

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

- Oct. 8, 2015 Thursday** **SO. NEVADA CHAPTER MEETING (NOTE 2ND THURSDAY THIS MONTH!)**
The monthly meeting will be held at the Las Vegas Natural History Museum at 900 Las Vegas Blvd. N., Las Vegas, NV. Begins at 5:30 p.m. **Speaker: Rich Perry, NV Division of Minerals. Title: "2014 Nevada Mineral, Oil and Geothermal production update and Division of Minerals Activities"**. Contact Josh Bonde for more information! Joshua.bonde@unlv.edu. Details on page 7.
- Oct. 14, 2015 Wednesday** **WINNEMUCCA CHAPTER MEETING (every 2nd Wednesday of the month)**
The monthly meeting will be held at the Martin Hotel, 94 W. Railroad St., Winnemucca, NV. Refreshments at 6 pm, Appetizers at 6:30 pm, Talk at 7:00 pm. **Speaker: Ronald T. Parratt, Schlumberger Water Services. Title: "Linking pore pressure and slope stability: A case study pit wall of depressurization, monitoring, and modeling"**. **Food & Drinks Sponsored by: SCHLUMBERGER WATER SERVICES**. Please contact Matt Fithian at MFithian@silverstandard.com for more info. Details on page 7.
- Oct. 15, 2015 Thursday** **ELKO CHAPTER MEETING (every 3rd Thursday of the month)**
The monthly meeting will be held at the Western Folklife Center, 501 Railroad St., Elko, NV. Refreshments/appetizers at 6 pm, Talk at 7 pm. **Speaker: Peter EerNisse, MWH Americas, Inc. Title: "Simple, Multiple Lines of Evidence Methods to Investigate Groundwater-Surface Water Interaction"**. **Food & Drinks Sponsored by: DRIFT EXPLORATION DRILLING**. For more info. Please contact Mark Travis, mark.william.travis@gmail.com. Details and abstract on page 8.
- Oct. 16, 2015 Friday** **G.S.N. REGULAR Membership Meeting (every 3rd Friday of the month)**
The GSN Membership Meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, NV. Drinks at 6:00 p.m., Dinner at 7:00 p.m., Talk at 8:00 p.m. **Speaker: Korin Carpenter, Nevada Copper. Title: "The Copper-Iron Skarn Deposits of Pumpkin Hollow, Yerington, Nevada"**. **Drinks Sponsored by TONATEC EXPLORATION, LLC**. Dinner cost is \$25. Please contact Laura Ruud at the GSN office, gsn@gsnv.org. Details and abstract on page 3.
- Oct. 17-18, 2015 Saturday & Sunday** **GSN FALL 2015 FIELD TRIP—REGISTRATION FORM ON PAGE 9!**
The GSN Fall Field Trip will be heading to Quartz Mountain gold deposit in Lakeview, OR, the Lava Beds National Monument and the Glass Mountain pumice deposit in northern CA. Details and registration form on page 9. Contact Laura Ruud at gsn@gsnv.org or call 775-323-3500 for more information. Please sign up now as **DEADLINE is MONDAY, OCT. 5th!!**



G.S.N. OCTOBER MEETING SPONSOR



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FROM THE PRESIDENT
Elizabeth Zbinden, G.S.N. President 2015-2016
OCTOBER 2015

Acronym alert! The following column contains way too many acronyms. My apologies. It is hard to do otherwise when writing about government things.

By now you know that the Department of the Interior (DOI) announced the finding by its agency the Fish and Wildlife Service (FWS) that the Greater Sage Grouse does not warrant protection under the Endangered Species Act (ESA). This good news followed a similar announcement in April that its sibling, the Bi-State Distinct Population Segment, also did not require protection. Their reasoning is summarized as follows:

“The FWS reached this determination after evaluating the bird’s population status, along with the collective efforts by the BLM and U.S. Forest Service, state agencies, private landowners and other partners to conserve its habitat. Despite long-term population declines, sage-grouse remain relatively abundant and well-distributed across the species’ 173-million acre range. After a thorough analysis of the best available scientific information and taking into account ongoing key conservation efforts and their projected benefits, the FWS has determined the bird does not face the risk of extinction now or in the foreseeable future and therefore does not need protection under the ESA.” (From the DOI press release announcing the decision)

You may also know that “collective efforts by the BLM and U.S. Forest Service....” include an Approved Resource Management Plan Amendment (ARMPA) and Land Use Plan Amendment (LUPA) in which they proposed to withdraw from mineral location about 10 million acres of land across six states. About 2.8 million acres of that is in northern Nevada: Elko, Humboldt, and Washoe counties. That land has already been “segregated”, meaning temporarily withdrawn while they decide on a longer-term withdrawal.

Are you a glass-half-full or glass-half-empty sort of person?

Many people from many stakeholder categories put in many person-years of effort to design programs to conserve sage-grouse habitat and make the ESA listing unnecessary. It worked! But the restrictions on land use will make mineral exploration harder. A number of our colleagues will lose their investments of time, effort, and money if the withdrawal goes through, notwithstanding assertions that valid existing rights will be respected. The next day after the ESA announcement we started to get other announcements -- about lawsuits against the decisions.

The shouting is intense. Some say the restrictions are too great, some say the restrictions are not enough, and some say a middle ground has been achieved. I like the way journalist Carrie Kaufman put it:

“...[T]he sage grouse is not simply a bird, it’s a proxy.

It’s a proxy for environmental groups who say that keeping the sage grouse thriving will protect the sage brush that it lives in which in turn will protect hundreds of other species that live in the desert that will in turn preserve the entire southwest.

On the other hand, it’s a proxy for mining and energy and ranching groups who say federal land-use plans are just an excuse for keeping industry off federal lands.

Nevada Senator Dean Heller put out a statement ... in which he called the threat of an endangered species listing a ruse designed to allow the federal government “to tighten its grip [on federal lands] at the expense of rural America’s future.”

