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

Nov 14, 2013 Thursday **WINNEMUCCA & ELKO CHAPTERS 3RD ANNUAL JOINT MEETING**
This Joint Meeting will be held at the Hideaway Steakhouse in Battle Mountain, NV. Appetizers/drinks at 6:30 PM, Talk at 7:30 PM. **Speaker: Justin Milliard, Klondex Gold & Silver Mining Co. Title: "Exploration and Geology of the Fire Creek Deposit, Lander County, Nevada". Food & Drinks Sponsored by: Barrick Gold Exploration and Newmont Mining Corp.** Contact Andy Jansen at Andrew.jansen@newmont.com or Josh Sovie at jsovie@barrick.com for more information. Abstract on page 7.

Nov. 15, 2013 Friday **GSN MEMBERSHIP MEETING (*Every 3rd Friday of the month*)**
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: Ralph Stegen, Freeport McMoran Copper & Gold. Title: "The Morenci Porphyry Cu-Mo Deposit, Greenlee County, Arizona: A Geologic Summary with Emphasis on Hypogene and Supergene Mineralization". Sponsor for the evening is: SGS, INC.** Dinner reservations must be made by NOON Thurs., Nov. 14th. Call Laura Ruud at 323-3500; Email: gsn@gsnv.org. DINNER $25.00. GSN Students eat for free! Details on pg. 3.

Nov. 21, 2013 Thursday **SOUTHERN NEVADA CHAPTER MEETING (Every Last Thursday)**
The monthly meeting will be held at 7:00 PM in room 105 of the Lilly Fong Geosciences building, UNLV. **Speaker: David Donovan, Hydrologist. Title "Hydrogeology and Water Supply for Las Vegas Valley".** For more information contact Wyatt Bain, bainw1@unlv.nevada.edu. Abstract on page 6.

Nov. 23, 2013 Saturday **ELKO GREAT BASIN AND WESTERN CORDILLERA MINING GEOPHYSICS SYMPOSIUM,** Western Folklife Center, 501 Railroad St., Elko, Nevada.
This one day event will showcase geophysical case studes and recent technical advances in mining geophysical applications. Contact them at MiningGeophysicsSymposium@gmail.com. Registration form on page 8.

Dec. 18, 2013 Wednesday **GSN ANNUAL CHRISTMAS MEETING, ROCK RAFFLE AND AUCTION!**
Mark your calendars now! Reno Elks Lodge, Reno, NV.
Contact Laura Ruud at the GSN office for dinner reservations. 775-323-3500 or Email: gsn@gsnv.org.

IT'S TIME TO RENEW YOUR G.S.N. MEMBERSHIP FOR 2014!
See form on Page 12 or Renew online at:
http.://gsnv.org/membership/join-gsn.php

G.S.N. NOVEMBER MEETING SPONSOR

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

The GSN Fall fieldtrip (5-6 October 2013) to Round Mountain and Gold Hill mines on Day 1 and the Lunar Crater Volcanic Systems on Day 2 was well-organized thanks to Jon Price's efforts. Terry Jennings (Kinross Gold Corporation) and Dave Boden (Truckee Meadows Community College) were instrumental in presenting detailed mine and outcrop geology at the individual site visits. We also experienced the nicely-renovated Mizpah Hotel in Tonopah; none of our 5th floor visitors experienced the midnight ghost of the lady murdered there!! The field trip is documented in GSN Special Publication Number 57 and available for sale at the GSN office.

The October monthly meeting presentation by Winnie Kortemeier (Western Nevada College) on *"Interaction of Pleistocene Volcanism with Shifting Lake Level, Lake Tahoe"* nicely documented the damming effects by young volcanic events on lake levels. This was the subject of her doctoral dissertation completed at University of Nevada in December, 2012.

Several GSN Board members attended the 31 October Southern Nevada Chapter meeting where Tim Marsh (Bell Copper Corporation) described the history of the Van Dyke Copper deposit at Miami, Arizona. The following morning the GSN Board of Directors met on the UNLV campus to deal with issues related to scholarships, the 2015 GSN Symposium, and other topics. Molly Hunsaker and her committee members are well-organized for the 15-23 May 2015 GSN Symposium (www.gsnv.org/symposium). If you haven't looked at the updated GSN website please check it out (www.gsnv.org).

The organizers for the GSN Christmas meeting are soliciting items for the silent auctions and "competitive bidding." Please contact Laura Ruud at the GSN office if you have items you would like to donate.

CHRISTMAS IS COMING AND SO IS THE GSN FOUNDATION EVENT

It is that time of the year to start planning for the annual GSN Christmas meeting and Foundation funding event. This is an important event for the Foundation as it supplies a large portion of our annual operating budget. We are looking for items that can be used for the drawings, silent auction, and the live auction. Items can be dropped off at the GSN office or NuLegacy Gold's office at 5450 Riggins Ct. Suite 1B, Reno. The NuLegacy office is open Monday-Wednesday from about 10 AM to 3 PM. Thank you again for your generosity.

BIOGRAPHY OF OUR SPEAKER, RALPH STEGEN

Ralph Stegen is currently vice president for mine site exploration with Freeport-McMoRan based in Tucson. He has exploration and resource block modeling responsibility for mines and inactive properties in North and South America and the Democratic Republic of the Congo. Prior to this he was chief geologist at Morenci and Tyrone, and attained those positions by working as a project and senior geologist at Morenci. Before, Ralph worked at the Questa porphyry Mo deposit in New Mexico and this was preceded with project and reconnaissance duties with several companies focused on sed- and volcanic-hosted precious metal projects in Nevada and Utah. His MS thesis was under Dr. Tommy Thompson at Colorado State University on the carbonate-hosted manto deposits at Aspen, Colorado and prior to that he worked for Noranda as a mine geologist at Park City and on exploration projects in Colorado and Utah. He started work as a geologist with the Utah Geological Survey working on mapping projects with Hellmut Doelling.

Thanks to RUEN DRILLING, INC.
For Hosting the October 18, 2013 Meeting!

