



ASSOCIATION OF ENGINEERING GEOLOGISTS

Southern California Section
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NEWSLETTER – MARCH 2003

MONTHLY DINNER MEETING—

JOINT WITH the Geotechnical Group of the Los Angeles Chapter of ASCE

Date: Tuesday, March 11, 2003
Location: Steven's Steak House, 5332 Stevens Place, Commerce, CA
Time: 5:30 p.m., Social Hour; 7:00 p.m., Dinner; 8:00 p.m., Presentation
Reservations: Call (949) 253-5924 ext. 564, or email Brian Villalobos, by 12:00 p.m., Friday, March 7, 2003
Cost: \$20 per person with reservations, \$25 at the door.

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nsultants.com](mailto:tgonzalez@earthco
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[bvillalobos@petra-
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SECRETARY

Jeff Kofoed
(818) 842-2543

SPEAKER: Dr. Jeffrey (Jeff) Keaton

TITLE: Earthquake Ground Motion for Design of the Hoover Dam Bypass Bridge (US Highway 93)

ABSTRACT:

The Hoover Dam Bypass Project is a 3.5-mile corridor on U.S. Highway 93 in Clark County, Nevada, and Mohave County, Arizona, crossing the Colorado River approximately 1,500 feet downstream of Hoover Dam. The proposed bridge will be 1,896 feet long and 88 feet wide. The main span will be a Composite Concrete Deck Arch Bridge with an overall length of 1,090 feet. Five approach spans on the Nevada side and two on the Arizona side range in length from 100 to 120 feet. Seventeen faults within 100 miles of the site were considered to be active. Maximum earthquake magnitudes were determined for each active fault, and peak horizontal accelerations were estimated using three ground-motion attenuation relationships. The results of a probabilistic seismic hazard assessment published by the US Geological Survey in 1996 were used, in part, to select earthquake magnitudes and distances, and target ground motions for use in design of the main Colorado River bridge and the approach bridges.

The Colorado River bridge was designed on the basis of a nonlinear dynamic analysis using three-component seismograms at each abutment. The approach bridges were designed on the basis of a response spectrum analysis. The river bridge will be a flexible structure with a fundamental period longer than 1 s. (cont.)



A 1-s spectral acceleration of 0.139 g was selected as the target ground motion on which to anchor design earthquakes and response spectra. The target 1-s spectral acceleration would be produced by a moment magnitude earthquake of 6.2 at a hypocentral distance of 16 km, or by a moment magnitude earthquake of 7.0 at a hypocentral distance of 36 km. The magnitude 6.2 earthquake would likely occur on the Mead Slope fault, whereas the magnitude 7.0 earthquake would occur on the California Wash fault.

Jeffrey R. Keaton is a Principal Engineering Geologist and Vice President in the Anaheim office of AMEC Earth & Environmental, Inc. His education consists of a BS degree in Geological Engineering from the University of Arizona (1971), a MS degree in Engineering (Geotechnical) from the University of California, Los Angeles (1972), and a PhD degree in Geology from Texas A&M University (1988). He is registered as a Professional Engineer in California, Utah, Alaska, and Arizona. He is also registered as a Professional Geologist in California and Arizona, and certified as an Engineering Geologist in California and Washington.

Dr. Keaton was employed by Dames & Moore in Los Angeles (1970-1979) and Salt Lake City (1979-1988). He was employed by Sergeant, Hauskins & Beckwith (which became AGRA Earth & Environmental, and then AMEC Earth & Environmental) in Salt Lake City (1988-1996), Phoenix (1996-2001), and currently in Anaheim.

He served as Chairman of the Utah Section of the Association of Engineering Geologists in 1980-1982 and was the President of AEG in 1992-1993. He served as Chairman of the Engineering Geology Division of the Geological Society of America in 1989-1990. He served as Chairman of the Transportation Research Board Committee on Engineering Geology (A2L05) from 1991 to 1997, and as Chairman of TRB Committee on Exploration and Classification of Earth Materials (A2L01) from 1997 to 2002. He also served as the Chairman of TRB Subcommittee on Scour Research (A2L05-2). In 2002, he became the Chairman of TRB Section L, housing the six committees that deal with Geology and Properties of Earth Materials. Dr. Keaton also is a member of American Geophysical Union, American Society of Civil Engineers, Earthquake Engineering Research Institute, and Seismological Society of America.

