



GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512
(775) 323-3500 - Hours Tuesday -- Friday, 9 a.m. to 4 p.m. Monday by appointment.
Website: www.gsnv.org • E-mail: gsn@gsnv.org



March 2019, Vol. 35, No. 3

Published monthly except June and July

CALENDAR OF GSN EVENTS

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March 7, 2019
THURSDAY

SO. NEVADA CHAPTER MEMBERSHIP MEETING (1st Thursdays)

The meeting will be held at the Las Vegas Natural History Museum, 900 N. Las Vegas Blvd. Pizza & beer at 5:30 pm, Talk at 6:00 pm. **Speaker: Dr. Bethany Coulthard, UNLV Geoscience Professor. Title: TBA. FOOD & DRINKS SPONSORED BY: BOART LONGYEAR!** Please contact Chapter President, Joshua Bonde for more information @ paleo@lvnhm.org. Details on page 4.

March 13, 2019
WEDNESDAY

WINNEMUCCA CHAPTER MEMBERSHIP MEETING (2nd Wednesdays)

The meeting will be held at the Martin Hotel, 94 W. Railroad St., Winnemucca, NV. Refreshments/appetizers at 6:00 pm; Talk at 7:00 pm. **Speaker: Jim Colord, Thunder Mountain Gold Inc. Title: "South Mountain Mine Project, Owyhee County, Idaho". FOOD & DRINKS SPONSORED BY: To Be Announced.** For more information please contact Matt Fithian @ Matthew.Fithian@ssrmining.com. Details on pg. 6.

March 14, 2019
THURSDAY!!



GSN REGULAR MEMBERSHIP MEETING—CHANGED TO THURSDAY!

Due to a scheduling conflict the Reno meeting will be held on THURSDAY this month only. The location is again at Great Basin's **Taps & Tanks**, 1155 S. Rock Blvd. Reno, NV. NEW TIMES! Drinks @ 6:00 pm, APPETIZERS @ 6:30 pm, Talk at 7:15 pm. **Speaker: Dr. Simon Jowitt, UNLV Professor. Title: "Global Metal Resources; plenty to go round or time to panic?". DRINKS SPONSORED BY: EM STRATEGIES!** We're trying something new this month! **Appetizers only for \$15—prepay online or pay at the door.** GSN Students are free. **For more info contact Laura Ruud at gsn@gsnv.org or 775-323-3500.** Details on page 3. **To PREPAY \$15 for appetizers please click on this link: <https://squareup.com/store/GSNV>.** No reservations required but avoid the line by pre-paying!

March 21, 2019
THURSDAY

ELKO CHAPTER MEMBERSHIP MEETING (3rd Thursdays)

The monthly meeting will be held at the Western Folklife Center, 501 Railroad St., Elko, NV. Refreshments begin at 6:00 pm. Talk begins at 7:00 p.m. **Speaker: Rick Streiff, OceanaGold. Title: "Road to Discovery at WKP, New Zealand". FOOD & DRINKS SPONSORED BY: TONATEC EXPLORATION!** For more info please contact Nate Wright @ Nathan.wright@newmont.com. Details on pg. 8.

G.S.N. MARCH MEETING SPONSOR



FROM THE PRESIDENT
Richard Bedell, GSN President 2018-2019
MARCH 2019

This month we are going to try something a little different in Reno by having it on Thursday March 14th and to charge \$15 entry for small food plates. There will be tables to sit at, but the talk will be standard auditorium style so more people get a good view. People who do not want food will get a different colored name tag.

This month's speaker in Reno is Simon Jowitt who also gave the Ralph Roberts Lecture in February at UNR on Large Igneous Provinces or LIPS. A handful of GSN members have worked extensively in the Deseado Massif in southern Argentina which is a Jurassic LIP begetting extensive low sulfidation epithermal deposits.

Complimentary to Simon's research on ore deposits is research on mineral economics and global resources, the subject of his GSN talk.

Much of Nevada mining is concerned with gold which is not really a commodity, but money. Interestingly, Goldman Sachs Group Inc. is considering the closure of their commodities arm (Wall Street Journal 2/7/19) citing a sprawling logistics network for transport and storage which includes iron ore, copper, platinum and other metals relevant to the world. This used to be a highly profitable branch of Goldman, particularly in the 1990's and early 2000's. What will this mean to commodity prices? I should think the vacuum would be filled somewhat, but Goldman has enormous assets to leverage. I should think it would have some positive effect on commodity prices.

Nevada has produced and has the potential for a wide array of other metals. In 2017 the Nevada Division of Minerals lists a wide array of minerals produced besides gold and silver, including barite, copper, diatomite, dolomite, gypsum, limestone, lithium compounds, magnesium compounds, molybdenum, perlite, salt, silica sands, specialty clays and of course aggregate.

Nevada, or the Great Basin also has potential for other minerals such as rare earths. Simon has a PhD student, Drew Barkoff working on rare earths in the rhyolites of the Wah Wah mountains just over the border in Utah. These rhyolites are A type evolved rhyolites and are enriched in incompatible elements and approach economic grades in beryllium and fluorine. Notably, they are also heavy rare earth enriched approaching possible economic grades if they can be leached. Also, in Nevada, occurrences of platinum group elements (they are not all a scam), lead, zinc, vanadium, iron ore, and nickel can also be found.

Keep your eyes open. It is easier to change business models than Mother Nature.

Richard Bedell

Current GSN President

***The G.S.N. wishes to thank ALL COMPANIES and INDIVIDUALS
who have sponsored a GSN meeting or event in recent years.
You help make this organization great and we, the GSN members,
APPRECIATE YOU!!***

GSN MEMBERSHIP MEETING—MARCH 14, 2019



SPEAKER: Dr. Simon Jowitt, Asst. Professor, Dept. of Geoscience, UNLV

TITLE: “Global Metal Resources; plenty to go round or time to panic?”

