

# NEWSLETTER

Serving the Petroleum and Geothermal Community

Nevada Petroleum Society; P. O. Box 11526; Reno, NV 89510 Visit our NPS Homepage: <u>http://www.nbmg.unr.edu/nps/</u>

#### President James Faulds Research Geologist Dinner Meeting: Thursday, Sep 8, 2011 **UNR MS 178** Reno, NV 89557-0088 jfaulds@unr.edu Vice President/Pres Elect Speaker: Dr. Graham M Kent John Snow Director, Nevada Seismological Laboratory Chief Operating Officer Professor, Dept of Geological Sciences & Standard Steam 14075 Saddlebow Dr. Engineering Reno, Nevada 89511 (775) 336-8067 (O) University of Nevada, Reno (775) 85-3458 (H) jsnow@standardsteamtrust.com Title: "M7 in the Tahoe basin: An exploration of Secretary recent seismic CHIRP and airborne LiDAR Jim Branch Ram Power, Inc. imagery" 6880 S McCarran Blvd Ste 1 Reno, Nevada 89509 775-398-3710 Jim@ram-power.com Place: Ramada Reno Hotel, Washoe Room Treasurer Stephen Foster 1000 East 6<sup>th</sup> Street, Reno, Nevada Consulting Geoph/Geologist 886 Marsh Ave. Reno, NV 89509 775-329-4123 Agenda: Cocktails begin at 6:30 PM sfostermammoth@aol.com Dinner Served at 7:00 PM Past President Alan R. Wallace **Research Geologist** 1050 Sumac St. **Dinner Costs:** Reno, NV 89509 wallacealan@sbcglobal.net NPS Members \$ 20; Non-Members \$23; Students \$10 AAPG Delegate Bill Ehni Menu Ehni Enterprises, Inc. P. O. Box 4228 Buffet style; including chicken & beef entrees, side Carson City, NV 89702 775-883-1107 dishes and salad. ehnient@aol.com **RMS-AAPG Representative** Jerry Walker \*\*RSVP Tuesday, Sep 6 **Consulting Geologist** 1455 Shewmaker Ct. Reno, NV 89509 775-348-0650 jerry\_reno@charter.net Diane Phillips (775) 267-4663 or trailsend@pyramid.net AAPG EMD Representative Bill Fhni Ehni Enterprises, Inc. ehnient@aol.com

## <u>ABSTRACT – NPS Monthly Dinner Meeting – Sep 8, 2011</u>

## Speaker Dr. Graham M Kent:

### Title: M7 in the Tahoe basin: An exploration of recent seismic CHIRP and airborne LiDAR imagery

### <u>Abstract:</u>

In light of the most recent earthquake catastrophes, including the Great Sumatran (M9.3), Tohoku (M9.0, 2011) and Maule (8.8, 2010) earthquakes and tsunami, concerned citizens are asking, *Can it happen here*? The unfortunate answer for the Tahoe basin is an unqualified yes! The basin is susceptible to large M7 earthquakes every few thousand years, with an associated tsunami risk for those fault lines that lie beneath the lake. A decadal review of geophysical and geological work at the basin will be presented in an unconventional way to help stimulate a responsible conversation of the real risks of living near the *Jewel of the Sierra*. Three major fault zones have been mapped in detail, West Tahoe-Dollar Point, Stateline-North Tahoe and Incline Village Faults, each capable of large ruptures with a maximum magnitude of ~ M7.3. These ruptures will be associated with a tsunami/seiche wave that can reach heights up to 10 meters, which will cause extensive damage along the shoreline. Landslides are also an important component to geologic risk in the basin; a large landslide that formed McKinney Bay some 50,000 years ago may have produced wave heights in excess of 100 meters! Although rare, landslides are probably not an uncommon occurrence during large earthquake ruptures. The *tell tale* signs of smaller slides are seen spanning the lake floor in recently collected sediment cores. Join Dr. Kent, Director of the Nevada Seismological Laboratory, in a high tech, *CSI-styled* investigation of basin hazard using the latest sonar and lidar technologies, paleoseismic trenching, coring and other interesting techniques.

## About the Speaker:

Dr. Graham M. Kent is Director of the Nevada Seismological Laboratory and Professor in the Department of Geological Sciences and Engineering at the University of Nevada, Reno. Previous to July 2009, Graham was a Research Geophysicist at Scripps Institution of Oceanography and had been Director of the Visualization Center at Scripps from 2001-2009. Dr. Kent is a native of South Lake Tahoe, California. He attended San Diego State University, where he studied Geophysics and graduated Valedictorian of the Class of 1985. Soon thereafter, he entered graduate school at Scripps Institution of Oceanography receiving his PhD in 1992.

After a 4-year-long appointment at Woods Hole Oceanographic Institution, Graham returned to Scripps to continue his work in geophysics, with an emphasis toward seismic studies of extensional tectonics, ranging from magma chambers beneath mid-ocean ridges to fault hazards at Lake Tahoe. More recently, he led an effort to use advanced visualization techniques to study faulting and volcanic systems. He was also a NASA Astronaut Finalist, Class of 1996.

