

ASPECT

Definition: 'as - pekt / 1. a position facing a particular direction
2. appearance to the eye & mind.

THE DEGIFS NEWSLETTER

IN THIS ISSUE:

<u>Item</u>	<u>Page No.</u>
Letter to the Editor.....	2
Up-close and Professional – DEGIFS Member Profile: Bruce McFarlane	3
Karst Management in BC.....	4
The Engineering Geology and Forestry Geotechnics Research Group at SFU.....	5
Angle of Repose.....	7
Minutes: DEGIFS Strategic Planning Session.....	9
Professional Training Update.....	11
Forest Act Changes.....	11
Link: Russel Creek Profile.....	11
WHO WE ARE.....	12
ASPECT SUBMISSION INFORMATION.....	12

The Editors:

Jennifer Clarke, P.Geo.
EBA Engineering
jclarke@eba.ca

Julie Orban, P.Geo.
Integrated Land Management
Bureau (ILMB)
julie.orban@gov.bc.ca

Rob Wilson, P.Eng., P.Geo.
Evergreen Geotechnical Inc.
Evergreen_Geotech@telus.net

The "Editorial"

Eric McQuarrie, P.Eng. and Kevin Turner, P.Eng.

TSAs: The Onus is on the Professional

Two recent news items are filtering their way through our membership. First, a DEGIFS Member has recently been disciplined by APEGBC for not following the appropriate standards of practice. The possible repercussions of this were clearly stated by APEGBC in the *Guidelines for Terrain Stability Assessments in the Forest Sector* in 2003. The list of deficiencies in this case is lengthy and, if not already done, warrants a review by every Member conducting terrain stability assessments (please refer to: <http://www.apeg.bc.ca/enforcement/other-disciplinary-action/120778SO.pdf>). At the same time, remember that the *Guidelines* are not a checklist; it is up to the professional to ensure that the intent of the *Guidelines* is met by exercising his or her professional judgement. It is equally important to clearly show in the report how opinions were reached. How many of our Members are "letting things slide" (pardon the pun), thinking their reports are "just fine"? How many Members have had their reports reviewed after reading the Stipulated Order to ensure they meet the objectives stated in the *Guidelines*? How many Members have a quality assurance program to ensure their work meets these guidelines?

The recent Forest Practices Board Special Investigation (Report FPB/SIR/14, July 2005 - <http://www.fpb.gov.bc.ca/special/investigations/SIR14/SIR14.pdf>) into management of landslide risk from forest practices also explores these questions to some degree. On the topic of TSAs, the investigation found all reports describe the landslide hazard within the cutblock (as one would expect) and that most (78%) provide recommendations to mitigate the hazard. However, only 30% of the reports describe the number, size and consequences of the potential landslides, only 40% address the hazards adjacent or connected to the cutblock, and only 10% (ugh!) mention historical landslide activity in the vicinity of the cutblock. The FPB investigation did not touch on the inclusion of rationale in TSA reports. If it had, the results would probably have been even more unfavourable, based on some recent reviews of TSA reports. The one piece of good news is that the more recent reports were found to be more comprehensive, hopefully the result of the newer APEGBC *Guidelines* and better education of our Members. However, the fact that many reports did not even follow the *Mapping and Assessing Terrain Stability (MATS) Guidebook*, the standard of the day at that time, is disappointing.

A recent TSA Guidelines Seminar revealed a startling number of TSAs are being conducted without the use of air photos and other pertinent background information. The *MATS Guidebook* (the old standard) states that air photos are an essential component of a TSA and if not available, the report should clearly state this as a limitation. The *APEGBC Guidelines* (the current standard) echo this point and we cannot imagine conducting TSAs without using air photos, not to mention using historical air photos.

Cont. on p. 2



This finding has also been confirmed during the recent review of some TSA reports where neither the most current nor historical air photos were used, despite the improvements in searching and ordering air photos on the web. As professionals, the onus is on us to ensure we have the right tools to do our job to the appropriate standard and to educate our clients where necessary.

With respect to our clients, the FPB study also found that one half of the silviculture prescriptions made no reference to the TSAs and that 24% of the landslides occurred in areas identified as having a high likelihood of landslides (one assumes this was not intended, but there may be some cases where harvesting on areas of high likelihood of landslides was acknowledged by the licensee and approved by government). The recommendations in the TSAs are either being ignored or inadequately followed. This may simply be oversight or possibly ignorance of the issues surrounding professional practice and diligence, but ABCFP will surely want to address this specific point. The Joint Practices Board is currently assisting the ABCFP on this issue. If ABCFP adopts guidelines for its Members that describe their responsibilities, such as when to obtain and how to use terrain stability assessments, then RPFs working as Coordinated Registered Professionals (CRPs) would be obligated to meet these guidelines. Perhaps then our Members will have fewer problems getting background information and our recommendations will be better implemented, but the onus will remain on the terrain assessor to at least request and "ferret out" all readily available background information.

