

# NEWSLETTER

Serving the Petroleum and Geothermal Community

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

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

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## Dinner Meeting: Thursday, May 3, 2012

**Speaker 1:** Gregory Dering  
Graduate Student, University of NV Reno

**Title:** "Structural Controls of the Tuscarora Geothermal Field, Elko County, Nevada"

**Speaker 2:** William (Bill) Ehni  
Geologist, Ehni Enterprises, Inc.

**Title:** "Submarine Deposition of Tufa in Pyramid Lake, Washoe County, Nevada"

**Place:** Ramada Reno Hotel  
1000 East 6<sup>th</sup> Street, Reno, Nevada

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

**Redeem your dinner ticket for a drink at the Skyline Bar  
Hosted by Barbour Well, Inc.**

**Dinner Served at 7:00 PM**

#### **Dinner Costs:**

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

#### **Menu:**

**Buffet style; including chicken & beef entrees, side dishes and salad.**

**\*\*RSVP**

**Diane Phillips (775) 267-4663 or [trailsend@pyramid.net](mailto:trailsend@pyramid.net)**

► **ABSTRACTS—NPS Monthly Dinner Meeting – May 3, 2012**

**1) Structural Controls of the Tuscarora Geothermal Field, Elko County, Nevada**

Gregory M. Dering, Department of Geological Sciences and Engineering, University of Nevada, Reno  
James E. Faulds, Nevada Bureau of Mines and Geology, University of Nevada, Reno

Tuscarora is an amagmatic geothermal system located ~90 km northwest of Elko, Nevada, in the northern part of the Basin and Range province ~15 km southeast of the Snake River Plain. Detailed geologic mapping, geochronologic analysis, structural analysis, well data, and existing geophysical surveys are being integrated to identify the structural controls of the Tuscarora geothermal system.

The structural grain in the geothermal field is defined by NNW- to NNE-striking normal faults that are approximately orthogonal to the present extension direction. Boiling springs, fumaroles, and siliceous sinter emanate from a single NNE-striking, west-dipping normal fault. Normal faults west of these hydrothermal features mostly dip steeply east, whereas normal faults east of the springs primarily dip west. Thus, the springs, fumaroles, and sinter straddle a zone of interaction between fault sets that dip toward each other, classified as a strike-parallel antithetic accommodation zone. Faults within the study area are mostly discontinuous along strike with offsets of tens to hundreds of meters, whereas the adjacent range-bounding fault systems of the Bull Run and Independence Mountains have a minimum of 900 meters and 1200 meters of offset, respectively. The geothermal field lies within a broad step over between the southward terminating Bull Run fault zone and the northward terminating Independence Mountains fault zone. Neither of these major fault zones is known to host high temperature geothermal systems. Efforts to develop the Tuscarora geothermal system began in 1978 with AMAX Exploration Inc. and culminated in November, 2011 when Ormat Technologies commissioned a ~19 MW power plant. The Basin and Range in northeastern Nevada currently hosts several known high temperature geothermal systems, which cumulatively produce <17 MW of electricity. Characterization of the structural controls at Tuscarora will benefit further development and exploration of geothermal resources in this tectonically distinct sub province of the Basin and Range.

*Greg Dering is a graduate student at the University of Nevada, Reno and a recipient of a 2011 Student Research Grant from the Nevada Petroleum Society. This study is part of a larger project to characterize the structural settings of Great Basin geothermal systems and develop geologically-driven exploration strategies for geothermal resources, led by Professor Jim Faulds and the Nevada Bureau of Mines and Geology.*

**2) Submarine Deposition of Tufa in Pyramid Lake, Washoe County, Nevada**

William J Ehni, Geologist, Ehni Enterprises, Inc.

A photographic excursion underwater, capturing the formation of tufa and flowing hot springs on still photographs and video. Speculation on identifying hot spring tufa relative to non-geothermal tufa will be presented.

At Pyramid Lake, in Washoe County, Nevada, tufa deposits are commonly associated with geothermal anomalies. Tufa is calcium carbonate, essentially a fresh water limestone, and is deposited in several different forms. During reconnaissance and inspection of the various morphologies of tufa in and around Pyramid Lake, it was speculated that tufa might be actively depositing under water. The hot spring located on the west side of The Pyramid at lake level is 207 degrees Fahrenheit, which is the boiling point of water at this elevation (3800

feet above sea level). For this reason, we decided to explore the submerged portion of the Pyramid to look for tufa being currently deposited.

