CURRICULUM VITAE

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Name:	Claudio Passarella		
Designation:	Optimization, APC, OTS, Automation, Instrumentation, Functional Safety and Process Control Specialist, Consultant, Engineer, Manager.		
Nationality:	Italy and Venezuela	**Date of birth:**	May 24th, 1960
Education:	• Chemical Engineer (Jan-1984) Universidad Simón Bolívar. Caracas, Venezuela. (www.usb.ve) • Master Scientarium in Chemical Engineering (July 1989) (**Specialization**: Automation, Instrumentation, Optimization and Process Control) Universidad Simón Bolívar. Caracas, Venezuela. (www.usb.ve)		
Prof. Affiliation:	TÜV Rheinland SIS FS Engineer certified: 1125/08 2008		

CAREER SUMMARY:

I am a Chemical Engineer, with a Master degree (MSc) pointed to "Advanced Process Control" (APC), Industrial Automation, Instrumentation, and Process Control.

My main experience is in Oil and Gas industry is oriented toward Simulation, Instrumentation, Functional Safety and Process Control.

I have been involved in several projects, performing PMC/EPC, Company and Contractor roles.

My professional experience covers:

a) Project management experience on development of commercial and technical project specifications. Project budget and cash flow, cost and benefits estimations. Project scheduling, control, man effort estimation and control of project team management. Production planning and optimization. Commercial offers revision/evaluation. Preparation/Management of contracts for technical services. ITB Revision.

b) Experience applying international standards (ASTM, API, IEC, ASME, IEEE, ANSI, ISA, DIN, ISO, NACE, BS, Saudi Aramco, PDO, Shell DEPs, Total GSs).

c) Design, selection and verification of contractors, and vendor documents for control valves, instrument data sheets, control (DCS) and safeguarding (SIS) systems, and analysers.

d) Development of Control/Safeguarding narratives, integrated narratives, operation procedures, cause and effect tables, control logics, safeguarding protection logics, for hydrocracker reactors, compressors, pumps, air coolers, separators, etc.

e) Experience on Control and Instrumentation definition, design, installation, construction, commissioning, start-up and operation, oriented toward project Management/Control. Valve Partial Stroke test design, Valve asset management system, Regulatory/Basic Process Control, MIMO control, Compressor/Anti-Surge Control, Combustion control, Advanced/Complex Control loops, APC, Complex Control, Supefcumenervisory control, Regulatory/Basic Control, Constraint/Optimisation Control, Batch Control, Distillation control, Neural Networks, Sequential Control, Custody Transfer, Refinery Planning/Scheduling, Operator Training Simulator (OTS).

f) Application experience of the standard IEC 61508/61511: design of safety systems (SIS, IPS, ESD) and safety functions (SIFs, IPFs), "Safety Requirement Specifications" (SRS), SIL determination/verification, PFD/PFH calculations, Hazop, FMEA, FMECA, FMEDA, enphasis on diagnostics in safety design.

g) I have planned, leaded and been involved in many DCS/SIS FAT/SAT activities. Including own prepared procedures and simple simulators to test Control/Safeguarding logics in FAT sessions.

h) Checking instrumentation installation at the plant, against instrument hook-up drawing. Generate list of recommendations and required modifications/recalibrations to fulfil good engineering practices and project design specifications.

i) Strong Communication/Documentation/Writing skills and experience as project engineer and project leader. Strong analytical and solving problem skills combined with strong technical knowledge.

SKILLS:

1. Languages: English (100%), Italian (100%) and Spanish (100%, Mother language).
2. More than 30 years of experience in the Oil and Gas industry, working in several projects in the positions of Deputy Manager Instrumentation, Engineering Manager, Technical Specialist, Consultant, APC engineer, Instrument Advisor, Lead Engineer, Project Engineer; during the project phases: Studies, Definition, PMC, FEED/FEL, MAC, PAS, Basic & Detail engineering, Construction, Installation, Commissioning, Start-up and Operation.
3. Project management experience on development of commercial and technical project specifications. Project budget and cash flow, cost and benefits estimations. Project scheduling, control, man effort estimation and control of project team management. Production planning and optimization. Commercial offers revision/evaluation. Preparation/Management of contracts for technical services. ITB Revision.
4. Experience applying international standards (ASTM, API, IEC, ASME, IEEE, ANSI, ISA, DIN, ISO, NACE, BS, Saudi Aramco, PDO, Shell DEPs, Total GSs)
5. Process control, Field and Operation experience on design, checking out, commissioning and starting up of petrochemical plants like: Crude/Gas Flowlines, Compressor's stations, Gas Processing plants, Compression/Injection gas plant, Degassing, Gas Sweetening, Well Head Control Panels, Desalters, CDU, VDU, Coker, Merox, Amine, Sulfinol-X, Molecular Sieve plant, ISAL, UOP FCC, UOP HF Alkylation, Butamer, Reverse Butamer, Continuous Catalyst Regeneration Platforming (CCR Platforming), Catalytic Reforming (Platforming), Gasoline Blending, Tank Farm, BTX, Cumene, Phenol, Ethylene, Hydro Cracker Unit (HCU), Naphtha Hydrotreater unit (NHT), Sulphur Recovery plant (SRU), Multiproduct Pipeline, Crude Pipeline, Fuel Gas system, Steam and Power plants, and Utilities.
6. Development of Control/Safeguarding narratives, cause and effect tables, control logics, safeguarding protection logics, for hydrocracker reactors, compressors, pumps, air coolers, separators, etc.
7. Experience on Control and Instrumentation definition, design, installation, construction, commissioning, start-up and operation, oriented toward project Management/Control. Valve Partial Stroke test design, Valve asset management system, Regulatory/Basic Process Control, Multi Input Multi Output (MIMO) control, Compressor/Anti-Surge Control, Gas processing, Combustion control, APC, Complex Control, Supervisory control, Regulatory/Basic Control Constraint/Optimisation Control, Batch Control, Distillation control, Neural Networks, Sequential Logic, Custody Transfer, Refinery Planning/Scheduling, Operator Training Simulator (OTS).
8. Centrifugal Compressors' control experience on designing anti-surge control, compressors' trains load sharing, compressors' trains load control, consideration of process, mechanical and electrical constraints on compressors' control design, compressors' arrangement in series-parallel-combination, adaptation of control loops when side stream feed the compressor trains, compressors' control design oriented toward controlling inlet/outlet pressure and flow through the compressor machine.
9. Application experience of the standard IEC 61508/61511: design of safety systems (SIS, IPS, ESD) and safety functions (SIFs, IPFs), selection of components and instrument for safety loop, Low and High (Continuous) demand mode safety functions, "Safety Requirement Specifications" (SRS), SIL determination/verification, PFD/PFH calculations, Hazop, FMEA, FMECA, FMEDA, identification of advantages when diagnostics are used in the safety design, verification of valve partial stroke test SIL requirements, common cause failure considerations, impact SIL compliance of long maintenance time periods on unmanned installations, development of methodologies to keep/maintain design SIL rating certification, design of strategies for online monitoring of SIL rating degradation.
10. Integrated of Control/Safety designs.

11. Performance integration of control loops and operation modes.
12. Data application integration between analysers, Laboratory and Advanced/Complex control strategies.
13. Field experience on instrument installation checkout, supervisory, maintenance for instrumentation and control, including flow, level, pressure, temperature and process analyzers.
14. Experience on ICSS/DCS/FCS/PCS/SIS/ESD/PSD/IPS/PLC/SCADA/SW/HW/equipment and software products from companies like Honeywell, Invensys, Foxboro, Emerson, Yokogawa, ABB, UOP, Aspentech, Bonner & Moore, Siemens, Triconex, KBC, Varec, Rotork, Limitork, Fisher, Masoneilan, Mokveld, Daniel, Gensym (G2), SUN, Borland, Oracle, Informix, Sybase, Mathworks and Microsoft.
15. Experience on control systems like: Yokogawa, ABB, Foxboro [Schneider, Invensys], Honeywell, Delta V [Emerson] and Siemens.
16. Microsoft and Computer literate (Excel, Excel VBA, Word, Powerpoint, Visio, Outlook).
17. Intensive Field/test experience, intensive supervisory experience, instrumentation maintenance, Advanced/Regulatory control, DCSs (), PLCs, HIPS, HIPPS, APC engineer, Simulation, Blending operations/optimization, Oil Movement operations/optimization/data management, etc.
18. P&ID's (PEFS) Field Checking and engineering development. Checking, definition and configuring of DCSs/PLCs/ESDs/SISs/IPSs. Loop/Segment signal check (Wireless, HART or Fieldbus). HAZOP (Process Hazard Analysis), SIL determination/verification, 3D Model review. Check design engineering documents.
19. Wide experience on tuning controllers and complex control loops, by gathering data manually, using standard formulae, or Self/Auto-Tuning programs. Knowledge of several techniques to apply: including algorithms based on step change test, pulse change test, preset compensation, pattern recognition, discrete parameter estimation and model reference.
20. Knowledge and experience in commitment and practice use of procedures/tools for control area like: Dynamics Control Systems Identifications, Neural Networks, Controller Tuning, Statistic on Quality Control Analysis, Control Process Application development, Analyzers, Basic feedback control, Master-Slave, Feed forward, Ratio Control, Constrain Control and Sequence control configuration.
21. Generate list of recommendations, required modifications/recalibrations to fulfill good engineering practices and design specifications, during PI&D development, plant construction, as well as support for commissioning and start up.
22. Flow meters verification, calibration and recalibration. Flow compensation. Mass and Energy balances. Flow metering systems. Control/Relief valve calculations.
23. Generate all reports, drawings, memos, control descriptions, configuration details and development/revision of any other required documentation.
24. Wide experience working with in the IT area with Solaris OS, Unix scripts, C/C++ programming skills, SQL, program test protocol management, Software development processes, Software configuration and release management methodologies, Makefile scripting and automated build programs/scripts, Source code and revision control tools like CVS, Oracle, Sybase, MS Access, Informix, ability to solve problems and look for additional alternative solutions. FORTRAN, BASIC, Java, C, C++, Excel VBA, Javascript, HTML, CCS, Git, UNIX scripts, Object Oriented technology, Linear Programming, Sequential Simplex, MATLAB, Simulink, LOOKOUT and other numerical calculations/algorithms.
25. Strong Communication/Documentation/Writing skills and experience as project engineer and project leader. Strong analytical and solving problem skills combined with strong technical knowledge.

