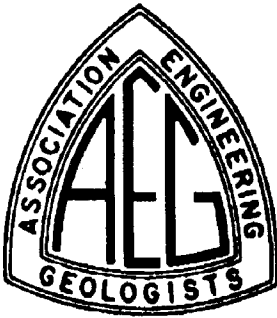


Association of Engineering Geologists

Southern California Section

NEWSLETTER - September 1990



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12 Issues/year-\$20 to "AEG"
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c/o Geraghty & Miller, Inc.
Ground-Water Consultants
17800 Castleton Street, Suite 175
City of Industry, CA 91748
Amer.Geop.Union TELENET
KOSMOS Computer Mail
Username: KROWE

2550 Beverly Blvd.
Los Angeles, CA 90057

Dinner Meeting **Tuesday September 11th**

Special Joint Meeting with the South Coast Geological Society & the San Diego Association of Geologists

- El Adobe Restaruant**
31891 Camino Capistrano
San Juan Capistrano
- Cost - \$17.00 (Full-Time Students - Free)**
- For reservations call by September 7th!!!**
Marion (818) 889-0844 (Grover Hollingsworth & Assoc.)
(Leave Your Name & Number of People in Your Party)

Make reservations by Noon on the Friday before the Meeting

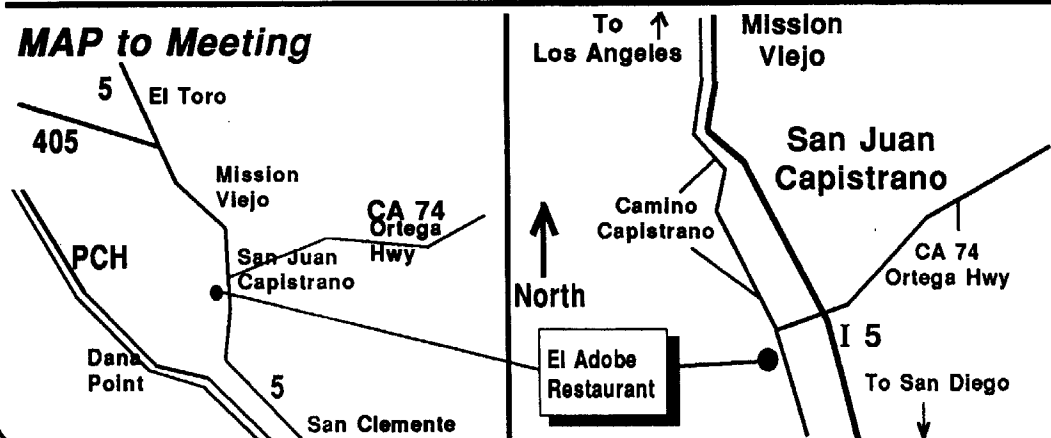
- 5:30 Social Hour**
- 6:45 Dinner**
7:30 Announcements
- 8:00 Program**

Program

**TOPIC Earthquakes and Faulting Offshore
Southern California: Lessons
Learned and Future Surprises**

SPEAKER Dr. Mark R. Legg with ACTA, Inc.

MAP to Meeting



Program

Topic & Speaker

**Earthquakes and Faulting Offshore
Southern California: Lessons
Learned and Future Surprises**

Dr. Mark R. Legg

A large beach-loving populace and major coastal facilities, including Naval bases, maritime ports, and power generating stations, are threatened by earthquakes occurring offshore in the California Continental Borderland. Moderate to large historical events with offshore epicenters show that this threat is significant. Several decades of marine geological and geophysical studies in the California Continental Borderland have mapped several major late Cenozoic fault systems within the region. Numerous active faults lie under the Santa Barbara Channel; to the south, the Agua Blanca fault system and the San Clemente fault system dominated the seismotectonics relevant to coastal earthquake hazards. The earthquake potential of the region is yet to be quantified, although recent satellite (GPS) monitoring of the plate tectonic movements suggest that collectively, these offshore faults may account for as much as 20 to 35 percent of the Pacific-North America relative motion, comparable to major onshore faults. The distribution of slip among the individual major fault zones remains undetermined. Furthermore, recent observations, of both earthquake focal mechanisms and offshore fault character reveal that a significant component of dip-slip, either thrusting or normal faulting, is common for offshore faulting. Therefore, there is a real threat for locally generated tsunamis from large earthquakes offshore southern California. Clearly, it is vital that we improve our understanding of California's offshore earthquake potential.

