sulfuric Acid Pproduction (double conversion & absorption) Effluent Treatment Plant

KERMAN TANK FARM

Project Name	Kerman Oil Depot EPC Project
Location	Iran-Kerman
Capacity	345,000 m3
Area	60 Hectare
Number of Mega Tanks	15
Project duration	36 months
Construction Start	Jun 2008 Apr. 2012
Operation Start	

AZAR OILFIELD

Project Subject	On shore drilling fluid and waste management
Client	PEDEC
Location	Iran - Ilam, Azar Oil Filed
Duration	2014 -2017
Note	This project is first drilling services contract as a new business line of RAMPCO in petroleum industries. We are responsible for material supply, engineering services and waste management Azar oil field.



Project Name	Siraf Gas Condensate Refinery
Location	Iran-Assaluyeh
The number of refineries	8 * 60,000 BPD refineries
Note	This project has been planned and supported by NIORDC and Investment by the private sector J.Vs

OMIDIYEH PUMP STATION

Client	PEDEC
Location	Iran -Ahvaz
Project duration	45 months
Starting date of Erection	May-2007
Starting date of operation	Mar-2011
Area of pump station	3.3 Hectare

CRUDE OIL PIPELINE

Client	National Iranian Oil Engineering & Construction Co. (NIOEQ
Location	Iran -Tabriz, Khoy, Urumia (Mountainous area)
Length of pipeline	324 Km. (14-, 12-, 8j
Capacity	70,000 BPD
Area of pump station	70,000 ITh
Facilities	2 Pump station, 2 Terminal
WID of piping	350,000ID

ETHYLENE PIPELINE

Client	Petrochemical Industries Development Management Co. (Pidmco)
Location	Khurrnoj -Mozafari
Length of pipeline	200 Km - Second Section
Product	Ethylene
Facilities	2 launcher and Receiver and 6 midway Station
Project duration	16 months
Starting date of Erection	Dec-07

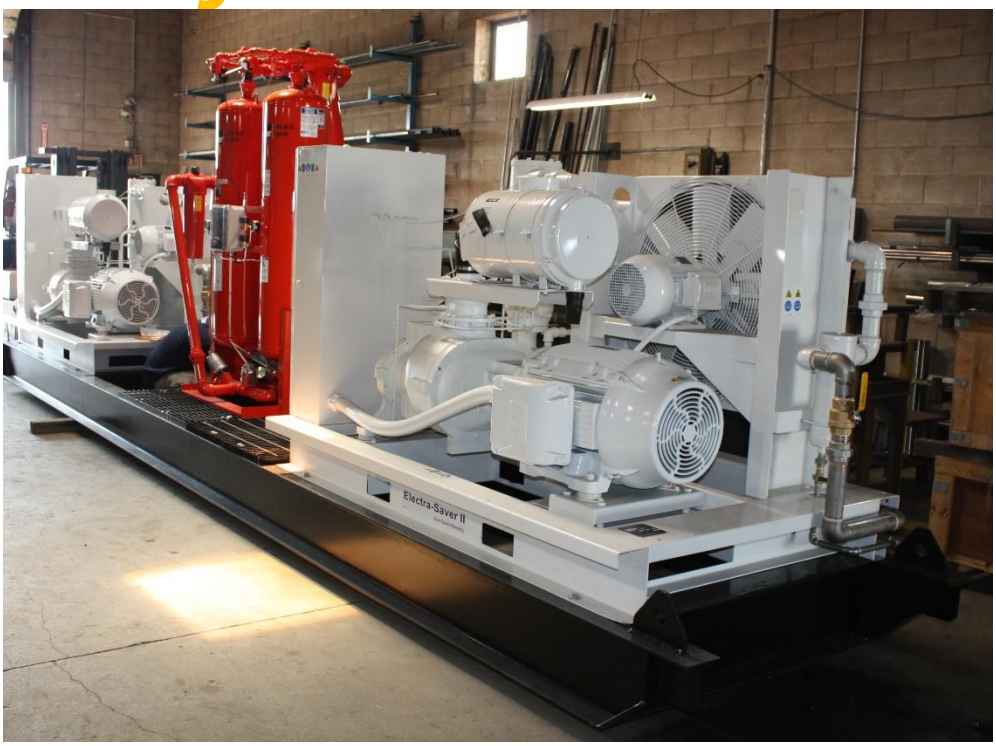
ABADAN MAHSHAHR PIPELINE

Client	National Iranian Oil Engineering & Construction Co. (NIOEq
Location	Iran -Abadan
Length of pipeline	300Km
Area of PumpS	4.5 Hectare
Facilities	1 Pump station, 2 Terminal
Project Suration	48 months
Starting Date of Erection	Mar-07

10- SAMPLE OF PRODUCTS

AUTMATION AND CONTROL

CHEMICAL INJECTION SKID



INSTRUMENT AIR PACKAGE

FISCAL METRING UNIT

DEGASSING BOOT

SCRAPER LAUNCHER AND RECEIVER

OIL AND GAS MANIFOLD

SEPARATOR

CERTIFICATIONS

PROFESSIONAL ENGINEERS ONTARIO: CERTIFICATE OF AUTHORIZATION

Professional Engineers
Ontario

Certificate of
Authorization

Standard

Canadian Petroleum Processing Equipment Inc.

is hereby granted the authorization to engage in the business of providing services that are within the practice of

Professional Engineering

in the Province of Ontario in accordance with the provisions of the Professional Engineers Act.

Given under the Corporate Seal of the Association at the City of Toronto this:

3rd day of August, 2011 - #100171736

David V. Adam P.Eng. P. Eng

President Registrar

Association of Professional Engineers of Ontario. This certificate is the property of the Association and must be surrendered on revocation, cancellation, suspension or expiry.