CAREER HISTORY OUTLINE:

CCJV – LPIC EPC1 SCU project (October 2018 to present)
(Liwa Plastics Industries Complex)
(https://cameronlng.com/join-the-clng-team/jobs-at-ccjv/)
(https://www.refiningandpetrochemicalsme.com/article-14883-cbi-jv-wins-26bn-contract-for-liwa-plastics)
Designation : Process Control Lead

Liutaio Consulting and Engineering Services (www.LiutaioCES.com)
(July 2017 to present day)
Designation : Director-CEO. Principal Specialist/Consultant.

PETROFAC INTERNATIONAL LTD (www.petrofac.com) **(April 2015 to July 2017)**
Designation : Manager Instrumentation and Process Control

NOTE: in the period January-2014 to July-2017, this designation and the below one apply for all below described experience. Designation was changed during on going working activities.

PETROFAC INTERNATIONAL LTD (www.petrofac.com) **(January 2014 to March 2015)**
Designation : Deputy Manager Instrumentation

PETROFAC INTERNATIONAL LTD. (www.petrofac.com) **(April 2010 - Dicember 2013)**
Designation : Technical Specialist – Instrumentation

HONEYWELL UOP (www.uop.com) **(November-2009 - April-2010)**
Designation : Instrument Advisor

REFICAR (www.reficar.com.co) **(January-August 2009)**
Designation : Engineering Manager

Balboa Refinery (www.refineriabalboa.es) **(June-2007 to December 2008)**
Designation : Automation, Instrument and Process Control Lead Engineer

UOP LLC (www.uop.com) **(Aug-2004 to May-2007)**
Designation : Instrument Advisor

UNIVERSITY COURSES **(Feb-2003 to July-2004)**
Designation : University Professor

NEGROVEN (www.negroven.com) **(Feb-2003 to July-2004)**
Designation : Project Engineer / Automation Specialist (Contractor)

PDVSA, S.A. (www.pdvsa.com) **(Jan-1995 to Dec-2003)**
Designation : Lead Project Engineer

CORPOVEN, S.A. (www.pdvsa.com) **(Apr-1990 to Jan-1995)**
PDVSA, S.A. (www.pdvsa.com) since January 1995
Designation : Unit Supervisor and Project Engineer

CORPOVEN, S.A. (www.pdvsa.com) **(Oct-1986 to Apr-1990)**
PDVSA, S.A. (www.pdvsa.com) since January 1995
Designation : "Advanced Process Control" (APC) Engineer

CAREER HISTORY:

CCJV – LPIC EPC-1 SCU project (October 2018 to present day)
(Liwa Plastics Industries Complex)
(https://cameronlng.com/join-the-clng-team/jobs-at-ccjv/**)**
(https://www.refiningandpetrochemicalsme.com/article-14883-cbi-jv-wins-26bn-contract-for-liwa-plastics**)**

Designation : Process Control Lead

Responsibilities SUMMARY:

a) Involvement in FAT/SAT activities for DCS and SIS.
b) Review and update "Process Control Narratives" and "Plant Interlocks" documentation.
c) Calculate man-hours and prepare Schedule for "Functional Tests" (Sequence logics, Special calculations, Complex control and Safety loops).
d) Execute and monitor "Functional Test" schedule activities, integrated with other commissioning team activities.
e) To address and solve DCS/SIS commissioning and Client queries and requirements.
f) Involvement in supporting, improving and guaranteeing LPIC EPC-1 smooth start-up and stable operation.

$2.6bn project contract. Capacity: 859 KTA Ethylene plant About 30,000 HW Inputs/Outputs.	Client: Orpic https://www.orpic.om/about-us/our-company Sultanate of Oman, Sohar.

The EPC-1 Steam Cracker with Off-Site Works and Utility Packages scope of work includes:

- NGL Treating and Fractionation Unit (NGLT)
- Refinery Dry Gas Treating Unit (RDG)
- Steam Cracker Unit (SCU)
- Heater Feed & Cracking Heaters
- Main Fractionation Section
- Charge Gas Compression & Acid Gas Removal
- Chilling & Demethanizer
- Recovery & Purification Section
- Propylene Refrigeration System
- Binary Refrigeration System
- Selective C4 Hydrogenation Unit (SLC4HY)
- Pygas Hydrotreating Unit (PGHYD)
- MTBE & Butene-1 Recovery Units (MTBE/BUT-1)
- The LPIC EPC1 SCU Project also includes following OSBL facilities:
- Utility systems
- Storage and Offsite facilities

LPIC EPC1 SCU includes integration with the existing Sohar Refinery (SR).

LIUTAIO CONSULTING AND ENGINEERING SERVICES (www.LiutaioCES.com)
(August 2017 to present day)

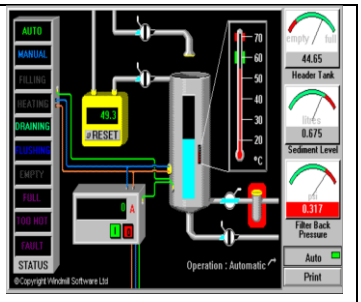
Designation : Director-CEO. Principal Specialist/Consultant.

After more than 30 years of achieving successful projects in the Oil and Gas industry, involved in the Control and Safeguarding Systems´ design, review, Factory Acceptance Test (FAT), Site Acceptance Test (SAT), construction/installation, commissioning and startup, MSc. Claudio Passarella started **LIUTAIO** to provide Consulting and Engineering Services in the areas of "Process Control", Instrumentation, Simulation and "Functional Safety".

Vision	Mission
To be Leader providing Quality, Value-Added, Innovative Consulting and Engineering services in the areas of "Simulation", "Process Control", "Instrumentation", and "Functional Safety".	To provide simple but structured solutions and quality services to our customer, looking for improving operation stability and safety, to keep, recover or increase profit.

Process Control

PMC, FEED, Pre-FEED, Design, FAT/SAT commissioning and starting up of "Process Control" solutions for petrochemical plants like: Crude/Gas Flowlines, Compressor's stations, Gas Processing plants, Compression gas plant, Well Head Control Panels, CDU, VDU, Coker, Merox, Amine, Sulfinol-X, ISAL, UOP FCC, UOP HF Alkylation, (Reverse) Butamer, CCR Platforming, Platforming, Gasoline Blending, Tank Farm, BTX, Cumene, Phenol, Ethylene, Hydro Cracker (HCU), Naphtha Hydrotreater (NHT), Sulphur Recovery plant (SRU), Fuel Gas system, Steam/Boilers and Power plants, and Utilities.

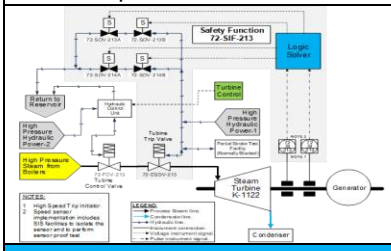


Instrumentation

Check instrumentation installation at the plant. Generate list of recommendations and required modifications/recalibrations to fulfill good engineering practices. Flow meters verification and recalibration. Instruments, calculation and control loop configuration check at plant DCS (HART, segment check for FieldBus). Control loop tuning. Control loop troubleshooting. Flow compensation and Custody transfer.

