

NEWSLETTER

Serving the Petroleum and Geothermal Community

Nevada Petroleum and Geothermal Society; P. O. Box 11526; Reno, NV 89510

Visit our NPS Homepage: <http://www.nbmg.unr.edu/nps/>

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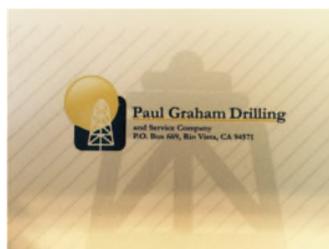
Dinner Meeting: Thursday May 07, 2015

Speaker: Benjamin N.M. Delwiche
Senior Geologist, Ormat Nevada, Inc.
Reno, NV

Topic: A Geological Model for the McGinness Hills
Geothermal Field thru Exploration and
Development: Evidence and Implications

Place: Ramada Reno Hotel
1000 East 6th Street, Reno, Nevada

**Cocktail Reception 6:30, Skyline Bar, 14th Floor
Hosted by:**



Dinner Served at 7:00 PM

NPGS Members \$20; Non-Members \$23; Students \$10

PLEASE RSVP WITH THE FOLLOWING LINK:

https://docs.google.com/forms/d/1h5BKQkx3x0KBIq3YB538daCCfUbhbfvnrVrRAYL_F74M/viewform

NPGS is charged for every meal that is reserved. If you cannot keep your reservation, please cancel prior to the meeting.

SEE CALENDAR Page 18 for upcoming meetings

► **NPGS Monthly Dinner Meeting – May 07, 2015**

A Geological Model for the McGinness Hills Geothermal Field thru Exploration and Development: Evidence and Implications

**Benjamin N.M. Delwiche
Senior Geologist, Ormat Nevada, Inc.**

Abstract

Recent installation and commercial operation of two geothermal power plants at McGinness Hills (72 MW net total) located near Austin, NV, was achieved in two phases of development (2012 & 2015) and represents the successful execution of a geothermal exploration and development work flow. Prior to acquisition of a federal geothermal lease at the McGinness Hills project by Ormat in August of 2007, no geothermal leasing had occurred in the area, and all historical exploration drilling was related to metallurgical mineral interests. During the course of pre-drilling exploration, drilling exploration, and development drilling, a geological model was developed and aided in achieving incremental well field successes. During the exploration campaign, some of the ambiguities in the geologic and hydrothermal environment interpretations were reduced by implementing and synthesizing a multitude of studies including geologic mapping, geophysics (gravity, CSAMT, MT, & aeromagnetics), geochemistry (fluid analyses and tracer studies), and exploration drilling (core and slim holes). Although some ambiguities and uncertainties still persist, the current geological model describes a complex distribution of faults and rock-types containing the geothermal system at McGinness Hills and elucidates several possible key factors which may control and/or support permeability and heat flow associated with the system.

McGinness Hills is perhaps an extreme end member of fracture dominated-type geothermal systems that are prevalent throughout the Basin and Range in which the thermal fluid system is contained entirely within a network of fractures and wallrocks are mostly impermeable providing no reservoir volume. The reservoir is contained within two structural blocks; a northern (production) and southern (injection) v-shaped graben. In the northern graben, ten production wells feed from the reservoir that is contained within three faults that strike NNE- to ENE- and dip moderately to steeply (48° to 80°) WNW to NNW. In the southern graben, six injection wells feed to three faults that strike NNE- and dip steeply (70° to 87°) WNW. Populations of induced fractures from multiple wellbore images also suggest that fractures striking NNE to ENE are oriented favorably within the local stress field and are dilated and permeable. All production and injection wells share rapid pressure communication although the producing faults in the northern graben are separate from and do not intersect with those in the southern graben. The rapid hydraulic connectivity between production and injection must then be facilitated by other intersecting faults which in turn must contain a fraction of the reservoir volume. Evidence from geophysics and drilling indicate the presence of SE dipping faults in the northern and southern grabens, which are convergent at depth with the producible WNW to NNW dipping faults, respectively. A well that was drilled in the southern graben intersected a SE dipping fault and exhibited a pressure response during a multi-well test. The reservoir is proposed to be distributed within a fracture network associated with respective antithetic fault geometries that define the V-shaped grabens and the thermal fluids may be sourced from the deep intersections of the antithetic faults. The hydraulic connection between northern and southern blocks is inferred to be facilitated by the easternmost WNW dipping fault, which is the only producible fault in the field which traverses both grabens. The lateral extent of the system is controlled by the distribution of deep antithetic fault intersections. Onset of the geothermal system may coincide with activation of the NNE-striking faults and associated uplift of the ridge located east of the injection wells, possibly during the Pliocene Epoch.

► **About the Speaker:**

Benjamin N. M. Delwiche is a Senior Geologist working for Ormat Nevada, Incorporated since 2007. His educational degree background includes completion a Bachelor's of Science in Geology at the University of Nevada, Reno in 2004 and completion of a Master's of Science in Geology also at UNR in 2007. Ben worked as a research assistant at the Nevada Bureau of Mines and Geology during undergraduate and graduate years and also TA'd a geology course as a graduate student. Between degree programs, he worked for Placer Dome assisting with mineral prospecting in Nevada. Near completion of his Master's degree, he worked for Terracon Consultants, Inc. and performed geologic mapping and mineral characterization of an industrial prospect.

