

# Association of Environmental and Engineering Geologists

The Rocky Mountain Section Newsletter

FEBRUARY 2009

## MEETING DATE

**THURSDAY**  
FEBRUARY 12th, 2009

## TIME

5:45 p.m. Social Hour  
6:30 p.m. Dinner  
7:30 p.m. Presentation

## LOCATION

Berthoud Hall,  
Colorado School of  
Mines  
1516 Illinois St.  
Golden, Co 80401  
Room 205  
See Map Below

## COST

\$25 Members  
\$27 Non-members  
Students, free first  
time then \$10

## RESERVATIONS

[meetings@aeqrms.org](mailto:meetings@aeqrms.org)  
or  
[WWW.AEGRMS.ORG](http://WWW.AEGRMS.ORG)

**BY NOON,  
TUESDAY  
FEBRUARY 10<sup>TH</sup>**

**STUDENT NIGHT**  
**ABSTRACT DEAD-**  
**LINE MARCH 9,**  
**2009—SUBMIT TO**  
**NEWSLET-**  
**TER@AEGRMS.ORG.**

## **SITE CHARACTERIZATION AND GEOTECHNICAL ENGINEERING FOR THE CLEARWATER TUNNEL AND OCEAN OUTFALL FEASIBILITY STUDY, LOS ANGELES COUNTY, CALIFORNIA**

Patrick A. Smith, PhD., P.E.  
Fugro West, Inc., Ventura, California  
Alan L. Howard, P.G., C.E.G.  
Brierley Associates, Littleton, Colorado

The County Sanitation Districts of Los Angeles (Districts) are planning a new tunnel and outfall project that will be one of the major marine outfall projects in the world. The new tunnel and ocean outfall will provide for increased future demands along with benefits of increased reliability, flexibility, and redundancy while serving about 5.3 million existing customers in Los Angeles County. The tunnel will be approximately 20 feet in diameter and may be up to 19 miles long, between El -60 and -350 feet, MSL. About 25% percent of the 112-square-mile project area is located onshore encompassing the eastern Palos Verdes Peninsula and adjacent Port of Los Angeles. The remaining area is offshore over the San Pedro and Palos Verdes Shelves.

As part of the feasibility-level study, investigation of numerous prospective routes and preliminary design assessments of the shafts, tunnel and outfall were conducted. Existing geological and geotechnical data were compiled in order to characterize Quaternary deposits and Tertiary-age rock formations underlying the project area. Following accumulation of existing data into a GIS database, land-based geotechnical investigations and offshore marine geophysical surveys coupled with submarine cone penetrometer and vibracore borings were completed.

The Middle Pleistocene through Middle Miocene-age geologic units present in the project area are generally composed of poorly-indurated materials (soil-like to extremely weak rock) composed of siltstone, claystone, and mudstone possessing many of the engineering characteristics of a very hard soil, and frequently include diatomaceous materials. Strong rock layers and lenses up to several feet thick are infrequently present, and comprise dolomitic and siliceous layers, cherty and porcelaneous rocks, and possibly volcanic rocks, interstratified within the Monterey Formation.

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## Words from the Chair

Well, this is turning out to be a great season! Thanks again to Dr. Edmund Medley for his presentation last month. I'm told it was fantastic and I'm sorry I couldn't be there. But with the holidays and vacations over, I guess it's time to get back to work.



Our annual Student Night is fast approaching and will be held Friday March 27<sup>th</sup> this year. Please plan to attend the dinner and poster session and engage the students in conversation about their research. We rely heavily on sponsorship from our generous members to make this night possible. Please take a look at the sponsorship form in this month's newsletter for details on the various levels of sponsorship. Please try to find a sponsorship level that works for you or your company in this tough economy. Sponsorship starts at just \$25.

The Society for Metallurgy, Metallurgy, and Exploration (SME) is holding its annual national conference in Denver from February 22 to February 25 downtown at the Colorado Convention Center. The Western Mining Association is holding the 111<sup>th</sup> National Western Mining Conference in conjunction with the SME conference. There will be technical sessions, short courses, field trips, and a very large exhibition with various suppliers, consultants, government organizations, etc. I will be presenting a paper detailing the first phase of my research in rock mechanics and coal mine rock bursts at this conference. Anyone interested can contact me for the details or visit <http://www.smenet.org>

Our presentation for the February 12<sup>th</sup> meeting will be given by Alan Howard (Brierley Associates) and Dr. Patrick Smith (Fugro West). They will be presenting the challenges of a site characterization and geotechnical engineering issues for a feasibility study and preliminary design of a large diameter tunnel in Los Angeles, California.

