



SHERARD A. MCINTOSH



Mr. McIntosh is a Principal with Long International and has 23 years of experience in the engineering and construction (E&C) industry working for a major licensor of refining technology and E&C contractor. Mr. McIntosh has served as a leader in diverse roles spanning Technology Licensing, Research & Development, Engineering, Project Management, Organizational Management, and Business Development. His experience covers the entire project life cycle from conceptual design, technology package, front-end engineering design (FEED), detailed engineering, construction, commissioning, and start-up services. He has developed strategic, technical, and commercial plans for major oil and gas technology projects including biofuels, ammonia plants, refineries, and petrochemical complexes. Mr. McIntosh served as Director of KBR's Mexico operations, headquartered in Monterrey, Mexico, and has significant international experience working

in countries such as Argentina, Australia, Bahrain, Brazil, Colombia, France, Hungary, Israel, Saudi Arabia, South Africa, Spain, Sweden, Trinidad and Tobago, the United Kingdom, the United States, and Venezuela.

EDUCATION

B.S. (Honors) Chemical Engineering, University of the West Indies, 1996

LANGUAGES

English, Spanish

TECHNICAL EXPERIENCE

Representative U.S. and international technical experience includes:

- Extensive refinery process design experience especially in the design of Fluidized Catalytic Cracking (FCC) units and Resid FCC (RFCC) units, including specification and selection of catalysts and catalyst handling systems, utilities and offsites, process piping, flue gas systems, waste heat boilers, feedstock handling systems, process filters, refractory selection and installation, catalyst coolers, cyclone design, reactor design, regenerator design, expander/compressor trains, hydraulic design for fluid transfer, overpressure protection philosophy and design of pressure relief systems, development of process operating philosophies and operating manuals
- Oversaw the process design work for a novel biomass-to-renewable fuel facility located in North America for a confidential client. The scope of the project was EPC based on the client's proprietary technology. The facility was designed to convert wood biomass to biofuels such as gasoline and diesel blendstocks.
- In-depth experience with licensed technology including serving as Program Manager for a leading Licensor's Technology Business Unit (TBU)
- Development and maintenance of corporate technical standards and procedures
- Application of design standards and procedures to the execution of engineering works
- Extensive project management execution experience and proven ability to lead projects to completion on budget and ahead of schedule
- Management of change and change order negotiation
- Specialized Latin American expertise working with clients such as Pemex, PDVSA, Ecopetrol, Repsol YPF, and Petrobras in Mexico, Colombia, Venezuela, and Argentina



- Strong leadership skills and drive to lead high-performing teams
- Country Manager of KBR's Mexico Operations—headquartered in Monterrey—comprising 430–600 staff

PROJECT EXPERIENCE

During his career, Mr. McIntosh has served in diverse roles including Director, KBR Monterrey; Senior Project Manager, EPC; Senior Manager, Operations; Technical Services Program Manager; Technology and Consulting; Process Manager for FCC Technology; and Commissioning and Startup Advisor, FCC Technology. In these roles, Mr. McIntosh led and analyzed project and subcontractor performance, managed change and negotiated change orders with clients, including disputes over same, developed and managed budgets, assured project planning and smooth execution, and managed schedule performance.

PROFESSIONAL EXPERIENCE

Long International, Inc.

Houston, Texas (January 2020 to Present)

Mr. McIntosh is a Principal with Long International. He provides project management and project development advisory services as well as expert services in all facets of engineering and construction contract dispute analysis and resolution, litigation/arbitration/mediation support, and expert testimony. He was the lead technical expert for the owner on a petrochemical project in the Caribbean involving the analysis of change orders and technical issues set forth in multiple claims by the EPC contractor totaling over \$150 million. He co-authored an expert report submitted to the client to use in an attempt to achieve a settlement with the EPC contractor. Mr. McIntosh also evaluated numerous disputed technical issues involving a refinery project in Vietnam and assisted in preparing expert reports, reply expert reports, and joint expert reports as part of an international arbitration.