Social Hour begins @ 6:00 pm; \$15 APPETIZERS @ 6:30 pm

Announcements and Speaker to Follow @ 7:15 pm

**LOCATION: Great Basin’s TAPS & TANKS, 1155 So. Rock Blvd., Reno, NV
(ENTER ON McCARRAN BLVD.)**

APPETIZERS COST—\$15.00 PER PERSON

To Pre-pay for APPETIZERS please click here: <https://squareup.com/store/GSNV>

No reservations required but you can avoid the payment line at the door if you prepay.

For more information contact the GSN office: Email—gsn@gsnv.org or call 775-323-3500

Global Metal Resources; plenty to go round or time to panic?

Dr. Simon Jowitt, Assistant Professor, Department of Geoscience, University of Nevada Las Vegas

Simon.jowitt@unlv.edu

Abstract:

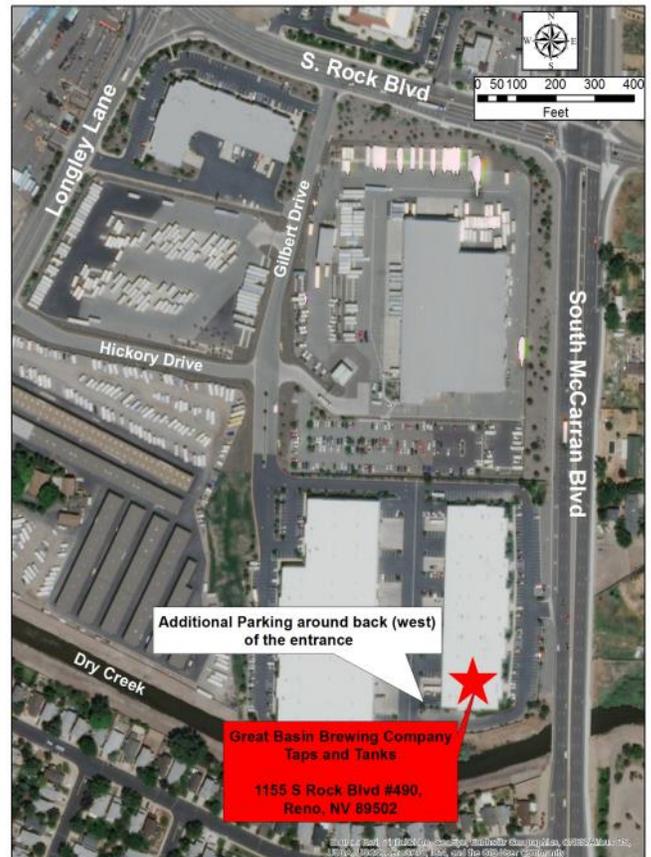
The modern mining industry is the source for the vast majority of the metal, mineral and energy resources we use daily. New mineral deposits are discovered and are developed into mines before being rehabilitated in a repeating sequence that can help contribute to the noble notion of ‘sustainable development’, despite the generic concept of mining being the unsustainable consumption of non-renewable resources. The scale of the modern mining industry is immense – from iron ore and coal to base and precious metals, modern mines are sometimes hundreds or thousands of times bigger than their long exhausted ancestors. The modern world also has emerging and increasing demands for the so-called technology metals (aka ‘critical’, ‘e-tech’ or ‘specialty’ metals) that are required to feed the rapid growth in renewable energy (especially solar photovoltaic panels and wind turbines), consumer electronics, sophisticated military technologies and superalloys, amongst numerous other uses. These elements include the rare earth elements, indium, germanium, tellurium, rhenium, selenium, gallium and many others, most of which had few or no known uses in the recent past.

All of this has meant that global metal (e.g. Cu, Au, Ni) production has grown steadily throughout the twentieth century despite the fact that mineral resources are commonly considered to be ‘finite’. This growth has been (more than) matched by substantial increases in estimated reserves and resources, and a significant proportion of mining projects have resources and reserves that continue to grow commensurate with production. This reflects the way the mining industry operates and contrasts with recent “peak mineral” predictions that suggest we may run out of certain commodities in the near future. This presentation provides an overview of what we know about current global metal resources, and discusses the main controls on global primary metal supply, including whether factors other than discovery will be more important controls on global mineral resources and what will control the future conversion of resources to reserves to production.

Directions to “Taps & Tanks” in Reno

To find in google or apple maps just key in Great Basin Brewing Company (Taps and Tanks). The address is 1155 So. Rock Blvd #490, Reno, NV 89502 **but the entrance is actually on McCarran just south of Pembroke/Rock.** If you are coming from I-80 take the E. McCarran Exit, Exit 19 and go south. Taps and Tanks will be on the west side of the road about 4 miles down. If you are coming from down south it is fastest to take Exit 61 for south Virginia Street then take Longley Lane (NE) to Rock Boulevard (East) then turn south onto S. McCarran Blvd. Taps and Tanks will be on the west side of the road.

NEW TIMES!! Doors will open at 6:00 pm as usual, then \$15 APPETIZERS SERVED THIS MONTH at 6:30 pm, and meeting announcements/Talk at 7:15 pm.



GSN SOUTHERN NEVADA CHAPTER MEETING

THURSDAY, MARCH 7, 2019

Location: LAS VEGAS NATURAL HISTORY MUSEUM

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

Speaker: Bethany Coulthard, Geoscience Professor, UNLV

Title: To Be Announced

Food and Drinks Sponsored by: **BOART LONGYEAR**



“FACES OF GSN”

Shannon Gill, Reno, Nevada

I grew up in a quiet suburb north of Toronto, Ontario, third child to a couple of science-loving professionals. I wasn't excellent at being told what to do, and I was decidedly weird. Beginning in Grade 4, I convinced myself that I was terrible at math, and read books under my desk during class instead. My parents were annually successful at getting me to put down my books around July 1, by sending me and my siblings up north to the local YMCA camp for a couple of months. It was there that we learned to love and respect the temperate deciduous forest and glacial landforms of southern Ontario. Up there we learned to navigate with map & compass, solo canoes, scout rapids, and plan enough food for 12 hungry adolescents on a 30 day out-trip. I snuck in the occasional page during those summers, but I spent most of my time mesmerized by the landscape. It was not until high school, after my father hid all my books in the basement somewhere, that I discovered math was pretty cool, and definitely required for science.

