

# GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512  
(775) 323-3500 - Hours Monday -- Friday, 8 a.m. to 4 p.m.  
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## CALENDAR OF GSN EVENTS

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**Mar. 13, 2013**  
**Wednesday**

### WINNEMUCCA CHAPTER MEETING (Every 2nd Wednesday).

The meeting will be held at the Martin Hotel, 94 West Railroad St. Refreshments @ 6 PM; Appetizers @ 6:30 PM, Talk @ 7:00 PM. **SPEAKER: Wes Sherlock, CREG Student, University of Nevada, Reno. TITLE: "Miocene base-metal mineralization styles, mineralogy and paragenesis at Gold Quarry, Carlin trend, Nevada"** (Abstract pg 6). **Sponsor: TONATEC EXPLORATION, LLC**. For more information contact Leann Graf at [leann.graf@newmont.com](mailto:leann.graf@newmont.com).

**Mar. 15, 2013**  
**Friday**

### GSN MEMBERSHIP MEETING (Every 3rd Friday)

The monthly meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, NV. Drinks at 6:00 PM, Dinner at 7:00 PM, and Talk at 8:00 PM. **SPEAKER: Elizabeth Wagar, Kinross Gold Corp. TITLE: "A Contrast in Mineralization Styles at the Buckhorn Skarn Gold Deposit, Okanogan County, WA"** (See abstract on pg. 3). **SPONSOR: ENVIROSCIENTISTS, INC.** Dinner reservations must be made by 4 P.M., Wednesday, March 13th. Contact Laura Ruud at (775) 323-3500 or e-mail [gsn@gsnv.org](mailto:gsn@gsnv.org) for reservations.

**Mar. 21, 2013**  
**Thursday**

### ELKO CHAPTER MEETING (Every 3rd Thursday)

The monthly meeting will be held at the Western Folk Life Center, 501 Railroad St. Refreshments at 6:00 PM, Talk begins at 7:00 PM. **SPEAKER: Chris Henry, NV Bureau of Mines & Geology. TITLE: "Mag'm and Min'n in the Greater Cortez Area"** **SPONSOR: MIRANDA GOLD CORP.** For more information contact Jared Townsend at [jtowndsend@barrick.com](mailto:jtowndsend@barrick.com).

**Mar. 28, 2013**  
**Thursday**

### SOUTHERN NEVADA CHAPTER (Every last Thursday of the month)

The monthly meeting will be held at the Lilly Fong Geoscience Bldg, Room 105. Social @ 6:45 PM and talk @ ~ 7:15 PM. UNLV. **SPEAKER: TBA. Title: TBA.** For more information contact R. Paul Bowen, 702-247-7765.

**Apr. 19, 2013**  
**Friday**

### John S. Livermore Memorial Tribute, Davidson Math and Science Building, Auditorium, University of Nevada, Reno. 7:00 p.m. to 10:00 p.m.

The regularly scheduled GSN meeting will be moved to a different date in April. The date is yet to be determined but we will let you know in the April newsletter.

## GSN MARCH MEETING SPONSOR



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**FROM THE PRESIDENT**  
**David Emmons, G.S.N. President 2012—2013**

Dear GSN Members,

As previously announced by email to the members, John Livermore passed away on February 7, 2013. John was a long-time member of GSN, an Honorary Member and strong supporter of GSN. One of his obituaries is reprinted in this newsletter, so I will not elaborate here on his remarkable career in geology and his discovery of the Carlin gold deposit. However, on behalf of GSN and all of its members, we offer our condolences to his family, colleagues, friends and co-workers. He was an inspiration to many geologists. A Memorial Tribute will be held at the University of Nevada for John on April 19<sup>th</sup> (see the announcement on page 7).

The February meeting in Reno was well attended to hear the presentation by Julia Lane with Archer, Cathro and Associates (1981) Limited (Atac). She provided an excellent description and illustrations on their Carlin-style discoveries in the Yukon. It is a great case history of a grass-roots discovery based on geochemical sampling, geologic mapping and some spectacular gold intercepts from their drilling. We offer congratulations to all the Atac people that worked on the discovery.

Our speaker for March is Elizabeth Wagar with Kinross Gold in Washington. She will be talking about the Buckhorn gold-skarn deposit in north-central Washington. Her abstract is on page 3.

As we roll into March spring fever will be fast approaching. It is time to break out the rock hammer, sample bags and GPS. Here's to good hunting in 2013.

I will close this column with a tongue-in-cheek quote regarding mining and gambling (we are the Geological Society of **NEVADA**) –

“...the business of mining [and exploration] assumes an aspect that makes faro look respectable and gives poker the status of a Sunday school pastime.” - T.A. Rickard.



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## *Friday, March 15, 2013 Membership Meeting*

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

GSN CANNOT GUARANTEE DINNER SEATING WITHOUT ADVANCE RESERVATIONS.

Please call 775-323-3500, Fax 775-323-3599 or e-mail gsn@gsnv.org by **4 p.m. on Wednesday, March 13, 2013.**

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

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

Directions: across (W) from the Reno-Sparks Convention Center  
(S. Virginia Street, behind the Les Schwab Tire Center)

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### **A Contrast in Mineralization Styles at the Buckhorn Skarn Gold Deposit, Okanogan County, Washington**

***Elizabeth Wagar, Mine Geologist, Kinross Gold Corporation, Kettle River Operations, Republic, WA***

Kinross Gold Corporation's Buckhorn Mine exploits a high-grade Au skarn deposit hosted by Paleozoic rocks of the Quesnel Terrane about 170 miles northwest of Spokane. Discovered by Crown Resources Corporation in 1988, and subsequently delineated and configured as an open-pit development by Battle Mountain Gold Company, the deposit eventually achieved commercial production in 2008 as an underground drift-and-fill operation. Pre-production reserves plus resources within the life-of-mine plan (\$550-Au) amounted to 2.147M tons averaging 0.45 opt-Au (1.0M contained ozs-Au).