KBR, Inc.

Houston, Texas (November 2018 to December 2019)

During his 23-year career with KBR, Mr. McIntosh held the following roles:

Senior Manager, Business Development, Energy Solutions, Services – Americas

Mr. McIntosh was responsible for maintaining relationships with existing clients and developing new client contacts. He performed research and analysis of business opportunities consistent with organizational long range and strategic plans. This included evaluating projects through financial feasibility studies, market research, and planning to identify market opportunities. For specific pursuits, he led the sales and technical teams to grow company profit. He also participated in the development of marketing and business plans, strategy implementation, and overseeing and controlling the business development budget and forecasts for the Americas region. Mr. McIntosh prioritized the allocation of sales and technical resources to accomplish the objectives of the strategic business plan and protect the existing customer base. In addition, he served as a liaison among KBR counterparts on cross-business unit opportunities. Notable pursuits won include PMC and FEED on SABIC's Gulf Coast Growth Ventures project in Texas, and FEED for the Pemex grassroots refinery in Dos Bocas, Tabasco, Mexico.



Senior Project Manager, EPC, FEED & EPCm, Mosaic LLC – Ammonia Plant Refurbishment

St. James Parrish, Louisiana (January 2017 to November 2018)

In this role, Mr. McIntosh managed the revamp of Mosaic's Faustina Ammonia Plant located in St. James Parish, Louisiana. At the conclusion of FEED, the TIC was US\$250 million and the client elected not to proceed with the project at that size. Instead, the client carved out two separate CapEx projects and proceeded to EPCm with the Primary Reformer Emissions Reduction (PRER) Project and the Convection Section Coils Components (CSCC) Project. Project scope included a new ammonia scrubber unit, new induced draft fan, steam turbine and gearbox, novel lube oil system, new forced draft fan and motor, new superheater burners, new auxiliary boiler burners, new fuel gas skid, new burner management system and new coils in the convection section of the primary reformer. As Senior Project Manager, Mr. McIntosh led the FEED, detailed engineering and construction phases of the project and provided startup and commissioning assistance to Mosaic. Both projects were successfully completed within the proposed budget and a week ahead of the proposed schedule.

Mr. McIntosh assured safe project execution to the client's satisfaction, consistent with cost, schedule and contractual requirements while maintaining bottom line responsibility for financial success. He delivered expected results for financial, HSE, client satisfaction, budget, and schedule performance. He served as the prime point of contact between the client and company, and ensured project execution was in accordance with policies, procedures, systems, and requirements. Mr. McIntosh managed and coordinated activities of all project personnel by direct supervision, or through subordinates, and identified changes between the contractual agreement and the scope of work requested by the client. As necessary, he worked with the client to revise the plan and follow the change management process, and negotiate change orders.

Director, KBR Monterrey S.A. de C.V.

Monterrey, Mexico (February 2012 to December 2016)

Mr. McIntosh oversaw KBR's Mexican Operations headquartered in Monterrey, Mexico comprising 430-600 staff. Reporting departments included Engineering, Project Management, Procurement, Project Controls, and Site Teams for DuPont and Chemours. Corporate support functions with local reporting included Accounting and Finance, Real Estate Services, Human Resources, and Information Technology. Principal responsibilities included:

- **Project Execution Management:** Assured adherence to approved work processes and tools to ensure technical quality of deliverables; drove accountability for adherence to scope, schedule and budget; and oversaw change management.
- **Resource Management:** Ensured that openings were filled with appropriate resources; made certain that personnel skill sets were continuously upgraded; and oversaw succession and career planning for all departments and personnel.
- **Fiscal Oversight:** Controlled remuneration, expenditures, budgeting, planning, forecasting, and reported to KBR Senior Management on various financial and resource utilization metrics.
- **Health, Safety & Environment Management:** Promoted a safety culture within the organization, in the field, and in the design work process.



