



AEG SACRAMENTO

Monthly Bulletin and Meeting Announcement

Summer has arrived!

There can be no doubt that summer has arrived here in Sacramento! We've cleared 100 degrees and are now merrily enjoying the pleasures of blistering summer days and warm summer evenings. Lucky for you, we've got another great meeting coming up where you can enjoy a cool beer and the company of your friends and colleagues at the next AEG meeting! We had an incredible turnout for the May meeting and are looking forward to another great speaker this month with Yogesh Prashar coming to speak about ground deformation hazard modelling for a proposed natural gas line located near Sacramento. We will be meeting again at California Fat's in Old Sacramento this month (and I'd like to note that the dessert they served last month was truly excellent)! So come take a break from the summer's heat and join us for great food, good company and an informative talk at our June meeting!



Section Meeting Date: June 26, 2007

Meeting Location: **California Fat's Asian Grill & Steakhouse**
 1015 Front Street (at J Street)
 Sacramento, California
 (Located in historic Old Sacramento)
RSVP's are enthusiastically encouraged!

Meeting Schedule:

- 5:30 - 6:30 Sign-In & Social Hour
- 6:30 - 7:30 Dinner & Announcements
- 7:30 - 8:30 Speaker Talk & Slide Show
- 8:30 - 8:45 Questions & Answers

Numerical Modeling of Permanent Ground Deformation Hazard to a Natural Gas Pipeline In California

Yogesh Prashar, P.E., G.E.
CEO, M2 Consultants Inc.

Abstract:

An extensive Permanent Ground Deformation (PGD) study was conducted on a proposed natural gas pipeline, which will be located south of Sacramento, in Colusa and Butte Counties, California. The proposed pipeline will be approximately 25 miles long and will be a 30-inch (76.2-cm) buried steel pipe. While a majority of the pipeline will be cut and cover construction, a portion of the pipeline will be installed by horizontal directional drilling methods (HDD). The natural gas pipeline will traverse areas of two major PGD hazards: fault offset and liquefaction induced lateral spreading. The pipeline crosses the Willows fault trace, and the HDD portion of the pipeline will cross under Oxbow Lake and the Sacramento River. A detailed analysis was carried out to evaluate the magnitudes of the PGD associated with each of these sources of PGD hazards to the pipeline.

Two and three-dimensional numerical modeling of fault rupture and lateral spreading using the finite difference computer program FLAC (Fast Lagrangian Analysis of Continua) are presented and discussed. FLAC was used to simulate the fault rupture mechanism considering a 3.3-foot (1-meter) reverse and 1.8-foot (0.55-meter) strike slip displacement across the fault at approximately 1600 feet (488-meter) below the ground surface. The model captured the resulting ground surface deformation patterns. Estimates of lateral spreading due to earthquake induced liquefaction near the Sacramento River, and the Oxbow Lake pipe crossings were also made using FLAC. Spectra-matched time histories were developed for the site and used as input motion in the dynamic analysis. The numerical modeling results were used in detailed stress-strain evaluations of the pipeline response using another commercially available finite element computer program, ANSYS. Results were compared to the allowable limit states that have been established in the American Lifelines Alliance Guidelines for the Design of Buried Steel Pipe.

Yogesh Prashar, P.E., G.E.,
M2 Consultants Inc.

Mr. Prashar is a registered civil and geotechnical engineer in California with a BS from UC Davis (Civil Engineering) and an MS, also in Civil Engineering, from the University of Southern California. Mr. Prashar's area of expertise is using numerical methods to solve practical problems in geotechnical engineering. He has 16 years experience in both northern and southern California, specializing in earthquake engineering applications. His applied practical and research projects have included analysis of construction excavations and movement prediction, slope stability analyses, plate-pile reinforced slopes, seepage analyses, static and dynamic analyses of earth dams, buried tanks, port structures/wharves, walls, tunnel box structures, pipelines, railroad tunnels and vibration analysis. Mr. Prashar has participated in ASCE specialty conferences and has also published over 20 technical papers. His professional achievements include 3 presidents' awards at his previous company. He has been CEO of M2 Consultants Inc. since 2004.

Chairman's Message

by
Eric Chase

Greetings Sacramento Section Members,

We now have candidates to fill three of the four section officer positions for the October 2007 through October 2009 term. We are actively seeking a candidate for the office of Treasurer. The duties are not arduous, and there is support from your fellow section officers throughout. The work does not require knowledge of accounting or anything like that. Essentially, if you can balance a checkbook and are a member in good standing of AEG, you qualify! Added benefits are an increased awareness of what AEG is doing, increased networking with your colleagues and friends, and a chance to contribute to an organization that gives us all so much in our professional lives. Please contact me or any section officer if you can help us out.