Dr. Keaton specializes in quantification of hazardous natural processes for use in design and risk analysis. He has written numerous articles regarding engineering geology mapping, debris flows, landslides, collapsible soils, subsidence, fault rupture, earthquake-induced liquefaction, earthquake ground motion, and case histories.

OFFICERS' COLUMN

By Tania Gonzalez and Matthew Hawley

Our meeting last month was held at The Mandarin Wok, a Chinese restaurant in Woodland Hills. About 45 people weathered the rain and came to the meeting. In general, we received positive feedback about the food, a welcome change from the usual steak & chicken combination at Steven's Steakhouse. Frankly, however, we were quite disappointed with the turnout. We were expecting a larger audience given that several of our members live and work in the northwestern Los Angeles and southern Ventura counties area, and that these members have stated they would attend meetings if held closer to them. Further, the speaker at our meeting is a renowned geologist and expert in his field, with free information to share.

The presentation by Mr. Tom Anderson was not only informative, but an awakening to the fundamental problems that our community can expect in the coming years. The members who attended have a clearer insight and more information to approach and discuss with their clients about how aggregate shortages will significantly impact the overall costs to their projects, and what could be done to help alleviate their pain. Such information can be priceless when dealing and trying to obtain business from a prospective client.

Our section has approximately 500 members, and yet less than 10 percent show regularly to the meetings. Additionally, most of the those that come to our meetings are the same people

every month. Where the meeting is held does not seem to matter to these special people. We would like to thank these loyal members of our geological community for their support and interest. Perhaps we need to look at where these loyal members work or live, and choose our meeting locations based on that information alone.

Some of you traveled from as far as San Diego to join in the discussion of the Board's efforts to define what work we geologists can and cannot do as professionals. Without you there, we will have to make these decisions for you, without your input. Without your voice, you are simply relying on us. Do you really trust us that much? The proposed changes to the definition of geological work are printed again in this newsletter. Please review them, and if you have constructive suggestions regarding the proposed language, please forward them to Joe Cota (joe@radiusmaps.net) and Tania Gonzalez (tgonzalez@earthconsultants.com).

The Southern California Section of AEG now has a website we can call our own. Point your browser to <http://www.aegsc.org> and check it out. In the next month or two we will be polishing the web site, so if you have any constructive suggestions or comments that would make the site more user-friendly and useful to our membership, please let me (tgonzalez@earthconsultants.com) or Kerry Cato (kcato@earthconsultants.com), our webmaster, know. Kerry, thank you so much for your efforts and perseverance in getting this done. Beginning with this month's newsletter, we will be posting the monthly newsletters on our web site, so you can

always get information about upcoming meetings from this site.

2003 MEMBERSHIP RENEWAL

You probably received your 2003 dues statement from AEG National by now. If you have not received it, or are unsure about your membership status, please contact AEG Headquarters aegweb.org, or Tania Gonzalez. We are currently looking for a new Membership Chair. Please contact Tania Gonzalez you wish to volunteer.

YEAR 2002-2003 CONTRIBUTORS

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YEAR 2003 CONTRIBUTORS NEEDED

Contributions from corporations and individual members for 2003 will be greatly appreciated. Contributors will be listed in our newsletter throughout the year and can post their logo or business card in the newsletter if so desired. Please mail contributions made out to **AEG** to our section chair, Tania Gonzalez.

MAY MEETING

Monday, May 12, in conjunction with the CCGO, location TBA, will feature Dr. Chester F. "Skip" Watts, 2003 AEG-GSA Richard H. Jahns Distinguished Lecturer; Congressional Science Fellow; University Distinguished Professor, Radford University; and Director of Institute for Engineering Geosciences. Dr. Watts' topic is entitled, "Rockslides in Yosemite National Park."