Department Manager, Process Engineering, Houston Operating Center

Houston (February 2010 to January 2012)

As Department Manager, Mr. McIntosh led the Senior Process Engineering Team comprising over 100 process engineers including the leaders of the discipline on the most significant projects in KBR operations within the Project Definition Department. Principal responsibilities involved oversight of the execution of process engineering work on projects by confirming that work-hour estimates generated during the proposal phase were fit for purpose; ensuring that any subsequent deviation from the contracted scope of work or schedule was documented in a timely manner and the impact was communicated to engineering management; and guaranteeing quality and consistency in the execution of process engineering work by enforcing strict adherence to the “KBR Way.” Other responsibilities included resource allocation, career development, remuneration and expenditure control, budgeting, and planning.

Manager, Technical Services Program, Technology Business Unit

Houston, Texas (March 2009 to January 2010)

Due to the success of the FCC Tech Service Program, Mr. McIntosh was approached by TBU leadership to establish a formal, cohesive technical services program for all TBU technologies. Responsibilities included financial oversight, business development, contract management, and budgeting and strategic planning to grow this business area. He was charged with standardizing contract terms and conditions, including commercial terms, for all technical services offerings in the TBU in compliance with KBR’s sales pursuit process. Mr. McIntosh developed a cost basis for the fixed price retainers for all technical services contracts together with approved minimum pricing. He also established a new concept of a multi-tier reimbursable rate structure for the execution of consulting work, which exceeded the scope of the fixed price retainer. Mr. McIntosh held several rounds of discussions with the leaders of the different product service lines to formulate one standardized contract structure with consistent language to be used for all technical services pursuits. Finally, he created a strategic plan for growing KBR’s market share of the Technical Services business including target sales areas and clients, areas of differentiation, and cost benefit analyses to provide clients with the business case to justify contracting KBR to provide technical services.

FCC Technical Services Manager, Technology Business Unit

Houston, Texas (April 2007 to February 2009)

As FCC Technical Services Manager, Mr. McIntosh was responsible for providing specialized process consultation to clients employing KBR’s proprietary FCC technology. Another major focus of this role was to leverage the inside positioning with clients to generate new business for KBR. As a result of Mr. McIntosh’s work with one such client, Petrobras, KBR was awarded the BEP for a major revamp of the client’s FCC unit in Bahia Blanca, Argentina. During the period 2006 to 2009, Mr. McIntosh traveled extensively throughout Latin America working with clients in Mexico, Colombia, Venezuela, and Argentina such as Pemex, PDVSA, Ecopetrol, Repsol YPF, and Petrobras. Mr. McIntosh conducted business meetings with these clients entirely in Spanish. He was also responsible for contract management, including technical content and commercial offerings in alignment with the KBR sales pursuit process.

Project Manager, FCC unit Revamp, EP Services, Murco Petroleum Ltd – FCC Unit

Milford Haven, Wales, United Kingdom (2006 to 2007)

As Project Manager, Mr. McIntosh led technology licensing and performed FEL-3, detailed design, and procurement services for Murco Petroleum’s FCC revamp at its Milford Haven, Wales refinery. The scope of work included riser replacement, closed cyclones, regenerator cyclones, stripper, and Atomax-2 nozzles.



As Process Manager, Mr. McIntosh was responsible for studies, design, specifications and services related to refining process units. More specifically, he developed heat and material balance, process flow diagrams, piping and instrument diagrams, system design parameters, and designed or rated equipment and apparatuses such as heat exchangers, vessels, reactors, etc. He supervised and led groups of designers and engineers and established technical standards and procedures to be employed. He conducted various aspects of performance management such as performance appraisal, and counseling employees with behavior or technical performance problems. He also assisted with interviewing, hiring, and assigning new personnel. In addition, Mr. McIntosh set and maintained budgets.