Ben then went to work for Ormat Nevada in June of 2007 where he has organized and conducted pre-drilling exploration on a number of greenfield geothermal prospects in North-, Central-, and South America and assessed them for their respective economic potentials. His work has included identifying exploration and development drill sites and targets, designing directional well plans, and assisting with the design of well constructions. He uses GIS and 3D software to compile, analyze, and synthesize exploration and drilling data for the goal of developing conceptual geological models and to assess risk associated with exploration and development drilling. Ben provides support to drilling management and crews on geological aspects associated with ongoing drilling activities, and provides geological support to various operating geothermal well fields including the assessment of production and injection strategies and siting of new wells. Other duties include conducting executive and technical presentations related to exploration and development activities, assisting with reporting and compliance to regulatory agencies, and leading field trips of geothermal fields. Ben has served as the principal investigative project geologist from pre-drilling exploration thru development drilling and power plant operation for two phases of development at the McGinness Hills geothermal project (72 MW net), one phase of development at the Don A. Campbell geothermal project in Gabbs Valley, NV (16.3 MW net), and is currently working on a second phase of development at the Don A. Campbell project. Ben is also the principal investigative project geologist for two other greenfield geothermal projects which are in various stages of exploration.

► **May 7 Cocktail Reception hosted by:**

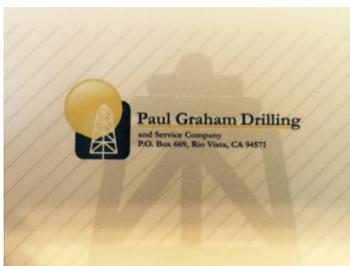
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Paul Graham Drilling

and Service Company

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Bakersfield, CA 93305
800-GETS-GEO
(800)438-7436 geodf@geodf.com

► **Scheduled Nevada BLM Geothermal Lease Sales:**

Sale Date	Nominations Due	Sale Posting Date	Protest Deadline
September 16, 2015	February 6, 2015	June 18, 2015	July 17, 2015

http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing.html

► **Scheduled Nevada BLM Oil & Gas Lease Sales:**

***Nevada's Competitive Oil & Gas Lease Sale Schedule
(Tentative)***

Sale Date	Parcels Offered for District Office at Sale	*EOIs Due	Sale Posting Date	Protest Deadline
June 9, 2015	Battle Mountain	September 12, 2014	March 11, 2015	April 10, 2015
September 15, 2015	Winnemucca/Carson City	December 19, 2014	June 17, 2015	July 17, 2015
December 8, 2015	Ely	March 13, 2015	September 9, 2015	October 9, 2015

*EOI = Expression of Interest

For a listing of parcels offered for the June 2015 sale, use the following link:

http://www.blm.gov/style/medialib/blm/nv/minerals/oil_gas/2015_lease_sales1.Par.21044.File.dat/20150609_BMDO_Parcel_List.pdf

► **2015/2016 Officers Elected at March Dinner Meeting:**

President	John Snow	Blue Mtn Research & Dev, LLC	Reno, NV
VP/Pres Elect	John Menghini	BLM	Reno, NV
Secretary	Dave Fitch	Geologist	Reno, NV
Treasurer	Thomas Gallagher	NV Water Solutions, LLC	Reno, NV
Past Pres	Judy Kareck	Lumos & Associates	Reno, NV

► **Welcome New NPGS Members:**

Boulet, Don
Coffey, Ted
Mach, Craig

Area Manager, GEO Drilling Fluids
Sales Manager, Paul Graham Drilling
Geologist, Barrick Gold Expl.

Woodland, CA
Glenn, CA
Sparks, NV

► **GSN SYMPOSIUM – May 14-23, 2015:**

New Concepts & Discoveries
John Ascuaga's Nugget, Reno/Sparks, NV
<http://www.gsnv.org/symposium/>

Registration Booklet:
<http://www.gsnv.org/symposium/Registration%20Booklet%20v5a.pdf>

► **NEW BLM Hydraulic Fracturing Regulations:**

Submitted by John Snow

The new Interior regulations for HF: <http://on.doi.gov/1xmk4AC>

(Summary included here)

-Final Agency Draft-
4310-84P

DEPARTMENT OF THE INTERIOR
Bureau of Land Management
43 CFR Part 3160
[LLWO300000 L13100000.PP0000 14X]
RIN 1004-AE26

Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands
AGENCY: Bureau of Land Management, Interior.
ACTION: Final rule.

*SUMMARY: On May 11, 2012, the Bureau of Land Management (BLM) published in the Federal Register a proposed rule titled *Oil and Gas; Well Stimulation, Including Hydraulic Fracturing, on Federal and Indian Lands*. Because of significant public interest in hydraulic fracturing and this rulemaking, on May 24, 2013, the BLM published in the Federal Register a supplemental notice of proposed rulemaking and request for comment titled *Oil and Gas Hydraulic Fracturing on Federal and Indian Lands*. The BLM has used the comments on the supplemental proposed rule and the earlier proposed rule in drafting this final rule. Key changes to the final rule include: (1) The allowable use of an expanded set of cement evaluation tools to help ensure that usable water zones have been isolated and protected from contamination; (2) Replacement of the “type well” concept to demonstrate well integrity with a requirement to demonstrate well integrity for all wells; (3) More stringent requirements related to claims of trade secrets exempt from disclosure; (4) More protective requirements to ensure that fluids recovered during hydraulic fracturing operations are contained; (5) Additional disclosure and public availability of information about each hydraulic fracturing operation; and (6) Revised records*

Nevada Petroleum and Geothermal Society; May 2015

retention requirements to ensure that records of chemicals used in hydraulic fracturing operations are retained for the life of the well. The final rule also provides opportunities for the BLM to coordinate standards and processes with individual states and tribes to reduce administrative costs and to improve efficiency.

DATES: This final rule is effective on [INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Mail: U.S. Department of the Interior, Director (630), Bureau of Land Management, Mail Stop 2134 LM, 1849 C St., NW, Washington, DC 20240, Attention: 1004– AE26. Personal or messenger delivery: Bureau of Land Management, 20 M Street, SE, Room 2134 LM, Attention: Regulatory Affairs, Washington, DC 20003.