The Pyramid rises over 350 feet above lake level and could be the tallest tufa spire in North America, or possibly the world, especially considering its vertical extent under water, which is in excess of 60 feet. During the initial descent on the west side of the Pyramid Tufa Spire, the landscape appeared fairly normal for a fresh water lake, minimal vegetation and relatively bland scenery except for the steep walls of the Pyramid. This quickly changed as we encountered the first underwater hot spring. We discovered numerous submerged hot springs with several different morphologies. Small (4" X 24") delicate columnar vase shaped tufa was found in numerous areas and occasionally in "forests" of spires. In other areas, large (3 foot diameter) domed shaped structures were found to be warm but with no obvious hot spring vent. In some areas, the tufa draped downward branching out similar to tree limbs or deer antlers. The tufa deposits ranged in depth from the near surface to 55 feet below the surface of Pyramid Lake, which was our maximum dive depth. It is entirely possible that tufa is forming deeper in the Lake; however, we did not go any deeper than about 60 feet. Seismic data indicates that tufa formation probably is actively occurring deeper in the Lake.

I would like to thank the Pyramid Lake Paiute Tribe for granting permission to dive The Pyramid and present this data. Public access to The Pyramid is restricted.

*Bill Ehni is President & geologist of Ehni Enterprises, Inc., Carson City, NV. He is a founding member of the Nevada Petroleum Society and currently the Vice President Elect and AAPG Delegate for the Society.*

► **Cocktail Reception 6:30 Hosted by Barbour Well:**



*Barbour Well, Inc. would like to extend regards and appreciation for all of the attendees at the March NPS meeting who, like ourselves, are committed to the advancement of oil and geothermal energy production throughout Nevada. Please enjoy a complimentary cocktail on us as you receive a ticket when paying for your event. It is our hope to provide you with excellence in oil and geothermal drilling services.*

*Steve Zarcone Business Development*

**Barbour Well Inc.**, 260 Sunpac Ave. Suite A, Henderson, NV 89011  
Direct: 805-207-6407, Cell: 661-755-7687, [www.barbourwell.com](http://www.barbourwell.com)

► **Next Scheduled BLM Geothermal Lease Sale – January 29, 2013:**

Nominations accepted for this sale until June 29, 2012.

[http://www.blm.gov/nv/st/en/prog/minerals/leasable\\_minerals/geothermal0/ggeothermal\\_leasing.html](http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing.html)

► **Next Scheduled Oil & Gas Lease Sale – June 12, 2012:**

The notice and preliminary list of parcels is available for this sale. 59 parcels are listed for a total of approximately 99,000 acres; 47 of the parcels have presale offers.

[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)

► **Proposed Name Change for NPS – Membership Business:**

**NAME-CHANGE VOTING COMPLETED**

Ballots for voting on the proposed name-change of our professional association from the *Nevada Petroleum Society, Inc.* to the *Nevada Petroleum and Geothermal Society, Inc.* were distributed to all NPS members by email and U.S. Postal Service on March 31<sup>st</sup>. Deadline for receipt of ballots by the NPS was the end of day, April 30<sup>th</sup>. Results of the voting will be announced at the May 3<sup>rd</sup> dinner meeting.

► **NPS Officer Elections 2012-2013 (Jun 1 – May 31):**

At the April 5, 2012 dinner meeting of the NPS the 2013 officers election was decided.

The membership voted the following individuals into office:

<b>President</b>	<b>John Snow, Chief Operating Officer, Standard Steam</b>
<b>Vice-President/President Elect</b>	<b>William (Bill) Ehni, Geologist, Ehni Enterprises, Inc.</b>
<b>Secretary</b>	<b>Judy Kareck, Engineer, Lumos &amp; Associates</b>
<b>Treasurer</b>	<b>Steve Foster, Geophysicist/Geologist</b>

► **NPS-AAPG Delegate Report – April 2012 AAPG Annual Meeting, Long Beach CA**

Submitted by Bill Ehni, AAPG Delegate

On April 22, 2012 I attended the House of Delegates Meeting at the annual AAPG convention in Long Beach California on behalf of the NPS. There were nearly 200 delegates attending. During the meeting, the two candidates for President – Elect of the AAPG, Don Clarke and Lee Krystinik addressed the House of Delegates. Both candidates are energetic, are very competent and would make good AAPG officers if elected. The Convention General Chairman, Kay Pitts reported that there were 4612 pre-registered attendees to the Annual Convention and that she expected the final attendance to reach 6,000. In addition she reported that there are 220 exhibitors this year. AAPG President Paul Weimer discussed the upcoming URTEC conference that will be held in Denver (12-14 Aug 2012) and encouraged delegates to inform their local societies of the upcoming event.