Process Manager, Conceptual Study to Revamp FCC in Bahia Blanca Refinery, Petrobras Energia SA – FCC Unit

Argentina (2005 to 2006)

Oversaw development of a conceptual engineering study to revamp the Bahia Blanca Refinery FCC Unit of Petrobras Energia to 1600 M3/d. The project involved the expansion of an air blower and the addition of a catalyst cooler.

Process Manager, Startup Advisor Basic Engineering Regenerator & Flue Gas System FEL, TECH, E, P – Oil Refineries Ltd.

Israel (2003 to 2006)

Project scope included front-end loading, engineering, and procurement for a Basic Engineering Regenerator and Flue Gas System for Oil Refineries Ltd.

Process Manager, Pasadena Refining Turnaround EP Services E, P – Pasadena Refinery

Pasadena, Texas (2005 to 2006)

Provided engineering and procurement services for the Q1 2006 Pasadena Refining turnaround at its refinery in Pasadena, Texas.

Process Manager, FCC Revamp FEL3, TECH, E, P – Sunoco Refinery

Girard Point, Pennsylvania (2005 to 2006)

KBR provided a technology license and performed FEL-3, detailed design, and procurement services for Sunoco's FCC revamp at its Girard Point, Pennsylvania refinery. Scope included closed cyclones, catalyst cooler, stripper, and Atomax-2 nozzles.

Process Manager, FCC SS Cyclone Dipleg Modification, Total Refinery

United Kingdom (2005)

As Process Manager, performed process design for modification of diplegs of an FCC reactor and regenerator cyclones.

As Process Lead, Mr. McIntosh was a technical specialist who made decisions and recommendations that impacted engineering and related activities. He was able to negotiate critical and controversial issues with top-level engineers. He performed advisory and consulting work for the organization as a recognized authority in fluidized catalytic cracking.



Process Lead, FCC Revamp at the Luyan de Cuyo, Repsol YPF – Refinery

Argentina (2004 to 2005)

Provided engineering, procurement, and a licensor package for the Repsol YPF FCC Technology Revamp Project.

Process Lead, Atomax-2 Upgrade, Tesoro – FCC Unit

Anacortes, Washington (2005)

Project involved a new ATOMAX-2 feed module for Tesoro Riser 1. Project scope included technology, EP, and supply of six Atomax-2 inserts. The EP was quoted to Cust-O-Fab (OMS # 9287), who quoted a lump sum turn-key to Tesoro.

Process Lead, Upgrade to ATOMAX-2 Nozzles, Samref – Refinery

Saudi Arabia (2005)

Provided an Engineering, Procurement, and Licensor Package for the Samref ATOMAX-2 Nozzles Upgrade in Saudi Arabia.

Process Lead, 74,000 BPD ExxonMobil Model IV Spent Catalyst Distributor,

Air Grid Study, ChevronTexaco (CVX) – FCC Unit

California (2003 to 2004)

Provided K-Package services for ChevronTexaco and its Regenerator Spent Catalyst Study Project in California.

Process Lead, Engineering and Procurement for Unit #29 – Order 1, ConocoPhillips

Borger, Texas (2003)

Provided engineering and procurement for ConocoPhillips' Unit #29.

Process Lead, FCCU Revamp Study, Repsol – FCC Unit

Argentina (2003)

As Process Lead, Mr. McIntosh was involved in conducting all study work for the Repsol FCCU Revamp Project in Argentina.

As Process Engineer, Mr. McIntosh devised new approaches to problems. He developed plans and schedules and conducted work that required independent evaluation, selection, and adaptation of engineering techniques, procedures and criteria. He performed work that involved conventional engineering practices and included a variety of complex features such as conflicting design requirements, unsuitability of conventional materials and difficult coordination requirements. In addition, Mr. McIntosh provided technical guidance to designers and less experienced engineers. Specific client experience included the following projects:



Process Engineer, 72,000 BPSD Exxon Flexicracker ATOMAX-2 Feed Module, ExxonMobil – FCC Unit

Louisiana (2002)

Assisted with engineering and procurement services for ExxonMobil and its Feed Injection Module ATOMAX 2 Project in Louisiana.