FOR FURTHER INFORMATION CONTACT: Steven Wells, Division Chief, Fluid Minerals Division, 202-912-7143 for information regarding the substance of the rule or information about the BLM's Fluid Minerals Program. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1-800-8778339 to contact the above individual during normal business hours. FIRS is available 24 hours a day, 7 days a week to leave a message or question with the above individual. You will receive a reply during normal business hours.

► News from Nevada Bureau of Mines & Geology:

From: Charlotte Stock

The following information is taken directly from emails provided by Charlotte Stock, Nevada Bureau of Mines & Geology

Stay Informed about NBMG

Subscribe to our email list by sending an email to webmaster@nbgm.unr.edu with "subscribe to Publications mailing list" in the subject line

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You can place an order for other publications or check for shipping charges through our shopping cart at

<http://www.nbgm.unr.edu/Departments/PubSales/PubSales.html>

John Bell Retires from NBMG

John W. Bell was hired as an Engineering Geologist at the Nevada Bureau of Mines and Geology in 1976 and retired from NBMG as a Professor on January 1, 2015. He was awarded academic tenure in 1981 and promoted to full Professor in 1988. During the course of his career at NBMG, John specialized in the areas of Quaternary geology and geomorphology, engineering and urban geology, paleoseismology, earthquake hazards, and groundwater-induced land subsidence. He conducted a wide range of research on these topics in areas of socio-economic importance to Nevada, and he served as a liaison to the Nevada geotechnical industry providing technical assistance in the area of urban geology and hazards. He also conducted conventional geologic quadrangle mapping, initially as part of an early environmental geology program at NBMG, and published a number of the principal NBMG geologic maps for the Las Vegas and Reno urban areas. During his last several years at NBMG, he taught the GEOL 441/641 course in Geomorphology and became the advisor for a number of geology graduate students.

With the growing interest in geothermal energy in Nevada, John most recently has been involved in the application of geomorphic tools such as LiDAR to the exploration for geothermal potential.

In 2002, John was awarded a NASA research grant that established the Nevada Bureau of Mines and Geology InSAR (Interferometric Synthetic Aperture Radar) Laboratory to use satellite radar imagery to study land subsidence due to groundwater withdrawal in Nevada. Since that time, the lab has supported a number of graduate students and conducted subsidence studies in Las Vegas, Pahrump, Mesquite, Reno, Fallon, and Eureka. In the past several years these studies were extended to mine dewatering, and a number of InSAR studies were conducted for the mining industry within the area of the Carlin trend. The InSAR lab also extended research into the area of earthquake hazard, and John used the methodology to study the ground deformation associated with the 2008 Reno-Mogul earthquake swarm.

Nevada Petroleum and Geothermal Society; May 2015

John received several awards over the course of his career, including selection as the Mackay School of Mines Researcher of the Year in 1981, receiving the Publication of the Year Award from the Association of Engineering Geologists in 2002, and receiving the Award for Excellence from the Nevada Earthquake Safety Council in 2002. In 2004 he received the Geological Society of America, Engineering Geology Division Award for the paper "Land Subsidence in Las Vegas, Nevada, 1935–2000: New Geodetic Data Show Evolution, Revised Spatial Patterns, and Reduced Rates". He was elected a Fellow in the Geological Society of America in 2005.

John has published more than 110 peer-reviewed journal papers, NBMG bulletins and maps, US Geological Survey Professional Papers and maps, field trip guidebooks, symposia papers, and proceedings papers, as well as given many professional talks.

See a list of John's publications here:

http://www.nbmgu.unr.edu/docs/Bell_retirement.pdf

<http://www.nbmgu.unr.edu/Staff/Bell.html>

Lisa Shevenell Retires from NBMG

Lisa Shevenell was hired as a Research Hydrogeologist at the Nevada Bureau of Mines and Geology in 1993 and retired from NBMG as a Professor on January 1, 2015. She was awarded academic tenure in 1998 and promoted to full Professor in 2004. During the course of her career at NBMG, Shevenell specialized in the areas of geothermal resource exploration and assessment, pit lake geochemistry, and isotope and karst hydrology. Her primary focus in the last 13 years at NBMG was in geothermal resource evaluations where she led a team responsible for finding new geothermal areas in Nevada that were ultimately developed into power-producing systems.

While at NBMG, her service to the community was extensive as Shevenell served on numerous state and national boards and committees: member of the Nevada Geothermal Technical Advisory Panel to NV Energy, founding member of the National Geothermal Data System (and Steering committee member), the Science Advisory Board to the National Geothermal Data Center initiative led by the Arizona Geological Survey (2009–2014), Geothermal Energy Association Technical Advisory Committee (2008–present), Department of Energy Geothermal Risk Assessment Committee, Exploration Technology Group (2009), member of the Blue Ribbon Panel on Renewable Energy formed by Senator Harry Reid (2008–2010), and Board of Directors member to the Geothermal Resources Council (various subcommittees, 2005–2014), general program chair (2008, 2015) and technical program chair (2005, 2007, 2012) for the annual Geothermal Resources Council Meeting, member of the Renewable Energy Task Force reporting to the Governor and Nevada Legislature, co-founder and former Director of the Great Basin Center for Geothermal Energy, and co-developer of the National Geothermal Academy (first run in the summer of 2011), and member of the Truckee Meadows Community College Geothermal Technician Training Curricular Advisory Board.

Shevenell has co-authored and published 180 peer-reviewed journal papers, NBMG Bulletins, Reports and Maps, symposia papers, and proceedings papers and nearly 200 contract reports. Shevenell delivered hundreds of presentations to scientific and non-technical audiences, and was successfully awarded over 90 grants and contracts from federal and private sources totaling greater than \$15 million with which she supported over 100 undergraduate and graduate students.

See selected publications here:

http://www.nbmgu.unr.edu/docs/Shevenell_retirement.pdf

<http://www.nbmgu.unr.edu/Staff/Shevenell.html>

John Bell and Lisa Shevenell will be greatly missed at NBMG.