He's conducted a variety of studies around the globe, including tsunami and ocean bottom seismic research. He's mapped earthquake faults beneath Lake Tahoe that have produced tsunamis and most recently has placed important constraints on southern San Andreas Fault recurrence times through mapping cross faults beneath the Salton Sea.

He is leading the 2nd Annual Great Nevada Shakeout earthquake drill (Oct. 20th, 2011) in partnership with the Great California Shakeout, the largest combined public earthquake drill in the world.

Nevada Petroleum Society; Sep 2011

## ▶ <u>2011 PS-SEPM Fall Field Trip: September 24-25, 2011</u>

#### 2011 PS-SEPM Fall field trip – Late Paleozoic basins, tectonism, and resources of north-central Nevada Leaders: Dan Sturmer, Jim Trexler, Pat Cashman, Rachel Dolbier, and Tom Anderson University of Nevada, Reno

In this first of two fall PS-SEPM field trips, we will investigate late Paleozoic (post-Antler Orogeny) deformation and basin formation in north-central Nevada and learn how understanding this complex geology is useful for locating and recovering natural resources. The field trip will begin Friday afternoon in Reno (or join us Saturday morning in Winnemucca). Saturday we will drive east to Carlin Canyon, where we will walk through a section of Mississippian–Permian strata in four, stacked, angular unconformity-bounded basins. We will observe and discuss the several generations of folds and faults developed in these strata and discuss how both the deformation and basin formation events relate to the late Paleozoic tectonic evolution of western Laurentia. In the afternoon we will travel west to Edna Mountain to see more effects of late Paleozoic-Mesozoic deformation on late Paleozoic basin deposits. We will also look at the other packages of rock exposed in the area: the Golconda allochthon which contains deep marine deposits which were thrust over the late Paleozoic rocks during the Sonoma Orogeny, and the Lower Paleozoic Preble Formation, which contains metamorphosed and deformed mixed carbonate-siliciclastic deposits of suspect origin. Saturday night we will enjoy a traditional Basque dinner in Winnemucca. Sunday (Day 2) will begin with a tour of Marigold Mine (owned by Goldcorp Inc.), led by mine geologists. Marigold is a large surface mine in a Carlin-type gold deposit: disseminated gold atoms and particles generally hosted in sedimentary rocks. The gold at Marigold is hosted in Pennsylvanian-Permian carbonates and siliciclastics, and early Paleozoic carbonates, siliciclastics, and greenstones. We will then caravan back toward Reno, stopping at Fossil Hill in the southern Humboldt Range to collect ammonoids out of the Triassic Star Peak Group.

#### ITINERARY

#### This is a tentative schedule based upon ideal weather and traffic conditions.

Day 1: Friday, September 23, 2011

12:00 noon- meet at the Chevron/McDonald's at I-80 (exit 21) and Vista Blvd., Sparks, Nevada. We will meet here and go over the route to Winnemucca. Take this opportunity to have lunch and fill up on gas for the drive to Winnemucca.

12:30 PM - depart Vista Blvd. We will drive directly to Winnemucca, approximately 2 ½ hours travel time. 3:00 PM – arrive in Winnemucca. Take exit 276 (downtown Winnemucca) If you are camping, proceed east on Winnemucca Blvd to Hanson Street. Turn south onto Hanson Street, which turns into Water Canyon Road after 2 miles. Continue 2 miles on Water Canyon Road into the recreation area. Our campsite is located at the last campsite at the head of the canyon.

5:00 PM – meet at Highland Park, 4220 Water Canyon Road (Hanson Street) for pot luck BBQ After dinner, participants will either make their way to the campground at the end of Water Canyon Road or stay in one of the many motels in Winnemucca.

Day 2: Saturday, September 24
Breakfast on your own.
7:30 AM – meet at the Raley's parking lot, 1125 West Winnemucca Boulevard. Travel east to Carlin Canyon. Bring lunch and water.
9:00 AM - Carlin Canyon. Lunch at Carlin Canyon
1:00 PM - depart Carlin Canyon. Return to I-80 heading west. Exit Golconda Summit to view Edna Mountain and Preble Formation.
5:30 PM – return to Winnemucca

7:00 PM – group dinner at the Martin Hotel, 94 W Railroad St, Winnemucca. After dinner return to campground or motel. Day 3: Sunday, September 24

7:30 AM – meet at Raley's parking lot, Winnemucca Blvd. Travel to Marigold Mine, Valmy. Bring lunch and water 8:30 AM – arrive at Marigold Mine for guided tour.

1:00 PM- depart Marigold. Return to I-80 and head west for the Mill City exit and drive to Fossil Hill.

