

# **Khaled Mughrabi**

## **SUMMARY OF EXPERIENCE**

Over forty years of professional work experience in LNG, GTL, Ethylene Cracker, petroleum refinery, petrochemical and enhanced oil recovery/gas injection project serving high-profile clients in the execution of large EPC and EPCM projects. Extensive PMC (Project management consultancy) on mega Projects to help Clients achieve their investment objectives from the definition to the completion and commissioning phase. Strong leadership, organizational and interpersonal communication skills used to manage and control large project teams in both a design office and construction environment.

### **PROJECT TYPES**

- Ethylene Cracker revamp and restart
- Liquid Processing Unit (GTL)
- Gas Treatment
- Oil Recovery/Gas Injection
- Petrochemical
- Liquefied Natural Gas (LNG) Refinery

### **ACTIVITIES**

- Deputy Project Director/Senior Engineering Manager
- Project Manager
- Senior Engineering Manager
- Site Engineering Manager
- Training Program Manager
- Project Engineer
- Chief Instrument Engineer
- Instrument Engineer
- Assistant Instrument Superintendent – Construction Refinery Chemist / Assistant Process Engineer

### **EDUCATION/TRAINING**

- American University in Cairo, B.S. Chemistry
- IIT Illinois Institute of Technology - Graduate School - Chemical Engineering

### **FOREIGN EXPERIENCE**

Australia  
Qatar  
United Arab Emirates  
United Kingdom  
Kuwait  
Iraq  
Algeria  
Japan  
South Korea

### **LANGUAGES**

Fluent in English, French and Arabic

## EMPLOYMENT HISTORY

Consultant	2017
KBR	1977 – 2016
Bechtel	1976 – 1977
Procon	1973 – 1976

- Indorama Ventures Olefins Plant

The Indorama Lake Charles Olefins Plant restart includes the refurbishing of the cracker plant and the utilities and offsite facilities. The cracker can process both ethane and propane feedstock to produce 370,000 m.t./year of ethylene and 30,000 m.t./year of propylene.

Project Manager Advisor to the Indorama Management team: Main responsibility is to assist in managing the refurbishing (revamp) activities thru planning, inspection, repair, testing, completions and readiness for startup.

- Gorgon Project, Barrow Island LNG Plant

Senior Project Manager Engineering– PMC (Project Management Consultants)

The Gorgon Project, Barrow Island LNG Plant is located off the north-west coast of Western Australia will comprise a three-train, 5 million tons per annum (Mtpa) per LNG train using APCI Liquefaction Technology. The Plant includes a 300TJ/d Domestic Gas (DOMGAS) processing and compression plant. The selected offshore supply configuration is to supply the feed gas for the 15 Mtpa facilities from the Gorgon and Jansz gas fields.

Primary responsibilities included:

- Assigned as Senior Engineering/Completion Manager as part of a Project Management Team
- Manage Engineering on the General Utilities Area and the Control Center Complex
- Liaison with site Construction Management Team to resolve technical issues
- Work with Commissioning and Completions on systems definitions and their completion
- Act as Technical authority on all Quality documents as delivered by the Contractors
- Responsible for defining and executing the technical requirements per Contract close out

- Pearl GTL Project, Qatar Shell GTL Limited, Liquid Processing Unit (LPU)

Deputy Project Director/Senior Engineering Manager- PMC (Project management consultants)

The LPU Package Engineering, Procurement and Construction (EPC) Lump Sum is executed by Toyo/Hyundai(THC) in Tokyo for basic design and major equipment procurement and Seoul Korea for detailed design and bulk procurement and Qatar for construction, completion and commissioning. The LPU Processing Units Scope comprises:

- Heavy Paraffin Conversion, HPC
- Synthetic Crude Distillation & Stabilization, SCD ( Naphtha, LPG & Kerosene- products)
- Light Detergent Feedstock, LDF (N-Paraffin, n-C10 to N- C13)
- Base Oil, BO Units (( Gas Oil & Base Oil 03, 04 & 05)
- Steam Methane Reformer (SMR) and Hydrogen Manufacturing Unit (HMU)
- Heat Transfer Fluid (HTF) System

Primary responsibilities included:

- Manage Engineering, Project Controls, Interface, Document Control and IM groups
- Liaison with Central Engineering Team, Operations / Maintenance and Construction.
- Monitor THC Engineering activities to ensure EPC Contract Compliance.
- Lead the Team Change Management Committee. Validate changes vs design development and coordinate technical evaluations of contract change orders and specifications deviations.
- Monitor THC QA/QC activities

- Kashagan Field Development; AGIP Kazakhstan North Operating Company

Engineering Manager: PMC Execution Contractor Management Team (ECMT), managing AgipKCO's Kashagan Development Experimental Program Onshore Plant Oil, Gas and Sulphur (OGS) Package. The OGS Package Engineering/Procurement Lump Sum Contract is executed by Petrofac International in Sharjah, UAE.