The FPB study had one piece of good news for our Members. They concluded that landslide frequencies have decreased significantly since implementation of the Forest Practices Code. The FPB also stated that the more detailed the assessments (hazard and risk identified), the better they were at predicting a landslide occurrence. This implies that terrain stability mapping and terrain stability assessments are making a difference, even if there are concerns regarding the quality of the work. In other words, poor assessments are better than no assessments, but detailed assessments are even better! Isn't that what we (terrain assessors and forest professionals) are trying to achieve? Isn't that what the public would expect? We obviously have some work to do to improve the terrain stability assessment situation.

The obvious solutions are simple: more attention by our own Members, training, guidance for our clients, and internal and external reviews. But, if these do not raise the level of practice, what would you prefer to see: more Members investigated and disciplined, or perhaps the requirement of a terrain specialist designation?

Please note: DEGIFS Executive does not necessarily support or agree with the opinions and conclusions indicated in this editorial.

LETTER TO THE EDITOR Definition vs. Interpretation

Lyle Unwin, RPF, EIT
Maritime Pacific Engineering Ltd.

As a Professional Forester and an Engineer in Training I have a unique perspective with regards to the March 2005 JPB Crossing Guidelines. I see the viewpoint of two different Coordinating Registered Professionals (CRP). I truly believe that all foresters act professionally when dealing with a crossing and if a forester feels uneasy about a crossing he/she will seek the advice from another professional, whether an engineer or another forester. I do not believe that we need to be confident in a forester's academic and experience levels when designing a crossing nor do I believe a forester's design will result in the erosion of quality professional services. The confidence and quality assurance is the responsibility of the forester.

As an engineer I do not have an issue with foresters designing bridges and I too have had trouble with the span cut offs as I believe the crossing is far more complex than the bridge. My concern is the variation in the interpretation of the guidelines that I am seeing and the difficulty of applying these guidelines in the field. Can a Limited Licensee or Special Permit holder act as the CRP even though they are not mentioned within the definition of a CRP or on the Crossing Assurance Statement? What exactly is Section 3.2.2(2) referring to, and as a result can a "simple crossing" truly be defined or identified?

Perhaps these questions or concerns are another example of professionals having difficulty adjusting to a results-based environment where prescription is replaced by professional reliance. Or perhaps these are simply differences in professional opinion and we need to be careful of how critical we are of another professional's work.



UP-CLOSE and PROFESSIONAL DEGIFS MEMBER PROFILE

DEGIFS Member:

BRUCE McFARLANE, M.R.M., P.Eng.

*Regional Hydrologist
BC Ministry of Environment
Kamloops, BC*

Interviewer: Jennifer Clarke



Photo: Bruce McFarlane

Who is he and how did he get where he is?

Bruce McFarlane is the Regional Hydrologist for the BC Ministry of Environment, Thompson Region, Ecosystems Section in Kamloops. Bruce obtained an undergraduate degree from UBC in the Bioresource Engineering Program. He consulted for several years before returning to SFU for a Masters degree in Natural Resources Management. Bruce fostered an interest in watershed studies and continued to pursue watershed-related work upon graduation. The Watershed Restoration Program attracted Bruce to a position with the Provincial Government in Williams Lake where he spent seven years working on watershed restoration projects for the Ministry of Forests. With the close of FRBC, Bruce made the move to Kamloops, where he currently resides and continues to pursue projects with a watershed focus.

What does he do?

In his current position with the Ministry of Environment, Bruce acts as a community liaison, hydrologist, and mentor. Through his position with MOE, Bruce promotes the use of technical

approaches by investigating new applications for science, calibrating through case studies, and validating through monitoring and feedback. Much of the work he does focuses on water management and how to balance instream water needs with offstream use. Bruce is very approachable and is quick to share a wealth of knowledge on a wide range of subject areas (he calls himself a "specialized generalist"). As an information broker, Bruce acts to outreach to the public and other scientists and stays current so that he may guide others.

What has been his favorite project experience?

Projects where Bruce is able to share a common vision with others, engage others to participate as a group, and where he's able to work with others to come to an understanding and be productive are most enjoyable. A memorable example is the work Bruce has done with the Nicola Watershed Group in Kamloops. With this group, Bruce has enjoyed working with people to help them understand and benefit from understanding scientific principles. Bruce has found that each community group offers unique issues and that each has a different focus. For Bruce, working with others to improve quality of life, promote sustainability, and relate knowledge to everyday life is satisfying

If he could impart some advice to young DEGIFS members what would it be?

Bruce recommends that young members "participate in circles of knowledge" and to be open to exchange and share ideas with others. Participation in a large organization is not necessary; in fact, Bruce feels that participation in smaller groups, such as sub-committees can be more effective because of improved efficiencies.

