

Association of Engineering Geologists

"Serving Professionals in Engineering, Environmental and Ground-Water Geology Since 1957"

NEWSLETTER- March 1994

Southern California Section

Joint Meeting with ASCE - Tuesday, March 8

Officers:

James O'Tousa
Chairman
(818)993-1211

Robert A. Larson
Vice Chairman
(818) 458-4923

Tony Stirbys
Secretary
(213) 362-6176

Joseph A. Cota
Treasurer
(818) 785-2158

Tania Gonzalez
Membership Chairman
(909) 860-7772

William LaChapelle
Publications Chairman
(805) 374-9721

Dave Ebersold
Newsletter Editor
12 Issues/year-\$30 to "AEG"
(Full-Time Students \$10/year)
(818) 796-9141
(818) 568-6103 FAX
c/o Montgomery Watson
301 North Lake Avenue
Suite 600
Pasadena, CA 91101

Program

**Recent Developments in Applying Newmark's Method
to Earthquake-Triggered Landslides**

by

Randy Jibson, U.S. Geological Survey

The Quiet Cannon Restaurants
901 North Via San Clemente
Montebello

Cost - \$20.00 (Full-Time Students - \$5.00)

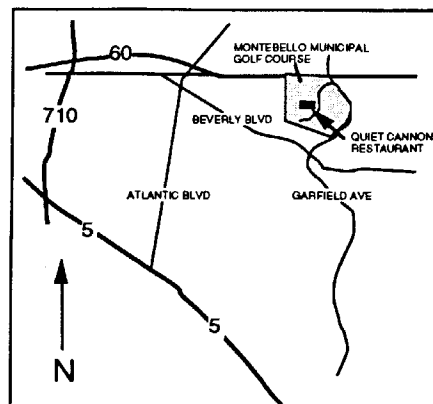
Make reservations by Friday March 4!!!
Geosoils (818) 785-2158
(Leave Your Name & Number of People in Your Party)

5:30 Social Hour

6:45 Dinner

8:00 Program

Map to Meeting



March Program

Topic: "Recent Developments in Applying Newmark's Method to Earthquake-Triggered Landslides"

Speaker: Dr. Randall S. Jibson, U.S.G.S.

Predicting seismic landslide displacements is important for many types of seismic-hazard analysis and for the design of engineered slopes. Newmark's method often is useful for predicting approximate landslide displacements; this method yields much more useful information than pseudostatic analysis and is more practical than finite-element modeling. Applying Newmark's method requires knowing the critical (yield) acceleration of the landslide (above which permanent displacement occurs), which can be determined from the static factor of safety and the landslide geometry. Earthquake acceleration-time histories then can be selected to represent the shaking conditions of interest. For approximate results, a simplified Newmark method can be used, which estimates Newmark displacement as a function of landslide critical acceleration and earthquake shaking intensity. A weakness of most applications of Newmark's method is that, owing to an absence of data, they ignore several critical phenomena, such as (1) strain-dependent reduction of shear strength along the basal slip surface, (2) dynamic pore-pressure, (3) vertical ground shaking, and (4) amplification of ground shaking at landslide sites. To address these shortcomings, two permanent instrument sites have been installed on active landslides near active faults in California, which are designed to simultaneously record strong shaking both on and off the active landslides, permanent coseismic displacement of the slides, and dynamic pore pressure within the slide masses. Successful simultaneous recording of such data during future earthquakes will facilitate improvement of current models and development of new models for predicting the seismic behavior of landslides.

Randall Jibson is a geologist with the U.S. Geological Survey in Golden, Colorado. He received his Bachelor of Science in Geology from San Diego State University in 1980 and went on to conduct graduate studies at Stanford University. While at Stanford, he earned a Masters Degree in geotechnical engineering in 1982, which involved research on the dynamic performance of weakly cemented soil slopes conducted with Professor Wayne Clough. He received his Doctoral degree in geology at Stanford in 1985, under the direction of Professor Richard Jahns, for a detailed study of the morphology, distribution, and likely failure conditions of landslides triggered by the 1811-12 New Madrid earthquakes in the Mississippi Valley. Since joining the U.S. Geological Survey in 1970, Dr. Jibson has conducted a broad spectrum of research related to slope instability, including studies as diverse as debris flows in Puerto Rico and bluff recession along Great Lakes shorelines. His particular interest is in earthquake-triggered landslides, and he has conducted numerous post-earthquake investigations throughout the world to support his research on developing and improving models of the behavior of slopes during earthquakes. In addition to his research, Dr. Jibson also currently manages the USGS Landslide Hazards Reduction Program, the only federally funded landslide research program in the United States.

D&D CONSTRUCTION SPECIALTIES, INC.