4:30 PM - depart Fossil Hill, return to Reno

## **REGISTRATION FORM** Pacific Section SEPM 1<sup>st</sup> Fall Field Trip 2011 LATE PALEOZOIC BASINS, TECTONISM, AND **RESOURCES OF NORTH-CENTRAL NEVADA** Please fill out one form per person. Required registration fee includes: fieldtrip guidebook, welcome meeting BBQ on Friday night\*, Basque dinner on Saturday night at the Martin Hotel, camping fees\*. Participants are responsible for lunches and motel accommodation\* if desired. We will have four vehicles to transport people from field trip stops but if you are taking a group of people or students and, have vehicle(s) to transport them, please let me know on this form. At 7:30 am Saturday and Sunday we will meet in the Raley's parking lot in Winnemucca: 1125 W. Winnemucca Blvd., Winnemucca, NV 89445. From Reno, take I-80 east ~160 miles to Winnemucca. Take exit 176 (West Winnemucca Blvd) and merge onto W. Winnemucca Blvd headed toward downtown. The Raley's is ~1.4 miles down the road on the right. Name\_\_\_\_\_ Mailing Address: Phone \_\_\_\_\_ E-mail \_\_\_\_\_ **Registration fee (Required)**: Registration deadline is **September 13**. Non-member/non-student can pay

**Registration fee (Required)**: Registration <u>deadline</u> is **September 13**. Non-member/non-student can pay member price with a one-year paid membership. New members PLEASE INCLUDING A VALID E-MAIL ADDRESS for newsletters.

Member PS-SEPM/non-student:	\$50.00
Non-Member PS-SEPM/non-Student	\$70.00
Student Member (Institution:	) \$20.00
Student Non-Member (Institution:	) \$25.00
Non-members will receive a membership valid until January	y 1 <sup>st</sup> , 2014
Total: Make check (no cash or credit cards) payable to: PS-SEPM	Total:

Mail this form w/check payable to PS-SEPM to be received by <u>no later</u> than September 13th. Please MAIL TO: Wayne Henderson, Department of Geological Sciences, California State University, Fullerton, 800 North State College Blvd., Fullerton, CA 92834-6850. (<u>whenderson@fullerton.edu</u>). Please feel free to email me if you have any questions. \*Please note: camping in the area is at Water Canyon, which is just a few miles southeast of town in the Sonoma Range. The campground is maintained by the BLM and there are pit toilets, fire rings, and dumpsters. Depending on how dry the summer and fall are, there may be a burn ban, but we will keep in touch with the BLM. The campground is first come-first serve so we will try to get out there fairly early on Friday to secure spots. To get to Water Canyon go past the Raley's in Winnemucca to Hanson St (the next street) and turn right. Hanson St turns into Water Canyon Road. Continue down Water Canyon Road toward the Sonoma Range, driving to the camp site at the end of the road. (There are also 5-6 camp sites before the road ends).

\* If anyone wants to stay in a hotel, Winnemucca has a number of good hotels, though people may want to make reservations in advance. Some of these include:

Scott Shady Court - 1-866-875-3646 or 1-775-623-3646 (~\$35/night one bed, ~\$50/night for two beds) Scottish Inns - 1-775-623-3703 Winners Hotel and Casino - 1-775-623-2511 Pyrenees Motel - 1-775-623-1116 There are a bunch of others...Model T, Best Western, Motel 6, etc.

\* The Friday BBQ will be at 5 pm at Highland Park and the address is 4220 Water Canyon Rd

Temperatures in Winnemucca are usually in the 70's for highs and 30's for lows, but it could be as hot as 90 or as cold as 15. Fall is usually dry, but rain and snow are possible in late September.

Please complete the waiver form on the next page too.



## Pacific Section SEPM, The Society for Sedimentary Geology 2011 Annual Field Trip

In consideration of the receipt by registrant ("Registrant") of permission from the Pacific Section Society for Sedimentary Geology (SEPM) to register for and participate in the SEPM 2011 Fall Field Trip to be conducted on 23-25, September, 2011, Registrant hereby releases and will indemnify, defend, and hold harmless Pacific Section SEPM and the SEPM National, the agents, officers, servants, and employees of each, and those persons in charge of and/or conducting any of the Adjunct Activities, including without limitation the leader or leaders of the Field Trips (collectively "Indemnitees") of and from any and all liabilities, claims, demands, actions, and causes of action whatsoever arising out of or relating to any loss, damage, or injury, including death, as may be sustained by Registrant, and to any loss, damage, or injury to any property of Registrant's, while involved in any way with the Field Trip, including without limitation any exhibition component thereof, or any of the Adjunct Activities.

Registrant is fully aware that the Field Trip may involve hazardous and/or dangerous activities and/or being in or around hazardous conditions and recognizes and accepts the risks, known and unknown, involved in the Field Trip, including without limitation those involved in traveling to and from the site or sites of the Field Trip (whether by air, water, or land transportation) and at and during all stops and layovers during the Field Trip. The provisions of this paragraph shall in no way serve to limit or restrict Registrant's release and indemnity of SEPM and those persons in charge of and/or conducting any of the Adjunct Activities.

