

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.nbmq.unr.edu/nps/>

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Dinner Meeting: Thursday, Mar 7, 2013

Speaker: Vincent Ramirez
Hangtown Energy, Inc.
Carson City, NV

Topic: Observations to distinguish tectonic
compression vs. extension in central Nevada

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

Dinner Costs:

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

Menu:

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

****RSVP to Judy Kareck (775) 827-6111 or**

jkareck@lumosengineering.com

**SEE CALENDAR Pages 20-21 for upcoming
meetings**

► ***NPGS Monthly Dinner Meeting – Mar 7, 2013***

Speaker: Vincent Ramirez, Hangtown Energy, Inc.

Title: Observations to distinguish tectonic compression vs. extension in central Nevada

This presentation will feature great outcrop exposures of young thrust faults, seismic data across a "graben" valley, and the drilling results of a recent oil discovery in central Nevada, near the city of Gabbs. It will also compare and contrast previous extensional basin models with a new compressional model.

The discovery of live oil in the Tertiary section of sedimentary rocks at the Cobble Cuesta anticline, near Gabbs, is 190 miles west of other Nevada oil fields. While most drilling activity in Nevada remains focused in the east, the drilling of three wells, location of numerous oil seeps, and subsequent geologic studies indicate that nearly all of Nevada may be suitable for hydrocarbon generation and migration, and that the trap mechanism may be the critical risk for exploration.

A basin model supported by the seismic data, well data and fieldwork in a 70 township area (2,500 square miles) suggests that a widespread Miocene-age basin existed, and that it prograded into California. This was later uplifted and eroded into the present "mountain and valley" geometry by strong east-west compression in the Upper Miocene or later. Any extension that may be overprinted on the previous compressional structures is younger than 5 m.y., and probably less than 2 m.y., but is not directly observed as yet.

► ***About the Speaker – Vincent Ramirez***

Vincent Ramirez graduated from UC Santa Barbara with a Masters in Earth Science after six years field work along the San Andreas Fault. Subsequent work includes 28 years in the oil and gas industry, including exploration with Shell Oil Company in the Arctic Ocean, California, Washington, and Yemen. From 1993 to 2004 he worked in Russia on 20 different projects, and spent 6 years as CEO of a Russian company with an oil and gas license in a remote part of Siberia. That company now produces 50,000 barrels of oil per day. Since 2006 he has managed the Hangtown group of oil companies that explore, develop and produce in California and North Dakota. He has published 15 studies in structural geology, primarily concerning Tertiary obduction of the California fore-arc basin, and offsets along the San Andreas Fault.

► ***Cocktail Reception March 7, 2013, Hosted by Boart Longyear:***



THE NEVADA DRILLING EXPERTS

605 Union Pacific Way

Elko, NV 89801

Attn. Cody Unger: 775-753-3076

► **NPGS Welcomes Gold Level Sponsors:**

NPGS extends a thank you to Gold Level Sponsors
Barbour Well, Inc.
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Ram Power Corp.
Boart Longyear
Eagle Exploration

See their full page company descriptions in this and/or upcoming newsletters.

► **NPGS Google Earth Technical Workshop – Mar 21, 2013:**

8:00 AM Great Basin Science Sample and Records Library (GBSSRL), Reno, NV
This workshop is sold out! For more information please email John Snow at:
jsnow1@sbcglobal.net.

► **Next Nevada BLM Geothermal Lease Sale; Nov 19, 2013:**

Nominations for this sale must be received by the BLM by April 12, 2013.
See the following link for information and forms.

http://www.blm.gov/pgdata/etc/medialib/blm/nv/minerals/geothermal/leasesales.Par.76255.File.dat/20131119_Geo_Sale_Nominations.pdf

► **Mar – May 2013 Oil & Gas Lease Sale Schedule:**

Mar 05 Montana (State)	Apr 17 New Mexico (BLM)	May 07 Montana (BLM)
Mar 06 Oklahoma (State)	Apr 16 New Mexico (State)	May 07 North Dakota (State)
Mar 12 Nevada (BLM)	Apr 29 Utah (State)	May 07 Wyoming (BLM)
Mar 19 New Mexico (State)		May 08 California (BLM)
Mar 21 Eastern States (BLM)		May 08 Wyoming (State)
		May 09 Colorado (BLM)
		May 15 Oklahoma (State)
		May 16 Colorado (State)
		May 21 New Mexico (State)
		May 21 Utah (BLM)

► **Next Scheduled BLM Oil & Gas Lease Sale – Mar 12, 2013:**

36 parcels will be offered in Elko and Eureka Counties, Nevada.
5 of the parcels have pre-sale offers.