Dr. Legg received his B.S. in Space Sciences & Mechanical Engineering and his M.S. in Physical Oceanography from the Florida Institute of Technology. He completed his Ph.D. in Geological Sciences at UC Santa Barbara, with some work being done at Scripps Institute of Oceanography, M.S. in Oceanography.

His dissertation, titled "Geologic Structure and Tectonics of the Inner Continental Borderland Offshore Northern Baja California, Mexico," is the basis for much of his presentation. He is currently employed at ACTA, Inc., a small consulting firm that specializes in Risk Analysis.

THIS MONTH

September 1990



Kelly E. Rowe
Hydrogeologist

This month the AEG SCS monthly meeting will be held at the El Adobe Restaurant in San Juan Capistrano. It is a joint meeting with the South Coast Geological Society and the San Diego Association of Geologists. This meeting should attract a large number of geologists and engineering geologists in the southern, southern California area. We are certain that this meeting will be bigger than the San Fernando Valley area AEG SCS meeting held in May. Please make your reservations early so you will not miss out.

Last month's program speaker Henri Koza, civil/structural engineer with EQE Engineering, described and showed observations of the damage that occurred as a result of the recent Philippines earthquakes. EQE Engineering teams just came back with observations from this unusually intensive earthquake event. Although interest was evident to hear about the planned program, damage from the 1988 Armenia earthquake, Henri had much to say about the Philippines event.

The Philippines encompass 7,000 islands covering an area of 300,000 km². The July 16th earthquake event effected approximately 10 percent of the area and over 1,700 people were killed. The event was really two 7.7 earthquakes each lasting 30 seconds, separated by 2 minutes. One earthquake was on the Philippine fault. The other was on the Dig Dug fault. This unusual event caused much slope movement and building damage.

Damage/failures of structures were primarily due to poor construction practices. Engineers in the Philippines use the same building codes that we have in the US and are involved in the planning and design phases of the construction. However, when the actual construction occurs it is in the hands of the construction companies and govern-

Ballot for New Officers for the Southern California Section of the Association of Engineering Geologists

Term October 1990 to September 1991

Chairman Eldon Gath

Write-In _____

Vice Chairman Kelly Rowe

Write-In _____

Treasurer James O'Tousa

Write-In _____

**Secretary/
Newsletter Editor** Tania Gonzalez

Write-In _____

**Please Forward Your
Completed Ballot to:**

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Newport Beach, CA 92660

Continued from page 2

ment inspectors. It was obvious in Henri's slides that buildings, such as the Hyatt Resort Hotel in Baggio which seen on television, used construction short-cuts and had inadequate structural reinforcement features.

Henri Koza also made reference to the damage resulting from the Armenia 1988 event. He said that the design of the buildings in Armenia was done in Moscow. They used "cookie cutter" designs and therefore neglected to account for the structural stress needs for buildings in this area.

Nominations for officers for 1990-1991 were taken at the July meeting. Proposed and seconded nominations were as follows: **Chairman - Eldon Gath; Vice Chairman - Kelly E. Rowe; Treasurer - James O'Tousa; and Secretary/Newsletter Editor - Tania Gonzalez.** A voting ballot is enclosed on page 3. You will notice you may also write-in a candidate. Please take the opportunity to vote and return the ballot to Kelly Rowe, c/o Geraghty & Miller, Inc., at the address shown.

The 1990 AEG SCS annual field trip will address the engineering geology and hydrogeology of the Soledad Basin. The field trip will be held in late October or later in the year. The trip is being delayed due to access permission problems at a couple of key loca-

tions. We are, therefore, continuing to solicit articles for the guidebook, as well as suggestions for stops. General topics to be covered include: San Gabriel Fault, landslides, expensive bedrock, treatment of collapsible soils, ground-water development and private sewage disposal. Please volunteer at the meeting or contact Bob Hollingsworth (818) 889-0844 or Charlie Buckley (818) 991-1542.

Call For Papers... The 66th Annual meeting of the Pacific Section AAPG-SEPM-SEG-SPWLA-Environmental Groups will be held in Bakersfield, California on March 5-8, 1991. The theme of the meeting will be **Earth Science: The Continuing Challenge**, in which new concepts and roles will be highlighted, and traditional topics will be featured. Three days of technical sessions and symposia are planned.

Attendance at the Bakersfield meeting is expected to be between 1,000 and 1,500 geologists, geophysicists, petrophysicists, environmental geologists, students, and other earth science professionals. For further information contact the **Symposium Chairman, Dan Schwartz**, 4909 Stockdale Hwy., Suite 251, Bakersfield, CA 93309, (805) 326-5655.

