



# Cory Albers, M. Sc., P. Eng.

Water Resources Engineer

President - Fluid Forms Inc.

Tel: (403) 966-5123

E-Mail: [cory.albers@fluidforms.ca](mailto:cory.albers@fluidforms.ca)

## SUMMARY OF SKILLS

Mr. Albers has 11 years of experience in a variety of water resources engineering projects. He provides clients with technical depth in the analysis and modeling of fluid flow systems while considering how these systems can interact with larger physical and ecological environments. By coupling his strong technical skills with an equally strong interest in larger systems interactions, Cory has experience working collaboratively with biologists, landscape architects, provincial and federal regulatory agencies, construction contractors and both private and public sector clients.

Cory's broad project experience includes erosion protection, river restoration, environmental mixing problems in both freshwater and marine environments, fish habitat and fish passage problems, potable water disinfection reservoirs, water pipeline distribution networks, storm water collection systems and pump station design. Many of these projects have required Cory to actively build consensus between a variety of technical professionals and non-technical stakeholders.

## PROFESSIONAL QUALIFICATIONS

Professional Engineer in Alberta and APEGGA Member

## EDUCATION

- B.Sc. in Civil Engineering (Distinction), University of Alberta, Edmonton, Alberta, 1994
- M.Sc. in Civil & Environmental Engineering, University of Alberta, Edmonton, Alberta, 1997

## EMPLOYMENT HISTORY

- 2008 – Present                      President, Fluid Forms Inc., Calgary, Alberta
- 2007 – 2008                        AMEC Earth and Environmental, Calgary, Alberta
- 2002 – 2007                        Water Resources Engineer, Stantec, Calgary, Alberta
- 1996 – 2002                        Research Assistant, University of Alberta, Edmonton, Alberta

## PROJECT EXPERIENCE

### Hydrotechnical - Hydraulics and Hydraulic Modeling

#### **Athabasca River Delta Segment 1 Hydrometric Survey and Fish Habitat Modeling, 2009:**

Project manager and technical lead for hydrometric survey and weighted useable area fish habitat modeling project at 4 sites within the Athabasca River Delta.

**Milner Power Raw Water Intake Rehabilitation, 2009:** Managed project and conducted modeling exercises demonstrating a viable upgrade strategy for an existing bank intake on Smoky River near Grande Cache, Alberta.

**Seymour Capilano Filtration Plant, Greater Vancouver Regional District, North Vancouver, British Columbia, 2004–Present:** Performed senior review of plant hydraulics intended to identify bottlenecks and recommended practical design alterations for the 1900 ML/d plant providing potable water for one million Greater Vancouver Regional District residents.

**ACWA Research Streams Detailed Design, University of Calgary, Calgary, Alberta, 2009:** Hydraulics specialist for University of Calgary ACWA Streams research facility design.

**Computational Modeling of Lesser Slave River, Lesser Slave Watershed Council, Slave Lake, Alberta, 2008:** Executed a 2D finite element computational modeling study of the relationship between wetted area and discharge in the Lesser Slave River.

**Bow River Open Cut Utility Crossing, City of Calgary, Calgary, Alberta, 2007:** Conducted an analysis of flow around proposed cofferdams that would be constructed in the Bow River to isolate an open cut utility crossing work site. A detailed computer model was used to develop a robust mitigation strategy that would ensure an appropriate flow would be maintained on either side of an island immediately downstream from the proposed crossing alignment.

**Swan River Fish Passage Restoration, Canada Corporation, Swan Hills, Alberta, 2005:** Responsible for design, construction and regulatory approvals associated with the restoration of fish passage in the Swan River through the demolition of a low head weir.

**Swan River Bank Protection, Devon Canada Corporation, Swan Hills, Alberta, 2005:** Responsible for design, construction and regulatory approvals of two bank protection structures intended to protect an oil production pipeline from exposure and to provide an armoured spillway between the Swan River and a low lift pump station suction pond.

**ACWA Research Streams Functional Design, University of Calgary, Calgary, Alberta, 2004:** University of Calgary ACWA Streams research facility design – designed bank intake, pump station, piping layout and functional design for full-scale experiment which will test the response of aquatic ecosystems to varying doses of wastewater treatment plant effluent.

**Glenmore Reservoir WTP, City of Calgary, Calgary, Alberta, 2004:** City of Calgary Glenmore Reservoir performance analysis – performed computational analysis of the detailed 2D mixing that would occur within the Glenmore reservoir chlorine contact chamber. Simulated results compared closely with prototype tracer test results.