So, the decision ... not to put the sage grouse on the Endangered Species List does not end the proxy war. It just shifts it in a different direction.” (From: knpr.org/knpr/2015-09/sage-grouse-its-not-about-bird-its-about-land, accessed Sept 24, 2015)

One thing I believe is that we can coexist. We can protect the sage grouse and its habitat, at the same time we explore for and mine minerals on the land. The withdrawal from mineral location is not yet final and we can make our opinions known. BLM is accepting comments about the proposed withdrawal until December 23, 2015. Find out more at <http://www.blm.gov/wo/st/en/prog/more/sagegrouse.html>. See the map of the proposed withdrawal area in Nevada and five other states at <http://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=45b2d7896c36467aac3990b739d75a26>. Submit your comments to sagebrush_withdrawals@blm.gov. You’ll be hearing more about this over the next couple months.

**The Geological Society of Nevada
wishes to thank the SPONSOR OF
OUR SEPTEMBER MEETING!!**



**BOART
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GSN October 16, 2015 Membership Meeting!

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

Please e-mail gsn@gsnv.org or call 775-323-3500 by **5 p.m. on WEDNESDAY OCT. 14, 2015.**

Social Hour begins @ 6:00 pm; Dinner @ 7:00 pm; Speaker @ 7:45 pm (NOTE EARLIER TIME!)

Location: Reno Elks Lodge, 597 Kumle Lane, Reno, NV (across from the Convention Center)

DINNER COST—\$25.00 per person.

(You will be invoiced if you do not cancel your reservation)



The Copper–Iron Skarn Deposits of Pumpkin Hollow, Yerington, Nevada

Korin Carpenter, Hank Ohlin and Greg French
Nevada Copper, Inc., Yerington, Nevada

ABSTRACT

Pumpkin Hollow is among the unique class of skarn deposits which host extremely large amounts of iron as magnetite and economic quantities of copper, gold and silver. The project hosts a cluster of six known deposits located in western Nevada, in the Yerington Mining District. Pumpkin Hollow was originally discovered in 1960 by US Steel Corporation by airborne magnetic survey. Drilling over the past 55 years by majors and juniors has delineated an open pit and underground resource of 6.343 billion pounds of copper, 1.041 million ounces of gold, and 32.878 million ounces of silver. Open pit iron resources stand at 235 million tons at 30.7% Fe. An equally large, if not greater, iron resource is present at depths too great to mine by current open pit methods.

The magnetite-rich skarn bodies, commonly greater than 40% iron, are hosted by Triassic limestone intruded by Jurassic McLeod Hill quartz monzodiorite, the early host-phase of the Yerington porphyry copper deposits. Marble, skarn and hornfels formed in the Triassic-Jurassic country rocks and the early phase intrusive were extensively altered and replaced by large magnetite bodies. At least six styles of copper mineralization formed:

Marble front, in which magnetite-replaced endoskarn or endoskarn is in contact with dolomitized marble. High grades of copper (3–8% Cu) occur near and along the contact. A zone of talc between ore and dolomitic marble then outward to calcic marble.

Disseminated chalcopyrite, with pyrite and pyrrhotite, as lenses within magnetite-replaced endoskarn.

Garnet skarn lenses or bodies with disseminated sulfides.

Skarn breccia hosted by hornfels, endoskarn or magnetite skarn. Chalcopyrite as disseminations in clasts and as coarse blebs within breccia infill.

Fracture-controlled skarn veinlets in hornfels.

Late stage, calcite-dominant, skarn veins similar to skarn breccia infill. Coarse chalcopyrite is disseminated outward from the veins and enhances copper grades in the other styles.

Complex alteration to the McLeod Hill, now endoskarn, indicates successive waves of overprinting by hydrothermal fluids with a general prograde to retrograde pattern. Early ghosts of large garnet and diopside crystals are replaced by actinolite-epidote-calcite which in turn is veined by magnetite-pyroxene-epidote-actinolite-garnet-calcite accompanied by chalcopyrite. The intrusive is commonly, intensely, calcic-sodic altered, suggestive of the IOCG model of formation. Both magnetite and garnet have an early phase and a late phase; a period of skarn breccia with clasts of early magnetite, endoskarn and silicate skarn are cemented by late skarn-calcite matrix. Areas of brecciated magnetite endoskarn cemented by magnetite yield high iron, low copper assays. Sulfide mineralization is omnipresent, localized zonal relationships between pyrite, pyrrhotite, and chalcopyrite exist though are non-uniform at deposit scale. In general the high copper values (>3% Cu) are associated with late calcite-dominant veins or breccia infill. District scale timing of skarn development and copper mineralization can be bracketed by andesite and porphyry dikes. The early McLeod Hill and Luhr Hill porphyry dikes and Luhr Hill granite are often strongly K-Na altered and exhibit weak copper mineralization. The later andesite dikes are typically fresh. This suggests links between late stage copper skarn mineralization at Pumpkin Hollow and the Yerington porphyry copper deposits. Late stage talc is present peripheral to and overprints mineralization. A later stage of chlorite + calcite + pyrite veining overprints the entire system.

The magnetite-hosted endoskarn resembles island-arc calcic magnetite skarn deposits with low-grade disseminated chalcopyrite. The higher grade copper mineralization with accompanying gold and silver is typical of porphyry-related skarns. These deposit types are consistent with the district setting of Jurassic porphyry mineralization in a terrane of Triassic through Jurassic island arc and related sedimentary rocks. Jurassic evaporite deposits in the district supply the necessary chemical components for basinal brines contributing to mineralization.

“FACES OF GSN”

Kaitlin Sweet

In the spring of 2003, I declared my major as geology when I finalized my admission information for the University of Montana, Missoula. I wanted adventure, fresh air, and to continue my education in the “earth sciences.” Before that moment, I had never set my mind to be a geologist. In fact, only a few years before, I was certain I would be an analyst in the Central Intelligence Agency... in the footsteps of my fictitious crush Jack Ryan. That being said, I was already a product of my environment with my experiences growing up and the guidance provided by my family. The two main influencers in this respect were my grandfather, Nat Mahan, who was an Engineer in the Operations and Management Department with the Bureau of Reclamation in Durango, Colorado, and my Dad, Gary Sweet, who was a civil engineer employed with international construction and petroleum companies.

