



**Vancouver Geotechnical Society**

A Local Section of the Canadian Geotechnical Society

Visit : [www.v-g-s.ca](http://www.v-g-s.ca)

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**NOTICE OF UPCOMING DINNER PRESENTATION**

**CANADIAN GEOTECHNICAL SOCIETY**

**2013 SPRING CROSS CANADA LECTURE TOUR**

**THURSDAY, APRIL 18, 2013**

**SUBJECT:** Case Studies in Soil Parameter Selections for Clay Foundations

**SPEAKER:** Mr. Bob Cameron, B.A.Sc., M.A.Sc., P.Eng.  
Syncrude Canada Ltd., Principal Geotechnical Engineer

Bob lives in Fort McMurray, Alberta. He is a Principal Geotechnical Engineer with Syncrude Canada Ltd. and supports the operation of Oil Sands Mining and Tailings Construction and related Projects. Bob is the head geotechnical advisor for Syncrude.

Bob has worked on a multitude of projects over the last 29 years with Syncrude.

Bob has been the geotechnical design engineer or lead engineer on 13 of Syncrude's tailings dam and has been involved in all stages from preliminary concept, design, construction, monitoring, licensing, to annual performance reports. He remains the engineer-of-record for many of those dams.

Bob's first dam design was the Highway 63 In-Pit Berm/Dam starting in 1992. It was 42 Million cubic metres, was built in 2 ½ years through winters down to -40 degrees Celsius and used engineered lift thicknesses of 1m compacted by 170-Ton payload heavy haulers. It was ranked by the Alberta Professional Engineering and Geoscience Association (APEGA) as one of the top 100 engineering feats in the last 100 years, in Alberta. One of the most recent Syncrude dams currently being designed by his team and currently under construction since 2007 is 4km long, with a maximum height of 92m, with a total volume of overburden soils in the order of 180 Million cubic meters. Bob has co-authored and presented over 14 papers on some of these dam designs and practical construction considerations in Canadian Geotechnical Society (CGS) Conferences and for the Canadian Institute of Mining (CIM).

Bob also has been the lead designer or reviewer of Overburden Dump Fill Disposal sites. He was the responsible geotechnical engineer to sign-off the geotechnical issues for the first Overburden Dump in the Oil Sands Industry to get a Reclamation Certificate meaning it was reclaimed and turned back over to crown land. The largest current dump designed by Bob's team and currently under construction is between 200 to 300 Million Cubic Meters.

Bob also has experience in mine pit wall design and has co-authored 3 related papers presented at CGS and CIM Conferences. He has also co-authored papers on Haul Road designs, retaining walls and foundations on deep fills. He has also worked on dragline mining, truck & shovel mining, pipeline corridors, foundation designs for heavy equipment, piling designs for infrastructure and recently on the new centrifuged tailings to allow for quicker tailings reclamation.

Bob has been extensively involved with the current "Oil Sands Tailings Dam De-Licensing (Decommissioning) Committee" to revert dams back to landforms and has made two presentations on this issue at Canadian Dam Safety Association (CDA)

conferences.

Bob's graduated from the University of Toronto with his Bachelor's degree in Geological Engineering in 1982, and then in 1985 with a Master's degree in Civil Engineering both with a Geotechnical Specialty.

### **CONTENT:**

The methodology developed over 29 years to pick design shear strength and pore pressure parameters for up to 6 different clays will be presented. Anyone who designs large foundations on clay knows it is often not easy to select soil design parameters. The case studies of failures and successes will show examples of how the same clay can have multiple pore water pressure design parameters depending on the whether loaded, or unloaded, and everything in-between. Field measured deformations and pore water pressures for two dump embankment foundations, two dam foundations, two failed slopes, two retaining walls and a mine pit wall will be discussed. It will be shown that one shear strength estimate and one pore water pressure selection for the same clay within even the same design, is not adequate for many of the case studies. Some of the clays noted have high shear strengths across bedding, but very low sliding shear strengths along bedding and weak planes. Trials and tribulations with peak and residual shear strength laboratory testing, total and effective stress considerations and field pore water pressure data will be discussed and shown to provide some very useful, but often misleading or misinterpreted input parameters, unless properly interrogated. Surprisingly, all the clays to be discussed, that act differently and also differ within themselves under different conditions, are all located in the same area.

### **DETAILS**

**Executive Inn**, 4201 Lougheed Highway, Burnaby, BC V5C 3Y6 (Phone: 604-298-2010)

**Social Hour:** 5:30 to 6:30 pm (drinks available at the hotel bar)

**Technical Presentation:** 6:30 to 7:45 pm

**Dinner:** 8:00 pm (\$30 will be charged for dinner)

**RSVP for Dinner:** Dinner reservation to ali.amini@shaw.ca by Wednesday, April 17, 2013 or register at the door with Chris Longley.

No reservation is required for attending the presentation.

*The VGS would like to thank the following companies (in alphabetical order) for financially sponsoring this Cross Canada Lecture Tour:*

- *BGC Engineering Inc.*
- *ConeTec Investigations Ltd.*
- *Golder Associates Ltd.*
- *J D Mollard and Associates (2010) Limited*

*The Cross Canada Lecture Tour is organized by the Canadian Geotechnical Society and its various local sections, and travel funds are provided by the Canadian Foundation for Geotechnique.*