The notice and list of parcels is available for this sale.

http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/oil_gas/oil_and_gas_leasing.html

► **UNR College of Science – Discover Science Lecture Series:**

Information: 775-784-4591; science@unr.edu
Apr 4, 2013 Dr. Steven Strogatz

► **UNR Geological Sciences Seminar Series:**

Mondays 4:00 PM, DMS 103; <http://crack.seismo.unr.edu/geosci/>

Mar 11 Briana Johnson MS talk, and Amie Lamb MS talk

Mar 25 Gene Smith, UNLV

Apr 1 Mary Leech, San Francisco State

Apr 8 Chad Deering, UW Osh Kosh

Apr 15 Jay Quade, Univ. Arizona

Apr 22 Darrel Cowan, U of Washington

Title: "Active, possibly seismogenic low-angle normal faults, Death Valley, California"

Apr 29 Russell Shapiro

May 6 George Bergantz, U of Washington

Title: "Arc Crustal Sections: A Roadmap to Integrating Geochemistry and Geophysics"

May 13 Chris Mattinson, Central Washington University

► **UNLV 8th Annual GeoSymposium:**

April 12-13, Las Vegas, NV

RSVP form in this newsletter. To attend, send in your form by March 29.

Information: Jeevan Jayakody, UNLV Dept of Geoscience, (702) 895-4633,

jayakody@unlv.nevada.edu

► **Joint PSAAPG/SPE/PSSEPM Conference – Monterey, CA Apr 19-25, 2013:**

Energy & the Environment – Working Together for the Future

Portola Hotel & Spa – www.portolahotel.com

psaapg.org

► **AAPG- Rocky Mtn Section 62nd Annual Meeting – Sep 22-24, 2013:**

“Energy Elevated” Hilton Salt Lake City Center

www.rmsaapg2013.com

► **AAPG-Education Calendar:**

Upcoming AAPG Field Seminars: <http://www.aapg.org/education/fieldseminars/index.cfm>

► **Nevada Commission Resolution Concerning Hydraulic Fracturing:**

From: Lowell Price

The following page is an announcement from the Nevada Commission on Mineral Resources stating that operators will now be required to report chemical usage in hydraulically fractured wells in Nevada to the FracFocus chemical disclosure registry.



BRIAN SANDOVAL
Governor

STATE OF NEVADA
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DIVISION OF MINERALS
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<http://minerals.state.nv.us/>

Las Vegas Branch:
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ALAN R. COYNER
Administrator

**COMMISSION ON MINERAL RESOURCES
RESOLUTION CONCERNING HYDRAULIC FRACURING**

February 22, 2013

On February 21, 2012 the Commission on Mineral Resource met at their quarterly public meeting and passed a resolution concerning hydraulic fracturing. The Commission directed the Division of Minerals to require the following as a condition of approval for all oil and gas drilling permits and sundry notices that include the hydraulic fracturing process:

“The amount and type of chemicals used in a hydraulic fracturing operation shall be reported to www.fracfocus.org within 60 days of hydraulic fracturing completion for public disclosure.”

The State of Nevada is a member state of the Interstate Oil and Gas Compact Commission (IOGCC). The IOGCC has partnered with the Ground Water Protection Council (GWPC) to sponsor the FracFocus chemical registry disclosure website. FracFocus is quickly becoming the national standard for reporting oil and gas drilling operations that include the hydraulic fracturing process. Nevada is the tenth state to require FracFocus as part of their regulation of oil and gas drilling operations.

For more information concerning FracFocus and hydraulic fracturing see the FracFocus website at www.fracfocus.org and the Division of Minerals website at minerals.state.nv.us

If you have any questions regarding FracFocus or hydraulic fracturing please contact:

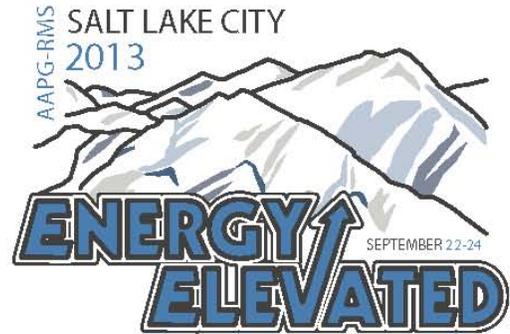
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Lowell Price
Oil, Gas, and Geothermal Program Manager
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lprice@govmail.state.nv.us