Ore production through October-2011 came exclusively from the Southwest Zone (SWZ), a somewhat tabular, stratabound zone with mostly well-defined hangingwall and footwall contacts. The SWZ is the Buckhorn deposit's principal orezone, and hosted about 80% of the Au metal contained in the pre-production mine plan. Through several campaigns of reserve-infill drilling, and a tripling of the price of Au, the estimated reserves and resources within the SWZ have changed little, due to the nature of its mineralization style.

Since November-2011, a small portion of ore production has come from the Gold Bowl area (GB) to the north of the SWZ, where a number of small zones with varying geometry are scattered within a large skarn mass. Orezones in the GB mostly have poorly-defined contacts, show a strong degree of structural control, and locally appear to be intimately associated with intrusives, all in contrast to the SWZ.

The GB zones contain about 45% of the Au metal in the reserves and resources left to be mined, and will contribute proportionally more to overall ore production over time (through 2015). A good understanding of the nature of, and controls on, mineralization within the GB is critical to full realization of the life-of-mine plan. New insights from accelerated infill-drilling and from underground mapping and sampling have improved that overall understanding.

#### **Biography:**

Liz Wagar is a 2001 graduate of Iowa State University from where she obtained a Bachelor of Science degree in Geology. She went on to obtain a Master of Science degree in Geology from the South Dakota School of Mines and Technology in 2003. Liz joined the mine geology team at Kinross' Buckhorn Mine in the Fall of 2010 after having worked at Stillwater, East Tennessee Zinc, and FMC's Tyrone Mine in New Mexico. Her principal responsibilities at Buckhorn include oversight of ore-control mapping and sampling, management of geology databases, geology modeling, and mentoring of junior level mine geology staff.

***Thank You to KAPPES, CASSIDAY & ASSOCIATES  
For Hosting the February 15, 2013 Meeting in Reno!***

# “FACES OF GSN”

## Bob Cuffney

(just one more crusty old rock-licker)

I was one of those fidgety kids, the kind that don't do particularly well in captivity. Spring days would find me gazing out the window daydreaming about the woods and streams of my native western NY. Then the impact of a wooden ruler across my knuckles or a hard yank on my ear would wake me to the reality of class. Those nuns were strict and mean (and the source of my severe penguin-phobia, which lingers to this day).

Like many kids, dinosaurs fascinated me, as did expeditions of any kind (but best if led by Tarzan). Roy Chapman Andrews soon became my hero with his tales of discovering dinosaurs and their eggs during his amazing expeditions to the Gobi Desert. My youthful days were spent mostly outdoors – exploring with my dog: catching frogs, snakes, and anything else that moved; and of course, investigating rocks.



Komodo  
July, 2012

A blanket of glacial overburden provided a glimpse into the Precambrian geology of our Canuck neighbors, but better treasures were to be found where streams cut into the lower Paleozoic bedrock – brachiopods, crinoids, trilobites – the next best things to dinosaurs. Little did I know that I would meet many of those same critters some 30 years later in the Devonian section of the Roberts Mountains.

A couple of family cross-country camping trips opened my eyes to the wonders of the west – real mountains, and rocks everywhere. I wanted to bring them all home, and tried hard (my dad never forgave me when the car-top carrier broke under the weight of my bootlegged collection). It was decided – I was going to head west, young man, and become a geologist. The decision of which college to attend was almost a difficult one – until I realized that Colorado School of Mines had access to great skiing AND a brewery in town. So it was off to CSM and the torture of engineering classes (alleviated by copious quantities of cold Coors) on the way to earning a degree in Geologic Engineering.

*Hanging out with dinosaurs' descendants.  
FYI, I am the one in the background*

My first geology job came in the summer of 1971 - between my 1<sup>st</sup> and 2<sup>nd</sup> senior years (some things are worth repeating?), as part of a plane-table mapping crew (do you youngsters even know what that is?) mapping and sampling classic caldera-related epithermal mineralization at the spectacular Red Mountains between Ouray and Silverton, Colorado. That experience hooked me on exploration. The engineers could keep their slide rulers and trig tables, I was off to explore the mountains and deserts.

After finally graduating and managing to narrowly avoid an all-expense-paid tour of SE Asia, I landed a job with Exxon Minerals doing uranium exploration in Colorado and Wyoming. I thought I had it made – until the boss told me that if I were to continue working in the industry I would need a Masters degree. Crap, that was not in my plans. So it was back to CSM for another 4 years - with summers and a few skipped semesters off working for Exxon in CO, WY, OR, AZ, NM, NV and AK to pay for tuition and to support my skiing and beer-guzzling habits. (continued on pg. 5)



*The demise of helicopter  
N8363F*

*.....a good lesson in the  
glide ratio of a flat rock*

*Minchumina, AK  
September, 1981*

(Cuffney, cont.)

With MS degree in hand I joined Exxon as a uranium geologist in 1976 and took on the assignment of exploring some 600,000 square miles of Alaska – pretty much everywhere from the drenched rain forests of SE Alaska to the frozen tundra of the Seward Peninsula. That was an incredible experience, exploring some of the most remote, unmapped, and spectacular country imaginable (with fantastic fishing). But it entailed a couple thousand hours of flying time in helicopters and small planes. We were probably lucky to have fallen out of the sky only twice (not counting the emergency landing for a battery fire, or the time we took out the telephone line at the McKinley Lodge – missing the rotors by inches). The second time was a charm, when John Carden and I managed to survive an engine flame-out and autorotation-gone-wrong near Lake Minchumina. After that it was back to the lower 48 and 4x4 transport (aircraft lacking wings have since been restricted to heli-skiing - at least that is something worth risking one's life for).

