

GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512
(775) 323-3500 - Hours Tuesday -- Friday, 8 a.m. to 3 p.m. Monday by appointment.
Website: www.gsnv.org • E-mail: gsn@gsnv.org



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CALENDAR OF GSN EVENTS

- Jan. 15, 2014 Wednesday** **WINNEMUCCA CHAPTER MEETING (Note change to 3rd Wednesday this month only!)** The monthly meeting will be held at the Martin Hotel, Winnemucca, NV. Appetizers/drinks at 6:30 PM, Talk at 7:00 PM. **Speaker: Rick Streiff, Newmont Mining Corp.** Title: "Discovery History of the WKP Prospect, New Zealand" **Food & Drinks Sponsored by: MAJOR DRILLING.** Contact Andy Jansen at Andrew.jansen@newmont.com for more information.
- Jan. 16, 2014 Thursday** **ELKO CHAPTER MEETING (Every Third Thursday)** The monthly meeting will be held at the Western Folk Life Center, 501 Railroad Street. Refreshments at 6:00 PM, **Speaker and topic: To be announced. Food & Drinks Sponsored by: TIMBERLINE DRILLING.** For more information contact Josh Sovie at jsovie@barrick.com.
- Jan. 17, 2014 Friday** **GSN MEMBERSHIP MEETING (Every Third Friday)** The monthly meeting will be held at the Reno Elks Lodge, 597 Kumle, Reno. Drinks at 6:00 PM, Dinner at 7:00 PM, Talk at 8:00 PM. **Speaker: Gary Clifton, Western Resource Group LLC.** Title: "The Ruby Tertiary Channel, Sierra County, California." **Sponsor for the evening is: ENVIROTECH DRILLING..** Dinner reservations must be made by **WEDNESDAY, JANUARY 15TH.** Call Laura Ruud at 323-3500; Email: gsn@gsnv.org. DINNER \$25.00. Abstract on pg. 3.
- Jan. 30, 2014 Thursday** **SOUTHERN NEVADA CHAPTER MEETING (Every Last Thursday)** The monthly meeting will be held at 5:30 p.m. in room 105 of the Lilly Fong Geosciences building, UNLV. **Speaker: Scott Nowicki. Topic: Talk will be on Planetary Geology.** Contact Wyatt Bain, bainw1@unlv.nevada.edu.



G.S.N. JANUARY MEETING SPONSOR

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FROM THE PRESIDENT, JANUARY 2014
Tommy Thompson, G.S.N. President 2013-2014

Greetings to all GSN members from beautiful Sedona, AZ, red rock country with its incredible Native American petroglyphs and cliff dwellings. A spectacular view of the terrain including capping basalt lava flows over the Kaibab Limestone, Toroweap Sandstone, and Coconino Sandstone in the early morning light is seen from a hot-air balloon, and there is nothing like getting "high" on New Year's Day!!

Our December meeting was a huge success with record numbers of attendees and raffle and auction items. A big "Thank You" goes to all of you who donated.....almost \$14,000 resulted from the sales. These proceeds provide the GSN support to university geology student scholarships for field camp and K-12 earth science field trips. We thank Tahoe Resources, Kappes, Cassiday & Associates, and CGS Mule, our December sponsors, for their generous support of libations while everyone viewed auction and raffle items. Pete and Jeannette Dilles entertained us with their photos of the spectacular peak and canyon country of southern Perú. Finally, we wish everyone a Happy, Healthy, and Productive NEW YEAR in 2014!!



Getting into a hot air balloon is like taking a geology position...you don't know where you will land!!

**Thank you to CGS Mule, LLC, Kappes, Cassiday & Associates
and Tahoe Resources Inc.**

For Hosting the DECEMBER 18, 2013 Christmas Meeting!



GSN JANUARY 17, 2014 Membership Meeting

Reservations Are Required - Please Cancel if You Are Unable to Attend

Please call 775-323-3500, Fax 775-323-3599 or e-mail gsn@gsnv.org by **4 p.m. on WEDNESDAY, JANUARY 15TH.**

Social Hour: 6:00 PM – Dinner: 7:00 PM – Speaker: 8:00 PM

\$25.00 per person. Location: Elks Lodge, 597 Kumle Lane, Reno, Nevada

Directions: across (W) from the Reno-Sparks Convention Center

(S. Virginia Street, behind the Les Schwab Tire Center)

The Ruby Tertiary Channel, Sierra County, California **Gary Clifton, Western Resource Group LLC**

The Ruby Mine consists of a group of buried river channels that contain rich concentrations of placer gold. The gold originated in mesothermal (orogenic) quartz veins that parallel the serpentine-slate contacts of the northern Mother Lode system of California. The Ruby and numerous similar channels, both buried and exposed, followed the same north-south path, eroding gold from the veins and concentrating it within the ancient rivers and tributaries. These 'Tertiary Gravels' of Lindgren include early 'white' channels devoid of volcanic material that are Eocene-age, and younger 'intervolcanic' channels that contain rhyolite and andesite gravels that are Oligocene-age. The Eocene channels were deeper and wider and were exploited at the giant hydraulic mines like the Malakoff Diggings at North Bloomfield. The Oligocene channels are smaller but more numerous. Most were mined between the 1880's until the turn of the century. Many tens of miles of these channels remain unexploited. The Ruby Mine contains buried channels of both ages, but post-1900 mining has focused on a single Oligocene-age intervolcanic channel, the Black Channel.