Simulation

Development/Review of specification for simulation studies, and simulation cases. Development/Review of Operator Training Simulator (OTS) specifications. Review/Verify that plant model complies with design and mass/heat balance



Functional Safety

Hazop, SIL Determination, SIL Verification, FMEDA assessment, "Safety Requirements Specificaions" (SRS). Design, test, verification, commissioning and startup of Safety sequence, Safeguarding systems (SIS / IPS), Safety Instrumented Functions (SIF / IPF). Integrated design of Control and Safeguading systems. Facilities for "Proof Testing", Full/Partial Valve stroke test.

Review our website for further information: www.LiutaioCES.com

PETROFAC INTERNATIONAL LTD (www.petrofac.com) **(April 2015 to July 2017)**
Designation : Manager Instrumentation and Process Control

NOTE: in the period January-2014 to July-2017, this designation and the below one apply for all below described experience. Designation was changed during on going working activities.

PETROFAC INTERNATIONAL LTD (www.petrofac.com) **(January 2014 to March 2015)**
Designation : Deputy Manager Instrumentation

Responsibilities SUMMARY of the above positions were:
Process Control: Review Client's and Process design's requirements to provide the most simple and suitable Advanced process control design solutions to improve and guarantee the plant stable operation. Control Narrative development. Safeguarding Narrative review. Integration between Control and Safeguarding. FAT/SAT.
Instrumentation: Review and verify according to the process design: proper selection and installation details of instruments, I/O list, P&IDs instrument review, Instrument Loop Diagrams, Instrument data Sheets, BOM, flow compensation, etc.

Project	Description / Scope	
1	**Rabaab Harweel Integration project (RHIP).** June 2014 – July 2017	Client: Petroleum Development Oman (PDO). Muscat, Oman.

After development and start-up of the Harweel field, PDO plans to develop the Rabaab field, and integrate production of both fields. The development includes sour gas processing and compression facilities to process fluids produced from Rabab, excess sour gas from Harweel, gas injection, and production of clean gas and condensate.

Scope of this work was:

- Process design review.
- Structured Process Control and Safeguarding design.
- Analysis of how to implement designed Process Control and Safeguarding.
- Development and testing of "Typical control loops".
- Verify proper integration between control and safety designs.
- Development of "Process Control Narratives".
- Verify inter-plants process control integration.
- Development of "Multivariable Process Dynamic Simulation" (MPDS), "Operator Training Simulation" (OTS), "Web Based Training Simulation" (ETS) specifications.
- Dynamic simulation study review.
- Plant design drawings review from "Process Control" point of view.
- Process automation system review, and FAT participation.
- Process and Automation design philosophy review.
- Operator Training Simulator (OTS) review, and FAT participation.
- Model Process Dynamic Simulation (MPDS) review, and FAT participation.
- WEB based Training Simulator (ETS) review, and FAT participation.

List of plants in the project:
Gas production well, gas injection wells, Overall plant pressure control, Separators, Test Separator, Gas Degassing unit, Gas Dehydration unit, Gas compression, Gas Injection compressors, Acid Gas compressors, Sulfinol-X, Molecular Sieve unit, Mercury removal unit, Dewpointing unit, Water treatment plant, and Utilities.

The Water treatment plants included:

- Raw water system and distribution to Fire Water system.
- Filtered water system.
- Reverse Osmosis and Deaereation column system
- Pre-Treated water tanks and Mixed beds system.
- Demineralized (DM) and (HRSG) water system
- Potable water system.

ACHIEVEMENTS:
After applying mother methodology and structured design, the CLIENT expectation was improved as follow:

1) 7 months instead of 1 year to execute FAT of Safety and Control system from previous experiences with same project size.
2) Faster familiarization of Operation personnel. Once an Operator learns a Safety/Control structure, it was possible to apply the same operation knowledge on the same kind of equipment/control loops everywhere in the plant.
3) Seamless testing activity, honouring all Process Control and Safeguarding requirements.

2	**Sulphur Recovery plant.** January-December 2015	Application of standard IEC 61508/61511
	Specific Safeguarding activities were: • Development of two(2) Petrofac documents for HIPPS project development and HIPPS project specifications. • SIL assessments and verifications were done for HIPPS in several projects. • SIL verification procedure was applied to verify if several components of safety functions satisfy the specified SIL rating reported by VENDORs.	
3	**Sulphur Recovery plant.** January-May 2014	Client: Qatar Petroleum (QP). Mesaieed, Qatar.
	The existing two stages Claus Sulphur Recovery Unit (SRU) at NGL3 in Mesaieed is currently operating at significantly lower recovery efficiency, and its design does not meet the State Environmental Regulations. The main objective of Sulphur Recovery Upgrade Project is to upgrade the existing facilities for 99.5% sulphur recovery and comply with the upcoming State Environmental Regulations. The existing SRU capacity of 285 tons per day (TPD) shall be upgraded to 308 TPD. Scope of this work at site was: • Plant Commissioning and start-up. • Review and resolution of commissioning and start-up problems. • Review and solve configuration problems and design misunderstanding in control loops. • Tune controllers. • Re-design of the Incinerator control loops. • Tune complex control loops like: Sulphur reactor furnace conversion control, Trim control with analyser feedback and combustion control. • Flow compensation with pressure and temperature. • Console Operator training.	

PETROFAC INTERNATIONAL LTD. (April 2010 to December 2013)

Current Designation : Technical Specialist – Instrumentation

January-December 2013 (ICSS team):

The ICSS team was created as a new business strategy to use the better PETROFAC expertise for reviewing and improving projects and proposal activities. The ICSS team executes the following activities:

a) Review and improve ICSS design and project execution strategy (Control, Safety, Fire & Gas).
b) Develop Complex Control Loops Narrative.
c) Justify, apply, design and develop Advanced Process Control (APC).
d) Define and supervise ICSS interface with Vendors.
e) Review and Improve ICSS typical application: AMS, AlmMS, HIPS, OTS, Networking, etc.
f) Review and improve ICSS infrastructure: Panel layouts, Control Room layout, Load/Head consumption/dissipation, etc.

Project	Description / Scope	
1	**Bab Habshan-1 project.** October-December 2013	Client: Abu Dhabi Company for Onshore Oil Operations (ADCO). Bab, Abu Dhabi, UAE.
	The project has an anticipated duration of 20 months and includes the provision of water injection clusters, oil production wells, water injection wells, associated electrical and instrumentation facilities, pipelines (headers and flow lines), overhead power transmission lines and modifications at remote degassing stations. Scope of this project was: to define the scope of work to execute relocation of several Scada systems to facilitate project execution.	

Project	Description / Scope	
2	**North East Bab (NEB) development.** (Proposal) June 2013	Client: Abu Dhabi Company for Onshore Oil Operations (ADCO). Bab, Abu Dhabi, UAE.
	ADCO intends to proceed with phase III of the North East Bab (NEB) development as part of ADCO's program to add an additional 400 Mbd sustainable capacity. New processing facilities will be required to handle the additional oil, gas and water production from Al Dabbiya and Rumaitha field, located approximately 50km south west from Abu Dhabi. Water and gas injection facilities will also be required to provide pressure support and enhanced oil recovery. TECHNIP Project scope covers the Front End Engineering Design (FEED) of optimum surface facilities for the NEB Phase III Development Project to handle an additional production of 39 MBOPD Rumaitha and Shanayel fields by 2016. Package-01 (firm scope): FEED for Rumaitha / Shanayel Phase III Development considering the scenario of Hydrocarbon (HC) Water Alternating Gas (WAG) for the Enhanced Oil Recovery (EOR) Scope of this project proposal was: review of the HIPPS specification document.	
3	**Jazan Integrated Gasification Combined Cycle (IGCC) KSA.** (Proposal) July 2013	Client: Saudi Aramco Jazan Industrial area, KSA.
	Saudi Aramco is currently developing a large world-scale electric Power plant adjacent to the 400,000 BPSD grassroots Jazan Refinery & Terminal Project being developed in the Jazan Economic City (JEC) at the south-western region of Saudi Arabia. The Power plant will be based on Integrated Gasification Combined Cycle (IGCC) technology and will not only serve the refinery power needs, but also export a large amount of power to the national grid to meet the growing national demand for electric power. This Jazan IGCC project (JIGCC) will be integrated with the Refinery such that the overall scope is optimized. Synergies include, but are not limited to, combined seawater intake, power generation, steam generation, potable water, hydrogen etc. from the IGCC to the Refinery. The primary feedstock to the power plant will be the vacuum residue (VR) produced in the Refinery plus imported high sulfur fuel oil (HSFO). The design feed capacity of the IGCC is expected to be about 110MBD of VR and/or HSFO and will export a minimum of 2.4GW of net power to the grid. Scope of this project proposal were: a) Review of the Integrated Information System (IIS) specification and integration of this system with the Refinery ICSS. b) Review of ICSS and Compressor control system specifications. • Operation Planning and Scheduling. • Capability assessment and Decision support. • Maintenance Planning and Scheduling. • Maintenance execution, work order management and support. • Online Fault Modelling. • HSE Management system.	