Political “fallout” from the Three Mile Island incident put an end to the glory days of uranium exploration. We scintillating geos were quickly retreaded as moly and massive sulfide explorers and eventually morphed into gold geologists. Thus, in 1983 I was transferred to Exxon's Reno office to work with Tom Irwin's crew. Oil companies eventually began to realize that mines took a little longer to develop than oil fields; and I ended up graduating from Exxon U. in 1985. After a short stint as Exploration Manager for Rio Algom – reporting to a mining engineer, who didn't believe in exploration (you can imagine how well that went!), I entered the consulting/contracting business. With the exception of a couple of years working out of Newmont's Reno office, I have been happily employed as a Geo-whuur ever since – working anywhere, anytime, for anyone foolish enough to pay me (and a few who never did). The high point of this part of my career was managing White Knight Resources' exploration in the Great Basin, and working with the great people who made the company a success. But all that ended in tears due to a hostile takeover by US(eless) Gold in 2007. The debauchery of the Knight's wake will live on in infamy.



*The White Knights at the wake – still standing, barely*

My introduction to the GSN came with the fall 1983 field trip. I was blown away by the geology, the openness of the geologists, and the camaraderie of the participants. It was an incredible experience for a neophyte to the society. I have attended many GSN field trips (and lead several) since then; and have many fond memories (are “Ton-o'-Woman” contests and Land Sharks still on the agenda?). In 1986 I joined the Program Committee for the 1987 symposium. Shortly after that I was “volunteered” to serve as the '87-'88 Vice President, which was, of course, followed by the role of President in '88-89. Those were busy days for the GSN, as the society for the first time had money and needed to decide what to do with it (many wild ideas were floated, but sanity prevailed). We also had to deal with securing non-profit status for the GSN, an effort that required the influence of Congresswoman Barbara Vucanovich (well done, Anne Loring). Another accomplishment was setting up the Elko Chapter

and rewriting the ByLaws to allow for the chapters. The GSN had always been 100% volunteer, but revenues from the symposium allowed setting up the first office and a dedicated phone number (with the bills somehow in my name until 2012 – I must have a great credit history with ATT).

Then, in a moment of sheer madness several of us decided that the GSN needed to have a second symposium. Next thing I knew I was “appointed” Chairman of the 1990 symposium – one of the most demanding, but rewarding, experiences of my career (and the reason my ex could never utter the words “GSN” without the prefix “the g\_\_ d\_\_”). Back in those pre-digital days publications were produced on a version of the Gutenberg printing press, but with the dedicated efforts of Gary Raines and Ruth Buffa, we managed to produce some nice symposium volumes.

It has been most rewarding to see the GSN grow from a fairly casual, but very effective, group of volunteers to what is no doubt one of the foremost geological organizations in the world- - offering meetings, field trips, symposia, and publications that rival those of any professional organization – yet still largely run by volunteers. I am proud to have played a small part in that development and my hat is off to all the officers, volunteers, and employees who have made the GSN such a success.

This Face of GSN has not been seen much lately, as I have been working mostly overseas the past few years (Indonesia, Mongolia, China, Philippines, most recently Australia with a little Mexico and Canada thrown in). My goal this year is to spend more time working here in Obama-stan, if the mining industry can survive the harsh political and financial climate. I do try to make meetings whenever I am in town, but schedules don't always match. So, if I don't see you at a monthly meeting, maybe we will run into each other on the ski slopes, a backcountry trail, or some juicy outcrop somewhere on this big blue ball. In the meantime may the wind be at your back, high-grade samples in your pack, and a cold beer waiting for you at the end of the day.

## **G.S.N. WINNEMUCCA CHAPTER MEETING WEDNESDAY, MARCH 13, 2013**

**Location:** The Martin Hotel, 94 West Railroad St. Winnemucca, NV

**Time:** Refreshments @ 6 pm, Appetizers @ 6:30, Talk @ 7:00

**Drinks & Appetizers Sponsor:**

**TonaTec Exploration, LLC**



**Speaker:** Wes Sherlock, CREG, University of Nevada, Reno

**Title:** Miocene base-metal mineralization styles, mineralogy and paragenesis at Gold Quarry, Carlin trend, Nevada”.

### **Abstract**

Newmont’s Gold Quarry Mine is a world class Carlin-type mine located on the southern portion of the Carlin trend. The deposit is hosted primarily in the Rodeo Creek unit which is extensively faulted and locally exhibits multiple types and intensities of alteration and mineralization. The majority of the remaining ore is sulfidic-refractory consisting of Eocene Carlin-type mineralization where the gold is hosted as a solid solution within the structural lattice of arsenian pyrite. Extensive Miocene base-metal mineralization locally overprints Eocene Carlin mineralization and contains minor local arsenian pyrite and widespread late free gold. Miocene gold may also be sequestered locally in other sulfides such as arsenopyrite. Silver is constrained to Miocene base-metal mineralization and not Eocene Carlin mineralization.