The Ruby Mine is similar to many other 'drift' mines in the area but is famous because of the large gold nuggets that were found in the mine in the late 1930's and early 1940's. A group of large nuggets totaling over 1000 ounces found in the Black Channel is one of the finest collections of nuggets in the world and has been the incentive to reopen the mine at least 3 times in the last 25 years. Most of the nuggets are well rounded, but others are relatively ragged, indicating a source within the Ruby Mine, in one of the many quartz veins that cut through the basement slates. The Ruby is on strike and only a few miles from the town of Alleghany, site of the famous Sixteen-To-One and Tightner gold quartz mines. A small but rich quartz vein was mined in the Ruby, but many large sets of veins remain untested. At present, the Ruby Mine is being retimbered and replumbed in preparation for mining of the Black Channel and one or more similar age channels that are known to pass through the property. Up to 7 miles of unmined channels pass through the 2 square miles of the Ruby Mine property.

This talk will focus on the morphology of the Black Channel, as determined by high resolution surveying and mapping within the old workings. Like any other type of mineral deposit, it is assumed that careful analysis of the controls of mineralization in one part of the channel will produce insights for future exploration and mining. It has been determined that the Black Channel was abandoned soon after a thin layer of coarse, gold-bearing basal gravels were deposited. The channel became overgrown with vegetation for an unknown period of time—perhaps thousands of years—before it was partially filled with airfall tuffs. Sometime later, the tuffs were buried by well-sorted medium gravels of andesitic composition. One of the challenges is to determine where the Black Channel was diverted to because it was carrying gold at the time. The greatest challenge will be to exploit the gravels at a profit. The pay gravels are thin—about one foot on the average—and the average grades are about 0.2 ounces per ton, although sampling has defined sections averaging several ounces per ton. It is anticipated that nuggets recovered during mining will be sold at a premium for jewelry and specimens and fine gold will be sold for bullion.

(Continue to Biography on page 5.)

“FACES OF GSN”

Sarah Lightner
Sr. Regional Staffing Manager
Geotemps, Inc.
Reno Corporate Office



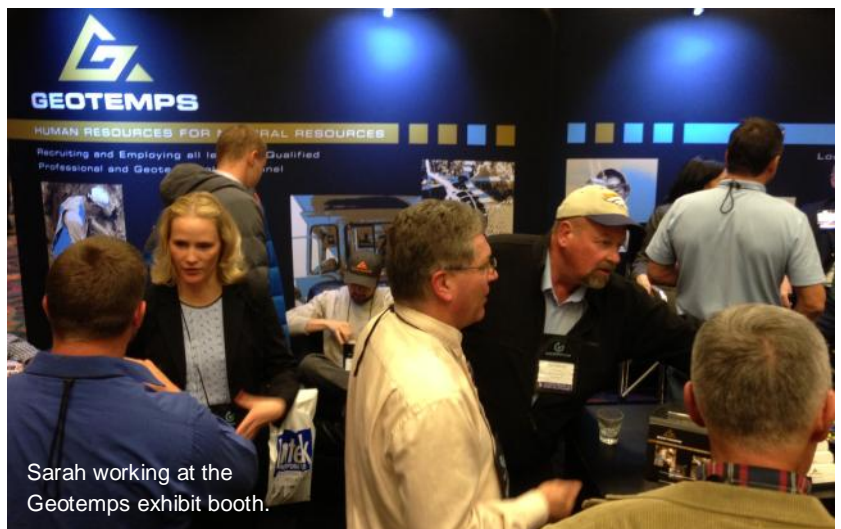
Growing up with a twin sister I strived to establish myself as an individual, to be known as Sarah and not as “twin”. What I did not see then- something Geotemps and recruiting has taught me- is that *being a twin is a unique skill*, something that sets me apart from others. So I embraced it. It has given me those skills to push myself harder and it was the start to a life of team work. Every day I ask employees and clients what sets them apart from others; what is that unique trait or niche that puts them a step above or makes their company an ideal place to work. This principle to treat individuals with respect for their own uniqueness has been something I have lived by both personally and professionally.