GSN November 15, 2013 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 **Noon on Thursday, Nov. 14, 2013.**
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 Morenci Porphyry Cu-Mo Deposit, Greenlee County, Arizona: A Geologic Summary with Emphasis on Hypogene and Supergene Mineralization

Ralph J Stegen[1] (Bio on pg. 2) and David B. Parker[2]
[1]*Freeport-McMoRan Copper & Gold, 10861 N. Mavinee Dr., Oro Valley, AZ 85737*
[2]*Freeport-McMoRan Copper & Gold, 4521 U.S. Highway 191, Morenci, AZ 85540*

The Morenci porphyry copper-molybdenum deposit is located in southeastern Arizona approximately 260 km east of Phoenix. The Morenci mine consists of four active open pits, one concentrator, and four SX/EX plants that produced 631 million pounds of copper in 2012. Mining operations commenced in 1872 and were centered on underground mining of high-grade oxide mineralization hosted within Paleozoic sedimentary rocks. Underground mining then focused on high-grade chalcocite within enriched veins and stockwork masses along dikes in Laramide intrusions. Underground mining ceased in 1932 and open pit mining commenced shortly thereafter. Production amounts are incomplete prior to 1937, but since then approximately 1.4 billion metric tons of concentrator ore averaging 0.70% Cu and 6.1 billion metric tons of crushed leach and run-of-mine leach materials grading 0.26% Cu have produced about 32.5 billion pounds of copper. Proven and probable reserves for Morenci as of December 31, 2012 were 685 million metric tons of mill ore averaging 0.50% Cu and 0.021% Mo, 422 million metric tons of crushed leach ore grading 0.52% Cu, and 2,911 million metric tons of run-of-mine leach material with an average grade of 0.18% Cu. Year-end 2012 mineralized material amounted to 596 million metric tons of mill material grading 0.35% Cu and 0.020% Mo, and 2,278 million metric tons of leaching material averaging 0.21% copper. A new concentrator is currently under construction that will increase mill ore production from 50K metric tons per day to approximately 115K metric tons of ore per day.

The Morenci district lies at the juncture of three important geologic provinces: the Basin and Range, Transition Zone with the Colorado Plateau-Basin and Range, and the Mogollon-Datil volcanic field. Geologic attributes of these provinces are recognized in the Morenci district. Proterozoic granitoid stocks are overlain by a 250 – 300 m sequence of Paleozoic clastic and carbonate rocks consisting of the Cambrian Bolsa and Abrigo Formations, El Paso Limestone (Ordovician), Martin Formation of Devonian age, and the Mississippian Escabrosa Limestone. A Cretaceous sandstone and shale (Pinkard Formation) disconformably overlies the Escabrosa Limestone. Emplaced within these rocks are Eocene hypabyssal intrusions consisting of stocks, laccoliths, and associated dikes and sills that constitute a comagmatic, calc-alkaline series of porphyritic intrusions. The intrusive complex was followed by block faulting and erosion that persisted to the middle Tertiary. Renewed magmatism associated with the onset of Basin and Range tectonics resulted in a series of basaltic to rhyolite volcanic episodes that buried the Morenci area. Volcanism commenced in the early Oligocene and persisted to the early Miocene. From about the middle Miocene, erosion of the Morenci area formed the thick sections of basin fill deposits of the Gila Group.

The Eocene intrusions can be separated into at least six texturally and mineralogically distinct phases that range in composition from early diorite followed by quartz monzonite, monzonite, and quartz monzodiorite. The earliest Tertiary intrusive activity is a weakly mineralized diorite porphyry found as small plugs and sills in the southern area of the district. Large stocks of monzonite dated at 55 Ma, and quartz monzodiorite (age of 55 Ma) are associated with hydrothermal processes that formed the porphyry Cu-Mo deposits and calcic skarn in Paleozoic rocks. The monzonite porphyry occurs as a NE-trending elongate stock centered on the Morenci pit has prominent dikes along its margin. Intruding the monzonite is a quartz monzodioritic rock consisting of several irregular stocks and NNE-trending dikes that occur north of the monzonite. Several breccia bodies are associated with the quartz monzodioritic porphyry, none of which controlled ore-grade hypogene mineralization. Diabase and subophitic gabbro occur as irregular dikes that were intruded along major east-striking faults and as sills within Proterozoic rocks. The diabase dikes intruded monzonite in the Morenci pit, and in turn are cut by quartz monzodioritic stocks and dikes. Situated north of the quartz monzodiorite is a quartz monzonite plug and sill complex. The quartz monzonite has an age of 55 Ma and formed localized skarn in Paleozoic carbonate rocks and contains sparse sericitic veins. The youngest intrusion is a post-hypogene quartz monzonite plug dated at 54 Ma that was emplaced within the older quartz monzodiorite stock. The younger plug truncated K-silicate and sericitic veinlets in the older stock, and is characterized by weak pervasive argillic and sericitic alteration.

The earliest faults in the district are easterly-trending, pre-hypogene in age, and are crosscut by northeasterly-trending faults. The monzonite and quartz monzodioritic stocks are elongated northeast and associated dikes and sericitic veins are oriented along this northeasterly trend. Northwest-trending faults present in the southwest area of the district displace the northeast-striking faults, Eocene stocks and hypogene veins. Faults with northerly strikes displace the northwest faults, northeasterly-oriented faults and dikes, and the Oligocene volcanics in the northern part of the district. In the southern area of the district, a major northerly trending fault truncates the northwest-trending faults, and juxtaposed Neogene sedimentary rocks against Paleozoic and Mesozoic sedimentary rocks. (continued on page 5)

"FACES OF GSN"

IN MEMORIAM

JOHN WINTON ERWIN

March 07, 1924—October 3, 2013

John Winton Erwin, Professor Emeritus of Geophysics, University of Nevada, Reno, died in Reno, Nevada on October 3, 2013, of Alzheimer's disease.

A native of Chicago, Illinois, John was born March 7, 1924 of John Clarey Erwin and Jeanie Winton Erwin. In 1935, the family moved from Chicago to a farm near Keeler, Michigan. Erwin attended Keeler schools and graduated from Hartford High School, Hartford, Michigan, as salutatorian of the class of 1942. He enlisted and served with the U.S. Marine Corps during 1943 to 1946. On April 15, 1946 he married his high school sweetheart Patricia Young of Hartford, Michigan. They were wed sixty-one years until Patty's death in October 2007. John earned a Bachelor of Science in Engineering Physics from Michigan Technological University, Houghton, Michigan, in 1949. He earned his Masters in Geophysics from the Colorado School of Mines, Golden, Colorado, in 1954.

Following graduation from the Colorado School of Mines, John worked for Dow Chemical Company in Midland, Michigan. Later, he and Patty loaded up the kids and headed west to Salt Lake City, Utah, where John was employed by American Smelting & Refining Company, working on mineral exploration programs in Arizona, Missouri, Nevada, Utah and other western states. In 1961, he was employed by Hercules Aerospace Company in Salt Lake City, Utah, as part of the design team for the Sprint anti-ballistic missile.

In 1964, John joined the faculty of the Mackay School of Mines of the University of Nevada, Reno, Nevada, as a professor of geophysics and as a researcher with the Nevada Bureau of Mines and Geology. On his retirement in June 1985, he was named Professor Emeritus. Professor Erwin published numerous works in the geophysical field. After his retirement from UNR he continued to teach mathematics at Truckee Meadows Community College and Western Nevada Community College.