Dad’s career took our family all over the United States as well as around the world. He was a Construction Engineer/ Area Superintendent at Fluor Engineers and Constructors from 1973 to 1984. In that span of time, my parents, Gary and Lynne, and two sisters, Kristen and Clarissa, lived in Huntington Beach, California; Oregon, Ohio; Alvin, Texas; New Orleans, Louisiana; Esfahan, Iran; and Cilacop, Indonesia. This was all before Kaitlin (BK), as our family likes to say, since I was a late addition to the family.



When I came along, my family had established their home base in balmy Redding, California, and enjoyed a short stint living life state-side. However, living among extended family and friends did not last long as my father accepted a position as Civil Inspector/Civil Engineer for Saudi Aramco and we moved from Redding to Abqaiq, Saudi Arabia, in December 1988. I was three years old, Kristen and Clarissa were 12 and 14 years old, and Oden Frederick (a.k.a. Odie - the family dog) was one. My sisters, once they turned 15, went to boarding school at Fountain Valley in Colorado Springs, Colorado; and after that, Odie was my best friend and partner in various adventures.



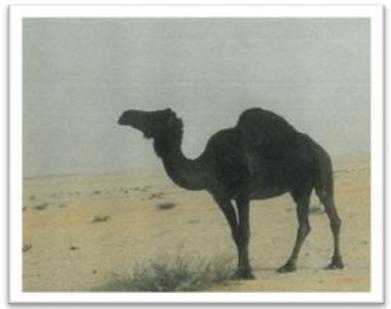
I lived with my parents in Saudi Arabia from 1988 to 1993. The American camp, Abqaiq, we lived in was quite small; however, there was still a dining hall, library, movie theater, commissary, sports fields, and swimming pools. But I guess movies, racquetball, and swimming were not stimulating enough, and we ventured into the surrounding desert. Mom would pack the cooler with delicious snacks and sandwiches and we would leave for the weekend to explore vast expanses of sand...and treasures that would inevitably be waiting for us. Some families never left the camp. I can’t imagine what that would have been like. I am so grateful my parents wanted to explore. My

memories of these trips are filled with hot sun radiating through Sancho’s (our Land Cruiser’s) windows, cool air conditioning circulating through the car, and the odds were good that either Enya, The Police, or Spin Doctors would be tirelessly playing via the cassette tape player. Sometimes we would have picnic-like meals with pickled eggs and deviled ham sandwiches. Other times (usually when it was just Dad and me) we just survived on MREs. (Cont. on page 5)



(Sweet, cont. from page 4)

These adventures allowed us to see the nearby communities and overall culture and landscape. During our weekend trips, we would leave the pavement, deflate our tires, and set out for an adventure. I suppose that was my first introduction to paleontology, historical geology, and archaeology. We would explore historic town sites, where I climbed the stairs of a spire, perhaps a prayer tower, and remember looking out over the desert and SUVs below. We would find shards of pottery, arrowheads, grinding stones, and my favorite – sharks teeth. Even Odie found an arrowhead one time – tri-colored with a broken tip. Every so often Dad would hypothesize that we were perhaps the first people to touch these artifacts since they had been made a thousand years ago (he’s a civil engineer – so please go easy on scrutinizing his incorrect dating scheme). We would think about how many times a particular arrowhead had been covered and uncovered by the transient sands. We would daydream about the historic events taking place in the ‘western world’ when people inhabited the areas we were currently exploring, which had long been abandoned. Honestly, I think it is a bit odd that I didn’t become an archaeologist, but apparently that just wasn’t in my cards.



We were in Saudi Arabia during the Persian Gulf War. I remember my family being the only passengers on the flight coming back into the kingdom from our annual vacation in the United States. Life after that was fairly structured with bomb preparedness drills, including racing back to our house from the playgrounds when the sirens would start, grab our designated gas mask,



and make our way to the concrete “distillery room” in the back of the garage. Those times were surreal for me, being so young, as I didn’t fully comprehend the seriousness of the situation. I saw it as added excitement. My mom would bake six dozen cookies, which we would take to an M1A1 tank company “Tuskers” C Troop in the 24 mechanized infantry division staged at the border with Kuwait. We spent Thanksgiving and Christmas with that division. Our experience in Saudi Arabia left me with a strong appreciation of other cultures and corresponding customs. My parents supported this respect.

After returning to the United States, earth science was my favorite class, followed by history. My inclination in these subjects coupled with my appreciation for travel and foreign landscapes, which were all acquired in my early youth, led me to pick geology as my major while finalizing my University enrollment. I studied geology for two years at the University of Montana, Missoula, before moving to Reno, Nevada, in 2005. I was determined to find work in the field of geology while I was waiting to gain Nevada State residency before applying for admission to the University of Nevada, Reno (UNR). I attended a career day presentation in the UNR geology department where I met my future employers Earl Abbott and Opal Adams. I was excited to do field work and jumped at the opportunity to assist Earl with sampling and managing the many properties that his company, Tornado Gold, had under lease. I worked with Earl as a junior geologist for one year. During that year, I had an amazing introduction to the Nevada exploration community and minerals industry. (Cont. pg. 6)

(Sweet, cont. from page 5)

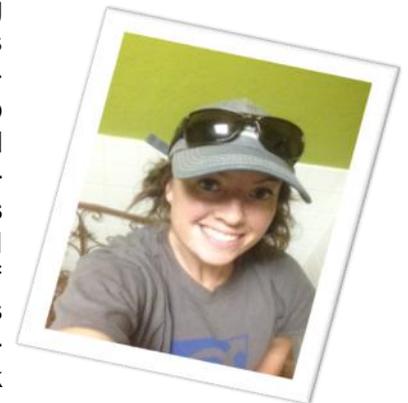


I was even afforded the opportunity to attend the 2006 Prospectors and Developers of Canada meeting. Seeing the international representation of the global minerals industry and the overwhelming representation of Nevada companies was impressive. With Earl's strong encouragement, I became a member of the Geological Society of Nevada (GSN) and Nevada Petroleum Society. I learned the geography of Nevada, the major mineral trends, and started to grow my vocabulary and understanding of this new community I was now a part of.