<http://www.urtec.org/conference/about-urtec>

Two proposed amendments to the AAPG Bylaws were voted on during the House of Delegates meeting. The first amendment would have provided for “recommendations by the Advisory Council to the Executive Committee which involve long –range planning” was rejected. The second

amendment, after nearly an hour of debate, was passed, and will change the name of “active members” to “members” (dropping the word active).

During some of the discussion on changes to the AAPG Bylaws, someone made an interesting statement, “most elected officials and or regulators believe in their Horoscope more that they do in Science”, emphasizing the importance of educating the general public about global issues – science - and how it relates to the oil and gas industry. The House of Delegates Meeting lasted about 4 hours.

Other items of interest;

Upcoming movie by Scott Tinker

[http://www.geoexpro.com/article/Understanding\\_Our\\_Energy\\_Future/0462beb4.aspx](http://www.geoexpro.com/article/Understanding_Our_Energy_Future/0462beb4.aspx)

(also see [http://www.youtube.com/watch?v=C\\_2KQwBJYfY](http://www.youtube.com/watch?v=C_2KQwBJYfY) )

And another move about the oil industry

sp\_OIL\_ed (spoiled)

<http://www.spoiledthemovie.com/>

### ► **2011 and 2012 NPS Scholarship Awards:**

**Scholarship Awards in 2012:** 5 proposals, \$4,500 total grants

- 1) **Ryan B. Anderson** (M.S. candidate at the University of Nevada, Reno), **\$1,000** – *Structural controls of the Emerson Pass geothermal system, Pyramid Lake Paiute Indian Reservation, western Nevada*
- 2) **Joel Edwards** (M.S. candidate at the University of Nevada, Reno), **\$1,000** – *Structural controls on the Neal Hot Springs geothermal system, Vale, Oregon*
- 3) **Brett Mayhew** (M.S. candidate at the University of Nevada, Reno), **\$1,000** – *Structural investigation of the Astor Pass geothermal system*
- 4) **Jonathan Payne** (M.S. candidate at the University of Nevada, Reno), **\$1,000** – *Active faulting at a geothermal and petroleum prospect in Gabbs Valley, Nevada*
- 5) **Stefano Benato** (Ph.D. candidate at the University of Nevada, Reno), **\$500** – *Utilization of coupled thermal-hydrologic-mechanical-chemical modeling to investigate fracture network permeability evolution and reservoir responses to EGS stimulation experiments and long term thermal drawdown at Ormat Desert Peak and Brady's, Nevada*

**Scholarship Awards in 2011:** 4 proposals, \$4,600 total grants

- 1) **Dev Maharjan** (Ph.D. candidate at the University of Nevada, Las Vegas), **\$1,700** – *Seawater temperature changes across the SPICE event (Steptoean stage) in the Great Basin*
- 2) **Gregory Dering** (M.S. candidate at the University of Nevada, Reno), **\$1,000** – *Structural controls of a geothermal system in northeastern Nevada*
- 3) **Julie Johnson** (M.S. candidate at the University of Nevada, Reno), **\$1,000** – *Oxygen isotopes of refractory minerals in sedimentary rocks*
- 4) **Joel Edwards** (M.S. candidate at the University of Nevada, Reno), **\$350** – *Structural controls of geothermal systems in the Great Basin*

Congratulations to all the student award winners. Thanks to Jim Trexler and Jim Faulds, alternating Scholarship Committee chairs, and to the committee members, including Bill Ehni, Steve Foster, John Snow, Alan Wallace, and Jerry Walker

► **Results from March 2012 Oil & Gas Lease Sale:**

The BLM Oil & Gas Lease Sale held in Reno in March was very successful. Of the 42 parcels offered, 42 were sold for total receipts of \$1,788,595.00. The high bid per parcel was \$217,160 for a 2440 acre parcel in T31N R56E, Elko Co by Lonewolf Expl, Billings MT. The high bid per acre was \$91/acre for a parcel in T30N R56E, Elko Co also by Lonewolf Expl. The lowest bid/acre for any parcel offered was \$4/acre, twice the minimum bid of \$2/acre. No parcels were available for the Non-Competitive Over the Counter sale. The State of Nevada receives approximately half of the revenue from the BLM Lease Sales. Prior to the sale, 33 of the parcels originally offered were removed, due to concerns over sage grouse habitat.