Miocene base metal sulfides and sulfosalts are common throughout the Gold Quarry deposit. Massive sulfide veins ranging in size from less than 1 cm to over half a meter in width cut earlier Eocene Carlin-type mineralization. The Carlin-type mineralization immediately bounding the base-metal veins is generally destroyed due to vein associated alteration. Base-metal mineralization occurs in four primary styles at Gold Quarry: fracture/fault controlled massive sulfide veins; replacement base-metal mineralization; hydrothermal breccia base-metal sulfide matrix mineralization and weak disseminated base-metal mineralization.

The massive sulfide base-metal mineralization is divided into three phases separated by quartz events. The three mineralization events are preceded by an arillization event that locally ranges from very weak to intense. Base-metal phase I mineralization is iron sulfide dominant comprised primarily of pyrite, marcasite and arsenopyrite with late sphalerite. Phase II mineralization is base-metal sulfide and sulfosalt dominant with a clear metallogenic progression from early copper dominant minerals to silver rich minerals and terminates with late sphalerite and greenockite. Phase III represents system shutdown and is gangue mineral dominant with only very minor local pyrite and sphalerite. Phase III also contains the vast majority of the free gold compliment with rare encapsulated free gold also associated with the end of the phase II quartz event. Local supergene alteration, primarily in close proximity to structures, postdates phase III mineralization.

Base-metal sulfide/sulfosalt paragenesis is very consistent throughout the deposit. The full paragenetic sequence is represented in all of the mineralization styles except for hydrothermal breccia base-metal sulfide matrix mineralization zones which have been found to be primarily restricted to only phase I mineralization. Sphalerite is the last major sulfide precipitated in both phase I and phase II. Phase I and phase II sphalerite are generally easily differentiated as phase I commonly displays chalcopyrite disease and/or an exsolution texture involving a currently unidentified sulfide whereas phase II sphalerite does not display any co-mineralization or exsolution textures and generally has a higher, locally zoned, iron content.

Several samples containing fine-grain zoned tabular euhedral alunite have been identified. These crystals generally occur in physical contact with but after crystalline dickite and delineate the terminus of the base metal mineralization event. Both of these minerals are interpreted to have formed under hypogene processes as dickite forms at approximately 175 to 250°C (Zotov et al., 1998). One particularly clean alunite sample with zoned tabular crystals has been analyzed during this study by 40Ar/39Ar and rendered a date of  $16.03 \pm 0.10$  Ma. Estimates of the temperature of formation of supergene alunite at Gold Quarry by previous workers is 80 to 100°C (Heitt, 1992; Arehart et al., 1993) with corresponding K/Ar dates of  $30 \pm 1.2$  Ma, 27.9 Ma and  $25.9 \pm 0.6$  Ma. Tungstenite is a rare sulfide that has been recognized at Gold Strike (Ferdock, 2004) and Gold Quarry (this study). Tungstenite is a member of the molybdenite group and possesses nearly identical physical properties of molybdenite. Although it has never been attempted before, tungstenite may also be amenable to Re-Os dating methods assuming sufficient Re is present in the sulfide. Consequently, dating efforts are currently underway at the University of Alberta.

***Thank you to MAJOR DRILLING AMERICA, INC.***

***For Hosting the February 13, 2013 Meeting in Winnemucca!***

## ***JOHN LIVERMORE'S TRIBUTE CELEBRATION***

A tribute celebrating the life of GSN Honorary Member John Livermore, will be held in Reno, Nevada on Friday evening, April 19, 2013 from 7-10 pm, in the Redfield Auditorium of the Davidson Math and Science Building on the south end of the University of Nevada Campus, and just north of downtown Reno. There will be a program, then time for refreshments and fellowship. I have been assured that parking is open and free that night and should not present any problem.

It is a long trip to Reno for many of you, but you will be very welcome. This will be the only public celebration of John's life.

(John's obituary appears on pages 8-9 of this newsletter)

### **G.S.N. ELKO CHAPTER MEETING** **THURSDAY, MARCH 21, 2013**

**Location:** Western Folklife Center, Elko Nevada

**Time:** Refreshments @ 6:00 p.m. and Talk @ 7:00 p.m.



**Sponsored by: MIRANDA GOLD CORP.**



**Speaker: Chris Henry, Nevada Bureau of Mines and Geology**  
**Title: "Mag'm and Min'n in the Greater Cortez Area"**

***Thank you to JENTECH DRILLING SUPPLY***  
***For Hosting the February 15, 2013 Meeting in Elko!***

## OBITUARY

# John Sealy Livermore

## G.S.N. Lifetime Honorary Member

April 16, 1918 - February 7, 2013



Exploration geologist, mining executive, civic leader, philanthropist, conservationist and devoted uncle and friend, John Sealy Livermore passed away at his home in Reno on Thursday, February 7th. He was 94.

Born in San Francisco in 1918 and educated at Stanford University, John first became interested in geology on a summer oil exploration trip to Alaska. During World War II, he helped construct the Basic Magnesium Plant in Henderson, Nevada and served as a Seabee in New Guinea and the Philippines. After the war, he worked at the Standard Mine near Lovelock and as an independent prospector. In 1952, signing on as a geologist in Leadville, Colorado, John began his long career with Newmont Mining Corporation.

His jobs with Newmont took him to Peru, Turkey, Iran, Chile, Morocco, Algeria, New Mexico, Arizona, Florida and many other domestic and international destinations. In 1956, recovering from a serious bout of hepatitis contracted in Morocco, John worked for a time with Newmont's legendary Chairman Fred Searls at the company's headquarters in New York City. In 1962, he became President of Newmont's Canadian Exploration Division, a management position he held for eight years.