Process Engineer, 28,390 BPSD UOP Side by Side ATOMAX-2 Inserts, MOL – FCC Unit

Hungary (2002)

Aided with engineering and procurement services for MOL Hungarian Oil and its Replacement of Reactor Feed Distributor Project in Hungary.

Process Engineer, 31,460 BPSD Ultra-Orthoflow Disengager upper Cyclones, Regen Cat Slice Valve/J-Bend, FEED, Scanraff – FCC Unit

Sweden (2001)

Assisted with engineering services for Scanraff and its FCC Revamp (Basic Engineering Package) Project in Sweden.

Process Engineer, Regenerator Cyclone & FGL Re-placement, Tosco – FCC Unit

Illinois (2000 to 2001)

KBR provided engineering and procurement services for Tosco and its Regenerator Cyclones Project in Illinois.

Process Engineer, SUPERFLEX, Sasol – Ethylene Unit

South Africa (2000)

Developed the process design of the converter section for KBR's proprietary SUPERFLEX technology.

Process Engineer, FCC ATOMAX-1 Feed Nozzle Replacement, Ultramar – FCC Unit

Sunray, Texas (2000)

Aided with engineering and procurement services to Ultramar to upgrade its FCC ATOMAX-1 nozzles with ATOMAX-2 nozzles at its McKee Refinery located in Sunray, Texas.

Process Engineer, 44,000 BPSD Shell Unit, ATOMAX-2 Feed Nozzles, Dynaflux Stripper, Riser Quench and Dense Phase Catalyst Cooler, Generator/Reactor/Standpipe Modifications, Tesoro – FCC Unit

Washington (2000)

Assisted with engineering, procurement, and Basic Engineering Package services for Tesoro Northwest Company and its FCC Revamp Phase 1 Project in Washington.

Process Engineer, CycloFines Third Stage Separation System, PDVSA – FCC Unit

Venezuela (2000)

Assisted with K-Package services for PDVSA and its FCC CycloFines TSS Project in Venezuela.



Process Engineer, Transfer Lines for RX/RG, SADAF – Refinery
Saudi Arabia (2000)

Involved in the process design of the SADAF Transfer Lines for the RX/RG Project in Saudi Arabia.

Process Engineer, 21,000 BPSD Kellogg Model II Unit, Regenerator and Disengager Modifications, BP – FCC Unit
United Kingdom (2000)

Conducted all study work for BP and its FCC Converter Study Project in the United Kingdom.

Process Engineer, UOP Side by Side Unit, ATOMAX-2 Feed Nozzles, Regenerator and Stripper Modifications, Sunoco – FCC Unit
Pennsylvania (1999)

Assisted with engineering and procurement services for Sunoco and its FCC Regeneration Revamp Project in Pennsylvania.

Process Engineer, FCC Revamp (Point Breeze - 868) Study, Sunoco – FCC Unit
Pennsylvania (1999)

Assisted with study work on the FCC Revamp Project for Sunoco in Pennsylvania.

Process Engineer, 140,000 BPSD UOP High Efficiency Unit, ATOMAX-2 Feed Nozzles, Hovensa, LLC – FCC Unit
Virgin Islands, U.S. (1999)

Aided with engineering and procurement services for Hovensa LLC and its FCCU Revamp Feed Module Project in the U.S. Virgin Islands.

Process Engineer, FCC Closed Cyclone, Petrobras – FCC Unit
Brazil (1999)

Involved with engineering and Basic Engineering Package services to Petrobras and its FCC Closed Cyclone Project in Brazil.

Process Engineer 35,000 BPSD UOP High Efficiency Closed Cyclones, Two Stage Stripping, Flux Tubes, BP Lavera SNC – FCC Unit
France (1998)

Assisted with Basic Engineering Package services for BP and its FCC Revamp Project in France.