First Call For Papers...The 27th Annual Symposium on Engineering Geology and Geotechnical Engineering

Continued on page 4

will be held April 10-12, 1991, at Utah State University, Logan, Utah. Presentations on all aspects of engineering geology and geotechnical engineering are solicited. A short course "Techniques in Paleoseismology" will be offered April 9, and a field trip to the Jordanelle, Utah damsite is scheduled on April 13. Deadline for one-page preliminary abstracts is Dec. 21, 1990, with final camera-ready manuscripts (20-page limit) due on March 1, 1991. For further information contact the Symposium Chairman, Dr. James McCalpin, Dept. of Geology, Utah State University, Logan UT 84322-4505, (801) 750-1220.

Richard W. Hurst, Ph.D., will be holding a short course entitled "Isotope Geochemistry for Professional Geologists and Engineers", October 22-23, 1990 in Oxnard. Dr. Hurst is a professor of biogeochemistry at CSULA and is president of Chempet Research Corp. The course will be held at the Mandalay Beach Resort, 2101 Mandalay Beach Rd., Oxnard, CA 93035, tele. (800)582-3000. The fee for the course is \$285. The deadline for registration is Sept. 10, 1990. Contact Dr. Hurst at (805) 495-8385.

The LA County Dept. of Public Works offices and the USGS publications office are reducing their business hours. The LA County Dept. of Public Works (LACDPW) main office in Alhambra will be closed on Fridays. This office will have staff working four day weeks. Satellite LACDPW offices will continue to be open on Friday. A reported sign on the USGS publications office says that because of staff reductions until further notice it will only be open from 11:00 to 4:30. Note these hours so you and your staff can save yourselves time and aggravation.

The Executive Officer position of the State Board of Registration for Geologists and Geophysicists will be available soon, since the present Executive Officer, John Wolfe, is retiring. The position qualifications include: possession of licences as a registered geologist and certified engineering geologist in California, knowledge of principles and practices of public administration and management, including those related to program planning and evaluation, fiscal and personnel management, staff development, delegation, budgeting, executive decision making, and public relations.

The Executive Officer must possess the ability to coordinate a statewide regulatory program and evaluate complaints of technical negligence and incompetence and to provide a cursory review of reports and maps contained with the complaints. The location of the position is in Sacramento and the salary is \$4,223.00 per month.

Prospective applicants should send their resume to the Board office (916) 445-1920:

Geology and Geophysics Board
1021 O Street, Room A-190
Sacramento, CA 95814

Applications will be received until 5:00 p.m. on August 31, 1990.

Applicants will be screened by the board and only the most qualified will be invited to an interview. It is anticipated that interviews will be held during October 1990.

An environmental sciences JOB FAIR will be hosted by Career Connections on September 14 and 15. It will be held at the new LAX Embassy Suites Hotel, located at the corner of Century Blvd. and Airport Blvd. Friday 14th time is 10:00 to 7:30. Saturday 15th time is 10:00 to 5:00. Free admission. Environmental Engineers, Geologists, Chemical Engineers, Civil Engineers, and Air & Waste Management Specialists are encouraged to attend. Interviewing companies will include Chemical Waste Management, James M. Montgomery, C.E., Inc., Earth Technology Corp., Hughes, and Northrop Corporation. For information and pre-registration call (800) 266-3010.

Good Luck to those of you taking the Geologist and/or the Engineering Geologist exams on September 14 and 15. Keep in mind that you may not be notified of the results of your test until March 1991.

The State Board of Registration for Geologists and Geophysicists is continuing to look for ways to shorten the time between when the tests are given and when the results are reported. The Board is also seeking to provide two test dates per year. The number of individuals trying to become licensed in the state is still very high. For example, the minutes of the June 5, 1990 State Board meeting indicated that there are 847 applications for the geology registration exam; 317 for the engineering geology exam; and 30 for the geophysics exam.

Dr. Stout, CSULA, provided a tentative list of the "Geology Dept. Upper Division Elective and Graduate Courses" for the 1990-91 academic year. The list shows there are 3 to 4 courses offered each quarter, usually held in the evenings.

Jerry Treiman, with the California Division of Mines and Geology (CDMG), says the downtown Los Angeles office of CDMG may move from the 107 South Broadway, Room 1065, LA, CA 90012 location to the campus of the California State U. - Long Beach (CSULB). Jerry circulated a questionnaire at the August AEG meeting about this issue. If you have interest in this potential office move call or write to the LA CDMG office (213) 620-3560. Respond soon. A decision on this possible move should be made by October 1, 1990.

