



Hydroconsult

Currents

NEWSLETTER

7th EDITION

DEC. 2003



Dear clients, friends and colleagues

We wish you and your family all the best in the Christmas season and in 2004. As in past years, we will not be mailing out Christmas cards but instead will support War Veterans and local societies helping the homeless.

The year has been busy and exciting as we continue to work from A to A - Alaska to Alberta to Argentina. Some of our South American projects are nearly completed - the

OCP pipeline in Ecuador is now exporting oil - allowing me personally to focus more on North American projects again.

Thank you for your support and trust in 2003. I hope you enjoy this newsletter and check us out on the web for more details.

Wim Veldman



Public Presentations

In February Wim Veldman was the dinner speaker at the Southern Alberta Branch of the Project Management Institute. His topic was "Pipelines from the Arctic to the Jungles of South America". In October, he presented essentially the same theme, with some exciting updates (see inside story "Beyond the Norm", to a joint luncheon meeting of the ASME and CSME. He concluded with 8 lessons learned from 30 years of pipeline experience:

1. **Utilize** local knowledge
2. **Adapt** to local conditions
3. **Schedule** for climatic conditions
4. **Challenge** conventional wisdom
5. **Question** regulatory needs
6. **Know** scope of commitments
7. **Utilize** operational performance
8. **Integrate** project's life cycle

Mining Our Experience



Water management planning, design, impact assessments and permitting for mining developments continues to be a significant component of Hydroconsult's services. Current projects include: assessing the tailings pond as part of the closure plans at Luscar's Obed Mountain Mine; baseline data collection for a planned oil sands mine development; assisting with permit applications at the Grand Cache Coal mine; stream restoration, planning and designs for Cardinal River Coals/Elk Valley Coal Corp; and water management planning, impact assessments and stream crossing designs for extension of Luscar's Coal Valley Mine.



In this photo a dragline road crossing of the Upper Lovett River is under construction at the Coal Valley Mine. A 54 m long, 2.8 m high by 4.4 m wide ellipse culvert, salvaged from reclamation work at Gregg River Mine, is used on this 1.4 m to 3.2 m wide channel.

A fabric lined channel was constructed as a clean water bypass. Aquatic monitoring is provided throughout construction, as scheduling required this to be constructed within the stream's Restricted Activity Period. Stream restoration plans include placement of spawning gravels, gravel catches and tree revetments.

Dave Cooper



WE HAVE MOVED!!!

See back page for our new address



Beyond the Norm

The route traversed by the 500 kilometre, 24-36" OCP oil pipeline is daunting. Commencing in the jungles of the Amazon River basin, the route torturously winds



Rio Reventador - Before

through narrow river valleys fringed by raging rivers and steep, unstable mountain slopes to reach an oxygen-depleted elevation of 4000 metres near Quito where it then follows a knife-edged ridge for 8 kilometres before plunging to the Pacific Ocean.

In March 1987, a 6.9 magnitude earthquake, following a month of torrential rains, caused ruptures and damage to 70 kilometres of the existing parallel SOTE oil pipeline, the most extensive pipeline failure ever in the world. In June 2001, landslides caused 46 fatalities in the Rio Papallacta Valley and spillage of the SOTE oil line into the Rio.



Rio Reventador - After

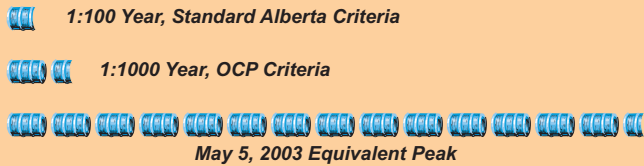
On November 3, 2002, Volcan Reventador, in a massive eruption, transformed steep stable mountainous rivers to moonscapes of erosion and deposition. Then on May 5, 2003, after construction of the OCP line was nearly completed, a 100 year rainfall mobilized the newly deposited material from the upper slopes of the volcano generating a combined water/debris flow nearly 10 times the 1000 year flood.

In the Rio Papallacta valley, the landslides necessitated a significant realignment of OCP resulting in 11 river sections in less than 14 kilometres. In the shadow of the active volcano, fast-tracked redesigns and reconstruction of the river crossings were

required to ensure completion of the OCP pipeline on schedule.

The combination of design, scheduling, logistical and construction

Relative Magnitude of May 5, 2003 Rio Reventador Flood



challenges faced by the Owner (OCP, Ecuador), EPC Contractor (Techint, Argentina) and River Engineering Consultant (Hydroconsult) required innovative solutions, truly "Beyond the Norm".

Wim Veldman

Protecting Homes for Humans and Fish



Hydroconsult was retained by Avalon Homes for the bank protection project of their housing development located along the extensively

eroded bank of the Highwood River. Our work included permitting, design and construction inspection for a 365 m long Class III riprap revetment. The Highwood River is home for different fish species and is environmentally sensitive. Therefore, care had to be taken in the design and construction of the project. To minimize the potential for sediment entering the stream, an instream berm was constructed to isolate river flow from the work area. To enhance fish habitat, a series of mini-spurs were constructed.



Environmentally sound practices, knowledge of practical construction techniques and effective communication with the regulators and the contractor were the keys to the success for this project.

Andy Wong / Dave Cooper



Alaska Range, Central Alaska



Hydroconsult

The Energizer Bunny

This October marked Wim's 30 year anniversary of his continuous involvement on the trans-Alaska oil pipeline. He and Shirley first moved to Houston in 1973 and then spent 2.5 years in Alaska during the design and construction. As recently as this October, he spent 6 days doing a ground and helicopter recon of all the river crossings and floodplains along TAPS' 800 mile route.