I decided that I liked animals enough to give biology a try as my major at Queen's University in Kingston, ON. After two years of large class sizes and very general science, I was looking for some excitement in my curriculum, and a class entitled "History of Life" caught my eye. I was intrigued by the ~4.5 billion years of Earth's history that I had somehow missed in high school. Geology became my minor, and after a semester, my major as well. I worked hard to catch up with my year-mates and managed to convince my professors to let me graduate in my fourth year. A professor named Dan Layton Matthews was not deterred by my extreme enthusiasm, and let me do my undergraduate thesis with him. Using LA-ICP-MS to understand mechanisms of gold deposition in the submarine volcanic Kermadec Arc of northern New Zealand was like reading a new piece of Earth's history, and I asked Dan to refer me to professors with similar interests. Steve Piercey at the Memorial University of Newfoundland agreed to take me on as an MSc student in his economic geology group. With the help of Steve and his research group, I studied the paragenesis of the gold-bearing Lemarchant volcanogenic massive sulphide (VMS) deposit in central Newfoundland. Summers were spent logging core in an old bar north of Millertown, NL – liquor license expired – and the rest of the year I ran laboratory equipment and analyzed data in the mostly-rainy, always-cheerful provincial capital of St. John's. Steve kept me on track as best he could, and after two years I was back in Ontario and ready to apply my classroom skills to the mining industry.

I found myself in a subdued industry in late 2014. After two years of punching buttons alone in a laboratory, the idea of "networking" was daunting. Finally, in 2015 I wound up in a motel apartment in Matheson, ON, looking forward to my first day of work with the St. Andrew Goldfields exploration group. I started as a database administrator, digitizing historic drilling and assay data from the plethora of properties SAS had consolidated over the years. Eventually, by doggedly following the geologists around and logging backed-up drill core at night, my manager let me take on the duties of the rig geologist and help with the database in my spare time. Many a driller pulled my truck out of the mud that year. Despite my mistakes, my exploration team was always supportive, and that first year as a working geologist in the Abitibi greenstone belt of Ontario was formative.



Fieldwork, Yukon 2011

In 2016, I was offered a job with the exploration department at the Kinross office in Toronto. Having the opportunity to work with exploration data from operations across the globe was an eye-opening experience. The corporate role added so much to my interest in exploration geology, exposing me to (continued on page 6)

(Gill, continued from page 5)

the variety of exploration methods deployed based on deposit type, extraction method, and geographic location. The role also allowed me to spend some time annually as a site exploration geologist, and in my second year with Kinross I was sent to the Nevada regional exploration team to help out for the summer. I will never forget my first day with that team, promptly dumping my bags in a new apartment after deplaning in Reno, hopping in a truck, and hitting highway 1-80 to Elko. The basin and range landscape was unlike the boreal forest and frozen tundra I learned geology in; It was stark and the rocks were far too young. I was enchanted.

That summer was spent RC chip logging, soil and stream sediment sampling, prospecting, sifting through the legacy of exploration data in Nevada, and learning how not to set my truck on fire driving through the Great Basin desert. At the end of my 6 month secondment, I asked the Reno team if I could come back the next year and I took their lack of protest as a firm "Yes". I knew I had only just scratched the surface of the complexity of the basin and range, and the characteristic gold endowment of the region had me hooked. I helped wrap up with year-end reporting in Toronto in 2018 and was back in Nevada that April. Geology has taken me some distance from my suburban origins, but it has been and will continue to be exciting and rewarding.



Kelly Cluer & Shannon on a GSN field trip, 2017

GSN WINNEMUCCA CHAPTER MEETING

WEDNESDAY, MARCH 13, 2019

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

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

Speaker: Jim Collord, Thunder Mountain Gold Inc.

Title: "South Mountain Mine Project, Owyhee County, Idaho"

Food and Drinks Sponsored by: To Be Announced

(See Jim's abstract on page 7!)

GSN Winnemucca Abstract:

**South Mountain Mine Project
Owyhee County, Idaho
Jim Collord, Thunder Mountain Gold, Inc.**

The South Mountain Mine is in southwest Owyhee County, Idaho approximately 70 miles southwest of Boise, Idaho (115 road miles). The property is 24 miles southeast of Jordan Valley, Oregon. Elevations at the South Mountain range from 5,800 to 7,800 feet and is part of the Owyhee Mountain Range but is an isolated mountain apart from the main range. It is located approximately 50 miles north of the Nevada border, and six miles from the Oregon border.

Oxidized high grade silver-lead ore was discovered at South Mountain in 1872. Small scale mining occurred up until the 1940s when the International Refining and Smelting Company developed the zinc resources during World War II. In the 1950s the Defense Mineral Exploration Administration evaluated the property for its strategic zinc potential. During the war and in the few years following the period, 53,700 tons of direct ship ore was mined and transported to Anaconda's smelter in Utah. The grade of this material was 14.5% Zn, 2.4% Pb, 1.4% Cu, 10.5 opt Ag, and 0.058 opt Au.

Rock types in the South Mountain Mining district are composed of an isolated exposure of metasedimentary and intrusive rock, surrounded by younger upper Tertiary volcanic and sedimentary units of the Owyhee volcanic field. Uplift and subsequent exposure of these rocks at South Mountain is a result of extensional block faulting and doming. South Mountain is located on the northern rim of the Juniper Mountain Caldera, the second of the identified Yellowstone Hot Spots.

The metasedimentary assemblage consists of a roof pendant (?) of deformed marble (Laxey Marble), quartzite and schist. These metasediments are host to the skarn and replacement vein deposits at South Mountain. The age of the metasediments are considered to be upper Paleozoic or lower Mesozoic and have undergone at least two events of deformation.