The following year I was admitted to UNR and could no longer fulfill field work obligations with a full class load. I contacted Opal and requested an internship position at Enviroscientists, Inc. (Enviroscientists) while I completed my degree. Three short years later, I had earned my bachelors in hydrogeology. Due to hard work, a desire to learn, and job experience, my term papers and reports were among the best quality products in my class largely in part due to the writing style, report formatting, and production skills I had developed from

working at Enviroscientists. In addition to my income from working part-time, I applied for and was awarded several scholarships every semester. One of these scholarships was awarded by the Women's Auxiliary of the American Institute of Mining and Metallurgical Engineers (WAIMMEs). The Mackay School of Earth Sciences and Engineering (Formerly a School of Mines) was a wonderful learning environment as it maintains strong roots in the Nevada minerals industry, which supported the students at all stages of their learning and as we entered the work force. Thanks to the support of the minerals industry with generous scholarships, and some hard work on my end, I graduated without any debt. And from what I see in the headlines, that is very rare these days.

During my internship I found that I really enjoyed consulting, specifically the environmental permitting and compliance services that Enviroscientists offered. I decided to build upon the foundation I had started while in school and accepted a full time position with Enviroscientists in 2010. Before I knew it, I had acquired an understanding and proficiency in permitting mineral exploration projects in Nevada and surrounding states. I loved working with the different people and companies as well as acquiring problem solving skills, patience, professional bearing, and communication skills required to successfully permit projects. As they say, the rest is history. I became involved with the Society of Mining Metallurgy and Exploration Reno Chapter which allowed me to learn even more about the minerals industry and meet more great people in the mining and supplier sectors. I am now approaching my third year as the manager of Enviroscientists' Elko Office. It's been a very gratifying experience working in the Nevada minerals industry. I have met so many amazing people. I still have a hard time believing that as of September 2015, I have been a Nevada resident and a part of the minerals industry for ten years. I am proud to have received those scholarships from organizations affiliated with the Nevada minerals industry and hope that the work I am completing today gives back in its own way to the industry that has been so supportive of me.



**THANK YOU TO THE
WINNEMUCCA CHAPTER
SPONSOR FOR SEPTEMBER!**

**THANK YOU TO THE
ELKO CHAPTER
SPONSOR FOR SEPTEMBER!**

MAJOR
Partners on the Ground



G.S.N. SOUTHERN NEVADA CHAPTER MONTHLY MEETING

THURSDAY, OCTOBER 8, 2015

SPEAKER: Richard Perry, Nevada Division of Minerals
<http://minerals.nv.gov/>

TITLE: “2014 Nevada Mineral, Oil and Geothermal production update and Division of Minerals Activities”

Location: the Las Vegas Natural History Museum
900 Las Vegas Blvd. N., Las Vegas, NV
Begins at 5:30 p.m.

Time: Pizza and drinks served at 5:30 p.m., Talk at 6:30 p.m.

Bio: Rich Perry joined the Division of Minerals as Administrator in 2013. His career includes numerous operating and technical assignments in the mining, water resources and geothermal industries. Prior to his appointment at the Division of Minerals, he worked for the Nevada State Engineer in eastern Nevada. Rich served as Vice-President of North American Operations for Newmont Mining Company from 2001-2005, and as the start-up general manager for Newmont’s Batu Hijau copper mine in Indonesia. Rich is a graduate of the Mackay School of Mines at the University of Nevada, Reno.

G.S.N. WINNEMUCCA CHAPTER MONTHLY MEETING

WEDNESDAY OCTOBER 14, 2015

SPEAKER: Ronald T. Parratt, Schlumberger Water Services

TITLE: “Linking pore pressure and slope stability: A case study pit wall of depressurization, monitoring, and modeling”

Location: The MARTIN HOTEL, 94 W. Railroad St., Winnemucca, NV

Time: Drinks @ 6:00 p.m.; Appetizers @ 6:30 p.m.; Talk @ 7:00 p.m.

Food and Drinks Sponsored by:



G.S.N. ELKO CHAPTER MONTHLY MEETING

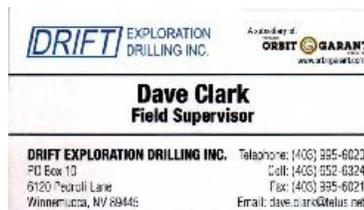
THURSDAY, OCTOBER 15, 2015

SPEAKER: Peter EerNisse, MWH Americas, Inc.

Location: The WESTERN FOLKLIFE CENTER, 501 Railroad St., Elko, NV

Time: Refreshments/Appetizers @ 6:00 p.m., Talk @ 7:00 p.m.

Food and Drinks Sponsored by:



“Simple, Multiple Lines of Evidence Methods to Investigate Groundwater-Surface Water Interaction”

Peter A. EerNisse, Dilip Gargeya, Hhan J. Olsen, Phillip E. Crouse

MWH Americas, Inc. 2890 E Cottonwood Pkwy. Suite 300. Salt Lake City, UT 84121.

Peter.Eernisse@mwhglobal.com, Dilip.Gargeya@mwhglobal.com, Hhan.J.Olsen@mwhglobal.com, Phillip.E.Crouse@mwhglobal.com

ABSTRACT:

A low-cost and readily implementable approach was designed to investigate the spatial extent of groundwater influence on surface water quality in the primary stream adjacent to an inactive copper mine undergoing remediation. Stream reaches where mine-impacted groundwater seasonally discharges to surface water were confidently identified using a multiple lines of evidence approach. Surface water quality in the stream and hyporeic zone are primary ecological health drivers for the mine cleanup as acid mine drainage (AMD) has mobilized metals to site groundwater which in turn migrates off site and discharges to the stream affecting surface water quality.

Three techniques were used to identify seasonally gaining and losing reaches of the stream in spring and fall conditions, including use of collocated staff gauges and shallow hand-driven piezometers to identify vertical hydraulic gradients; direct water sampling from discrete depths within the hyporeic zone (pore water) to characterize water quality; and collocated temperature measurements in the streambed and surface water to identify areas of potential groundwater discharge. The study techniques used were designed and implemented using only hand tools as the mountainous and difficult site access required. The three techniques were modified from existing study techniques, and were used in concert to increase confidence in repeatability and the final results.