**Seymour Capilano Filtration Plant Project, Vancouver, British Columbia, 2004:** Performed computational contact time analysis of baffling layout to identify dead zones and estimate effective contact volume of Clearwell.

**Dedicated Fill Line Transient Analysis, City of Lethbridge, Lethbridge, Alberta, 2004:** Conducted a transient analysis of four high-pressure force main pipelines feeding the main supply reservoirs for the city of Lethbridge, Alberta.

**Kneehill Regional Water Transmission Line, Kneehill Regional Water Services Commission, Red Deer, Alberta, 2004:** Conducted a transient analysis for 85 km long regional transmission line servicing six communities and numerous rural users.

**Chloramine Risk Assessment, Capital Regional District, Victoria, British Columbia, 2004:** Conducted water quality analysis and calibration for the water distribution system supplying water for 300,000 residents of Victoria and the surrounding communities.

**Syncrude Waterline Leak Detection, Syncrude, Fort McMurray, Alberta, 2003:** Consulted on the design of the dye testing program for tracing leaks in buried water supply pipes.

**Inflow and Infiltration Reduction Strategy, City of Lethbridge, Alberta, 2003:** Conducted state-of-the-art inflow and infiltration reduction literature review and wrote the report describing the I&I reduction strategies that should be adopted by the City of Lethbridge, Alberta.

**New Tecumseth Sanitary Forcemain Transient Analysis, Town of New Tecumseth, Ontario, 2003:** Conducted a transient analysis of a 10 km sanitary forcemain for the Town of New Tecumseth, Ontario.

**Drywood Creek Streamflow Gauging, Shell Canada Corporation, Calgary, Alberta, 2002:** Developed a rating curve for the Drywood Creek passing under a highway bridge in Waterton National Park.

**Iron Bridge Wetlands Pumping Station Expansion, City of Orlando, Orlando, Florida, 2002:** Assisted with the transient and the steady-state analyses of a 25 km treated effluent pipeline that serves several Florida communities including Orlando.

**University of Alberta – Department of Civil and Environmental Engineering, Edmonton, Alberta, 1997:** Design and implement laboratory experiments of flow around a cluster of obstacles in an open channel. Results published in 1998 CSCE Annual Conference Proceedings under the title Flow Near a Three Obstacle Cluster in an Open Channel.

### **Environmental - Water Quality Modeling**

**Computational Modeling of Marshall Springs Storm Pond, City of Calgary, Alberta, 2007:** Executed a 2D finite element computational modeling study of the flow and sediment removal performance of a storm pond.

**Computational Modeling of Kennedale Stormwater Wetland, City of Edmonton, Alberta, 2007:** Executed a 2D finite element computational modeling study of the flow and age of water in support of designing a constructed wetland retrofit to an existing pond.

**Computational River Modeling of Thermal Plume, EPCOR, Edmonton, Alberta, 2006:** Executed a 2D finite element computational modeling study of the thermal plume generated in the North Saskatchewan River from the Clover Bar Generating Station. Analysis included assessing the effect of thermal plume on downstream ice cover.

**Barbados Groundwater Tracing, Barbados Water Authority, Barbados, West Indies, 2002:** Consulted on the design of the dye testing program and the analysis of the results from two municipal groundwater tracing experiments in Barbados.

### **Hydrotechnical - Outfalls**

#### **Britannia Mines Marine Diffuser, EPCOR, Britannia Beach, British Columbia, 2006:**

Responsible for conceptual design and performance assessment of marine effluent diffuser discharging treated acid rock drainage water.

#### **Tsulquate WWTP Marine Outfall Upgrade, EPCOR, Port Hardy, British Columbia, 2005:**

Responsible for design and construction of outfall pipe, effluent diffuser and regulatory approvals for marine outfall upgrade to the Tsulquate WWTP discharging into Hardy Bay on the north tip of Vancouver Island.

**Pine Creek WWTP Effluent Diffuser Mixing Analysis, City of Calgary, Calgary, Alberta, 2004:** Performed computational analysis for the City of Calgary of the detailed 2D mixing that would occur downstream from a variety of Bow River proposed diffuser designs.

**Seymour-Capilano Filtration Outfall Diffuser Design, Greater Vancouver Regional District, Vancouver, British Columbia, 2003:** Conducted performance analysis of proposed effluent diffuser in Burrard Inlet. Execution of project included field data collection, computational modeling of tidal mixing in the Burrard Inlet and supervision of junior engineers and drafting staff.