Bruce also recommends that if you know what you like to do, then keep doing it, but don't hesitate to accept new opportunities to diversify and expand your skills.

In his opinion how can APEGBC or DEGIFS better meet the needs of its members?

Bruce feels that APEGBC and DEGIFS are doing a good job and recognizes the difficulty that the association has in catering to a diversity of interests. He recommends that APEGBC/DEGIFS listen to its members to identify needs. He feels that support should come from bottom up and that integration should be facilitated from top down.



If he could be any kind of geomorphological event, what would it be?

Bruce would like to be the recessional curve on a snow melt-dominated hydrograph. He feels that this event is under-rated, the links to biology are not well understood and that the importance of the backend of the hydrograph is often overlooked. The recessional portion of an annual hydrograph determines how everything settles out and leaves you for the rest of the year. It is responsible for much of ecosystem maintenance, determines the propagation success of riparian plants, and is a time when aquatic and riparian-dependant species emerge and make use of the aquatic environment.

KARST MANAGEMENT IN BRITISH COLUMBIA: THE TRANSITION TO A RESULTS-BASED FOREST PRACTICES FRAMEWORK AND THE LEGALLY SUPPORTED PRACTICE REQUIREMENTS FOR KARST RESOURCE FEATURES

Submitted by: *Tim Stokes, P.Geo.*

Contributing authors listed alphabetically: Peter Bradford, Bob Craven, Bill l'Anson, Carol Ramsey and Tim Stokes

Abstract

The release of karst inventory standards and vulnerability assessment procedures in 2001, and best practice recommendations for forestry operations on karst in 2003, has laid the groundwork for more comprehensive management of karst resources in British Columbia's (BC) forests. In January 2004, the BC Government introduced the Forest and Range Practices Act (FRPA), a new results-based regulatory framework for forest practices. FRPA will have profound implications for karst management in BC. Draft government orders made pursuant to regulations under FRPA have identified categories of karst features and karst terrain that would be legally subject to a practice requirement of not damaging or rendering the resource feature ineffective when conducting a primary forest activity. Under these proposed orders and FRPA, it is the responsibility of forest companies to recognize and assess the various categories of karst resource features, and to prescribe the appropriate forest practices for them, using professional advice when needed.

Introduction

In January 2004, the *Forest and Range Practices Act* (FRPA) was introduced in British Columbia (BC) to streamline regulatory forest management requirements and improve the competitiveness of the provincial forest and range sectors, while at the same time maintaining high environmental standards. FRPA is a results-based legislative and regulatory framework whereby the government establishes objectives for resource values, and forest companies (licensees) prepare results and/or strategies that must be consistent with those objectives. The development of appropriate results and strategies is left to the professional judgment and discretion of the licensee; however, the government retains the responsibility for reviewing and approving licensees' operational plans. The focus of FRPA is on "end results" rather than prescriptive forest practices. FRPA replaces the more prescriptive Forest Practices Code, which has guided forest management in BC since 1995. This paper presents an overview of BC's new results-based approach to forest practices and how it relates to the management of karst resources in BC. The recently proposed use of legally supported practice requirements, and other legal and non-legal options for karst management under FRPA, are discussed. The paper also addresses related issues such as professional reliance, the evaluation and monitoring of karst resources under FRPA, the role of the Forest Practices Board, certification and self-regulation, and the next steps for karst management in BC.

Conclusions

FRPA, a results-based regulatory framework, replaces the more prescriptive Forest Practices Code, which has guided forest management in BC since 1995. Freedom to manage has been actively sought by industry; however, it comes with added responsibilities. Karst is a subset of resource features; one of the 11 key resource values specified in FRPA. The BC government presently sets no objectives for managing karst under FRPA or its associated regulations; however, objectives for karst may be provided in land-use plans or Sustainable Resource Management Plans, or if karst resources are established as an interpretive forest site, recreation site or recreation trail with objectives. Under the Government Actions Regulation (GAR), the surface and subsurface elements of a karst system can be legally established by order as resource features. This is the first time that karst has been recognized in legislation in BC. Karst resources can



be established as resource features by type or category, and may be restricted to a specified geographic location. Specific karst features and categories of easily recognized, well-developed broad karst landscapes might meet this requirement. With the establishment of GAR orders for karst, implementation of a karst management system would in effect no longer be discretionary – it would be compulsory and results driven. The GAR orders are therefore regarded as the "missing link" in the transition to a results-based forest practices framework (Griffiths *et al.* 2005). The proposed karst orders represent a significant milestone for karst management in coastal BC's temperate forests, enabling legally supported practice requirements based on documents such as the *Karst Management Handbook for British Columbia*. Once established, the karst orders will be looked upon as an important first step on the way to achieving parity with current world leaders in the protection and management of karst resources in coastal temperate forests (e.g., federal forest lands in Southeast Alaska). BC currently has a comprehensive framework for karst management, including a karst inventory system, best management practices for forest operations on karst terrain, and is in the finishing stages of developing monitoring protocols for evaluating karst management under FRPA. The development and implementation of a karst-specific monitoring program is likely to facilitate the periodic updating of recommended best management practices. This indicates an ongoing commitment by the BC Government to manage its karst resources. As one of the few jurisdictions in the world to move toward a results-based regulatory regime, it is anticipated that experiences in BC will be of value to karst management specialists in other forested karst regions, particularly in the coastal temperate rainforests of Alaska, New Zealand, Australia (Tasmania) and Chile.