Project	Description / Scope	
4	**Upper Zakum, UZ750 Project - Island Surface Facilities.** June to December 2013	Client: Zakum Development Company (ZADCO) Abu Dhabi, UAE.
	Lump Sum Turnkey (LSTK) Engineering, Procurement, Construction and Commissioning (EPCC) works for installation of the islands surface facilities for the Production Build-Up (PBU) Phase that will achieve target oil production of 750,000 BOPD. The project includes implementation of modularization strategy to maximize the scope of work performed in fabrication yards and minimize the work on the islands. The work is spread over on the four artificial islands which are approximately 80 kms in the sea from Abu Dhabi. Project comprises of the following major facilities: Well heads, Gas Lift Manifolds, Gas Injection Manifolds, Water Injection Manifolds and Produced Water Treatment. Scope of work was: prepare specification for "Advanced Process control (APC)" and integration with I-Field. APC objective were: • Production wellhead supervisory and regulatory control. • Gas lift / Gas injection supervisory and regulatory control. • Water injection supervisory and regulatory control. • Oil / Slug supervisory and regulatory control. • Control loop performance monitoring. • Downhole Monitoring	
5	**Integrated Petrochemical Complex and Infrastructure (IPCI) project.** (Proposal) March 2013	Client: Kasakhstan Petrochemical Industries Kasakhstan
	Client desires to develop, a petrochemical project at Karabatan in Kazakhstan using gas feedstock from the Tengiz field to produce 500KTA of polypropylene products. This plant will comprise: 1- A propane dehydrogenation (PDH) unit 2- A polypropylene (PP) unit 3- Related Utilities and Offsites 4- Certain infrastructure facilities 5- An interconnecting pipeline for the transportation of propane feedstock from the TCO Facilities to the PDH/PP facility at Karabatan. • The main contractor is SINOPEC and the finance is Chinese. • The Work being tendered is for the Utilities and Offsites and certain infrastructure facilities which have been split into 8 packages. Scope of this project proposal was: Review of ICSS specifications.	
6	**Sohar Refinery Expansion project** (Proposal) March 2013	Client: Oman Refineries and Petrochemical companies. Sohar Industrial area, Oman
	Revision of specification for Pneumatic Valve Partial Stroke test.	
7	**Miran project** February 2013	Client: Genel Energy International Ltd Iraq
	Development of the gas fields in the Miran Block of Sulaymaniah in the Kurdistan region of Iraq. The project is intended to be implemented in phases. Phase I will consist of gas processing trains having sales gas volumes of up to 4 BCMA with associated support units and utilities.	

Project	Description / Scope	
8	**Akkas Gas Plant** (Proposal) January-February 2013	Client: KOGAS Iraq
	The Akkas Field is located in the North West of Iraq, in the Al Anbar province close to the Syrian border. The development includes as minimum: • FCP(2015) - A programme to achieve First Commercial Production (FCP) at a net dry gas production rate equal to 25% of the Plateau Production Target (PPT), as soon as possible, but no later than 3 years from approval of the PDP. • PPT(2017) - A programme for construction of processing plant and related facilities and installations within the Akkas Contract Area, to achieve a target rate of 400 MMSCFD, for a period of 13 years, including the extraction of Natural Gas Liquids (NGLs), no later than 6 years from the date upon which the GDPSC becomes effective. • A flowline gathering network to collect production from a number of discrete Well Pads and Gathering Hubs positioned across the contract area and deliver this to the Central Processing Facility (CPF). • The CPF to treat the produced fluids and produce on-specification products. • A system of export pipelines to transport the Dry Gas, Liquefied Petroleum Gas (LPG) and Condensate products to the delivery destination.	
9	**Timimoun gas fields** (Proposal) January 2013	Client: TIMIMOUN (SONATRACH 51%, TOTAL 37.75%, and CEPSA 11.25%) Algeria
	Timimoun field has an extension of 13250 km^2. It is located at Algeria's South West, 120 km to the West from In Salah gas fields and at 100 km east from the route that links Timimoun to Tiberrhamine and Oufrane palm groves and to Sbaa and Adrar village. The entire field is located in a desert area. The development will include a 5 MSm^3/d (raw gas) gas processing treatment plant located in the CPF (Central Processing Facility). A dew point unit will be included in order to reach the gas export specifications. Treated gas will be exported through a 24'' pipeline up to a tie-in point to a new pipeline to be installed by Sonatrach as part of other project.	
10	**LPG Revamp project** October-December 2012	Client: Crescent Petroleum Dana gas Kurdistan, Iraq
	Project Overview: construction of a LPG & NGL storage & unloading terminal, located in Chemchemal, Iraq. The terminal will be utilized for the storage and distribution of LPG & Natural Gas Liquids in the Iraq surroundings. The terminal will have 14 bullets and 1 NGL storage tank. Scope of work was: to develop the Instrument Cost Estimation. It included: a) Demolition of instruments and related cables. b) Design and sizing of a new automation room. c) Installation of new ICSS. d) Cost estimate.	

Project	Description / Scope	
11	**DO Terminal Hejre Crude Stabilisation Project** (Proposal) July-October 2012	Client: Dong Energy Fredericia, Denmark CAPACITY: 360000 M3 Propane, 360000 M3 Butane.
	Project Overview: The Project comprises a new crude stabilisation plant in DONG Oil Pipe"s existing crude oil terminal adjacent to and operated by the Shell Refinery. The Work comprises EPC of a new loading arm for LPG, at the Shell Oil Terminal loading and unloading station at jetty 2, two(2) processing trains, desulphurisation unit, LPG storage and utilities. Scope of this project proposal was: to develop the Instrument Cost Estimation. It included: a) Demolition of instruments and related cables. b) Design and sizing of a new automation room. c) Design and sizing of a new ICSS for the new plant and for a new loading arm in the Jetty area. d) Replace old ICSS by the new one. e) Schedule and strategy for re-using of instruments and equipment in the existing plant. f) Development of the instruments and ICSS installation strategy to allow the existing plant to operate for about 18 months, parallel to new plant construction, until total plant shutdown where the new plant and ICSS will be commissioned and started up. g) Interface of the new ICSS with Shell control room, and remote terminal at Nybro location (about 65 km from the new plant).	
12	**Pre-FEED to prepare project documentation.** May-September 2012	Client: PETRONAS Carigali Iraq B.V. (PCIHBV) Iraq CAPACITY: 50,000 BOPD Train No.3
	Project Overview: Garraf Final Fields Development Study, PETRONAS Carigali Iraq B.V. Under the Train 3 Project the Mishrif Crude Storage Facilities and Export Facilities shall be expanded to allow the export of the increased crude production through the new 11 km x 18" export pipeline developed and installed under the FCP project by others. Associated gas evolved at Train 3 shall be used as fuel gas for Train 3 and the future Produced water injection system, the remaining shall be exported to the GPP which shall be installed 1Q 2014 by others. "Train 3" which will be operated in parallel with Trains 1 & 2 developed and installed under the FCP project by others. CAPACITY: 50 BPod of Crude, Gas and LPG. Scope of this Pre-FEED was: Develop instrument specifications and drawings, indicating special consideration for developing a Train No.3, integrated with the existing trains 1 and 2. The following documents were prepared: a) Integrated Control & Safety System Architecture b) Process Control (DCS) System Architecture c) SIS System Architecture d) Custody Metering System Architecture e) Fire & Gas System Architecture f) Cause and Effect Matrix g) Datasheet Library for ESDVs h) Datasheet Library for Motor Operated Valves i) Datasheet Library for Control Valves j) Datasheet Library for Relief Valves k) Datasheet Library for Field Instruments l) Datasheet Library for Fire & Gas Detectors m) Instrument Index n) Control and Safeguarding Design Philosophy o) Specification for Tank Gauging System p) General Instrument Specification q) Specification for DCS System r) Specification for SIS System s) Specification for Fire and Gas System	