We have a wonderful slate of speakers lined up in the near future, including a new addition. AEG's President Dr. Terry West of Purdue University will be joining us in July, as he will be making a swing through the state. Terry is a great speaker and educator, and we are currently deciding which of his several technical presentations we might like to hear. Stay tuned as details are firmed up, but the tentative date is Wednesday, July 18 (he will be visiting the San Francisco Section on Tuesday July 17). Please plan to come and meet Terry, if for no other reason than to thank him for his hard work as our President. AEG is stronger and more active than at any time in its 50-year history, thanks to hard-working volunteers like Terry. Let's celebrate that with him!

This month we have Yogesh Prashar speaking to us about seismic ground deformation and natural gas pipeline engineering, a tricky problem to assess and solve. This should be a great chance to expand our awareness on this topic, as Yogesh is an expert.

We are sending out our scholarship applications to the many universities in our area, and I am looking forward to seeing the applications coming in over the summer. The scholarships will be presented at our Student Night meeting at Sacramento State University in October. And don't forget about getting down to L.A. for AEG's 50th Anniversary Annual Meeting. This promises to be the biggest and best annual meeting in our history. I hope to see many of you there!

Finally, the Governor's Office in Sacramento contacted AEG headquarters in Denver recently seeking a recommended candidate to serve on California's Seismic Safety Commission, as the term of Dr. Bruce Clark has ended. Your three California section chairs, among others, have been at work on this and have lined up our top choices. AEG is working at all levels both locally and nationally, helping to shape public policy and provide for public safety. I am very proud to be a member of this fine organization.

Regards,

Eric Chase
Chairman, AEG Sacramento Section

Attention All Members!

The Sacramento Section of AEG has copies of past field trips and seminar publications available for purchase on our website! These valuable publications are available in very limited supply, so be sure to get your copy today by visiting our website at www.aegsacto.org/members/publications. Don't miss out!

June 2007 AEG Meeting Facsimile Transmittal Sheet

(or e-mail to the address below)

To: Lisa Breckenridge (Wallace-Kuhl & Associates, Inc.)

email: LBreckenridge@wallace-kuhl.com

Phone: (916) 372-1434

Fax: (916) 290-5429

From: _____

Or You Can Sign Up Online at: www.aegsacto.org

Subject: June 2007 AEG Sacramento Section Meeting

Date: June 26th, 2007

Place: **California Fat's Asian Grill & Steakhouse**

(Located in historic Old Sacramento near the corner of Front St. & J St., parking is available in the lot at Front St. & Capitol Mall)

RSVP's are strongly recommended for this venue!

Time: 5:30 - 6:30 PM - Sign In and Social Hour
6:30 - 7:30 PM - Dinner & Announcements
7:30 - 8:30 PM - Speaker Talk and Slide Show
8:30 - 8:45 PM - Questions and Answers

On the Menu: Chicken Pot Stickers & Crispy Vegetable Spring Rolls
Orange Chicken Honey Walnut Prawns
Vegetarian Stir Fry Chicken Chow Mein
Garlic Green Beans Steamed White Rice

Dinner is served family style and includes dessert and coffee.

Cost: \$28 member (w/ RSVP) \$30 nonmember and walk-ins

Notes: First 5 Students (w/RSVP) Eat For Free!
Additional Student RSVPs: \$10.00 Student Walk-ins: \$15.00
Alcoholic beverages are available for those 21 and over on a cash basis.



AEG Sacramento 2007

Event Calendar

January 30th	Keith Millard, Youngdahl Consulting Group Landslide Repair on a Gold Rush Era Roadway
February 27th	Dr. Sandy Figuers Construction vibrations and their effect on adjacent improvements
March 27th	Dick Hilton, Sierra College Dinosaurs and Other Mesozoic Reptiles in California
April 20-21st	Rock Slope Stability Workshop
April 24th	Nate Manley, Sanders & Associates Geotechnical Engineering, Inc. The Influence of Geologic Structures on Slope Stability and Geomorphic Development in the Shoo Fly Complex
May 29th	Dr. Edward Kavazanjian, Arizona State University Post-Closure Development of Waste Landfills
June 26th	Yogesh Prashar, M2 Consultants Numerical Modeling of Fault Rupture and Lateral Spreading related PGD for a Natural Gas Pipeline
July 18th	Dr. Terry West, Purdue University, AEG National President
August 28th	Ken Glotzbach (City of Roseville) and Chris Petersen (MWH) Roseville Aquifer Storage and Recovery Project
September 24-29	AEG's 50th Anniversary and Annual National Meeting, Sheraton Universal Studios, Los Angeles, California
October 30th	AEG's Annual Student Night at CSUS James G. Moore, USGS Clarence King - Exploration and Discovery in the American West
November	No Meeting
December	AEG/GRA Annual Joint Holiday Meeting TBA