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MISSISSIPPI GEOLOGICAL SOCIETY *eBulletin*



missgeo.com

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PRESIDENT'S LETTER

Stanley King

Greetings to all in this new year!!

I hope everyone had good holidays or at least tolerable and that you survived: (choose two) (a) family, (b) too much food, (c) in-laws, (d) out-laws, (e) too much football, (f) ex-laws. I always enjoy the last part of the year, what with Christmas and all, but I also enjoy the first part of the new year, for it is as a blank canvas, full of the unknown (both good and not-so-good) and full of promise and the anticipation of what it will bring.

But then, I'm not an accountant and don't see it as tax season, either.

We are back on track with our monthly luncheon meetings and will kick off the new year's speaker schedule on Thursday, January 12, 2012. We will begin around 11:30 AM at River Hills Club with Gary Perry, VP of Reservoir Services with Geotrace bringing a talk entitled, "Oil and Gas Finders Unite!". I understand the talk centers around new exploitation techniques in conventional and resource plays and should prove to be interesting.

Elsewhere, Kate Kipper, Executive Secretary of GCAGS, has reminded me that nominations for GCAGS awards should be submitted to the GCAGS Awards & Nominations Committee, Chairperson Bonnie Weise, by March 9, 2012. Award descriptions, nomination instructions and forms, and Bonnie's contact information are available on the GCAGS website (www.gcags.org). Note that March 9 is also the deadline for submitting nominations of K-12 teachers for the GCAGS Owen R. Hopkins Outstanding Earth Science Teacher Award.

Having no other news of note other than it's January and the robins are here, I will close, looking forward to seeing you on Thursday, January 12th at River Hills Club.

Stanley King



MGS

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MGS Membership

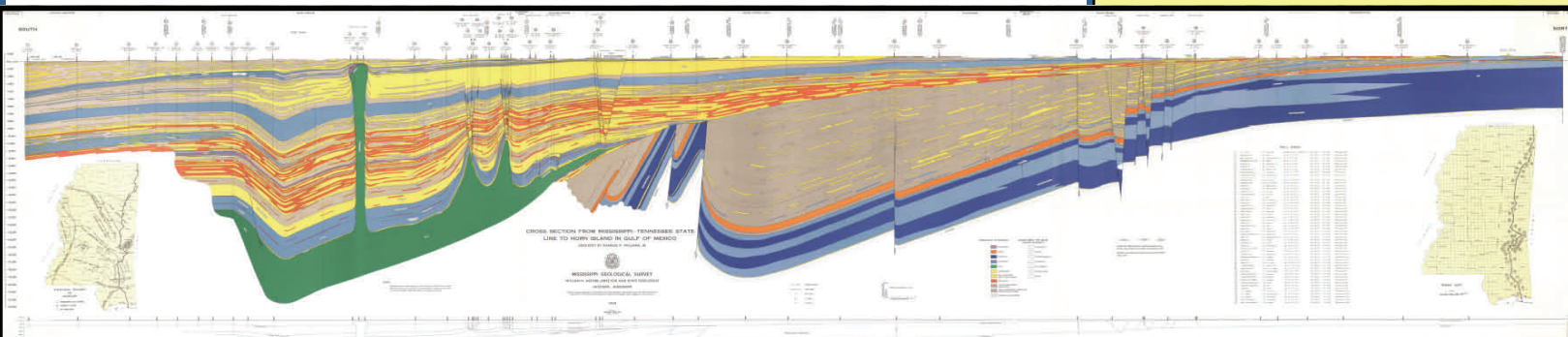
Application

Members in good standing.