FOR A COMPLETE COPY OF THE PAPER GO TO:

www.degifs.com

Contact Information:

Paul Griffiths, Cave Management Services /
 KarstCare™,
 544 Springbok Road, Campbell River,
 British Columbia, Canada, V9W 8A2
 Email: pgriff@island.net

**THE ENGINEERING GEOLOGY AND
 FORESTRY GEOTECHNICS RESEARCH
 GROUP AT SIMON FRASER UNIVERSITY
 – A FIVE YEAR UPDATE**

Victoria Stevens and Doug Stead

Established in 2000 under the auspices of Forest Renewal British Columbia, the Engineering Geology and Forestry Geotechnics teaching and research programs at Simon Fraser University have continued to grow and develop over the past five years. Led by Doug Stead as the FRBC Endowed Chair in Terrain Analysis and Forestry Geotechnics, and Brent Ward, Associate Professor, the group has seen the completion of five graduate-level degrees and currently includes three Masters students, four PhD students, and a post-doctoral fellow. Some of the graduate projects include studies of gentle-over-steep landslides, tectonic controls on rockslides, landslide run-out prediction and the interaction of root reinforcement and groundwater in slope stability issues. The research group's main areas of focus have been geotechnical modeling of slopes, terrain stability assessments, engineering geology and numerical modeling of geohazards. Over the past year alone, members of the group have contributed over 20 publications to various journals and conference proceedings in addition to various poster presentations and technical reports.

As part of the FRBC Endowment programme, a Certificate in Forest Geoscience was introduced in 2001 and by 2006 six students will have completed this specialized group of courses. The Certificate in Forest Geoscience requires the completion of 30-32 credit hours (11-13 courses) as part of a regular degree program that focuses on coursework with direct relevance to the forest industry, such as soil and rock engineering, geomorphology, aerial photo interpretation and field geology. In addition, through the FRBC Chair, new courses in Soil and Rock Engineering, Forestry Geotechnics, Terrain Stability Assessment and Forest Harvesting Technology have been offered to Earth Science and Physical Geography students as options. Some of the graduates from these courses have moved on to careers in engineering geology, mining and forestry geotechnics, geological instrumentation and environmental remediation.

In 2004, in response to fluctuating enrolments the "Forestry Geotechnics" course was changed to



“Resource Geotechnics” and the content changed accordingly to emphasize the role of geotechnics in Canada’s resource sector. A major change to the FRBC Endowed program occurred in 2005 when the Chair was re-titled “Resource Geoscience and Geotechnics”. The re-launching of the Endowed Chair Program reflects a need to serve the BC resource sector as a whole, while still continuing the forestry geotechnics/geoscience activities. It is intended that these changes will provide the undergraduate and graduate students with a wider range of employment skills and at the same time expand the focus of available research opportunities. Current research emphasizes the increased scope of the research group including projects related to the Canadian mining industry.

One of the main goals of the Endowed Chair has been to forge strong relationships with members of the local forestry and geotechnical community through collaboration on student projects and invitations to speak to classes and groups at SFU. Along with involvement with the Geography and Resource and Environmental Management (REM) Departments at SFU, there is continued collaboration with the BC Ministry of Forests on many projects, ranging from teaching seminars to various Ministry staff participating as committee members on graduate student projects. Other visiting speakers have included experts from UBC, Golder Associates, the Greater Vancouver Regional District (GVRD), BGC Engineering, FERIC, and Chartwell Consultants Ltd., along with presentations from several independent consultants. The two specialized forestry-related seminar courses – Terrain Stability: Assessment and Mitigation and Forest Harvesting Technology – are presently being offered and will include guest lectures on Terrain Stability Assessments, remote sensing in the forest industry and geotechnical slope design, forest fires, forest road construction/deactivation, forest harvesting methods and planning, bioengineering and many others. Core undergraduate courses – Introduction to Rock and Soil Engineering (3rd year level) and Resource Geotechnics (4th year level) continue to be well attended by both Earth Science and Physical Geography undergraduate students.