NBMG Welcomes Alex Nesbitt

A message from Jim Faulds:

Please welcome our **new administrative assistant Alex Nesbitt**, who started work April 1. Alex has been with the UNR College of Science for several years, first in the Dean's office and then in the Biology Department. He therefore brings a great deal of experience and know-how to this position.

New Topographic Map Web Index from NBMG

Nevada Petroleum and Geothermal Society; May 2015

A huge thank you goes to Rachel Wearne (NBMG Cart/GIS group) for creating this new topographic map web app.

NBMG Topographic Map Index:

Instructions for use are included on this web page:

<http://nbgm.maps.arcgis.com/apps/Viewer/index.html?appid=705176c4c3444f2e96ca7d5295319c6b>

<http://pubs.nbgm.unr.edu/category-s/1845.htm>

<http://pubs.nbgm.unr.edu/category-s/1940.htm>

Stay tuned for the interactive index for geologic maps that the Cart/GIS group at NBMG is working on right now.

New State Managed Lands Interactive Web Map

This message was forwarded from Jennifer Vican.

From: Jennifer (Mauldin) Vican

Sent: Friday, March 27, 2015 3:16 PM

Subject: New State Managed Lands Interactive Web Map

An announcement from Stephanie Snider with NV Division of State Lands:

The Nevada Division of State Lands (NDSL) uses spatial data for land use planning, resource protection and responsible stewardship of the lands entrusted to our agency. The State Managed Lands Interactive Web Map makes it easy to view NDSL managed properties to determine land ownership, using agency, performing assets, acreage and much more. To review the web map, download GIS data and connect to the NDSL map service, please check out our **Maps and GIS**

Resources webpage at:

<http://lands.nv.gov/maps/index.htm>

Stephanie Snider

IT/GIS Manager; Business Process Analyst III

NV Division of State Lands

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Carson City, NV 89701

775-684-2727, ssnider@lands.nv.gov

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Nevada Bureau of Mines and Geology
Great Basin Science Sample and Records Library
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phone (775) 682-8766, fax (775) 784-6690, www.nbgm.unr.edu

AAPG PACIFIC + ROCKY MOUNTAIN SECTIONS JOINT MEETING

NEW ROCKS, NEW PLAYS, NEW DAYS



> SAVE THE DATE !

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2-5 OCTOBER 2016
PARIS LAS VEGAS HOTEL

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**GEOLOGICAL SOCIETY OF NEVADA
2015 SYMPOSIUM**

**ANNOUNCEMENT and
CALL FOR PAPERS**

ABSTRACT DEADLINE EXTENDED

THEME: New Concepts and Discoveries

WHEN: MAY 14-24, 2015

**WHERE: JOHN ASCUAGA'S NUGGET
RENO/SPARKS, NEVADA**

The Geological Society of Nevada invites contributions for oral, poster, and core shack presentations covering a broad range of geological topics for its upcoming seventh symposium. The symposium's focus is New Concepts and Discoveries emphasizing both the major deposit types and the trends that have sustained the mining industry for several decades as well as other deposit types and areas that may eventually have greater influence. The focus of the meeting is to utilize case studies; descriptions of new and reinvigorated deposits and targets; framework geology; tectonics and metallogeny; and the latest deposit concepts and exploration technologies.

Oral presentations require abstracts and a written paper that will be peer-reviewed and published in the Symposium Proceedings following the meeting. Poster presentations require abstracts and written papers are encouraged. Core shack presenters are welcome to submit abstracts and written papers, but are not required to do so.

Draft abstracts up to 500 words should be submitted **no later than October 1, 2014**. Written papers should be 2,000 to 20,000 words and include figures and tables.

Information for contributors is available on-line at: <http://www.gsnv.org/2015-symposium/>. Submit abstracts to John Muntean and Moira Smith via e-mail at: munteani@unr.edu and msmith@pilotgold.com.

**GSN-SEG FORUM
SUNDAY, MAY 17TH, 2015**

TOPIC:

Carlin-like Gold Deposits: What Can We Learn
Beyond the Known Trends and Nevada

TECHNICAL PROGRAM

MONDAY-THURSDAY

MAY 18TH- 21ST, 2015

Focus Topics:

- Regional Geology and Metallogeny of the Great Basin
- Exploration Technology
- Case Histories of Discoveries and Exploration Update
- Intrusion-Related Cu-Au-Mo Deposits
- Northeastern Nevada: The New Frontier
- Advances in Carlin-type Gold Deposits
- Epithermal Deposits
- Diversification: Looking Beyond Gold, Copper and Silver

Questions? Contact us at:

<http://www.gsnv.org/2015-symposium/> or email at mollymhunsaker@2015GSNSymposium.org

Meeting Co-Hosts



FIELD TRIPS

MAY 14TH-16TH AND MAY 21ST-23RD, 2015

Pre-meeting:

- Introduction of Carlin Gold Deposits
- Epithermal Deposits of Northern Nevada
- Mining for Non-Geologists: Exploration to Reclamation

Post-meeting:

- The Pequoop Trend-Nevada's Newest "Carlin" Trend
- Epithermal Deposits of Central Nevada
- Porphyry-related Deposits of Nevada
- The Famous Comstock Gold and Silver District

SHORT COURSES

MAY 14TH-16TH AND MAY 21ST-23RD, 2015

TOPICS TO BE ANNOUNCED

EXHIBITS

An active exhibit hall will provide excellent industry exposure for your company or organization. Space will go fast for this popular venue, so **please reserve your booth early!** Contact Elizabeth Zbinden or Mary Stollenwerk at exhibits@2015GSNSymposium.org for more information.

