



# Arizona Geological Society Newsletter

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AUGUST 2012

## August 7, 2012 DINNER MEETING

- Who:** Jeffrey Cornoyer will be our featured speaker. See abstract below.
- Where:** Sheraton Tucson Hotel and Suites, 5151 East Grant Road, (at intersection of Grant and Rosemont on the North side of Grant in the *PIMA BALLROOM* (enter at northwest corner of the building) and follow the sign to the meeting room.
- When:** Cash Bar at 6 p.m.—Dinner at 7 p.m.—Talk at 8 p.m.
- Cost:** Members \$24, guests \$27, Students free with online reservation (\$10 without).

**RESERVATIONS are REQUIRED:** CALL 520.663.5295 by 5 p.m. by Friday, August 3 or reserve on the AGS website ([www.arizonageologicalsoc.org](http://www.arizonageologicalsoc.org)). Please indicate regular (chicken alfredo with penne pasta), vegetarian, or cobb salad meal preference. Please cancel by Monday, August 6 at 8 a.m. if you are unable to attend—no shows and late cancellations will be invoiced. Meals for walk-ins may be available (with a \$3 surcharge), but cannot be guaranteed.



**INSPECTORATE**

A Bureau Veritas Group Company

The August dinner meeting will be sponsored by INSPECTORATE AMERICA CORPORATION. AGS is grateful to Inspectorate for helping us to offset dinner meeting costs!

Learn more about our sponsor at [www.inspectorate.com](http://www.inspectorate.com).

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## ABSTRACT

### Geology and Development of the Rosemont Copper Project

by Jeffrey Cornoyer, Senior Mine Geologist, Rosemont Copper Company

Rosemont Copper Company will set a high standard for sustainable mining practices, including using solar power, consuming less than half the water as traditional mines with filtered tailings, and reclaiming the site as permanent open space by revegetating with concurrent reclamation throughout the life of the mine. Rosemont Copper has completed feasibility engineering and is in the process of final engineering and permitting leading to the development of the Rosemont copper-molybdenum-silver deposit, with final permits expected in December 2012. The deposit is located approximately 25 miles southeast of Tucson, Arizona, on the east flank of the Santa Rita Mountains. Mining in the area predates the turn of the 20<sup>th</sup> century, and in 1879 U.S. Congress declared the area the Rosemont-Helvetia Mining District. At the time, mining was limited to high grade veins from underground workings. More recent interest has been focused on the development of lower grade, broadly distributed mineralization amenable to open pit mining. Original drilling and geologic work was conducted by Anaconda and its Anamax joint venture, with subsequent work by ASARCO. Rosemont Copper Company purchased the property in 2005 and has continued to evaluate the deposit and its potential for development. The Rose-

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**Abstract—continued from Page 1**

mont deposit consists of copper-molybdenum-silver mineralized skarns related to a quartz-monzonite porphyry intrusive. Host rocks to the intrusion consist of Paleozoic and Mesozoic carbonate and clastic sediments. Surrounding the intrusive contact, the carbonates and clastics were metasomatically altered to various calcsilicate skarns and hornfels. Mineralization associated with the intrusion and host rock alteration consists of broadly distributed disseminations and veinlets of sulfides, primarily bornite and chalcopyrite. Following the mineralization event, the deposit was subjected to faulting. Interestingly, the complex faulting in the deposit area has left only minor scattered remnants of the intrusive stock for a “rootless” intrusion, leading to much debate over time. Erosion has sculpted the current configuration of the deposit area, accompanied by near surface weathering and oxidization, which has resulted in a small amount of oxide mineralization in the clastic Mesozoic cover.