John was the first in his family to graduate from college. He valued and encouraged education as evidenced by the twenty-four (and counting) college, graduate and doctoral degrees earned by his children and grandchildren, eight of the degrees being awarded by the University of Nevada.

John was a registered engineer in the State of Nevada, a member of the American Institute of Mining, Metallurgical, and Petroleum Engineers, the Society for Mining, Metallurgy & Exploration, the Arizona Geological Society, the Geological Society of Nevada (serving as Chairman in 1969), and the Marina Bay Yacht Club, Richmond, California. Proud of his service as a United States Marine, he belonged to the Navy League and was a life member of the American Legion. For many years he was a member of the Masonic Golden Lodge F & AM/50, St. John's Presbyterian Church and the First Congregational Church, Reno, NV.

He enjoyed his retirement sailing and traveling with Patty and sharing geography field trips with his grandchildren with stops for the culinary delights of the Owl Cafe in Battle Mountain and The Griddle in Winnemucca. He also enjoyed lunches at the Gold 'N Silver Inn with fellow engineers geologists Jim Bright, Bob Horton, Bill Johnston, Ed Rugg and other professionals in the mining industry.

John was predeceased by his wife Patricia in 2007. He is survived by son James W. Erwin and grandson Jeffrey Erwin, grandson Patrick (Nikki) Erwin (great grandchildren Hunter and Taylor), granddaughter Camille (Kory) Wilson (expecting a boy in January), and granddaughter Nicole (Brian) Johansen (great grandchildren Makayla, Trenton, Tate and Maxwell); son Thomas P. (Molly) Erwin and grandson Philip Erwin, step grandson Paul (Jessie) Kerschen (great granddaughter Rosalind), and step granddaughter Ann (Jason) Wild; son John A. (Sherri) Erwin and granddaughter Rebecca (Jesse) Adams (great grandchildren Aidan and Geneva), granddaughter Marie (Shawn) Lear (great grandchildren (cont. on pg. 5)

(Erwin, cont. from pg. 4)

Jordan and Maxwell), grandson Scott (Bridget) Erwin, and granddaughter Kathryn (Jonathan) Dethmers; daughter Susan M. (Brian) Buckley and granddaughter Anne Buckley, granddaughter Katherine Buckley, and grandson John Buckley; and daughter Debra A. (Pete) Padgett and granddaughter Melissa Padgett and grandson David (Megan) Padgett (great grandson Nolan), and former daughters-in-law Cheryl L. Ehrke and Michelle F. Hall.

His family appreciates the fine care provided to John by Dr. Ronald L. Smith and the caregivers at Emeritus. We also thank the many kind folks at the Gold 'N Silver Inn who welcomed our Dad thousands of times during the past five decades.

A Celebration of Life service was held at 2:30 p.m. on Friday, October 25, 2013, at Mountain View Mortuary, 435 Stoker Avenue, Reno, Nevada. A Military Internment Service was held at 10:00 a.m. on Saturday October 26, 2013 at Mountain View Cemetery.

In lieu of flowers the family requests that memorials may be made in John's name to the Mackay School of Earth Sciences and Engineering, Mail Stop 162, University of Nevada, Reno 89557.

Professor Erwin enjoying an old school look at gravity in the Silver State.

(Stegen Abstract, cont. from pg. 3)

Crosscutting hypogene veinlet relationships indicate that temporal variations of intrusive-hosted hydrothermal assemblages are identical district-wide. Earliest veinlets consist of quartz that has sharp veinlet walls with no selvages are found in the apical part of the stocks. These veinlets are closely followed by quartz veinlets with K-feldspar ± sulfide (cpy, py) ± biotite selvages. In mafic igneous rocks, pervasive biotite replacement of the rock is found between quartz ± K-feldspar ± sulfide veinlets. These are in turn crosscut by quartz ± molybdenite veinlets. These early veinlets are spatially restricted to the medial and deeper parts of the host intrusion and exhibit variable veinlet orientations. Some of these veinlets have an outer sericitic envelope that is interpreted as transitional from K-silicate to sericitic alteration. Multiple generations of quartz ± sericite ± pyrite ± chalcopyrite ± magnetite veins overprint the K-silicate veins. The sericitic veinlets are associated with intense wallrock alteration, have variable orientations, and are found throughout the district. Large, through-going quartz-sulfide fissure veins traverse the sericitic stockwork veinlets and are the latest expression of hydrothermal mineralization. In addition, calcic alteration that manifests as actinolite ± epidote veinlets and replacement of feldspars occurs along the outer margin of an oreshell hosted within a Proterozoic diorite stock. Deep drilling beneath K-silicate alteration zones has encountered greisen veins consisting of coarse-grained muscovite and quartz. Propylitic alteration is not well developed in the district, but localized areas with specularite and weak chlorite in Proterozoic granite are found outside the sericitic alteration.

Hypogene protore throughout the district averages 0.2 to 0.4% Cu as chalcopyrite and 2-3 wt % pyrite in K-silicate veinlets that form oreshells localized along the monzonite and quartz monzodiorite stock margins. Mo with grades of 0.01 – 0.03% is found inward and overlaps the lower and center part of the Cu oreshells. District-wide sericitic zones average 0.1 to 0.2% Cu as chalcopyrite in veinlets and halos associated with 4-7 wt % pyrite. Highest grades occur in sheeted dikes proximal to the large stocks.

The vast majority of ore mined from the district and carried in reserves is the product of supergene processes. The supergene profile consists of a surface zone of leached capping with copper grades of 0.03 to 0.05% characterized by hematite found above chalcocite mineralization with goethite and jarosite present along the fringes. Situated within and proximal to leached capping is an oxide copper zone consisting mostly of chrysocolla, malachite, and brochantite veins with Cu grades of 0.15 to 0.40 % in intrusions and manto bodies that were very high-grade (>20%) in skarn. Beneath the oxide zone is a zone of partial leaching of chalcocite that consists of iron oxide, Cu and Fe sulfate minerals coating and replacing chalcocite that is situated atop the chalcocite enrichment deposits. Comprising the enriched zone is chalcocite ± digenite ± covellite mineralization that forms a laterally-extensive blanket 15 to 450 meters thick over an area measuring 11.4 by 8.7 km. Enriched copper grades range from 0.15 to 0.3% for ROM leach material, but crushed leach and concentrator ore have grades of 0.4 to 0.9% Cu. Copper grades of chalcocite mined underground were extraordinarily high and ranged from 2 to 10%. A zone of lesser sulfide enrichment that is beneath the chalcocite-dominant blanket and is transitional to hypogene mineralization consists of variable amounts of chalcocite, digenite, covellite that partially replaced chalcopyrite.