NAGT PROFESSIONAL DEVELOPMENT GRANTS

In 2003, in honor of Dorothy LaLonde Stout's outstanding work and lifelong dedication to Earth science Education, NAGT will award three grants in support of the following activities:

- Participation in Earth science classes or workshops
- Attendance at professional scientific or science education meetings
- Participation in Earth science field trips
- Purchase of Earth science materials for classroom use

Grants will be awarded to a Community College Faculty Member, a Community College Student and a K-12 Educator. Community College Faculty and K-12 teachers who teach one or more Earth science courses and Community College students actively pursuing a career in the Earth sciences are encouraged to apply for these awards. Interested applicants are asked to submit a 1-2 page proposal describing how the grant will be used to support their professional growth in, or classroom teaching of Earth science during the 2003 or 2004. Applications must be received by April 1, 2003 with awards being made by April 15th. Please include your name, address, telephone, and email along with your proposal and send all materials to:

Dottie Stout Professional Development Grants
The National Association of Geoscience Teachers
P.O. Box 5443
Bellingham, Washington 98227-5443

GOVERNOR DAVIS NAMES MEMBERS TO THE STATE MINING AND GEOLOGY BOARD

Governor Gray Davis announced the appointments of Larry Fanning and Julian Isham as members, and the reappointments of Allen M. Jones as Chairman, and Robert Griego as a member of the State Mining and Geology Board. Mr. Fanning, 40, of Anaheim, has more than 20 years experience in geotechnical consulting, earth science and numerous other aspects of geology. He has been the Principal Engineering Geologist for Zeiser Kling Consultants, Inc. since 2000. Previously, Mr. Fanning was the Principal Engineering Geologist for AGRA Earth and Environmental from 1991 to 2000. He has been a member of the Association of Engineering Geologists since 1994 and the American Society of Civil Engineers since 1996. Mr. Fanning earned a bachelor of science degree from them University of California, Santa Cruz.□

Mr. Isham, 55, of Antioch, has more than 29 years experience in engineering, hydrogeologic investigations, groundwater resource development, groundwater contamination studies, mining and waste management. He has been the Senior Technical Consultant at

EMCON since 1987. Previously, Mr. Isham was an Engineering Geologist for Bechtel from 1974 to 1987. He has been a member of the Association of Engineering Geologists since 1973, the Association of Groundwater Scientists and Engineers since 1991 and the Groundwater Resources Association since 1992. Mr. Isham has also been the Chairman of the Legislative Committee for the Board of Geologists and Geophysicists since 1995. He earned a bachelor of science degree from the University of Wisconsin. For the complete press release, ccgo.org/Alert/Press%20Release.html

GROUNDWATER CONFERENCE

The Groundwater Resources Association of California, in conjunction with the USGS and the IAG, will hold their annual conference “Artificial Recharge in California—Technical and Policy Challenges”, in San Jose April 30 and May 1. Please visit www.grac.org for additional details and registration forms.

A Day in the Field with Tom Dibblee

The Dibblee Foundation is leading a field trip to the Glendora/Baldy Village area, set for May 24, 2003. The Dibblee Geological Foundation and the Santa Barbara Museum of Natural History invite you to participate in A Day In The Field with *living-legend* Tom Dibblee, along with Cal Poly Professor Jon Nourse, Northridge Professor Peter Weigand, and Dibblee Map Editor John Minch. Tom and John’s San Gabriel map collection will be available and will be featured. Fee: \$150 (includes coffee and doughnuts, BBQ lunch catered by Halliburton, ski lift, and guidebook plus map). Registration deadline is May 10, 2003. For information, e-mail John Powell at dibbleemap@adelphia.net, call (805) 987-5846, write to PO Box 2309, Camarillo, CA 93011, or visit dibblee.geol.ucsb.edu.