The intrusive rocks at South Mountain range in composition from quartz diorite to granitic pegmatite and are Cretaceous to lower Tertiary in age. The oldest intrusive unit is the Cretaceous quartz diorite (K-Ar radiometric date: 87 +/-3 million years). This unit is considered to be a satellite pluton of the Idaho Batholith.

A wide variety of dikes exist on the property, particularly in the Sonneman, Laxey, DMEA, and Texas ore areas. The dikes range in composition from mafic fine-grained basalts to leucocratic pegmatites and range in age from Eocene to Oligocene. The compositional variation and northeast trend of the dikes suggest concentration of the dikes from several intrusive/extrusive episodes within a very structurally active zone.

Skarn hosted massive sulfide bodies are responsible for the greatest production of zinc, copper, and gold at South Mountain. These ore occurrences are localized almost entirely to the Laxey Marble, and specifically to the parts of the marble which have been altered to hedenbergite-rich skarn. Hedenbergite ($\text{CaFe}_2\text{Si}_2\text{O}_6$) occurs as the primary constituent of the exo-skarn bodies. Hedenbergite is associated with ilvaite, andradite garnet, quartz, and calcite. Museum quality ilvaite crystals are within the mineralized zones. Pyrrhotite and magnetite are pervasive in the skarn ore zones.

High grade ore zones within the skarn occur as pipe-like bodies which plunge 40-50° southwest and rake approximately 50° within the marble beds. These ore zones range in diameter from 20 to 100 feet and occur within NE-SW structural zones that cut the Laxey Marble. The structural preparation within the marble allowed fluids to migrate upward and deposit the multiple phases of sulfide mineralization.

Exploration work by Thunder Mountain in 2008-2010 identified a large intrusive gold-bearing multi-lithic intrusive breccia along to the south of the Laxey Marble mineralization. This zone of unique breccia is part of the larger system and is associated with the replacement bodies in the marble. The gold breccia is exposed at the surface over 1.5 miles, and road cut sampling and reverse circulation drilling indicated an overall value of 0.0035 opt. No higher-grade zones have been identified to date.

GSN ELKO CHAPTER MEETING

THURSDAY, MARCH 21, 2019

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

Time: Appetizers & Drinks @ 6:00 p.m., Talk @ 7:00 p.m.

Speaker: Rick Streiff, OceanaGold Corporation

Title: “Road to Discovery at WKP, New Zealand”

Food and Drinks Sponsored by:

TonaTec Exploration, LLC



Abstract:

[Road to Discovery at WKP, New Zealand](#)

Rick Streiff, Great Basin Exploration Manager, OceanaGold Corporation
3545 Airway Dr., Suite 105, Reno, NV 89511 USA rick.streiff@oceanagold.com

Wharekirauponga (WKP) is a historic mining prospect within the Hauraki Goldfield, a classic epithermal mining district located on the North Island of New Zealand. Over 50 producing epithermal veins are located on the Coromandel Peninsula, hosted mainly in Miocene to Pliocene andesites or dacites overlying a Jurassic aged metasedimentary sequence. Significant veining also occurs in the slightly younger overlying rhyolites. The district has produced over 12 million ounces of gold and 52 million ounces of silver since its discovery in 1862.

Unsuccessful historic mining at WKP was mainly from 1893-1897 at the Royal Standard mine. Modern exploration at WKP was undertaken by Amoco, BP and others from 1978-1993 and included 5,500 metres of drilling testing the outcropping mineralisation along the main stream. Newmont acquired a controlling interest in the property in 2005 and started reconnaissance geologic mapping across the prospect in 2007-2008. The exploration scope was defined for the project up front and included 1) targeting high grade, underground mineable veins 2) define larger district-scale structures for drill testing and 3) not become distracted by the small-scale veins and vein swarms common at the prospect. Interest quickly moved from previously explored areas to following up on additional areas of alteration and veining mapped in the field. Large areas of ground around the prospect, previously interpreted to be overlain by thick post-mineral andesite flows, were found to be mantled by a thin layer of landslide debris, greatly enlarging the size of the prospective area.

Newmont increased the exploration activity at WKP based on the results of this initial mapping. Outcrop mapping with rock chip sampling was completed, followed by soil sampling and 5.3 line-kilometre CSAMT program. Results from all these programs indicated a new epithermal system about 500-800 metres west of the historically prospected area at WKP.