The available geologic observations and geochronologic data indicate that leaching and enrichment initially occurred prior to Oligocene volcanism as demonstrated by leached capping and chalcocite mineralization situated beneath volcanic flows. Basin and Range faulting commenced in early to mid-Miocene time in southeastern Arizona with the development of high-angle faults that presumably lowered the base level and exposed the older supergene profiles and hypogene mineralization to a new cycle of leaching, oxidation and enrichment. This later cycle of leaching and enrichment has yielded $^{40}Ar/^{39}Ar$ dates for supergene alunite that range from 13 to 2 Ma.

G.S.N. SOUTHERN NEVADA CHAPTER MEETING

Thursday, November 21, 2013, 7:00 p.m.

Room 105, Lilly Fong Geosciences Building, UNLV

Free food and drink—ALL ARE WELCOME!

Speaker: David J. Donovan, Hydrologist, M S RG CPG

Title: "Hydrogeology and Water Supply for Las Vegas Valley"

Abstract:

Groundwater (springs and wells) was sole source of supply for Las Vegas Valley from pre-development (prior to 1905) to the middle 1940's with water being imported from Lake Mead to the BMI Industrial Complex in Henderson. Large scale importation began in 1971 and by 1975 constituted the majority of the supply. In 2013, 90 percent of the supply was from Lake Mead / Colorado River and 10 percent from the groundwater aquifer in Las Vegas Valley.

This presentation will show some of the historical changes in water levels and describe the hydrogeological setting of Las Vegas Valley.

Biography: David J. Donovan, Hydrologist, MS RG CPG.

David J. Donovan has worked professionally in Nevada for over 25 years as a geologist and hydrologist. He has worked in both northern and southern Nevada; receiving a Master's of Science with University of Nevada, Las Vegas in 1996 and the Bachelor of Science in Geology from Northern Arizona University in 1987. He is also an Arizona Registered Geologist (RG) and an AIPG Certified Professional Geologist (CPG). David has been actively involved with research on the history of ground-water development, hydrogeological framework, and geochemistry, effects of artificial recharge, natural recharge, and discharge for multiple ground water basins in eastern Nevada. He has published journal articles on several hydrogeologic topics including cost-benefits of a ground water management program, natural ground-water recharge, and discharge in Las Vegas Valley. His main geologic interests (contributions) have been to associate (merge) the local stratigraphy to hydrographic formations, as stated in his MS Thesis (1996), for Las Vegas Valley.

NEED TRANSPORTATION TO THE ELKO-WINNEMUCCA CHAPTERS JOINT MEETING IN BATTLE MOUNTAIN, NEVADA ON THURSDAY, NOVEMBER 14TH?

Please contact **Andy Jansen** for Winnemucca to Battle Mountain transportation: Andrew.jansen@newmont.com

Josh Sovie for Cortez to Battle Mountain transportation: jsovie@barrick.com

Allie Phillips for Carlin & Elko transporation: Allison.Phillips@newmont.com

Email them now so they can make arrangements for everyone who wants a ride!!

WINNEMUCCA CHAPTER OCTOBER SPONSOR

TonaTec Exploration, LLC
www.tonatec.com

Thanks to TonaTec Exploration, LLC for sponsoring the Winnemucca Chapter meeting in October!

ELKO CHAPTER OCTOBER SPONSOR

LEGARZA EXPLORATION

Thanks to Legarza Exporation for sponsoring the Elko Chapter meeting in October.

G.S.N. ELKO & WINNEMUCCA CHAPTER JOINT MEETING

THURSDAY, NOVEMBER 14, 2013,
Location: The HIDEAWAY STEAKHOUSE, BATTLE MOUNTAIN, NEVADA

6:30 p.m. Appetizers/Drinks
7:30 p.m.—Talk begins

Food and Drinks Sponsored by:

NEWMONT MINING CORP. & BARRICK GOLD EXPLORATION, INC.

"Exploration and Geology of the Fire Creek Deposit, Lander County, NV"

By Steven McMillin, Justin Milliard, Klondex Gold and Silver Mines

The Fire Creek project is Nevada's newest bonanza–grade deposit currently in development. The Fire Creek project is located in Lander County, Nevada 6 miles north-northwest of the community of Crescent Valley. The deposit occurs within Miocene age volcanic rocks of the northern Nevada rift at approximately the intersection of the Battle Mountain-Eureka trend. The Fire Creek property was sporadically prospected from the 1930's to 1975 when Klondex first acquired the property. Exploration continued from 1975 through several joint ventures and leases to 1996. In 2004, Klondex revived exploration on the property and began systematic drilling on an oriented grid targeting induced polarization anomalies identified by previous exploration. Surface exploration drilling continued to 2012 with results that included a bonanza grade core intercept of 4.5 feet of 85 oz/t Au. Excavation of an access decline began in mid-2011. By December 2012 over 4,000 feet of drift had been excavated including two crosscuts through the two most prominent veins identified to date- the Joyce and Vonnie Veins. The Joyce vein strikes north-south, has sub-vertical dip, and is currently mapped over a strike length of 1,000 feet. The Vonnie vein is located approximately 100 feet east of the Joyce and is sub-parallel to it. The Vonnie vein has a mapped strike length of approximately 600 feet. Grades range from less than 1 oz/t Au to over 500 oz/t Au in both veins, although the Vonnie has higher grades over longer intervals. In addition to these veins, multiple other veins have been identified from surface and underground drilling but remain unexplored. For example, in December 2012, a PQ core hole drilled for a planned vent-raise location intercepted 4 feet of 3.5 oz/t Au. Additional new veins have also been discovered in the course of underground developments that are also unexplored.

The Fire Creek low-sulfidation deposit occurs along a series of northwest trending tectono-magmatic extensional structures. These en-echelon structures form a linked mineralized network that down-drops stratigraphy to the east. To date, drilled mineralization extends over 7,000 feet in strike length. Veins are hosted in and along mafic dikes, faults and basalt flow tops interbedded with mafic tuffs. Alteration consists of widespread propylitic alteration characterized by chloritization of mafic mineral assemblages along hackley joints within the basalt. Local argillic alteration is characterized by varying stages of pervasive montmorillonite replacement of groundmass. Increasing degrees of texture destruction and incipient breccias occur with proximity to structures. Jointly, these two stages of alteration form the Type 1 alteration package, which is crosscut by calcite-quartz vein alteration (Type 2). Type 1 alteration can encompass large volumes of rock and is typically only mineralized where cut by Type 2 calcite-quartz veins. Type 2 alteration has halos of argillic Type 1 alteration that vary in width from <1 inch to multiple feet. Spatial relationships suggest prolonged periods of hydrothermal reservoir emplacement at depth and episodic, rapid transport of fluids vertically that are focused along permeable structures.

