



AGS NEWSLETTER

ARIZONA GEOLOGICAL SOCIETY, INC., TUCSON, ARIZONA

March 2009

MARCH 3, 2009 DINNER MEETING

Geology and Development of the Rosemont Copper Deposit

Mark G. Stevens

V.P. Exploration

ABSTRACT—Rosemont Copper Company, a wholly owned subsidiary of Augusta Resource Corporation, has completed feasibility engineering and is in the process of detailed engineering and permitting that will lead to the development of the Rosemont copper-molybdenum-silver deposit. The deposit is located approximately 25 miles southeast of Tucson, Arizona, on the east flank of the Santa Rita Mountains.

Mining in the Rosemont area goes back to before the turn of the century, when high grade veins were mined 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 Rosemont 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 thermally altered to various calc-silicate 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 regional uplift and faulting. Interestingly, the complex faulting in the deposit area has left only minor scattered remnants of the original intrusive. 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.

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 has been used in the preparation of a recently completed Updated Feasibility Study. Current mineral reserves consist of 546 million tons of sulfide ore averaging 0.45% copper, 0.015% molybdenum, and 0.12 ounces per ton silver and 70 million tons of oxide ore averaging 0.17% copper. The project is planned as an open pit mine to provide 75,000 tons per day of sulfide ore to a crushing-grinding-flotation facility to produce both a copper and molybdenum concentrate. During the early part of the mine life, near surface oxide mineralization will be processed by heap leaching, followed by solvent extraction-electrowinning (SX-EW), to produce copper cathode.

Rosemont Copper Company is continuing with detailed engineering and permitting of the project with an anticipated production startup in mid to late 2011. The Rosemont mine will be a significant U.S. copper producer and will have a positive economic impact on the Arizona economy, creating local jobs and providing county, state, and federal revenue.

March Dinner Meeting — Inn Suites, 475 North Granada, Tucson

RESERVATIONS ARE REQUIRED.

AGS CAN NO LONGER GUARANTEE DINNER SEATING WITHOUT AN ADVANCED RESERVATION.
PLEASE CALL 520-663-5295 BEFORE FEBRUARY 27, 2009.

Cost: Members \$24, Guests \$27, Students \$10.

Cash Bar @ 6 pm

Dinner @ 7 pm

Talk @ 8 pm

A NNOUNCEMENTS

AGS Welcomes New Members

AGS is pleased to welcome the following new members who joined in February:

James Armstrong, JR Armstrong Design & Consulting

Pamela Dunlap, US Geological Survey

Justin Heinecke, Western Technologies Inc.

David Walker, Western Technologies Inc.

AGS MEMBERSHIP

As of February 12, 2009 the total AGS member count was 381. Of that number, 110 were pending renewals whose membership expired at the end of December. Please check the mailing label on your AGS newsletter for your renewal date.

NEW AGS WEB SITE COMING SOON

Over the next few months, the AGS web site will be getting a makeover as we move to a fee-for-service server. To the average user, the initial changes to the site will be largely cosmetic. From an administrative point of view, the changes will be larger. This move will widen the pool of people who can be given administrative access and allow multiple people to maintain the web site. We will have AGS email and listserv accounts for Society business, such as e-distribution of newsletters. Eventually, we should be able to provide password-protected access to members to check their membership status or update their information. We are interested in knowing what features you would like to see on the new web site. If you have any ideas, please send them to Greta at greta@usgs.gov. Following is a short list of some possibilities:

- Area where members can post pictures of Arizona geology
- Arizona geology chat room
- Members blog
- Use your imagination

Greta J. Orris, Web Master

STUDENT CAREER FAIR

AEG/AHS are sponsoring a Student Night, Career Fair and Student Presentation Competition on April 2 at the UA Student Union.

D IGEST 22 WRAP-UP

Jon Spencer and Spence Titley, editors of the Ores and Orogenesis Symposium Digest 22, are pleased to announce that Digest 22 went to press on February 23, 2009. The book is being printed by Arizona Lithographers, Tucson. There are 45 papers in the volume (624 pages) and it has full-color illustrations. The printer estimated the book will be ready in about 6 weeks, or approximately the middle of April.

Books preordered at the Ores and Orogenesis Symposium will be delivered to a postal service for immediate mailing. The digests also will be for sale at AGS dinner meetings and by mail through the Arizona Geological Survey. To order a book please call the survey at 520-770-3500 or visit their web site: www.azgs.state.az.us/

BOB WEBB TO SPEAK AT AHS MARCH MEETING

Bob Webb of the U.S. Geological Survey will be the guest speaker at the AHS dinner meeting on March 10, 2009. A book signing for *A Ribbon of Green* will begin at 6:00 pm. A formal dinner will be held at a yet to be determined venue. Check the AHS web site for details: www.azhydrosoc.org.

