



# Arizona Geological Society Newsletter

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JUNE 2013

## JUNE 4, 2013 DINNER MEETING

**Who:** Steven Van Nort will be our featured speaker. See abstract below.

**Where:** Sheraton Tucson Hotel and Suites, 5151 East Grant Road, at the intersection of Grant and Rosemont on the North side of Grant in the *Pima Room*. The Pima Room is located on the second floor in the northwest corner of the hotel.

**When:** Cash Bar at 6 p.m.—Dinner at 7 p.m.—Talk at 8 p.m.

**Cost:** Members \$27, Guests \$30, Students are free with an online dinner reservation (\$10 without).

**RESERVATIONS are REQUIRED by 11 a.m. Thursday, May 30.** Reservations can be made on the AGS website ([www.arizonageologicalsoc.org](http://www.arizonageologicalsoc.org)). If you do not have internet access you may call 520-663-5295. Please indicate regular (Grilled Tilapia with caper butter sauce), vegetarian, or cobb salad meal preference. Please cancel by Thursday May 30 at 11 a.m. if you are unable to attend.

The June dinner meeting is sponsored by:

**RUEN DRILLING INC.**

AGS is grateful for Ruen Drilling's sponsorship,  
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## ABSTRACT - GOLD FEVER—THE BRE-X/BUSANG STORY

**Steven Van Nort**

The headlines read “Fever in the Jungle” and “Gold Today Gone Tomorrow”, hence the title of this talk, GOLD FEVER.

It has been 16+ years since the Bre-X/Busang scandal was revealed by the due diligence team at Freeport-McMoRan Copper and Gold Company (Freeport) as one of the biggest, if not the biggest, gold mining scams in history. Busang is located on the equator 1,300 miles north of Australia on the island of Kalimantan, the largest of the 5 Indonesian provinces, which is also known as Borneo. The island is 80% covered by dense forests and home to a number of contagious, infectious, and vector-borne diseases, among them malaria, dengue fever, and yellow fever. There was also another fever found on the island, contagious as well as infectious, curable but often having long-term effects on the health of individuals as well as corporations. Not limited to Kalimantan or even to the tropics, it is known as

GOLD FEVER

**Continued on Page 2**

**ABSTRACT—Continued from Page 1**

An outbreak of gold fever occurred near the town of Busang in East Kalimantan in 1993. The index case involved a Canadian-listed mineral exploration company called Bre-X. Timely reports issued by Bre-X concerning results of its Busang gold exploration program lead to an amazing run-up in share price, from \$0.30 in 1993 to over \$280 in early 1997. This run was fueled by the published reports of gold reserves that had grown from nothing to 70 million ounces to 120 million ounces. In addition, it was rumored that the reserves were expanding, which was based on new results coming from the 6 diamond drill rigs working 24/7, to 200 million ounces.

Freeport's due diligence program involved detailed analyses of Bre-X's operating procedures and, most important, the drilling of 7 diamond drill holes. Freeport's geologic team included on-site personnel who coordinated the drilling and maintained chain of custody of the samples. Freeport personnel transported the core by helicopter from Busang to Balikpapan where the core was logged, split, stored under lock and key, and assayed. After discrepancies in assay results became evident, additional personnel within Freeport became involved and additional procedures were taken to help unravel the developing mystery and ensure the accountability of Freeport's due diligence work.

As Paul Harvey would say .... "AND NOW THE REST OF THE STORY" .....

Thanks go to Freeport-McMoRan Copper and Gold Company for giving me permission to give this talk, stipulating only that it be completely factual.

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### **About the June Dinner Meeting Speaker**

**Steve Van Nort** grew up in Chagrin Falls, Ohio, an eastern suburb of Cleveland. He received a BS degree in Geology from Amherst College in 1962 and then attended Stanford University where he earned a Masters Degree in Economic Geology in 1964.

He was employed by The M.A. Hanna Mining Company of Cleveland, Ohio during summer vacations and, following graduation from Stanford, joined Hanna on a full-time basis as a member of Hanna's nickel laterite exploration team, working first in the northwestern U.S. and eventually around the world. As with most exploration geologists, Hanna moved him first from Riddle, Oregon to Reno, Nevada and later to Tucson. Steve left Hanna in 1983 to join the consulting group of David Lowell, Art Still and Clark Arnold.

In 1989, with children approaching college age, Steve accepted a position with Freeport-McMoRan Copper and Gold Co. where he rose to be Sr. Vice President - Geology and Exploration with responsibility for expanding Freeport's Indonesian ore reserves. He retired from Freeport in 2001 and has been a consultant involved with several start-up companies, primarily VANE Minerals, an AIM-listed company in London. VANE operates a gold-silver mine in Sinaloa and a 120 tpd concentrator in the State of Nayarit, Mexico. The company has number of uranium properties in Northern Arizona, including a proven resource at the Wate pipe, as well as porphyry copper exploration projects in southwestern New Mexico and southern Arizona.