License #681410



"Specializing In Hillside Drilling
& Tough Hand Excavations"

We Dig & Drill Holes, Testpits/Borings,
Caissons, Footings, Foundations,
Grade Beams, Underpinning/Pads,
Seepage Pits

DAN MOORE

P.O. BOX 3125
BURBANK, CA 91508-3125

PHONE (818) 767-8864
FAX (818) 767-8874

Legislative Update

The Legislature reconvened for the second part of the 1993-94 legislative session in January. This second half of the session will be more intense as this is a big election year. Because of term limits, there is an extra number of members that are running for either Senate seats of statewide office. Eighty members of the Assembly and half of the Senate are up for re-election.

Senate Bill 746, sponsored by AEG and introduced by Senator Rogers, would require the State Personnel Board (SPB) to revise job specifications and require certification by the State Registration Board for Engineering Geologists. This became a "two year" bill which required a quicker time to process and approve the bill. If AEG proceeded with the bill in 1994, there would be many obstacles. As an alternative, Rogers and AEG have decided to drop SB746 this year and introduce a Legislative Resolution requiring the Department of Personnel Administration (DPA) to investigate the problem. This does several things. It keeps the issue before the Legislature and gives AEG time to work on the DPA or SPB. At present, Senator Rogers and his staff are holding meetings with the Senate Business and Professions Committee to work on the problem. Various meetings are in the process of being set up. The proposed resolution was reviewed by your section officers and our comments have been sent along to Judith Wolen, our Legislative Advocate.

With respect to the status of the Board of Registration for Geologists and Geophysicists, the subcommittee on Efficiency and Effectiveness held several meetings in 1993 to explore the possibility of merging our Registration Board with the Registration Board for Professional Engineers and Land Surveyors. AEG has opposed this merging. The staff of the Subcommittee is analyzing testimony and a report is expected soon. A bill is to be introduced based on the recommendations. We will keep you informed.



**Environmental
Geotechnology
Laboratory**

An Independent Environmental Geotechnical Testing Laboratory

- Grain Size Analysis
- Atterberg Limits
- Bulk Density
- Specific Gravity
- Total Organic Carbon
- Cation Exchange Capacity
- Moisture Content
- Porosity
- Compaction
- Consolidation
- Hydraulic Conductivity
- Air Permeability
- Capillary Moisture
- Effective Porosity
- Solidification/Stabilization
- Compatibility of Clay Liners
- Leachability
- Unconfined Compression
- Direct Shear
- Triaxial Shear

We take pride in providing a fast and quality service at very competitive rates.

For more information, please call Kean Tan at (800)945-5638

.....

UPDATE YOUR LIBRARY WITH THESE PUBLICATIONS!

Association of Engineering Geologists, Southern California Section

- Blake, T., and Larson, R.A., Eds., 1991, Engineering Geology along the Simi-Santa Rosa fault system and adjacent areas, Simi Valley to Camarillo, Ventura County, California: Guidebook for the Southern California Section of the Association of Engineering Geologists Annual Field Trip, August 24, 1991, Volumes 1 and 2, 383 pgs., 4 map sheets. \$30.00 PRICE REDUCED
- Buckley, C.I., and Larson, R.A., Eds., 1990, Geology and Engineering Geology of the western Soledad Basin, Los Angeles County, California: Guidebook for the Southern California Section of the Association of Engineering Geologists Annual Field Trip, November 3, 1990, 185 pgs., 2 map sheets. \$25.00
- City of Los Angeles, 1982, Geologic Maps of the Santa Monica Mountains, Los Angeles, California: 333 map sheets at 1" = 400', compiled by the Bureau of Engineering, Department of Public Works, City of Los Angeles, reprinted by the Southern California Section of the Association of Engineering Geologists, 342 pgs. \$26.00
- Leighton, Beach F., 1992, Mitigation of Geotechnical Litigation in California, Munson Books. \$44.00
- Shlemon, R. J. Applications of Soil Stratigraphy to Engineering and Environmental Geology, Association of Engineering Geology, Southern California Section Short Course Notes, June 5, 1993. \$35.00
- Sieh, K.E. and Matti, J.C., October 3-4, 1992, Earthquake Geology San Andreas Fault System Palm Springs to Palmdale, 35th Annual AEG Meeting, Guidebook and Reprint Volume. \$25.00
- Ehlig, P.L. and Steiner, E.A. Editors, October 2-9, 1992, Engineering Geology field Trips: Orange County, Santa Monica Mountains and Malibu. 35th Annual AEG Meeting, \$25.00 **Optional Map and Cross Section of Big Rock Mesa \$15.00
- Stout, M. L., Editor, 1992, Association of Engineering Geologists. Proceedings for the 35th Annual Meeting, October 2-9, 1992, Los Angeles, California. \$40.00
- Scullin, M.C., 1983, Excavation and Grading Code Administration, Instruction, and Enforcement, Prentice-Hall, Inc. \$25.00
- Stirbys, Anthony F., et. al., October 2-9, 1992, Los Angeles Metro Rail System Field Trip Guidebook, AEG 35th Annual Meeting, Long Beach, California; \$25.00
- Stout, M.L., 1976, Geologic Guide to the San Bernardino Mountains, Southern California. Guidebook for the Southern California Section of the Association of Engineering Geologists Annual Field Trip, May 22, 1976; 115 pages \$11.00
- Shuirman, G. and Slosson, James, 1992, Forensic Engineering, Environmental Case Histories for Civil Engineers and Geologists, Academic Press, Inc. \$49.95
- Pipkin, B.W. and Proctor, R.J., Editors, 1992, Engineering Geology Practice in Southern California, Star Publishing, 779 pages, \$79.95 plus a special charge of \$5.00 shipping and handling.