Request For Comments

As the following text reads, you may send your comments directly to the Board if you wish, but please also copy me in an effort to form a unified AEG opinion if any of us should see any problems with the proposed definition. This is actually very important to our profession, so please read this carefully. Thank you, Joe Cota, Chairman, Legislative Committee. joe@radiusmaps.net

The Board for Geologists and Geophysicists Technical Advisory Committee has recommended the following definitions of professional geological and geophysical work to the Board for consideration as potential regulations. The Board is very interested in obtaining comments from all stakeholders prior to beginning the formal “rulemaking” process. Please send your comments to the Board’s office in Sacramento by April 25, 2003, via any of these methods:

Mail: 2535 Capitol Oaks Drive, Suite 300A, Sacramento, CA 95833
e-mail: geology@dca.ca.gov, Telephone: (916) 263-2113, Fax: (916) 263-2099

Article 1. General Provisions

Section 3003. Definitions.

(d) “Professional geologic work” is performed at a professional level rather than at a subprofessional or apprentice level and requires the application of scientific knowledge, principles and methods to geological ~~problems~~ studies through the exercise of individual initiative and judgment in investigating, measuring, interpreting and reporting on the physical phenomena of the earth affecting public welfare or the safeguarding of life, health, property and the environment, except as otherwise specifically provided by this chapter. Implicit in this definition is the recognition of professional responsibility and integrity and the acknowledgment of minimal supervision.

“Professional geological work” includes, but is not limited to, the collection of geological data, consultation, investigation, analysis, evaluation, interpretation, planning, mapping or inspection that applies to geology, geologic processes, and the responsible supervision thereof, affecting public welfare or the safeguarding of life, health, property and the environment, except as otherwise specifically provided by this chapter.

“Professional geological work” specifically does not include such routine activities as drafting, sampling, sample preparation, routine laboratory work, etc., where the elements of initiative, scientific judgement and decision making are lacking, nor does it include activities which do not use scientific methods to process and interpret geologic data. Further, it specifically does not include soils engineering, soils sampling, soils testing or other activities in or related to the agricultural application of soils sciences. It also does not include mining, mining engineering or other engineering disciplines and/or other physical sciences wherein geological investigation, analysis and interpretation are minimal or lacking.

(e) “Professional geophysical work” is work performed at a professional level rather than at a subprofessional or apprentice level and requires the application of scientific knowledge, principles and methods to geophysical ~~problems~~ studies through the exercise of individual initiative and judgment in investigating, measuring, interpreting and reporting on the physical phenomena of the earth affecting public welfare or the safeguarding of life, health, property and the environment, except as otherwise specifically provided by this chapter. Implicit in this definition is the recognition of professional responsibility and integrity and the acknowledgment of minimal supervision.

“Professional geophysical work” includes, but is not limited to, the collection of geophysical data, consultation investigation, analysis, evaluation, interpretation, planning, mapping or inspection that applies to geophysics, geophysical processes, and the responsible supervision thereof, affecting public welfare or the safeguarding of life, health, property and the environment, except as otherwise specifically provided by this chapter.

“Professional geophysical work” specifically does not include activities wherein the analysis or interpretation of geophysical or geological information is lacking. Such nonprofessional work could encompass party or crew chief and would encompass lesser forms of employment in field parties, the manufacture, assembly or maintenance and repair of geophysical instruments and equipment, computer programming, data processing or retrieval and routine activities normally performed by a technician in acquiring and reporting on geophysical information where the elements of initiative, scientific judgment and decision making are absent. It also does not include those engineering disciplines and other physical sciences wherein geophysical or geological investigation, analysis and interpretation are minimal or lacking.

For reference purposes, the existing language for 3003(d) and 3003(e) is as follows:

(d) “Professional geologic work” is work performed at a professional level rather than at a subprofessional or apprentice level and requires the application of scientific knowledge, principles and methods to geological problems through the exercise of individual initiative and judgement in investigating, measuring, interpreting and reporting on the physical phenomena of the earth. Implicit in this definition is the recognition of professional responsibility and integrity and the acknowledgment of minimal supervision.

“Professional geological work” specifically does not include such routine activities as drafting, sampling, sample preparation, routine laboratory work, etc., where the element of initiative, scientific judgment and

decision making are lacking, nor does it include activities which do not use scientific methods to process and interpret geologic data. Further, it specifically does not include soils engineering, soils sampling, soils testing or other activities in or related to the agricultural application of soils sciences. It also does not include mining, mining engineering or other engineering disciplines and/or other physical sciences wherein geological investigation, analysis and interpretation are minimal or lacking.