This release and indemnity includes without limitation liabilities, claims, demands, actions, and causes of action to or by third parties as well as to or by Registrant. This release and indemnity includes without limitation liabilities, claims, demands, actions and causes of action arising out of or relating to any loss, damage, or injury caused in any way by the concurrent or contributory negligence of any Indemnitee. This release and indemnity includes without limitation, demands, actions and causes of action arising out of or relating to caused in any way by the concurrent or contributory negligence of any Indemnitee. This release and indemnity includes without limitation liabilities, claims, demands, actions and causes of action arising out of or relating to any loss, damage, or injury caused in any way by the sole negligence of any Indemnitee. Having made all inquiries deemed by Registrant to be appropriate, Registrant hereby voluntarily assumes all risks of loss, damage, or injury, including death, as may be sustained by Registrant or any property of Registrant while involved in any way with this field excursion.

In the event the release by Registrant of any Indemnitee of any liability, claim, demand, action, or cause of action described herein is determined to be invalid or unenforceable, Registrant agrees that Registrant's total recovery of damages from the Indemnitees, or any of them, both actual and punitive, shall be limited to the cost of the registration for the Convention and the costs of tuition or other charges paid by Registrant for Registrant's participation in any of the Adjunct Activities.

In the event any provision of this Release and Indemnity Agreement is determined to be invalid or unenforceable, all other provisions hereof shall continue to be enforceable and shall be interpreted as though said invalid provision had never been contained herein. The provisions of this Release and Indemnity Agreement shall be binding upon Registrant's heirs, next of kin, executors, administrators, and personal representatives.

This Release and Indemnity Agreement shall be governed by and construed and enforced in accordance with the laws of the State of California, United States of America (without regard to any conflict of laws principles). All actions, suits and proceedings arising out of or in connection with this Release and Indemnity Agreement shall be brought in the California District Court, United States of America, which shall be the exclusive forum therefore. Registrant hereby irrevocably submits to the in personam jurisdiction and process of the California District Court, California, United States of America.

REGISTRANT ACKNOWLEDGES AND REPRESENTS THAT REGISTRANT HAS READ THE FOREGOING RELEASE AND INDEMNITY AGREEMENT, UNDERSTANDS IT, AND AGREES VOLUNTARILY TO ITS TERMS. REGISTRANT UNDERSTANDS AND AGREES THAT REGISTRANT WOULD NOT BE ALLOWED TO REGISTER FOR AND PARTICIPATE IN THE FIELD TRIP OR, IF APPLICABLE, ANY OF THE ADJUNCT ACTIVITIES IF THIS RELEASE AND INDEMNITY AGREEMENT WERE NOT AGREED TO BY REGISTRANT, AND THAT THE AGREEMENT BY REGISTRANT TO THE TERMS AND CONDITIONS OF THIS RELEASE AND INDEMNITY AGREEMENT IS AN ESSENTIAL PART OF THE CONSIDERATION FROM REGISTRANT FOR REGISTRANT TO BE ALLOWED TO REGISTER FOR AND PARTICIPATE IN THE CONVENTION AND, IF APPLICABLE, ANY OF THE ADJUNCT ACTIVITIES.

Signature	
Print Name	
Date	

Complete and sign this Agreement and email it to Wayne Henderson, PS-SEPM Membership Chair at <u>WHenderson@Exchange.Fullerton.edu</u>

## <u>NEW NPS OFFICERS Sep 2011:</u>

As of September 2011, NPS has a new slate of officers for the year.

Incoming President: James (Jim) Faulds, Research Geologist, UNR Vice-President, President Elect: John Snow, Chief Operating Officer, Standard Steam Secretary: Jim Branch, Ram POWER, Inc. Treasurer: Stephen Foster, Consulting Geophysicist/Geologist Past President: Alan Wallace, Research Geologist

The NPS membership appreciates that you have volunteered your time and efforts to run the business of the Society for this year. An upcoming newsletter will include bios for the officers to acquaint them with the membership. Thank you incoming officers!! Look forward to a great year for NPS.

## <u>April 22-25, 2012 Annual AAPG Meeting – Geothermal Session:</u>

#### Call for Geothermal Abstracts, American Association of Petroleum Geologists (September 22)

The Energy and Minerals Division of the American Association of Petroleum Geologists will hold a Geothermal Session at the 2012 annual meeting to be held in Long Beach, California on April 22-25. The Geothermal Session will be hosted under Theme 7: Alternative Energy and will be chaired by W.C. "Rusty" Riese of Rice University and Stephen Testa of the California State Mining & Geology Board. The Geothermal Session Chair will be Richard Erdlac.

Abstracts are requested related to the exploration, development and production, and economics of geothermal energy especially as associated to production from SEDIMENTARY ROCK. These abstracts could discuss geothermal in sedimentary basins or in any region where sedimentary rock has provided the trapping mechanism for geothermal resources. Of special importance would be papers that indicate how in-place oil/gas well assets can be converted to producing hot water for geothermal energy.

Submissions at http://www.aapg.org/longbeach2012/guidelines.cfm.

The closing date for Abstract submission is September 22, 2011.