AAPG Rocky Mountain Section

Salt Lake City - Hilton

September 22-24, 2013



Call for Papers

To submit an abstract for an oral, poster, or core poster presentation go to

rmsaapg2013.com

and click on "SUBMIT ABSTRACT"

Contributions from young professionals and students are especially welcome

Deadline for abstracts is **March 29, 2013**



Technical Program Highlights

- Lacustrine basins: Modern and ancient
- Shale/tight gas and oil plays
- Great oil/gas fields of the Rocky Mtns.: A historical perspective
- Carbon capture, utilization, and storage
- Structure, stratigraphy, and source rocks of the Rockies
- Gas marketing in the Rockies: Forum discussion
- Emerging oil shale and oil sand resource plays
- Geologic and environmental aspects of hydraulic fracturing

Field Trips

- Lacustrine microbial carbonates: Modern and ancient
- San Rafael Swell and Henry Mtns. Basin
- Wasatch Mountains: Scenic trip through time
- Nine Mile Canyon geology: Green River and Wasatch Fms.



Other Convention Events

- All-convention luncheon: Geology of Mars, Utah analogs, and the latest discoveries of the Curiosity rover
Dr. Rebecca Williams, Planetary Science Institute
- Several pre- and post-meeting short courses
- Night at the new Natural History Museum of Utah
- Guest hospitality suite and three days of special activities

Registration opens in Spring 2013

For convention details visit:
rmsaapg2013.com

*Hosted by the
Utah Geological Association*

April 19-25, 2013
 2013 SPE Western Regional /
 Pacific Section AAPG
 Joint Technical Conference

Energy & the Environment
 Working Together for the Future
 Monterey, CA



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**Tentative Technical Program
 PSAAPG/PS-SEPM**

- Reviving old giants and new potential in mature basins
- Evolving Models of Deep Water Deposition
- Fluvial and shallow-marine depositional systems: insights from outcrops and subsurface prediction
- Opening up the west: new and overlooked opportunities in unconventional reservoirs
- Faults, folds, transforms and terranes of Western North America
- Marine Geology of the Pacific Margin (modern and Ancient) -- dedicated to Bob Garrison
- Western North America earthquake hazards: what's shakin'
- Energy and the environment
- Landscape / Seascape Evolution
- California Turbidites
- What's new in the Sacramento Valley
- Geothermal Energy: A hot topic
- Arctic energy opportunities: from the Cook Inlet to the North Slope and beyond
- Sediment routing in Western North American
- Undergraduate Research Poster session



Tentative Field Trips

1. Hydrocarbon Migration Systems: Injectites, Bituminous Sands, and Gas Seeps
2. Retracing the Events of the 1906 San Francisco Earthquake and Fire
3. Convergent Margin Tectonics across Central California Coast Ranges -- Pacheco Pass
4. Oceanography Field Trip -- Moss Landing Marine Labs
5. Geology of the Point Lobos Reserve
6. Monterey Formation Outcrops
7. California Turbidites
8. Other

**SPEWR/PSAAPG/PS-SEPM
 Tentative Short Courses**

1. Streamline simulation,
2. Numerical methods in simulation
3. Modern well test analysis,
4. Thermal methods and in-situ combustion.
5. Reserve booking
6. Carbon sequestration & storage
7. Sequence Stratigraphy for students
8. Carbonate Stratigraphy
9. Formation Evaluation
10. Image log interpretation
11. Geocellular modeling
12. Microseismic
13. Monterey core workshop
14. Monitoring programs for fracking

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

From: Charlotte Stock

Ute quadrangle – two new maps

Endowment honors Dr. Hsu – **Research Mineralogist Emeritus (NBMG)**

NBMG staff on cover of *Geothermal Resources Council Bulletin*

RGJ geothermal article quotes NBMG faculty

Giant, ancient space rock helped shape Nevada

Upcoming talks and other events – now on NBMG website

Ute quadrangle – two new maps

Map 177--Geologic map of the Ute quadrangle, Clark County, Nevada, by Craig M. dePolo and Wanda J. Taylor; 2012

44 x 27.5 inches, color; 17-page text, b/w; folded or rolled, \$23.00 (\$18.00 for map only) or free on Web:

<http://www.nbmng.unr.edu/sales/pbsdtls.php?sku=M177>

A 1:24,000-scale, color geologic map of the Ute 7.5-minute quadrangle in Clark County, Nevada with descriptions of 59 geologic units and 2 cross sections. Accompanying text includes full unit descriptions and references. GIS zip file also available online.