C. Michael Scullin, author of the excellent book "Excavation and Grading Code Administration", now has copies available in soft cover. The cost is a bargain at \$25.00 plus tax = \$26.69. To order call Michael at (805) 529-3611 or write to Michael Scullin, 15466 Kernvale Ave., Moorpark, CA 93021. Mike says please don't wait to purchase the book. He printed 100,000 copies to

keep the cost down and they are presently filling his garage. The book features more than 300 illustrations showing work in progress in categories ranging from soil testing to grading control to landscaping. It is appropriate for graduate level engineering and landscape architecture and public administration classes. Anyone involved in grading should have this book in their library.

Charles Daugherty, present AEG SCS treasurer and former AEG SCS newsletter editor, is leaving the southern California area to take a position in the Dallas, Texas area. Charlie has been working on the Metro Rail tunneling project in downtown Los Angeles. He will now be working for Parsons Brinkerhof on the largest construction project for the most expensive single scientific experiment in history, the Superconducting Super Collider (SSC). To obtain the data from the experiment it requires that it be protected by cosmic influences by being buried beneath tens of feet of earth or rock. We wish him the best of luck and hope he enjoys the work on this fascinating project.

On the Changing Orange County Grading Code and other mundane matters.

The Orange County Environmental Management Agency (EMA) and county counsel of Orange County have proposed several significant changes to the Grading and Excavation Code. These revisions, dated May 21, 1990, eliminate the definitions of Engineering Geology, Engineering Geologist and Soil Engineer. The proposed revisions do not, however, eliminate the requirement that engineering geology and soils engineering reports be prepared. The proposed wording for code Section 7-1-839 9 (b) states that "*all necessary reports, compaction data, soils engineering and engineering geology recommendations shall be submitted to the owner by the civil engineer responsible for the geotechnical design.*" Orange County is apparently planning to allow engineering geology reports to be prepared by civil engineers.

The proposed elimination of the definitions of engineering geology and engineering geologist was apparently precipitated by the threat of a lawsuit from a civil engineer. This civil engineer obtained an opinion from the Board of Registration for Professional Engineers and Land Surveyors stating that "a civil engineer, competent to practice geotechnical engineering, is sufficient to investigate, prepare and/or review in-situ geotechnical reports involving soils and engineering geology."

The officers of the AEG SCS are taking an active role in opposing the proposed code changes. We have also written the Engineers Board to register our disagreement with their conclusions. You are encouraged to write to the Orange County EMA and the county

counsel to register your opposition to the proposed changes.

On August 20, 1990, Hugh Robertson, along with an AEG delegation of Mavis Kent, incoming President of the Association, Neil Zickefoose, Frank Groffie, San Francisco Legislation Chairman, Steve Reynolds, Sacramento Legislation Chairman, and Bob Tepel, Manager of Association Committee on Professional Registration, met with Assemblypersons Bob Campbell and Delaine Eastin at the State Capital in Sacramento. The purpose of the meeting was to discuss comments attributed to Ms. Eastin by the Oakland Tribune, concerning elimination of the Geology Registration Board. Ms. Eastin indicated she did not want the Board to be eliminated, only improved to better serve the interest of the public.

Hugh Robertson reports that the meeting went well and the delegation was well received. Ms Eastin wants the Dept. of Consumer Affairs to improve and is putting pressure on all registration boards. We discussed the desire of AEG to strengthen the Board and improve geologic practice for the public. Alternate levels of enforcement, short of loss of license, were discussed. Problems with funding are apparently due to administration at the Dept. of Consumer Affairs and the desire of the current administration to limit government spending. It sounds like political pressure is needed to support the Board's request for more funds in their budget to support enforcement. Changes in the act may be needed to permit enforcement flexibility. Further meetings are planned.

There appears to be continuing actions at different levels in the government to erode the strength of the geology and engineering geology professions in California. For example, just over the last year the actions of the Orange County EMA and county counsel on the County Grading Code, the previously proposed changes in the Los Angeles County Grading Code, and the move by Assemblywoman Eastin to strengthen the Dept of Consumer Affairs by bashing the Geology Board, weaken the integrity of the geological professions. These actions probably stem from the apathy and lack of communication and involvement of practicing geologists in the state to keep the public informed of the need for their services, to protect the public health and welfare. It was the reason the Geology Act was passed in 1968. Although every geologist I know is extremely busy with work, family and fun, I strongly encourage you to regularly designate time to become more active in AEG or to help the Geology Board to become stronger in its mission. This may simply involve writing letters or making phone calls to voice your opinion or to sign a petition joining others in a common voice. Volunteer! With no activity the result may cause the demise of the Geology Act in California and perhaps in other states as well.

