

RONALD POWER, P. Eng.

RESUME

EDUCATION

B. Eng. (Civil) Memorial University of Newfoundland (MUN), Canada, 1977.
Various business courses (MUN).

REGISTRATION

Professional Engineers & Geoscientists Newfoundland & Labrador (PEGNL)

SUMMARY OF WORK HISTORY

43 years' experience in project execution and operations-related activities at the feasibility and development level for major/mega projects and operations. Projects / assets include:

- Lower Churchill Project;
- Terra Nova Floating, Production, Storage & Offloading (FPSO) Project, and Operations;
- Hibernia Gravity Base Structure (GBS) Project;
- East Coast Canada Oil and Gas new development opportunities including Hebron Project and White Rose expansions;
- Granite Canal Hydroelectric Project;
- Silver Mountain Hydroelectric Development;
- Paradise River Hydroelectric Project;
- Jebba Hydroelectric Project (Nigeria);
- Cat Arm Hydroelectric Project;
- Hinds Lake Hydroelectric Project;
- Mada River Irrigation Project (Nigeria);
- Wreck Cove Hydroelectric Project (NS);
- industrial complexes, and town site developments.

Areas of knowledge / experience include:

- leadership;
- project management;
- construction management / construction site supervision;
- management systems development and implementation;
- technical and management co-ordination;
- project reviews and audits, including process development;
- contract administration;
- civil design work;
- specification writing;
- civil cost estimating;
- construction claims analysis;
- document and engineering data management.

KEY FUNCTIONS

Consultant to Nalcor Energy – Lower Churchill Project

- | | |
|--|---------------------|
| • Deputy Project Director - Muskrat Falls Generation Project | 2016-present |
| • General Project Manager – Muskrat Falls and Labrador-Island Link Project | 2011 - 2016 |
| • Lower Churchill Project - Engineering Deliverables Manager | 2009 - 2010 |

R.F. POWER

- 2 -

- Lower Churchill Project - Phase 3 (FEED) Preparation Lead **2008 - 2009**

Petro-Canada East Coast 2000 to 2007

- East Coast Technology Lead for new offshore East Coast Canada Oil & Gas development activities;
- East Coast Management System Strategy and System (Projects and Operations) - development and implementation leader;
- East Coast Support Systems Lead (Quality Management, Cost & Scheduling, Risk Management, Document Management, Engineering Data Management, Lessons Learned system);
- East Coast representative on Corporate Leadership Team for Petro-Canada's PM@PC Project Management initiative;
- Hebron GBS Technical Committee member;
- Petro-Canada representative on Joint Industry Projects (JIP's);
- Emergency Response Plan for Business Processes (ERPBP) - development leader;
- 2006 Terra Nova Turnaround Project – Milestone Readiness Process and Implementation Leader;
- Project Execution Plan leader for Terra Nova Far East Subsea Tie-back Project;
- Participation in partner project readiness / IPR reviews;
- Preparation of the public Development Plan Amendments for:
 - the Terra Nova Far East Subsea Tie-back Project
 - Terra Nova FPSO Additional Living Quarters Project.

National Energy Board (NEB) - Secondment from Petro-Canada 2005

- NEB Management System – Management System development and implementation consulting services.

**Terra Nova Alliance - Integrated Management Team 1998 - 2000
(secondment from AMEC)**

- Interface Manager - Terra Nova Floating, Production, Storage and Offloading (FPSO) Project.
- Management representative in project reviews and audits.

Doris Engineering (secondment from AMEC) – Hibernia GBS Project 1993 - 1996

- Lead Engineer – Gravity Base Structure (GBS) Embedments' Management

Shawmont Newfoundland Ltd. (later integrated into AMEC) 1986 - 1997

- Resident Construction Manager – Paradise River Hydroelectric Project;
- Hibernia Project – On-site construction coordinator for Bull Arm site development (seconded to NODECO);
- Project Manager – Placentia Flood Control Project;
- Project Manager – Holyrood Generating Station Wastewater Treatment System;
- Senior Consultant – Department of National Defence (DND) Ottawa;
- Granite Canal Hydroelectric Project – final feasibility study participant, and managed final field investigation program;
- Lower Churchill Project 1997 cost update – study participant;
- On-site construction supervisor for refurbishments of the Whitefish and Lobstick Control Structures - part of the Upper Churchill Hydroelectric facility (~5400MW);
- Resident Construction Manager – Glynmill Inn Dam;
- Silver Mountain Hydroelectric Development – feasibility study participant.