The Ute quadrangle covers the central part of the California Wash basin and a small section of the westernmost North Muddy Mountains, where Paleozoic and Mesozoic rocks were highly deformed by the Sevier orogeny. Tertiary and Quaternary sedimentary rocks record the history of basin filling and dissection. Noteworthy on the quadrangle are several resistant Quaternary petrocalcic surfaces, with as much as Stage VI carbonate development, that form pediment caps on the Tertiary basin deposits. The map includes the northern part of the Holocene-active California Wash fault and the southernmost part of the Quaternary-active Hogan Spring fault.

Open-File Report 12-4--Preliminary erosional impact potential map of the Ute quadrangle, Clark County, Nevada, by Craig M. dePolo and Irene M. Seelye, 2012

20.5 x 32.5 inches, color, scale 1:24,000; folded or rolled, \$14.00 or free on Web:

<http://www.nbmng.unr.edu/sales/pbsdtls.php?sku=OF12-%204>

There is a wide range of erosional susceptibility associated with different geologic units on the Ute quadrangle that might be considered when planning cross-country motor vehicle events, which are common in this valley. Tracks from motor races that can be seen in 1976 photography were hard to find in 2011 if they were on the harder petrocalcic surfaces, but caused long-lasting disruption of softer geologic units and surfaces with desert pavements on them. When more easily erodible units are disrupted, there is enhanced erosion from water runoff and significantly more dust is generated until the surface is stabilized with a new pavement, vegetation, or erodes down to a resistant layer. Using the distribution of the geologic units and their general erosional susceptibility, this *Preliminary Erosional Impact Potential Map of the Ute Quadrangle* was produced. This map can be used to plan race routes with the least erosional impact.

There are three general categories on the map:

- 1) more resistant units with lower erosional impact,
- 2) softer units that can be disrupted and eroded relatively easily, and
- 3) stream channels that have their surfaces refreshed when the channel flows with water.

The more resistant units include petrocalcic surfaces and pre-Tertiary limestones. Softer units include Tertiary basin sediments and Quaternary surfaces with pavements and an underlying loose silty layer. Stream channels are areas that have water flowing annually to every decade or so and have the ability to refresh themselves and recover from the effects of vehicular traffic. The map is experimental and is a simple derivative map from the *Geologic Map of the Ute Quadrangle* (NBMG Map 177).

Endowment honors Dr. Hsu – Research Mineralogist Emeritus (NBMG)

The following story is from the *Development and Alumni Relations Briefs* (February 12, 2013) and was forwarded from Char Hagemann.

Family of Liang-Chi Hsu create endowment to honor their father's achievements –The four children of faculty emeritus Liang-Chi ("Li") Hsu and their families have established the Dr. Liang-Chi Hsu Graduate Research Endowment to honor their father's personal and professional accomplishments and his impact on student learning and research in mineralogy and geochemistry at the University. Hsu served as a faculty member at the Mackay School of Mines and the Nevada Bureau of Mines and Geology from 1969 through 1996. In the late 1980s and early 90s, Hsu served as chair of the Honors study board and director of the University Honors Study Program, promoting the scholastic status of high-achieving undergraduate students. The endowment will support the scholarly activities of graduate students enrolled in the Mackay School of Earth Sciences and Engineering. To learn more about supporting the Mackay School and the College of Science, please contact [Char Hagemann](#), director of development, (775) 682-8791.

To learn more about Development and Alumni Relations, visit <http://giving.unr.edu>....
1.2, 2013Development and Alumni Relations Briefs | February 12, 2013

NBMG staff on cover of *Geothermal Resources Council Bulletin*

NBMG Director and State Geologist, Jim Faulds, and retired long-time **NBMG Executive Assistant, Terri Garside**, appear on the cover of a recent *Geothermal Resources Council Bulletin*. Faulds led two field trips for the GRC meeting in Reno this past Fall, including both a pre- and post-meeting, two-day trip. Co-leaders included Nick Hinz and several graduate students. Terri Garside organized logistics for both trips. About 25 people attended each trip. The pre-meeting trip visited geothermal sites in and around the Carson Sink of western Nevada, including the Brady's, Desert Peak, Salt Wells, and Soda Lake geothermal systems. The post-meeting trip visited geothermal sites near Winnemucca (Blue Mountain and Rye Patch) and the Black Rock Desert area in northwestern Nevada.