## Nevada Oil Logs and Well Files Scanned:

All of Nevada's oil well logs and well documents were scanned this summer (if not already scanned) via a \$54,707 grant from the AAPG-OSU GIS Consortium (<u>http://foundation.aapg.org/gis/OSUGISIndustry.cfm</u>), funded by OSU alumni Boone Pickens.

The scanned data will be put on the NBMG website for public viewing and download. Siewie Siewie (PhD geography candidate) and Mary Niles (BS geology student) from OK State University (Stillwater) worked at the Great Basin Science Sample and Records Library between June 2 and August 12 to accomplish the tasks.

Due to time constraints, a third objective of correcting well locations was not completed. It may be possible to accomplish that work in OK with a separate grant. Ron Hess was principle investigator for the project, David Davis and Martha Henson provided much guidance for the project, and Sam Limerick wrote the grant proposal.

### ► NPS Monthly Dinner Meeting – Thursday Oct 6, 2011

Speaker: Marc Brennen

Senior Director, Business Development, ThermaSource, Inc. 7085 Eddy Road Area G, Arbuckle, CA 95912 <u>mbrennen@thermasource.com</u>, <u>www.ThermaSourceCementing.com</u>

#### Title: A Technical Approach to Cementing Fundamentals and Best Practices

Abstract:

Marc's slide presentation will provide an overview of engineered cementing practices that apply to geothermal, oil & gas wells. The audience will gain a better understanding of the methods, design considerations, equipment selection, cement slurry testing and quality control in the well cementing industry. One will appreciate that a lot happens before the trucks pull on to location to perform the actual job.

## ▶ Northern Nevada SME Meeting, Monday, Sep 12, 2011 - 6PM

Title: Chinese Money On The Move... How will this economic "juggernaut" affect the U.S. minerals industry?

#### Speaker: Elaine Herron, Quest Geological Consultants; Reno, Nevada Beijing Kewen Minerals Consulting Limited; Beijing, P. R. China

**Abstract** - China's outbound direct investment is on the fast track and in the next decade trillions of U.S. dollars are poised to be invested worldwide by Chinese companies. Outbound direct investment (ODI) into resources is clearly a Chinese mandate, but not only because of the country's rampant resources consumption. Money must leave China, and for a number of reasons the resources sector is a good fit for ODI. Is the United States on the list for fast-tracked and significant investment into minerals projects? What can we expect and what should we be prepared for?

Elaine Herron, an exploration geologist, has spent the last 13 years of her career living and working with her husband Cal in China, specializing in minerals project generation and management for foreign and domestic mining and exploration companies. In the process of innovating new business structures for foreign companies the Herrons interface on many levels with Chinese government agencies.

In addition to our normal social hour and talk, we are pleased to announce that this coming Monday 12th we will have a special guest. Scarlette Sepulveda, daughter of Mario Sepulveda, one of the 33 Chilean miners who were trapped for 70 days underground at Mina San Jose, Chile. Please visit our page <u>www.smennv.org</u> for more details

Social Hour 6 PM, Dinner 6:45 PM and Technical Session, at 7:30 PM Circus - Circus Hotel and Resort, Mandalay Room in Convention Center (Casino Entrance at the corner of 5th Street and North Sierra Street.) 500 N Sierra Street, Reno, NV Members \$22/person and Non-Members \$25/person payable at the door

#### RSVP Required by noon, THURSDAY, Sep 8 2011 Call Kaitlin C. Sweet 775.225.6147 or email: kcsweet@enviroincus.com

The Northern Nevada Section of SME meets monthly from September until May. For more information about this announcement, please contact me or visit us at www.smennv.org

## ► News from Nevada Bureau of Mines and Geology:

#### John Muntean speaks at GSN–Friday, September 9, 2011

Who: Dr. John Muntean, Nevada Bureau of Mines and Geology, Research Economic Geologist
What: Geological Society of Nevada meeting
Topic: Ferroan carbonates in Carlin-type gold deposits: Real time detection of an important ore control by carbonate staining
When: Friday September 9

(The date change is due to a conflict with the Elks Club, so remember GSN at the Elks on September 9th. Other than the date, the time and venue are the same as usual.) 6:00 PM– Social; 7:00 PM– Dinner, \$17.00; 8:00 PM–Speaker Where: Elks Lodge, 597 Kumle Lane, Reno, NV Ouestions: Please call Laura Ruud at 775-323-3500.