Monenco Nigeria Ltd. 1982 to 1986

- Resident Area Construction Manager – Jebba Hydroelectric Project – 540 MW (Nigeria)

R.F. POWER

- 3 -

~500,000 m3 concrete

Shawmont Newfoundland Ltd.**1977 to 1982**

- Project / Design Engineer for several hydroelectric projects and industrial complexes including:
 - Hinds Lake Hydroelectric Development – 75 MW
 - Cat Arm Hydroelectric Development – 127 MW
 - Mada River Irrigation Project (Nigeria)

STRENGTHS

- Leadership
- Project “delivery” focus
- Strong Project Management knowledge and skills
- Strong understanding of project execution processes and management systems
- Structured, methodical, process driven attributes
- Ability to transform strategies into practical business / operational plans
- Expertise in management of processes requiring rigorous maintenance, accuracy and tracking.
- Creativity and innovation
- Team player
- Strong organizational skills
- Ability to get projects / initiatives "off the ground"
- Ability to motivate staff and build capabilities
- Strong facilitation skills
- Excellent communication skills - both verbal and written

DETAILED WORK HISTORY***Nalcor Energy - Lower Churchill Project*****Deputy Project Director – Muskrat Falls Generation Project**2008
To
2019

Reporting to the Project Director, provides strategic direction, leadership and guidance, and hydro-electric knowhow to a multi-functional Project Delivery Team that has been established to deliver all aspects of the Muskrat Falls Hydroelectric Development.

General Project Manager – Muskrat Falls and Labrador-Island Link Project

Provision of project execution leadership, direction, and hydroelectric knowhow throughout the development and execution phases (engineering, procurement and construction) of the Generation / Island Link Projects. Lead an integrated Project Delivery Team comprised of Nalcor and SNC Lavalin professionals augmented by various third party consultants including Hatch, AMEC, Stantec, PMX, Kenny Construction, other consulting companies, and independent consultants. Managed EPCM contract with SNC Lavalin. Played key role in personnel recruitment.

Engineering Deliverables Manager

Primary accountability – establishing processes and organization to facilitate management of the Engineering consultant(s) anticipated to be engaged for the detailed engineering and construction phases of the project. Developed overall Project engineering plan. Defined all engineering processes and procedures. Prepared the

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- 4 -

Scope of Work for EPCM services. Participated as a 'core team' member for the development of the Request for Proposal (RFP) for EPCM Services and subsequent evaluation and award.

Established and lead task force mandated to provide best solution for subsea cable crossing of the Strait of Belle Isle. Engaged worldwide consultants (Landsvirkjun Power - Iceland, Norconsult – Norway, Statnett – Norway, Hatch Mott MacDonald, C-CORE, Fugro-Jacques, Mannvit – Iceland, Babendererde Engineering - Germany). Investigated subsea tunnel construction methodologies including tunnel boring machine (TBM) and drill and blast technologies, in-water rock trenching technologies, and horizontal directional drilling (HDD) technologies. Designed and lead specialized field investigations both marine and land based. Overall program resulted in the on-seabed cable crossing solution in combination with HDD boring.

Phase 3 (FEED) Preparation Lead

Participated in the development of the project execution strategy. Main architect of the project framing and resulting detailed project management, engineering and construction management organizational design. Prepared the scope of work for provision of pan-project detailed engineering services arrangement for the project, and participated as a core team member in preparation and issuance of the subsequent Expression of Interest for engineering and related services, and subsequent evaluation.

Petro-Canada**Technology Lead – East Coast Engineering Services**

2005
To
2007

Lead and maintained Petro-Canada East Coast engineering technology activities to position Petro-Canada to take full advantage of potential future East Coast Canada offshore development opportunities. Managed engineering and project management support to East Coast Offshore Oil and Gas New-development and Add-on initiatives. Lead East Coast R&D strategies / activities, benchmarking, technology interface with other East Coast Operators and with the Petro-Canada International Business Unit. Participated in industry and government sponsored technical committees and workshops. Participated as East Coast Business Unit representative on the Petro-Canada corporate Project Management Leadership team (PM@PC initiative).

Lead the development of the Project Execution Plan for the 2006 Terra Nova Turnaround Project.

Developed and lead the implementation of the Milestone Readiness Process for the 2006 Terra Nova (FPSO) Turnaround Project (Rotterdam). Organized and lead formal readiness audits associated with that project.

Lead the development, testing and implementation of the Petro-Canada East Coast Pandemic Plan.

Support Services Lead - East Coast Engineering & Technology

2001
to
2004

Managed a focused group of professionals to provide selected support services to Petro-Canada East Coast activities - Cost Engineering, Planning & Scheduling, Risk Management, Quality Management and Engineering Data Management. Provided due-diligence activities for non-operated assets. Participated in partner project reviews.