The caption for the GRC Bulletin cover reads, "Dr. James Faulds explains a fault surface in the Desert Queen fault zone, part of the Desert Queen Geothermal System. Dr. Faulds, the Nevada State Geologist, stands in the faulted area along with field trip participants. The Desert Queen geothermal system is a blind system first identified by temperature gradient drilling (Benoit et al., 1982). As the fault zone terminates southward, it breaks into multiple splays that provide increased permeability for geothermal fluids. The fault zone was a stop for the GRC field trip, "Structural Controls of Geothermal Activity in the Western Great Basin, Nevada, Part I." [photo by Susan Fox Hodgson]

To read more and see additional photos of field trips, see the November/December 2012 GRC Bulletin:
<http://www.geothermal.org/PDFs/Articles/12NovDec26.pdf>
<http://nbgm.posterous.com/nbgm-on-cover-of-grc-bulletin>

RGJ geothermal article quotes NBMG faculty

This article in the *Reno Gazette-Journal* quotes **Jim Faulds** (NBMG Director and State Geologist) and **Lisa Shevenell** (NBMG Research Hydrogeologist).

“Why Northern Nevada’s status as a geothermal mecca is in danger”
by Mark Robison, RGJ.com (Feb. 23, 2013)

Read the complete story here:

<http://blogs.rgj.com/renorebirth/2013/02/23/why-northern-nevadas-status-as-a-geothermal-mecca-is-in-danger/>

Giant, ancient space rock helped shape Nevada

Recently a meteoroid exploded near the Ural Mountains in Russia, but Nevada has its own story to tell. Nevada’s impact event from the Devonian was featured in an article written by Keith Rogers of the Las Vegas Review-Journal. **You can read the story here:**

<http://www.sfgate.com/news/article/Giant-ancient-space-rock-helped-shape-Nevada-4321653.php>

The Alamo impact breccia—“One fine day about 370 million years ago, an object from space splashed down into the Devonian sea that bordered western North America, almost instantly blanketing much of southern Nevada and surrounding areas with debris. The result of this event is a chaotic breccia unit within the Devonian Guilmette Formation known as the Alamo breccia (named for the town of Alamo). The meteor created a crater 30 to 50 miles in diameter and the impact debris and related tsunami deposits left a layer of shattered rock covering an area of some 39,000 square miles.” (excerpt from NBMG Special Publication 35, page 72—see below).

View the rock—You can visit us at the Gold Building (Great Basin Science Sample and Records Library) and view a sample of the breccia from this impact event in Nevada.

http://www.nbmgs.unr.edu/Departments/GBSSRL/docs/GBSSRL_map_directions.pdf

Plan a trip—Here are some publications available at the Gold Building and on our website that can help you plan a trip to see this impact site:

***NPS19 - Megabreccias and Impact Breccias of East Central Nevada* - please call (775) 682-8766 to order**

2004 Nevada Petroleum Society Fieldtrip Guidebook, C.W. Gillespie and S. Foster, editors. Five papers and road log focusing on the Alamo impact breccia, Ragged Ridge paleokarst breccia, and subsurface breccias in Railroad Valley. Seven reprints comprising the critical literature concerning the Alamo breccia, 196 pages. Contains articles by authors mentioned in the newspaper article mentioned above.

SP35 – A Geologic and Natural History Tour through Nevada and Arizona along U.S. Highway 93, with GPS Coordinates

http://www.nbmgs.unr.edu/sales/sp35_cart_details.pdf

This Highway 93 guidebook takes the traveler from Wickenburg, Arizona, through Las Vegas and up to three sites of the Alamo impact breccia, and then northward to the Idaho border.

Related reading:

SP31 – chapter on meteorites (pages 84-90, by David Davis) from *Minerals of Nevada*

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

Upcoming talks and other events – now on NBMG website

Can't remember where and when that talk is that you wanted to attend?

