

# Association of Environmental and Engineering Geologists

The Rocky Mountain Section Newsletter

SEPTEMBER 2008

## MEETING DATE

**THURSDAY  
SEPTEMBER 11th,  
2008**

## 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  
See Map Below**

## COST

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

## RESERVATIONS

Kristi Ainslie  
(303) 440-5236  
or  
[meetings@aegrms.org](mailto:meetings@aegrms.org)  
or  
[WWW.AEGRMS.ORG](http://WWW.AEGRMS.ORG)

**BY NOON,  
TUESDAY  
SEPTEMBER 9<sup>TH</sup>**

## **Abandoned Mine Hazards Characterization Using Geophysical Technologies**

Kanaan Hanna  
Senior Engineer  
Zapata Incorporated, Blackhawk Division

Abandoned mines, or voids, underlying residential and commercial properties, transportation and infrastructure facilities pose a serious threat to the public health and the environment, as they have the potential for failure and collapse resulting in surface subsidence and adverse impacts in terms of cost and safety. Traditionally, abandoned mines hazard characterization and related engineering investigations for mine subsidence risk assessment and mitigation have been greatly dependent on systematic drilling and grouting backfill programs. This approach includes boreholes drilled on a pre-determined closely spaced grid pattern; essentially a blind "Swiss cheese/shotgun" approach.

The use of state-of-the-art geophysical imaging technologies combined with downhole sonar/laser/video camera and integrated with other engineering disciplines can be confidently and practically applied to characterize subsurface geology, delineate mine workings and detect voids to allow subsidence hazards to be more accurately defined. This in turn enables targeted cost-effective mitigation efforts to be employed in a proactive rather than reactive manner.

The application of engineering geophysical technologies to investigate abandoned mine hazards for the states of Wyoming and Colorado AML Programs, various state DOT's, and numerous private clients will be discussed. The presentation will cover the following topics:

- Subsidence Risk Assessment: Problems and Challenges
  - Current Practice: Traditional Grid Drilling
  - A New Approach: Integrated Geophysical Engineering Investigations to Subsidence Mitigation Problems
  - Case Studies: Void detection and delineation using various geophysical technologies complemented by the use of focused exploratory borings and tethered robot downhole tools (such as laser/sonar/borehole video camera)
- Cost Benefit Analysis: New Approach vs. Traditional Methods

# Words from the Chair

Anyone else out there wonder how in the world the calendar can already be saying it is September!?! I hope all of you had a successful and safe field season. "Field season", that is a good one! Does anyone's fieldwork actually diminish once August and September pass us by? I haven't seen that happen in a long time. (Thank goodness!) It was an eventful summer for a number of us in the Rocky Mountain Section. Tim Petz, Julia Fraizer, and I all had additions to our families. So if you see us falling asleep at any upcoming meetings you know it is from sleep deprivation!



Our speaker for the September meeting is Kannan Hanna with Zapata, Blackhawk Division. Mr. Hanna will be presenting his talk entitled "**Abandoned Mine Hazards Characterization Using Geophysical Technologies**". As urban areas continue to expand, the potential for development over abandoned underground mines or other such unknown voids greatly increases. Mr. Hanna will discuss investigative methods utilizing a combination of geophysical and traditional techniques, present case studies, and show how the use of geophysical techniques can save money over the traditional "shotgun" approach to hazard delineation.

I hope to see you all Thursday September, 11th. Don't forget to RSVP by Tuesday (9/9/08) at noon.

Steve Compton, PG  
Chair AEG-RMS

## 2008-2009 Upcoming Meeting Presentations

If you would like to present during the 2008-2009 season, contact Steve Compton at [chair@aegrms.org](mailto:chair@aegrms.org) and he will get you on the schedule.

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## AEG 2008 Honorary Member

**Susan Steele Weir** is AEG's 2008 Honorary Member. This is a huge honor, and the Rocky Mountain Section congratulates you, Susan!

Our own Bob Valentine was the 2007 Honorary Member, so this is two years in a row that Honorary Members have come from the Rocky Mountain Section. For the complete list, check out page 63 of the 2008 directory. It is quite a distinguished list of engineering geologists that Susan deservedly joins!

## Reception and Silent Auction Fundraiser

The Colorado School of Mines Geology Museum hosts an "all invited" reception and silent auction fund-raiser the evening of **Wednesday, Sept. 10**, in Golden, which will also feature the "Grand Opening" of the Museum's new gift shop. It's an enjoyable evening and a great chance to see the museum and meet people.

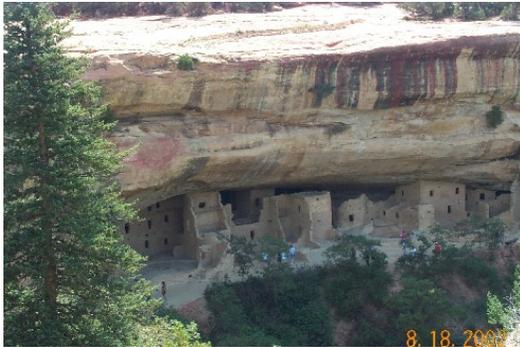
### CSM Geology Museum to Open Gift Shop

The CSM Geology Museum will be opening a gift shop shortly on the lower level of the Museum. This is the first time that the Museum has had a gift shop in its new building at 13th and Maple Street. The shop will feature surplus mineral specimens, lapidary materials and equipment, fossils, books, fluorescent minerals, starter kits, and related materials. Specimens will range from "starter" pieces for under a dollar, to fine specimens for the advanced collector. The Grand Opening of the shop will be in conjunction with the Museum's annual open house slated for 6 P.M. on September 10th.

Further information will be available as the event approaches. Phone inquiries can be directed to Bruce Geller at 303-273-3823.

**Grand  
Opening!**

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Boulder, CO 80301



**Colorado School of Mines - Berthoud Hall**  
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