Underground definition drilling began in late 2011. Approximately 35,000 feet of underground core was drilled to test the southern end of the deposit in 2012. Project activities during 2013 have focused on evaluating the deposit and completing the infrastructure needed to become a producing mine. Specifically, over 225,000 feet of historic core was re-logged to better understand alteration and stratigraphy, in-fill drilling on approximate 75 foot centers was initiated to more clearly define mineralization, grid-sourced power was connected to the project-site, boring for a secondary raise was completed, a resource model was completed, and over 1,500 feet of drift was completed on the Joyce and Vonnie veins.

For the remainder of 2013 and 2014 over 70,000 feet of underground drilling is planned for both resource definition, and exploration. Benching has begun on the Joyce and Vonnie veins and stoping will follow, once the vent raise has been commissioned. The project is currently under a bulk sampling permit, and work is underway to complete an EA permit necessary for full production.

Recent work has demonstrated that Fire Creek is an under explored, bonanza-grade deposit in the northern Nevada rift with a bright future. Current development and exploration is expected to add significant ounces to the current resource, and extend the deposit to the north and south.

Great Basin & Western Cordillera

Mining Geophysics Symposium–Inaugural

Elko, Nevada ~ 23rd November, 2013

The GSN Elko Chapter and local Elko geophysicists are hosting the inaugural Mining Geophysics Symposium on Saturday, November 23, 2013 at the Western Folklife Center, 501 Railroad St., Elko, Nevada

CONFERENCE SCHEDULE:

7:30 A.M.—REGISTRATION AND COFFEE

8:30 A.M.—SYMPOSIUM INTRODUCTION

8:40 A.M.—SATURDAY MORNING—SESSION A “Case Histories: Sediment-hosted Deposits”

10:10 A.M.—COFFEE BREAK

10:30 A.M.—SATURDAY MORNING—SESSION B “Inversion and Application{

12:30 P.M..—LUNCH

1:30 P.M.—SATURDAY AFTERNOON—SESSION C “Case Histories: Porphyry Deposits”

3:00 P.M.—COFFEE BREAK

3:20 P.M.—SATURDAY AFTERNOON—SESSION D “Case Histories: Epithermal Deposits”

5:15—6:30 P.M.—CLOSING STATEMENTS AND REFRESHMENTS

TO REGISTER, PLEASE GO TO:

http://gsnv.org/info/events/2013_Geophysics_Symposium_Program_FINAL_13Sept'13.pdf

(Or print and fill out this form and mail to GSN, 2175 Raggio Pkwy., Reno NV 89512)

NAME:_____

COMPANY:_____

ADDRESS:_____CITY/ST:_____ZIP:_____

EMAIL:_____DAYTIME PHONE:_____

COST: DELEGATE—$150.00; STUDENT—$20.00

AMOUNT ENCLOSED WITH FORM: $_____ PAID WITH CHECK #_____

VISA/MC/DISCOVER #_____

SIGNATURE_____Exp. Date_____

Please contact them by email at: mininggeophysicssymposium@gmail.com for more details.

Thank you to our generous donors in October!

G.S.N. FOUNDATION

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TAX DEDUCTION

It is the time for gift giving and cleaning your house. GSN and the Tucson Gem and Mineral Society have given over 55,000 books to Universities in Mexico and are looking for people who want a tax deduction and a chance to clean out their offices or homes. Any and all items are welcome and will be greatly appreciated. Contact Clancy if you have anything to donate. Also, anyone who is driving to Tucson, Arizona who has room and would like to help take books to our storage shed please contact Clancy Wendt at 775-852-2513.

Brian Sandoval
Governor

STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89703
775-684-7040, Fax: 775-684-7052
http://minerals.state.nv.us/

FOR IMMEDIATE RELEASE (10/14/13):
CONTACT: MIKE VISHER at 775-684-7040

PERRY APPOINTED AS ADMINSTRATOR OF THE NEVADA DIVISION OF MINERALS

(RENO, NEVADA) The Commission on Mineral Resources appointed **Richard Perry** as the new Administrator for the Nevada Division of Minerals at their quarterly meeting in Reno on October 10, 2013. Perry replaces Alan Coyner, who recently retired after serving as Administrator for 15 years. Perry has 25 years of experience in the mining and natural resources industries and is a graduate of the Mackay School of Mines, University of Nevada, Reno. Perry will be relocating from Elko and will start his new assignment on November 12, 2013.

The Nevada Division of Minerals, a part of the Commission on Mineral Resources, is responsible for administering programs and activities to promote, advance, and protect mining and the development and production of petroleum and geothermal resources in Nevada. The seven-member Commission is appointed by the Governor and directs mineral-related policy for the Division and advised the Governor and Legislature on matters relating to mineral resources. The Division focuses its efforts on three main areas: industry relations and public affairs; abandoned mine lands; and regulation of oil, gas and geothermal drilling activities and well operations.

For more information, contact the Nevada Division of Minerals at 775-684-7040.

Thank You!

The G.S.N. would like to recognize Lance Taylor and Geotemps, Inc. for their generous support of payroll services for GSN Office Manager, Laura Ruud. They have donated their costs and employment expenses for many years and the G.S.N. appreciates this ongoing donation!

GEOTEMPS INC.

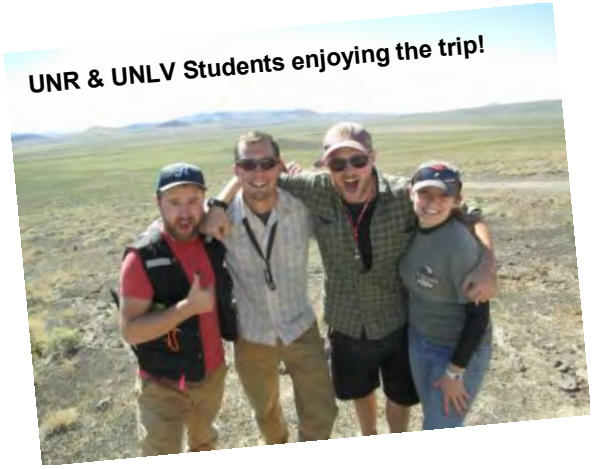
GSN Fall 2013 Field Trip Wrap-Up:
Round Mountain Mine and the Lunar Crater Volcanic Field

By Elizabeth Zbinden

On October 5 and 6 GSN returned to an old friend to see the latest progress, and then made acquaintance with a locality most of us had never seen before. Round Mountain Mine is the old friend: GSN field trips have checked in regularly and watched it grow starting with the first Symposium in 1987. The new friend is the Lunar Crater Volcanic Field, a series of young basaltic cinder cones and maars that bring bits of the mantle to the surface for us to see.

Laura Ellis, loving the geology of the Round Mtn. pit.

A bus started from Reno on Saturday morning and we met up in Tonopah with determined geologists who had driven in from Las Vegas, Elko, and elsewhere. We continued on to Round Mountain where, in a reversal of the usual order of things, we saw the rocks first and heard the talk afterwards. Many thanks to Terry Jennings and Dave Boden for informative insights on what we were looking at, and to Round Mountain Gold Corp. for permission to visit the property.