Seminars/Meetings/Field Trips

SEPTEMBER 1990

The UC Irvine, University Extension, is continuing its Hazardous & Toxic Substances Program this Fall. Several courses and special Fall seminars are being offered. For more information contact (714) 856-5524 at the UCI Extension, P.O. Box 6050, Irvine, CA 92716-6050.

6-7" **The Arizona Groundwater Management Act: Conference and Symposium Commemorating 10th Anniversary of the 1980 GW Mgmt. Act**" Casa Grande, AZ. CONTACT: (602)621-7607 Mary G. Wallace, WRRRC, Geology Bldg., Rm 318, U. of Arizona, Tucson, AZ 85721.

10-13" **Ground Water and Vadose Zone Monitoring and Sampling Technology -ASTM Training Course**" Burlington Mass. CONTACT: (215)299-5480 Kathy Dickinson, ASTM, 1916 Race Street, Philadelphia, PA 19103.

17-21" **Statistical Methods in Water Resources**" Dr. Dennis R. Helsel, Dr. Edward J. Gilroy, International Ground Water Modeling Center CONTACT: Holcomb Research Ins. Butler U., 4600 Sunset Ave., Indianapolis Indiana 46208 (317)283-9519.

19-22" **Short Course - Shallow CDP Seismic Reflection Surveying**" Sunnyvale, CA. EG&G Geometrics CONTACT: (408)745-6131 Myra Crettol, EG&G Geometrics, 395 Jave Drive, Sunnyvale, CA 94089

24-26" **42nd Annual National Convention & Exposition of the National Water Well Assoc.**" Anaheim, CA. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

25-26" **Ground Water Flow Systems & Land Use: Reolation to Quality of Shallow Ground Water.**" Anaheim, CA. Same as above.

24-28" **Incremental Flow Modeling for Analysis of Flow and Transport Problems**" Dr. O. Strack, et.al., International Ground Water Modeling Center CONTACT: Holcomb Research Ins. Butler U., 4600 Sunset Ave., Indianapolis Indiana 46208 (317)283-9519.

OCTOBER 1990

1-5" **33rd Annual Meeting of the Association of Engineering Geologists**" Pittsburgh, Pennsylvania. Technical sessions, three short courses, two symposia & several field trips.

1-3" **Principles of Subsurface Contaminant Fate & Transport Modeling**" Long Beach, CA. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

1-3" **Theory and Practice of Ground Water Monitoring and Sampling**" Long Beach, CA. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

4" **Environmental Site Assessment Course**" Long Beach, CA. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

9-12" **American Institute of Professional Geologists**" long Beach, CA CONTACT: (213)594-9485 Steve Testa, Applied Environmental Services 6695 E. Pacific Coast Highway, 2nd Floor, Long Beach, CA 90803.

15-19" **Multiphase Organic Transport Modeling with Empha-**

sis on Pollution by Hydrocarbons" Dr. J. Parker, et.al., International Ground Water Modeling Center CONTACT: Holcomb Research Ins. Butler U., 4600 Sunset Ave., Indianapolis Indiana 46208 (317)283-9519.

18-21" **Annual Industrial Fabrics Association International Convention**" San Francisco, CA. CONTACT: IFAI, 345 Cedar St., Suite 800, St. Paul, MN 55101 (612) 222-2508.

22-25" **Ground Water and Vadose Zone Monitoring and Sampling Technology -ASTM Training Course**" Atlanta, GA. CONTACT: (215)299-5480 Kathy Dickinson, ASTM, 1916 Race Street, Philadelphia, PA 19103.

23-25" **A Comprehensive Approach to Development and Protection of Ground Water**" San Francisco, CA. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

23-25" **Applied Drilling Engineering for Rotary & Auger Methods/GW Investigations**" Same as above.

28-11/1 **'Third National Irrigation Symposium - Visions of Irrigation - Technology to Enrich Our Environment**" Phoenix, AZ. ASAE CONTACT: ASAE (616)429-0300 2950 Niles Rd., St. Joseph MI 49085-9659.

