

ADVANCED CONSTRUCTION INC.

Phone: (1) 888 479 5559
Mobile: (1) 312 882 9727

E-Mail: J.Cockburn@AdvancedConstructionInt.com



MALCOLM JAMES COCKBURN



SPECIALITY/SKILLS:

- Development of site specific geotechnical seepage barriers
- Cost, budget, analysis for all types of seepage barrier projects
- Specialty geotechnical construction support/assistance and analysis services from inception to acceptance or any stage in the project

GEOGRAPHIC BASE:

Wilmington, Delaware, USA
Toronto, Ontario, CA

TYPE OF COMPANY:

Corporation

RESUME

MALCOLM JAMES COCKBURN

EDUCATION Five Years Honors Graduate at Sir Wilfrid Laurier Collegiate Institute, Toronto, Canada
Three-Year Exchange Student Practical Internship, C.I.C.C. (Canadian International Construction Program), Ottawa, ON, Canada

PROFESSIONAL COMMITTEES SERVED

- A.C.I. Grouting Committee
- C.R.A.O. Treasurer, Director
- D.F.I. Seepage Committee
- Shotcrete Association America
- U.S.A.C.E. Great Lakes and Ohio River Division Industry Participant

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PRINCIPAL PROFESSIONAL DISTINCTIONS

- Inventor IntelliGrout (Computer Aided Grouting)
- Inventor IntelliSystem (Computer Aided Geotechnical Seepage Barrier Construction)
- Developer of the Automated Deephole Waterhammer Drilling Rig and Method
- Inventor of the Deephole Continuous Instrument and Packer Method
- Developer of Automated 6-Component Balanced Stable Grouting Method and related Production Systems
- Inventor and Developer of the Twin Impact Duplex Cased Auger Drilling Method for Dam Embankments
- Integration of the Robertson Down Hole Instrumentation with the Computer Aided Intelli Programs
- Inventor of the TAM Large Diameter Grouting System for Karst
- Inventor of the Nested TAM/Drilling System for Earthen Dams
- Developer of the Extended Working-Time, Balanced Stable Grout Technology for Extreme Temperatures, Depth and Long Delivery Lengths
- Introduction of the Steel Fiber Reinforced Dry Shotcrete for Steelco and Bethlehem Corporations
- Developer of Silica Fume Shotcrete Mixes
- Developer of high Pressure Small Line Concrete Placing Method for Underwater Structural Repair
- Developer of Fully Mobile/Robotic Small Tunnel Shotcrete Lining Methodology and related Equipment
- First Soft Ground, Mine Application of the N.A.T.M. Support Systems in North America for the Cementation Company
- First installation of a temporary N.A.T.M. Shotcrete Support System for Large Diameter Nuclear Cooling Water Tunnels in North America
- Co-Developer of the Composite Seepage Barrier Methodology

PROFESSIONAL BACKGROUND EXPERIENCE

PRINCIPAL, ADVANCED CONSTRUCTION INC., WILMINGTON, DELAWARE, OCTOBER 2014 TO PRESENT

M. J. Cockburn formed Advanced Construction Inc. and continues in the position of President.

Advanced Construction provides Advisory Support for the Purchasers, Practitioners and Designers of Specialty Geotechnical Construction Programs. In addition the Company specializes in providing a full construction methodology solutions, budgeting, support supervision, training, implementation and equipment procurement services. All services can be acquired on a pre-, during-, post-construction and

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emergency basis.

Additionally, M. J. Cockburn continues to serve on several advisory panels for major Dam Projects along with consulting on owners' and designers' boards. Furthermore, Cockburn continues his research and development for the ever-evolving needs of the geotechnical construction industry.

CEO/PRESIDENT, A.C.T. COMPANIES, NORTH AMERICA, 1991-2014

Cockburn co-founded A.C.T. in 1991 to develop and supply specialty construction services. The primary services included grouting, shotcrete and high stress anchors for the underground/bridge and dam construction industry sectors.

A further refinement to these services evolved with the increase in investment in the heavy construction industry for large infrastructure rehabilitation and repurposing.

One of the first projects for the enterprise was the C.N/C.P. Rail Detroit Windsor submerged twin tunnel enlargement. The auto industry needed to double stack the transport car carriers between the U.S. and Canada for Chryslers' Mini Van assembly and delivery.

The pre-existing tunnel structures were 16 inches too short for the double stack rail cars. The plan was to remove 8 inches from the top and bottom of the tunnel concrete lining within the steel tube envelope and grillage. To compensate for the loss of mass inside the steel tube to keep them negatively buoyant, load had to be increased on the exterior of the steel tubes.