The Onshore Plant, located in Kazakhstan, is designed to process 450,000 BOPD of partially stabilized oil, 150,000 BOPD (14.8Msm3d) of gas and 3,800 Tons/day of Sulphur from offshore facilities in the Caspian Sea. The Oil Plant consists of three process trains comprised of Inlet Oil Separators, Dehydrators, Oil stabilizers, Naphtha Splitters, Oil De-mercaptanization Units and Flash gas Compression. The Gas Plant consists of two process trains comprised of Acid gas Removal Unit, Gas Dehydration, Turbo Expanders, De-ethanizers, LPG Fractionation, LPG Treatment Units and Sales Gas Compression. The Sulphur Plant consists of two process trains comprised of Sulphur Recovery Units and Tail Gas Units.

Primary responsibilities included:

- Manage ECMT Engineering group comprised of two Project Engineers, 11 Discipline Engineers and two Document Control Specialists.
- Support AgipKCO central Engineering Team, Operations and Maintenance in London.
- Monitor Petrofac Engineering activities to ensure EP Contract Compliance.
- Member of the Change Management Team Committee.
- Ensure all Technical Interfaces with other Contractors packages are resolved.

- Project RIO ( Restore Iraqi Oil);Baghdad Iraq

Senior Technical Manager: responsible for coordinating daily Engineering activities with the Ministry of Oil Senior Advisors including the Oil Minister and the Head of the Ministry engineering company and with the US Core of Engineers. Additional responsibilities included the planning and execution of a Technology transfer program. The project (RIO) scope of work is to restore Iraq oil production facilities to pre-war era. This included oil and gas production, refining, gas treatment (NGL, LPG), pipeline and associated power.

Engineering Manager: responsible for all the engineering work performed on Project RIO in all KBR execution centers. Engineering is being executed in Houston, Baghdad, Kirkuk and Kuwait offices.

- BP Oil Refinery de Castellon; Spain

Project Manager: responsible for developing Basic Engineering Design Package for an 8.5 KB/D Gasoline Desulphurization Unit (SCANFining II). Current fast-track clean fuels compliance projected awarded based on Castellon Diesel Desulphurization project performance.

- BP Oil Refinery de Castellon; Spain

Project Manager: responsible for developing Basic Engineering Design Package for a 29 KB/D Diesel Desulphurization Unit (MAKFining PDT) clean fuels compliance project. Technology package features proprietary ExxonMobil Research & Engineering reactor design and Akzo Nobel catalyst for next generation diesel fuel.

- BP Amoco/Sonatrach, Gas treatment plant; InAmenas, Algeria

Engineering Manager: responsible for the execution of a Front End Engineering Design (FEED) package in UK offices. The scope of this project, located in the InAmenas area, includes a gathering system, a gas treatment plant with a design capacity requirement of 19.9 million standard cubic meter per day (704 MMSCFD), utilities systems, production storage and three export pipelines.

- SONARCO; Rhourde El Baguel, Algeria

Enhanced Oil Recovery Project

Engineering Manager: responsible for Very Early Gas Injection (VEGI) project phase. The initial project phase included installing 10,000 HP of compression in produced gas re-injection service with a capacity of 105 MMSCFD. The scope of second project phase included a 65KM import gas pipeline, gas compression (114,000 HP) with a capacity of 850 MMSCFD, increased gas oil handling capacity and a 70,000 BOPD of oil stabilization.

Field Engineering Manager leading the engineering team responsible for coordinating, designing and resolving field engineering problems, supporting operations and maintenance of the existing facility, and coordinating all Algerian Regulatory Agencies' (DPP, CTC, ONML.... etc.) requirements.