The study period lasted from spring 2011 to fall 2012 and consisted of semi-annual measurement events. During each event, hydraulic head measurements were obtained from staff gauges and piezometers and evaluated for vertical hydraulic gradients indicating areas of groundwater discharge to the stream. Stream pore water was sampled and analyzed from three discrete hyporeic depths from semi-permanent, dedicated in-stream drive point samplers of novel design. Temperature profiling was performed using a handheld probe to measure temperature within the streambed and the overlying surface water. Study results identified two primary, year-round areas of groundwater discharge to the stream. Identification of these reaches directly influences the remedial design and long-term performance monitoring plan for the site.



GSN FALL FIELD TRIP IS OCTOBER 17-18, 2015!

Registration DEADLINE is OCTOBER 5TH!!



Come with us as we journey to the far northwestern reaches of the Great Basin on Saturday and Sunday, October 17 and 18, 2015. On Saturday we will travel to Lakeview, Oregon to visit **Alamos Gold** and review their exploration program of the **Quartz Mountain** epithermal gold deposit. We overnight in Klamath Falls and will hear a talk from **Julie Donnelly-Nolan, USGS**, about the Medicine Lake volcano and the Cascades. On Sunday we will explore the lava tubes at **Lava Beds National Monument in California**. The last stop on our trip will be a visit to the **Glass Mountain pumice deposit** in the Medicine Lake Volcanic Complex. Complete with spectacular views of Mt. Shasta, this promises to be a field trip with something for everyone! **Registration form on page 9.**



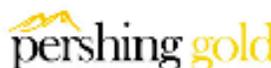
**Geological Society of Nevada (GSN) Fall 2014 Field Trip
Saturday and Sunday, October 17-18, 2015**



Quartz Mountain, OR; Lava Beds National Monument and Glass Mountain Pumice

- Saturday, October 17th:** 7:30 a.m. Meet at the GSN Office, 2175 Raggio Parkway, Reno, NV
OVERNIGHT PARKING WILL BE AVAILABLE!
 8:00 a.m. Depart GSN Office and drive to Alamos Gold office in Lakeview, OR
 11:30 a.m. Presentation by Alamos Gold and viewing of drill core
 Box lunch will be provided
 1:30 p.m. Depart Alamos Gold office and drive to the Quartz Mountain gold property
 5:00 p.m. Arrive Klamatha Falls, OR and check into Olympic Inn
 6:00 p.m. Drinks, dinner and evening speaker at Mr. B's Steakhouse
- Sunday, October 18th:** Free Breakfast at the Olympic Inn (or on your own)
 8:00 a.m. Depart Klamath Falls and drive to Lava Beds National Monument
 10:00 a.m. Explore Lava Beds National Monument
 Noon Tour of Glass Mountain Pumice Plant and Deposit
 Box Lunch to be provided
 6:00 p.m. Arrive in Reno, NV

THANK YOU TO OUR GENEROUS SPONSORS!!



Payments must be made by Monday, October 5, 2015
No refunds after Monday, October 5, 2015

Lodging: Single Double

Name: _____

Double Roommate: _____

Cell Phone: _____

MEMBER COSTS:

Company: _____

- \$250 - Single Room
- \$200 - Double Room (Limited Number)
- \$150 - Member's Spouse (in a Singles Room)
- \$0 - GSN Student Member Helpers (limit 6)

Email: _____

***NON-MEMBER COSTS:**

Person to contact in case of Emergency:

- \$300 - Single Room
- \$200 - Double Room (Limited Number)
- \$150 - Non-Member's Spouse (in a Singles Room)

Name: _____

Phone: _____

*Non-members are encouraged to become members of the GSN for \$50 annual dues in order to take advantage of the reduced rate.

Total amount included with this form: _____

Payment: Check # _____ Cash Visa Master Card Discover American Express

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

Name (as it appears on card): _____

Return with payment to: Geological Society of Nevada
 2175 Raggio Parkway, Room 107
 Reno, NV 89512
 Phone: (775) 323-3500, Fax: (775) 323-3599
 E-mail: gsn@gsnv.org

**PLEASE CLICK HERE FOR ONLINE
 REGISTRATION FORM:**

[http://gsnv.org/info/events/
 Field_Trip_Signup%20Fall%202015.pdf](http://gsnv.org/info/events/Field_Trip_Signup%20Fall%202015.pdf)



The NMEC* 2015 Annual General Meeting Rescheduled to November 6!!

2015 Annual General Meeting
Friday, November 6, 2015
Silver Legacy Resort & Casino
407 North Virginia Street
Reno, NV 89501

Meeting Rooms: Silver Baron One & Two
Luncheon & Reception: Rum Bullions Patio

Early (through Oct. 6):

Member \$40 Non-Member \$60

Regular (Oct. 17 – Oct. 31):

Member \$75 Non-Member \$95

Late and on site (Nov. 1 - Nov. 6):

Member \$150 Non-Member \$200

*Only one representative from a member company will be allowed to pay the member rate, unless the attendee is an individual member.

**Those that sign up and pay for membership at the door get the late/onsite Member rate.

***Payments made at the door must be with cash or check. No credit cards will be accepted.

To Register Online please go to this link:

<https://www.nvmec.org/2015-annual-general-meeting-registration>

*From the NMEC:

The Nevada Mineral Exploration Coalition (NMEC) constitutes the only broad-based active voice for the Nevada exploration community. No other organization is aggressively defending our specific needs. The NMEC was established and successfully fought the onerous claim fees imposed by the State of Nevada in 2010. We urge your support of NMEC if you are not already a member. Please visit our website at www.nvmec.org. You can also register on line.

SAVE THE DATE!

THAYER LINDSLEY VISITING LECTURER

**Karen D. Kelley
(SEG 1981 F)**

Talk Title: "The Giant Concealed Pebble Cu-Au-Mo Porphyry Deposit, Southwest Alaska: Evolution and Exploration Implications."

The GSN's Elko and Winnemucca Chapters' JOINT meeting will be held in Battle Mountain, Nevada on Thursday, November 5, 2015!

We are excited to have Karen Kelley, the 2015 SEG Visiting Lecturer as the speaker for this event! Mark your calendars now and more details will be coming soon.

Please contact your Chapter Presidents for more information. James Carver, Winnemucca Chapter or Mark Travis, Elko Chapter.