(e) “Professional geophysical work” is work performed at a professional level rather than at a subprofessional or apprentice level and requires the application of scientific knowledge, principles and methods to geophysical problems through the exercise of individual initiative and judgment in investigating, measuring, interpreting and reporting on the physical phenomena of the earth. Implicit in this definition is the recognition of professional responsibility and integrity and the acknowledgment of minimal supervision.

“Professional geophysical work” specifically does not include activities wherein the analysis or interpretation of geophysical or geological information is lacking. Such nonprofessional work could encompass party or crew chief and would encompass lesser forms of employment in field parties, the manufacture, assembly or maintenance and repair of geophysical instruments and performed by a technician in acquiring and reporting on geophysical information where the elements of initiative, scientific judgment and decision making are absent. It also does not include those engineering disciplines and other physical sciences wherein geophysical or geological investigation, analysis and interpretation are minimal or lacking.

EMPLOYMENT OPPORTUNITIES

GeoConcepts

GeoConcepts, Inc. is seeking two individuals to join our professional team of geologists and geotechnical engineers to perform geologic investigations in the Santa Monica Mountains. A project Geologist with three + years of experience and an entry level geologist. GeoConcepts, Inc. has a comprehensive benefit package. E-mail or FAX resumes in confidence to bob@geoconceptsinc.com or (818) 994-8599.

Earth Resources, Inc.

ERI is now accepting applications for experienced and entry level Staff Engineers and Field Technicians for full time employment in our Santa Clarita and Walnut offices. Email of fax resumes in confidence to: joe@radiusmaps.net or (800) 554-3205



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LGC is looking for dynamic individuals to join our team and work on some of Orange County's most interesting and technically challenging projects. If you are an experienced geotechnical professional, or just starting your career, please do not hesitate to contact us. All inquires will be considered in the utmost confidence. We look forward to hearing from you.

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Baldwin, J.E. and Sitar, N., 1991, <u>Loma Prieta Earthquake: engineering geologic perspectives.</u> AEG Special Publication No. 1, 170p	\$10.00		
Bishop, K. and Tandy, 1995, <u>Ground Failure during the January 17, 1994 Northridge earthquake.</u> Association of Engineering Geologists, Southern California Section, Annual Field Trip Guidebook, November 11, 1995, 106p.	\$20.00		
Briggs, R.P. and Parke, C.D., 1990, <u>Guide to Field Trips in Pennsylvania, Ohio, and West Virginia.</u> AEG 33 rd Annual Meeting, October 1-5	\$15.00		
<u>Highway and Railroad Slope Maintenance.</u> AEG, 34 th annual meeting, September 29 th – October 4 th , 1991	\$10.00		
Leighton, F.B. <u>Mitigation of geotechnical litigation in California.</u> Munson Book Associates, Huntington Beach, California, 274p.	\$20.00		
Sieh, K.E., and Matti, J.C., 1992, <u>Earthquake geology, San Andreas fault system, Palm Springs to Palmdale.</u> AEG, 35 th Annual Meeting, Field Trip Guidebook, October 3-4, 1992	\$10.00		
Stout, M.L., ed., 1992, <u>Proceedings of the 35th annual meeting, Association of Engineering Geologists.</u> October 2-9, 1992: 740p.	\$5.00		
Tepel, R., 1995, <u>Professional Licensure for Geologists, an Exploration of Issues.</u> Association of Engineering Geologists Special Publication No. 7, 1995	\$12.00		
Cann, L.R., Cobarrubias, Hollingsworth, B., 1992, <u>Engineering Geology Field Trips Orange County, Santa Monica Mountains, and Malibu.</u> AEG 35 th Annual Meeting, Field Trip Guidebook, October 2-9, 1992	\$10.00		
<u>Los Angeles Metro Rail System Field Trip Guidebook.</u> Association of Engineering Geologists, 35 th Annual Meeting October 2-9, 1992 Long Beach, California	\$10.00		

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