MGS Advertising Notice

MGS Boland Scholarship Fund

MGS Honorary Members



MGS MEETING SCHEDULE

When	What/Who	Where
September 8, 2011	Fall BBQ	Jackson Yacht Club-5:30pm
October 13, 2011	Gas Hydrate: A Huge Emerging Energy Resource Art Johnson: Hydrate Energy International	River Hills – 11:30am
November 9, 2011	The Jurassic Norphlet Formation of the Deep Water Eastern Gulf of Mexico: A Revisit of the Sedimentology of Aeolian Systems & Comparisons to both the Modern Namib Desert and Ancient Cedar Mesa Analogues: John B. Wagner*	River Hills – 11:30am
December , 2011	Christmas Party and Dance	Colonial Country Club
January 12, 2012	Oil and Gas Finders Unite! New exploitation techniques in resource plays benefit geologists, engineers, and geophysicists alike	River Hills – 11:30am
February 9, 2012	TBD	River Hills – 11:30am
March 8, 2012	TBD	River Hills – 11:30am
April 12, 2012	Boland Scholarship Awards	River Hills – 11:30am
May 10, 2012	Spring Fling	Jackson Yacht Club– 5:30pm



OFFICERS MEETINGS

August 4, 2011

September 1, 2011

October 6, 2011

November 3, 2011

December 1, 2011

January 5, 2012

February 2, 2012

March 1, 2012

April 5, 2012

May 3, 2012

MGS LUNCHEON SPEAKER:

Oil and Gas Finders Unite!

New exploitation techniques in resource plays benefit geologists, engineers, and geophysicists alike

Gary Perry, VP, Reservoir Services, Geotrace

Your company is actively drilling wells. The geophysicists can map time horizons using seismic and get solid correlations with synthetic seismograms from pilot holes. The geologists have little problem in correlating wells in the zone of interest and the engineers have plenty of production data to analyze in the area.

Unfortunately, the time horizons lack enough detail to keep the bit in zone, the well log correlations are uncertain and the difference between good wells and mediocre wells are determined in hindsight. How can you more easily predict good wells to exploit a resource play? The answer: combine the data used by engineers, geologists, and geophysicists using novel methods to produce a detailed picture of the lithology and fluids in the zone of interest, leading directly to better informed decisions.

The processes that help unite these disciplines include deriving rock properties from seismic and well data, azimuthal fracture analysis, microseismic integration, and reservoir simulation. Examples in several conventional and resource plays will be presented.

Biography

Gary Perry has been in the industry since 1974 and studied Geology (with emphasis on Geophysics) at the University of Texas. He is currently Vice President, Reservoir Services, for Geotrace and has been with the company for over 25 years. Gary was previously with Geo-Search Corporation from 1974 to 1986 where he performed basin velocity studies in several onshore U.S. basins before going into seismic processing and then reservoir studies.

U.S. Shale Gas: Less Abundance, Higher Cost

Posted by aeberman on August 5, 2011 - 10:15am

Topic: [Geology/Exploration](#)

Tags: [demand](#), [economics](#), [shale gas](#), [supply](#) [[list all tags](#)]

Arthur E. Berman and Lynn F. Pittinger

Lynn Pittinger is a consultant in petroleum engineering with 30 years of industry experience. He managed economic and engineering evaluations for Unocal and Occidental Oil & Gas, and has been an independent consultant since 2008. He has collaborated with Berman on all shale play evaluation projects since 2009.

Introduction

Shale gas has become an important and permanent feature of U.S. energy supply. Daily production has increased from less than 1 billion cubic feet of gas per day (bcfd) in 2003, when the first modern horizontal drilling and fracture stimulation was used, to almost 20 bcfd by mid-2011.

There are, however, two major concerns at the center of the shale gas revolution:

- Despite impressive production growth, it is not yet clear that these plays are commercial at current prices because of the high capital costs of land and drilling and completion.
- Reserves and economics depend on estimated ultimate recoveries based on hyperbolic, or increasingly flattening, decline profiles that predict decades of commercial production. With only a few years of production history in most of these plays, this model has not been shown to be correct, and may be overly optimistic.

These are not purely technical topics for debate among petroleum professionals. The marketing of the shale gas phenomenon has been so effective that important policy and strategic decisions are being made based on as yet unproven assumptions about the abundance and low cost of these plays. The “Pickens Plan” seeks to get congressional approval for natural gas subsidies that might eventually lead to conversion of large parts of our vehicle fleet to run on natural gas. Similarly, companies have gotten permits from the government to transform liquefied natural gas import terminals into export facilities that would commit the U.S. to decades of large, fixed export volumes. This might commit the U.S. to decades of natural gas exports at fixed prices in the face of scarcity and increasing prices in the domestic market. If reserves are less and cost is more than many assume, these could be disastrous decisions.