The research group undertook a major move into a new building along with the rest of the Earth Sciences Department in September, 2005. This move provided access to a dedicated environmental geotechnical teaching laboratory which is now equipped with a variety of geotechnical testing equipment. Research

students have access to an extensive range of state-of-art slope analysis computer codes: a facility which compares well with computer modeling laboratories throughout the world. Through an educational arrangement with RocScience Ltd. (University of Toronto) the computer teaching laboratory has a full range of slope analysis codes. A computer slope analysis workshop has been given to industry in collaboration with UBC and another is planned in the coming year. The SFU research group recently led an NSERC proposal to acquire an Optech ILRIS 3D Laser Scanner; this produces digital elevation models from rapidly scanned slopes. This equipment was acquired in a collaborative proposal with UBC.

The research group at SFU is now looking forward to participating as key organizers of the North American Rock Mechanics Symposium (NARMS) which will take place in May 2007 in Vancouver, BC. The Symposium focus will be “Rock Mechanics: Meeting Society’s Challenges and Demands”, and is co-chaired by Doug Stead and Erik Eberhardt of UBC. This symposium will have geohazards as one of its three main themes. Details can be found at: <http://www.canada-us-rockmechanics.ca/>.

We would like to extend our great thanks to all those who have shared their expertise and contributed their time and energy to the success of the group over the past five years. In particular, the role of the FRBC Endowed Chair Advisory Panel should be acknowledged. This panel, currently chaired by Tom Millard (BCMoF) and previously by Mike Wise (GeoWise Consulting), has included geoscience, geotechnical and forestry members. We would like to thank them all as without their support the program would not have been able to prosper. Specifically thanks are due to Tom Millard, Mike Wise, Walt Cowlard, Bob Gerath, Nigel Skermer, Bruce Thomson, Jeff Gutsell, and Derek Kinakin (the latter two are students) and the late Jim Rodney. In addition to their roles on the advisory panel Bruce, Tom, Mike and Bob have provided continued support, interest and assistance in on-going research projects and courses. Particular thanks go to Cliff Roberts of Chartwell Consultants for his assistance in the development and delivery of the forest harvesting components of the courses. The support of SFU, through the Department Chairs and Science Faculty Deans has also been tireless and appreciated. The vision and work of Professors Mike Roberts and Ted Hickin in bringing the FRBC Endowment to SFU should not go unmentioned.



For more information, check out our webpage at www.sfu.ca/~tafgrc/ or contact Victoria Stevens at vms@sfu.ca or Doug Stead at dstead@sfu.ca.



Photo: Students on fieldtrip learning about slope stability and road deactivation, led by Mike Wise, Brent Ward and Doug Stead (not shown)

ANGLE OF REPOSE

Doug Dewar, P.Eng.

In my limited years of practicing within the field of slope stability as a geological engineer, perhaps the most bastardized term I have encountered is “angle of repose” or its evil twin “repose angle”. A review of my trusty geological dictionary (Bates and Jackson 1983, p.21) provides the following definition:

Angle of repose: the maximum angle or slope at which loose, cohesionless material remains stable. It commonly ranges between 33° to 37° on natural slopes.

Many engineers, geoscientists and geomorphologists consider the Transportation Research Board of the United States “Landslides Investigation and Mitigation” as the bible for slope stability work in the engineering (environmental) geology field. A review of the subject index in the TRB indicates only one reference for the angle of repose in the chapter detailing colluvium (Turner 1996 p.527 to 528):

“The maximum angle of a slope that can be held by a loose pile of rock fragments, regardless of their size, is termed the

angle of repose. Talus slopes composed of fragments of varying sizes typically exhibit angles of repose that are rarely less than 34 degrees or greater than 37 degrees”.

Holtz and Kovacs (1993) describe the concept of angle of repose, and define it as:

“the angle of internal friction of a granular material at its loosest state”.

An online search yielded two definitions (<http://en.wikipedia.org>):

Angle of Repose is a 1971 novel by Wallace Stegner about a wheelchair bound historian, Lyman Ward, who has lost connection with his son and living family and decides to write about his frontier era grandparents. It won the Pulitzer Prize for Fiction in 1972. The book is loosely based on the life of Mary Hallock Foote and included portions of her letters.

The angle of repose is an engineering property of particulate solids. When bulk particles are poured onto a horizontal surface, a conical pile will form. The angle between the edge of the pile and the horizontal surface is known as the angle of repose and is related to the density, surface area, and coefficient of friction of the material. Material with a low angle of repose forms flatter piles than material with a high angle of repose.

Based on the technical definitions (with the exception of the 1971 novel reference) quoted above a cohesionless material at its loosest possible state would be required for the angle of repose term to be applied accurately. Therefore, the term cannot be applied to any cohesive material or non cohesive material that is compact or denser (relative density, folks). Cemented and/or partially/unsaturated (but not dry) non-cohesive materials could not be described by the “angle of repose” definition due to effective cohesion and/or negative porewater pressures. Nor can it be applied when the confining pressure is not at the minimum. On a side note, I am sure keen to buy my mother the novel to indulge in while sunning herself in winter on Prince Rupert’s radiant beaches.