Hydroconsult is also providing high level input and review of river crossings for future oil fields west of Prudhoe Bay (Baker/ConocoPhillips). In Canada, we have just completed a Conceptual Engineering report for the river crossings for the Mackenzie Gas Project (Colt KBR/IORL) and expect to continue to be involved in future phases of MGP.

Wim Veldman

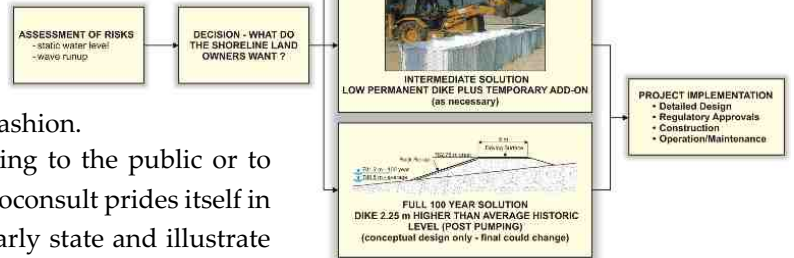
NEWSFLASH!!!

The Consulting Engineers of Alberta annually select the top projects by member firms for their **Showcase Awards**. We have won an **award(s)** for our role in the OCP pipeline in Ecuador, see "Beyond the Norm" article. The awards will be presented at a CEA gala banquet on February 7, 2004 in Edmonton. Will keep you posted on our website.

The KISS Principle

Hydrologic and hydraulic analysis to support the design and impact assessments of proposed projects are often complex and difficult for affected stakeholders to comprehend. For two projects in 2003, a proposed flood control dike for Buffalo Lake in central Alberta (Alberta Environment) and a proposed large storm outfall into the Elbow River, in Calgary (City of Calgary), Hydroconsult defined the risks associated with various options and presented the technically complex results at public meetings in a concise and understandable fashion.

Whether presenting to the public or to our clients, Hydroconsult prides itself in being able to clearly state and illustrate the rationale and basis for our findings and recommendations.



Juan Carlos Sarmiento / Wim Veldman

Golden Projects for Hydroconsult



Hydroconsult has been assisting the Town of Golden with the improvement of the Kicking Horse River dike system since 1998. This involves the permitting, design and inspection of these improvements. In 2003, Hydroconsult supervised the placement of riprap armouring on a 270 m section of the dike system. The riprap was placed around existing trees and vegetation to minimize the impact on aesthetics and fisheries habitat in the sub-channel.

Hydroconsult is using our extensive background with the Kicking Horse River to review and update the Town of Golden's floodproofing criteria for the homes protected by the dikes.



Greg Standen / Dave Cooper

BUSINESS BRIEFS

- Like most consulting engineering firms, we generally market our **Features** (see Scope of Services) rather than our **Benefits**. What are the differences? The **Benefits of engaging Hydroconsult** are:
 - **Long Term Experience** to assist you in quickly focusing on technically sound, economic and practical solutions,
 - **Full scope of services**, from EIA to design to construction to operational monitoring. We believe that to prepare a realistic EIA, for example, you must have hands-on construction experience. Operational monitoring provides essential feedback for design,
 - **One on One Continuous Relationships** between our senior engineers and you in order to ensure we understand your objectives.

- Professional Liability Insurance** rates for Hydroconsult and most engineering companies in North America have increased 25-50% in the last several years. Whereas we can do little about its

cost, other than participating in an industry-wide review of options, **creating quality work and healthy, open client relations are two means of reducing or avoiding the likelihood of claims.**

- The Project Management Institute stresses the need for a **Mix of Experienced and Junior Staff** to meet the technical and budgetary requirements of projects. PMI recommends a minimum **"Experience Quotient"** of 5 (total years of experience/no. of team members). With Wim Veldman and Dave Cooper as Project Manager and one of our junior engineers on any project, our EQ is 19.5 and 14.5 respectively, well above the minimum value recommended by PMI.

- Wim uses a **"So What" stamp in testing the relevance of statements** in our reports. Is the information relevant? Is the analysis relevant in developing conclusions or recommendations? The stamp is not our original idea - Wim first saw it years ago in Tulsa where a large international firm used it in critically reviewing their own proposals ("We have 15,000 employees worldwide" - "So What!").



Flying With The Condors

Over the years Wim has flown in 15 types of helicopters (he has maintained a detailed flight log since 1970). For pure power, nothing surpasses the Lama, a powerful high altitude model. At 16,000 feet in extreme turbulence in the high Andes of South America, while condors circled above mocking our feeble efforts, the experience of my airforce Captain from Argentina was comforting.

What are we working on today?

A classification of the active projects currently on our job list indicates the distribution shown.

Pipelines / Oil and Gas	████████████████████
Mining	██████
Infrastructure	████████████████████
Water Resources Development	██

"I can almost guarantee you that someday, as you look back on your life, you'll be less interested in how many items and achievements you were able to collect than in how much you were able to express love, spend time with the people you care most about, and contribute to the world you live in."

Richard Carlson



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PROJECT TYPE

- PIPELINES
- INDUSTRIAL FACILITIES
- MINES
- INFRASTRUCTURE DEVELOPMENT
- WATER RESOURCES DEVELOPMENT

SCOPE OF SERVICES

- EIA
- DESIGN
- PERMITTING/LICENSING
- CONSTRUCTION
- MONITORING