Performed active management role in the Terra Nova Far East Development (FEED Stage) with focus on project management systems development and implementation. Lead the preparation of the Development Plan Application, as well as the Project Execution Plan.

R.F. POWER

- 5 -

Responsible for development and implementation of the Emergency Response Planning for Business Processes (ERPBP) system for the East Coast Business Unit.

Provided consulting services to the Canadian National Energy Board (NEB) for the development and implementation of the NEB Management System.

Management Systems Leader – Petro-Canada Operations2000
to
2001

Lead the development and implementation of the management strategy and systems for the Petro-Canada newly formed East Coast Business Unit. Lead the development and implementation of the overarching Management Systems and all Management Plans for East Coast departments, as well as the East Coast Supplier Quality Management program. Provided lead role in the development of, and subsequently managed, the East Coast Document Management and Engineering Data Management Systems.

Key player in the establishment of the Owner engineering team.

Developed, implemented and administered the Management of Change processes and procedures for the Terra Nova FPSO Project. Co-ordinated usage of the change management systems for both project and operations stage. Guided offshore operations team to support the project change, construction and takeover processes.

Management support and co-ordination of Operations' support contracts.

AMEC**Terra Nova (FPSO) Project - Interface Manager**1998
to
2000

As a member of the Integrated Management Team (IMT) for the Terra Nova Project, was responsible for the development, roll-out, implementation and ongoing management of the Terra Nova Project interface system. Also responsible for management and administration of the project Safety and Environmental Actions Monitoring System (SEAMS). The companies involved in the project were located in various sites worldwide. The role required demonstrated management and project organization capability, strong / effective communication skills, process development capability and strong facilitation skills. The systems that were developed were deemed "Best in Class for Major Projects" in two major audits that were performed by asset Partner organizations. Stewarded the project's global risk register. Lead study work related to protection of subsea installations from iceberg impact. Participated in task force assigned with the transfer of the project engineering from various site worldwide to NL in accordance with the local benefits provisions of the Atlantic Accord.

ShawMont Newfoundland Ltd.**Hydroelectric Project Engineer**1996
to
1997

Feasibility study work for the Silver Mountain Hydroelectric Development (NL) and the Island Pond Hydroelectric Development (NL). Organized and lead the on-site field investigations for the 41 MW Granite Canal Hydroelectric Development (NL).

Hibernia Gravity Base Structure (GBS) - Lead Engineer (seconded to Doris Engineering)1993
to
1996

Assigned to the Hibernia GBS Mechanical Outfitting Group - responsible for delivery of some 20,000 embedded pieces within the GBS. Established and managed embedment team, and provided direction and leadership to all engineering disciplines to meet requirements. Team responsibilities included establishment and management of the

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- 6 -

GBS embedment interface methods and procedures, defining input requirements and schedule limitations for all embedments for total GBS, preparation and issuance of layout and positional drawings and resolution of clashes, verification of positional and physical adequacy of embedments, development and maintenance of an Oracle based embedment database, and production and issuance of embedment and drawing lists for all phases of GBS construction. Management of technical requisitions for material procurement and fabrication, and liaison with construction group, procurement, quality assurance / quality control, and offsite fabrication teams.

Construction Manager, Churchill Falls1990
and
1992

Responsible for on-site construction management for the rehabilitation of the Whitefish Control Structure and the Lobstick Control Structure in the 5500 MW Churchill Falls Power Development located in the Province of Newfoundland and Labrador, Canada.

Project Manager - Placentia Flood Control Project

1992

Responsible for civil design, specification, cost estimating, contracts' preparation and complete project management for the flood protection structures for the Town of Placentia, Newfoundland.

Project Manager - Holyrood Generating Station Wastewater Treatment System, NL1991
to
1992

Responsible for overall project management as well as civil design work, specification, cost estimating, contracts preparation, mechanical / electrical co-ordination, construction and commissioning of the system to treat waste effluent at the 450 MW thermal generating station in the Province of Newfoundland and Labrador, Canada. Co-ordinated procurement of all mechanical equipment associated with the project.

Project Engineer – Marble Mountain Transmission Line Reroute

1991

Managed the right-of-way clearing program for relocation of 2 – 69 kV transmission tower lines.

Senior Consultant – Petty Harbour Forebay Dam Stability Analysis

Performed stability analysis on the dam considering current dam safety criteria. Study resulted in structural improvement recommendations which were subsequently implemented.

Senior Consultant – Assessment of Abitibi NL Hydroelectric Infrastructure

Participated as a senior member of a study team to perform a conditional assessment of Abitibi-owned hydroelectric infrastructure in NL.