Books are available from: Bill LaChapelle, Publications Chairman, AEG Southern California Section, c/o Cal-Geo Corporation, 380 Thorpe Circle, Thousand Oaks, California 91360. Telephone (805) 374-9721; FAX (805) 496-5244. Make checks payable to AEG Southern California Section. Please add 8.25% sales tax and the following postage/handling charges: \$2.50 for the first book and \$0.50 for each additional book.

.....

Technical Leadership ... at its best

Following a decade of solid growth, and looking forward to significant expansion,

ENVIRONMENTAL SOLUTIONS, INC. is conducting a search for the Environmental Industry's best and brightest professional talent. Our team consists of hard-working, hands-on engineers and scientists who are committed to achieving practical, innovative solutions to our clients' environmental challenges. If you have at least 10 years experience in the environmental field, possess a fundamental commitment to quality and client responsiveness, and wish to be a part of our proactive team, we would like to hear from you.



Vice President

with a "can-do," "hands-on" approach to solving problems, a strong client following, and the ability to manage large projects.

Senior Project Managers

with more than 10 years of direct environmental experience.

Construction Managers

with 10 years of cost and schedule control experience.

Senior Process Engineer

with expertise in Industrial Wastewater Treatment Design, Process Design, and Equipment Specification.

Qualified applicants should submit a resume and cover letter to: Cheryl Ellison, Recruiting Manager.

ENVIRONMENTAL SOLUTIONS, INC.

21 Technology Drive, Irvine, CA 92718

PH (714) 727-9336 FAX (714) 727-7399

An Equal Opportunity-Affirmative Action Employer

Short Course

The Southern California Section of the AEG is proud to announce an upcoming 1-day short course in seismic hazard analyses. The short course is designed to provide participants with a working background in probabilistic and deterministic seismic hazard analyses, earthquake generation, and earthquake ground motion parameters. The course will be co-taught by recognized experts in the field of earthquake hazard analyses and will feature the following topics:

Jeffrey A. Johnson

- Deterministic Seismic Hazard Analysis Procedures
- Probabilistic Seismic Hazard Analysis Procedures
- Earthquake Size and Fault Segmentation

Ken W. Campbell:

- Attenuation of Earthquake Ground Motion

Thomas F. Blake

- Procedures, problems, and pitfalls to be aware of when using the EQFAULT, EQSEARCH, FRISK89, AND FRISKSP programs.

Participants will be provided with copy of course notes that will include chapters prepared by each of the three presenters. They will also be provided with a 1,300 page course notebook with ground motion attenuation papers published over the last 25 years.

With all the recent earthquakes in the southland, this is a very timely short course. The tentative date for the course is June 18, 1994. The short course will be held at California State University, Los Angeles, at a cost of \$110 per person. Lunch and refreshments will be provided.

.....

Seminars/Meetings/Field Trips

March 8, 1994

Joint Meeting with ACSE, The Quiet Cannon, Montebello. "Recent Developments in Applying Newmark's Method to Earthquake-Triggered Landslides" by Randy Jibson, U.S.G.S.

June 18, 1994

Seismic Hazard Analysis Short Course, See announcement inside this newsletter.

Section Committee Chairs

Professional Registration:

Bob Hollingsworth (818) 889-0844

Public Relations:

Unfilled

Legislative Affairs:

Hugh Robertson (818) 373-0057

Field Trips:

Unfilled

Short Course:

Deems Padgett (818) 568-7000

Education:

Kelly Rowe (714) 979-7790

Kathy Williams (310) 597-3977



Dave Ebersold
AEG Newsletter Editor
c/o Montgomery Watson
301 North Lake Avenue
Suite 600
Pasadena, CA 91101

FIRST CLASS POSTAGE