► **USGS Spring Mega Sale – Through May 7, 2012:**

The USGS is having a \$1 topographic map and geologic map (GQ, I, MF, etc.) sale (nation-wide). It also includes Bulletins, CD-ROM digital reports, Wilderness Studies and RARE reports, Petroleum reports, and Water Resource Reports.

Now thru May 7th Only - Save up to 87% off select titles. Over 60,000 USGS items deeply discounted to just \$1. It is first come, first served until the items are gone.

<http://store.usgs.gov/>

Click on the "spring mega sale" banner.

► **News from Nevada Bureau of Mines & Geology:**

**Reminder--new hours begin Monday April 23, 2012**

We will be open Tuesday through Friday (8:00 a.m. to 4:00 p.m.), closed on Monday.

**Our shopping cart is *always open*, 24 hours a day:**

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

**Subscribe to our blog:**

<http://nbmg.posterous.com>

> **NASA news release features Geoff Blewitt and Nevada Geodetic Laboratory**

GPS technology developed at Nevada used for NASA quake monitoring test  
Nevada Geodetic Lab operates largest GPS network processing system in world  
Read article by Mike Wolterbeek (Nevada Today, April 25, 2012):

<http://www.unr.edu/nevada-today/news/2012/gps-technology-helps-nasa>

"GPS technology developed and implemented at the University of Nevada, Reno will be the centerpiece of a major test this year by NASA to pinpoint the location and magnitude of strong earthquakes along the West Coast of the United States. The project was announced by NASA today."

**NASA tests GPS monitoring system for big U.S. quakes**

**NASA news release:**

<http://www.nasa.gov/topics/earth/features/earth20120424.html>

**Article in Sacramento Bee:**

<http://www.sacbee.com/2012/04/24/4438698/nasa-tests-gps-monitoring-system.html>

### >New Geodesy Class:

Geoff Blewitt, Research Professor at NBMG, will teach a new geodesy class this Fall 2012 offered by the Department of Physics at the University of Nevada. The class is PHYS 484/694 Special Problems in Physics: "Physics and Engineering of GPS." It will cover the physics and engineering principles of the Global Positioning System for millimeter-precision positioning and sub-nanosecond timing. <http://www.nbmgs.unr.edu/Staff/Blewitt.html>

### >The Nevada Mineral Industry 2010

**MI-2010**--This report, the thirty-second of an annual series, describes mineral, oil and gas, and geothermal activities and accomplishments in Nevada in 2010: production statistics, exploration and development including drilling activity, discoveries of orebodies, new mines opened, and expansion of existing mines. Statistics of known gold, silver, and other metallic deposits, and directories of mines and mills are included. This report is **only available on the Web:** <http://www.nbmgs.unr.edu/dox/mi/10.pdf>

### > New Reno urban area geologic map

**Open-File Report 11-7: Preliminary revised geologic maps of the Reno urban area, Nevada** by Alan R. Ramelli, Christopher D. Henry, and Jerome P. Walker, *with contributions by* John W. Bell, Patricia H. Cashman, Craig M. dePolo, Larry J. Garside, P. Kyle House, James H. Trexler, and Michael C. Widmer, 2011

This study developed a comprehensive, unified stratigraphy for the Quaternary, Cenozoic, and Mesozoic rocks of the Reno urban area that can be extended to adjacent areas. The study also completely remapped Quaternary and older faults in the area based on extensive new surface and subsurface data. Six new cross sections are the first to depict the overall structure of the Truckee Meadows basin. The maps are compiled in ArcGIS so that they can be continuously updated as additional data become available.

Open-File Report 11-7 was revised from these published geologic maps from NBMG:

Urban Map 4Gg, Geologic map of the Verdi quadrangle, John W. Bell and Larry J. Garside (1987);

Urban Map 4Ag, Geologic map of the Reno quadrangle, Harold F. Bonham and Edward C. Bingler (1973);

Urban Map 4Hg, Geologic map of the Vista quadrangle, John W. Bell and Harold F. Bonham (1987);

Urban Map 5Ag, Geologic map of the Washoe City quadrangle, R.W. Tabor and S. Ellen (1975);

Urban Map 4Bg, Geologic map of the Mt. Rose NE quadrangle, Harold F. Bonham Jr. and David K. Rogers (1983); and

Urban Map 4Fg, Geologic map of the Steamboat quadrangle, Harold F. Bonham Jr. and John W. Bell (1993)

Supersedes Open-File Report 10-11.