Project	Description / Scope	
	t) Specification for Custody Transfer Metering for Crude Product u) Specification for Pipeline Leak Detection System v) Specification for Electro-Hydraulic Wellhead Control Panel.	
13	**"Advanced Process Control" (APC) project.** (Proposal) March 2012	Client: STAR refinery Turkey CAPACITY: 214,000 bbl/sd (10 Mio t/yr).
	Project Overview: Garraf New grassroots oil refining Facility, to be located adjacent to the PETKIN Petrochemical Complex at Aliaga close to Izmir, in the Aegean region of Turkey. The Facility will process mainly medium gravity and sour/sweet grade crude oils from, like: Azeri Light, Kirkuk and Urals; via deep sea port harbor facilities. The Facility will provide LPG, Light Naphtha, Aromatic Naphtha, Toluene, Mix Xylene to PETKIN Petrochemical Complex, as well as Jet A-1 Kerosene, Euro V Diesel, Petroleum Coke and Sulphur. There is no gasoline and fuel oil production. Scope of this technical proposal was: To develop the integrated implementation of APC, Business management, Maintenance, Information Management Model update strategy, by following a typical Refinery Business Model; looking for getting the continuous maximum profit from the refinery installation, by aligning operation targets in all plants with the business targets, with the minimum possible maintenance cost. The most common technology for applying APC is the Model Predictive Control (MPC) technology. The APC technology based on MPC was proposed to be used CDU/VDU, DHT, NHT, KHT, HCU, CCR, DCU and SRU/TGTU process plants. And APC technology, NOT based on MPC shall be developed in the process plants: CCR (Regeneration section), DCU (Decoking operation) and for Steam and Power generation.	
14	**Study of potential optimisation options for the Garraf Field Development.** February-May 2012	Client: PETRONAS Carigali Iraq B.V. (PCIHBV) Iraq CAPACITY: 230 BPod of Crude, Gas and LPG
	Project Overview: Garraf Final Fields Development Study, PETRONAS Carigali Iraq B.V. The objective of the conceptual study was to determine and design optimum facilities for Garraf Final Field Development to accommodate production 230 kbopd and facilities to process associated gas. Two (2) proven formation in Garraf were considered for development, namely Mishrif and Yamama. The project scope was: 1) Optimisation and de-bottlenecking for existing design Conceptual Study for Garraf Final Field Development (two(2) production trains of 50 Kbpod, Gas processing plant 1 of 60MMscfd, water reinjection, single and cluster wells, utilities) 2) Pre-FEED for Train 3 3) Pre-FEED for Gas Plant Phase 2 Scope of this technical study was: Plant design review, optimization analysis and debottlenecking. Reviewed areas were: a) Review of the Overall Control System architecture. b) Instrument Interface plan and Work scope. c) Review of the Control loops and Instrumentation. d) Review of the Cause and Effect Matrix.	

Project	Description / Scope	
15	**Reducing Gas Generator.** (Peer Review) June-2011	Client: Qatar Petroleum (QP) Qatar
	Project Overview: Gas Sweetening Facilities PROJECT at Mesaieed and Dukhan. The existing two stages Claus Sulphur Recovery Unit (SRU) at NGL3 in Mesaieed treats acid gas from existing two AGRU trains which sweeten NFA sour gas and Al Shaheen gas prior to NGL extraction. The SRU is currently operating at significantly lower recovery efficiency than its design and does not meet the State Environmental Regulations. The main objective of Sulphur Recovery Upgrade Project is to upgrade the existing facilities for 99.5% sulphur recovery and comply with the upcoming State Environmental Regulations. The upgrade project shall also process the Acid Gas streams from existing NGL 1/2/4 ADIP units and Vent Gas from NGL-2 Glycol Unit. The existing SRU capacity of 285 tons per day (TPD) shall be upgraded to 308 TPD. Scope of this technical audit was: to review the design strategy of the Burner Management System (BMS) logic and control loops for the Reduced Gas Generator (RGG).	
16	**Early Production Facilities** (Peer Review) May-Jul-2011	Client: Shell Majnoon, Southern Iraq
	Project Overview: The Shell Iraq project included Engineering, Procurement, Fabrication, Construction Management, Operations a Maintenance of Early Production Systems (EPS) and Brown Field Facilities at Majnoon Field in Southern Iraq. The Majnoon field is located in the south east of Iraq, 60 km northwest of Basrah city. The field comprises multiple stacked early Cretaceous limestone and sandstone reservoirs. In order of depth they are the Hartha, Mishrif, Narh Urm, Zubair and Yamama. The total estimated volume of oil in place is approximately 38 Billion barrels. Hartha, Narh Urm and Zubair are low-pressure sweet reservoirs. Mishrif is low pressure and sour with some 0.1 mol % of H2S, while Yamama is high pressure and more sour with some 0.2 mol % of H2S. The approach to achieve First Commercial Production (FCP) in Majnoon is to install a new Central Processing Facility (CPF) to handle the additional capacity required. Expectations are that some 15-16 additional producer wells may be required to reach FCP. The scope is to build 2 x 50 Kbpd oil trains (New facilities) at Majnoon oil Field in Southern Iraq. New facilities include 3 Well Pads (MJE20, MJE22 and MJE24) and Central Processing Facilities (CPF). The 3 well pads are linked into common Production and Test headers.. Scope of this technical audit was: a) To review the Specifications and Design of the "Well Head Control Panel" (WHCP) and the "Multi Phase Flow Meter" (MPFM). b) To review the "Control Narratives DS1 & DS2" document, as well as the control loop design and specifications.	
17	**Galkynysh gas field processing facility** (Documents Review) February-2011	Client: Turmengas Mary Welayaty,Turmennistan
	Project Overview: installation of facilities to produce 20 BCMA of sales gas from approximately 40 production wells. The gas will be treated in a Central Processing Facility capacity 10 BCMA being developed by Petrofac (CPF-1). A parallel 10 BCMA processing facility is being developed by others (CPF-1A). Sales gas will be co-mingled, metered and exported via a common export pipeline. Scope of this revision was to review the following documents: a) 00-IN-SPC-0014_D1 Field Instruments Rev D1_08.07.10 b) 00-IN-SPC-0026_D1 Instrument Requirements for Packaged Equipment 08.07.10 c) 00-IN-SPC-0028_D1 Multi Phase Flow Meter specification 08.07.10	

Project	Description / Scope	
18	**Shetland gas plant project (LAGGAN TORMORE).** January-2011, April-2012	Client: TOTAL E&P UK Shetland Island, UK CAPACITY: 500 MMSCFD
	Project Overview: Construction of reception, processing and gas export facilities at the Sullom Voe area, in the Shetland island, UK. The Sullon Voe Gas Processing plant (SGP) will receive gas from Laggan and Tormore gas condensate discoveries. Laggan is located at 126 Km from Sullom Voe terminal. Tormore is located at 16km south west of Laggan. Export gas is sent via a 234km 30 inches pipeline south of the island to a tie-in point to connect to the Frigg UK Association (FUKA) 32 inches gas pipeline. From there the Laggan-Tormore gas would be transported via the FUKA Pipeline to the existing TOTAL E&P UK operated onshore gas processing plant at St Fergus, UK. Scope of this project detail engineering was: Control loop and instrument design for: a) Compressor Trains Cold/Hot gas recirculation control scheme. b) Slugcatchers level and operation constrains control scheme. c) Heating Medium system: pressure, temperature, load allocation and temperature load shedding control schemes. d) Control scheme for controllers with 2 control valves (Same or different valve sizes). e) Override control loops. f) Automatic/Semi-automatic Import/Export Fuel gas control scheme. g) HIPS design. h) SDV/ESDV/BDV control panel design, with SOV testing facilities.	
19	**El Merk project** (Peer Review) January-2011	Client: Groupment Berkine/Sonatrach Anadarko Association Algeria CAPACITY: Crude 98,307 STBPD, Condensate 28,825 STBPD and LPG 31,079 STBPD
	Project Overview: Oil and gas-condensate from the various fields is gathered through flowlines to Field Gathering Stations (FGSs) and from there, through production trunklines, to the Central Process Facility (CPF) where oil, condensate and LPG are produced, stored and exported. The CPF will include two oil/condensate treatment trains and a single NGL recovery train plus gas injection, produced water treatment and low pressure export for water injection, oil, condensate and LPG storage and export systems and all the required utility systems. Scope of this technical audit was: to verify if the RGC and IGC Supplier design (GE Nuovo Pignone) fulfilled all PETROFAC requirements for these compressors according to the PETROFAC's "Cause & Effect" design.	