In 1961, John played a pivotal role in events that changed the course of mining history in Nevada, the US and arguably the world. For many years, dating back to his early experiences at the Standard Mine and elsewhere, John theorized that "microscopic" gold existed in Nevada so fine it could not be "panned" or seen by the naked eye. A few low grade deposits were known, but he wanted to develop a scientific way of finding more. In 1960 he came upon an article in a mining journal by USGS geologist Ralph Roberts describing how low grade ore deposits may have been formed in Northern Nevada that gave him a clue. In the fall of 1961, combining detailed geologic work, geochemical exploration, knowledge of the country and a few hunches, John and his Newmont colleague Alan Coope drilled near Carlin, Nevada and staked several claims on Newmont's behalf. These claims became the highly profitable Carlin Mine, and turned out to be just a portion of the much larger Carlin Trend, which is five miles wide by forty miles long.

Similar to John Marshall discovering gold at Sutter's Mill in 1849, the rush for Nevada's "invisible gold" was on - and continues to this day. The Carlin Trend currently produces over 4 million ounces of gold annually, contributing \$1.8 billion to Nevada's economy and employing thousands. It has already produced more gold than was mined or discovered in either the California Gold Rush or the Comstock Lode. By 2008, mines in the Carlin Trend had produced over 70 million ounces of gold, worth around \$85 billion, making it one of the richest gold mining districts in the world.

(continued on pg. 9)





Seldom acknowledging this historic achievement and discovery, John was a humble man who always lived modestly. Tall, lanky and fit, he had no pretensions, dreaded giving speeches, deflected attention from himself, and avoided the public spotlight. He loved ideas, read books and articles voraciously, and was at home talking to “princes and paupers” alike. Despite his San Francisco roots, John was happiest roaming the high sagebrush deserts of Nevada, rock hammer in hand. Dust covered his field vehicle and ore samples and topographic maps littered the back seat. Generous and unassuming, his stride was as long and open as the vast Great Basin country he loved, and he always had time for a friend.



Leaving Newmont and Canada in 1970, John returned home to Nevada and formed Cordex Exploration, which, in turn, went on to discover the Pinson, Preble, Dee, and Sterling mines – all successful operations that provided impressive returns for their investors. Sharing his own good fortune, though never seeking credit and often giving anonymously, John became a significant benefactor of Stanford University and of the University of Nevada’s Mackay School of Earth Sciences. He served on the Board of the California Academy of Sciences and, in 1988, pursuing his interest in conservation and public policy, founded Public Resource Associates to seek consensus on mining law reform. In 1989, he was featured prominently in a major article on “Invisible Gold” in the New Yorker magazine, and in 2000 he was named to the National Mining Hall of Fame.

In many ways, John’s career followed a Livermore family tradition of working to balance the development and conservation of the West’s natural resources. John’s great grandfather, Horatio Gates Livermore, traveled overland from Maine for the California Gold Rush in 1850 and, after a brief stint in the gold fields, became a state senator from El Dorado County. John’s grandfather, Horatio Putnam Livermore, was involved with the Knoxville Quicksilver Mine and, with his father, was a pioneer in the development of hydroelectric power on the American River at Folsom. John’s mother, Caroline Sealy Livermore, was a noted Marin County conservationist whose many projects included saving Angel Island in San Francisco Bay from development. His four brothers played prominent roles in California agriculture, conservation, architecture and public service.

Later in life John spent much of his time managing Montesol, the Livermore family ranch located near Calistoga, California. The third of five brothers, John never married, but he was especially close to his nieces and nephews. He loved going on long ranch expeditions, overseeing ranch operations, befriending the ranch dogs and hosting large Thanksgiving and family gatherings at his home. Always the optimist, John was quick to smile and tell a story. His energy and enthusiasm for life were contagious, he kept all personal challenges to himself, and he never complained. He will be sorely missed by the extended Livermore and Sealy families and all those whose lives he touched.



John’s life was enriched by his friendships with Andy Wallace, his partner at Cordex Exploration; Susan Lynn, his colleague at Public Resource Associates; and Judy Motoyama, a long-time Livermore family friend. The family wishes to thank all three for their love, support and many kindnesses. John is survived by his brother Putnam Livermore, 12 nieces and nephews and 17 grandnieces and grandnephews. He was preceded in death by his brothers Norman Livermore, George Livermore and Robert Livermore. A private memorial will be held at Montesol this spring, and plans are also underway for a celebration of John’s life in Reno. In lieu of flowers, donations may be made to the University of Nevada’s Mackay School of Earth Sciences, the California Academy of Sciences, or a charity of your choice.

# NORTHWEST MINING ASSOCIATION

Laura Skaer, Director

This is the first of what I hope are many articles to keep the GSN membership informed on legislative and regulatory matters that are important to the hardrock mining industry and the ability to access public lands to search for, find, and develop mineral deposits. I want to thank Bob Felder for the initial invitation to write this column and the GSN Executive Committee for allowing NWMA this opportunity.

## Mining Law

Many of you expressed concern last year about provisions to amend the Mining Law that were contained in the President's 2012 budget proposal. These proposals included removing several hardrock minerals, gold, silver, copper, molybdenum, lead, zinc and uranium, from the operation of the Mining Law and placing them under the Mineral Leasing Act of 1920. The proposal also included a gross royalty of not less than 5% and a tax of 7.8 cents per ton on the amount of material moved at a mine site (the "dirt tax"). We believe these are onerous provisions that would severely damage the hardrock mining industry in the U.S. and increase our nation's reliance on foreign sources of strategic and critical minerals. While none of these provisions have been introduced in legislation, we expect they will again appear in the President's 2013 budget which is expected to be released sometime in March. NWMA has testified against these provisions in oversight hearings before the House Natural Resources Subcommittee on Energy and Mineral Resources in 2011 and 2012. Copies of the testimony are posted on the NWMA website ([www.nwma.org](http://www.nwma.org)).

