

SME



A Member Society of AIME

Southern California Mining Section

NEWSLETTER – MARCH 2010

SME MEETING – TUESDAY, MARCH 16, 2010

POMONA VALLEY MINING CO. RESTAURANT, POMONA, CA.

6:00 PM SOCIAL, 6:45 PM DINNER @ \$30, 7:30 PM PROGRAM

RESERVATIONS REQUIRED

EMAIL SEPOR (lucy@sepor.com) or (310) 830-6601

SPEAKER: Dr. Jeff Gillow, Principal Geochemist, ARCADIS, Highlands Ranch, CO.
(SME Henry Krumb Lecture Series Speaker)

SUBJECT: Characterization of Arsenic Geochemistry in the Mojave Mining District of California.

BIOGRAPHY: Dr. Gillow is currently a Principal Geochemist at ARCADIS, U.S., Inc. and is focused on serving clients in the mining and industrial sectors with innovative, and technical based solutions to complex environmental issues. He has over 20 years of experience working on source control and water quality at mine sites, environmental stewardship of the nuclear fuel cycle, and management of energy byproducts.

Dr. Gillow has a PhD. in Environmental Science & Engineering, Colorado School of Mines, an MS in Environmental Science, State University of New York, and a BS in Aquatic Chemistry, Southampton College.

Prior to joining ARCADIS, Dr. Gillow was an Associate Chemist at Brookhaven National laboratory performing research and development on technologies for management of mine, energy, and nuclear waste materials. His expertise is arsenic and chromium geochemistry, as well as prevention and treatment of acid rock damage and associated metals. His practical experience centers on geochemical investigations and baseline water quality studies as well as control and treatment of sources of metals and acidity. He has worked on geochemical stabilization of arsenopyrite to prevent acid and arsenic release in oxidizing environments, and has investigated the basis for arsenic stabilization under anoxic conditions. He is principal scientist on current projects including the optimization on in-situ reductive precipitation of chromium in aquifer systems, as well as bio-geochemical approaches for treatment of uranium and sulfate in groundwater. He has employed sophisticated analytical chemistry methods to understand the mineralogy and geochemistry of metals and metalloids in ore, waste rock, and environmental samples. These include electron microprobe and x-ray spectroscopy as well as sequential selective chemical extraction.

His approach to evaluation of source control involves detailed characterization, conceptual model development, and fate and transport assessment. He is well versed in all of these aspects of environmental evaluation for mining projects.

ABSTRACT: Past mining activities in the Mojave Mining District have resulted in the accumulation of historical tailings from the recovery of precious metals. Rock types in the District include rhyolite, rhyolite porphyry, quartz latite, and pyroclastics with ore present as epithermal fissure veins containing gold and silver minerals, as well as minor pyrite, galena, and chalcopyrite. The Mojave area is characterized by arid conditions, and the rock has a very low acid generation potential; water-rock interactions are not of paramount concern. Prior to new mining activities in the area, a baseline study was performed to characterize the historical tailings and the occurrence of arsenic in order to understand its form and environmental mobility. The study included comprehensive sampling and analysis of ore, waste rock, tailings and soil, as well as advanced mineralogical analyses. A conceptual geochemical model was prepared to describe the forms of arsenic in association with iron oxyhydroxide weathering products. The model was validated through mineralogical characterization, including leaching testing and ion-beam microprobe analysis to examine the association of arsenic with forms of sulfur and iron. This characterization of previous mined areas, prior to new mining operations, as well as materials from host rock and leached ore, provides a comprehensive understanding of arsenic, its chemical form, and environmental stability.

FUTURE SME MEETINGS:

APRIL MEETING – TUESDAY, APRIL 20, 2010 @ PVMCO

Speaker: Professor Brandon Brown, Professor of Geological Sciences, CSU-Fullerton.

Subject: Magmatic Plumbing Systems of Basaltic Volcanoes

FIELD TRIP – THURSDAY THRU SUNDAY, MAY 27-31, 2010 (CENTRAL NV)

Hosted by Dinah & Doug Shumway

A tour of several gold mining facilities located in the Cortez Valley area near Eureka & Elko, NV.

BEACH PARTY & BBQ - SUNDAY, AUGUST 29, 2010 @ PORTUGUESE BEND BEACH CLUB, RANCHO PALOS VERDES, CA

Hosted by Lynne and Gene Dewey

SPECIAL NOTES:

(1) The annual SME Local Section dues of \$15 for Professional & Registered Members for the current year 2009-2010 is due beginning in September. The dues can be paid at the meeting or by sending a check to our treasurer, Kristen Daly, whose address is listed on the following page.