After I graduated with my Bachelors in Sociology with an emphasis in Criminology and Psychology from University of Southern Colorado (CSU-Pueblo now) I moved back to Reno, my home town. I was looking for a job, like many recent graduates. I dabbled in a couple of different industries including waitressing and law, and then I met Stephanie Dmytriw, who at the time was head of HR for a local landscaping company. It was my first “real” interviewing process; complete the application, get a call back, take a basic writing and

arithmetic test, meet with a panel of managers, then another call back and meet with the owners. At the time I was thinking “is this some sort of secret government facility” why all the screening for just a landscaping company? But alas I got the job and in fact it wasn’t just a landscaping company (not that there were any secret caves or hidden passageways) it was a business that took great pride in its people; but first, it took great pride in finding the right people. This meant putting guidelines in place and doing the necessary diligence (consistently) to put the right people in place. I have seen firsthand after that “trial” how successful those screenings were in bringing a good harmony of individuals to a single work place. A method I still use today.

Stephanie left the landscaping company a couple of years later and found the sort of careful company that cultivates good HR practices with Geotemps. After several years with that landscaping company I also began a new path. I spent a couple months, and my savings, at the Culinary Institute (CIA) in Napa where I tasted wine and experienced some pretty amazing food. I then obtained my Wine Professionals Certification through the CIA and headed back home. Wine and food are passions for me however it was not a career path I wanted to follow. After the CIA hiatus I went to work for a local judge in an attempt to return to my educational roots. It was definitely fascinating but not quite what I was looking for.

During the following year I met up with my former boss, Stephanie, who is now the Director of Operations for Geotemps for lunch (with Lance Taylor) where we discussed my job at the court house and the new business development directions they were looking to make at Geotemps and how I may fit in to that change. I thought it over, gave my notice to the judge and three years later I am still here. I get to incorporate my love for sociology with my skill for management (and on the side enjoy a glass of wine with some pretty lively geologists). Wine is an amazing poetry of geology, anthropology, and sociology, so it only makes sense that this industry spoke to me. (continued on page 5)



Sarah working at the Geotemps exhibit booth.

(cont. from page 4)

Being from Nevada one becomes familiar with the mining industry - you hear many stories. But it was not until I started working with Geotemps that I took a personal interest in the industry. Geotemps believes that since we are staffing for a specific industry then we should be as involved in it as reasonably possible. Geotemps has provided me the opportunity to continually learn, attend functions, meet new industry people and open my awareness to what the industry is all about and how important it truly is to our state and the world. And it is a well-knit community, therefore I try to tell every student and young

professional I meet to join a society of professionals, attend annual meetings and begin meeting their peers and those people who may, just may, become their boss one day.



Sarah with her twin sister and niece.



Sarah with Kristi Schaff and Angel Markins at the GSN Golf tournament

(continued from page 3)

CLIFTON BIOGRAPHY:

Gary was educated at the Colorado School of Mines and Macquarie University, Sydney, where he received degrees in Geology and Geochemistry (First Class Honours). He paid for his education by working as a miner at the Sunshine Silver Mine in Idaho and the Renison Bell tin mine in Tasmania. His work on the stability of jarosite and alunite compounds at hydrothermal conditions won him Ph.D. scholarships at John Hopkins University with Hans Eugster and U.C. Berkeley with Harold Helgeson. He chose Berkeley but left after a year to go back into the industry. In 1979 he formed Fisher-Watt Mining with Larry Buchanan and together they described the epithermal vein system at Oatman, Arizona. In 1984, being a single father, Gary returned to academia and became a Research Associate in petroleum geochemistry at the School of Oceanography at Oregon State University. There he was funded by a consortium of oil companies and did research in molecular marker analysis and multivariate analysis of large data sets, particularly mass spectral data for petroleum. These tools were applied to problems in oil migration and mixing in reservoirs, as well as to problems in geochemical exploration in the mining industry, which he has recently posted on his personal website (www.wrgexp.com). For the last 20 years, Gary has worked as a consultant in GIS, remote sensing, minerals exploration and management. He has worked in Australia, Alaska, Canada, Sweden, Saudi Arabia, Indonesia, and most recently, Myanmar. Presently he is the mine geologist at the Ruby buried placer deposit near Downieville, California, and provides ore deposit modeling services with Leapfrog software. For the last 5 years, Gary has divided his time between his homes in Coleville, California, and Prakhon Chai, northeast Thailand. Gary is a Certified Professional Geologist with AIPG and can be found on LinkedIn.

G.S.N. WINNEMUCCA CHAPTER MEETING

WEDNESDAY, JANUARY 15, 2014 (NOTE 3RD WEDNESDAY!)

Location: The Martin Hotel, Winnemucca, Nevada

6:00 p.m. - Appetizers/Drinks

7:00 p.m.—Talk begins

Food and Drinks Sponsored by: MAJOR DRILLING



Drilling America, Inc.