OTHER UPCOMING EVENTS

1 October—NV Petroleum & Geothermal Society meeting – **Speakers: Lauren Mermejo, BLM Great Basin Greater Sage-Grouse Program and Raul Morales, BLM Deputy State Director for Renewable Resources and Planning**. Topic: Nevada and Northeastern California Greater Sage-Grouse Land Use Plan Amendment" at the Ramada Reno Hotel, 1000 East 6th St., Reno, NV. Cocktails—6:30 pm; Dinner—7 pm. Please RSVP by Monday, Sept. 28, the following link: <https://docs.google.com/forms/d/1kLkAFaWNDank1-icVx1wbbX8m4Cr9aA0OhYKLWmvOmw/viewform>

3 October—NV Bureau of Mines & Geology 1915 Pleasant Valley Earthquake Centennial Field Trip. Meet in Winnemucca at 10 a.m. For more details and registration click here: <http://www.nbmng.unr.edu/Geohazards/Earthquakes/1915fieldtrip.html>

6 October—AZ Geological Society meeting, Caleb King presents "Eocene Hydrothermal Systems and Contrasting Hydrothermal Alteration in the Battle Mountain District, Nevada". Starts at 6 pm, Sheraton, 5151 E Grant Rd. (& Rosemont), Tucson, AZ To register click on the link: <http://www.arizonageologicalsoc.org/event-1997784>

17-18 October—NV Bureau of Mines and Geology Earth Science Week Field Trip. **Fire and Ice—Geology of the Mount Rose Quadrangle, Lake Tahoe, and the Carson Range**. Click here to register for Saturday OR Sunday: <http://www.nbmng.unr.edu/ScienceEducation/EarthScienceWeek/index.html>

19-20 October—NV Water Resource Association— 2015 Fall Symposium. Keynote Speaker: Daniel P. Beard, Former Commissioner, Bureau of Reclamation and Author of *Dead-beat Dams*. To register go to the link: <https://www.eiseverywhere.com/ereq/index.php?eventid=130673>



NEWS FROM THE GSN FOUNDATION

Two GSN scholarships have been awarded to UNR Geology Department students for the current school year. **Lindsay Sewell** graduated from Bishop Manogue high school, and is currently a senior majoring in hydrogeology. **Brandon Rasmussen** graduated from Galena High School, and is also a senior majoring in geophysics. Congratulations to both students for being recipients of our scholarships.

Roger C. Steininger
Chair, GSN Foundation

Foundation

Thank you to our generous donors in September!

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ROCK TALK

(This book review comes from GSN member John Hoskins, who is also a member of the San Francisco Gem & Mineral Society)

SFGMS Mineralog October 2015 Check it Out!

by Vicky Holder, Librarian (Reprinted with permission)

Two Houses of Ill Repute, Five Saloons, and a Billiard Table

***Austin and the Reese River Mining District: Nevada's Forgotten Frontier* by Donald R. Abbe (HD 9536 .U53) 1985**

A Claim with ut End, Fore ver and Ever, Hallelujah : In early May of 1862, an outcrop of silverbearing quartz was found near Austin, Nevada, in a place called Pony Canyon. A "mining district" was instantly organized to protect the claim. Incredibly, as a result of overall boundary confusion in Nevada, there were **no eastern or western boundaries to this claim**--unless they conflicted with somebody else's claim. Hallelujah!

Insta -Town : A "silver rush" followed, and people moved in, out, and through the area in tide-like fashion as silver seekers went to various places where it was being unearthed. In case you ever wanted to know what was required in the 1860s for 450 people to live in a place in the middle of nowhere, here is what the town of Austin contained by late May of 1863: two hotels, two general merchandise stores, five saloons, one billiard table, two meat markets, one bakery, two stationers, three blacksmith shops, one wagon repair shop, one variety store, three laundries, two houses of ill repute, one lodging house, one livery stable, two lawyers, four notaries, two express companies, one barber shop, one tailor shop, one sign painter, four carpenters, four stone masons, two adobe yards, four gardens (?), one boot and shoe store, one dairy, one printing office, (page 6-7) and . . . no . . . churches.

Rush to Rise , Rush to Fall: By July and August of 1863, the population was estimated as high as 1450—emphasis on "estimated."

By September, there were thirteen hundred mining companies in the area, 2500 by March 1864. Then the yield began to decline, while much-needed capital to keep exploration alive dried up because of a stock market panic in San Francisco. By 1865 the silver rush was over, though a reasonably healthy mining industry continued in the area for a few more years, helped in part by the end of the Civil War when all the war-issued paper money needed to be redeemed for silver, greatly increasing its demand. By 1920, all the mining companies had shut down.

Chapter by Chapter : The above history is contained in the first chapter of this very short book about one tiny but important part of Nevada. Every subsequent chapter goes into further detail about everything that is summarized in Chapter One, each discussing one or two aspects of the mining industry in the Reese River area from beginning to end. This method is a little annoying because of the inevitable repetitions, but it does allow an excellent discussion of every part of the topic.

Camels, of Course : Chapter Five discusses the area as an economic hub, including odd little pieces of information about transportation. The various forms of transport included stagecoaches, mule teams, buggies, carriages, Conestoga wagons, and camels. The camels had been acquired from the U.S. Army—if that helps explain it.

Dastardly Deeds and Isolation : As the ore got poorer, the processing of the ore became far less productive, and "mills" for extracting the silver out of its ores became far more important. One mill company, in order to reduce competition, bought up another mill and kept it in working condition— not actually working, just ready to go at a moment's notice— to intimidate anyone else from building a competitive mill.

The final blow was the transcontinental railroad, which did not go through Austin,* leaving the town to fend for itself, far away from the only rational way to get from sea to shining sea.

Lunatics in Politics : Chapter Seven goes into politics.

During a political campaign in the early 1860s, a local Democrat and a local Republican made a bet on the result of their race for the position of mayor. The loser would have to carry a fifty-pound bag of flour from Austin to a town a mile away, after which the flour would be auctioned off to raise money for a Civil War fund. The loser did in fact carry the bag to the other town, after which the bag was auctioned off several times, eventually producing a total of \$4500 for the fund. So, if their heads were a bit off, their hearts were in the right place.