Project	Description / Scope	
20	**North LPG Tank Farm** (Proposal) September-2010 to January-2011	Client: KNPC Kuwait CAPACITY: 360000 M3 Propane, 360000 M3 Butane.
	Project Overview: A new North LPG Tank Farm and associated facilities is to be provided at Mina Al-Ahmadi Refinery (MAA) to store LPG products arising from the existing Gas Trains 1, 2 and 3 and the planned new Gas Trains 4 and 5. The Tank Farm is to be built on the site of the existing north tank farm which is to be demolished. The Project includes the provision of additional export facilities to increase the capacity of the existing ships loading systems. Scope of this project proposal was: to develop the Instrument Cost Estimation. It included: a) Demolition of some tanks, civil structures and removal of cable in the project area. b) Build up 5 propane tanks, 5 butane tanks and one methanol tank. All tanks store hydrocarbon at atmospheric pressure. c) Propane, Butane and Deep refrigeration systems. d) ICSS installation, provided by INVENSYS. e) Update and upgrade of all other INVENSYS system in the plant. f) Interconnection with an existing Honeywell ICSS in other plant areas. g) Design, installation, commissioning and start up of: instruments, MOVs/ESDVs/BDVs/PSVs & control valves, Custody Metering skids, ultrasonic flow meters, LPG Truck Loading facilities, automation of Jetty Loading arms, Condition and Performance Monitoring system (CPMS), process analyzers & analyzer's network, Leak Detection system and Real Time Management Information system (RTMIS) (Infoplus 21). It was reviewed the project specifications. Specifications for Quotation Requirements (RFQ) were prepared and issued. Supplier's Quotations were reviewed. PETROFAC man hour's estimation was done. Bill of Quantities (BOQ) and Cost matrix were prepared, reviewed and issued.	
21	**New ASAB ICSS** (Peer Review) September-2010	Clioent: ADCO Asab, UAE.
	Scope of this technical audit was: to verify project scope which included: a) Construction of a new Central Degassing Station (CDS). b) Old CDS will be now RDS-6, and it will be connected to new CDS. c) Installation of a new ICSS (Integrated Control & Safety System, DCS, ESD, F&G) in CDS. d) Replacement of current ICSS at Remote Degassing Stations (RDS) No.1 to No.6 and connection to ICSS in CDS. e) All necessary connections and communications with Bab, Quashwira, Shah and Sahil fields. It was reviewed project specification for ASAB Safeguarding system (ESD & F&G), Control System, Foundation Fieldbus Design, Asset Management System, ASAB Operator Training System (OTS), Operating and Control Philosophy, ESD Philosophy, Overall Control System Philosophy and Fire and Gas Detection Philosophy.	
22	**4th NGL Train project** (Peer Review) August-2010	Client: GASCO Ruwais, UAE
	Scope of this technical audit was: to verify project scope which included: a) Construction of a New Main Control Room (NMCR). b) Migration of the Integrated Control Systems (ICS) of trains 1, 2 & 3, from Main Control Room (MCR) to NMCR. c) Design, purchase, configuration, installation, commissioning and start up of ICS for 4th NGL train. It was reviewed project Control philosophy, Shutdown philosophy, Fire & Gas scope, Alarm Management System, Plant Resource Manager, Analyzer Network System, Integrated Protection & Control System, Machine Monitoring System, Turbine Control System, Compressor Controls System, Honeywell Fail Safe Controller, ENRAF, Terminal Automation System, Trains 1/2/3 migration and new Main Control Room.	

Project	Description / Scope	
23	**Shetland gas plant project (LAGGAN TORMORE).** (Proposal) April-August-2010	Client: TOTAL E&P UK Shetland Island, UK CAPACITY: 500 MMSCFD
	Project Overview: Construction of reception, processing and gas export facilities at the Sullom Voe area, in the Shetland island, UK. The Sullon Voe Gas Processing plant (SGP) will receive gas from Laggan and Tormore gas condensate discoveries. Laggan is located at 126 Km from Sullom Voe terminal. Tormore is located at 16km south west of Laggan. Export gas is sent via a 234km 30 inches pipeline south of the island to a tie-in point to connect to the Frigg UK Association (FUKA) 32 inches gas pipeline. From there the Laggan-Tormore gas would be transported via the FUKA Pipeline to the existing TOTAL E&P UK operated onshore gas processing plant at St Fergus, UK. Scope of this project proposal was: Development and revision of PFDs and P&IDs. HAZOP. Instrument List index. Revision of Supplier's Technical and commercial proposal. Preparation of TBEs (Technical Bid Evaluation). Definition of Compressor's Trains Control Strategy. Revision of existing technical documents and preparation of new ones. Design and revision of HIPS (High Integrity Protection System, or HIPPS). Design of special Blowdown valve solenoid control panel, to allow: a) Online solenoid tests. b) Staggered delayed opening of Blowdown valves in case of "Total Plant Power loss". c) User defined staggered delayed opening of Blowdown valves per "Fire Zone". Development and revision of "Cause and Effect" table and planning of Staggered Blowdown.	

Honeywell UOP (www.uop.com) **(November-2009 - April-2010)**

Designation : Instrument Advisor

Instrument Advisor contractor at UOP LLC (www.uop.com). The responsibilities of this position are:

a) Check instrumentation installation at the plant. Generate list of recommendations and required modifications/recalibrations to fulfil good engineering practices and UOP design specifications.

b) Flow meters verification and recalibration.

c) Instruments, calculation and control loop configuration check at plant DCS (HART, segment check for FieldBus). Control loop tuning.

d) Check Emergency Interlock Sequence logic (SIS, ESD), configuration at PLCs and testing.

e) Generate all reports, drawings and documentation required by customer.

f) Plant start up instrumentation support.

Project	Description / Scope	
1	**Two(2) Trains Amine plant treatment for sweetening natural gas.** February 2010	Client: GASCO Habshan, UAE Capacity: 1.0 MMMSCFD.
	Startup of two(2) Amine trains	
2	**CRCS for CCR Plant and ACCS for LAB plant.** December 2009	UOP Training Des Plaines, USA.
	Training for checking, power up, start up and commissioning the CRCS UOP package for Catalyst continuous regeneration on CCR plants, and ACCS UOP Package for operation of LAB plants. Des Plaines, Illinois, USA.	

REFICAR (www.reficar.com.co) **(January-August 2009)**
Designation : Engineering Manager

Automation, Instrument and Process Control Engineering Manager, member of the owner's project team for the "Refinería de Cartagena" Expansion project, Cartagena, Colombia.

Achieved activities:

a) Follow up of project activities for FEL-2 phase completion (FEED).

b) Follow up of contractor's activities and revision of issued contractor's deliverables.

c) Instrument data sheets and unit's plot plant revision. Check design engineering documents.

d) Active participation on the Preliminary Process Hazard Analyses (PPHA), SIL determination and Process Hazard Analyses (PPHA) during detail engineering for all plants.

e) Active participation in the 3D Model review of all process units. Revision of ITB documents.

f) Revision of basic engineering packages for the:

- UOP Technology: Naphtha Hydrotreating unit (NHT), CCR Platforming with Regeneration (CCR), HF Alkylation unit (ALK), Butamer (BIU), Distillation Uniofining process (DHT), Unicracking unit (HCU)

  NOTE: ALK included a Huels Selective Hydrogenation Process Unit (SHP) and an ALKAD process for recovering the additive "Betapicoline" and remove impurities like polymers.

- Lummus Technology: Delay Coking unit (DCU).
- Technip technology: Integrated Crude Distillation and Vaccum unit (CDU).

Balboa Refinery (www.refineriabalboa.es) **(June-2007 to December 2008)**
Designation : Automation, Instrument and Process Control Lead Engineer

Lead engineer responsible for the Automation, Instrumentation and Control areas in the project for construction of the "Balboa Refinery", Badajoz province, Spain.

Achieved activities:

a) Check design Engineering documents and revision of basic engineering packages for the:

- Shell Technology: Atmospheric (CDU) and Vacuum distillation (VDU) unit, Hydrocracking Unit (HCU) and Recontacting unit (RCU).
- UOP Technology: Hydrodesulphurization unit (NDS), CCR Platforming with Regeneration (CCR) and Par-Isomerization unit (ISU).
- Foster Wheeler Technology: Delay Coker plant (DCU).
- Worley Parsons Technology: Sulfur Recovery Unit (SRU).
- Technip Technology: Hydrogen plant (HMU).
- Others: Steam and power generation plant, Offsite and Utilities.

b) Initial participation on EPC packages and PMC selection processes.

c) Budget definition, preparation and follow up for IT and Engineering services.

d) Define FEED scope and activities for the areas of instrumentation, automation and process control.

e) Define and manage contract process of a MAC supplier for the project. Preparation of ITB documents

f) Preparation of Technical specification and scope of work on the following areas:

- Automation Platform's General Data & Functionality. ED Plant Design. Intelligent PI&Ds.
- Training Management System. Simulation System.
- Document Management system and Online Operator Log Book.
- Energy Management Control System.
- DCS, PLC, SCADA, ESD, SIS, F&G.
- Instillation, selection and communication protocol requirements (OPC, HART and FieldBus) for Instrumentation and Analyzers.
- Tank Information System
- Planning, Scheduling and Reconciliation Management Systems.
- Physical/Chemical Qualities Management Systems (LAB & Online/Offline Analyzers).
- Asset Policy & Maintenance Management System. Condition Monitoring. Working orders management. Machine performance and model simulation/monitoring.

UOP LLC (www.uop.com) (Aug-2004 - May-2007)

Designation : Instrument Advisor

Instrument Advisor contractor at UOP LLC (www.uop.com). The responsibilities of this position are:

a) Check instrumentation installation at the plant. Generate list of recommendations and required modifications/recalibrations to fulfill good engineering practices and UOP design specifications.

b) Flow meters verification and recalibration.

c) Instruments, calculation and control loop configuration check at plant DCS (HART, segment check for FieldBus). Control loop tuning.

d) Check Emergency Interlock Sequence logic (SIS, ESD), configuration at PLCs and testing.

e) Generate all reports, drawings and documentation required by customer.

f) Plant start up instrumentation support.