Rosemont Copper Company has conducted extensive resource drilling and metallurgical test work, leading up to a Feasibility Study in 2007 that demonstrated positive economic viability. Since that time further work by Rosemont was used to complete an Updated Feasibility Study in 2009. In early 2012, a drilling program was completed for an additional 2012 Feasibility Study update and expanded the Rosemont resource and reserve. The updated mineral reserve includes 266 diamond drill holes totaling 342,707 feet with 667.2 million tons of sulfide ore averaging 0.44% copper, 0.015% molybdenum, and 0.12 ounces per ton silver. The total resource contains 919.3 million tons of 0.41% copper, 0.014% molybdenum, 0.11 ounces per silver and 63.4 million tons of oxide ore averaging 0.17% copper. The project is planned as an open pit mine to provide 90,000 plus tons per day of sulfide ore to a crushing-grinding-flotation facility to produce both a copper and molybdenum concentrate, with average production of 243 plus million pounds of copper for a 21-year life of mine. Rosemont Copper Company is continuing with detailed engineering and permitting of the project with an anticipated production startup in early 2013. The Rosemont mine will be a significant U.S. copper producer and will have a positive economic impact of over \$19 billion dollars into the Arizona economy over the life of the mine. It will provide 2100 local jobs and create over \$128 million per year of county, state, and federal tax revenue.



**Please go to  
Page 3 for  
information  
about the  
speaker.**

**Above:** Drilling activity at the Rosemont Copper Project.

### ABOUT THE SPEAKER

*Jeff Cornoyer* has a degree in geological sciences from Arizona State University and joined the Rosemont team in 2006. He has been instrumental in drilling management and planning, drill core logging, geologic mapping, database management and resource modeling. He is looking forward to helping the project progress into an operating mine. In addition to Jeff's involvement with AGS over the past several years (he is the 2012 President), Jeff is the current Program and Sponsor Chair for the Tucson SME, Program Chair for the 2012 Arizona SME Conference, and a Trustee of the American Institute of Professional Geologists Foundation.

### FIELD TRIPS!!

AGS members will be kept busy in the next few months with field trips including:

- **August 11: AGS-SME Centennial Field Trip to the Landscape Evolution Observatory at Biosphere2.** This trip is free. Time: 0930-1200. Trip is limited to 40 participants, and reservations are required. **To make reservations visit:** <http://www.arizonageologicalsoc.org/field-trips/aug11-ft-reg>. Park at visitors' parking lot and meet near the entrance. Please be there a few minutes early to check in. Directions and map to facility: <http://www.b2science.org/visitor/map>. For tips such as what to wear, snacks, etc., visit <http://www.b2science.org/visitor/admission/tips>. For additional information, visit <http://leo.b2science.org/> or read an article published by the University of Arizona (<http://uanews.org/node/44728>).
- **September 15:** Rosemont Copper Project Tour. Details to be announced on the AGS website soon.
- **October 6-7:** Wickenburg area to visit the Vulture Mine on Saturday, the Anderson Mine on Sunday, and other stops of interest along the way. Additional details, including cost, will be available on the AGS website as plans develop.
- **November 10:** A joint AGS-AIPG field trip, led by Steve Reynolds, Professor of Geology at Arizona State University, will take place in the Dreamy Draw area of the Phoenix Mountains to examine aspects of Proterozoic evolution. In the afternoon, we'll head into the South Mountains to visit spectacular exposures related to mid-Tertiary extension.
- **TBA:** A possible tour of the Commonwealth Mine (near Pearce-Sunsites) late in 2012 or early next year.

Please keep checking the AGS website for more information and to sign up for these trips.

### Welcome New AGS Members

Jon Carpenter, Ruen Drilling, Inc. Bozeman, Montana  
David Gordon, KB International, Lafayette, Louisiana  
Nancy Gracia-Gungor, Skyline Assayers & Laboratories, Tucson, Arizona  
Gerald Marasovich, Ruen Drilling, Inc., Modesto, California  
Carl Rice, Dragons Deep Exploration, Tucson, Arizona  
Arlan Ruen, Ruen Drilling, Inc.

The Rosemont Copper Project will be the subject of the August dinner meeting presentation. Here are a few photos to whet your appetite!



**Left:** Malachite visible in outcrop.



**Above:** Chalcophyrite-rich core sample.



**Above:** Visible molybdenum in core sample.

### PROPOSED CHANGE TO AGS BYLAWS

In order to allow the AGS Executive Committee to vote on decisions that must be made quickly, the Executive Committee is proposing to amend the AGS bylaws. The membership will vote on this change to the bylaws at the August dinner meeting.

