

ASSOCIATION OF ENGINEERING GEOLOGISTS

"Serving Professionals in Engineering, Environmental, and Ground-Water Geology"

THE ROCKY MOUNTAIN SECTION NEWSLETTER

www.aegrms.org

MEETING DATE

THURSDAY
APRIL 10, 2003

TIME

5:45 p.m. Social Hour
6:30 p.m. Dinner
7:30 p.m. Presentations

LOCATION

GEOLOGY MUSEUM
Colorado School of Mines
Golden, CO
See map below

COST

\$20 Members
\$22 Non-members
Free for Students first
time, \$10 then after

RESERVATIONS

c/o AEG Reservation Line
(303) 790-2161 x 243 or
meetings@aeqrms.org
**BY NOON, TUESDAY
APRIL 8th**

Landslide Susceptibility Mapping in Colorado Springs

Jonathan L. White
TC Wait
Colorado Geological Survey

Land use issues relating to development in landslide susceptible areas is becoming a key issue in planning in many areas across the United States. The City of Colorado Springs is currently dealing with problems that occur when land development and landslide-prone terrain meet. Colorado Springs lies at the boundary between the Great Plains and the Rocky Mountains. The western portion of the city consists of dissected foothills underlain by weak Cretaceous claystones prone to slope instability. Many of these areas have been previously mapped as old landslide deposits. Most early growth avoided the foothills; however, these areas are becoming increasingly built out since the 1980s. Most homeowners in the neighborhoods within landslide-prone terrain have little or no knowledge of the hazards and risks. This is also true for prospective homeowners and even for those owners moving into new homes.

During the particularly wet spring season of 1999, many landslides occurred in Colorado Springs. The 1999 flooding and landslide events prompted a Presidential Disaster Declaration. Part of the disaster assistance was providing Colorado Springs with funds from the Federal Emergency Management Agency (FEMA) to acquire landslide-affected properties. The total cost of the FEMA buy-out program is now over \$6 million and public awareness of landslide hazards has grown. Much of the public outcry was due to the failure to disclose potential landslide hazards and risks to prospective homeowners. Many homeowners impacted by slide movements who

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participated in the FEMA program had no previous knowledge concerning the risks their property was exposed to. In addition to the buyout program, certain FEMA Unmet Needs funds became available to do hazard delineation mapping. FEMA, the City Planning Office, and Colorado Geological Survey (CGS) shared funding for a landslide susceptibility mapping program for Colorado Springs

The landslide susceptibility map is based on the geology, topography, and landslide history of the area. A landslide inventory from published maps, consultant reports, aerial photography, and field investigations was developed to evaluate the common geologic factors leading to slope failure. These factors were then compared to other regions of the City to determine and map areas that may be susceptible to landslides. City planners, consultants, developers, and homeowners can use this map as a tool for future land development and prompt a level of future geological and engineering investigations appropriate for the hazards and risks that may be present. Such a tool is important because landslides remain a controversial topic, and the City, elected officials, and the business community are protective of property rights for new and existing land uses. Landslide investigations and recommendations, based on scientific and engineering principles for sites within the susceptibility zones, are important in order to justify and defend the resulting, sometimes unfavorable, land-use decisions. CGS plans to publish this map later this spring.

Vail 2003 Planning Meeting

There will be another planning meeting on April 1, 2003 at 6pm. The meeting will be at the **AEG Headquarters** (720 South Colorado Blvd. Suite 960-S). Refreshment and Pizza will be purchased. Cost will be \$7 per person. Contact Mike Hattel, vail2003@aegrms.org for any further information.

Vail Abstract Deadline

May 1st is the deadline for submittal of your abstracts for the September 15 - 21 Annual Meeting in Vail, Colorado.

All the technical session subject categories are listed on the website at http://www.aegweb.org/annual_meetings/2003/pdf/brochure.pdf. Look them over and start thinking about matching up one of your interesting projects or experiences to one of the sessions. All the details for getting your abstract to Julie Keaton are listed on the webpage.