29-31" **California Watersheds at the Urban Interface - Watershed Management Council 3rd Biennial Conference**" Ontario, CA. CONTACT: Rex Woods, Water Resources Center, Rubidoux Hall, UC Riverside, 92521. (714)787-4327

31-11/2" **Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention Detection & Restoration**" Houston, TX. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

NOVEMBER 1990

4-9" **Symposium on Urban Hydrology**" Denver, CO. Amer. Water Resources Assoc. (AWRA). CONTACT: AWRA (301)493-8600 5410 Grosvenor Lane, Suite 220, Bethesda, Maryland 20814-2192.

6-8" **Theory and Application of Vadose Zone Monitoring, Sampling, Remediation**" Las Vegas, NV. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

6-8" **Haz Mat 90 West**" Long Beach, CA. HAZMAT WORLD & Tower Conference Management Co. CONTACT: Tower (708)469-3373, 800 Roosevelt Road, Bldg. E-Suite 408, Glen Ellyn, IL 60137-5835.

8-9" **Designing with Geosynthetics**" Denver, CO. CONTACT: (215)895-2343 Geosynthetic Research Institute, Drexel U., West Wing - Rush Bldg. #10, Philadelphia, PA 19104.

9" **Environmental Site Assessments One-Day Legal Course**" Las Vegas, NV. Assoc. of Ground Water Scientists and Engineers (NWWA). CONTACT: NWWA (614)761-1711/P.O. Box 182039/Dept. #017/ Columbus, Ohio 43218.

Other Local Professional Meetings Held Regularly

Coast Geological Society: Dinner meetings every third Tuesday of the month, October-June; American Legion Hall, 83 S. Palm St., Ventura, CA.

Inland Geological Society, Dinner Meeting third Thursday of each month, San Bernardino County Museum, Orangetree, Redlands, CA Contact: Jay Martin (714)888-2422.

San Diego Association of Geologists: Dinner meetings third Wednesday of every month - locations throughout San Diego area. Contact: (619)292-8030 (Leighton & Assoc., San Diego office)

South Coast Geological Society, Inc.: Dinner Meetings first Monday of each month, Revere House, 900 West First Street, Tustin, CA

Professional Services

Business-card size advertisement space available for \$ 50.00/year.



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City of Industry, CA 91748

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Attention: Pat Kaler

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or send resume to:

Law Environmental, Inc.

3320 N. San Fernando Blvd.

Burbank, CA 92131

Career Opportunities For Geologists, Environmental Geologists/ Hydrogeologists

Openings are available for project/senior staff geologists. Requirements include a BS/MS in Geology, RG (CEG highly desirable) and at least 4 years of experience. Responsibilities will include project management, analysis of geologic mapping and exploration and staff supervision. Openings are available for environmental geologist/hydrogeologists. Requirements include a BS/MS in Geology RG and five years of experience in environmental services filed. Responsibilities will include project management. Groundwater modeling experience is highly desirable. Salary is negotiable and commensurate with experience.

CONTACT: (714) 250-1421

or send resume to:

Leighton & Associates

Attention: Vicky Overly

1151 Duryea Avenue

Irvine, CA 92714

Career Opportunity For Registered Geologist/Registered Civil Engineer & Chemical Engineer

Openings are available for management and technical leadership in remediation of, and the design of equipment to manage, hazardous wastes, soil and ground water problems. Interact with clients to develop new projects and provide technical and regulatory advice. Minimum five (5) years experience in the field. Excellent oral and written communication skills are essential.

CONTACT: (714) 632-8521.

or send resume to:

Environmental Audit, Inc.

1000-A Ortega Way

Placentia, CA 92670-7125

Attn: Ms. Peggy Wolverton

Career Opportunity For Registered Geologist/Registered Civil Engineer

Openings are available for project level civil engineer and geologist in the San Diego office. CA registration required; 3 to 7 years experience in project management; engineer; ground water and soils remediation & hands on implementation; geologist: engineering geology, geotechnical engineering, and hydrogeologic investigations.

CONTACT: (619) 294-9400.

or send resume to:

Woodward - Clyde Consultants.

1550 Hotel Circle North

San Diego, CA 92108

Attn: Personnel Manager

Kelly E. Rowe
AEG Secretary/Newsletter Editor
c/o Geraghty & Miller, Inc.
4931 Birch Street
Newport Beach, CA 92660



AEG Meeting in San Juan Capistrano on September 11th
Jointly w/ South Coast Geological Society & San Diego Association of Geologists