Executive Summary

Our analysis indicates that industry reserves are over-stated by at least 100 percent based on detailed review of both individual well and group decline profiles for the Barnett, Fayetteville and Haynesville shale plays. The contraction of extensive geographic play regions into relatively small core areas greatly reduces the commercially recoverable reserves of the plays that we have studied.

The Barnett and Fayetteville shale plays have the most complete history of production and thus provide the best available analogues for shale gas plays with less complete histories. We recognize that all shale plays are different but, until more production history is available, the best assumption is that newer plays will develop along similar lines to these older plays. There is now far too much data in Barnett and Fayetteville to continue use of strong hyperbolic flattening decline models with *b coefficients greater than 1.0*.

Type curves that are commonly used to support strong hyperbolic flattening are misleading because they incorporate survivorship bias and rate increases from re-stimulations that require additional capital investment. Comparison of individual and group decline-curve analysis indicates that group or type-curve methods substantially over-estimate recoverable reserves.

Results to date in the Haynesville Shale play are disappointing, and will substantially underperform industry claims. In fact, it is difficult to understand how companies justify 125 rigs drilling in a play that has not yet demonstrated commercial viability at present reserve projections

Contributed by:

Joe Mcduff

- Production Volume and Reserve Growth vs. Profitability
- Entry of Major Oil Companies Into Shale Plays
- Evaluation of Shale Gas Well Performance
- Well Performance Evaluation Methodology
- Barnett Well Performance
- Fayetteville Well Performance
- Haynesville Well Performance
- Comparison to Operator Claims
- Matching Aggregate Production Profiles for Shale Gas Plays
- Economics
- Summary and Conclusions
- Appendix

Production Volume and Reserve Growth vs. Profitability

Analysts, government agencies, academics and media pundits commonly equate large shale gas resource levels, production and reserve growth with commercial success. We do not dispute the impressive growth of shale gas resources, reserves or production. Examination of the balance sheets of the leading companies involved in shale gas development, however, reveals limited earnings or profit. We must ask the proponents of shale gas success to explain this fundamental discrepancy.

Some argue that price explains poor business results. First of all, whose fault is it that gas was over-produced to the point that prices were depressed other than the same companies that analysts praise for the shale gas revolution? Secondly, realized prices (the prices that results from hedging production volumes in advance of sales) over the past 5 or so years have never been higher because of high spot prices through mid-2008 and favorable hedge positions for much of the following period. This means that low prices cannot be blamed for lack of business success. The simple truth is that shale gas ventures are costly and profits are marginal at best.

Three decades of natural gas extraction from tight sandstone and coal-bed methane show that profits are marginal in low permeability reservoirs. Shale reservoirs have orders of magnitude lower reservoir permeability than tight sandstone and coal-bed methane. So why do smart analysts blindly accept that commercial results in shale plays should be different? The simple answer is found in high initial production rates. Unfortunately, these high initial rates are made up for by shorter lifespan wells and additional costs associated with well re-stimulation. Those who expect the long-term unit cost of shale gas to be less than that of other unconventional gas resources will be disappointed.

Entry of Major Oil Companies Into Shale Plays

Another common theme among shale advocates is that the entry of major oil companies into some of these plays proves that they are commercially viable. There are as many reasons for big companies to enter shale gas plays as there are big companies but the most obvious reason is reserves.

Reserve replacement has been a challenge for major oil companies for at least the last decade as opportunities in the international arena have contracted. North American shale gas plays offer a temporary solution. Whether big companies can find operational and technological ways to make these plays commercial is another question but, for the short term, shale plays provide a means to add reserves.

The notion that investment by large companies proves commercial success is disproved by recent history. We have to look no further than corn ethanol and other biofuel companies where optimistic claims of profitability are now seen to be unfounded. This is even with government mandated use, major subsidies, and import tariffs to protect domestic producers from competition. An excellent discussion of the details of this situation by Robert Rapier can be found at this link:

<http://robertrapier.wordpress.com/category/pacific-ethanol/>

Evaluation of Shale Gas Well Performance

Our analysis of shale gas well decline trends indicates that the estimated ultimate recovery (EUR) per well is approximately one-half of the values commonly presented by operators. The average EUR per well for the most active operators is 1.3 Bcf in the Barnett, 1.1 Bcf in the Fayetteville, and 3.0 Bcf in the Haynesville shale gas plays.