Many of you may have seen articles in January where Sen. Tom Udall (D-NM) stated he was interested in reforming or overhauling the General Mining Law of 1872. Sen. Udall is most interested in generating a royalty to the federal government from hardrock mining on public lands and plans to discuss Mining Law reform with Senate Energy and Natural Resource Committee Chairman, Sen. Ron Wyden (D-OR) and Ranking Member, Lisa Murkowski (R-AK) to try to find common ground on a mining royalty bill. Sen. Wyden has expressed an interest in looking at revenue generated by all productive activities on the public land, including renewable energy and hardrock mining. These are very preliminary discussions. We do not expect the House of Representa-

tives to take up Mining Law reform unless the Senate passes a bill first and sends it to the House.

## Permitting Reform

On a more positive note, Nevada Congressman Mark Amodei and 28 bi-partisan cosponsors have reintroduced the National Strategic and Critical Minerals Production Act. The 2013 version (H.R. 761) is nearly identical to the 2012 version, H.R. 4402.

H.R. 761 is designed to improve the efficiency of the permitting process, which currently takes so long that the United States is tied for last with Papua New Guinea among the largest 25 mineral producing countries in the world in the time it takes to get a permit. There is a broad definition of strategic and critical minerals which includes minerals necessary for our nation's economic security and balance of trade. The bill will facilitate a more timely permitting process for mineral exploration and mine development by clearly defining the responsibilities of a lead agency. The bill limits the permitting process to 30 months unless all signatories to a permitting timeline, including the project proponent, agree to an extension. In order to address the delay caused by frivolous lawsuits, the bill sets a 90 day time limit to file a legal challenge to a mining project, requires the venue to be the judicial district where the project is located, and limits any preliminary injunctions to halt a mining project to 60 days unless the court finds clear reason to extend the injunction. Also, the bill prohibits environmental groups and mining opponents from recovering their attorney fees through the Equal Access to Justice Act. In the 112<sup>th</sup> Congress, the legislation passed by a bi-partisan vote of 256 to 160 with the support of the entire Nevada congressional delegation and 22 Democrats.

We expect a legislative hearing in late spring or early summer and Floor action in July. Last year, H.R. 4402 died in the Senate. NWMA will be working to secure additional cosponsors and support passage of the bill.

Do not hesitate to contact me ([Iskaer@nwma.org](mailto:Iskaer@nwma.org)) or our government affairs manager, Matt Ellsworth ([ellsworth@nwma.org](mailto:ellsworth@nwma.org)) if you have questions or desire additional information.

# ROCK TALK

## U.S. Nonfuel Mineral Production Increases for Third Straight Year

Released: 2/7/2013 7:15:09 AM

### Contact Information:

U.S. Department of the Interior, U.S. Geological Survey  
Office of Communications and Publishing  
12201 Sunrise Valley Dr, MS 119, Reston, VA 20192  
<http://www.usgs.gov/newsroom/article.asp?ID=3506>

Nonfuel mineral production values increased in the United States for the third consecutive year, up \$1.7 billion since 2011, the U.S. Geological Survey announced today in its Mineral Commodity Summaries 2013.

The estimated value of mineral raw materials produced at mines in the United States in 2012 was \$76.5 billion, a slight increase from \$74.8 billion in 2011. Net exports of mineral raw materials and old scrap contributed an additional \$21 billion to the U.S. economy.

The annual report from the USGS National Minerals Information Center is the earliest comprehensive source of 2012 mineral production data for the world. It includes statistics on about 90 mineral commodities essential to the U.S. economy and national security, and addresses events, trends, and issues in the domestic and international minerals industries.

"Minerals are the raw materials for construction, manufacturing, high technology, new industries, jobs, and ultimately economic expansion," said USGS Director Marcia McNutt. "These summaries are where Geology meets Economics, to create the complex tapestry of variations in mineral production over time and space."

The United States continues to rely on foreign sources for raw and processed mineral materials but, for the first time since 2002, the United States was not 100% import reliant for rare earths as rare earth mining resumed at Mountain Pass, California.

Minerals remained fundamental to the U.S. economy, contributing to the real gross domestic product (GDP) at several levels, including mining, processing, and manufacturing finished products. Minerals' contribution to the GDP increased for the second consecutive year.

"Decision makers and policy makers in the private and public sectors rely on the Mineral Commodity Summaries and other USGS minerals information publications as consistent and unbiased sources of information to make business decisions and national policy," said John DeYoung, Director of the USGS National Minerals Information Center.

Production and prices increased for most industrial mineral commodities mined in the United States in 2012, but production and prices for nearly all metals declined. Industrial mineral commodities include things like limestone, silica, sand and gravel, and are used for industrial purposes like building and road construction, plastics, glass, and paper.

Domestic raw materials and domestically recycled materials were used to process mineral materials worth \$704 billion. These mineral materials, including aluminum, brick, copper, fertilizers, and steel, and net imports of processed materials (worth about \$27 billion) were, in turn, consumed by downstream industries with a value added of an estimated \$2.4 trillion in 2012.

The construction industry began to show signs of improvement during 2012, with increased production and consumption of cement, construction sand and gravel, and gypsum, mineral commodities that are used almost exclusively in construction. Crushed stone production, however, continued to decline.

The nonmetallic mineral products industry was boosted by the rebound in construction activity in 2012, with more than half of its output going to the construction sector. The recovery in the U.S. housing industry is fueling demand for industrial minerals and products.