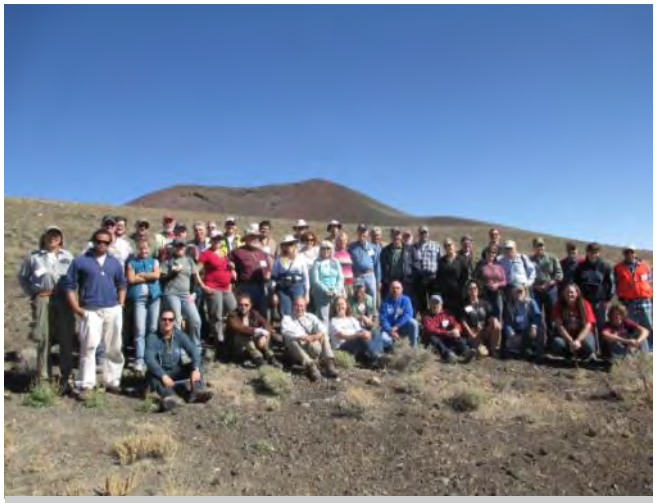
UNR & UNLV Students enjoying the trip!

We first visited the main pit, deeper than ever, and then the newer pit now underway at Gold Hill, a deposit about 6 miles north of the main pit. Cumulative production at Round Mountain Mine topped 13 million ounces each gold and silver as of the end of 2012. Together, the main pit and Gold Hill have a resource now identified as about 5 million ounces each of gold and silver.

We got back to Tonopah and the Mizpah Hotel in time for those who wanted to stroll over to the Mining Park before a fine dinner in the historic hotel.

Sunday morning we headed three ranges farther east, to view volcanics with much less mineralization. We drove near (but not all the way to) the location of Project Faultless, the site of a 1968 underground nuclear test. Our first stop took us to Oligocene silicic ash-flow tuff that may be of the Pancake caldera or the Lunar Lake caldera. We continued to Lunar and Easy Chair Craters. There was a great walk at Easy Chair Crater for those who needed to stretch their legs (see photo at right). Collectors found impressive huge phenocrysts weathered out from the lava and mantle nodules. Some of the phenocrysts were vesicular!?. Thank you to Jon Price for some entertaining wry commentary about Project Faultless and the craters.

Easy Chair Crater (with bus and three vehicles for scale). Photo by J.on Price.



Group Photo standing in front of Easy Chair Crater.

A big Thank You! to our field trip sponsors: **Desert Ventures Inc.** and **American Assay Laboratories** provided lunches; **Boart Longyear** and **ALS Minerals** provided Saturday dinner and drinks respectively at the Mizpah Hotel; **North American Exploration** provided drinks and snacks on the bus; **Geotemps** kept us hydrated with bottles of water. **Joe Laravie** provided all the maps for the guidebook. Check Joe's website www.greatbasingis.com.

NEVADA

Nevada Copper Corp. announced that it now has received all the necessary permits required for the underground development of the Pumpkin Hollow Project. (resource = 155,900,000 tonnes @ 0.59% Cu, 0.10 gpt Au measured) *M.J.:* September 13

Gold Standard Ventures Corp. announced that recent drill results at the Railroad Project include 192.1-200.0 meters @ 3.77 gpt Au (RR13-08); 209.1-244.2 meters @ 1.82 gpt Au (RR13-10) and 313.4-411.6 meters @ 3.26 gpt Au (RR13-11). *Press Release:* September 19

Waterton Global Resources Management Inc. announced that it would purchase a 100% interest in the Midas Property from Newmont Mining Corp. for undisclosed terms. (reserve = 545,000 tonnes @ 3.24 gpt Au, 266 gpt Ag proven+probable) *Press Release:* September 17

Tertiary Minerals plc. announced that recent drill results at the MB Project include 4.57-47.24 meters @ 12.4% CaF2 (13MBRC01) and 28.96-57.92 meters @ 10.5% CaF2 (13MBRC02). *Press Release:* September 11

Solitario Exploration + Royalty Corp.(80%) announced that based on recent drill results at the Mount Hamilton Project, resources aggregate 31,880,000 tonnes @ 0.75 gpt Au, 6.6 gpt Ag measured+indicated and 10,330,000 tonnes @ 0.58 gpt Au, 5.6 gpt Ag inferred. (was 6,960,000 tonnes @ 0.76 gpt Au, 3.3 gpt Ag indicated and 3,770,000 tonnes @ 0.71 gpt Au, 4.9 gpt Ag inferred) *Press Release:* September 19

Coeur Mining Inc. announced that reserves at the Rochester Mine (including stockpiles of 24,500,000 tonnes @ 0.10 gpt Au, 17.4 gpt Ag proven+probable) aggregate 134,920,000 tonnes @ 19.8 gpt Ag, 0.14 gpt Au proven+probable. (was 72,657,000 tonnes @ 0.14 gpt Au, 19.1 gpt Ag proven+probable) *Press Release:* September 23

Timberline Resources Corp. announced that it acquired an option to earn a 100% interest in the Iron Butte Property from private interests for 3,400,000 shares over 3 years. (resource = 19,254,000 tonnes @ 0.48 gpt Au, 9.0 gpt Ag inferred) *Press Release:* August 28

Star Gold Corp. announced that recent drill results at the Longstreet Project include 71.1-80.4 meters @ 0.30 gpt Au, 4.8 gpt Ag (LS13-01); 16.8-54.2 meters @ 0.30 gpt Au, 10.5 gpt Ag (LS13-05); 15.0-99.1 meters @ 0.75 gpt Au, 23.2 gpt Ag (LS13-09) and 0-24.3 meters @ 0.57 gpt Au, 27.0 gpt Ag (LS13-14). (resource = 4,600,000 tonnes @ 0.65 gpt Au, 15.7 gpt Ag indicated) *Press Release:* August 29

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge/Bluelite Project include 15.24-19.81 meters @ 4.57 gpt Au (MR13595); 13.72-21.34 meters @ 10.18 gpt Au (MR13596); 18.29-25.91 meters @ 1.19 gpt Au (MR13597) and 12.19-22.86 meters @ 15.71 gpt Au (MR13598). (resource = 175,400 tonnes @ 2.7 gpt Au inferred) *Press Release:* September 11

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge/Oromonte Project include 53.35-56.39 meters @ 2.11 gpt Au (MR13599); 94.49-105.16 meters @ 8.16 gpt Au (MR13385) and 92.96-99.06 meters @ 1.90 gpt Au (MR13386). *Press Release:* September 23

Premier Gold Mines Ltd. announced that recent drill results at the Cove Project include 393.04-442.11 meters @ 3.08 gpt Au (AX-46). (resource = 356,000 tonnes @ 20.14 gpt Au, 41 gpt Ag inferred) *Press Release:* September 18

