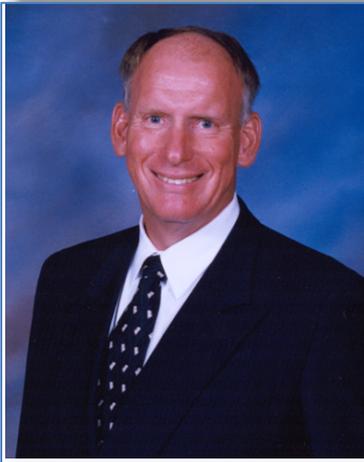


WIM M. VELDMAN *M.Sc., FEIC, P.Eng.*

International Hydrotechnical Consultant



Overview

Wim Veldman has more than 50 years of experience in major **pipeline, mining and infrastructure** projects in Canada, the USA and overseas. His experience was highlighted by 7 years in the design of flood control and hydroelectric stations in Manitoba, 3 years as the full time senior consultant on the design and construction of the river crossings for the \$8 billion trans Alaska oil pipeline, and 40 years as an independent international consultant (www.wimveldman.com).

Wim's scope of work includes planning, serving as an expert witness, organizing public input and meetings, detailed design, project management, field engineering, construction supervision and operational monitoring. Long term relationships with a number of major companies in Canada and the US, such as the trans Alaska oil pipeline for 45 years, attest to the trust and value clients place on his input.

Internationally, Wim has consulted on projects in Indonesia, Sri Lanka, Mongolia, Tanzania, Ethiopia, China, Yemen Chile, Argentina, Ecuador, Peru and Bolivia. His senior role in the design and construction of five major pipelines across the towering Andes in South America over a 10 year period is a testament to his marketing strategy – word of mouth.

Public Recognition

Wim's achievements, particularly in "extreme engineering," have been recognized via multiple provincial and national awards and showcased in trade magazines. In April 2019 he was invited to testify to Senate Committees in Ottawa re two critical bills affecting oil and gas development and pipelines.

Feedback

- "You did an outstanding job in providing the hydrologic studies for Atigun. I definitely like your style in making presentations to the regulatory agencies. You have created a tremendous amount of credibility for us with them."*

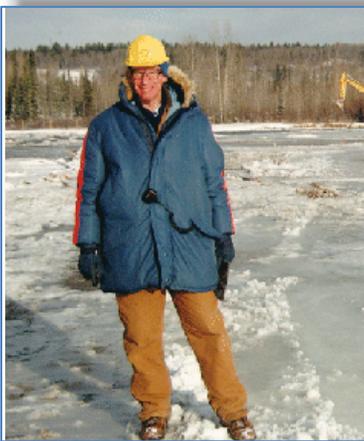
Alyeska Pipeline Service Company, Alaska
8 mile long replacement
- "Without your skills in engineering the diversions and containment dykes, dealing with the regulatory agencies on such matters and directing the actual work processes on these activities, we would have floundered"*

Shell Canada Limited
Pipeline break
- "You have been selected as a well qualified expert with the necessary independence and integrity to carry out an assignment on behalf of both parties."*

City of Calgary/Lafarge Canada
Bridge Impacts/Floodplain Studies
- "Your professional calm and ability to deal with our difficult negotiations was critical over the past year."*

Athabasca Chipewyan First Nation versus BC Hydro
- "You did a great job communicating just the right amount of technical information to a mixed audience" and "your tone set the stage for respectful conversation."*

Confidential Independent Review
Proposed Flood Protection Works



Pipeline Repair
Red Deer River



Camisea Pipeline
Peru



MINING



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MINING

Wim has been extensively involved in the planning, EIA, design and construction components of water management schemes at major oilsands and open pit projects in western and northern Canada. This experience ranges from acting as the senior hydrologic advisor to Esso's OSLO oilsands project for 3 years to preparing an EIA for Cardinal River Coals' proposed Cheviot mine to detailed designs and field inspections for a major channel diversion and spillways for the Curragh mine at Faro, Y.T.

Following the massive June 1995 flood, he designed extensive instream repairs for the Elkview Coal mine in B.C. In July 2013 following the second Bow River flood, which flooded a 1,000 acres (10 ha) gravel mine, Wim was able to stop the overflow in one day via a unique technique and on excellent and daring backhoe operator.



DETAILS

Open pit mines, whether for coal, metals, oil sands or granular resources frequently require flow diversions, dewatering, sediment management and the development of end pit lakes.

The key to the development of sound, practical and effective solutions is life cycle experience consisting of planning, design, regulatory approvals, construction, operations and end-of-mine reclamation. Wim's long-term involvement in the following projects provides the foundation for his consultancy:

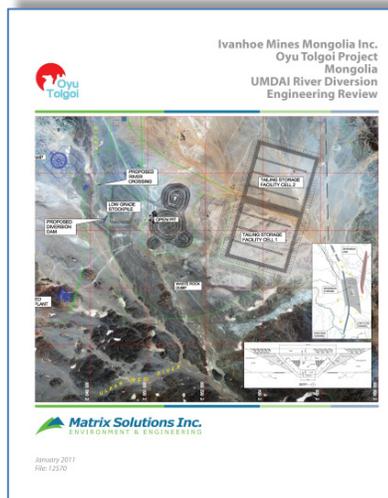
- **Faro Zinc Mine**, Yukon Territories - design, construction, monitoring and development of a reclamation plan, 40 years after initial construction. The 1979 works involved tailings dams and a 4.5 km long creek diversion incorporating seepage and thermal liners and multiple drop structures to enable fish passage.
- **Coal mines**, Alberta and British Columbia - preliminary design, regulatory hearings, detailed design of remedial works following major floods.
- **Oilsands**, Alberta - senior in-house advisor for several major projects to develop and implement the scope of surface drainage, dewatering and sediment management.
- **Gravel mines**, Alberta - design of surface dewatering systems, establishment of manning buffers and backfill requirements adjacent to rivers, blockage of a major breach into a mine as a result of the record 2013 Bow River flood and presentations at regulatory hearings.

