Virginia Tech
Center for Geotechnical Practice and Research
Annual Lecture Program

Thursday, February 28, 2013

Alumni Assembly Hall
Inn at Virginia Tech and Skelton Conference Center
Blacksburg, Virginia

8:00-8:45 **Rick Dechamps P.E. PhD** *Nicholson Construction Company*
"Misconceptions and Insights in Geotechnical Engineering"

The lecture will discuss demonstrated differences between our "mental" models and actual behavior for two areas within geotechnical engineering: deformation in excavation support systems, and ultimate bond stresses in ground anchors and micropiles. Our mental models often evolve from the design models we commonly use to complete analyses. However, design models necessarily contain simplifying assumptions, and these simplifying assumptions can distort our perceptions of true behavior. A more complete appreciation of real behavior allows us to use judgment in the application of the available design models or in selection of construction approach.

9:00-9:45 **George Burke, P.E.** *Hayward Baker*
"Quality Control Advances in Geotechnical Construction"

Developments in data collection, processing and presentation for several construction systems will be discussed. These include ground improvement, grouting and deep foundations. A dozen project examples will be illustrated.

10:00-10:45 **Gordon Matheson, P.E., PhD, P.G.** *Schnabel Engineering*
"Heaving of a Basement Floor Slab – Design Lessons Learned"

A basement floor slab was heaved due to hydraulic pressures caused by high rainfall from Sandy. We will look at the geology and groundwater conditions in the site, the prediction of permanent sub-drain flows, the causes of the floor slab heave, and the design lessons learned from this event.

Keynote Speaker

11:00-12:00 **Craig H. Benson, PhD, P.E., DGE, NAE,** *Chair, Civil & Environmental Engineering Department, University of Wisconsin*
"Designing Water Balance Covers for Waste Containment – A Practical Application of Variably Saturated Flow Principles in Geotechnical Design"

This presentation describes the methodology used to design water balance covers for waste containment based on the outcomes of two decades of basic and applied research that culminated in US EPA's Alternative Cover Assessment Program. Principles of variably saturated flow relevant to water balance cover design are described, and the application of numerical models to prediction is discussed using a case history as an underlying example. Model parameterization using laboratory measurements is covered along with field validation with large-scale field measurements.

12:00 **The lecturers, CGPR members, and Virginia Tech faculty and graduate students are invited to join us for lunch.**

http://cgpr.cee.vt.edu