Pershing Gold Corp. announced that recent drill results at the Relief Canyon Project include 141.6-225.3 meters @ 0.27 gpt Au, 6.8 gpt Ag (RC13-115); 162.0-172.9 meters @ 9.21 gpt Au, 25.6 gpt Ag (RC13-116); 128.5-140.1 meters @ 0.72 gpt Au, 5.8 gpt Ag (RC13-117) and 110.0-127.4 meters @ 1.50 gpt Au, 7.5 gpt Ag (RC13-120). (resource = 22,314,000 tonnes @ 0.65 gpt Au measured+indicated) *Press Release:* September 19

Midway Gold Corp. announced that recent drill results at the Spring Valley Project include 170.7-283.5 meters @ 4.53 gpt Au (SV13-625); 210.3-266.7 meters @ 1.51 gpt Au (SV13-629); 140.2-153.9 meters @ 1.06 gpt Au (SV13-631) and 120.4-140.2 meters @ 0.58 gpt Au (SV13-633). (resource = 145,100,000 tonnes @ 0.48 gpt Au measured+indicated) *Press Release:* September 4

Klondex Mines Ltd. announced that based on recent drill and underground sampling results at the Fire Creek Project, resources aggregate 206,400 tonnes @ 44.7 gpt Au measured+indicated and 683,600 tonnes @ 19.2 gpt Au inferred. (was 5,176,000 tonnes @ 9.9 gpt Au indicated) *Press Release:* September 16

Global Geoscience Ltd. announced that recent drill results at the Tokop Project include 94.5-115.8 meters @ 0.63 gpt Au (TKH01); 13.7-16.7 meters @ 0.74 gpt Au (TKH02); 59.4-71.6 meters @ 2.54 gpt Au (TKH03) and 29.0-131.1 meters @ 0.12 gpt Au (TKH04). *Press Release:* September 16

American Bullion Royalty Corp. announced that it acquired an option to purchase a 100% interest in the Springer Property from EMC Metals Corp. for $5,000,000. (resource = 355,000 tonnes @ 0.537% WO3 indicated) *Press Release:* September 16

Barrick Gold Corp. announced that based on recent drill results at the Goldrush Project, total resources aggregate 59,945,000 tonnes @ 4.33 gpt Au. (was 10,200,000 tonnes @ 3.86 gpt Au) *2012 Annual Report*

Corvus Gold Inc. announced that recent drill results at the North Bullfrog/Yellowjacket Project include 69.0-130.4 meters @ 0.19 gpt Au (NB13-351); 98.3-142.6 meters @ 2.28 gpt Au (NB13-353); 112.8-1149.0 meters @ 3.52 gpt Au (NB13-354) and 86.1-109.8 meters @ 3.54 gpt Au (NB13-355). (resource = 15,230,000 tonnes @ 0.37 gpt Au, 44 gpt Ag indicated) *Press Release:* September 18

IT'S TIME TO RENEW YOUR DUES FOR 2014!! I am including a membership form here for your convenience. You can also renew your dues online using PayPal through the GSN website: www.gsnv.org/membership

GEOLOGICAL SOCIETY OF NEVADA 2014

2175 Raggio Parkway, Room 107, Reno, NV 89512 USA
Phone (775) 323-3500 • Fax (775) 323-3599 • gsn@gsnv.org • www.gsnv.org
Offices are located at NBMG's Great Basin Science Sample & Records Library at The Desert Research Institute
Office hours: 8 AM - 3:00 PM, Monday through Friday

The Geological Society of Nevada (GSN) is a non-profit, educational organization whose principal objective is to promote the advancement of geological sciences, especially as they relate to Nevada. GSN supports the dissemination of information through meetings, field trips, publications and academic endeavors. Membership is open to geologists, geophysicists, geochemists, engineers, educators, students, prospectors or anyone else with an interest in the geological sciences and/or the goals of the GSN.

The membership year begins on January 1. Annual dues of $50.00 ($25.00 for full time students) are due prior to December 31. The GSN conducts a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held in Reno, Winnemucca, and Las Vegas (Southern Nevada Chapter) September through May. The Elko Chapter holds meetings January through December.

Please help support the GSN Foundation when renewing. Foundation dollars are used for the Kindergarten through 12th grade Field Trip Grant Program, Nevada Mapping Grants and University of Nevada scholarships.

MEMBERSHIP APPLICATION ☐ Renewal ☐ New Date: _____

Name: _____ Position/Title: _____

☐ **Everything is the same as before, except as indicated below.**

Consultant: ☐ Company Name: _____
Student: ☐ University: _____
Address: _____
City: _____ State/Province: _____ Zip Code: _____
Country: _____ Website: _____
Telephone Numbers) **Work:** _____ **Fax:** _____
Cell: _____ **Residence:** _____
(Your residence telephone number will not be listed in the Directory)

E-Mail: _____
Email address is required for Emailed Newsletter

☐ I would like to have an asterisk by my name in the directory indicating I am available for consulting.
☐ I have met the licensing requirements and want "QP" (Qualified Person) by my name in the directory.

I authorize GSN to send to me, via email: GSN announcements, publications updates, employment opportunities, etc.
Yes ☐ No ☐

Optional Chapter Affiliation (to be eligible for chapter voting and emails from those Chapter Officers)
☐ Elko Chapter ☐ Southern Nevada Chapter ☐ Winnemucca Chapter

☐ Regular Membership Dues 2013 - Email newsletter $50.00 **(International & Domestic)** ☐ Honorary _____
☐ Regular Membership Dues 2013 - Hardcopy newsletter via postal service $70.00 **(Domestic Only)** ☐ Honorary _____
☐ Student Membership Dues 2013 - email newsletter only $25.00 (Nevada students are sponsored by Geotemps, Inc.) _____

Donations:.....
(Foundation Donated Funds will be used for unrestricted grants and scholarships unless otherwise specified below:)
☐ I wish to donate to the **GSN Student Dinner Fund** _____
☐ I wish to donate to the **GSN Student Field Trip Fund** _____
☐ I wish to donate to the **GSN Foundation** _____

TOTAL: _____

Payment Type: Check # _____ ☐ Cash ☐ Visa ☐ Master Card ☐ Discover

Card Number: _____ Exp. Date: _____ 3-digit security code: _____

Signature (as it appears on card): _____

Submit by Email Print Form

Return with payment to: Geological Society of Nevada,
2175 Raggio Parkway #107, Reno, NV 89512
Fax to 775/323-3599, E-mail gsn@gsnv.org

ROCK TALK

GSN Foundation Grant gets Mackay-Stanford Ore Deposits Collection Online

A collection of more than twelve thousand samples from ore deposits throughout the world was donated by Stanford University to the University of Nevada, Reno a few years ago, thanks to the efforts of Gail Mahood, Professor in Stanford's Department of Geological and Environmental Sciences; Pamela Matson, Dean of Stanford's School of Earth Sciences; Jonathan Price, State Geologist (now emeritus); and Jim Taranik, former Mackay Director. Specimen descriptions were contained on 3"x5" index cards. The W. M. Keck Museum staff catalogued about 20% of the specimens over several years before a grant from the **GSN Foundation** funded Christina Roberts, a UNR Museum Studies student, to spend the summer of 2013 completing the task of inputting the data into a spreadsheet which was then uploaded onto NBMG's website where it can now be accessed by the public at this link:

http://www.nbmg.unr.edu/Departments/GBSSRL/Stanford_Ore_Collection.xlsx .