SPEAKER: RICK STREIFF, NEWMONT MINING CORP.

TITLE: Discovery History of the WKP Prospect, New Zealand

Abstract

WKP is a historic mining prospect within the Hauraki Goldfield, a classic epithermal mining district located on the North Island of New Zealand. Over 50 producing epithermal veins are located on the Coromandel Peninsula, hosted mainly in Miocene to Pliocene andesites or dacites overlying a Jurassic aged metasedimentary sequence. Significant veining also occurs in the overlying rhyolites. The district has produced 12 million ounces of gold and 62 million ounces of silver since its discovery in 1862.

Unsuccessful historic mining at WKP was mainly from 1893-1897 at the Royal Standard mine. Modern exploration along the main stream gorge WKP was undertaken by Amoco, BP and others from 1978-1993 and included 5500 meters of drilling. Newmont acquired a controlling interest in the property in 2005 and started some preliminary work on the prospect in 2007-2008. Reconnaissance geologic mapping and field checking of previous mapping in early 2009 highlighted the need to remap the geology of the entire prospect area. Interest quickly moved from the previously explored outcropping stream gorge area to finding other unexplored epithermal mineralization as additional areas of alteration and veining were mapped. Large areas of ground around the prospect, previously interpreted to be overlain by thick post-mineral andesite, were found to be mantled by a thin layer of landslide debris, greatly increasing the size of the prospective area. A 2 meter wide, multiphase quartz vein was located during outcrop mapping in a stream bed that assayed up to 5.2 g/t Au in outcrop. This vein looked significantly different than previously mapped veins in the area and had a north-east strike more typical of productive veins in the district.

Newmont increased the exploration activity at WKP based on the results of this initial work. A helicopter pad was cut out of the forest at the site and geology crews were flown in, saving 4 hours of commute time each day. Outcrop mapping with rock chip sampling was completed across the area, followed by detailed 1:200 mapping in the Teawaotemutu stream bed, a soil sampling program and 5.3 line-kilometre CSAMT program. Results from all of these programs indicated a new epithermal system about 500-800 meters west of the historically prospected area at WKP.

A second helipad and two drill sites were cleared in the forest in early 2010, followed by mobilization of a heli-supported core drill and driller's camp. WKP-24 was drilled across the target zone, intersecting the main vein and 156m at 1.6 g/t Au in the footwall of that vein. Higher grade intervals, up to 1.6m at 30.1 g/t Au, were also intersected, as well as a 6.9m true width zone on a dike margin averaging 6.8 g/t Au. Two follow-up holes with similar grades from the same site confirmed strike and dip continuity of this zone. Additional CSAMT was completed in 2010 as well. Wide-spaced follow-up drilling in 2011 extended the strike of this Central zone to over 800m containing similar grades. The drill was turned 180 degrees at the southern-most site to test an additional CSAMT resistor hidden under landslide debris. This hole, WKP-30, intersected two veins averaging 3.2m at 37.0 g/t Au and 13.2m at 4.8 g/t Au in what is now known as the Western zone. A third CSAMT program was completed in late 2011 to expand knowledge to the south towards the Golden Cross mine. A deep drill test below the original WKP-24 discovery hole in early 2012 intersected 7.5 meters true width of 17.2 g/t Au in the original quartz vein. Grade appears to be contained within breccia clasts transported upward within the vein. A third new target, a CSAMT resistor coincident with a major graben bounding fault, was tested in mid-2012, intersecting intense silicification associated with multiphase banded quartz veins assaying 7.9m @ 5.1g/t Au including 3.4m @ 8.3g/t Au. A large follow-up drill program is in progress at WKP.

G.S.N. ELKO CHAPTER MEETING

Thursday, JANUARY 16, 2014

Speaker and Title: To Be Announced

Refreshments begin at 6:00 p.m.

Western Folklife Center

501 Railroad Street, Elko, Nevada

Sponsor for the evening is: **TIMBERLINE DRILLING INC.**



G.S.N. SOUTHERN NEVADA CHAPTER MEETING

Thursday, JANUARY 30, 2014

Time: 5:30 P.M.

Speaker: Scott Nowicki

Talk will be on Planetary Geology

Room 105 of the Lilly Fong Geosciences building, UNLV.

**WINNEMUCCA CHAPTER
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NEWS FROM THE AMERICAN EXPLORATION AND MINING ASSOCIATION

Laura Skaer, Director

[A Sage-grouse Trifecta for the New Year](#)

Happy New Year to all GSN members from the American Exploration and Mining Association (formerly Northwest Mining Association). I hope many of you were able to attend our 119th Annual Meeting and found it educational, beneficial and fun.