Available free on the Web or for purchase--<http://www.nbmgs.unr.edu/sales/pbsdtls.php?sku=OF11-7>

**OF11-7**, 3 color plates, scale 1:24,000-scale, each plate 80x42 inches, rolled only, **\$66.00 for the set of 3 plates**

You may purchase these individual plates by calling 775-682-8766. They will be available on our shopping cart next week.

**OF11-7-1** (plate 1 only, north half) **\$22.00**

**OF11-7-2** (plate 2 only, south half) **\$22.00**

**OF11-7-3** (plate 3 only, cross sections) **\$22.00**

### > Minerals of Nevada--now in paperback!

**Special Publication 31: Minerals of Nevada** by Stephen B. Castor and Gregory C. Ferdock, 2004

*Minerals of Nevada* is the first synoptic catalog of Nevada minerals, listing every mineral found in the state along with the places where they occur. But the book is far more than a compendium. Included are engaging essays by several distinguished scientists and collectors that offer a geologic history of Nevada; a history of mining and mineral study in the state; descriptions of significant mineral deposit types and mining districts; essays on meteorites, gemstones, and minerals first found in Nevada; and some tips for collectors. The book is lavishly illustrated with color photographs by Jeff Scovil, Sugar White, and others. A map showing mining districts and important mineral occurrences is also included.

560 pages, including 102 color photos, 1 map (scale 1:1,000,000)

**New paperback edition--\$45.00:**

<http://www.nbmgs.unr.edu/sales/pbsdtls.php?sku=SP31s>

**Original hardback edition--temporarily on sale for \$60.00:**

<http://www.nbmgs.unr.edu/sales/pbsdtls.php?sku=SP31>

*Charlotte Stock*

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► **Federal Bill H.R. 4322 – A State’s authority to regulate hydraulic fracturing:**

112TH CONGRESS, 2D SESSION

## **H. R. 4322**

To clarify that a State has the sole authority to regulate hydraulic fracturing on Federal land within the boundaries of the State.

### **IN THE HOUSE OF REPRESENTATIVES**

MARCH 29, 2012

Mr. GOHMERT (for himself, Mr. DUNCAN of South Carolina, Mr. BARTON of Texas, Mrs. LUMMIS, Mr. FLEMING, Mr. WESTMORELAND, Mr. FRANKS of Arizona, Mr. RIBBLE, Mr. STUTZMAN, Mr. BERG, Mr. POE of Texas, Mr. CONAWAY, Mr. HALL, Mr. FARENTHOLD, Mr. CARTER, Mr. BRADY of Texas, Mr. CULBERSON, Mr. MCCAUL, Mr. MARCHANT, Mr. NEUGEBAUER, Mr. SESSIONS, Mr. SULLIVAN, and Mr. THORNBERRY) introduced the following bill; which was referred to the Committee on Natural Resources, and in addition to the Committees on Agriculture, Transportation and Infrastructure, and Energy and Commerce, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

## **A BILL**

To clarify that a State has the sole authority to regulate hydraulic fracturing on Federal land within the boundaries of the State.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### **SECTION 1. SHORT TITLE.**

This Act may be cited as the “Fracturing Regulations are Effective in State Hands Act”.

### **SEC. 2. FINDINGS.**

Congress finds that—

- (1) hydraulic fracturing is a commercially viable practice that has been used in the United States for more than 60 years in more than 1,000,000 wells;
- (2) the Ground Water Protection Council, a national association of State water regulators that is considered to be a leading groundwater protection organization in the United States, released a report entitled “State Oil and

Natural Gas Regulations Designed to Protect Water Resources” and dated May 2009 finding that the “current State regulation of oil and gas activities is environmentally proactive and preventive”;

(3) that report also concluded that “[a]ll oil and gas producing States have regulations which are designed to provide protection for water resources”;

(4) a 2004 study by the Environmental Protection Agency, entitled “Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs”, found no evidence of drinking water wells contaminated by fracture fluid from the fracked formation;

(5) a 2009 report by the Ground Water Protection Council, entitled “State Oil and Natural Gas Regulations Designed to Protect Water Resources” found a “lack of evidence” that hydraulic fracturing conducted in both deep and shallow formations presents a risk of endangerment to ground water;

(6) a January 2009 resolution by the Interstate Oil and Gas Compact Commission stated “The states, who regulate production, have comprehensive laws and regulations to ensure operations are safe and to protect drinking water. States have found no verified cases of groundwater contamination associated with hydraulic fracturing.”;