Mine production of 15 mineral commodities was worth more than \$1 billion each in the United States in 2012. These were, in decreasing order of value, gold, crushed stone, copper, cement, construction sand and gravel, iron ore (shipped), molybdenum concentrates, phosphate rock, lime, industrial sand and gravel, soda ash, clays (all types), salt, zinc, and silver.

Eleven states each produced more than \$2 billion worth of nonfuel mineral commodities in 2012. These states include Alaska, Arizona, California, Florida, Michigan, Minnesota, Missouri, Nevada, Texas, Utah and Wyoming. Nevada produced the largest value at \$11.2 billion. The mineral production of these states accounted for 64 percent of the U.S. total output value.

The USGS Mineral Resources Program delivers unbiased science and information to understand mineral resource potential, production, consumption, and how minerals interact with the environment. The USGS National Minerals Information Center collects, analyzes, and disseminates current information on the supply of and the demand for minerals and materials in the United States and about 180 other countries.

The USGS report "Mineral Commodity Summaries 2013" is available [online](#). Hardcopies will be available in February from the Government Printing Office, Superintendent of Documents. For ordering information, please call (202) 512-1800 or (866) 512-1800 or go [online](#). For more information on this report and individual mineral commodities, please visit the [USGS National Minerals Information Center](#).

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**OTHER UPCOMING EVENTS**

**13, March, DREGS meeting**, Speaker: J. Caine, J. Ridley & Z. Wessel, Title: "To Reactivate or Not Reactivate– Nature and Varied Behavior of Structural Inheritance in the Proterozoic Basement of the Eastern CO Mineral Belt over 1.7 Billion Years of Earth History". CO School of Mines, Golden CO, Berthoud Hall, Rm 241. Social at 6 pm, Talk at 7 pm.

**3-6 March, PDAC, Prospectors and Developers of Canada Convention**, Toronto, Ontario, CANADA. Come visit Laura in the GSN Booth #1624, Tradeshow side.

**5 March, Arizona Geological Society**, Speaker: Isabel Fay, University of Arizona ; Title: *De Re Metallica & Development of Earth Science* Sheraton Hotel, Oasis Room, 5151 E. Grant Rd, Tucson, AZ. Drinks @ 6 pm, Dinner @ 7 pm, Talk @ 8 pm. Reservations required by Feb. 1, 2013. For more info go to: <http://www.arizonageologicalsoc.org/>

**7 March, NV Petroleum & Geothermal Society Monthly Dinner Meeting** – Thursday Mar 7, 6:30 PM, Ramada Reno Hotel, 1000 E 6th St, Reno, NV. Speaker: Vincent Ramirez, Hangtown Oil LLC, Title: Empire "Paradise 2-12" oil discovery in western Nye County: why so much Miocene structural compression?

**11 March**, UNR Geological Sciences Seminar Series – Mondays 4:00 PM, DMS 103, University of Nevada, Reno. <http://crack.seismo.unr.edu/geosci/> Briana Johnson MS talk, and Amie Lamb MS talk

**12 March**, Nevada BLM Oil & Gas Lease Sale, Reno NV. 36 parcels available, Elko & Eureka Counties. [http://www.blm.gov/nv/st/en/prog/minerals/leasable\\_minerals/oil\\_gas/oil\\_and\\_gas\\_leasing.html](http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/oil_gas/oil_and_gas_leasing.html)

**5-11 April, Arizona Geological Society Field Trip to Chihuahua Mexico**. Visit the Naica Mine and Cave of the Giant Crystals plus several other historical locations. Cost is \$375 (does not include transportation to/from Chihuahua City or Hotel. Dawn Garcia is the Field Trip Leader. Please contact her @ [dgarcia@srk.com](mailto:dgarcia@srk.com) for more details.



## **NBMG/GSN 2014 Nevada Geology Calendar Photo Contest !!!**

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# Activity Update

Mike Brady, January 2013

[www.activityupdate.com](http://www.activityupdate.com)

## NEVADA

Waseco Resources Inc.(75%) announced that recent drill results at the Battle Mountain Ridge (SBD) Project include 3.7 meters @ 25.39 gpt Au (12-5) and 1.5 meters @ 5.3 gpt Au (12-6). (resource = 2,630,000 tonnes @ 0.90 gpt Au inferred) *Press Release:* January 17

Coeur d'Alene Mines Corp. announced that it would expand production at the Rochester Mine to 4,700,000 ounces/year silver (presently 2,800,000 ounces/year) at a capital cost of \$35,000,000. (reserve = 14,315,000 tonnes @ 0.14 gpt Au, 23.5 gpt Ag proven+probable) *Press Release:* January 17

International Millennium Mining Corp. announced that recent drill results at the Nivloc Project include 255.0-278.8 meters @ 103 gpt Ag, 0.43 gpt Au (12NL-36) and 261.1-292.4 meters @ 163.8 gpt Ag, 0.80 gpt Au (12NL-37). (resource = 2,176,000 tonnes @ 0.67 gpt Au, 87.2 gpt Ag inferred) *Press Release:* January 8

Bravada Gold Corp. announced that recent drill results at the Wind Mountain Project include 10.7-12.2 meters @ 0.22 gpt Au, 4.4 gpt Ag (WM12-081); 10.7-15.2 meters @ 0.31 gpt Au, 1.4 gpt Ag (WM12-086); 192.0-219.4 meters @ 0.33 gpt Au, 12.1 gpt Ag (WM12-088) and 155.4-196.6 meters @ 0.36 gpt Au, 13.8 gpt Ag (WM12-089). (resource = 53,824,000 tonnes @ 0.34 gpt Au indicated) *Press Release:* January 9