#### Abstract

(by John Muntean, NBMG; Michael Cassinerio, Barrick Gold Corp.; and Lucia Patterson, Timberline Resources Corp.):

Carbonate staining is an inexpensive, real time tool to detect ferroan carbonate, an important ore control in Carlin-type gold deposits. Studies are increasingly showing a close spatial association between ore and wall rocks containing ferroan dolomite or ferroan calcite. These ferroan carbonates are important in that when they are dissolved by acidic, gold-bearing hydrothermal fluids, they release iron which reacts with reduced sulfide in the fluid, destabilizing gold-sulfide aqueous complexes, resulting in deposition of gold-bearing pyrite. This process, known as sulfidation, is widely regarded as the principal depositional mechanism for gold in Carlin-type deposits. Carbonates can be stained by dilute hydrochloric acid containing both alizarin red S and potassium ferricyanide to differentiate between calcite, ferroan calcite, ferroan dolomite and dolomite. Staining needs to be done carefully in conjunction with a good hand lens, because other iron-bearing phases in the rock, such as pyrite and iron-bearing clays, can cause "iron-bleeding" and misleading results. Electron microprobe analyses of carbonates show the staining is sensitive down to 0.1 wt% Fe.

Detailed carbonate staining by the authors at the Turquoise Ridge deposit reveals a distinct spatial relationship between gold, ferroan calcite, and the southern margin of a thick Paleozoic basalt. High-grade gold ore in the HGB zone occurs exclusively within ferroan calcite-bearing host rocks. The transition from ferroan calcite (mainly 0.1-1 wt% Fe) to calcite (mainly <0.1 wt% Fe) occurs at the base of the HGB. Staining of carbonates at the base of the Roberts Mountain Formation along the Saval discontinuity in drill holes across the entire Jerritt Canyon district shows a close spatial association between the gold deposits and host rocks containing ferroan dolomite (mainly 0.5-2.75 wt% Fe). Others have reported a spatial association between ferroan dolomite and gold at Twin Creeks, Meikle, Storm, and Deep Star. At Twin Creeks, ferroan dolomite was interpreted to form during Cretaceous sericitization of Paleozoic basalts, which mobilized iron into interbedded carbonates. We envision an analogous process at Turquoise Ridge. At Meikle ferroan dolomite was interpreted to form by either syn-sedimentary exhalative processes or by a late Paleozoic brine. Such a late Paleozoic brine event was probably also responsible for formation of ferroan dolomite at Jerritt Canyon. In every case, ferroan carbonate is interpreted to form prior to Eocene-age Carlin-type gold mineralization, and, in effect, is critical pre-ore chemical rock preparation for subsequent ore formation. We highly recommend routine carbonate staining of prospective host rocks in exploration for carbonate-hosted gold deposits of all types.

#### Discover Science Lecture Series (UNR College of Science)-Tuesday, September 13, 2011

Who: Mary Roach, Author

**Title:** "*Packing for Mars: The Curious Science of Life in Space*" <u>http://www.unr.edu/nevada-today/news/2011/mary-roach-discover-science-lecture</u>

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Charlotte Stock, NBMG Publication Sales, University of Nevada mailing address for US Mail, Fed Ex, and UPS: Nevada Bureau of Mines and Geology Great Basin Science Sample and Records Library, 2175 Raggio Parkway, Reno, NV 89512 phone (775) 682-8766, fax (775) 784-6690 Directions to office www.nbmg.unr.edu

## Nevada Petroleum Society – Publication List 2010

#### SPECIAL VOLUMES



- NPS 1 Oil Fields of the Great Basin (1994) R.A. Schalla and E.H. Johnson, editors, 31 papers on regional and field specific geology, 4 plates, hardbound, 380 p. \$65.00
- NPS 2 Membership Directory (only available free on the Web at http://www.nbmg.unr.edu/nps/membershipdir.htm)
- NPS 15 TerraScan's Geologic Map of the Eastern Great Basin, Nevada and Utah (1978, rev. 1987) compiled and edited by E.L. Howard, 3 sheets (includes cross-sections) \$20.00/NPS or \$25.00/non-NPS order by phone only for discounted price of \$5.00
- NPS 21 Carboniferous–Permian (Late Paleozoic) Hydrocarbon System, Rocky Mountains–Great Basin Region, U.S., Major Historic Exploration Objective (2001, updated 2003) J. Peterson, RMAG Open-File Report on CD only; 54 p., 45 illustrations, CD **\$15.00**