The proposed change will replace the third paragraph of Article III, Part 3 and will read as follows:

*If the transaction of business requires approval prior to the next regular or special Executive Committee meeting, the transaction may be approved by electronic mail according to the following procedure:*

- 1. A motion shall be made by a member of the Executive Committee. The motion will include the reason why a decision must be made before the next scheduled Executive Committee meeting.*
- 2. The motion must be seconded.*
- 3. A minimum of three calendar days' discussion shall be allowed after the motion is seconded before the votes are tallied by the Secretary.*
- 4. A majority of the members of the Executive Committee shall constitute a quorum for the transaction of business by electronic mail.*
- 5. The Secretary will report the decision taken and tally of the votes in the minutes of the next regularly scheduled Executive Committee meeting.*

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### AGS Mission

According to the AGS Bylaws, "The object of the society shall be the promotion and encouragement of interest in the science of geology and in the geology of the State of Arizona." The Executive Committee is always evaluating new ways to further our mission. The Student Poster Session night in April was one of our more recent efforts to promote the science. The recent and upcoming "Centennial Field Trips" are another.

The Executive Committee is currently exploring the possibility of creating and installing geologic road signs at scenic overlooks and other points of geologic interest in Arizona. Although it seems to be a fairly simple project, the devil is in the details, as they say. We are looking into the possibility of partnering with other professional organizations and obtaining funding from governmental organizations who receive federal funds for such uses.

This effort is in its earliest stages. If you are interested in joining a committee to help us advance this goal, or to help with other goals, such as fundraising for the Courtright Scholarship or leading a field trip, please contact any Executive Committee member.

**Thanks to the following AGS members for their generous donations to the Courtright Scholarship Fund:**

**Cori Hoag and Kevin Horstman, SRK Consulting, Tucson AZ**

**Nancy Gracia-Gungor, Skyline Laboratories, Tucson, AZ**

## 2013 Slate of Nominees—AGS Officers & Councilors

Don't miss the September 4 meeting, when we will vote on the following slate of officers for 2013. Additional nominations will be accepted from the voting membership from the floor during the September meeting. If you are unable to attend the meeting, you may vote electronically on our website ([www.arizonageologicalsoc.org](http://www.arizonageologicalsoc.org)) on or before September 3.

President	Alison H. Jones, Clear Creek Associates
VP Programs	Robert J. Kamilli, U. S. Geological Survey
VP Field Trips	Corolla K Hoag, SRK Consulting
VP Marketing	Ann D. Pattison, Independent
Treasurer	Michael Conway, Arizona Geological Survey
Vice Treasurer	Kim Wilson, Silver Bell Mining
Secretary	Michael Busby, Clear Creek Associates
Vice Secretary	David F. Briggs, Independent
Past President	Jeffrey Cornoyer, Rosemont Copper Company
Councilor 1 (13-15)	Richard Jones, retired
Councilor 1 (13-15)	Coleen Brown, retired
Councilor 2 (12-14)	Kenneth J. Hollett, Retired, U.S. Geological Survey
Councilor 2 (12-14)	Doug Shakel, retired
Councilor 3 (11-13)	Greta Orris, US Geological Survey
Councilor 3 (11-13)	Rebecca Feuerbach, student, University of Arizona

## 2012 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

Please mail check with membership form to: Arizona Geological Society, PO Box 40952, Tucson, AZ 85717

Dues (check box)  1 year: \$20;  2 years, \$35;  3 years: \$50;  full-time student (membership is free)

NEW MEMBER or RENEWAL? (circle one)                      Date of submittal \_\_\_\_\_

Name: \_\_\_\_\_ Position: \_\_\_\_\_

Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Work Phone: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Fax Number: \_\_\_\_\_ Cellular Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_ Check this box if you do not have an email address

***All newsletters will be sent by email. If you do not have an email address, we will mail a hard copy to you, but we cannot guarantee timeliness.***

If registered geologist/engineer, indicate registration number and State: \_\_\_\_\_

Enclosed is a \_\_\_\_\_ tax-deductible contribution to the J. Harold Courtright Scholarship Fund.