### **Hydrotechnical - Academic**

**University of Alberta – Research Assistant , Department of Civil and Environmental Engineering, 1998:** Responsible for design and implementation of experiments on very high velocity water jets in air, the results of which are published in the ASCE Journal of Hydraulic Engineering (1998) under the title Water Distribution in Very High Velocity Water Jets in Air. Responsible for conducting experiments on the hydraulics of sand removal from an oil well bore.

**University of Alberta – Department of Civil and Environmental Engineering (Sessional Lecturer), 1997–1998:** Two appointments as the Full Instructor for the 3rd year Introduction to Fluid Mechanics course. Received the Leonard E. Gads and the GSA Awards for excellence in undergraduate teaching.

**University of Alberta – Department of Civil and Environmental Engineering (Doctor of Philosophy Candidate), 1997–2002:** Incorporate mixing physics into the hydrodynamic model River2D. Design and implement field data collection program on the Klondike River, Yukon, Canada in the summers of 2000 and 2001 involving the extensive use of line-of-sight and GPS surveying techniques as well as the collection and laboratory analysis of water samples collected during a dye test. Results from numerical simulations and field tests published in numerous conference proceedings and reports.

### **PUBLICATIONS**

Albers, C. and Amell, B., 2010, **Changing the Stormwater Pond Design Game**, Submitted for Publication to the NOVATECH 2010 Conference, 27 June - 1 July 2010, Lyon, France.

Yu, X., Mazurek, K., Putz, G. and Albers, C., 2010, **Physical and Computational Modeling of Residence and Flow Development Time in a Large Municipal Disinfection Clearwell**, Submitted for Publication to the Canadian Journal of Civil Engineering.

Albers, C. and Steffler, P., 2007, **Estimating Transverse Mixing in Open Channels Due to Secondary Current-Induced Shear Dispersion**, Journal of Hydraulic Engineering.

Albers, C., 2006, **Using Computational Fluid Dynamics (CFD) in Water Resources Engineering**, Canadian Civil Engineer, Spring, 2006.

Massig, J. and Albers, C., 2005, **The Pine Creek WWTP – A Case Study in Effluent Outfall Diffuser Design**, 57th WCWWA Conference, Oct. 16–19, 2005, Saskatoon, Saskatchewan.

Albers, C., Maksymetz, B. and Mazurek, K., 2005, **Mixing in Municipal Water Reservoirs – The Column Connection**, 17th Canadian Hydrotechnical Conference – CSCE, Aug. 17–19, 2005, Edmonton, Alberta, 9 pp.

Albers, C., Maksymetz, B. and Mazurek, K., 2005, **Flow Through and Mixing in Potable Water Reservoirs – Making the Black Box Transparent**, 57th WCWWA Conference, Oct. 16–19, 2005, Saskatoon, Saskatchewan.

Albers, C., Massig, J. and Smith, S., 2005, **The Pine Creek WWTP Effluent Outfall Diffuser – Applying Riverine Resource Stewardship Principles**, 17th Canadian Hydrotechnical Conference – CSCE, Aug 17–19, 2005, 10pp.

Albers, C. and Maksymetz, B., 2004, **Computational Modeling of Reservoir Baffle Factor**, 56th WCWWA Conference and Trade Show, Oct. 17–20, 2004, Calgary, Alberta, 13 pp.

Albers, C. and Steffler, P., 1999, **The Influence of Longitudinal Diffusion on the Three-Dimensional Turbulent Mixing of a Passive Slug**, 1999 CSCE Annual Conference Proceedings, Vol. 2, 149–156.

Albers, C. and Rajaratnam, N., 1998, **Flow Near a Three Obstacle Cluster in an Open Channel**, 1998 CSCE Annual Conference Proceedings, Vol. 1, pp. 267–276.

Albers, C. and Rajaratnam, N., 1998, **Three-Dimensional Effects in Two-Dimensional Modeling of Transverse Mixing in Rivers**, 1998 CSCE Annual Conference Proceedings, Vol. 1, pp. 225–234.

Rajaratnam, N. and Albers, C., 1998, **Water Distribution in Very High Velocity Water Jets In Air**, ASCE Journal of Hydraulic Engineering, Vol. 124, No. 6, pp. 647–650.

Albers, C. and Rajaratnam, N., 1996, **Flow in Chutes, Stilling Basins and Flip Buckets: Some Field Observations**, 1996 CSCE Annual Conference Proceedings, Vol. 1, pp. 214–223.