We have reactivated the Google events calendar that you can find on the right side of the NBMG home page.
<http://www.nbmг.unr.edu/Calendar.html>

Ordering information:

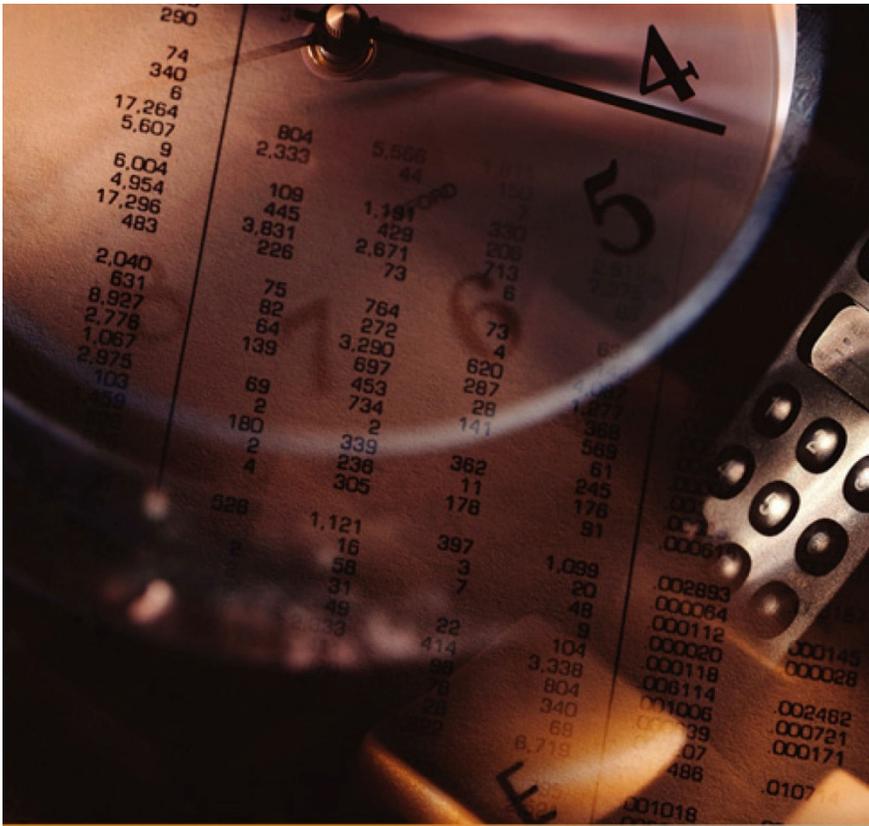
You can **place an order** for other publications or check for shipping charges through our shopping cart at
<http://www.nbmг.unr.edu/Departments/PubSales/PubSales.html>

Subscribe to our blog: <http://nbmg.posterous.com>

Charlotte Stock

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

Gold Level Sponsorship Bio The NPGS thanks Lumos and Associates, Inc. for becoming a Gold Level Sponsor!



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9222 Prototype Drive, Reno, NV 89521
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www.lumosengineering.com

GOLD LEVEL Sponsorship Bio

The NPGS extends a warm thank you to Barbour Well, Inc. for becoming a Gold Sponsor.

Company Profile



www.barbourwell.com

Barbour specializes in drilling oil production wells and large diameter geothermal wells that are high-yield and high-quality in support of both the oil and geothermal industries throughout Nevada, California, Utah, New Mexico, Idaho and the Western United States.

Over three decades of geophysical logging, water well design, work-over/stimulation, down-hole video services, and drilling production wells makes Barbour ideally suited in the expertise for successful oil or geothermal projects. Barbour has an extensive background in geophysics unique to the offerings of most drilling organizations.

Barbour maintains current C23 and A6 Contractor's Licenses in Nevada, a C57/D09 Contractor's License in California, and current drilling Contractor's Licenses in New Mexico and Utah, offering both direct mud rotary (conventional) drilling (vertical and directional) as well as air-rotary foam drilling for specialized applications. Wire-line services are also available in most of the Western United States.



Cost-effective operations and innovative techniques designed to be used by the Oil and Geothermal Industries have



provided new avenues of possibilities for future project planning. Barbour is confident that their continued commitment to the oil and geothermal communities will result in the increased availability of much needed renewable energies within the United States.

For additional questions regarding company info, pricing or rig availability please contact:

Steve Zarcone,

Business Development

Barbour Well Inc.