I hope to see everyone at the meeting and don't forget to RSVP by February 10<sup>th</sup> at noon.

Sean Harvey, PG  
Chair, AEG-RMS

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## Clearwater Tunnel Outfall—Continued

Engineering geologic conditions along each of three alignment corridors including 11 possible alignments have been studied and will range from saturated alluvial soils to weak sedimentary rock, and possibly metamorphic basement rock, and could encounter mixed face and squeezing ground conditions. Other significant challenges include the potential for encountering high water pressure, crossing seismically active faults and the potential of encountering gassy and contaminated ground conditions. This presentation will discuss the site characterization and geotechnical engineering efforts to date and generally discuss the engineering geologic challenges and design factors being considered in the feasibility and design studies.

## 2008-2009 Upcoming Meeting Presentations

February 12, 2009	Alan Howard	Los Angeles Ocean Outfall Tunnel
March 27, 2009	<b>Student Night</b>	<b>Friday</b>
April 9, 2009	Robin Dornfest	Sugar Beet Spoils, Geotechnical Implications
May 14, 2009	Susan Steele-Weir	Trip report from Antarctica— <b>Family Night</b>

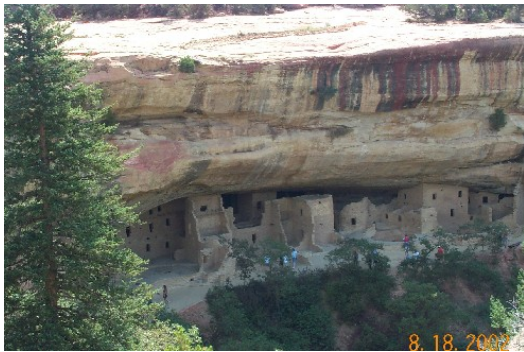
If you are interested in Presenting at an AEG meeting contact Sean Harvey at [chair@aeqrms.org](mailto:chair@aeqrms.org)

## Student Night 2009

Please see the attached flier for information on being a sponsor for Student Night 2009. A great way to give back to the geological engineering/engineering geology professionals of tomorrow.

**STUDENTS: Start preparing your abstracts now! Submission deadline is Monday March 9, 2009**

RJH Consultants, Inc.  
Attn: Ed Friend  
9800 Mt Pyramid Court,  
Suite 330  
Englewood, CO 80112



**Colorado School of Mines - Berthoud Hall**  
**1516 Illinois Street**  
**Golden, CO 80401**



ASSOCIATION OF ENVIRONMENTAL & ENGINEERING  
GEOLOGISTS

# AEG Student Night

Friday March 27, 2009

5:30-9:00 PM

Berthoud Hall, Room 243

Colorado School of Mines, Golden, CO

The Association of Environmental & Engineering Geologists (AEG) represents professionals in the field of environmental and engineering geology in the greater Denver area and throughout the Rocky Mountain region. AEG is hosting our Annual Student Night Banquet, where environmental and engineering geology students from across the Rocky Mountain region will present their research as part of this well-attended networking event.

We would like to invite you to participate as a sponsor for the event. This will be an exciting opportunity for you to gain recognition for your firm by as many as 100 professionals and students in the region. This event also serves as an excellent recruiting opportunity, as the region's best and brightest students will be in attendance. You may participate at the following sponsorship levels:

<b>SPONSORSHIP OPPORTUNITIES</b>	
<b>Diamond Level</b>	<b>\$400</b>
<b>Platinum Level</b>	<b>\$200</b>
<b>Gold Level</b>	<b>\$100</b>
<b>Silver Level</b>	<b>\$50</b>
<b>Bronze Level</b>	<b>\$25</b>

All sponsors will be listed on a posterboard at the meeting, in the section newsletter, and on the section website ([www.aegrms.org](http://www.aegrms.org)). All students who attend this meeting receive complimentary admission so this event would not be possible without the support of our sponsors. We thank you in advance for your generous donations!

## RESERVATIONS

- Diamond Award (\$400)      Name of Company \_\_\_\_\_
- Platinum Level (\$200)      Name of Contact \_\_\_\_\_
- Gold Level (\$100)      Address \_\_\_\_\_
- Silver Level (\$50) \_\_\_\_\_
- Bronze Level (\$25)      Phone \_\_\_\_\_
- E-mail \_\_\_\_\_

Please RSVP your sponsorship by fax no later than **March 13, 2009**  
 Fax this form to **720.529.5335, Attn: Julia Frazier**  
 You may pay for your sponsorship at the meeting, or send a check to:  
 AEG-RMS  
 P.O. Box 280663  
 Lakewood, CO 80228-0663