Sponsorship Opportunities

We invite you to join GSN as we continue the tradition of excellence in presentations, field trips, and short courses. Opportunities are available for Patronage sponsorships, along with specific events. Please visit the website: www.gsnv.org/symposium or e-mail Dave Shaddrick at: dshaddrick@aol.com

The **Geological Society of Nevada (GSN)** is a non-profit scientific society whose principal mission is to promote the advancement of the geological sciences, especially as they relate to Nevada. The Society encourages the dissemination of scientific and practical knowledge through semiformal presentations, field trips and symposia as well as by publishing the literature resulting from these activities.



GRC Workshop

Yellowstone National Park

June 22-26, 2015

The workshop will include a tour of the major geologic features of Yellowstone Park, the first national park in the world and the site of the greatest concentration of geothermal features on the planet, and discussions of its volcanic history, geochemistry, and hydrology.

The trip will be led by Duncan Foley, Gene Suemnicht, and Joe Moore. Duncan has led geologic and photographic tours of the park since the 1970's and is familiar with its features, moods and history. Gene and Joe each have more than 30 years experience in geothermal systems worldwide.

Highlights include:

- The 13 MW net capacity U.S. Geothermal Raft River geothermal power plant and the Raft River Enhanced Geothermal System site where stimulation activities are being conducted.
- The geological and geothermal features of the Yellowstone super volcanic system.
- 300 plus geysers – more than half of all the geysers in the world.
- More than 10,000 thermal features comprised of brilliantly colored hot springs, bubbling mudpots, and steaming fumaroles.
- Grand Teton National Park



~ Cost is \$1,500 per person for GRC Members, \$1,700 for non-members.

~ The price will include travel by bus from Salt Lake City and 4 nights double-occupancy accommodation in West Yellowstone. Also included are 4 lunches, one dinner, one reception and trip materials.

~ Not included are the cost of flights to and from, and accommodation in Salt Lake City on June 21 and 26, and the cost of breakfasts each day and 3 dinners.

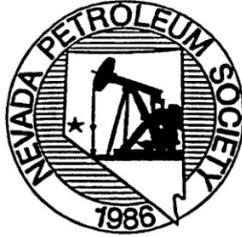
Register for this exciting GRC Workshop/Field Trip opportunity by completing the registration form overleaf or by going online at: <https://eseries.geothermal.org>

Register by June 12 – only 50 spaces available.

Cancellations before May 22 will incur a \$100 fee. No cancellations will be allowed after May 22.

If you have any questions contact the GRC at grc@geothermal.org or phone 530.758.2360.

Go to www.geothermal.org/workshops.html for the latest information including Visa applications.



APPLICATION FOR MEMBERSHIP

Name _____

Occupation/Title _____

Company/Affiliation _____

Work Address _____
Street City State Zip Code

Residence Address _____
Street City State Zip Code

Preferred Mailing Address? WORK -or- RESIDENCE

Work Phone _____ Residence Phone _____ Fax _____

Mobile Phone _____ Email _____

Member of AAPG? YES -or- NO

Professional References – list two references with phone numbers and addresses

1) Name _____ Phone _____

Address _____
Street City State Zip Code

2) Name _____ Phone _____

Address _____
Street City State Zip Code

Education – list colleges and universities attended, degree(s) received, and date of degree(s) (OPTIONAL)

Membership Type

- ACTIVE \$20.⁰⁰/year
- ASSOCIATE \$15.⁰⁰/year
- STUDENT \$10.⁰⁰/year
- LIFE \$200.⁰⁰ (one-time payment)

Signature _____

Date _____

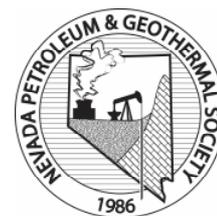
Please make check payable to:

Nevada Petroleum Society
P.O. Box 11526
Reno, NV 89510-1526

DO NOT COMPLETE
For NPS Membership Committee Signatures Only

Nevada Petroleum and Geothermal Society

Publication Price List - October 2013



Paper	CD-ROM	Download from Dropbox	Title
SPECIAL VOLUMES			
NPS1 n/a	NPS1c \$80.00	NPS1y \$65.00	Oil Fields of the Great Basin (1994) R.A. Schalla and E.H. Johnson, editors, 31 papers on regional and field specific geology, 5 plates, soft cover with plastic comb binding, 380 p.
NPS2 n/a	n/a	n/a	Membership Directory (only available free on the Web at http://www.nbmg.unr.edu/nps/membershipdir.htm)
NPS15 \$20.00 \$5.00	n/a	n/a	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 for discounted price of \$5.00
NPS21 n/a	NPS21c \$35.00	NPS21y \$20.00	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, 54 p., 45 illustrations
FIELD TRIP GUIDEBOOKS			
NPS3 n/a	NPS3c \$35.00	NPS3y \$20.00	Oil Fields, Production Facilities and Reservoir Rocks of Northern Nye Co, Nevada (1989) compiled by W.J. Ehni and D.M. Evans, 8 abstracts and papers, 30 p.
NPS4 \$15.00	NPS4c \$35.00	NPS4y \$20.00	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)
NPS5 n/a	NPS5c \$35.00	NPS5y \$20.00	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.
NPS6 \$25.00	NPS6c \$40.00	NPS6y \$25.00	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.
NPS7 \$33.00	NPS7c \$48.00	NPS7y \$33.00	Structural and Stratigraphic Relationships of Devonian Reservoir Rocks, East Central Nevada (1993), C.W. Gillespie, editor, 15 papers, 3 plates, 203 p.
NPS8 n/a	NPS8c \$40.00	NPS8y \$25.00	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.
NPS9 n/a	NPS9c \$55.00	NPS9y \$40.00	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, two volumes bound as one, 13 papers, 22 plates, 281 p.