RMS 2002-2003 Speakers

April 10, 2003 - Jon White and TC Wait,
CGS – “Landslide Susceptibility of Colorado
Springs”

May 8, 2003 - Ana Vargo (tentative)

New Mexico Subsection Meeting

The inaugural meeting of the New Mexico subsection will be Friday April 4th at 5:30 pm at the NM Tech, Room MSEC 105, Socorro, NM. Please RSVP to Andrea Glover (aglover@uc.usbr.gov or (505) 248-5338) by Tuesday April 1. Peggy Ganse will be presenting on:

Geotechnical Investigations and Ground Characterization for Tunneling

Peggy Ganse, P.E., P.G.
Lyman Henn, Inc.

The success of an underground construction project, particularly a tunnel, relies greatly upon a thorough and comprehensive understanding of the ground. Engineering geologists play a vital role in project development by performing subsurface investigations, collecting samples, and evaluating laboratory results, all with the goal of understanding ground conditions so that ground behavior during construction can be reasonably predicted. An overview of recommended geotechnical investigations for tunneling projects will be presented. In addition, the importance of ground characterization will be discussed relative to various tunnel construction methods. Several case studies will be presented, including conducting subsurface investigations in challenging conditions, and construction of tunnels through ground with variable geology.

Dinner and non-alcoholic drinks will be provided during the meeting. The cost of dinner has not been finalized, but it is expected to be around \$10 for students and \$15 to \$20 for professionals.

Please join us to socialize, to network, and to just meet others with common interests. This meeting is in no way limited to AEG members. Anyone with an interest in geology, geological engineering, geotechnical investigations, tunnels, or listening to presentations is encouraged to attend!

DIRECTIONS TO SOCORRO

From Denver/Colorado Springs/Areas North:

Take I-25 south. Travel through Santa Fe and Albuquerque. Continue south to Socorro. Take Exit 150. Continue straight at light. You are now on California Street. This is Socorro's main drag.

DIRECTIONS TO SOCORRO

From Las Cruces/El Paso/Areas South:

Take I-25 north. Travel through Truth or Consequences. Exit at 147 or at 150 in Socorro. Exit 147 places you at the southern end of California Street; Exit 150 at the northern end.

DIRECTIONS TO NM TECH (once in Socorro)

Turn west (toward the mountain) at Bullock Blvd. Bullock has a light and has Taco Bell and KFC at each corner with California. Go through two stop signs. At the second stop sign, you will see the New Mexico Institute of Mining and Technology (NM Tech). Continue straight on Bullock. Turn left (south) into the second parking lot entrance. The MSEC (Mineral Science and Engineering Complex) is adjacent to this parking lot. Please look at the attached map of NM Tech for more information. Parking is free - you do not need a pass.

HOTEL/MOTEL INFORMATION

The best list is on the Chamber of Commerce's web site at: <http://www.socorro-nm.com/main/vtable.html> Socorro does have a Days Inn, Holiday Inn Express, Motel 6, and several other local motels.

For more information on Socorro, NM Tech (including maps) visit the website www.aegrms.org and click on the New Mexico Subsection Informational Flyer link.

Case Histories

This is a guest column we hope to continue with contributions from AEG members. Harry Siebert has again offered a column. We are looking for other professionals to share their insight and knowledge with their peers through this medium. If you have an article to contribute contact Kristi McQuiddy newsletter@aeqrms.org.

Building Sites

Harry Siebert

Somehow, all the effort that has been made available relative to evaluating sites prior to making a purchase seems to have exceptions. I hate to think of rigid requirements as having been adopted in some governmental jurisdictions. In my opinion, this only created a “battle of the consultants”. During a recent trip up to the Denver area on Highway 285 south of Poncha Springs, I saw a house that is being constructed at the base of a chute. The drainage area has been active in the past.