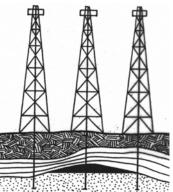
#### FIELD TRIP GUIDEBOOKS

- NPS 3 Oil Fields, Production Facilities and Reservoir Rocks of Northern Nye County, Nevada (1989) compiled by W.J. Ehni and D.M. Evans, 8 abstracts and papers, 30 p. (xerox copy only unbound) \$8.00
- NPS 4 Oil Fields and Geology of the Pine Valley, Eureka County Area, Nevada (1990) D.M.H. Flanigan, L.J. Garside, and M. Hansen, editors, 15 papers and abstracts, 74 p. (xerox copy only unbound) **\$15.00**
- NPS 5 Geology of White River Valley, the Grant Range, Eastern Railroad Valley and Western Egan Range, Nevada (1991) D.M.H. Flanigan, M. Hansen, and T.E. Flanigan, editors, 10 papers and abstracts, 74 p. **\$15.00**
- NPS 6 Structural Geology and Petroleum Potential of Southwest Elko County, Nevada (1992) J.H. Trexler, Jr., T.E. Flanigan, D.M.H. Flanigan, M. Hansen, and L.J. Garside, editors, 9 papers, 2 plates, 96 p. **\$25.00**
- **NPS 7** Structural and Stratigraphic Relationships of Devonian Reservoir Rocks, East Central Nevada (1993) C.W. Gillespie, editor, 15 papers, 3 plates, 203 p. **\$33.00**
- NPS 8 Dating of Pre-Tertiary Attenuation Structures in Upper Paleozoic and Mesozoic Rocks and the Eocene History in Northeast Nevada and Northwest Utah (1994) C.H. Thorman, C.J. Nutt, and C.J. Potter, editors, 11 papers, 125 p. **\$25.00**
- NPS 9 Structural and Stratigraphic Investigations and Petroleum Potential of Nevada, with Special Emphasis South of the Railroad Valley Producing Trend (1994) S.W. Dobbs and W.J. Taylor, editors, 2 volumes, 13 papers, 22 plates, 281 p. \$40.00
- NPS 10 Mississippian Source Rocks in the Antler Basin of Nevada and Associated Structural and Stratigraphic Traps (1995) M.W. Hansen, J.P. Walker, and J.H. Trexler, Jr., editors, 16 papers and 7 abstracts, 166 p. \$25.00
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- NPS 20 Great Basin Paleozoic Carbonate Platform: Facies, Facies Transitions, Depositional Models, Platform Architecture, Sequence Stratigraphy, and Predictive Oil and Gas Reservoir and Mineral Host Models (2006) H.E. Cook and J.J. Corboy, 129 pages Out of print (bulk of report from USGS Open-File Report 2004-1078, free on Web at http://pubs.usgs.gov/of/2004/1078/)
- NPS 22 Geology, Geothermal Resources and Petroleum Exploration of Neogene Basins in the Reno, Nevada Area (2007, 2nd ed., includes two papers not in 1st ed.) S. Limerick, editor, 7 papers, 3 reprints, and roadlog, 140 p. \$25.00
- NPS 23 Sedimentology and Tectonic Setting of the Late Cretaceous to Eocene Sheep Pass Formation in the Southern Egan Range (2008) P. Druschke, trip leader; J. Trexler, Jr., editor \$25.00

These publications are only available from the Nevada Bureau of Mines and Geology (NBMG). **NBMG contact information:** Phone: (775) 682-8766 Fax: (775) 784-6690 Web: http://www.nbmg.unr.edu/nps/

## Oil and gas resources from NBMG

The following publications are available from the Nevada Bureau of Mines and Geology. NBMG publications that are <u>underlined</u> are also available free on the Web at <u>http://www.nbmg.unr.edu/</u> .
Bulletins B104 Oil and gas developments in Nevada: Garside, Hess, Fleming and Weimer (1988), \$15.00, for updates, see OF01-7, OF04-1, and M162
Databases, Lists, Indexes, and Digital Maps List of wells by API and permit numbers; operator and well names; township, range, and section (as of October 27, 2008) at <u>http://www.nbmg.unr.edu/lists/oil/oil.htm</u> See also: <u>http://www.nbmg.unr.edu/Oil&amp;Gas/index.html</u>
Educational Series E-6 <b>Oil and gas in Nevada</b> (Student book for grades 4-8, 23 pages) \$3.45 E-24 <b>Nevada oil</b> : Division of Minerals (Brochure, 1996) free
<ul> <li>Lists</li> <li>List of oil and gas wells drilled in Nevada since 1907: Hess, Davis, and Boldi (2001, updated 2003) superseded by OF04-1, see also OF01-7</li> <li>L-12 Nevada oil and gas well catalog (NVOILWEL), superseded by OF04-1, see also OF01-7 Complete list of Nevada oil and gas well exploration data, 1906-present. Listed logs and cuttings are housed at NBMG. Selective data searches and index lists available upon request. Shows, geologic tops and tests are given when available.</li> </ul>
Maps <u>M162</u> Petroleum data map of Nevada: Garside and Hess (2007), 1:1,000,000, \$15.00
Mineral Industry Series The Nevada Mineral Industry is <b>published annually</b> , beginning in 1979. Each volume has a <b>section on oil and gas</b> in Nevada. Most of these reports are available <i>free on the Web at</i> http://www.nbmg.unr.edu/.
<ul> <li>Open-File Reports</li> <li>OF83-5 Nevada oil shale: Garside, 10 pages, \$4.00 (for more oil shale information, see also USGS MF-1546 and MF-2091)</li> <li>OF86-13 Nevada petroleum production statistics, 1954-1986: Hess, Loomis and Garside, 14 pages, \$5.00</li> <li>OF92-5 Nevada oil and gas source-rock database: Hess, compilation of source-rock analyses performed on cuttings samples taken at varying depth intervals from oil and gas exploration wells in Nevada up to 1992, complete print-out, \$20.00</li> <li>OF96-6c Nevada oil and gas wells, 1907-1996: 1:1,000,000 color digital map of Nevada showing major roads, county boundaries, and locations of oil wells drilled since 1907, original printout, \$20.00, see also OF01-7</li> <li>OF01-7 Nevada oil and gas well database map: Hess, CD and 4 page text, \$15.00</li> <li>Contains the following: L-12; updated OF96-6, partial; L-8; B104 text; digital base layers of Nevada data in Shapefile and Arc/Info export file format designed for use at scale 1:1,000,000 (county, towns, roads, USGS top boundaries for 1:100,000 and 1:24,000, Township and Range); georeferenced raster graphic of the Nevada state base map, B&amp;W, scale 1:1,000,000; 18 USGS digital raster graphic maps (DRG), 1:250,000-scale, topo maps in tiffw format</li> <li>OF00-2 Hydrocarbon assessment of the Yucca Mountain vicinity, Nye County, Nevada: French, 78 pages and 4 plates, \$44.40</li> <li>OF04-1 Nevada oil and gas well database (NVOILWEL): Hess (2004), \$86.40 for photocopy</li> <li>OF07-7 Assessment of the potential for carbon dioxide sequestration with enhanced oil recovery in Nevada: LaPointe, Price, and Hess (2007), 24 pages, \$7.20</li> </ul>
Reports         R51       Preliminary assessment of the potential for carbon dioxide disposal by sequestration in geological settings in         Nevada:       Price and others (2005), CD-ROM or paper copy, 35 pages, \$15.00         R52       Assessment of the potential for carbon dioxide sequestration by reactions with rocks in Nevada: Sturmer, LaPointe, Price, and Hess (2007) \$22.00 paper
USGS Assessment of undiscovered oil and gas resources of the Eastern Great Basin Province, 2005, Fact Sheet FS-2005-3053, free at <u>http://pubs.usgs.gov/fs/2005/3053/</u> Basin and Range Carbonate Aquifer System Study: <u>http://nevada.usgs.gov/barcass/data.htm</u>
Ordering information for Nevada Bureau of Mines and Geology Sales office located at Great Basin Science Sample and Records Library, 2175 Raggio Parkway, Reno, NV 89512 Phone: (775) 682-8766 Fax: (775) 784-6690 Web: <u>http://www.nbmg.unr.edu</u>