Paper	CD-ROM	Download from Dropbox	Title
NPS10 \$25.00	NPS10c \$40.00	NPS10y \$25.00	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.
NPS11 \$25.00	NPS11c \$40.00	NPS11y \$25.00	Cenozoic Structure and Stratigraphy of Central Nevada (1996) W.J. Taylor and H. Langrock, editors, 11 papers, 122 p.
NPS12 \$25.00	NPS12c \$40.00	NPS12y \$25.00	The Roberts Mountains Thrust, Elko and Eureka Counties, Nevada (1997) A.J. Perry and E.W. Abbott, editors, 4 papers, 2 abstracts and reference papers/abstracts, 86 p.
NPS13 n/a	NPS13c \$40.00	NPS13y \$25.00	Hydrocarbon Habitat & Special Geologic Problems of the Great Basin (1998) D.E. French and R.A. Schalla, editors and co-chair
NPS14 \$35.00	NPS14c \$50.00	NPS14y \$35.00	Cenozoic Geology of the Northern Colorado River Extensional Corridor, Nevada and Arizona: Economic Implications of Extensional Segmentation Structures (1999) J.E. Faulds, editor, 183 p., 3 color plates
NPS16 \$30.00	NPS16c \$45.00	NPS16y \$30.00	Structure & Stratigraphy of the Eureka, Nevada Area (2001) Marilyn S. Miller and Jerome P. Walker, editors, 108 p., 11 color plates
NPS17 n/a	NPS17c \$50.00	NPS17y \$35.00	Detachment and Attenuation in Eastern Nevada and its Application to Petroleum Exploration (2002) W. Ehni and J. Faulds, editors, 163 p.
NPS18 \$25.00	NPS18c \$40.00	NPS18y \$25.00	Oil, Gas, and Geothermal Occurrences in Northwestern Nevada (2003) S. Foster, editor, 102 p.
NPS19 n/a	NPS19c \$50.00	NPS19y \$35.00	Megabreccias and Impact Breccias of East Central Nevada (2004) C.W. Gillespie and S. Foster, editors
NPS20 n/a	NPS20c n/a	NPS20y n/a	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 (report from USGS Open-File Report 2004-1078, free on Web at http://pubs.usgs.gov/of/2004/1078/)
NPS22 n/a	NPS22c \$40.00	NPS22y \$25.00	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.
NPS23 \$25.00	NPS23c \$40.00	NPS23y \$25.00	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
NPS24 \$30.00	NPS24c \$45.00	NPS24y \$30.00	Geothermal and Petroleum Developments in Several Extensional Basins of the Central Walker Lane, Nevada (2013) L.J. Garside, editor, 11 papers, 131 p.

These publications are only available from the Nevada Bureau of Mines and Geology (NBMG). If a publication is out of print or unavailable, it is marked "n/a" (not available). **Please check with us for the most current prices.** Thanks.

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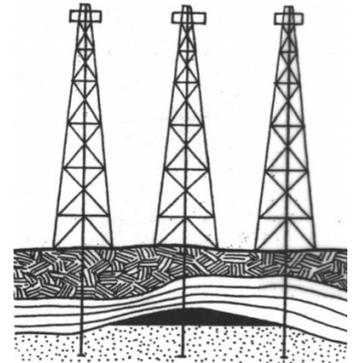
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Oil and gas resources from NBMG

The following publications are available from the Nevada Bureau of Mines and Geology. Many of these are available free on the Web. Go to the publications website and look for the "Free Downloads" link on the individual publication landing pages: <http://pubs.nbmq.unr.edu/>

Oil and gas information page on the NBMG website
<http://www.nbmq.unr.edu/Oil&Gas/index.html>



Bulletins

B104 Oil and gas developments in Nevada: Garside, Hess, Fleming and Weimer (1988) for updates, see OF01-7, OF04-1, and M162

Educational Series

E-6 Oil and gas in Nevada (Student book for grades 4-8, 23 pages) \$3.45
E-24 Nevada oil: Division of Minerals (Brochure, 1996) free

Lists

L-8 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
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. Shows, geologic tops and tests are given when available.

Maps

M162 Petroleum data map of Nevada: Garside and Hess (2007), 1:1,000,000

Mineral Industry series

The Nevada Mineral Industry is published annually, beginning in 1979. Each volume has a section on oil and gas in Nevada. Most of these reports are available free on the Web at <http://pubs.nbmq.unr.edu/Mineral-Industry-s/1860.htm>

Open-File Reports

OF83-5 Nevada oil shale: Garside, 10 pages, \$4.00 (for more oil shale information, see also USGS MF-1546 and MF-2091)
OF86-13 Nevada petroleum production statistics, 1954-1986: Hess, Loomis and Garside, 14 pages
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
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, see also OF01-7, M162
OF01-7 Nevada oil and gas well database map: Hess, CD and 4 page text, \$15.00
Contains the following: L-12; updated simplified version of OF96-6 (no text), 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 topo boundaries for 1:100,000 and 1:24,000, Township and Range); georeferenced raster graphic of the Nevada state base map, B&W, scale 1:1,000,000; 18 USGS digital raster graphic maps (DRG), 1:250,000-scale, topo maps in tiffw format
OF00-2 Hydrocarbon assessment of the Yucca Mountain vicinity, Nye County, Nevada: French, 78 pages and 4 plates
OF04-1 Nevada oil and gas well database (NVOILWEL): Hess (2004)
OF07-7 Assessment of the potential for carbon dioxide sequestration with enhanced oil recovery in Nevada: LaPointe, Price, and Hess (2007), 24 pages
OF11-2 Qualitative petroleum potential map of Nevada: Garside and Hess (2011), plate 1:1,000,000 and text
OF11-6 Oil and gas well information for Nevada—2011 update: Hess, Henson, Davis, Limerick, Siewe, and Niles; portable hard drive, 105 GB, 9643 files, also free on Web at <http://www.nbmq.unr.edu/Oil&Gas/NVWellInfo.html>

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
R52 Assessment of the potential for carbon dioxide sequestration by reactions with rocks in Nevada: Sturmer, LaPointe, Price, and Hess (2007)