In sloping areas, the platform for the structure should be reviewed during the evaluation prior to purchase to determine if stabilization techniques are required and to provide a cost estimate. In other words, an engineering geology review is necessary (dream on!). Around 1970, in southern New England, a couple desired to construct a house with a view overlooking a river valley. The husband wanted to construct the deck to the edge of the cliff. I recommended moving the house back from the edge and even then using rock bolts. At a field review, the architect and the wife walked to the edge of the cliff where a gust of wind came up and forced them to retreat from the edge, clearly stating “listen to the consultant”. The rock was a weathered diabase and the house was to be constructed with minimal disturbance to the ground. The recommendation was to move the window wall back 50 feet from the edge, provide rock anchors at the 3rd points, and a concrete monolith at the rear to insure the slab was stable. The slab was a modified cantilever plate because of some other concerns. Was it overkill, no I showed the architect talus slopes in the area and

brought him in a quarry in the same rock. Small projects in rock are time consuming. The house was constructed and the only problem was that the windows facing the valley rattled during high wind conditions and were replaced. The structural engineer was up to the challenge and did a great job.

A comment: since the ‘50’s, cantilever structures or elements are now well accepted and I feel we went through a growing period with the numerous grade separation structures utilized for the interstate highway program. Geotechnical recommendations were accepted and structural engineers even went into the field.

A conference this past May on Soil Nailing definitely indicated that geotechnical analysis of difficult sites is well done with analysis above and below the site. Builders and regulatory agencies do not understand the concept of a stable platform and maybe the funding is not there for a technical evaluation and study before the property is acquired. Maybe the technical review during the planning process is not considered useful today. There is always a historical view of how something should be accomplished but watch out for shortcut approaches.


Your help is needed!

The Vail 2003 Planning Committee is looking for a few education-friendly geoscientists who would be interested in assisting middle school and high school teachers in developing real-world, hands-on projects and classroom activities. We are hoping to have at least one representative from multiple disciplines (mining, engineering, hydrological, environmental, etc) to come help educators understand the role of earth science education in industry.

Please contact TC Wait at (303) 866-3518 or tc.wait@state.co.us if you are interested or want further information.

AGI Government Affairs Program

Final Action on FY 2003 Appropriations Could Cut Geoscience Programs! For more information on this important topic, visit the AEG-RMS website www.aegrms.org and click on AGI GOVERNMENT AFFAIRS MONTHLY REVIEW.

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Rocky Mountain Section Outreach Program

Attempts are being made to increase member participation in the outlying areas of the section. If you have ideas for an event, contact Ed Friend at webmaster@aegrms.org.

Aspiring Employees

Many resumes from students graduating in the very near future have been received. Employers, please contact Tim Petz chair@aegrms.org for information regarding potential employees for summer part-time or full-time work. Students can drop off your information with Tim at the meetings or via e-mail.

Your Business Card Here

The section is looking for companies or individuals who would like to advertise their products or services in the section newsletter and on the website. This is anything from a business card (\$10/month), quarter page spread

(\$20/month), to a half page exposition (\$40/month). If you are interested, contact Ed Friend webmaster@aegrms.org or Kristi McQuiddy newsletter@aegrms.org.

Parting Words

Spring is here and for many of us this means our much anticipated time in the field is dramatically increasing. But don't forget to still attend your AEG meeting. We have two local presenters from CGS, Jon White and TC Wait, giving a talk this month.

As many of you experienced first hand last month, we had a few technical difficulties with e-mail distribution of the newsletter and some other website related issues. These problems have been corrected and we are not anticipating any problems this month, it also helps that the webmaster is around to do his job. We do appreciate your patience and understanding with these minor bumps in the road.

This summer we will be making a transition to a different host for our website and e-mail. This should simplify updating the webpage, distributing e-mail through the section, and transitioning responsibilities between people. As always, if you have suggestions to improve the newsletter, website, or any other aspect of the section please contact one of the officers listed on the second page of this newsletter.

The Editors

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