(7) on May 24, 2011, before the Oversight and Government Reform Committee of the House of Representatives, Lisa Jackson, the Administrator of the Environmental Protection Agency, testified that she was “not aware of any proven case where the fracking process itself has affected water”;

(8) in 2011, Bureau of Land Management Director Bob Abbey stated, “We have not seen evidence of any adverse effect as a result of the use of the chemicals that are part of that fracking technology.”;

(9)(A) activities relating to hydraulic fracturing (such as surface discharges, wastewater disposal, and air emissions) are already regulated at the Federal level under a variety of environmental statutes, including portions of—

(i) the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.);

(ii) the Safe Drinking Water Act (42 U.S.C. 300f et seq.); and

(iii) the Clean Air Act (42 U.S.C. 7401 et seq.); but

(9) (B) Congress has continually elected not to include the hydraulic fracturing process in the underground injection control program under the Safe Drinking Water Act (42 U.S.C. 300f et seq.);

(10) in 2011, the Secretary of the Interior announced the intention to promulgate new Federal regulations governing hydraulic fracturing on Federal land; and

(11) a February 2012 study by the Energy Institute at the University of Texas at Austin, entitled “Fact-Based Regulation for Environmental Protection in Shale Gas Development”, found that “[n]o evidence of chemicals from hydraulic fracturing fluid has been found in aquifers as a result of fracturing operations”.

### **SEC. 3. DEFINITION OF FEDERAL LAND.**

In this Act, the term “Federal land” means—

(1) public lands (as defined in section 103 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702));

(2) National Forest System land;

(3) land under the jurisdiction of the Bureau of Reclamation; and

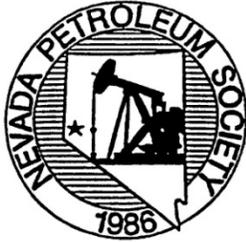
(4) land under the jurisdiction of the Corps of Engineers.

### **SEC. 4. STATE AUTHORITY.**

(a) **IN GENERAL.**—A State shall have the sole authority to promulgate or enforce any regulation, guidance, or permit requirement regarding the underground injection of fluids or propping agents pursuant to the hydraulic fracturing process, or any component of that process, relating to oil, gas, or geothermal production activities on or under any land within the boundaries of the State.

(b) **FEDERAL LAND.**—The underground injection of fluids or propping agents pursuant to the hydraulic fracturing process, or any components of that process, relating to oil, gas, or geothermal production activities on Federal land shall be subject to the law of the State in which the land is located.

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# 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.<sup>00</sup>/year
- ASSOCIATE \$15.<sup>00</sup>/year
- STUDENT \$10.<sup>00</sup>/year
- LIFE \$200.<sup>00</sup> (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 Society – Publication List 2012



## 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, 5 plates, soft cover with plastic comb binding, 380 p. \$65.00
- NPS 2** Membership Directory (only available **free on the Web** at <http://www.nbmj.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. on CD-ROM only **\$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, two volumes bound as one, 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**
- NPS 11** Cenozoic Structure and Stratigraphy of Central Nevada (1996) W.J. Taylor and H. Langrock, editors, 11 papers, 122 p. **\$25.00**
- NPS 12** 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. **\$25.00**
- NPS 13** Hydrocarbon Habitat & Special Geologic Problems of the Great Basin (1998) D.E. French and R.A. Schalla, editors and co-chair **\$25.00**
- NPS 14** 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 **\$35.00**
- NPS 16** Structure & Stratigraphy of the Eureka, Nevada Area (2001) Marilyn S. Miller and Jerome P. Walker, editors, 108 p., 11 color plates, book and CD **\$40.00** (NPS16), book only **\$30.00** (NPS16b), CD only **\$30.00** (NPS16c)
- NPS 17** Detachment and Attenuation in Eastern Nevada and its Application to Petroleum Exploration (2002) W. Ehni and J. Faulds, editors, 163 p., book & CD **\$40.00** (NPS17), book only **\$35.00** (NPS17b), CD only **\$15.00** (NPS17c)
- NPS 18** Oil, Gas, and Geothermal Occurrences in Northwestern Nevada (2003) S. Foster, editor, 102 p. **\$25.00**
- NPS 19** Megabreccias and Impact Breccias of East Central Nevada (2004) C.W. Gillespie and S. Foster, editors **\$35.00**
- 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** (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