Project	Description / Scope	
1	**DRCS for Penex Plant.** April 2007	UOP Training Des Plaines, USA.
	Training for checking, power up, start up and commissioning the DRCS UOP package for Driers sequence. Des Plaines, Illinois, USA.	
2	**Bensat, Naphtha Hydrotreating and Penex Plants.** May-November 2006	Client: MRPL (IOCL) Mangalore, India
	Plant checkout and startup	
3	**CCR Platforming** March-April 2006	Client: Slavneth Yaroslavl, Russia
	Plant checkout and startup	
4	**RxCat FCC plant** Febreary 2006	Client: ENAP Talcahuano, Chile
	UOP New Technology implementation. Troubleshooting and checkout.	
5	**Cumene and Phenol Plants.** October-January 2006	Client: Bluestar New Chemical Material Co. Harbin, China
	UOP New Technology implementation. Troubleshooting and checkout.	

6	**Butamer Unit.** May-August 2005	Client: Gulf Advanced Chemical Industries Co. Sipchem Refinery, Al-Jubail, Saudi Arabia
	Plant checkout and startup	
7	**Unicracking Plant.** April-May 2005	Client: Panipat Refinery Panipat, India
	Plant checkout and startup	
8	**ISAL plant** (Naphtha Hydrotreating and octane recovery) December-February 2005	Client: S.N.P. Petrom, S.A Arpechim Refinery, Piteşti, Romania
	Plant checkout and startup	
9	**FCC plant.**	Client: Chennai Petroleum Corporation Limited (CPCL) Chennai, India
	Plant checkout and startup	
10	**LAB complex (Lineal Alkyl Bencene) at Gujarat Refinery.** August 2004	Client: Indian Oil Corporation Limited (IOCL) Vadodara, India
	Plant checkout and startup	

UNIVERSITY COURSES (Feb-2003 - July-2004)

Designation : University Professor

Claudio Passarella has conducted several courses in universities at Valencia city, Venezuela. Courses were: Linear Algebra, Differential Equations, C language Programming, Physics 1 and 2, Control Process of Chemical Plants, Multivariable Control Process, Industrial Process Automation and Graphics Programming of Industrial Control Processes. These courses were conducted at Alejandro de Humboldt University, José Antonio Páez University, Carabobo University and Instituto Universitario de Tecnología Valencia. All of them loated at Valencia city, Venezuela.

NEGROVEN (www.negroven.com) (Feb-2003 - July-2004)

Designation : Project Engineer / Automation Specialist (Contractor)

A project for NEGROVEN plant at Valencia city, Venezuela, was achieved for design, implementation and start up of soft sensors based on neural network technology for online estimation of two quality indexes on a Foxboro I/A Series system.

The NEGROVEN plant main product is Carbon Black. It is a base material for manufacturing tires, plastic, ink and black rubbers.

PDVSA, S.A. (www.pdvsa.com) (Jan-1995 - Dec-2002)

Designation : Lead Project Engineer

Leader Engineer of the project "Oil Movement Changes for Reformulated Gasoline Management". The main objective of this project was to upgrade the current hardware and software platform of the Oil Movement area at PDVSA El Palito Refinery (Venezuela) in order to manage the big range of specification required by EPA for the of Reformulated Gasoline manufacturing. This project was oriented toward implementing PDVSA Business Model (ERP: Enterprise Resource Integration), which includes integration with Refinery Planning and Scheduling applications (like RPMS, PIMS, P-PIMS and REFSKED), process automation, optimization, data monitoring and validation, production accounting and plan/scheduling reconciliation, as well as installation of Oil Movement additional functionality like LAB data validation and communication, Tank Information System, Automatic Line up at Oil Movement area, Tank Quality Integration and Order Movement management. Technology profile for this project includes the use of a Global Database, Blend Gasoline Quality Prediction Model, analyzers, UNIX, G2, Oracle and Client/Server applications. Project completion was planned for the end of 2001.

Achieved management activities included:

1.- Definition of project team.
2.- Identification of user needs.
3.- Project benefits estimation.
4.- Preparation and Management of suppliers and consultants contracts.
5.- Cost estimation, definition of project schedule and cash flow estimation/follow up.
6- Project control and follow up.
7.- Commercial offers revision/evaluation.

Achieved technical activities included:

a.- Specifications definition, acceptance test and start up of TVL D4814 Computer Method implementation.
b.- Specifications definition, acceptance test and start up analyzer measurement management and Lab sample quality reintegration for blends.
c.- Specifications definition, acceptance test and start up of quality profile consistency checks, to validate/adjust Lab data to be used by software applications.
d.- Specifications definition, acceptance test and start up of Remote Access facilities.
e.- Specifications definition, acceptance test and start up for integration of PDVSA software and PDVSA Business Model within licensed Oil Movement applications.
f.- Specifications definition, development, acceptance test and start up of user friendly software for PDVSA Quality Prediction Model, with interfaces for integration with Oil Movement applications.
g.- Specification definition, acceptance test and start up of Oil Movement applications for El Palito Refinery (Digital Blender, Tank Information system, Blend Optimization and Supervisory system, Oil Movement Information system, Tank Quality Integration, Basic Application System Interface, Order Movement Management and Main/Backup application).
h.- Training and ISO-9000 certification for user of all Oil Movement applications.

CORPOVEN, S.A. (www.pdvsa.com) **(Apr-1990 - Jan-1995)**
PDVSA, S.A. (www.pdvsa.com) since January 1995
Designation : Unit Supervisor and Project Engineer

Unit Supervisor for Utilities and Oil Movement areas at Corpoven, S.A - El Palito Refinery (Venezuela). He was responsible of design, implementation, start up, commitment and maintenance of the Blend Optimization Supervisory System (BOSS), Oil Movement Information System (OMIS) and Energy Management System (EMS) within execution of the "Process Optimization" project.

Achieved activities included:

a.- Design, Implementation and Start up of control applications for Boilers on a Foxboro I/A Series system. Also, training for system users was achieved to operators, supervisors and engineers. Developed and implemented strategies were :
- Compensation by pressure and temperature in Boiler levels, Water and Vapor flows.
- Boiler level control using three(3) and two(2) element schemes.
- Boiler vapor temperature control using a PID loop and feed forwards related to Vapor Demand and Feed water flow variations.
- Boiler Combustion Control related to excess of oxygen.
- Master Pressure control for Vapor generation.
- Boiler Load Allocation strategy.

b.- Specification definition for data acquisition interface regarding to telemetric tank monitoring and remote operation of Motorized Valves. These interfaces were installed on a Foxboro I/A Series system.

c.- Design, implementation and start up of human interfaces for tank monitoring and Motorized Valves on a Foxboro I/A Series system. In addition, operators and supervisor training was achieved.

d.- Definition of specifications for configuration of Oil Movement Information System (OMIS) packages.

e.- Configuration and start up of the Blend Optimization Supervisory System (BOSS) licensed to FOXBORO company. Training for operators, engineers and supervisors were achieved on BOSS package.

f.- Definition, development and implementation of the Corpoven Quality Prediction Model for gasoline blends in off-line planing and on-line operation. This facility was a PC development based on ANSI C language and it was also incorporated as part of BOSS package in a UNIX system.

CORPOVEN, S.A. (www.pdvsa.com) **(Oct-1986 - Apr-1990)**
PDVSA, S.A. (www.pdvsa.com) since January 1995
Designation : APC Engineer

Control Process Application Engineer at Corpoven, S.A. El Palito Refinery (Venezuela) in charge of: (a) revision and start up of wired and instrumentation signals for El Palito-Yagua Multiproducts Pipeline. This system controls gasoline, kerosene and diesel pump operations, and (b) design, implementation and start up of control applications on a TDC-2000 with a Honeywell-4500 computer for operation of Atmospheric Distillation, Vacuum Distillation, Cracking Reforming and Fluid Catalytic Cracking, Alquilation and treatment units.

(a) Activities at El Palito-Yagua Multiproducts Pipeline included design, installation and start up of control applications for El Palito-Yagua Multiproducts Pipeline, and operators/supervisors training. This work was achieved using Johnson Control software, installed on a MODCOMP computer.

The following applications were delivered:

- Automatic pump start up/shutdown sequence.
- Semiautomatic start up/shutdown sequences for pump station at source station and fuel reception at destination station.
- Automatic sequence for fuel line up and fuel swing at source and destination stations.
- Multiproduct Pipeline emergency shutdown sequence.
- On line pump swing sequence.
- Pressure control strategy at source station discharge and at reception of destination stations. The last ones included considerations for Multiproduct Pipeline start up.
- Totalization and monitoring of transferred volume at source and destination stations.