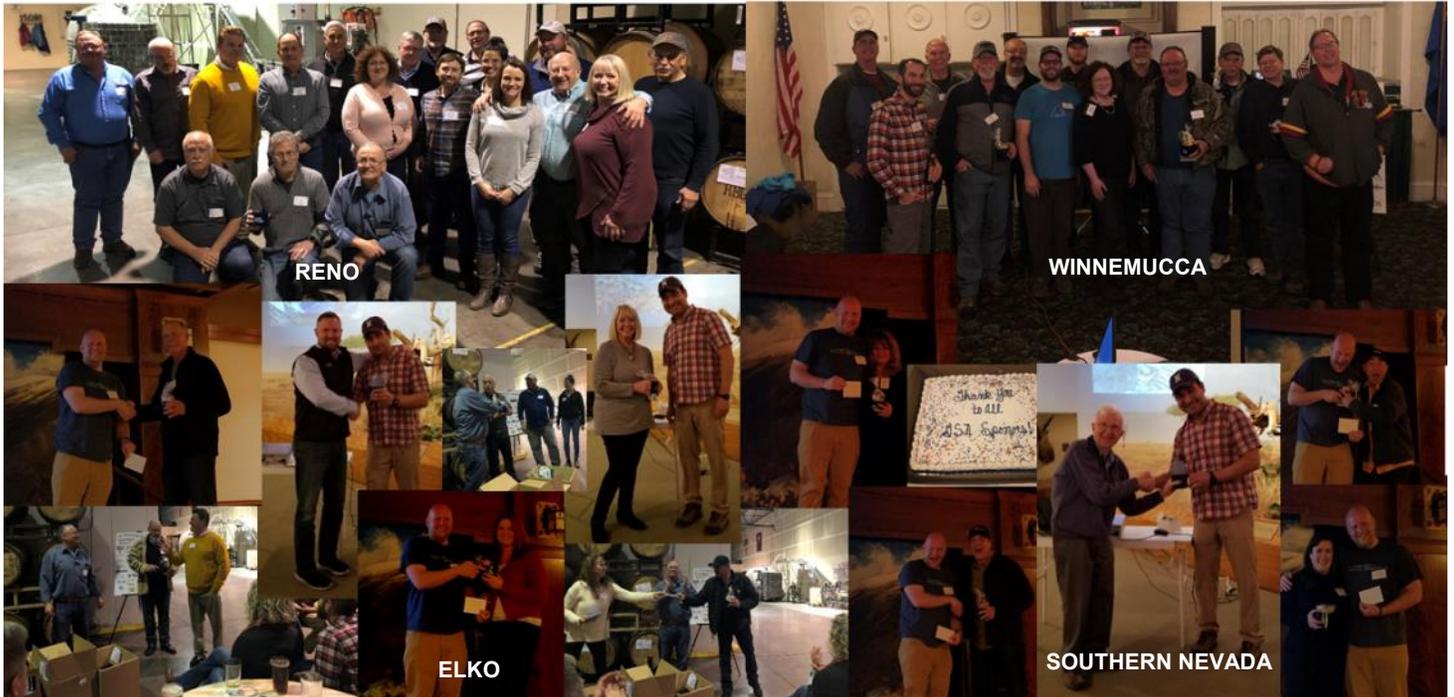
Newmont drilled WKP-24 across the target zone in 2010, intersecting the main T-Stream vein and 156m at 1.6 g/t Au in the footwall of that vein. Higher grade intervals, up to 1.6m at 30.1 g/t Au, were also intersected, as well as a 6.9m true width zone on a dike margin averaging 6.8 g/t Au. Wide-spaced follow-up drilling in 2010 and 2011 extended the strike of this Central zone to over 800m with all holes containing similar grades. Additional CSAMT followed by drilling identified at total of three prospective vein zones at WKP, each striking more than a kilometre in length. Newmont ceased work in 2013 after drilling 7,000 metres in 15 holes, intersecting strong and locally high grade mineralisation in all holes.

The prospect remained idle from 2013 until 2016 when the work was resumed by OceanaGold, who had acquired Newmont's New Zealand assets. Additional mapping and CSAMT led to a drill being mobilised in August 2017. The first hole, WKP40, targeting the Eastern Graben vein, intersected a 7.6 metre true width banded quartz vein averaging 10.84 g/t Au and 12.3 g/t Ag. A second hole, drilled 125 metres to the northeast, intersected 8.7 metres true width at 24.54 g/t Au and 34.0 g/t Ag in the same banded quartz vein. Significant mineralisation has also been discovered in both the hanging and footwall of the main vein. An initial Indicated Resource of 0.41M tonnes grading 18.0 g/t Au (234,000 ounces Au) and an Inferred Resource of 1.05M tonnes grading 11.9 g/t Au (401,000 ounces Au) was just recently announced by OceanaGold based on infill drilling in portions of the larger vein system. The Eastern Graben vein has been defined over a 200m vertical extent, that is open up-dip for 100 to 200 metres, and over a 1000 metre strike length which remains open in both strike directions. Additional infill drilling is currently in progress.

The key to discovery at WKP includes defining a scope, looking at the prospect without preconceived ideas, following a step by step persistent approach to generate new targets and a strong understanding of epithermal systems.

Sponsor Appreciation Nights a Success

GSN's February sponsor thank you meetings were a success. GSN enjoyed the opportunity to highlight and thank the sponsors who give so generously to GSN year after year. If you would like copies of the photos please email Molly at mollymariehunsaker@gmail.com



Thank you to our generous donors in February

G.S.N. FOUNDATION

Brian Morris Scholarship Fund

Mike Ressel

G.S.N. Student Field Camp Fund

(This fund awards scholarships to UNR students attending Summer Field Camp to help with tuition costs)

Paul Tietz

G.S.N. Student Dinner Fund

Sam Arentz

**Calling all students!
The GSN Student Poster
Competition needs you!**

When: Friday, April 19, 2019

Where: Taps & Tanks, Reno

**Who: Any student who has a
Geoscience poster**

**CASH PRIZES AWARDED TO
TOP 3 WINNERS!!**

**Please contact Steve Weiss to enter:
siraweiss@outlook.com**

ATTENTION STUDENTS GOING TO FIELD CAMP THIS SUMMER!!!

Any GSN Student Member who is signed up for 6 credits of Summer Field Camp in Nevada is eligible to apply for a cash grant to help with your tuition! Fill out the application below or you can also find it on our website at: <http://gsnv.org/gsn-foundation/>. Applications due by March 15, 2019.



Geological Society of Nevada Foundation

2019 Field Camp Grant Application

The Geological Society of Nevada Foundation is offering partial field camp grants to Mackay students enrolled in 6 credits of UNR Geology Field Camp, Geology 451, for spring/summer 2019 or another accredited field camp. A limited number of grants will be awarded to students enrolled in 6 or more credits of field camp. Awards will be made on the basis of GPA, recommendation letter, and statement of need and career goals. **APPLICANTS MUST BE 2018-2019 STUDENT MEMBERS OF THE GSN***.

Presentation of summer field camp awards will be made at the April 19, 2019 Reno meeting of GSN.

Print and fill out this form completely and return with:

- 1) A letter of recommendation from your major advisor
- 2) A brief (one page) statement of financial need and career goals
- 3) Your current transcript

To: Camille Prenn, Chair
G.S.N. Foundation
2175 Raggio Parkway
Reno, NV 89512

You may also scan all documents and email them to Camille Prenn: cami@mda.com
or Fax them to: 775-856-6053.