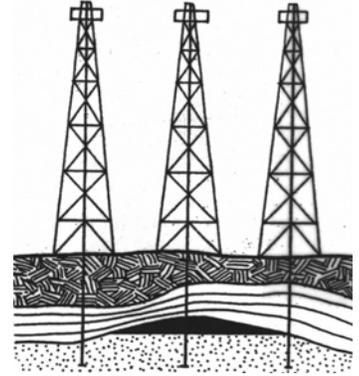
Web: <http://www.nbmj.unr.edu>

Web: <http://www.nbmj.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 underlined are also available free on the Web at <http://www.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), \$15.00, 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, \$15.00

## 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://www.nbmq.unr.edu/>.

## 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, \$5.00  
**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  
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, M162*  
**OF01-7** **Nevada oil and gas well database map:** Hess, CD and 4 page text, \$15.00  
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 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, \$44.40  
**OF04-1** **Nevada oil and gas well database (NVOILWEL):** Hess (2004), \$86.40 for photocopy  
**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  
**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, David, Limerick, Siewe, and Niles; portable hard drive, 105 GB, 9643 files, \$115; 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, \$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 <http://pubs.usgs.gov/fs/2005/3053/>**  
**Basin and Range Carbonate Aquifer System Study:**  
<http://nevada.usgs.gov/barcass/data.htm>

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: <http://www.nbmq.unr.edu>

# Geothermal Resources from NBMG

Geothermal information page on the NBMG website

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

The following publications on geothermal resources are available from the Nevada Bureau of Mines and Geology. **NBMG items that are underlined are available free on the Internet and can be viewed at <http://www.nbmq.unr.edu/>.**

## Bulletins

- B65 Mineral and water resources of Nevada: Cornwall (1964) pp. 267-269, \$7.00  
B89 Geology and mineral deposits of Pershing County, Nevada: Johnson (1977) pp. 104-106, \$21.00  
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), \$15.00 (*see also OF03-27*)  
B99B Mineral resources of northern Nye County, Nevada: Kleinhampl and Ziony (1984) pp. 37-38, \$19.00

## Educational Series

- E-7 Geothermal resources in Nevada: Student reading/activity book for grades four through eight, 27 pp., \$4.05  
E-15 Nevada geothermal electric power production, brochure (1992) 2 pp., \$0.60  
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, \$19.50

## 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, \$16.00 for paper copy, *available folded or rolled, 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, \$30.00, *rolled only*  
M161 Nevada geothermal resources: Penfield, Shevenell, Garside, and Zehner (2010), 1:750,000, \$18.00, *folded or rolled, 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://www.nbmq.unr.edu/> and click on "Online Documents."

## Newsletters

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

## Open-File Reports

- OF83-6 Preliminary map of thermal wells in the Moana geothermal area, Reno, Nevada: Garside, \$8.00  
OF87-2 Mineral resource inventory – U.S. Navy master land withdrawal area, Churchill County, Nevada: Quade and Tingley, \$92.00  
OF94-2 Nevada low-temperature geothermal resource assessment: 1994: Garside, with a bibliography by Davis and Garside, \$40.00 for text and plate, or \$20.00 for text on disk, or \$7.00 for plate only  
OF96-2-9 Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada: (Plate 9) 1:1,000,000, map and text, \$15.00  
OF03-27 Preliminary geologic map of the Desert Peak-Brady geothermal fields, Churchill County, Nevada: Faulds and Garside (2003), \$15.00 (*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, \$20.00 (*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)

## 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), \$4.00  
R33 Papers on mineral deposits of western North America: (1979), presented at the Fifth Quadrennial Symposium of IAGOD, \$10.00  
R41 Precious-metal mineralization in hot springs systems, NV-CA: Tingley and Bonham (1986), \$15.00  
R43 Mineral resources of the Kumiva Peak 30' by 60' Quadrangle: Tingley (1989) pp. 16-17, \$5.00  
R44 Mineral resources of the Pahranagat Range 30' by 60' Quadrangle: Tingley (1989) pp. 8-9, \$5.00  
R45 Mineral resources of the Overton 30' by 60' Quadrangle: Tingley (1989) pp. 12-13, \$5.00  
R46 Mineral resources of the Timpahute Range 30' by 60' Quadrangle: Tingley (1991) pp. 30-31, \$5.00  
R51 Preliminary assessment of the potential for carbon dioxide disposal by sequestration in geological settings in Nevada

## Special Publications

Nevada Petroleum Society; May 2012

SP4 Geology of Nevada: a discussion to accompany the Geol. map of Nevada (see below): Stewart (1980), \$25.00  
00001 Geologic map of Nevada: Stewart and Carlson, U.S.G.S. (1978) 1:500,000, *available rolled only*, \$20.00 available free on the Internet at <http://keck.library.unr.edu/> and click on "Great Basin geoscience dataset" or at <http://www.nbmng.unr.edu/dox/dox.htm>, see SP4 for descriptive text