Nevada Petroleum Society Calendar: Year 2011-2012	
Sep 8, 2011	NPS Monthly Dinner Meeting – Thursday Sep 8, 6:30 PM Ramada Reno Hotel, 1000 E 6 <sup>th</sup> St, Reno, NV Speaker: Dr. Graham M Kent, Nevada Seismological Laboratory, UNR Title: M7 in the Tahoe basin: An exploration of recent seismic CHIRP and airborne LiDAR imagery Details on Page 1
Sep 9, 2011	GSN Monthly Dinner Meeting – Friday Sep 9, 6:00 PM Elks Lodge, 597 Kumle Lane, Reno, NV Speaker: Dr. John Muntean, NBMG, Research Economic Geologist Topic: Ferroan carbonates in Carlin-type gold deposits: Real time detection of an important ore control by carbonate staining Please call Laura Ruud at 775-323-3500.
Sep 12, 2011	Northern Nevada SME Meeting, Monday, Sep 12, 2011 - 6PM Circus - Circus Hotel and Resort, Mandalay Room in Convention Center "Chinese Money On The Move How will this economic "juggernaut" affect the U.S. minerals industry?" SPEAKER: Elaine Herron Quest Geological Consultants; Reno, Nevada RSVP Required by noon, THURSDAY, Sep 8 2011, Call Kaitlin C. Sweet 775.225.6147, or email: kcsweet@enviroincus.com
Sep 24-25, 2011	2011 PS-SEPM Fall field trip Late Paleozoic basins, tectonism, and resources of north-central Nevada Leaders: Dan Sturmer, Jim Trexler, Pat Cashman, Rachel Dolbier, and Tom Anderson; University of Nevada, Reno
Oct 6, 2011	NPS Monthly Dinner Meeting – Thursday Oct 6, 6:30 PM Ramada Reno Hotel, 1000 E 6 <sup>th</sup> St, Reno, NV Speaker: Marc Brennen, Senior Director, Business Development ThermaSource, Inc. Title: A Technical Approach to Cementing Fundamentals and Best Practices mbrennen@thermasource.com, www.ThermaSourceCementing.com
Oct 23-26, 2011	GRC's 35th Annual Meeting - October 23-26, 2011 Town & Country Resort & Convention Center San Diego, California - http://www.geothermal.org/meet.html http://www.geothermal.org/GRCAnnualMeetingPrelimProgram.pdf

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Nevada Petroleum Society; Sep 2011

The NPS Newsletter is provided to members of the Nevada Petroleum Society.

For information about membership and events, see the NPS website at <u>http://www.nbmg.unr.edu/nps/</u> To submit articles, corrections or suggestions for the newsletter; Contact Vicki Ehni 775-883-1107, cell 775-720-6387; email <u>vehni@aol.com</u>.