260 Sunpac Ave, Suite A

Henderson, NV 89011

(805) 207-6407 Direct

(661) 755-7687 Cell

szarcone@barbourwell.com



8th Annual GeoSymposium

April 12-13, 2013

R.S.V.P. Form

The GeoSymposium committee cordially invites you to join us at the Auditorium in the Science and Engineering Building (SEB) on April 12, 2013. To ensure recognition of your attendance at this event, please return this form by March 29, 2013. Options for submission of this form include fax, email (attachment), or postal mail. Please return one form per attendee. Additional forms are available from our website: <http://geoscience.unlv.edu/GeoSymposium/>

Name:

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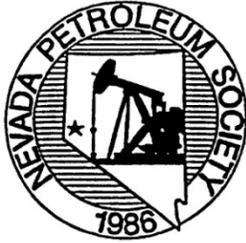
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Nevada Petroleum and Geothermal Society – Publication List 2012



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.nbmg.unr.edu/nps/membershipdir.htm>)
- NPS 15** TerraScan's Geologic Map of the Eastern Great Basin, Nevada and Utah (1978, rev. 1987) compiled and edited by E.L. Howard, 3 sheets (includes cross-sections) ~~\$20.00/NPS or \$25.00/non-NPS~~ **order by phone only for discounted price of \$5.00**
- NPS 21** Carboniferous–Permian (Late Paleozoic) Hydrocarbon System, Rocky Mountains–Great Basin Region, U.S., Major Historic Exploration Objective (2001, updated 2003) J. Peterson, RMAG Open-File Report on CD only; 54 p., 45 illustrations, CD **\$15.00**

FIELD TRIP GUIDEBOOKS

- NPS 3** Oil Fields, Production Facilities and Reservoir Rocks of Northern Nye County, Nevada (1989) compiled by W.J. Ehni and D.M. Evans, 8 abstracts and papers, 30 p. (xerox copy only – unbound) \$8.00
- NPS 4** Oil Fields and Geology of the Pine Valley, Eureka County Area, Nevada (1990) D.M.H. Flanigan, L.J. Garside, and M. Hansen, editors, 15 papers and abstracts, 74 p. (xerox copy only – unbound) **\$15.00**
- NPS 5** Geology of White River Valley, the Grant Range, Eastern Railroad Valley and Western Egan Range, Nevada (1991) D.M.H. Flanigan, M. Hansen, and T.E. Flanigan, editors, 10 papers and abstracts, 74 p. **\$15.00**
- NPS 6** Structural Geology and Petroleum Potential of Southwest Elko County, Nevada (1992) J.H. Trexler, Jr., T.E. Flanigan, D.M.H. Flanigan, M. Hansen, and L.J. Garside, editors, 9 papers, 2 plates, 96 p. **\$25.00**
- NPS 7** Structural and Stratigraphic Relationships of Devonian Reservoir Rocks, East Central Nevada (1993) C.W. Gillespie, editor, 15 papers, 3 plates, 203 p. **\$33.00**
- NPS 8** Dating of Pre-Tertiary Attenuation Structures in Upper Paleozoic and Mesozoic Rocks and the Eocene History in Northeast Nevada and Northwest Utah (1994) C.H. Thorman, C.J. Nutt, and C.J. Potter, editors, 11 papers, 125 p. 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).

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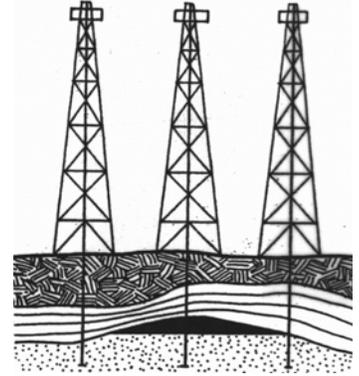
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Oil and gas resources from NBMG

The following publications are available from the Nevada Bureau of Mines and Geology. **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

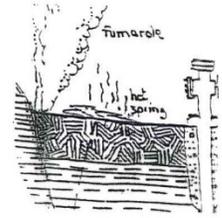
Assessment of undiscovered oil and gas resources of the Eastern Great Basin Province, 2005, Fact Sheet
FS-2005-3053, free at <http://pubs.usgs.gov/fs/2005/3053/>
Basin and Range Carbonate Aquifer System Study:
<http://nevada.usgs.gov/barcass/data.htm>

Ordering information for Nevada Bureau of Mines and Geology

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Phone: (775) 682-8766 Fax: (775) 784-6690 Web: <http://www.nbmq.unr.edu>

Geothermal resources in Nevada



Geothermal information page on the NBMG website

<http://www.nbmgs.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.nbmgs.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 Zion (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.nbmgs.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: Faults 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)

- 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, \$18.00
- OF12-3 Data tables and graphs of geothermal power production in Nevada: Shevenell, Price, and Hess (1985-2011, 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 Pahranaagat 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

- 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.nbmg.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/>.