Fair Weather , Foul Weather : Chapter Eight discusses the difficulties the labor movement had making headway in the early days of Reese River mining because, at four dollars a day plus ten dollars a week for board for the average miner, and the ability to make as much as sixty dollars a month, wages were at or way above "union scale." Who needed a union? This heady, high-waged era of over-employment, however, continued only until the late 1860s when silver became less abundant and wages "had to be" (quotations my own) reduced in order to compensate for higher operating costs—extracting less from more. Unions then became more important and powerful for a day or two, then fizzled and died, along with the mining industry, by the beginning of the twentieth century.

Fiefdom of the Press: During all the ups and downs of the mining industry in and around Austin, NV the one thing that remained reasonably successful and solvent for half a century was the *Reese River Reveille*, a little newspaper that began being published in 1863 and was soon being circulated all around western Nevada, in major California cities, and even in parts of the eastern United States. In fact, the newspaper was still available, covering events in Central Nevada, at the time of publication of this book. Let's hope the *Mineralog* does as well for our progeny.

* In our days of freeways, Interstate 80, which bypasses Austin, finally trumped U.S. 50, which does go through Austin.

OBITUARIES

Alan D. Branham 1960—2015

September 11, 2015 6:00 am

Alan David Branham, 55, of Helena, went to be with his Savior, Jesus Christ, on Sept. 4, 2015. The celebration of his life was held on September 11, 2015 at Helena First Assembly of God.

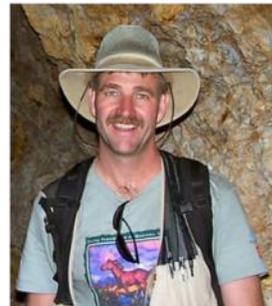
Alan was born February 11, 1960, in Glenwood Springs, Colorado, and grew up in Idaho Springs, Colorado. He graduated from Stanford University, continued his education at Washington State University and graduated with a master's in geology. He married Charlotte J. Branham December 27, 1986.

Alan worked as a geologist for Newmont Gold Mining Company for 17 years and then worked as president and CEO of Midway Gold Corp. He built American Vanadium Corp. and jointly built American Innovative Minerals most recently with Don Decker.

His hobbies included gardening, prospecting, investing in people and ideas and exploring the outdoors. He worked with Compassion Tanzania, drilling clean water wells, rang the bell at the American stock exchange for Midway Gold, and was a treasure-hunter who knew how to discover treasures both earthly and heavenly. Alan loved spending time with his family and intentionally took time to teach and train his children and others on what was important in life.

Alan is survived by his wife, Charlotte Branham; his four children, Matthew, Christa, Danielle and Jonathan; his mother, Joanne Branham; his brothers and sister, Tim, Jim and Jeanne Branham; as well as many more family and friends.

He is preceded in death by his father, David Branham. Memorial donations may be given to World Vision. Please contact Big Sky Cremations at 227-2241 if you'd like to donate.



Cynthia "Cindy" Renee Moore 1960-2015



Beloved daughter, step-mother, grandmother, sister and friend, Cynthia "Cindy" Rene Moore, of Harrison, Idaho, passed away September 26, 2015 at her home in Harrison. She was born April 6, 1960, in Fort Collins, Colorado. Cynthia was the daughter of James and JoAnne (Roe) Smail.

Cindy attended and graduated from the University of Nevada of Reno, receiving a degree in Mining Engineering. She moved to the Silver Valley in 2006 from Nevada.

Cindy served in the mining industry for thirty plus years; she retired as a mining engineer. Cindy first worked for Tenneco Mining Company of Wyoming; she then went to work for the Manhattan and Western Mining companies of Nevada and lastly she served for the Hecla Mining Company.

Cindy was a member of the Society Mining Engineers, a member of the Womens' Mining Coalition and a member of the Northwest Mining Association. She had also served on the board of directors for the ALS Association/Evergreen Chapter serving the Northwest.

Cindy loved and enjoyed boating, fishing, animals, jeeping, four-wheeling, collecting mining memorabilia and relaxing in the great outdoors.

Cindy is survived by her father James Smail and Jenny of Lander, Wyoming; her mother JoAnne (Robert) Sterling of Lander, Wyoming; two sisters Debra Mitchell of Tooele, Utah and Kris Smail of St. George, Utah; her step-daughter Christy (Charles) Hilbert of Oldtown, Idaho; her step-son Mike Moore of Spokane, Washington; two grandsons Patrick and Cooper Moore of Spokane, Washington; she is also survived by her beloved Moore Family and four nieces and nephews.

A Celebration of Cindy's Life will be held on Friday, October 30th 2015 at 3:00 P.M. at the Silver Valley Worship Center of Smelterville, Idaho with Pastor Corey Berti officiating. A reception and a gathering of family and friends will be held following services.

The family suggests that memorials may be made to the ALS Association/Evergreen Chapter, 19226 66th Ave. S., Ste. L-105, Kent Washington 98032.

The family wishes to express their sincere thanks and appreciation to Cindy's caregivers Cindie Carver, Cheri Jameson, Christy Hilbert, Dawn Nolan, Toni Jo Kitchen, Lisa Sala, Beth Nelson and a special thanks to the Hecla Mining Company.

SHOSHONE FUNERAL SERVICES & CREMATORY KELLOGG, IDAHO is entrusted with funeral services.