The process of the material achieving its angle of repose appears to be dry raveling which can be best described using an infinite slope analysis assuming the material is cohesionless and dry (refer to Craig 1996 for more details). When the factor of safety is unity the angle of internal friction is equal to the slope angle; hence, the typical range of "angles of repose" of 34 to 37 degrees quoted in the definitions above.

The use of the term "angle of repose" should therefore only be accurately used in the field to describe colluvial aprons such as talus slopes, sand dunes or accumulations at the base of natural erosional slopes or anthropogenic cuts.

Those on the fringes of soil mechanics who feel that their "comfortable familiarity" (Thorn and Hall 1980) with nature through personal observation rather than formal training qualifies them to use the term angle of repose to describe the state of stability of a slope. Within a forestry Terrain Stability Assessment application this may include:

1. The description of a natural vegetated slope with a till mantle as "over its angle of repose", or
2. The discussion of the state of stability of a failing cutslope in till or glaciolacustrine deposits as "above its angle of repose" (or that evil twin "repose angle").

Slope stability typically considers the following broad variables:

1. The material properties of the soil/rock including any cementation,
2. The pore water pressures within the slope,
3. The state of stress within the slope,
4. The geometry of the slope (the slope angle in most simple applications), and
5. External forces/effects on the slopes including (but not limited to):
 - a. Vegetative root reinforcement,
 - b. Earthquakes, and
 - c. Anthropogenic modifications.

It sure simplifies things to have a single variable to describe the state of stability of a given slope as one does not have to account for the sometimes complex variables typically considered by those trained in slope stability analysis where knowledge of soil mechanics is required.

Possibly the greatest departure from any concept embodied by soil mechanics is found in a 1997 reference manual for a soils bioengineering course (reference not cited):

Steep slopes may be defined as any slope or portion thereof which is steeper than the Angle of Repose for the material in question. Surficial material types include glacial tills which include compacted basal tills and weathered tills. The characteristics of till of importance to reclamation include coarse fragment content and the fine textured matrix. Other materials which may be encountered include clays and silts, either marine or lacustrine. Colluvial materials such as talus are often encountered as are alluvial materials. In both of these cases, the coarse rock fragment content is critical to the design of safety aspects of the reclamation program. Rock slopes may also be encountered as part of a forest land reclamation program. Safety on rock slopes follows principles established for safety on other steep slopes.

Measuring and estimating slope angles is essential to the design of a safety program for a slope reclamation effort. Typically, a clinometer is all that is needed for determining slope angles. The "angle of repose" is an important attribute of a slope relative to safety. The angle of repose may be determined as follows: If a reasonably round rock is rolled down the slope and it stops shortly, then the slope is equal to the angle of repose. However, if it continues to roll and gather speed, than it is steeper than the angle of repose. Different materials will have different angles of repose."

Many versed in soil mechanics would find the above section of text downright humorous. As a note, the writing of the text was likely partially or fully funded by your tax dollars and the concepts embodied within it may still be taught in on-going technical courses.

The term "reasonably round rock" in the above excerpt warrants a comment. A review of the April 1, 2005 ASTM minutes indicate that there is a bitter division within their technical committee; *BioEng-24-s*,



brought together to establish a standard for a “reasonably round rock”. There is near consensus on the use of a sub-rounded clast with the weight of 1.5 kg. A splinter group within the committee has requested that the rock be rolled by a professional 10 pin candlepin bowler with a minimum average of 200 throwing a 3/6 pin split shot at takeout weight. The probability of finding the required bowler that would be fit enough to climb cutblock slopes and take time out of the busy, rigorous, exciting and highly taxing pace of the east coast candlepin circuit is doubtful. Besides, many of those poor folks are now busy on the sports network channels playing Texas ‘Holdum’ (it was either that or pro wrestling), with prime time bowling drying up and all. It was either that or pro wrestling. For those that are wondering, candlepin bowling with 10 pins is big in eastern Canada; therefore, only Kevin Turner and I may have found any humor in that last passage. Please check out www.bowlcandlepin.com for more info (trust me, it’s worth the look).

My point is that if one is reviewing a report plastered with the term “angle of repose”, I would dig a little deeper to verify that the term is being used in the correct manner. If it isn’t, you may want to review the author’s technical qualifications.

References

Bates R.L. and Jackson J.A. 1983. Dictionary of Geological Terms, Third Edition. The American Geological Institute, 571 pp.

Craig, R.F. 1996. Soil Mechanics, Sixth Edition. E&FN Spon. London. Chapter 1, Basic characteristics of soils, pp 1-25.

Holtz, R.D. and Kovacs, W.D. 1993. An Introduction to Geotechnical Engineering. Prentice-Hall, Englewood Cliffs, New Jersey. 733 pp.