The key to sound design in data scarce remote regions is to apply the "What If" principle. With no or minimal flow data for the Faro Mine in 1975 and for the Oyu Tolgoi Mine in Mongolia, this approach was critical to establishing the design and appropriate safety factors. The excellent 40 year performance of the Faro Mine diversion is a testament to the planning, design and field engineering during construction.



CLIENTS

- Alberta Environment
- Burnco
- Cardinal River Coal
- Cheviot Mine
- Curragh Resources
- DFO
- Elco Mining
- Elkview Coal
- Esso Byron Creek
- Gregg River
- Imperial Oil
- Ivanhoe
- Lafarge Canada
- Luscar Ltd. - Coal Valley
- OSLO
- Sandalta
- Shell Canada
- Smoky River Coals Ltd.
- Solv - Ex
- Suncor
- Syncrude



SCOPE

- DESIGN
- CONSTRUCTION PLANS
- APPROVALS
- CONSTRUCTION ENGINEERING
- OPERATIONAL MONITORING



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BESIDES WORK

In 1945, the Canadian-led allies liberated my birth country, the Netherlands. I was born in early 1944. More than 7,600 Canadians lost their lives. As a result of their valour and sacrifice, the suffering of the Dutch especially during the "Hunger Winter" of 1944/1945, was greatly shortened and alleviated. My parents' concern for my health, especially after having lost a 6 month old son in 1940, was obvious from my Dad's hand-drawn medical chart.



Combining my passion (and nominal talent) for long distance road biking with my deep appreciation for the Canadian veterans, I rode Lake Louise to Whistler, in 2015. By the numbers:

- 7 days, 1,000 km
- total climb of 36,000 feet
- \$16,000 raised for the Calgary Veterans Food Bank

Since that ride, I have annually purchased children bikes for families supported by the Calgary Military Family Resource Centre.

CONTACT

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1-403-650-4758

THE BORING DETAILS

EDUCATION

- B. Sc., Civil Engineering, 1966, University of Manitoba
- M. Sc., Water Resources, 1969, University of Manitoba

MEMBERSHIPS

- Professional Engineer, Alberta, British Columbia, and Northwest Territories
- American Society of Civil Engineers (since 1968)

ASSOCIATION RESPONSIBILITIES

- APEGA - Councillor (2004 - 2007)
- University of Calgary - Civil Engineering Advisory Council (2002 - 2004)
- Board of Directors, Consulting Engineers of Alberta (1985 - 1987)
- Chairman, 8th Annual Western Regional Conference, EIC (1982)
- Calgary Chairman, Engineering Institute of Canada (1980 -1981)
- Calgary Chairman, Canadian Society for Civil Engineering (1977 - 1979)

AWARDS

- In 1984 Wim Veldman was awarded a Fellow in the Engineering Institute of Canada (F.E.I.C.) for "excellence in engineering and services rendered to his profession and to society".
- Multiple awards of "excellence" and "merit" from the Consulting Engineers of Alberta and the Association of Consulting Engineers of Canada for innovative solutions for challenging pipeline projects in Argentina and Ecuador.

PROFESSIONAL HISTORY

• Wim M. Veldman Consulting Inc.	Hydrotechnical Consultant	2012 - Present
• Matrix Solutions Inc.	Vice President	2005 to 2012**
• Hydroconsult	President	1992 to 2005
• Hardy BBT Ltd	Manager	1987 to 1992*
• Hydrocon Engineering	President	1979 to 1987
• Northwest Hydraulic Consultants	Principal	1973 to 1979
• Manitoba Hydro / Crippen Acres /Province of Manitoba	Hydraulic Engineer	1966 to 1973

* Hardy purchased Hydrocon in 1987

** Matrix purchased Hydroconsult in 2005

PUBLICATIONS AND MAJOR PRESENTATIONS

- Wim M. Veldman, "*Blowing in the Wind – Tales from an Immigrant Kid to International Consultant.*" Personal memoirs, self published. 155 pp. June 2020.
- W. M. Veldman, "*Trenched and Elevated Pipeline River Crossings.*" Author, Chapter 5 of "*Pipeline Geohazards, Planning Design, Construction and Operations,*" Edited by M. Rizkalla and R. Read, American Society of Mechanical Engineers, 2019.
- W. M. Veldman, "*Flood Mitigation, 2013 Alberta Flood.*" Invited Panel Member, 2014. Canadian Society of Civil Engineers.
- W. M. Veldman, "*River Crossings – What Have We Learned in 40 Years.*" Invited speaker, Alaska Department of Environmental Conservation, 2013 Arctic/Cold Regions Oil Pipeline Conference, Anchorage, Alaska, 2013.
- W. M. Veldman, "*Guide to Bridge Hydraulics.*" Transportation Association of Canada. Steering and Review Committee, 2004.
- W. M. Veldman and J. Ferrell, "*Lessons Learned for River Crossing Designs from Four Major Floods Experienced Along the Trans Alaska Pipeline.*" ASCE, Cold Regions Engineering, Anchorage, Alaska, May 2002.
- W. M. Veldman and P. McDevitt, "*A 13 km River Training Structure for the Trans Alaska Oil Pipeline.*" Offshore Mechanics and Arctic Engineering Conference, American Society of Mechanical Engineers Conference, Calgary, Alberta, 1992.



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