The primary difference between our analysis and the typical well profile proposed by operators is that we observe predominantly exponential (weak to moderate hyperbolic) decline in most of the individual well decline trends, rather than steadily flattening hyperbolic decline. For the Barnett and Fayetteville shale plays, we identify a two-stage exponential decline based on decline curve analysis (DCA) of individual wells; for the Haynesville Shale we observe predominantly exponential decline for individual wells.

Two-stage exponential decline is characterized by an initial ten- to fifteen-month period of steep decline followed by a stable, shallower rate of decline that continues up to the present life of wells (commonly for four or more years to date in the Barnett Shale). Our emphasis is on matching the relatively stable, shallower stage (Exhibit 1) because that is the portion of the decline

Exhibit 1 – Example of Barnett Shale Well with Two-Stage Exponential Decline

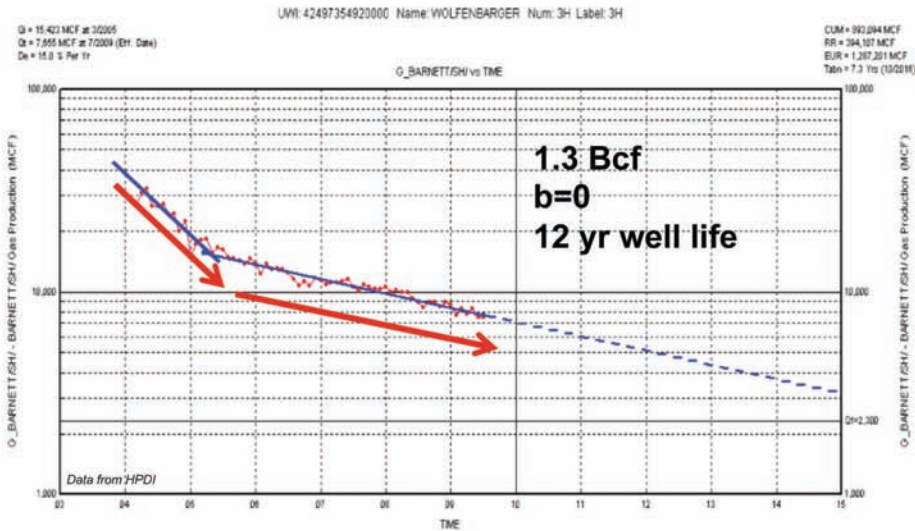
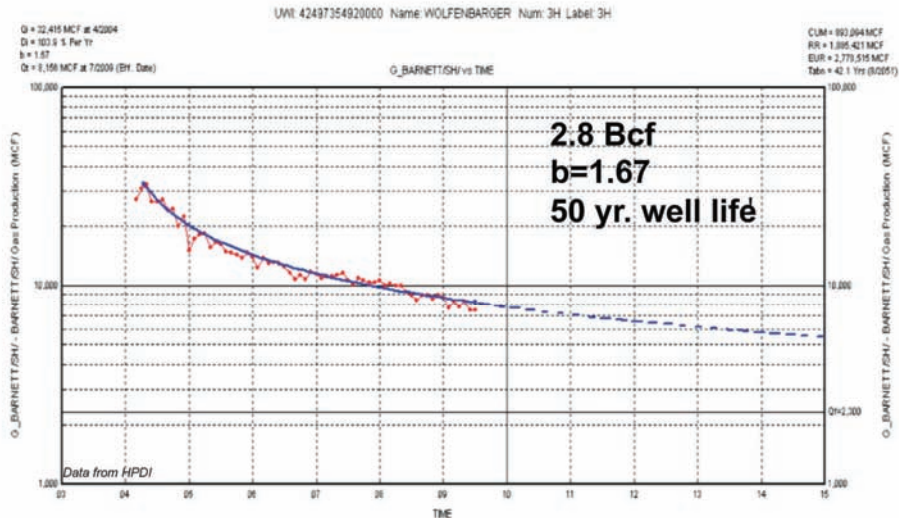


Exhibit 2 – Example of Barnett Shale Well with Hyperbolic Decline (same well as in Exhibit 1)



Contributed by:
Joe Mcduff

In contrast, most producers and industry analysts match the entire production history with a hyperbolic profile with resulting hyperbolic curvature, or “b”, exponents of more than 1.0 (Exhibit 2). This invariably results in a much higher EUR and longer well life because the decline rate progressively flattens beyond production history to very low terminal decline rates of a few percent.