Process Engineer, 67,000 BPSD Kellogg Model B Two Stage Stripper, Star Enterprise – FCC Unit
Delaware (1998)

Aided with engineering services for Star Enterprise and its FCCU Stripper Revamp Project in Delaware.



Process Engineer, FCCU Revamp, Sunoco – FCC Unit

Ohio (1998)

Assisted with engineering, procurement, and Basic Engineering Package services to Sunoco and its FCCU Revamp Project in Ohio.

Process Engineer, 53,000 BPSD UOP, Side-by-Side, Air Distributor, BP – FCC Unit

Ohio (1998)

Assisted with engineering services for BP and its FCC Pipe Grid Air Distributor Project in Ohio.

Process Engineer, 25,000 BPSD UOP High Efficiency, Two Stage Stripper and Flux Tubes – FCC Unit

Hungary (1998)

Assisted with Basic Engineering Package services for MOL Hungarian Oil and its FCC Revamp Project in Hungary.

Process Engineer, FCC Revamp, Phase 1, Study, Sun Oil Company – FCC Unit

Pennsylvania (1998)

Aided with study work on the FCC Revamp, Phase 1 Project for Sun Oil Company in Pennsylvania.

Process Engineer, FCCU Revamp, Plant 2 Study, Sunoco Inc. U.S.A. – FCC Unit

Ohio (1997 to 1998)

Assisted with work on the FCCU Revamp, Plant 2 Project for Sunoco Inc. U.S.A. in Ohio.

Process Engineer, Catalyst Cooler Addition, BP – Refinery

Australia (1997 to 1998)

Assisted with engineering services for the BP Catalyst Cooler Addition Project in Australia.

Process Engineer, 68,300 BPSD Kellogg Model III Riser, Feed Nozzles, Two-Stage Stripping, Regen Cat Standpipe/Slide Valve/J Bend, Main Fractionator, Sun Oil Company – FCC Unit

Pennsylvania (1997)

Assisted with engineering, procurement, construction advisory, and study services for Sun Oil Company and its FCC Revamp Project in Pennsylvania.

Process Engineer, 25,663 BPSD UOP Side-by-Side Unit, ATOMAX-2 Feed Nozzles, Riser Revamp, Natref – FCC Unit

South Africa (1997)

Aided with Basic Engineering Package services for Natref and its FCC ATOMAX Feed Nozzles Project in South Africa.

Process Engineer, 40,000 BPSD Kellogg Ultra-Orthoflow, Feed Nozzles, Pemex (PEP) – FCC Unit
Mexico (1997)

Assisted with Basic Engineering Package services for Pemex and its ATOMAX Feed Nozzles Project in Mexico.

Process Engineer, FCCU Cat Coolers (3), Petrobras – FCC Unit
Brazil (1997)

Assisted with Basic Engineering Package services to Petrobras and its FCCU Cat Coolers Project in Brazil.

Process Engineer, 42,000 BPSD UOP Side-by-Side, Feed Nozzles, Riser Quench, Air Distributor, Stripper Modifications, Neftochim – FCC Unit
Bulgaria (1997)

Aided with the execution of a Basic Engineering Package, procurement, and construction advisory services for Neftochim and its FCC Complex Revamp Project in Bulgaria.

Process Engineer, ROSE Unit, Indian Oil Corporation Ltd. – Refinery
India (1997)

Assisted with the design of a Rose Unit, Rosemax Internals, and a Rose Pilot Plant.

PCS Nitrogen Ltd. (formerly Arcadian Corporation)
Point Lisas, Trinidad & Tobago (1996 to 1997)

Mr. McIntosh worked as a Process Engineer in the Operations Department. In this role, he gained experience in ammonia and urea plant operations, and compressor and turbine performance evaluations. He also troubleshooted plant start-up and shutdown issues.