



Association of Engineering Geologists  
**Inland Empire Chapter**, Southern California Section  
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(23-Jul-05)

## AUGUST MEETING NOTICE

NOTE: Joint meeting with Inland Geological Society

NOTE: Meeting on 1<sup>st</sup>, not 3<sup>rd</sup> week of August

NOTE: Specialty Function (Colloquy) at early Dinner

NOTE: Two Guest Speakers During Meeting Program

Wednesday, 3-Aug-2005

5:45 - 6:15	Geologist Orientation	Front Steps/Lobby 1st Floor*
6:15 - 7:00	Dinner/Colloquium	Earth Science Exhibits Room, 1 <sup>st</sup> Floor*
7:00 - 8:45	IGS/AEG Chapter Meeting	Meeting Room, 2 <sup>nd</sup> Floor

### Riverside Municipal Museum

Meeting Cost: \$7 to \$14

(Fund-raising donation suggested is \$5.00, or more)

*(RSVP/Directions below)*

Dear AEG Members:

### This Month's Speakers:

**Dr. Jeffrey R. Keaton, P.E., P.G.**

MACTEC Engineering and Consulting., Inc., Los Angeles, California

## **“Monitoring Slope Deformation with Quadrilaterals for Pipeline Risk Management”** (short subject)

### ***Abstract***

Ground displacements, strains, and tilts can be calculated by repeated measurements of the lengths of six chords and relative elevations of an array of four points, known as a quadrilateral. Strain gauges traditionally have been used on pipelines in landslide areas to aid in managing pipeline risk. Quadrilaterals may be economical alternatives to placing strain gauges on existing pipelines in areas of active or potential slope movements. Quadrilaterals are relatively inexpensive to install, but must be carefully located and founded deep enough to avoid seasonal shrink-swell effects of the soil. Measurements must be taken with precise instruments (tape extensometer) so that small changes can be detected with acceptable errors.

Three contiguous quadrilaterals were installed in Spring 2003 in a landslide-prone area of Southern California to aid in monitoring a slope between the main scarp of a recently active landslide and a pipeline bridge foundation. Engineering geologic evaluation supported a conclusion that the rate of headward crest advancement would be slow, but a method of detecting and quantifying slope deformation was needed for operational risk management.

### ***The Speaker:***

Jeffrey R. Keaton is a Senior Principal Engineering Geologist in the Los Angeles office of MACTEC Engineering and Consulting, 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, Arizona, and Utah, and certified as an Engineering Geologist in California and Washington.

Keaton is a past president of the Association of Engineering Geologists, past chairman of the Engineering Geology Division of Geological Society of America, and past chairman of the Committee on Engineering Geology of the Transportation Research Board (TRB). He is the chairman of the TRB Section on Geology and Properties of Earth Materials. He specializes in quantifying hazardous natural processes for use in design and risk analysis.

Keaton was one of the 11 members of TRB Task Force A2T61 which produced TRB Special Report 247 Landslides: Investigation and Mitigation in 1996; Keaton was principal author of Chapter 9, Surface Observation and Geologic Mapping, and Chapter 16, Important Considerations in Slope Design.

## **Woodrow L. Higdon**

### ***President***

*Geo-Tech Imagery International, Oceanside, California*

## **“Bluebird Canyon Landslides: Past, Present, and Future”** (longer subject)

### ***abstract***

Mr. Higdon’s talk will focus on Bluebird Canyon Landslides 1 and 2, and a pictorial review of Laguna Beach’s landslides, past and present, with a look toward the future.

On October 2, 1978, a large landslide devastated the Bluebird Canyon area of Laguna Beach by initially destroying 21 homes. This slide, commonly known as the “15 Million Dollar Slide” was investigated and found to be part of a re-activated ancient landslide.

On June 1, 2005, the area adjacent to and northeast of the 1978 Bluebird Canyon failure, became an active

landslide, and again brought national media attention to the area by damaging or destroying 16 homes. This slide was also a reactivated ancient landslide that was delineated during the 1978 investigation.