- Sonatrach LNG-2 Renovation Project; Arzew, Algeria

On-site Training Manager training client's engineering, operations and maintenance personnel for the renovation of an existing six train LNG facility. The project included total conversion from pneumatic instrumentation to state-of-the-art DCS controls.

Execution strategy included critical hot cut over schemes, and sequential train shutdown / re-start.

- Texaco Chemical Co.; Port Neches, Texas

Propylene oxide/MTBE (PO/MTBE) facility

Propylene Oxide - 400 MM Lb/Yr

MTBE - 1,300 MM Lb/Yr (15,000 BPD)

Project Manager/Engineering Manager: responsible for home office design and procurement. During construction responsible for resolving all construction Contractor, client field engineering and materials issues on the project. Project scope included detailed engineering and procurement services. In addition to the process units the project included Utilities, Offsite. The utilities and offsite infrastructure segment scope comprised of water treatment, steam generation, storage tanks, spheres, and bullets, cooling tower, rail and truck shipping facilities, firewater system, ground flare, storm water and contaminated water systems.

- Shell Chemical Company; Geismar, Louisiana

Ethylene Oxide/Ethylene Glycol, EO/EG-3 project, capacity 396 MM lb/yr of EO equivalent products. Senior Project Engineer responsible for integrating project utilities and offsite expansion into existing complex. Project scope included all the front-end engineering to produce complete Detailed Specification Package. The utilities and offsite included water treatment systems, boilers, EO scrubbing and vent absorbers, storage tanks, cooling tower and railroad shipping facilities.

- Phillips Petroleum Company; Houston Chemical Complex

Senior Project Engineer responsible for 275 MM LB/yr. High Density Polyethylene (HDPE) plant (Plant VII) expansion engineering execution. Project scope comprised of process unit engineering and procurement.

- BP Oil Co.; Toledo, Ohio

Senior Project Engineer responsible for 45,000 BPD Platformer CCR unit refinery expansion. Project scope included engineering and procurement for the process unit.

- Phillips Petroleum Co.; Houston Chemical Complex

Senior Project Engineer responsible for Phillips' HDPE Plant VI total plant automation, including DCS & PLC control system, an advanced process control system and an operations management information system (OMIS).

### Control Systems/Instrument Project Engineer

Responsible for establishing general instrument engineering and design parameters and developing plans to achieve work assignments in accordance with established quality goals and within allotted time. Monitored quality and progress of work and coordinated technical information with other engineering disciplines and client. Project assignments have included:

- Shell Oil Company; Deer Park, Bis-phenol (BPA) plant  
Lead control systems/instrument project engineer responsible for developing control philosophy and project specifications.
- Shell Oil Company; Wyoming, Coal Liquefaction  
Lead control systems/instrument project engineer responsible for developing control philosophy and project specifications.
- Mobil Oil Corporation; Torrance refinery, FCC feed hydrotreater  
The FCC feed hydrotreater featured a TDC-3000 DCS and included the following process units:  
Hydrotreater unit (2 trains)  
Hydrogen unit  
Sulfur unit (2 trains) tail gas unit
- Aromatics complex, Pertamina; Plaju, Indonesia  
The aromatics complex featured a TDC-3000 DCS and included the following UOP process units:  
Naphtha Prefractionator and Hydrotreater  
Platformer and CCR  
Sulfolane  
Xylene Fractionation  
Parex, Isomar and Tatoray

The offsite portion included two high pressure steam boilers.

- 1,110 STPD ammonia complex, Sherritt Gordon; Alberta, Canada

Responsible for all facets of instrument engineering work required for instrumentation/control of ammonia plant using video-based instrument DCS. Project included large-scale hydrogen production and purification units.

### **Instrument Engineer**

Responsibilities included specification and selection of hardware in accordance with control philosophy and dynamics requirements. Defined control panel criteria in conformance with operational requirements and control philosophy. Projects included:

- One billion SCFD grassroots LNG-2 complex, Sonatrach; Arzew, Algeria. The complex included twenty-two boilers.

### **Prior Experience before KBR:**

Offsite Systems Engineer specializing in analytical design of piping, instrumentation systems, and equipment specification for aromatics complex infrastructure.

Instrument Construction Assistant Superintendent responsible for instrumentation related construction. (LNG-1, Algeria)

Refinery Process Engineer and laboratory shift supervisor in AMINOIL refinery (Kuwait).