In this time of New Year's Resolutions, all of us should resolve to do everything we can to prevent a listing of the Greater Sage-grouse under the Endangered Species Act and perhaps more importantly, get involved in the land-use planning amendment process. We believe the potential restrictions on mining activities and other multiple-uses which could be adopted in the land use plan amendments are a greater threat to locatable mineral activities than a listing.

As most of you know, the Draft Land Use Plan Amendments have been published in the Federal Register and Nevada BLM has held several open houses to explain the different alternatives being considered. We are most concerned with elements of and conservation measures from BLM's National Technical Team Report (NTT Report). These are draconian restrictions on the use of public lands and, in effect, change public land management from multiple-use as mandated by the Federal Land Policy and Management Act (FLPMA) to a single purpose management for Sage-grouse conservation.

The Draft Land Use Plan for Nevada can be accessed [here](#). AEMA, National Mining Association, Nevada Mining Association and the Nevada Mineral Exploration Coalition will be filing comments. We will provide talking points and ideas for comments. I cannot stress enough the importance of everyone taking the time to file a comment letter, even if it is just one or two pages.

Just before Christmas, Sens. Reid and Heller released a discussion draft of the [Nevada Sage-brush Landscape Conservation and Economic Development Act of 2013](#).

This legislation would create new Wilderness from Wilderness Study Areas and Inventoried Roadless

Areas that intersect Sage-grouse habitat. These areas would be set aside for Sage-grouse conservation as well as other activities permitted in Wilderness Areas. Section 206 would provide a \$750 per acre fee for development of land identified as priority Sage-grouse habitat and \$500 per acre for development in general Sage-grouse habitat. The fee would apply regardless of the level of disturbance. However, the fee would not apply to development of valid existing rights, including future upgrades to those rights.

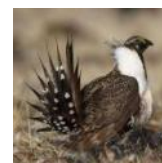
There are two sections reserved for the purchase of federal land by private entities, including mining companies for development purposes and another section reserved for land purchases by local governments in Nevada.

Sens. Reid and Heller are seeking public comment on the discussion draft. It is important for you to provide comments, suggestions and concerns to the two offices.

To round out the "Sage-grouse trifecta," BLM and USFWS have extended the comment period on the proposed threatened listing with a 4(d) Rule for the Bi-State District Population Segment (DPS) of the Greater Sage-grouse until [February 14, 2014](#). Gov. Sandoval wrote a strong objection letter to the proposed threatened listing with a 4(d) Rule. A copy of the letter is available [here](#). If you have properties or operations in the Bi-State area, it is important for you to comment. AEMA will be preparing comments to support the Governor and our members who have activities in the area encompassed by the bi-state Sage-grouse.

Finally, if you have a good recipe for cooking Sage-grouse, please send it our way. We look forward to working with GSN in 2014.

Happy New Year!



G.S.N.'S ANNUAL CHRISTMAS MEETING ROCK RAFFLE & AUCTION WRAP-UP

The GSN Foundation fund raising at the December meeting was yet another successful event. While we are still sorting out a few items, the combination of raffle, silent auction, and live auction brought in about \$14,000 for the Foundation. Additionally, Barrick Gold contributed a check for \$500. The December event, and contributions by members and friends throughout the year more than cover our operating expenses and allows the Foundation to build the endowment to insure that we can continue operating in the future. Thank you to all that participated and particularly those listed below who contributed to the raffle and auctions.

- ALS Minerals
- Ann Carpenter – Tonopah Mining Park
- April Barber & Tom Callicrate
- Arrow Creek Golf Course
- Barrick Gold
- Becky Purkey
- Beth & Jon Price
- Bonnie & Bill Klud
- Boart Longyear - Al Frank & Darrell Tweidt
- Brooke Miller, SRK Consulting
- CGS Mule LLC – Janette Steele
- Charlotte & Mark Stock
- D.D. LaPointe & Tom Irwin
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- Scott Werschky – Miner’s Lunchbox
- Stone Age Quarry
- Vic Ridgley
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Thank you again, Roger C. Steininger, Chair GSN Foundation



*Thank you to our generous donors
in DECEMBER!*

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The G.S.N. 2014 Membership Directory is in the Works!

Laura is working overtime to process all the last minute dues and typesetting the Ads.

If you have colleagues who might be one of the 300+ members who haven't renewed their dues yet, feel free to forward this newsletter to them and remind them that they are past due and won't be in it!