During the period between 1978 and 2005 Laguna Beach has had a series of damaging reactivated ancient landslides that have more in common than just being landslides. There is also the potential for a “Bluebird III, IV, ETC.”.

*The Speaker:*

Woodrow Higdon (aka “Woody”) enlisted in U.S. Marine Corps in 1961, and trained in mapping; areal photography; and with Marine Recon, underwater: diving, photography, and demolition. Following the military experience, with Honorable Discharge, he served in law enforcement as Police Officer in Cities of Santa Ana, and Garden Grove. Subsequently matriculated at Cypress College and California State University graduating with degrees in Marine Geology and Geology (CSU-Long Beach, 1975). Post-graduate work in remote sensing imagery at Harvard University was conducted in 1981. Woody was employed as a Staff Geologist between 1975 and 1979 involved with various landslide investigative work, particularly the October 2, 1978 Bluebird Canyon Landslide of Laguna Beach that included extensive investigative work and photographic documentation: the so-called “ \$15-million Slide”, found to be a re-activated ancient landslide..

Woody has a life-long continuing interest and passion in photography and geology. As a Geotechnical photographer, a program started in the late 1970's continuing today. Part of this was while employed with Leighton and Associates, Inc. Mr. Higdon is the President and founder of Geo-Tech Imagery International, a technical photography company specializing in land use imagery (formed in 1979). His work specializes in technical and professional photography to aid in the investigation and documentation of geologic projects such as land use, landslides, earthquakes, floods and fires, and commercial photography for developers for marketing, planning, mass grading, and construction applications. Underwater applications include investigations for geologic hazards associated with pipelines offshore, etc.

**Thanks**

To the 23 professional individuals who attended the July Meeting in Temecula, California. Thank you for your participation (and donations), please see the meeting minutes at the Chapter's web-page in the Section's website: You are invaluable, and what it takes for us to move ahead. We are going to Riverside in August, and back to Temecula area in September ! ALSO, thank you to Richard Escandon, Doug Cook and Mike Cook or Kleinfelder and Associates, to find a large Projection Screen (and Mike to transport it !). Thanks ALSO to Tom Sheahan who bent over backwards to bring a projector ! As back-up, not knowing the speaker brought his own in last minutes. Forty (40) individuals have attended/RSVP'd for and least one or more of the four meetings since March 2005 (mostly more). Those present in July include a large, and ever-growing list, as follows:

**Tony Chakurian, Leighton and Associates, Inc.; Mark Spykerman, Earth Systems Southwest; Frank Jordan, Gary Rasmussen and Associates, Inc.; Rick Gundry, Bureau of Indian Affairs; Mike Cook, Kleinfelder & Associates; Jeff Keaton, MACTEC; David Perry, Moffett & Nicoll; Janis Hernandez, California Geological Survey; Kerry Cato, CATO Geosciences, Inc.; Warhan Stejer, Leighton and Associates, Inc; Phuang Kim Chau, Leighton Consulting; Judy Lowman; Chaffey College; Jim Lowman; San Bernardino City School District; Thomas Sheahan, Geomatrix Consultants; James Perry, Kleinfelder and Associates; Lisa Battiato, Geocon, Inc.; Andrew Shinnfield, LGC Inc.; Chad Welke, LGC, Inc.; Dan Walsh, Geocon; Ernie Roumelis, Geocon; Colby Mathews, ENGEN Corp.; David L. Jones, Riverside County; Eric Darisson, ENGEN Corp.**

## Message from the President

Please refer to the President's Message as posted at the AEG Southern California Section Website, Inland Empire Chapter Web-page(s), and other information provided there-in (Meeting Minutes, Treasurer's Report, etc.).