Senior Consultant – Department of National Defence (DND) Ottawa, Canada

1990

Participated as a senior member of a study team providing engineering services to the Canadian Department of National Defence for a logistics study of refueling systems for remote radar installations in the North American Air Defence Modernization program.

Construction Manager Glynmill Inn Dam, Corner Brook, Newfoundland

1989

Responsible for all construction supervision and contract administration on the dam

R.F. POWER

- 7 -

construction.

*shawmont.***Construction Manager - Paradise River Hydroelectric Development**1987
to
1989

On-site manager responsible for the construction of the Paradise River Hydroelectric Development in the Province of Newfoundland, Canada. Civil works include a double curvature concrete arch dam (Canadian first), river diversion, tunnels, powerhouse and intake structures. Activities included total project construction management, contract(s) administration, claims resolution, and management of the site team. Responsible for reservoir impoundment decision.

Project received the 1990 Public Works Award from the American Concrete Institute (ACI).

Govt. of Newfoundland & Labrador.**Bridge Design Engineer**

1986

Design of several large prestressed (post-tensioned) multi-span concrete girder bridges in the Newfoundland region.

Monenco Nigeria Ltd.**Area Construction Manager - Nigeria**1982
to
1986

Area Construction Manager for the powerhouse intake structure for the 560 MW Jebba Hydroelectric Project in Nigeria (\$1 billion). The project, one of the largest hydroelectric projects in Nigeria, featured major civil, geotechnical and mechanical works, including the construction of some 500,000 m³ of reinforced concrete. Main features include 6 – 93 MW Propeller-type turbine/generator units, underflow concrete spillway structure utilizing radial gates, zoned earth fill dam founded on deep sand foundation, and world's second-highest single-lift navigation lock. Coordinated construction through turbines and generators assemblies and units' commissioning activities. Participated in the reservoir impoundment process.

Participated in project handover to Operations.

ShawMont Newfoundland Ltd.**Project / Design Engineer**1977
to
1982

Responsibilities included general civil design work, contract preparation and contract administration for a number of projects throughout Newfoundland and Labrador, and in Nigeria. Work included:

- Civil works design, specification, cost estimating and scheduling for the 75 MW Hinds Lake Hydroelectric Development in Newfoundland (\$80 million). Project features include 6.5 km side-hill power canal, 1.4 km buried steel penstock, concrete control and intake structures, 1 - 75 MW Francis turbine / generator unit, gated spillway and several dams.
- Civil works design (focus on tunnelling), technical specification, optimization studies, cost estimating, cash flow analysis, scheduling, contract preparation and support to construction for the 127 MW Cat Arm Hydroelectric Development in Newfoundland (\$350 million) both feasibility and execution phases. Main project features include unlined power tunnel (387 m head), 2-68.5 MW Pelton turbines, unique 'bath tub' type overflow spillway, narrow core rockfill dams.
- Management of an industrial planning study for an industrial park in Port-aux-Basques, Newfoundland.

R.F. POWER

- 8 -

- Civil design and site construction supervision for plant modifications at the ERCO phosphorus plant in Long Harbour, Newfoundland.
- Construction supervision of Industrial Park construction in Wabush, Labrador.
- On-site field Engineer involved in the feasibility study for the Mada River Irrigation Project in Nigeria.

***Nova Scotia Power Corporation / SNC Lavalin
Site Civil Engineering Student***

Working within the SNC Lavalin, performed various tasks for the Wreck Cove Hydroelectric Project located in Cape Breton Island. Duties included quantity take-offs and preparation of concrete lift drawings. Project features include several earth-fill dams, tunnels, rock canals, concrete and steel-lined penstock shaft, and underground powerhouse with 2 – 100 MW Francis turbine/generator units operating at 300 m head. 1976

PAPERS AND PUBLICATIONS

"Innovative Quality Management in Offshore Development and Operations", Co-author with A.A. Ewida, R.M. Hopkins and J.R. Ludlow. Presented at the Thirteenth (2003) International Offshore and Polar Engineering Conference, Honolulu, Hawaii, USA, May 25–30, 2003

"Paradise River, A Challenging Small Hydro Development"
Co-author with P. C. Helwig and R. C. Connors. Presented at Waterpower '89, Niagara Falls (N.Y.) in August 1989

"Civil Engineering Challenges on Paradise River Hydro Development - Newfoundland"
Co-author with P. C. Helwig, D. M. Besaw and R. C. Connors. Presented at the 1989 C.S.C.E. Annual 9th Hydrotechnical Conference, St. John's (Nfld.), June 1989