Applications must be received by FRIDAY, MARCH 15, 2019

Student Information

Name	
Street Address	
City ST ZIP Code	
Best Phone Contact No.	
E-Mail Address	
GSN Membership Current for 2018-2019* (Yes/No)	

Enrollment Information

Major			
Expected Graduation Date			
UNR cumulative GPA		Number of field camp credits enrolled in	

Advisor Letter of Support and Statement of Need and Career Goals

1. Please attach a letter of support from your major advisor or other geoscience professor outlining why you should receive funds.	
2. Also attach a brief statement of your financial need and your geologic career goals.	
Signature	Date

If you receive an award and do not complete field camp, you will be required to repay any money received.

Is It YOUR Turn to Volunteer for GSN?

It's time to Volunteer For, or Nominate Chapter Officers for 2019-20!

If you have been contemplating helping out your GSN organization by volunteering to be a Chapter Officer this is the time to step forward! Nominations for positions must be finalized at the April Chapter meetings and ballots will be sent out following so the winners can be announced in May.

To volunteer/nominate for Elko positions contact Nate Wright @ nathan.wright@newmont.com

For the So. Nevada Chapter please contact Joshua Bonde @ paleo@lvnhm.org and

for the Winnemucca Chapter please contact Matt Fithian @ matthew.fithian@ssrmining.com.

Robert M. Dreyer Award to Dennis Bryan



The Robert M. Dreyer Award was presented to Dennis P. Bryan "for his successful career in the exploration and development of industrial minerals including aggregates, materials for cement, diatomite, specialty clays, and lithium."

Dennis has 45 years of experience in the industrial minerals field. His career has included exploration for and development of numerous commodities including aggregates, cement raw materials and other industrial minerals. He retired as senior vice president of development for Western Lithium Corp. in 2017.

He is a member of the Nevada Commission on Mineral Resources, representing the small miner and the industrial minerals sector. He has been active throughout his career in SME, has served on its board of directors and is past president of the SME Foundation.

(Dennis also happens to be your current GSN Vice President & Field Trip Organizer for 2018-2019 and President Elect for GSN 2019-2020!)



Please join the Women's Mining Coalition for the 27th Annual Fly-In to Washington D.C. on April 28 - May 2, 2019.

Goals:

- **Raise awareness of WMC, its mission, and its members;**
- **Discuss issues of importance to the mining industry with members of Congress and their staff;**
- **Showcase how women benefit from working in and supporting a robust domestic mining industry; and**
- **Network with other women in all facets of the mining industry.**

Tentative Itinerary:

Morning of Monday, April 29: Orientation and strategy briefing at National Mining Association

Afternoon of Monday, April 29: Meetings on the Hill

Tuesday, April 30 - Thursday, May 2: Meetings on the Hill

How to Register as a Participant:

If you plan to attend, contact Lynne Volpi, WMC Coordinator, lvolpi@frontiernet.net no later than April 15, 2019.

WE HOPE TO SEE YOU THERE!

Activity Update

Mike Brady, JANUARY 2019

www.activityupdate.com

NEVADA

Newmont Mining Corp. announced that it offered to acquire Goldcorp Inc. through a 1.0 share Newmont/0.328 share Goldcorp exchange basis valuing Goldcorp at \$10,000,000,000. (reserve @ Carlin = 231,600,000 tonnes @ 1.14 gpt Au proven+probable open pit) *Press Release:* January 14

Allegiant Gold Ltd. announced that it terminated its interest in the Hughes Canyon Property of private interests. *Press Release:* January 17

Hochschild Mining Inc. announced that it acquired an option to earn a 51% interest in the Mars Property from Renaissance Gold Inc. for \$300,000 cash and \$5,000,000 in exploration expenditures over 5 years. *Press Release:* January 17

Hochschild Mining Inc. announced that it acquired an option to earn a 51% interest in the Ferguson Mountain Property from Renaissance Gold Inc. for \$300,000 cash and \$3,000,000 in exploration expenditures over 5 years. *Press Release:* January 17

Kinross Gold Corp. announced that it terminated its interest in the Spruce East Property of Renaissance Gold Inc. *Press Release:* January 17

OceanaGold Inc. announced that it acquired an option to earn a 51% interest in the Spring Peak Property from Renaissance Gold Inc. for \$215,000 cash and \$4,000,000 in exploration expenditures over 5 years. *Press Release:* January 25

Premier Gold Mines Ltd. announced that recent drill results at the Cove-Helen Project include 600.5-603.5 meters @ 8.04 gpt Au, 4.1 gpt Ag (HE18-01G); 638.6-643.1 meters @ 12.69 gpt Au, 3.2 gpt Ag (HE18-02); 541.8-547.9 meters @ 2.77 gpt Au, 199.2 gpt Ag (PB18-02) and 349.9-395.9 meters @ 0.84 gpt Au, 0.3 gpt Ag (PB18-07). (resource = 614,000 tonnes @ 11.57 gpt Au indicated) *Press Release:* January 21

General Moly Inc. announced that recent drill results at the Mt. Hope Project include 1.74-21.94 me-

ters @ 1.86% Zn (MH-254); 41.91-93.27 meters @ 6.21% Zn (MH-255); 12.8-21.64 meters @ 3.78% Zn (MH-256) and 12.19-35.36 meters @ 1.46% Zn (MH-257). *Press Release:* January 3

Corvus Gold Inc. announced that recent drill results at the Mother Lode Project include 388.62-414.53 meters @ 1.37 gpt Au (ML18-085); 420.62-445.01 meters @ 1.22 gpt Au (ML18-092); 371.86-487.68 meters @ 1.83 gpt Au (ML18-093) and 355.09-376.43 meters @ 0.48 gpt Au (ML18-095). (resource = 13,226,000 tonnes @ 1.72 gpt Au measured+indicated) *Press Release:* January 10
0.30% WO₃ inferred) *Press Release:* December 13



WILDERNESS FIRST AID COURSE, ELKO, NEVADA

This course will be sponsored by Rangefront Geological, with instruction from the National Outdoor Leadership School (NOLS). It will be held in Elko on March 25, 26, and a half day of CPR on March 27.

The cost is \$325 per student.

Location: 1031 Railroad St., Suite 103B, Elko, Nevada

There are about 7 available spots.