Fund-raising: We want to recognize those who have given 10-times or more than the minimum we requested to assist us when we sought \$5, 10, 15, 25, 35, or more from individuals or perhaps from Corporate sponsors. We now have 7 of what we call **Petras Sponsor**, as follows:

- \* **Richard L. Orr, Leighton Group Of Companies, Leighton and Associates, Inc., Rancho Cucamonga, California;**
- \* **Roy J. Shlemon, Ph. D., Newport Beach, California;**
- \* **N. Thomas Sheahan, Vice-President, Geomatrix Consultants Inc., Inland Empire Office, Corona, California;**
- \* **Steven C. Suitt, Principal, Steven C. Suitt and Associates, Canyon Lake, California;**
- \* **Richard R. Gundry, Agency Hydrologist - Water Rights, Southern California Agency, U.S. Bureau of Indian Affairs, Riverside, California;**
- \* **Kerry Cato, Ph.D., President, Cato Geosciences, Inc., Temecula, California;**
- \* **Jeffrey R. Keaton, Ph.D., Senior Principal Engineering Geologist, MACTEC Engineering and Consulting, Inc., Los Angeles, California.**

### **PETRAS Sponsor**

"Petras" is a Latin term for a large rock edifice, monolith or massif of strength (eg., Rock of Gibraltar), as different to "petros", a term for a rock or stone, something one can pick up. It can mean something like a cornerstone, such as one set for the foundation of a building – something strong and set first from which a foundation is built for a larger structure needing the strength.

The distinguishing point is donations that recognize interest and generosity building foundational financial support to the Inland Empire Chapter in this inaugural year. And, ones that certainly take an immediate, bold and positive step. A solid contribution/donation is \$50.00 or more is **Petras Sponsor**. Other, smaller donations are requested, and are as important. All donors will be recognized.

### **Directions to Meeting:**

The meeting area is located in the Riverside Municipal Museum in downtownthe City of Riverside located a few blocks of U.S. Hywy 91 on the northwest property corner at Orange Street and Mission Inn Avenue (aka 7<sup>th</sup> Street). This building is the former U.S. Post Office Building around the time of the turn of the penultimate Century, located at 3580 Mission Inn Avenue, Riverside, CA 92501. It is located immediately southeast of the intersection of Mission Inn Avenue and Orange Street, opposite southward from City Library and diagonally southeast from The Mission Inn.

From U.S. 91 heading North: Exit University Avenue (aka 8<sup>th</sup> Street). Proceed straight to Mission Inn Avenue and TURN Left (west) on Mission Inn Avenue, Museum will be on left.

From U.S. 91 Heading South: Exit Mission Inn Avenue, TURN Right (west) on Mission Inn Avenue, Museum will be on left.

From U.S. 60 heading east into Riverside, Take U.S. 91 South (follow directions above). From U.S. 60/I-215 heading west/north proceeding into Riverside, Take U.S. 91 South (follow directions as above). From I-15: Go east on U.S. 60 or North on U.S. 91 (follow corresponding directions as stated above), respectively.

**Please:** RSVP by **Thursday, July 28** with Frank Jordan at (909) 888-2422, or send eMail RSVP to Rick Gundry at [rick.gundry@verizon.net](mailto:rick.gundry@verizon.net) ,by COB 28-Jul-05, thanks.

**Next Meeting:** Wednesday 21-Sep-05 somewhere in Temecula-Murietta area to be announced.

\* **Colloquy Purpose:**

We (Riverside Municipal Museum, RMM) hope to develop the new exhibit space from an interdisciplinary perspective. We're trying to address how physical forces - earth, air, fire and water - both shape the region and then are shaped by human activities. Since we are an interdisciplinary museum, we should be able to use cultural materials to better elucidate the regional aspects of these science concepts. RMM plans to extensively remodel earth science exhibit space. RMM wants assistance of the regions's earth science professionals to develop ideas. This will be part of a series of round table discussions. This is an important input opportunity from Geologist's perspectives, to provide comment and technical assistance.

**Contact Information:**

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