Activity Update

Mike Brady, November 2013

www.activityupdate.com

NEVADA

Newmont Mining Corp. announced the start-up of the Phoenix Mine Expansion Project to produce 9,100 tonnes/year of SX-EW copper at a capital cost of \$175,000,000. (reserve = 399,900,000 tonnes @ 0.15% Cu, 0.58 gpt Au, 8.2 gpt Ag proven+probable) *M.J.:* November 1

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge/Blulite Project include 25.91-28.96 meters @ 0.75 gpt Au (MR13670); 13.72-15.24 meters @ 0.69 gpt Au (MR13673); 9.14-18.29 meters @ 3.73 gpt Au (MR13675) and 12.19-15.24 meters @ 0.50 gpt Au (MR13676). (resource @ Mineral Ridge = 4,230,000 tonnes @ 1.47 gpt Au indicated) *Press Release:* November 20

Quaterra Resources Inc. announced that based on recent studies of the Yerington Pit, resources aggregate 128,000,000 tonnes @ 0.29% Cu measured+indicated and 154,000,000 tonnes @ 0.23% Cu inferred. (was 65,270,000 tonnes @ 0.39% Cu measured+indicated and 58,100,000 tonnes @ 0.25% Cu inferred) *Press Release:* November 20

Pure Energy Minerals Ltd. announced that it acquired an option to earn a 100% interest in the CV and DB claims (lithium) located in Clayton Valley from GeoXplor Corp. for \$1,140,000, 4,000,000 shares and \$3,750,000 in exploration expenditures over 4 years. *Press Release:* November 19

Savant Explorations Ltd. announced that it acquired an option to earn a 60% interest in the Jasper Canyon (Arizona), Buckhorn (Arizona) and Frazier Creek (Nevada) properties from Eurasian Minerals Inc. for \$342,500 cash, 800,000 shares and \$2,070,000 in exploration expenditures over 5 years. *Press Release:* October 30

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge/Brodie Project include 33.53-36.58 meters @ 1.30 gpt Au (MR13650); 21.34-28.96 meters @ 3.32 gpt Au (MR13653); 53.34-57.91 meters @ 0.65 gpt Au (MR13656) and 79.25-85.34 meters @ 1.04 gpt Au (MR13658). (resource @ Mineral Ridge = 4,230,000 tonnes @ 1.47 gpt Au indicated) *Press Release:* November 13

Premier Gold Corp. announced that based on recent drill results at the Cove Project, the Helen Zone aggregates 425,000 tonnes @ 10.46 gpt Au indicated and 882,000 tonnes @ 9.81 gpt Au inferred. (was 356,000 tonnes @ 20.14 gpt Au, 41 gpt Ag inferred) *Press Release:* November 19

Pilot Gold Inc.(78%) announced that recent drill results at the Kinsley Mountain Project include 255.1-291.7 meters @ 8.53 gpt Au (PK091CA); 108.2-111.3 meters @ 1.46 gpt Au (PK093); 132.6-137.2 meters @ 2.15 gpt Au (PK099) and 88.4-105.2 meters @ 2.51 gpt Au (PK102). *Press Release:* November 18

Pershing Gold Corp. announced that recent drill results at the Relief Canyon Project include 76.44-104.8 meters @ 0.90 gpt Au, 75 gpt Ag (RC13-129); 86.56-151.28 meters @ 2.04 gpt Au, 5.8 gpt Ag (RC13-133); 92.89-109.56 meters @ 0.97 gpt Au, 1.8 gpt Ag (RC13-134) and 113.24-137.41 meters @ 1.23 gpt Au, 3.5 gpt Ag (RC13-135). (resource = 22,314,000 tonnes @ 0.65 gpt Au measured+indicated) *Press Release:* November 25

Gold Standard Ventures Corp. announced that recent drill results at the Railroad/North Bullion Project include 270.1-372.2 meters @ 0.86 gpt Au (RR13-09) and 339.6-431.4 meters @ 1.06 gpt Au (RR13-12). *Press Release:* November 5

Canamex Resources Corp. announced that recent drill results at the Bruner Project include 74.62-92.82 meters @ 0.24 gpt Au (B-1334); 36.4-92.82 meters @ 1.10 gpt Au (B-1335); 10.92-58.24 meters @ 0.38 gpt Au (B-1337) and 10.92-21.84 meters @ 0.24 gpt Au (B-1339). *Press Release:* November 5

Waterton Global Mining Co. announced that it would close the Hollister Mine due to continued financial losses although the Esmeralda Mill will continue operations until the stockpiled ores are processed. As a result of these decisions, 150 employees at the mine will be terminated and 25 employees at the mill will remain only as long as the milling operations continue. (reserve = 952,700 tonnes @ 26.96 gpt Au, 162.1 gpt Ag proven+probable) *RGJ:* November 27

ROCK TALK

REPRINTED FROM NATIONAL GEOGRAPHIC DAILY NEWS: PUBLISHED DECEMBER 18, 2013



The 'Grand Prismatic' hot spring in the Yellowstone National Park, home of a massive underground supervolcano.