#### Urban Map Series

3Ah Energy and mineral resources map of the Las Vegas SE Quadrangle: Papke and Bell (1973) *available rolled or folded*, \$2.00  
4Ah Energy and mineral resources map of the Reno Quadrangle: Bingler, Bonham, and Luza (1973) *available rolled or folded*, \$2.00  
5Ah Energy and mineral resources map of the Washoe City Quadrangle: Papke and Jones (1978) *available rolled or folded*, \$2.00

#### 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

#### 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), \$9.00  
OF74-271 Geothermal systems of northern Nevada: Hose and Taylor (1974), 30 pages, call for prices  
OF74-1066 The chemical composition and estimated minimum thermal reservoir temperatures of the principal hot springs of northern and central Nevada, call for prices  
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, call for prices  
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/>, call for prices  
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/>, call for prices

#### Other Resources

Great Basin Center for Geothermal Energy is at <http://www.unr.edu/geothermal/>.

For more information, please contact:

Nevada Bureau of Mines and Geology  
Great Basin Science Sample and Records Library  
2175 Raggio Parkway  
Reno, NV 89512

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[www.nbmng.unr.edu](http://www.nbmng.unr.edu)

<b>Nevada Petroleum Society Calendar: Year 2012-2013</b>	
May 3, 2012	<p><b>NPS Monthly Dinner Meeting</b> – Thursday May 3, 6:30 PM                      Ramada Reno Hotel, 1000 E 6<sup>th</sup> St, Reno, NV</p> <p><b>Speakers:</b>  <b>Greg Dering</b> “Structural Controls of the Tuscarora Geothermal Field, Elko County, Nevada”  <b>Bill Ehni</b> “Submarine Deposition of Tufa in Pyramid Lake, Washoe County, Nevada”</p>
May 14, 2012	<p>Northern Nevada SME Meeting, Monday, May 14, 2012 - 6PM  <b>Please visit our page <a href="http://www.smennv.org">www.smennv.org</a> for more details</b>                      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                      Members \$22/person and Non-Members \$25/person payable at the door                      Mackay students enjoy free admission and dinner.  <b>RSVP Required by noon, THURSDAY, Apr 5, 2012</b>                      Kaitlin C. Sweet 775.225.6147, email: <a href="mailto:kcsweet@enviroincus.com">kcsweet@enviroincus.com</a></p>
May 18, 2012	<p>GSN Monthly Dinner Meeting – Friday May 18, 6:00 PM                      Elks Lodge, 597 Kumle Lane, Reno, NV                      Drinks at 6:00 PM, dinner at 7:00 PM, and talk at 8:00 PM.                      Contact Laura Ruud at (775) 323-3500 or e-mail <a href="mailto:gsn@gsnv.org">gsn@gsnv.org</a> for reservations.</p>
Jun 12, 2012	<p><b>Nevada BLM Oil &amp; Gas Lease Sale, Reno NV</b>  <a href="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</a></p>
Sep 9-12, 2012	<p><b>Rocky Mountain Section – AAPG 2012</b>  <b>Grand Junction, Colorado - Sep 9-12, 2012</b>                      Hosted by Grand Junction Geological Society                      Vintage Geology – Perfectly Aged, Grand Junction 2012  <a href="http://www.rmsaapg2012.com/welcome.html">http://www.rmsaapg2012.com/welcome.html</a></p>
Sep 30 – Oct 3, 2012	<p><b>GRC's 36th Annual Meeting – Sep 30 – Oct 3, 2012</b>                      Geothermal: Reliable, Renewable, Global.                      Peppermill Resort Spa – Reno, NV  <a href="http://www.geothermal.org/Press%20Releases/Dec_6_2011.html">http://www.geothermal.org/Press%20Releases/Dec_6_2011.html</a></p>
Jan 29, 2013	<p><b>Nevada BLM Geothermal Lease Sale, Reno NV</b>  <a href="http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing.html">http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing.html</a></p>

The NPS Newsletter is provided to members of the Nevada Petroleum Society.  
 For information about membership and events, see the NPS website at <http://www.nbmng.unr.edu/nps/>  
 To submit articles, corrections or suggestions for the newsletter; Contact Vicki Ehni 775-883-1107, cell 775-720-6387; email [vehni@aol.com](mailto:vehni@aol.com) .