USGS

Assessment of undiscovered oil and gas resources of the Eastern Great Basin Province, 2005, Fact Sheet FS-2005-3053, free at <http://pubs.usgs.gov/fs/2005/3053/>
Basin and Range Carbonate Aquifer System Study: <http://nevada.usgs.gov/barcass/data.htm>

Geothermal resources in Nevada

The following publications are available from the Nevada Bureau of Mines and Geology. Many of these are available free on the Web. Go to the publications website and look for the "Free Downloads" link on the individual publication landing pages: <http://pubs.nbmgs.unr.edu/>

Geothermal information page on the NBMG website

<http://www.nbmgs.unr.edu/Geothermal/index.html>

Bulletins

- B65 Mineral and water resources of Nevada: Cornwall (1964) pp. 267-269
- B89 Geology and mineral deposits of Pershing County, Nevada: Johnson (1977) pp. 104-106
- B91 Thermal waters of Nevada: Garside and Schilling (1979) \$22.00, *for update see L-5*
- B97 Discovery and geology of the Desert Peak geothermal field—a case history: Benoit, Hiner, and Forest (1982) *see also OF03-27*
- B99B Mineral resources of northern Nye County, Nevada: Kleinhampl and Ziony (1984) p. 37-38

Educational Series

- E-7 Geothermal resources in Nevada: Student reading/activity book for grades four through eight, 27 p.
- E-15 Nevada geothermal electric power production, brochure (1992) 2 p.
- E-35 Major mines, oil fields, and geothermal plants in Nevada
- E-46 Taking the pulse of the Earth
- E-51 Life's a beach: In search of ancient shorelines and volcanoes in the Grimes Point and Lahontan Mountains area

Lists

- L-5 Index to geothermal well files housed at NBMG: Davis and Hess (2009) *updates* App. 2 of B91

Maps

- M126 Nevada geothermal resources: Shevenell, Garside, and Hess (2000), *superseded by M161*
- M141 Nevada geothermal resources (second edition): Shevenell and Garside (2005), 1:750,000, *superseded by M161*
- M146 Geologic map of the Fraser Flat quadrangle and the west half of the Moses Rock quadrangle, Washoe Co., NV
- M151 Geothermal potential map of the Great Basin, western United States: Coolbaugh and others (2005) 1:1,000,000
- M161 Nevada geothermal resources: Penfield, Shevenell, Garside, and Zehner (2010), 1:750,000, *supersedes M126 and M141*

Mineral Industry Series

MI-1979 through current year—The Nevada mineral industry is published annually and has a section on geothermal activities, varies with year, MI-1994-current year available free on Internet at <http://pubs.nbmgs.unr.edu/Mineral-Industry-s/1860.htm>

Newsletters

Nevada Geology Newsletter no. 19, page 3 (Summer 1993) "Low-temperature geothermal resources in Nevada" by Larry Garside

Open-File Reports

- OF83-6 Preliminary map of thermal wells in the Moana geothermal area, Reno, Nevada: Garside
- OF87-2 Mineral resource inventory – U.S. Navy master land withdrawal area, Churchill County, Nevada: Quade and Tingley
- OF94-2 Nevada low-temperature geothermal resource assessment: 1994: Garside, with a bibliography by Davis and Garside
- OF96-2-9 Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada: (Plate 9) 1:1,000,000, map and text
- OF03-27 Preliminary geologic map of the Desert Peak-Brady geothermal fields, Churchill County, Nevada: Faulds and Garside (2003), *see also B97*
- OF06-5 Mineral- and energy resource potential for White Pine County, Nevada
- OF06-6 Mineral- and energy resource potential for Pershing County, Nevada
- OF06-7 Mineral- and energy resource potential for Lyon County, Nevada
- OF06-12 Potential resources associated with proposed roadless areas in Nevada
- OF09-10 Preliminary geothermal potential and exploration activity in Nevada: Zehner, Coolbaugh, and Shevenell, 1:1,000,000-scale plate and text, *supersedes OF09-1*
- OF10-6 Preliminary geologic map of the Lee-Allen geothermal area, Churchill County, Nevada
- OF11-3 Preliminary geologic map of the Reese River geothermal area, Lander County, Nevada
- OF11-10 Descriptive logs, skeletonized samples, and photographs of core from Presco Energy's thermal gradient wells P3-1, P 10-1, and P 32-2 in the Rye Patch area, Pershing County, Nevada: Davis (2011, Web version only)
- OF11-11 Preliminary geologic map of the northern Lake Range, San Emidio geothermal area, Washoe County, Nevada: Rhodes, Faulds, and Ramelli, scale 1:24,000

Nevada Petroleum and Geothermal Society; May 2015

- OF12-3 Data tables and graphs of geothermal power production in Nevada: Shevenell, Price, and Hess (1985-2011)
- OF12-05 Preliminary geologic map of the Desert Peak quadrangle, Churchill County, Nevada
- OF13-05 Preliminary geologic map of the Tuscarora geothermal area, Elko County, Nevada
- OF13-08 Preliminary geologic map of the Wabuska quadrangle, Lyon County, Nevada
- OF13-10 Preliminary geologic map of the central Lake Range, southern Fox Range, and northern Terraced Hills, Emerson Pass geothermal area, Washoe County, Nevada (second edition)
- OF13-11 Preliminary geologic map of the southern Lake Range, Washoe County, Nevada