Activity Update

Mike Brady, August 2015

www.activityupdate.com

NEVADA

Metalbank Ltd. announced that recent drill results at the Mason Valley/Bluestone Project include 0-42 meters @ 1.51% Cu (MVDH01); 0-34 meters @ 0.61% Cu (MVDH02); 22-27 meters @ 0.60% Cu (MVDH06) and 22-31 meters @ 0.76% Cu (MVDH07). (resource = 500,000 tonnes @ 1.0% Cu inferred) *Press Release:* August 18

Rugby Mining Ltd. announced that it acquired an option to earn a 100% interest in the Jessup Property from private interests for \$270,000 cash and \$225,000 in exploration expenditures over 3 years. (resource = 7,790,000 tonnes @ 0.51 gpt Au, 8.5 gpt Ag measured) *Press Release:* August 17

Silver Standard Resources Inc. announced that it purchased a 100% interest in 2,844 ha of land adjacent to its Mari-gold Mine (including the Valmy and MUD deposits) from Newmont Mining Corp. for \$11,500,000. (reserve @ Marigold = 196,430,000 tonnes @ 0.52 gpt Au proven+probable) *Press Release:* August 11

Scorpio Gold Corp.(70%) announced that recent drill results at the Mineral Ridge/Chieftan Project include 6.1-9.14 meters @ 0.84 gpt Au (MR14930); 15.24-16.76 meters @ 0.34 gpt Au (MR14940); 53.34-54.86 meters @ 0.93 gpt Au (MR14963) and 35.05-39.62 meters @ 1.33 gpt Au (MR14965). (resource = 4,230,000 tonnes @ 1.47 gpt Au indicated) *Press Release:* August 24

Rye Patch Gold Corp. announced that it filed a "demand for arbitration" against Coeur Mining Ltd. alleging that the royalty payment for the Rochester Mine due in the 1st quarter of 2014 was underpaid by \$313,242. *Press Release:* August 11

Gold Standard Ventures Corp. announced that recent drill results at the Pinion/Dark Star Project include 4.5-7.6 meters @ 0.49 gpt Au (DS15-02); 13.7-45.7 meters @ 0.58 gpt Au (DS15-03); 10.7-22.9 meters @ 0.28 gpt Au (DS15-04) and 32.0-36.6 meters @ 0.19 gpt Au (DS15-05). (resource @ Dark Star = 23,110,000 tonnes @ 0.51 gpt Au inferred) *Press Release:* July 28

Nevada Copper Corp. announced that the government completed the transfer of 10,058 acres of BLM land to the City of Yerington, and that 9,130 acres of that land was then re-conveyed to Nevada Copper. The new private lands combined with its existing 1,550 acres of private lands now completely encompass the Pumpkin Hollow Project.

(resource = 485,840,000 tonnes @ 0.45% Cu, 0.03 gpt Au measured+indicated) *Press Release:* August 21

Barrick Gold Corp. announced that it is investigating the sale of its Bald Mountain, 50% interest in the Round Mountain and, Ruby Hill, Nevada mines as well as the Hill-top and Spring Valley, Nevada projects. (reserve @ Bald Mountain = 122,770,000 tonnes @ 0.61 gpt Au proven+probable; @ Round Mountain = 128,514,000 tonnes @ 0.61 gpt Au proven+probable; @ Ruby Hill = 4,512,000 tonnes @ 0.95 gpt Au proven+probable; @ Hilltop = 9,545,000 tonnes @ 2.52 gpt Au inferred and Spring Valley = 245,500,000 tonnes @ 0.55 gpt Au measured+indicated) *N.M.:* August 17

Pershing Gold Corp. announced that recent drill results at the Relief Canyon Project include 21.29-27.0 meters @ 0.46 gpt Au (RC15-300); 109.2-125.76 meters @ 1.94 gpt Au (RC15-301); 100.86-114.66 meters @ 1.0 gpt Au (RC15-303) and 74.21-110.65 meters @ 1.45 gpt Au (RC15-305). (resource = 24,270,000 tonnes @ 0.68 gpt Au measured+indicated) *Press Release:* August 10

Solidus Gold Inc. announced that it terminated its interest in the Wind Mountain Property of Bravada Gold Corp. (resource = 53,824,000 tonnes @ 0.34 gpt Au indicated) *Press Release:* August 5

Coeur Mining Inc. announced that it acquired an option to study the Quito Property of Bravada Gold Corp. in order to possibly acquire an option. *Press Release:* July 28

NuLegacy Gold Corp.(70%) announced that recent drill results at the Iceberg Project include 112.8-120.4 meters @ 0.27 gpt Au (RHB-59); 120.4-155.5 meters @ 1.04 gpt Au (RHB-60); 70.1-91.5 meters @ 0.42 gpt Au (RHB-62) and 126.5-149.4 meters @ 0.73 gpt Au (RHB-63). *Press Release:* August 26

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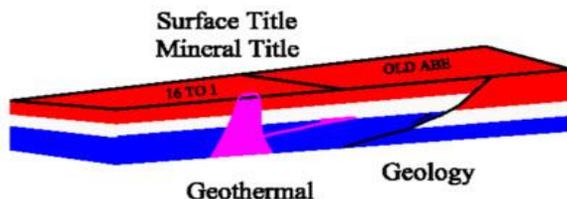
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GEOLOGICAL SOCIETY OF NEVADA

2016

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Offices are located at NBMG's Great Basin Science Sample & Records Library at The Desert Research Institute

Walk-in Office hours: Tuesday through Friday, 8:00 AM - 3:00 PM. Mondays - Call or email for appointment.

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 organization is based in Reno with additional Chapters in Elko, Las Vegas and Winnemucca.

The GSN Fiscal Year begins June 1st. **Annual dues are \$50.00, Students \$25.00 or Lifetime Membership \$1,250.00.** Dues are due prior to December 31st each year. The GSN conducts a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held September through May in Reno, Elko, Winnemucca, and Las Vegas. If you would like to receive email announcements from one of the G.S.N. Chapters (Elko, Winnemucca or Southern Nevada) please check a box below.

Please help support the GSN Foundation, the Student Dinner Fund, or Student Field Trip Fund when renewing. Foundation dollars are used for the Kindergarten through 12th grade Field Trip Earth Science Grant Program, Nevada Mapping Grants, Field Camp Grants, and scholarships at the University of Nevada, Reno, Great Basin College and University of Nevada, Las Vegas.

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Name: _____ Position/Title: _____

CHECK HERE if everything is the same as before, except as indicated below.

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Yes No

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- Elko Chapter Southern Nevada Chapter Winnemucca Chapter

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It is time to renew your membership dues for the current fiscal year 2016!

You can renew online at the G.S.N. website by following this link:

<http://gsnv.org/membership/join-gsn.php>

You can also use the paper form available at the same link above (or print it from the August newsletter) and return it to the GSN office by Fax (775-323-3599) or mail to: GSN, 2175 Raggio Pkwy., Reno, Nevada 89512.

(Thank you to those who have already paid your dues for 2016. You are good to go until Fall 2016!)