Cockburn utilized a strategic drilling and grouting program and with cement grout consolidated the nominal 2" aggregate bedding within the tunnel grillage to provide the original mass ratio needed for the structure to perform after the structural concrete removal by the roto-header. Structural concrete damage was repaired utilizing silica fume pre-bagged shotcrete of a mobile access train carriage.

It was the advanced specialized methodologies employed that made the Detroit Windsor Tunnel repurposing of the structure possible and from this Cockburn's advanced construction culture evolved.

During Cockburn's leadership and direction of the company many milestones were achieved. Most notably:

- First Large Scale Computer Aided Grouting Barrier, St. Mary's Dam, Lethbridge, Alberta, CA
- Design Build Composite Tunnel Drainage Support System, Savage Mountain, PA.
- Automated Shotcrete Lining System U.S.A.C.E. Aqueduct, Washington, D.C.

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- First American Large Scale Dam Computer Aided Grouting Project, Pennforest Dam, PA
- McCook Reservoir Deep Grout Curtain Demonstration, Methodology and Techniques attained a less than 1 Lugeon Cutoff Barrier, Chicago, IL
- Development and invention of the IntelliSystem Technologies (Grout, Cart, Drilling, Logging, Camera System)
- Composite Barrier Wall Methodology, Clearwater Dam, Piedmont, MO
- Prime U.S.A.C.E. Grouting Seepage Barrier Contractor for the Wolf Creek, Center Hill and the Clearwater Projects
- Development of Epikarst Grouting Methodology for Pre- and Permanent Grouting Solutions
- Development of the U.S.A.C.E. Pre-Grout Barrier Wall Methodology, Mississinewa Dam, Peru, IN
- Front of Wall Shaft Construction Methodology

GENERAL MANAGER, UNDERGROUND SERVICES LTD. 1983 – 1991,
REXDALE, ONTARIO, CANADA

M. J. Cockburn joined the Company in 1983 as the Central Canada Construction Operations MGR. The Firm supplied services to the mining and tunneling sectors, with a structural rehab division primarily in Ontario, Canada. Promoted to National General MGR in 1985. Responsible for all estimating business development and construction operations. Originally providing specialty services to the heavy construction industry the Company grew from a 3 to 40 million per annum with individual contracts exceeding 20 million nationwide. Growth in bridge and heavy construction market segments changed the business character to a general contractor role with specialty construction services within the organization. Milestones achieved:

- Development of Silica Fume Shotcrete in Association with Ministry of Transportation, Ontario, and King Group of Companies
- Development of the Small Line High Pressure Concreting in Conjunction with Master Builders
- Awarded the Pre-Load Licensee for Canada
- First Implementation of N.A.T.M. Approach in a Canadian Mine Development, Cardinal River Coal, Hinton, AB
- Design and Development of the First Shotcrete Support Program for INCO Subway Ontario, Canada, which became a standard in the Sudbury Mining Sector supported by the King Group of Companies.
- Refurbishment utilizing the Small Line High Pressure

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Concreting Methodology on Five Dams and Spillways for the
Nova Scotia Power Corporation, Mersey River Project,
Liverpool, NS

SPECIAL PROJECTS LEAD, CANADA GUNITE LTD. 1974 – 1983, POINT CLAIRE, PQ, CANADA

Cockburn was hired on as a technical apprentice and placed in the corporation's fast track mentoring program. From 1975 to 1978 he was assigned to projects from Algeria to Kingston, Jamaica and Vancouver, B. C., to work under the corporation's senior project managers and general superintendents. The project scopes were diverse from world class Olympic Pool construction, preload water reservoir tank continuous wire wound and post tension technologies, concrete slip forming, shotcrete, and grouting and marine construction. After a three-year period of project -supporting as an assistant, Cockburn was promoted to quantity surveying and project development. It was this training that provided the skills to take a project from inception to acceptance.

Notable Accomplishments:

- Installation of the First Hydraulic Movable Pool Floor for the Handicaped Brock University Olympic Pool, St. Catherine's, ON
- Slipformed Methodology Deep Water Pier Repairs, I.O.C., Sept-Îles, P.Q.
- Steel Fiber Shotcrete Development, Steel Company of Canada, Nanticoke, ON
- Amberson Dam Internal Structural Repairs, Hydro-Quebec, Canada
- Minden Dam Spillway Repairs, Orillia Powerlight, Minden, ON
- Preplaced Aggregate Methodology, Kapuskasing Forebay, Dam and Wing Wall Underwater Repairs, Kimberly-Clark Corporation, ON, Canada
- E.B. Eddy Dam Structural Concrete Repairs Ottawa- Hull, P.Q.
- Oldman River Dam Penstock Repairs and Valve Installation, AB

M. J. Cockburn was promoted to corporation special projects leader in 1980. Responsible for developing bidding and executing special projects.