Reports

- R21 Geothermal exploration and development in Nevada through 1973
- R25 Evaluation of geothermal activity in the Truckee Meadows, Washoe County, Nevada: Bateman and Scheibach (1975)
- R33 Papers on mineral deposits of western North America: (1979), presented at the Fifth Quadrennial Symposium of IAGOD
- R41 Precious-metal mineralization in hot springs systems, NV-CA: Tingley and Bonham (1986)
- R43 Mineral resources of the Kumiva Peak 30' by 60' quadrangle: Tingley (1989) p. 16-17
- R44 Mineral resources of the Pahrnagat Range 30' by 60' quadrangle: Tingley (1989) p. 8-9
- R45 Mineral resources of the Overton 30' by 60' quadrangle: Tingley (1989) p. 12-13
- R46 Mineral resources of the Timpahute Range 30' by 60' quadrangle: Tingley (1991) p. 30-31
- R51 Preliminary assessment of the potential for carbon dioxide disposal by sequestration in geological settings in Nevada

Special Publications

- SP4 Geology of Nevada: a discussion to accompany the Geol. map of Nevada (see below): Stewart (1980)
- 00001 Geologic map of Nevada: Stewart and Carlson, U.S.G.S. (1978) 1:500,000
available free on the Internet at <<http://keck.library.unr.edu/>> and click on "Great Basin geoscience dataset"
see SP4 for descriptive text

Urban Map Series

- 3Ah Energy and mineral resources map of the Las Vegas SE quadrangle: Papke and Bell (1973)
- 4Ah Energy and mineral resources map of the Reno quadrangle: Bingler, Bonham, and Luza (1973)
- 5Ah Energy and mineral resources map of the Washoe City quadrangle: Papke and Jones (1978)

Nevada Petroleum Society

- NPS5 Geology of White River Valley, the Grant Range, eastern Railroad Valley and western Egan Range, Nevada
- NPS18 Oil, gas and geothermal occurrences in northwestern Nevada
- NPS22 Geology, geothermal resources and petroleum exploration of Neogene basins in the Reno, Nevada area
- NPS24 Geothermal and petroleum developments in several extensional basins of the central Walker Lane, Nevada

USGS Publications

- C1249 Geothermal energy – clean power from the earth's heat: Duffield and Sass, *free on the Internet at* <<http://geopubs.wr.usgs.gov/circular/c1249/>>
- I-1701 Bouguer gravity anomalies, depth to bedrock, and shallow temperature in the Humboldt House geothermal area, Pershing County, Nevada: Schaefer (1986)
- OF74-271 Geothermal systems of northern Nevada: Hose and Taylor (1974), 30 pages
- OF74-1066 The chemical composition and estimated minimum thermal reservoir temperatures of the principal hot springs of northern and central Nevada
- OF81-918 Geothermal resources of the western arm of the Black Rock Desert, northwestern Nevada, part I, geology and geophysics: Schaefer, Welch, and Maurer (1983), 41 pages and 4 plates
- OF02-374 A helicopter-borne magnetic survey over Dixie Valley geothermal field, Nevada: A web site for distribution: Pearson, deRidder and Johnson (2002), *available free on the Internet at* <<http://pubs.usgs.gov/of/2002/ofr-02-0374/>>
- OF02-384 High-resolution aeromagnetic survey to image shallow faults, Dixie Valley geothermal field, Nevada: Grauch (2002), <http://pubs.usgs.gov/of/2002/ofr-02-0384/>

Other Resources

Great Basin Center for Geothermal Energy is at <http://www.gbcge.org/>

For more information, please contact:

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Nevada Petroleum and Geothermal Society Calendar: Year 2015-2016	
May 7, 2015	NPGS Monthly Dinner Meeting – Thursday May 7, 6:30 PM <i>Speaker: Ben Delwiche – Ormat Nevada</i> <i>Topic: McGuinness Hills Project</i>
May 14-23, 2015	GSN Symposium 2015 John Ascuaga's Nugget Hotel and Casino in Sparks, Nevada www.gsnv.org/2015-symposium http://www.nbmgs.unr.edu/docs/GSN_2015_Symposium.pdf
May 31-Jun 3, 2015	AAPG Annual Convention and Exhibition 2015 Denver, CO www.aapg.org
June 9, 2015	Nevada BLM Oil & Gas Lease Sale, Reno NV Battle Mountain NV District, posting date: Mar 11, 2015 http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/oil_gas/oil_and_gas_leasing.html
Jun 22-26, 2015	GRC Workshop – Yellowstone National Park GRC Website: http://www.geothermal.org/yellowstone.html For any questions or concerns, please contact Anh Lay by email at alay@geothermal.org or by phone at (530) 758-2360 ext. 100.
Sep 3, 2015	NPGS Monthly Dinner Meeting – Thursday Sep 3, 6:30 PM <i>Details TBA</i>
Oct 1, 2015	NPGS Monthly Dinner Meeting – Thursday Oct 1, 6:30 PM <i>Details TBA</i>
Nov 5, 2015	NPGS Monthly Dinner Meeting – Thursday Nov 5, 6:30 PM <i>Details TBA</i>
Dec 4, 2015 Friday	NPGS ANNUAL CHRISTMAS PARTY – Friday Dec 4, 6:30 PM <i>Details TBA</i>
Jan 7, 2016	NPGS Monthly Dinner Meeting – Thursday Jan 7, 6:30 PM <i>Details TBA</i>
Feb 4, 2016	NPGS Monthly Dinner Meeting – Thursday Feb 4, 6:30 PM <i>Details TBA</i>
Mar 3, 2016	NPGS Monthly Dinner Meeting – Thursday Mar 3, 6:30 PM <i>Details TBA</i>
Apr 7, 2016	NPGS Monthly Dinner Meeting – Thursday Apr 7, 6:30 PM <i>Details TBA</i>
May 5, 2016	NPGS Monthly Dinner Meeting – Thursday May 5, 6:30 PM <i>Details TBA</i>
Oct 2-5, 2016	Rocky Mountain Section/Pacific Section Meeting – AAPG 2016 2016 joint RMS-AAPG/PS-AAPG annual meeting Paris Hotel, Las Vegas, Nevada. Host societies: Idaho Association of Professional Geologists and the Nevada Petroleum & Geothermal Society.

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