We do not believe that it is appropriate to model the steep initial portion of the decline profile because it is not predictive of future behavior and is already accounted for in the cumulative production portion of the DCA (DCA is really about remaining reserves, after all).

Technical papers are mixed, but several peer-reviewed articles (see appendix) provide specific warnings against use of hyperbolic coefficients greater than 1.0, and specifically caution against including the initial steep transient decline rate in the matching process.

Aggregate production profiles for the Barnett, Fayetteville and Haynesville plays can be matched closely using the average well EUR presented in this study, providing an independent verification of these results. These points will be explained in more detail in subsequent sections including examples from different shale plays and operators.

Well Performance Evaluation Methodology

In this study, only horizontal wells were evaluated. With current technology and performance data, decline curve analysis (DCA) is the preferred technical approach to determine EUR for this analysis, supported by substantial empirical calibration from production histories for thousands of horizontal completions in the Barnett, Fayetteville and Haynesville shale plays. Other techniques such as volumetric calculations and reservoir simulation are limited by uncertainty and lack of calibration of recovery efficiency in the complex interaction between fracture stimulations, natural fractures and joints and shale matrix.

Investor presentations provided by operating companies typically show a group average composite curve normalized to the first month of production, combining well histories of varying duration. Our analysis indicates that this approach can be misleading, mainly because of survivorship bias (the increasing influence on the average over time by the survival of fewer and better performing wells) in the data but also by the inclusion of rate increases from re-stimulations that require additional capital investment. The older data points are representative of a much smaller sampling of wells.

We use a "vintaged grouping" method in our analyses to overcome much of the survivorship bias and effects of late-time well re-stimulations. First, we evaluate wells by operator because different operators have differing land positions that affect rock quality and well performance. Next, we vintage the wells by year of first production. This normalizes drilling and completion methods and permits recognition of performance improvement over time. Then we normalize wells within each vintaged group and do separate DCA for each group. Next, we use the number of wells that were active and the average EUR in each vintaged group to calculate a weighted average for each operator. Finally, we select a vintaged group with anomalously high EUR and conduct individual well DCA for all the wells in that group. We compare the average of the individual DCA with the the normalize group decline to calibrate our probable error for that operator. We do not adjust the weighted average EUR previously determined but this last technique gives us a measure of how much our DCA over-estimate EUR.

These points also will be explained in more detail in subsequent sections including examples from different shale plays and operators.

Barnett Well Performance

Exhibit 3 shows the group average production profile of 1,601 XTO wells in the Barnett Shale normalized to the first month of production. This example curve indicates virtually no decline for the last 4 years of production. The well count shows that the last year of the production decline trend is represented by less than 2% of the initial well count. The jump in average production after month 75 is the result of either survivorship bias (a few poorer wells drop out of the count resulting in an upward uplift because better wells survive) and/or re-stimulation.

Exhibit 4 features a subset of the wells in Exhibit 3 that is limited to wells with first production in 2004. Both Exhibits 3 and 4 show the effect of survivorship bias: as the number of wells decreases with time, the monthly rate flattens to a decline of almost zero because surviving high performance wells “lift” the average for later months. This flat decline profile is not seen in individual wells. This produces an artificially high EUR and long well life that is not real.