Thorn, C.E. and Hall, K. 1980. Nivation an Artic-Alpine Comparison and Reappraisal. Journal of Glaciology, Vol. 25, No. 91, pp. 109 to 124. Note: I cannot find the term comfortable familiarity’s page location but I know it is in there!

Turner, A.K. 1996. Chapter 20: Colluvium and Talus in Landslides Investigation and Mitigation. Transportation Research Board (TRB), National Research Council, United States Government, 674pp. (I believe there is no relation to Kevin Turner)

DEGIFS STRATEGIC PLANNING SESSION

Meeting Minutes - January 6, 2006
DEGIFS Executive

Please find below the minutes from the DEGIFS strategic planning session held on January 6, 2006:

- a) This meeting followed the Executive meeting
- b) Adoption of agenda
- c) TSFA Reports

FPB Special Investigation FPB/SIR/14 July 2005

There is some direction to DEGIFS in that report to address quality of reports, and a response is needed. Suggested actions included distribution of a synopsis of issues to DEGIFS members. An Aspect item is appropriate. Other outlets include Innovation and Forum.

Action Item E-mail synopsis to be distributed to DEGIFS members.

Action Item An item to be prepared for submission to Innovation, to JPB, and Aspect.

Action Item A letter to be drafted to the FPB from APEGBC for the February 16 meeting. Content is to include a statement that DEGIFS accepts the recommendations and will list actions to be undertaken by DEGIFS.

Existing Guidelines

What specifically does DEGIFS and APEGBC do to advance quality of reports?

DEGIFS has prepared practice guidelines, and new guidelines are in progress.

Current TSFA Seminars are well attended and well received by participants.

Approximately 10 Practice Reviews are conducted each year. There is a general trend of improvement.

Discipline actions (120778 Stipulated Order)

The Stipulated Order was reviewed and discussed.

This action has received a high level of attention from DEGIFS members.



Guidelines for Slope Stability Assessments for Residential Development

A guideline document is being finalized. General distribution will be made after mid March.

d) DEGIFS Expansion Into Other Resource Sectors

Advantages / Disadvantages, and What Other Sectors?

General consensus was that there are advantages. Discussion followed on DEGIFS being broader based with wider appeal. The inclusion of the word "Forest" is limiting for potential memberships from others working in land based resources industries. Naming of a broader division will be important. Suggestions were that the name should include reference to land based resource development.

Non-DEGIFS members participating in resource development industries such as mining, pipelines, and oil and gas development have no united voice to address or comment on practice guidelines and legislation / regulation. Similarly, DEGIFS has no voice or presence within those industries.

Many DEGIFS members already operate in these areas. Skills and expertise are diverse.

Action Item: Assemble a proposal or position paper for publication in Aspect. That article will invite responses to Aspect or the APEGBC discussion page.

Action Item: Consider participation of DEGIFS at conferences related to mining, pipelines, oil and gas, etc similar to the booth at ExpoFor.

e) Review and response to 'Oil and Gas Regulatory Improvement Initiative Discussion Paper

A comment / response from DEGIFS is needed by Feb 17.

Discussion covered the paper's tone regarding the use of professionals. Some discussion followed regarding the effects of the statement that use of Professionals will not be mandatory.

The use of results based regulation is generally acceptable. A concern is that results and measures are not always well defined.

It was agreed that a uniform set of regulations for all roads is needed.

Action Item: Executive members to submit comments to Mark Goldbach by February 10 to give him time to compile them for the February 17 submission deadline.

f) Review and comments 'Access Management in British Columbia Issues and Opportunities' FPB Special Report 23 (November 2005)

This report received general endorsement from DEGIFS executive.

Action Item: A letter of response will be sent to the Forest Practices Board for their Feb 16th meeting. The letter will include an offer of support from DEGIFS; we are interested in participating if requested.

Action Item: How do we respond to the item on non-status roads? This will be on the agenda of the next DEGIFS executive meeting. Intent is to discuss and develop a position on non-status roads. In particular, issues of public safety and environmental protection will be included.

g) Affiliate Memberships Issues, Methods to Increase Memberships

This item was discussed in the preceding Executive meeting.

h) Guidelines Sustainability, Design Aids, Other How to proceed (DEGIFS or JPB)?

This item was discussed in the preceding Executive meeting.

i) Getting involved in Kyoto

This item was dismissed for the time being. It may be part of the discussions regarding Sustainability.

Adjourn 3:50.