AHS ANNUAL SYMPOSIUM

The 2009 Arizona Hydrologic Society Annual Symposium, *Managing Hydrologic Extremes*, will be held at the Westin Kierland Resort & Spa August 30 – September 2, 2009 in Scottsdale. The event will be a joint symposium with the 2009 national conference of the American Institute of Hydrology. Abstracts are being accepted until March 27, and there will have a published volume of the proceedings following the symposium.

Please make your AGS dinner-meeting reservation BEFORE Friday, February 27, 2009. Call 520-663-5295 today!

2009 EVENTS CALENDAR

04/7/09

Bill Chavez, New Mexico Tech: *Geochemical Controls on the Intensity and Maturity of Development of Super-gene Enrichment Profiles*

05/5/09

Michael A. McKibbin, UC Riverside: *Hydrothermal Mineralization in the Salton Trough, Ancient and Modern*

06/2/09

Keith Long, USGS, *Petro-realities: How Did Gas Prices Get So High?*

... from MineWeb

Friday , 20 Feb 2009

"Gold was, at the time writing, close to \$1,000 again. It would seem this level is inevitable sooner rather than later and this time the yellow metal may spend rather more time in the four figure area."

Where We Get the Mineral Specimens for our Speakers

Every month the Society gives a thank-you memento to the speaker for that evening. It consists of a colorful mineral specimen mounted on a wooden base that has a brass plaque printed with the speaker's name and "Guest Speaker, Arizona Geological Society". Many of you have at least one of these in your home or office.

We have two generous sources for these mineral specimens. One is the Arizona-Sonora Desert Museum Geology Department. Our source there used to be Anna Domitrovic, a member and former president of the Society. Our source now is Dr. Debbie Colodner, Associate Director for Sonoran Desert Studies and Earth Sciences.

Our other mineral source is also an AGS member, Sterling Cook, Senior Geologist at the ASARCO-Ray Mine. He has given the Society a beautiful selection of silicated chrysocolla and native copper specimens from the Ray deposit.

If you checked out the mineral prices at the recent Tucson Gem and Mineral Show, you will appreciate the value of these specimens and the generosity of the donors.

Foreign Field Trips for AGS?

Doug Shakel, V.P. of AGS Field Trips, has proposed setting up AGS field trips to foreign parts, provided sufficient interest is shown by the membership. The foreign trips would be in addition to two or more local trips each year. The idea of traveling abroad was brought up at a recent Executive Committee meeting and the board members present at the meeting were enthusiastic. Some of the exotic places Doug has in mind are U.K., Iceland, Turkey, and France/Italy. Stay tuned for forthcoming information.

AGS DINNER MEETINGS TO CHANGE LOCATION

Beginning with the dinner meeting in April 2009, the AGS meeting location will change permanently to the Four Points by Sheraton at 1900 E. Speedway Blvd. Our meeting there in February and recent interviews with the Catering Manager convinced the Executive Board that the Four Points is committed to providing first-class meals and more amenable accommodations for members.

Civilization exists by geological consent, subject to change without notice.

— Will Durant (1885-1981)

Short Course at the Colorado School of Mines

MINERALOGY & MICROSCOPY OF ORE DEPOSITS

March 9-13, 2009

Dr. John L. Lufkin—Consulting Geologist

Class will meet each day from 9 to 5. The general schedule will include 30 minutes of illustrated lectures alternating with 60 minutes of microscope work.

Course fee is \$995; contact Dr. Lufkin, 303-997-7365; lufk3@comcast.net; www.johnlufkin.com.



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FOR INFORMATION
ABOUT THE
ARIZONA GEOLOGICAL SOCIETY
AND UPCOMING EVENTS
VISIT OUR WEBSITE
www.arizonageologicalsoc.org

AGS books and maps are sold at the monthly dinner meeting and by the Arizona Geological Survey. Visit the AZGS website www.azgs.state.az.us and click on Non-AZGS Publications



As always, please keep us up to date as you move, change jobs, or change your e-mail address.

2009 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

Please mail check with membership form to: Arizona Geological Society, P.O. Box 40952, Tucson, AZ 85717. Dues (circle one): 1 year: \$20; 2 years: \$35; 3 years: \$50. (Full-time students receive free membership. The newsletter is by e-mail only, and a membership application form must be returned to AGS annually to remain on the membership list.)



Name: _____

Position: _____

Company: _____

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Street City State Zip Code

Work Phone: _____ Home Phone: _____

Fax Number: _____ Cellular Phone: _____

E-Mail (business) _____ E-Mail (home) _____

Please send the newsletter by e-mail only by regular mail only by e-mail AND regular mail

If registered geologist or engineer, indicate registration number and state: _____

If American Institute of Professional Geologists member, indicate registration number: _____

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