A student agreement is required in order to register. **For more information or to have a course packet with detailed information emailed to you, please contact:**

Sam Katseanes

Operations Manager - Rangefront Geological

(775)397-2151 skatseanes@rangefront.com



Ballad of the Blue Bronco

(submitted by Martha DeLong)

The Blue Bronco had quite a long trip to make
From Houston to Elko out West.
Full to the gunnels with kit for the field
The Blue Bronco still wasn't the best.

Hey boss, these tires will not make the trip.
Can you buy me a couple or two?
Just to ensure I get to the end.
These old ones just won't see me through.

Check the air, watch your speed, no worries, my dear.
There's life left in these finest of tires.
Keep in touch, couple thousand miles, not really that much.
(...you cotton-pickin' liar!)

'A bientot, au revoir, keep in touch, new recruit',
And he waved me fondly good-bye.
Filled up the big tank, checked the lights on the ute.
'Heaven help me,' was all I could sigh.

Kept my eyes on the road of the I-45,
Heading north to country unknown.
Turned west as the sun was sliding to rest,
Still fearing I'd been thrown a big bone.

The radio man, raised his voice to blurt out:
'Big front, coming through, anytime!'
Just as I noticed a sway in the rear
And the tires beginning to whine.

Pull over, pull over was all I could do
As the wind and rain pelted down.
Temps dropped, by the dozens, in such a short time.
Was the Bronco too far from next town?

Not one tire but two were lost that day
On the back end of poor Bronco Blue.
Glad tidings I sing, for 2 spares did I bring.
'I'm saved', so I said, having NO clue.

First, I must change out the bad with the good.
Yet the spares were as bad as the bad (not good).
'Heaven help me', I cried (again), twas all I could sigh.
In the wind, freezing rain, I just stood.

A man with one leg stopped to help me, I swear,
While the wind was blowing a gale.
With the truck on the jack, moving forward and back...
'Keep the good leg, kind sir', I just wailed!

Blue Bronco limped into Tucumcari at dawn.
I stopped to replace the two tires.
'We're sorry my dear, but no purchase allowed here.
No *National Account* as a buyer'!

'I'm just tryin' to make some good ground, headin' west!
To get to my final destination.
Please sell me two tires...NO MORE of this test!
This ain't just some fun-filled vacation'!

Praise be to God, two new tires on Old Blue!
On to Moab of Utah not Jordan!
With a new lease on life, heading west without strife,
Lord get me to the Motel Morden!

Left Moab next day 'fore the crack of the dawn,
Tryin' hard to get back on track.
When lo and behold, another tire blew... gone.
Heaven help me (again)! Another setback!

In the darkness, I changed out that tire, with no help
From the semis that passed without slowing.
Used the better of two spares, now fortunately repaired.
I persevered, I had to keep going.

Not far down this road, I decided to slow... way down
And rid myself of much frustration.
It occurred to me that indeed I might need...
I might need a little fun-filled vacation.

Salt Lake City, here I come, to visit your sites!
Temple, Tabernacle and Choir.
Brigham Young holds his hand out, across to the bank,
His back to the Temple's angelic crier.

I never knew Jesus made a journey FAR south,
But I needed to keep going west.
Four more hours through the Salt Flats, past Bonneville
and Bingham.
Hello Elko! My much needed rest!

The Blue Bronco had quite a long trip to make
From Houston to Elko out West.
Full to the gunnels with kit for the field.
The Blue Bronco, to me, was the best.

MJ DeLong (November 30, 2018)





SEG Short Course
REMOTE SENSING AS A
PART OF MINERAL EXPLORATION
March 9th and 10th
Taught by Sandra Perry
Hosted by the Colorado School of Mines
Society of Economic Geologists Student Chapter



Course Description: This course will demonstrate the role that remote sensing data and image analysis play in the field-based mineral exploration program. The workshop will offer participants with applicable workflows to generate field targets satellite multispectral systems.

Day One- March 9th	Schedule	Day Two- March 10th
9:00-12:00- Lecture		9:00-12:00- Lecture
12:00-13:00-Lunch		12:00-13:00- Lunch
13:00-17:00- Case Study Introduction to ENVI		13:00-17:00- Computer and Project Work

Registration and Cost
Spots limited to 25 Participants

Early Bird- Before March 1st Professionals: \$300 Students: \$25	Regular - After March 1st Professionals: \$350 Students: \$35
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Limited Availability for Students
To register: contact Erin Morrison at ermorris@emmail.mines.edu
Checks can be made to CSM SEG (tax deductible)

Geology and Geological Engineering Department
1516 Illinois St.
Colorado School of Mines
Golden, CO 80401



OTHER UPCOMING EVENTS

3-6 March 2019 Prospector's and Developer's Association of Canada (PDAC) Convention. Toronto, Ontario. Please visit the GSN in 2nd Annual "NEVADA" booth #7017N in the North Hall! The NV Division of Minerals, NMEC, NBMG, BLM, NvMA and GSN can all be found together in one place! For more info or to register please click on this link: <http://www.pdac.ca/convention>

Tuesday, March 5, 2019—2019 NWRA Lithium Workshop – from 1:00 p.m. to 5:00 p.m. Location: 5650 Riggins Court, Reno, NV 89502~This half-day session will provide information for: **State laws and regulations governing dissolved mineral resources (lithium brine); Exploration for dissolved mineral resources; Development of dissolved mineral resource/reserve; Case study – Clayton Valley.** Go to www.nwra.org/2019-lithium-workshop to register or call Tina Triplett at 775-473-5473 or creativerno@charter.net.

5 March 2019 Arizona Geological Society meeting, Speaker: Sarah E. Baxter presents "Treasures and Formation of Arizona's Sky Islands: Geology and Mineral Resources of Coronado National Forest . 6 to 9 p.m. at the Sheraton, 5151 E. Grant Rd. (& Rosemont), Tucson, AZ Click on the link for more info and online registration: More information and online registration: [Sarah E. Baxter presents "Treasures and Formation of Arizona's Sky Islands: Geology and Mineral Resources of Coronado National Forest](#). Dinner closes at 11 am Friday, March 1st.