PROFESSIONAL TRAINING OPPORTUNITIES

Course Name	Date	Location	Price	Contact Info
Cable Logging	Feb 7-10/06 May 16-19/06	Vancouver Pr. George	\$750(US) \$925(Can)	<ul style="list-style-type: none"> www.forestengineer.com/html/training.html Phone 541 754-7558 Fax 541 754-7559
Unit Planning & Layout Logger PC V4 Fuel Reduction on Steep Slopes Cost Control Skyline Payloads Multi-span Systems Guying & Anchoring Water Control Slope Staking	Oct/05 to May/06	Corvallis, Oregon	\$200-\$450 (US)	As above
Continuing Professional Development Courses – sponsored by Selkirk Management Services	On going	Various	Various	www.selkirk-management.com
FRPA training	On going	Various		www.for.gov.bc.ca/code/training/frpa/
Forest Engineering Technology: A series of distance education courses offered by BCIT	On going	Various		Jim Rudolph 604 432-8941 www.construction.bcit.ca/distance/forest/ Courses on road construction, maintenance, deactivation and many more.

If you have any items to add to this list, please submit them to Jennifer Clarke (jclarke@eba.ca)

NOTIFICATION: FOREST ACT CHANGES

Bill 9, the *Forests Statutes Amendment Act, 2006*, received Royal Assent in the Legislature on Mar/30/06.

Please visit the DEGIFS website (<http://www.degifs.com>) and/or the FRPA website: (<http://www.for.gov.bc.ca/code/>) for more information.

HOT OFF THE PRESS!!!

Research Profile of Russell Creek: Implications for Professional Practice.

By Rob Hudson and Axel Anderson

Please visit our website: (<http://www.degifs.com/resources.php3?category=browsecategories&item=157>) to read this newly released research paper.

July's Aspect will contain the full paper but we thought we'd give you a sneak peek on our website if you're keen to read about this as the field season is now upon us!



Who We Are

DEGIFS EXECUTIVE 2005/06

Mark Goldbach, P.Eng., Chair
Ph. (604) 850-8786 / Fx. (604) 850-8756
Email: mgoldbach@golder.com

Douglas Underhill, P.Eng., R.P.F., Vice-Chair
Ph. (604) 269-2005 / Fx. (604) 269-2008
Email: doug.underhill@helifor.com

Norman Deverney, P.Eng. Secretary
Ph. (250) 825-4347 / Fx. (250) 825-0032
Email: deverney.engineering@shawcable.com

Ron Jordens, P.Eng., Treasurer, Website Coordinator
Ph. (604) 596-7899
Email: rjordens@telus.net

Julien Henley, P.Eng. Guidelines Subcommittee Chair
/ Bursary Coordinator
Ph. (604) 293-1411 / Fx. (604) 291-6163
Email: henleyj@ae.ca

Bruce Thomson, P.Geo., Workshops/AGM Coordinator
Ph. (604) 538-6839
Email: brucethomson@shaw.ca

Dave Wilford, P.Geo., Workshops/AGM Coordinator
Ph. (250) 847-6392 / Fx. (250) 847-6353
Email: David.Wilford@gov.bc.ca

Heather Blyth, P.Geo., Past Chair / Affiliate
Representative / Award of Excellence
Ph. (250) 339-0690 / Fx. (250)-339-0690
Email: hblyth@shaw.ca

WEB PAGE CONTACT

Ron Jordens, P.Eng.
Ph. (604) 596-7899
Email: rjordens@telus.net

APEGBC LIAISON

Peter Mitchell, P.Eng., APEGBC Liaison, Alternate
JPB Liaison
Ph. (604) 430-8035 / Fx. (604) 430-8085
Email: mitchell@apeg.bc.ca

JOINT PRACTICES BOARD LIAISONS

Kevin Turner, P.Eng.
Ph. (250) 828-4562 / Fx. (250) 828-4154
Email: Kevin.Turner@gov.bc.ca

Glynnis Horel, P. Eng.
Ph. (250) 722-7166 / Fx. (250) 653-4926
Email: oesl@shaw.ca

EDITORIAL BOARD

Iain Blown
Ph: (250) 837-3743 / Fx: (250) 837-3783
Email: iblown@rctvonline.net

Shelley Higman
Ph: (250) 741-6432 / Fx: (250) 468-6855
Email: shigman@islandtimberlands.com

Eric McQuarrie
Ph: (250) 721-1665 / Fx. (250) 721-1665
Email: eric.mcquarrie@shaw.ca

Bob Patrick
Ph: (250) 756-2256 / Fx: (250) 756-2686
Email: bpatrick@eba.ca

Kevin Turner, P.Eng.
Ph. (250) 828-4562 / Fx. (250) 828-4154
Email: Kevin.Turner@gov.bc.ca

Do Not Forget!!!

ASPECT SUBMISSIONS

LAST DATE FOR SUBMISSIONS TO ASPECT	NEWSLETTER RELEASE DATE
JUNE 16, 2006	JUNE 30, 2006
SEPTEMBER 15, 2006	SEPTEMBER 29, 2006
DECEMBER 1, 2006	DECEMBER 15, 2006

Electronic submissions in **Word format (only)** should be made to Jennifer Clarke (jclarke@eba.ca) by the date listed above.

Refer to *Guidelines for Submission* on the website <http://www.degifs.com/guidelines.doc> for submission requirements.