The collection occupies 29 cabinets of ore hand-samples and related rocks plus three cabinets of polished samples for reflected-light microscopy and detailed chemical and textural analysis.

The specimens are housed in Room 5B of Scrugham Engineering-Mines Building on the northeast corner of the UNR quad (the first floor of NBMG's building), where it will get maximum use by researchers and students. The collection is catalogued along with other geoscience sample collections of NBMG and the Keck Museum, with information about the samples accessible on the Web through www.nbmg.unr.edu.

For more information about the collection, including access by the public, please contact D.D LaPointe (dlapoint@unr.edu; 775-682-8772), or Garrett Barmore, W.M. Keck Museum (775-784-4528).

These samples should be useful to both the professional geological community and the academic sector in teaching, exploration, and research in economic geology, extractive metallurgy, and mining engineering. The Mackay-Stanford Ore Deposits Collection helps bolster Mackay's reputation as a leading institution in research on ore deposits and UNR as a premier university for the education of professionals in mineral-resource fields. Global demand for mineral and energy resources has risen dramatically in recent years and has created high demand for professionals in industry, government, and academia.

The bulk of NBMG's geoscience samples, which include cores and cuttings from deep wells drilled in Nevada, primarily during exploration for oil, geothermal, mineral, and water resources; representative samples of ore and rock types from mines; and research collections, is housed in the new Great Basin Science Sample and Records Library, on the campus of the Desert Research Institute in Reno. NBMG's Information and Publication Sales Office is relocated to the GBSSRL facility.

Kudos to the **GSN Foundation** for expediting public access to this valuable geologic resource! Come see it! Hold a piece of Chuquicamata or Besshi ore in your hand without the airfare! Check out the specimens Mrs. Herbert Hoover collected in New Zealand and Australia!

ROCK CYCLE

Earlier this month, I attended the GSN fall field trip and was on the field trip bus with a number of, well should I say, "fully consumed" GSN members. Now even though your cognition can be attenuated -- attenuated, a word I learned from a book on how to amaze your friends and confound your enemies -- with so much fun, a completely brilliant idea emerged from Mr. Dave Shaddrick no less!

So without further adieu, I would like to invite all street motorcycle riders to send me your info if you are interested in participating in a GSN member motorcycle riding club - like a gang but more refined. Please send me your name, email address and telephone number and let me know if you are **IGNEOUS** (once molten but now chilled), **SEDIMENTARY** (layered, 2 riders, with occasional cross bedding) or **METAMORPHIC** (high temperature and high pressure - no greenschist facies allowed!).

While it's unlikely that a ride will occur before the end of the year, there may be possibilities to start some day rides, weather dependent, early in the New Year. I envision a variety of rides with various technical difficulty ranging from day outings around Reno/western Nevada to multi-day trips through the Sierras and Coast Ranges. All combined with geologically and gastronomically interesting stops along the way.

Interested members, please send me your contact details to bill@tanadog.com.

William C. (Bill) Howald, CEO & President, Rye Patch Gold Corp

Mark Your Calendar

G.S.N.'S ANNUAL CHRISTMAS MEETING, ROCK RAFFLE & AUCTION

WEDNESDAY, DECEMBER 18, 2013

RENO ELKS LODGE, RENO, NV

6 p.m. - Bar, Raffle & Silent Auction

7 p.m. - Dinner, 8 p.m. - Talk

AIPG 24th Annual Exploration Roundup

Date and Time: December 10th, 2013, at 6:00 PM

Location: Ramada Inn, 1000 East 6th Reno, NV (Skyroom, 14th Floor)

Program: 6:00 PM, Cocktails
7:00 PM, Prime Rib Dinner
8:00PM, Program (8-10 speakers)

Bar and Wine Sponsor: Boart Longyear

Raffle Sponsor: Mark Stock, Global Hydrologic

Reservations:Kel Buchanan, 775 786-4515, Email: summitcrk@aol.com

Cost: AIPG/GSN members, $50, cash or check, before12/06/13
AIPG Student Club members, no charge
Other students, $25
Late reservations, if available, are $60.

Nevada Petroleum & Geothermal Society

THURSDAY, NOVEMBER 7, 2013

Speaker: Mark Coolbaugh
Chief Geoscientist, Renaissance Gold Inc.
Adjunct Research Assistant Professor, Univ of Nevada, Reno
Chief Geoscientist, Imageair, Inc.
TITLE: "Blind Geothermal Systems"

Ramada Reno Hotel, 1000 East 6th Street, Reno, NV
Cocktail Reception 6:30, Skyline Bar, 14th Floor
hosted by Boart Longyear. Dinner Served at 7:00 PM.
NPS Members $20; Non-Members $23; Students $10.

RSVP by November 5th at the following link:
https://docs.google.com/forms/d/1WnAKdocCpT6NjJHxzhCdT37uD1v9OiL8t-dXS8Xue4M/viewform

Northern Nevada Section SME

Monday, November 11, 2013

Please RSVP by 5 PM, Wednesday, November 6, 2013

Technical Session Title:

Veris Gold Corp.'s *Starvation Canyon Mine - Nevada's Newest Gold Mine*

Speaker: Bill Hofer
Please RSVP by 5 PM, October 9, 2013
RSVP to Sarah Peters, 775-376-0677 or speters@enviroincus.com
Happy Hour @ 6pm, Dinner Served @ 6:45pm;
Talk Starts @ 7:30pm
Circus-Circus Mandalay Room
Members Dinner Cost: $25, Nonmembers Dinner Cost: $30
Mackay students enjoy *free* admission & dinner

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2014 GSN DIRECTORY ADVERTISING

Download the GSN Directory Advertising Order Form from the

GSN website: http://gsnv.org/info/directoryadvertising.php

Members who wish to advertise in the 2014 GSN Membership Directory should submit their digital or camera-ready ad no later than December 20, 2013 to gsn@gsnv.org

Please send your advertisement and check or credit card number by December 20, 2013 to:

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E-mail digital advertisements to: gsn@gsnv.org