(b) Design, implementation and start up of control applications on a TDC-2000 with a Honeywell-4500 computer, training for system users was achieved to operators, supervisors and engineers. Most of the control strategies developed were based on Honeywell BPL language. The following strategies were developed :

- Furnace passes balancing.
- Feed distribution control on reactors.

- Flow, level and temperature control loops were implemented for pipes, heat exchanges and drums.
- Temperature control on extraction trays.
- Emergency shutdown sequence for Fluid Catalytic Cracking unit.
- Top/Bottom quality control on distillation towers with two outlets.
- Feed forward control on reactors, distillation towers and treatment units.
- Fuel Oil viscosity control.
- Constraint control.
- On line Calculations for Unit Efficiency and Production.
- History and reports configuration.

At the end of this period Mr. Passarella was enrolled as Control engineer into the project "Process Optimization" which included automation of all operations at El Palito Refinery. The initial works achieved were:

1.- Economic analysis and benefit estimation for implementation of new and current control strategies into new control systems at Oil Movement, Process and Utility areas.
2.- Transference of control strategies from TDC-2000 to TDC-3000 platform which included program translation from BPL to CL language.

At the end of this period Mr. Passarella was assigned to manage control strategies and developments in the Oil Movement and Utility areas.

TRAINING:

Course Name:	Institution:	Duration	Place and Date
• ATEX Awareness Training.	Petrofac Limited LTD.	4 hours	Sharjah, UAE. July 2011
• Safety Life Cycle. IEC 61508, IEC 61511 review	SCE – Safety Control.	21 hours	Sharjah, UAE. July 2011
• Overview of Pressure European Directives (PED).	Petrofac Limited LTD.	4 hours	Sharjah, UAE. July 2011
• Root Cause Analysis Training for Practitioners	Apollo Associated Services (Europe) LTD.	16 hours	Sharjah, UAE. March 2011
• DeltaV Primer	EMERSON Process Management.	16 hours	Dubai, UAE. August 2010
• TÜV Rheinland SIS FS Engineer certified: 1125/08.	Honeywell.	32 hours	Madrid, Spain. February 2008
• DRCS UOP Technology	UOP LLC.	32 hours	Des Plaines, USA. April 2007
• News about Foxboro I/A Series	Invensys.	32 hours	Caracas, Venezuela Julio 2003
• Fuels Oils Manufacturing	Japan Cooperation Center Petroleum	120 hours	Tokyo, Japan April 2002
• Rapid Application Development with Power++ 2-1	Sybase de Venezuela / BDT Base de Datos y Telemática, C.A.	40 hours	Valencia. Venezuela. October 1998
• Introduction to Oracle SQL and PL/SQL	ORACLE de Venezuela.	40 hours	Caracas. Venezuela. September, 1998
• Foxboro System Version 4.0/4.2 Differences Seminar	The Foxboro Company.	16 hours	Caracas. Venezuela. October 1997
• Application Programmer's Environment	The Foxboro Company.	40 hours	Foxboro, Massachusetts. November 1996
• Visual Basic Professional. Basic/Advanced Course.	Compuconsult	40 hours	Caracas. Venezuela. November 1996
• Solaris 2.X System. Advanced Administration	Softrain, SunService.	24 hours	Caracas. Venezuela. Mayo 1996
• The 50 Series Course.	The Foxboro Company.	40 hours	Foxboro, Massachusetts. April 1996
• Computer's Networks.	Logiciel, S.R.L.	24 hours	Caracas. Venezuela. October 1995
• Solaris 2.X System. Basic Administration	EMSCA	40 hours	Caracas. Venezuela. August 1995
• UNIX Administration Environment	CIED	32 hours	Caracas. Venezuela. August 1995

Course Name:	Institution:	Duration	Place and Date
• I Manufacturing Automation Workshop.	Corpoven, S.A.	16 hours	Puerto La Cruz. Venezuela. July 1995
• MS EXCEL 4.0 Advanced Course.	Corpoven, S.A. / CAREP.	24 hours	El Palito. Venezuela. June 1995
• MS EXCEL 4.0 Basic Course.	Corpoven, S.A. / CAREP.	40 hours	El Palito. Venezuela. May 1995
• Near IR. Basic Course.	Intevep, S.A. /	16 hours	Los Teques. Venezuela. April 1995
• Object Oriented Programming with C++.	Corpoven, S.A. / Paradigma, C.A.	32 hours	El Palito. Venezuela. May 1994
• Object Oriented Software Engineering.	Corpoven, S.A. / Paradigma, C.A.	32 hours	El Palito. Venezuela. May 1994
• Process Control Level III.	Corpoven, S.A. / Tulsa University	40 hours	Paraguaná. Venezuela. March 1994
• Microsoft Project for Windows.	Corpoven, S.A.	16 hours	El Palito. Venezuela. March 1994
• Reengineering Processes	Corpoven, S.A.	24 hours	El Palito. Venezuela. December 1993
• Decisions and Problem analysis.	Corpoven, S.A. / Management Enterprises, C.A.	40 hours	San Tomé. Venezuela. October 1993
• Oil Movement Information System (OMIS) engineering course.	The Foxboro Company.	24 hours	Baarn. Netherlands. November 1991
• Blend Optimization Supervisory System (BOSS) engineering course.	The Foxboro Company.	40 hours	Baarn. Netherlands. September 1991
• Oil Movement Information System (OMIS) introduction course.	The Foxboro Company.	40 hours	Baarn. Netherlands. July 1991
• Energy Management Application Course.	The Foxboro Company.	24 hours	Baarn. Netherlands. May 1991
• Blend Optimization Supervisory System (BOSS) software course.	The Foxboro Company.	40 hours	Baarn. Netherlands. April 1991
• Blend Optimization Supervisory System (BOSS) introduction course.	The Foxboro Company.	24 hours	Baarn. Netherlands. April 1991
• Informix-SQL.	SYS Ingeniería de Computación, C.A.	24 hours	Caracas. Venezuela. November 1990

Course Name:	Institution:	Duration	Place and Date
• I/A Series Systems Tools and Techniques.	The Foxboro Company.	40 hours	Foxboro, MA. U.S.A. November 1990
• I/A Series Systems Software Technologies.	The Foxboro Company.	40 hours	Foxboro, MA. U.S.A. October 1990
• Unix Operating System.	Corpoven, S.A.	24 hours	Valencia. Venezuela. July 1990
• Basic Computer Control Applications Course.	Corpoven, S.A. / ProControl, Inc.	80 hours	El Palito. Venezuela. May 1990
• Control Engineer's Control Techniques.	Corpoven, S.A. / Profimatics, INC.	40 hours	El Palito. Venezuela. April 1990
• Application Module Implementation.	Honeywell.	40 hours	Caracas. Venezuela. April 1990
• Process Design Course.	Corpoven, S.A ./ Exxon.	80 hours	Puerto La Cruz. Venezuela. Marzo 1990
• Honeywell TDC-3000 LCN Implantation.	Honeywell.	40 hours	Caracas. Venezuela. February 1990
• VMS Advanced Technics.	Digital de Venezuela.	40 hours	Caracas. Venezuela. January 1990
• VMS Commands and Utilities.	Digital de Venezuela.	40 hours	Caracas. Venezuela. January 1990
• Advanced Configuration of Foxboro I/A Series System.	Equipex, S.A. / The Foxboro Company	40 hours	Caracas. Venezuela. September 1989
• Basic Configuration of Foxboro I/A Series System.	Equipex, S.A. / The Foxboro Company	40 hours	Caracas. Venezuela. August 1989
• Distillation Control	Equipex, S.A. / The Foxboro Company	40 hours	Caracas. Venezuela. November 1988
• Ethyl Seminar C.F.R. Engine Operators.	Corpoven, S.A. / Ethyl Corporation.	24 hours	El Palito. Venezuela. October 1988
• Seminar Process Control.	Maraven, S.A. / The Foxboro Company	40 hours	Cardón. Venezuela. February 1988
• Seminar UOP FCC.	Corpoven, S.A. / UOP INC.	24 hours	El Palito. Venezuela. December 1987
• Seminar UOP Merox.	Corpoven, S.A. / UOP INC.	24 hours	El Palito. Venezuela. November 1987

Course Name:	Institution:	Duration	Place and Date
• Computers in Refinery Design and Analysis.	Corpoven, S.A. / Tulsa University.	40 hours	El Palito. Venezuela. August 1987
• Advanced Lotus	Corpoven, S.A.	40 hours	El Palito. Venezuela. August 1987
• Dbase III+.	Corpoven, S.A..	40 hours	El Palito. Venezuela. March 1987
• Controlling the Effects of Pulsations and Fluid Transients in Industrial Plants.	Maraven, S.A. / Southwest Research Institute.	40 hours	Ciudad Ojeda. Venezuela. June 1985