(2) Space is available for business advertisers on the last page of our Newsletter at a cost of \$50 per column inch per year. Please contact Katie Kohl, Newsletter & Email Administrator, for details regarding insertion of your ad. The annual renewal cost for the business ads are due beginning in September should be forwarded to our Treasurer, Kristen Daly, whose address is listed on the following page.

(3) Beginning in September, student memberships in SME (which cost \$30 per year) will be offered **FREE** to any full-time college student (undergraduate or graduate) majoring in Geology or mining related curriculum by our Southern California Mining Section. In order to qualify, interested students should plan to attend an upcoming SME meeting at the Pomona Valley Mining Co. Restaurant. Students will be required to complete a SME Student Membership Application and will receive full benefits as a Student Member of SME. Students are always welcome at our monthly meetings and field trips. The student cost for dinner at our regular meetings is \$10.

SME- SOUTHERN CALIFORNIA MINING SECTION
www.mine-engineer.com/socalmining

Chairman:

Richard A. Sager
31216 Palma Drive
Laguna Niguel, CA 92677
Ph: 949-496-2356
Cell: 949-456-1175
Fax: 949-496-0025
Richard_Sager@cox.net

Vice Chairman & Program Chairman:

Brian M. Fortelka
1568 Christopfer Lane
Redlands, CA 92374
Ph: 909-553-9081
Joeminer@roadrunner.com

Secretary:

Austin G. Marshall
Mitsubishi Cement Corporation
P.O. Box 121
Twin Peaks, CA 92391
Ph: 760-248-5100
Fax: 760-248-9002
amarshall@mitsubishicement.com

Treasurer:

Kristen B. Daly
STANTEC
25864-F Business Center Drive
Redlands, CA 92374
Ph: 909-335-6116
Cell: 909-561-7637
Fax: 909-335-6120
kristen.daly@stantec.com

Newsletter & E-Mail Administrator:

Katie Kohl
Elementis Specialties
31763 Mountain View Road
Newberry Springs, CA 92365
Ph: 760-257-3301 x226
Fax: 760-257-3181
mineralminer@gmail.com

GEM Committee Chairman:

Erik B. Melchiorre, PhD.
CSU-SAN BERNARDINO
Department of Geological Sciences
5500 University Parkway, B1-116
San Bernardino, CA 92407
Ph: 909-537-7754
Fax: 909-537-7005
emelch@csusb.edu

GEM Christmas Party Chairman:

Mort J. Richardson
Placer Management Corp.
P.O. Box 17479
Irvine, CA 92623-7479
Ph: 949-474-1120
Fax: 949-863-9261
PlacerManagement@aol.com

Membership Committee Chairman

Charles H. Kubach
SEPOR, INC.
P.O. Box 578
Wilmington, CA 90748
Ph: 310-830-6601
Fax: 310-830-9336
kubach@SEPOR.com

Nominating Committee Chairman:

G. Todd Ririe, PhD.
Remediation & Engineering, BP
6 Centerpointe Drive
La Palma, CA 90623-1066
Ph: 714-670-3062
Cell: 714-504-2316
Fax: 714-670-5195
todd.ririe@bp.com

John R. Pysi

Filtration Consulting & Sales

64 Ranchview Road
Rolling Hills Estates, CA
90274-2434
Ph: 310-375-3634
Fx: 310-373-4419
Email: jr.pysi@verizon.net

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SME SEG
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Dr. Erik Melchiorre
Associate Professor
Ore Deposits and Geochemistry
Specializing in Cu, Pb, and REE

(909) 537-7754
fax: (909) 537-7005
e-mail: emelch@csusb.edu
Department of Geological Sciences
California State University
San Bernardino
5500 University Parkway
San Bernardino, CA 92407-2397

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17951-C Skypark Circle, Irvine, California 92614
T: (949) 474-1120 F: (949) 863-9261
E-mail: PlacerManagement@aol.com

Chris A. Hesse, P.Eng., C.Eng.
MINING ENGINEER

323 464-4504 HESSE ASSOCIATES
323 463-8851 2701 Lake Hollywood Drive,
cahesse@att.net Los Angeles, CA 90068

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Customer Service Ph. # 800-638-6788
owen.long@metso.com Fx. # 800-866-1438

TerraMins Inc.

Consulting Mining/Economic Geologists

Dinah O. Shumway
Principal Geologist, CA RG 5818
TerraMins.Com

12277 Apple Valley Road, #184 760-285-5801