PHOTOGRAPH BY MARK RALSTON, AFP/GETTY IMAGES

Huge Magma Pocket Lurks Beneath Yellowstone Supervolcano

By Ker Than
for [National Geographic](#)

The magma reservoir lurking beneath a dormant supervolcano in Yellowstone National Park far exceeds past estimates of its size, a new analysis shows. (**See also "[Yellowstone Supervolcano Discovery—Where Will It Erupt?](#)"**) "We found it to be about two-and-a-half times larger than we thought," said analysis team scientist James Farrell of the University of Utah in Salt Lake City. "That's not to say it's getting any bigger. It's just that our ability to see it is getting better."

The size finding, presented at the American Geophysical Union fall meeting in San Francisco last Thursday (Dec. 12), has big implications for the extent of the volcano's impact when it next erupts. (See "[When Yellowstone Explodes.](#)") The supervolcano underneath the national park last erupted on a massive scale some 640,000 years ago, according to the U.S. Geological Survey (USGS). It is a potential supervolcano, capable of spewing more than 240 cubic miles (1,000 cubic kilometers) of magma across Montana, Idaho, and Wyoming, with global climate effects. "We believe it will erupt again someday, but we have no idea when," Farrell said.

More Magma Measured

In the new analysis, Farrell and his team calculated the size of the volcano's magma reservoir by analyzing earthquake measurement data collected from 1984 to 2011 from about 40 seismometers installed around Yellowstone. Yellowstone National Park is located in a very seismically active region and experiences between 1,500 to 2,000 earthquakes a year. Most of the temblors are too small to be felt by humans, but occasionally "you will have a large earthquake like the magnitude 7.3 one that we saw in 1959," Farrell said.

The team used software to calculate how long it takes for the seismic waves to travel from the epicenter of an earthquake to the surface seismometers. They next analyzed the data to find regions where the seismic waves appeared to slow down, which is a sign that the waves were traveling through magma. "Seismic waves travel slower through molten material," Farrell said. The team used that information to create a map of the underground magma reservoir beneath Yellowstone. Farrell likened his team's technique to the medical scanners doctors use to image inside the (cont. pg. 14)

(cont. from page 13)

human body. "It's the exact same technique. It's just that we use seismic waves, and we do it on a much bigger scale," he said.

(The team's map revealed that Yellowstone's magma reservoir is not arranged vertically, as once thought, but rather it is tilted in a northwest to southeast direction. It's also much bigger than previously thought, measuring about 55 miles by 20 miles (90 by 30 kilometers) on each side and about 6 miles (10 kilometers) deep.

The new size estimate means the current magma reservoir is roughly equal to what it was when the supervolcano last erupted, about 640,000 years ago.

"What we're seeing now agrees with the geologic data that we have about past eruptions," Farrell said. "And that means there's the potential for the same type of eruption that we've seen in the past."

Scientists think that after each eruption, the magma reservoir is emptied, and it takes a long time for it to refill again.

Global Catastrophe

Scientists predict that when the Yellowstone supervolcano does erupt, it will have global consequences. Large amounts of ash and pulverized rock from the eruption will get lofted into the atmosphere and then fall back slowly to Earth.

"You'll get ashfall as far away as the Great Plains, and even farther east," Farrell said.

Furthermore, volcanic material and gases that linger in the atmosphere will block sunlight, resulting in a global temperature decrease.

There will be nothing humans can do to prevent the eruption from happening, Farrell said, but at least with the instruments in place there should be ample warning before the volcano erupts. The Yellowstone Volcano Observatory partnership of state, federal, and academic experts regularly monitors the volcano.

"I think we'll have anywhere from weeks to months of warning that magma is moving up into the shallow crust and [that] something is going on," Farrell said.

As catastrophic as an eruption of the Yellowstone supervolcano would be, Farrell said it's not an imminent threat, nor the one people should be focusing on. The USGS puts the annual odds of a super-eruption at 1 in 730,00.

"The most likely hazard in Yellowstone is from large earthquakes," he said. "A lot of people say that the Yellowstone volcano is overdue to erupt, but there's no evidence that it is overdue. We can't say when the next eruption is going to happen."

Memorial celebration for Thomas A. Steven (1917-2013), January 18, 2014

Dr. of Geology USGS Denver & poet. Beloved husband of 68 years to Grace, father to Barbara, grandfather to Kristy & Heather, great-grandfather to Dylan, Trent, Paige & Makenzie. His wisdom, humor & strength will be missed but never forgotten.

Colleagues and friends are invited to join the Steven family in a memorial celebration for Tom Steven. The memorial will be held on Saturday, January 18, 2014 from 1:00 to 4:00 pm at the Carmel Oaks Retirement Community, 1811 South Harlan Circle, Lakewood, CO 80232.

There will be an opportunity for those attending to share their memories about their time with Tom. Also during the memorial, there will be a digital slide show showing Tom - at work and at play. If you have memorable photographs of Tom that you would like to share, please send them to Tom's daughter Barbara Steven.