Wednesday, March 6, 2019—2019 NWRA Switch Citadel Campus Tour – two tours, one at 8:00 a.m. and one at 10:00 a.m. – Departure location: 5650 Riggins Court, Reno, NV 89502. ~ The Citadel Campus located in Tahoe Reno, Nevada, will have a capacity of up to 17.4 million square feet of data center space and up to 850 MW of power upon completion, making it the world's largest colocation data center campus. Go to www.nwra.org/2019-march-switch-tour to register or call Tina Triplett at 775-473-5473 or creativerno@charter.net.

Wednesday, March 6, 2019—2019 NWRA Nevada Well Drilling Regulations & Forms Class and Water Well Drilling Exam Tutorial– 1:00 p.m. to 5:00 p.m. Location: 5650 Riggins Court, Reno, NV 89502~This half-day session will include: Part 1: Nevada Well Drilling Regulations & Statutes; Part 2: Well Drilling Forms; Part 3: Water Well Drilling Licensing Exam Tutorial. *These new classes are also designed to satisfy the regulatory requirement for the two required classes that must be taken every other well driller's license renewal period. In addition, licensed professionals will be able to earn 4.0 continuing education units (CEUs). Go to www.nwra.org/2019-march-well-regulations-workshop to register or call Tina Triplett at 775-473-5473 or creativerno@charter.net.

7 March 2019 Nevada Petroleum & Geothermal Society, Reno, NV monthly meeting. Cocktails at 6:30 PM, Dinner at 7:00 PM, Tamarack Junction, Reno NV 89512. Speaker: Dick Benoit—Lessons Learned as the Geothermal Industry Became One of the Biggest Non-Agricultural Water Users in Nevada. Please make reservations by Tuesday, March 5, 2019. Click here for details or to register online and reserve your seat. <https://npgs.123signup.com/event/details/hpkty?mid=5044465>.

11 March 2019 SME Northern Nevada Section Monthly Meeting. Circus-Circus Mandalay Room, Reno NV. Speaker and Topic To Be Announced. Happy Hour @ 6 pm, Dinner @ 7 pm. Please contact Sarah Lightner for more information at 775-746-7146 or NNevSME@gmail.com

11 March 2019 DREGS (Denver Region Exploration Geologists), Speaker: TBA. Title: TBA. Social 6 p.m., Presentation 7 p.m. at Berthoud Hall, Room 241, CO School of Mines, Golden. For more info. contact James Piper at geopros@g.com

13 March 2019 2019 NWRA Dinner Forum Presented by Laura Crossey, Univ. of New Mexico, 2019 GSA Birdsall-Dreiss Lecturer. "Hydrochemistry and Geoscience Education at Grand Canyon and Beyond: Who Knew Groundwater Hydrology Could Be So Complicated?" pm, Dinner @ 7 pm. Atlantis Casino Resort, 3800 South Virginia St., Reno, NV. Register at these links: [Register Online](#) or [Mail In Registration](#). Contact Tina Triplett for more information at: creativerno@charter.net.

14 March 2018 AEG Great Basin Section Monthly Meeting. Sure Stay Plus Hotel by Best Western, 1981 Terminal Way, Reno NV. Speaker: Wendy Calvin, PhD—Core Spectral Imaging. Social Hour @ 5:30 pm, Dinner @ 6:30 pm, Presentation @ 7:00 pm. Please email Merrily Graham to RSVP at mkgraham75@gmail.com.

2-4, April Mexico Mining Center, "Discoveries Mining Conference" Mazatlán, Sinaloa, México. We are pleased to invite you to attend the fourth edition of the Discoveries Mining Conference to be held at the Mazatlán International Center in Mazatlán, Sinaloa April 2 – 4, 2019. Click on the link for more information: <https://www.discoveriesconference.com/>



**PETER HAMILTON
HAHN MEMORIAL INFO
Oct. 12, 1934 - Jan. 7, 2019**

DATE: April 13, 2019

**PLACE: East Ely Nevada
Railroad Station**

TIME: 11:00 am

On your own for lunch then back to station for Steam Engine train ride that departs at 1:00 pm.

If interested, please call Eric for train tickets: 775-289-2085
Per Peter's wishes, his ashes will be scattered from the train along the tracks in route.

SAVE THE DATES!

for the **GSN Spring 2019 Field Trip** scheduled for **June 1-2, 2019**. This trip will be travelling to visit Historic Gold Mines in northern California. Tentative stops on the trip include Plumas-Eureka State Park, an underground tour of the 16-1 Gold Mine and a visit to the Empire Mine.

Logistical planning has begun so put it on your calendar now and if you want to be on the participant list send an email to Laura Ruud at the GSN office, gsn@gsnv.org.

Cell: +1-775-720-8894

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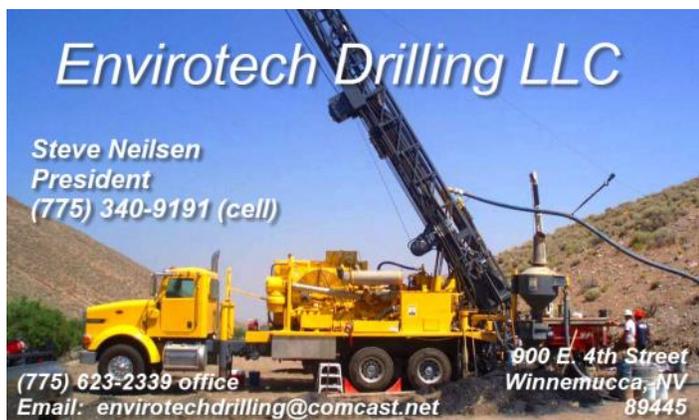
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TRAVELING GSN BACKPACK PHOTOS

(Please submit your backpack photos at any time!)



Three GSN back packs with 4 GSN members at Valhalla Powder Cats near Nelson BC., January 2019

Eric Struhsacker, Steve Weiss, Greg Hill, Richard Bedell