Miranda Gold Corp. announced that recent drill results at the Red Canyon Project include 106.7-109.7 meters @ 0.03 gpt Au (MR12-01); 45.7-50.3 meters @ 0.11 gpt Au (MR12-03); 208.8-213.4 meters @ 0.11 gpt Au (MR12-04) and 103.6-106.7 meters @ 0.04 gpt Au (MR12-06). *Press Release:* January 15

Paramount Gold+Silver Corp. announced that recent drill results at the Sleeper/South Project include 143.26-169.16 meters @ 0.31 gpt Au, 2.8 gpt Ag (PGC12-024); 99.06-103.63 meters @ 0.23 gpt Au, 0.3 gpt Ag (PGC12-025) and 384.05-411.48 meters @ 0.17 gpt Au, 1.4 gpt Ag (PGC12-026). (resource @ Sleeper = 194,400,000 tonnes @ 0.34 gpt Au, 3.6 gpt Ag measured) *Press Release:* January 7

Paramount Gold+Silver Corp. announced that recent drill results at the Sleeper/Pad Project include 65.53-114.3 meters @ 0.45 gpt Au, 0.5 gpt Ag (PGC12-022). *Press Release:* January 7

Veris Gold Corp. announced that recent drill results at the Jerritt Canyon/Smith Mine include 111.63-129.93 meters @ 6.45 gpt Au (SMI-LX-818); 116.2-128.1 meters @ 4.12 gpt Au (SMI-LX-819); 113.15-137.25 meters @ 3.50 gpt Au (SMI-LX-820) and 204.35-255.89 meters @ 5.69 gpt Au (SMI-LX-821). (resource @ Smith = 3,805,000 tonnes @ 8.02 gpt Au measured+indicated) *Press Release:* January 22

Premier Gold Mines Ltd. announced that recent drill results at the Cove Project include 575.31-587.2 meters @ 9.67 gpt Au (AX-8A); 537.97-550.16 meters @ 14.42 gpt Au (AX-9); 607.16-610.52 meters @ 15.66 gpt Au (AX-10) and 361.19-519.68 meters @ 2.67 gpt Au (AX-12). (resource = 356,000 tonnes @ 20.14 gpt Au, 41 gpt Ag inferred) *Press Release:* January 9

Rawhide Mining LLC. announced that it purchased a 100% interest in the Regent Property from Pilot Gold Inc. for \$3,000,000. *Press Release:* January 10

Pershing Gold Corp. announced that based on recent drill results at the Relief Canyon Property, resources aggregate 22,313,000 tonnes @ 0.65 gpt Au measured+indicated and 4,373,000 tonnes @ 0.72 gpt Au inferred. (was 4,232,000 tonnes @ 0.75 gpt Au indicated and 1,469,000 tonnes @ 0.72 gpt Au inferred) *Press Release:* January 24

Midway Gold Corp. announced that recent drill results at the Gold Rock/Easy Junior Project include 135.3-218.6 meters @ 0.89 gpt Au (GR12-01C); 86.9-97.6 meters @ 1.03 gpt Au (GR12-04); 105.2-120.4 meters @ 0.48 gpt Au (GR12-06) and 137.2-163.1 meters @ 0.69 gpt Au (GR12-07). (resource = 12,968,000 tonnes @ 0.74 gpt Au indicated) *Press Release:* January 7

Gold Standard Ventures Corp. announced that recent drill results at the Central Bullion Project include 13.7-33.5 meters @ 104.4 gpt Ag, 0.80% Cu, 0.08% Mo, 1.08% Pb, 0.79% Zn (RRB12-03) and 278.4-291.8 meters @ 219.1 gpt Ag, 2.48% Cu, 0.31% Pb (RRB12-03). *Press Release:* January 22

Corvus Gold Inc. announced that recent drill results at the North Beatty/Yellow Jacket Project include 59.6-132.0 meters @ 1.7 gpt Au, 98.7 gpt Ag (NB12-138); 84.0-167.8 meters @ 0.2 gpt Au, 5.1 gpt Ag (NB12-181); 126.7-163.0 meters @ 0.3 gpt Au, 1.9 gpt Ag (NB12-182) and 69.5-141.1 meters @ 1.4 gpt Au, 28.9 gpt Ag (NB12-183). (resource @ North Bullfrog = 15,230,000 tonnes @ 0.37 gpt Au, 0.44 gpt Ag indicated) *Press Release:* January 22

Corvus Gold Inc. announced that recent drill results at the North Beatty/Jolly Jane Project include 24.4-100.6 meters @ 0.10 gpt Au, 0.5 gpt Ag (NB12-193); 24.4-59.4 meters @ 0.08 gpt Au, 0.8 gpt Ag (NB12-194); 0-47.2 meters @ 0.60 gpt Au, 0.3 gpt Ag (NB12-195) and 0-65.5 meters @ 0.29 gpt Au, 0.4 gpt Ag (NB12-196). *Press Release:* January 15

Renaissance Gold Inc. announced that based on recent drill results at the Trinity Project, resources aggregate 5,845,000 tonnes @ 38.7 gpt Ag inferred-oxide and 17,991,000 tonnes @ 36.5 gpt Ag, 0.22% Pb, 0.35% Zn inferred-sulfide. (was 1,728,000 tonnes @ 46.7 gpt Ag inferred-oxide and 4,851,000 tonnes @ 58.0 gpt Ag inferred-sulfide) *Press Release:* January 7



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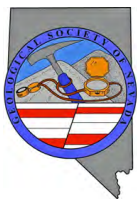
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