For additional information about the memorial, please contact Barbara Steven by e-mail at:

bsteven@comcast.net

bsteven@guildmortgage.net

or by phone at: 720-331-9849



OBITUARY

Richard Kent Thompson (1951 - 2013)

May 26, 1951 - December 13, 2013

Our friend, Richard Kent Thompson, died in Reno, Nevada on December 13, 2013 at the age of 62. He will be remembered as an artist, writer, musician, teacher, and first-rate mining attorney.

Richard was born in Indio, California on May 26, 1951. He obtained his B.A. Degree in Political Science at the University of California, Berkeley, and his Law Degree from Hastings College of the Law in San Francisco. His formal education was prelude to a lifetime of learning, and he assembled and enjoyed a vast library of books and other media ranging from Oriental art to philosophy to gold prospecting.

One of his great joys was teaching, and he guided discussions of American government at Truckee Meadows Community College for many years. He would illustrate the foundations and pillars of our democracy with a beautiful wooden model assembled piece by piece over the course of a semester. He also taught courses in Western civilization and comparative religion.

Richard was passionate about art, which he explored in oils, acrylics, watercolors, and glistening metallic hues. He wrote extensively, composed music, and was the touring manager for rock bands in his younger days.

On the other side of his brain, he enjoyed the minute details of mineral title examination; he could reduce mountains of documents to cogent title opinions, which were accepted in financings around the world. He was a long-standing and active member of the Nevada Landman's Association, and his presentations at the Mineral and Land Resources Institute in Reno, delivered with humor and insight, were enjoyed by all. He was a genial host to the Nevada Landman's Association for its spring and Christmas events. Richard also served as a trustee of the prestigious Rocky Mountain Mineral Law Foundation.

Richard is survived by his sister, Jeanie T. Faillers, of Reno; his nephew, Jeffrey N. Faillers, of Reno; his niece, Jennifer Stillman of Phoenix, Arizona; and his beloved grandniece, Kaylie Houser. He will be fondly remembered by his law partner of twenty-five years, Richard W. Harris; Kristi Hedges, Marsha Bradley, Christine Banwart, Kristin Shirley, Hillary Reister, and other colleagues at Harris & Thompson; and all who had the pleasure of knowing him.

In keeping with his spiritual beliefs, there will be no funeral. His family and friends will celebrate his life at the turn of spring.

In a world assailed by facts, he sought knowledge tempered with wisdom. He illuminated our lives.



Barney Berger, long-time USGS Denver geologist, passed away Tuesday, Dec 10, 2013 after a long battle with cancer. Barney was a past GSN member and spent many years working in Nevada first with CONOCO in the 1970s then with the USGS.

Barney wrote and published numerous papers on the geology of Nevada under his given name Byron R. Berger. Memorial Services have not been planned yet but I will let you know if I hear about the arrangements.

Upcoming Events

Jan. 9, 2014—Nevada Petroleum & Geothermal Society Meeting. Speaker: Nicholas Hinz, Research Geologist, NBMG. Topic: Hawthorne/Lee-Allen and Wabuska. Ramada Reno Hotel, 1000 East 6th Street, Reno, NV. Cocktail Reception 6:30, Skyline Bar, 14th Floor. Dinner 7 pm, Talk at 8 pm. NPS Members \$20; Non-members \$23; Students—\$10. RSVP by January 7th with the following link:

https://docs.google.com/forms/d/1fQHUPN1fCnV2Z7s_b6OdL6gW5kdav8xa3jYbYqbVx5k/viewform

Jan. 13, 2014—SME Northern Nevada Section.

Happy Hour @ 6pm, Dinner @ 6:45 pm; Talk @ 7:30 pm. Circus-Circus Mandalay Room, Reno, Nevada. Speaker: Kevin McArthur with Tahoe Resources. Title: “Building a World-Class Silver Mine” Members-\$25; Non-members \$30; Students free. Please make reservations by Wednesday, January 8th. RSVP to Sarah Peters, 775-376-0677 or NNevSME@gmail.com



Jan. 19-20, 2014—Vancouver Resource Investment Conference. Visit their website for more information:

<http://cambridgehouse.com/event/13931>

Jan. 27-30, 2014— Mineral Exploration Roundup returns to The Westin Bayshore, Vancouver, B.C.

“Resources for Life”. For information go to the website: <http://www.amebc.ca/roundup/overview-2014.aspx>



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**Gold and Industrial Minerals
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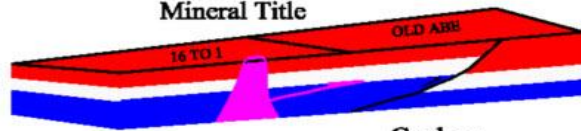
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