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Nevada Petroleum and Geothermal Society Calendar: Year 2013	
Mar 7, 2013	NPGS Monthly Dinner Meeting – Thursday Mar 7, 6:30 PM Ramada Reno Hotel, 1000 E 6 th St, Reno, NV <i>Speaker: Vincent Ramirez, Hangtown Oil LLC, Carson City, NV 89703</i> <i>Title: Observations to distinguish tectonic compression vs. extension in central Nevada</i>
Mar 11, 2013	UNR Geological Sciences Seminar Series – Mondays 4:00 PM DMS 103; http://crack.seismo.unr.edu/geosci/ Briana Johnson MS talk, and Amie Lamb MS talk
Mar 11, 2013	Northern Nevada Section SME Monthly Dinner Meeting Jonathan Holmes – VP, ArcelorMittal “Mining on the Mesabi” Circus-Circus Mandalay Room, Happy Hour 6:00, Dinner 6:45, Talk 7:30 RSVP by Wed Mar 6; 775-682-7379; dlightwood@unr.edu
Mar 12, 2013	Nevada BLM Oil & Gas Lease Sale, Reno NV 36 parcels available, Elko & Eureka Counties http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/oil_gas/oil_and_gas_leasing.html
Mar 15, 2013	GSN Membership Meeting – Reno Elks Lodge 597 Kumle Lane, Reno, NV – Friday , 6:00 PM Drinks at 6:00 PM, dinner at 7:00 PM, and talk at 8:00 PM. RSVP by NOON Thu Feb 14: Laura Ruud (775) 323-3500, gsn@gsnv.org
Mar 21, 2013	NPGS Google Earth Technical Workshop 8:00 AM – 1 Day Great Basin Science Sample and Records Library, Reno, NV SOLD OUT, information: jsnow1@sbcglobal.net
Apr 4, 2013	NPGS Monthly Dinner Meeting – Thursday Apr 4, 6:30 PM Ramada Reno Hotel, 1000 E 6 th St, Reno, NV <i>Speakers: Jim Trexler, Professor, Geological Sciences, UNR, Reno NV</i> <i>and Don French, Geologist, Billings MT</i> <i>Topic: Distribution & lithology of the Mississippian Chinaman shale</i>
Apr 4, 2013	UNR College of Science – Discover Science Lecture Series Dr. Steven Strogatz Information: 775-784-4591; science@unr.edu
Apr 12-13, 2013	UNLV 8th Annual GEOSYMPIUM 2013 – Las Vegas, NV Email jayakody@unlv.nevada.edu; (702) 895-4633 http://geoscience.unlv.edu/geosymposium
Apr 19-25, 2013	Pacific Section AAPGS/SPE/PSSEPM Conference Monterey, CA Apr 19-25, 2013: Portola Hotel & Spa <i>Energy & the Environment – Working Together for the Future</i> Submit abstracts to: psaapgabs@gmail.com – Deadline Jan 15, 2013
May 2, 2013	NPGS Monthly Dinner Meeting – Thursday May 2, 6:30 PM Ramada Reno Hotel, 1000 E 6 th St, Reno, NV <i>Speaker: Sean P. Long, Research Professor, NBMG, UNR</i> <i>Topic: Mid-Tertiary Unconformity, implications of the structure of Railroad Valley and the surrounding region</i>

Jun 26-27, 2013	Geothermal Energy Association - National Geothermal Summit June 26-27, 2013 – Reno, NV http://geo-energy.org/events.aspx
Sep 22-24, 2013	AAPG- Rocky Mtn Section 62nd Annual Meeting – Sep 22-24, 2013 Utah Geological Association hosting at the Hilton Salt Lake City Center “Energy Elevated” Call for papers, deadline for abstracts Mar 29. www.rmsaapg2013.com
2016 proposed	Rocky Mountain Section/Pacific Section Meeting – AAPG 2016 2016 joint RMS-AAPG/PS-AAPG annual meeting, Las Vegas, Nevada (<i>proposed</i>)

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775-720-6387; email vehni@aol.com .