### **Welcome New AGS Members**

Arfian Firmansyah, Gadjah Mada University

Dane Andersen, Haley & Aldrich

Aryn Hoge, University of Arizona

Jeff Gawad, Self Employed Hydrologist/UA

Brandon Kienenberger, Haley & Aldrich

Michael Barden, HydroGeoChem, Inc.

## Arizona Geological Survey

### NEWS RELEASE: Mineral resource evaluation of the proposed Arizona Sonoran Desert Heritage area, western Maricopa County, Arizona.



The newly introduced “Arizona Sonoran Desert Heritage Act of 2013,” H.R. 1799 would withdraw more than 900,000 acres (~1,400 square miles) of federal lands in western Maricopa County from mineral entry and other uses associated with its current multiple-use status. A new study by the Arizona Geological Survey, “[The Sonoran Desert Heritage Proposal: An evaluation of the mineral resource potential of lands proposed for withdrawal from mineral entry](#),” shows a high potential for substantial economic deposits of sand and gravel, copper, gold, and manganese in parts of the proposed Arizona Sonoran Desert Heritage area (SDH).

Nearly all the lands in the SDH have been mapped by Arizona Geological Survey (AZGS) geologists. This work provides the basis for an informed evaluation of the mineral resource potential of the area by AZGS Senior Geologist Jon Spencer.

Large desert washes in the SDH are potentially rich sites of high quality aggregate—an essential ingredient in construction of new buildings, roads, and other infrastructure. Spencer identified four regions in the SDH with a potential of significant aggregate resources: Gila River below Painted Rock Dam, Gila River near Gillespie Dam, Harquahala Wash south of Saddle Mountain, and Jackrabbit Wash north of the Belmont Mountains.

The potential for encountering precious-metal vein deposits, gold and silver, in the SDH is high in the Harquahala Mountains and Big Horn Mountains. The geology of the two ranges is similar to that of the nearby Vulture and Little Harquahala Mountains, respectively. The Vulture Mountains include the site of the Vulture gold mine that produced 350,000 ounces of gold and 264,000 ounces of silver, with a total estimated value in modern prices of more than \$600 million.

Arizona hosts one of the world's great porphyry copper mineral belts. The Big Horn Mountains in the northern SDH straddles the northwestern edge of this porphyry copper belt and hosts granitic rocks of the same age and composition as those found associated with copper deposits in other parts of the state. Historic mining in the Big Horns produced millions of pounds of copper and lead. Mountain ranges to the south of the Big Horn Mountains, including the Gila Bend and Maricopa Mountains, are less likely candidates for copper mineralization. Young volcanic deposits, however, mask portions of these and other nearby mountain ranges, hampering reliable estimates of the potential for economic mineralization.

At present, the U.S. imports manganese, an essential ingredient in steel. The Aguila manganese mineral district is included in the proposed SDH and is one of about two dozen deposits scattered over western Arizona and adjacent areas to the west that make up the largest domestic manganese resource.

Finally, the report notes the inherently speculative nature of mineral-resource estimation and states the following: “...changes in technology have made uneconomic deposits economic and increased the value of previously unattractive commodities. For example, the need for the rare-earth element neodymium for exceptional magnet strength in hard-disk drives, hybrid-car electric motors, and wind-turbine generators has caused a recent surge in exploration activity. Thus, while the estimates of mineral potential may be needed for land-use decisions, they can't account for unknown future economic conditions or technological advances that affect mineral production processes or commodity value.”

This report is available as a free PDF download at the [Arizona Geological Survey Document Repository](#) or as printed copies from the Arizona Experience Store, 416 W. Congress, Tucson, Arizona.

Citation: Spencer, J.E., 2013, [The Sonoran Desert Heritage Proposal: An evaluation of the mineral resource potential of lands proposed for withdrawal from mineral entry](#): Arizona Geological Survey Open File Report, OFR-13-03, 30 p.

**Attention Student Members:** AGS is pleased to provide free meals for student members with a dinner reservation. Please keep in mind that these meals are paid for with a generous gift from BHP Billiton. If you make a reservation and do not attend, AGS must still pay for the meal. If you are unable to attend, please cancel your reservation by 11 a.m. on the Thursday before the meeting. If the cost of no-shows continues to be a problem, the AGS Executive Committee may consider charging for unclaimed student meals, as we do for regular members.



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[Careers.bhpbilliton.com](http://Careers.bhpbilliton.com)

**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 you are a registered geologist/engineer, indicate your registration number and State: \_\_\_\_\_

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

Enclosed is a \_\_\_\_\_ tax-deductible contribution to the AGS' Greatest Needs Fund.