The rest of this article can be found at: <http://www.theoil drum.com/node/8212>



2012 Oil History Symposium

March 8-10
Houston, TX

CALL FOR ABSTRACTS
Oral presentations and posters
Deadline: January 15, 2012
www.petroleumhistory.org
Submit abstracts to:
wbrice@pitt.edu
more information: spencerj320@gmail.com



**HAPPY
NEW
YEAR**

Future Meetings of Selected Earth Science Organizations

EVENT	2011	2012	2013	2014	2015
AAPG Annual Convention & Exhibition (ACE)	10–13 April Houston, TX	22–25 April Long Beach, CA	19–22 May Pittsburgh, PA	6–9 April Houston, TX	31 May–3 June Denver, CO
AAPG International Conference & Exhibition (ICE)	23–26 October Milan, Italy	September Singapore	8–11 September Cartagena, Colombia		
AAPG Prospect & Property Expo-London (APPEX)	1–3 March London, UK	6–8 March London, UK			
AAPG Annual Leadership Conference	12–14 August Boulder, CO				
AAPG Foundation Trustee Associates	7–11 September Lake Tahoe, CA	28 Oct–1 Nov Scottsdale, AZ			
AAPG European Region Conference					
AAPG Eastern Section	25–27 September Washington, D.C.	22–26 September Cleveland, OH			
AAPG Gulf Coast Section (GCAGS)	16–19 October Veracruz, Mexico	21–23 October Austin, TX	Sept–Oct TBD New Orleans, LA	Sept–Oct TBD Lafayette, LA	Sept–Oct TBD Houston, TX
AAPG Mid-Continent Section	1–4 October Oklahoma City, OK				
AAPG Pacific Section	9–11 May Anchorage, AK	22–25 April Long Beach, CA			
AAPG Rocky Mountain Section (RMS)	26–29 June Cheyenne, WY	9–12 September Grand Junction, CO	TBD Salt Lake City, UT	TBD Denver, CO	
AAPG Southwest Section	5–7 June Ruidoso, NM	19–22 May Ft. Worth, TX			
AAPG Polar Petroleum Potential (3P)	30 Aug–2 Sept Halifax, Nova Scotia				
American Association of Petroleum Landmen (AAPL) Annual Meeting	8–11 June Boston, MA				
Arctic Technology Conference (OTC) <i>New!</i>	7–9 February Houston, TX	3–5 December Houston, TX			
Asia Pacific Oil & Gas Conference (SPE)	20–22 September Jakarta, Indonesia	22–24 October Perth, Australia			
Association of Environmental & Engineering Geologists (AEG)	19–24 September Anchorage, AK	TBD Salt Lake City, UT	TBD Seattle, WA		
Canadian Society of Petroleum Geologists (CSPG), Canadian Society of Exploration Geoscientists (CSEG), & Canadian Well Logging Society (CWLS)	9–13 May Calgary, AB, Canada				
European Assoc. of Geoscientists and Engineers (EAGE)	23–26 May Vienna, Austria	4–7 June Copenhagen, Denmark	9–14 June London, UK		
GEO India — South Asian Geosciences Conference & Exhibition	12–14 January New Delhi, India	Not Held			
GEO Middle East Geosciences Conference and Exhibition	Not Held	4–7 March Bahrain	Not Held		
Geological Assoc. of Canada/ Mineralogical Assoc. of Canada Annual Meeting	25–27 May Ottawa, ON, Canada	27–29 May St. John's, NL, Canada	22–24 May Winnipeg, MB, Canada		
Geological Society of America (GSA)	9–12 October Minneapolis, MN	4–7 November Charlotte, NC	27–30 October Denver, CO		
IPTC – International Petroleum Technology Conference (AAPG/EAGE/SEG/SPE)	15–17 November Bangkok, Thailand	5–7 December Beijing, China	2–4 December Doha, Qatar	TBD Kuala Lumpur, Malaysia	
National Association of Black Geologists & Geophysicist (NABGG)	7–10 September San Francisco, CA				
NAPE – North American Prospect Expo (AAPL) – Winter	16–18 February Houston, TX	22–24 February Houston, TX			
NAPE – North American Prospect Expo (AAPL) – Summer	17–19 August Houston, TX				
OTC – Offshore Technology Conference (SPE)	2–5 May Houston, TX	30 April–3 May Houston, TX	6–9 May Houston, TX	5–8 May Houston, TX	
PETEX (PESGB)	Not Held				
Society of Exploration Geophysicists (SEG)	18–23 September San Antonio, TX	4–9 November Las Vegas, NV	22–27 September Houston, TX	26–31 October Denver, CO	
Society of Independent Earth Scientists (SIPES)	20–23 June Jackson Hole, WY				
Society of Petroleum Engineers (SPE)	30 Oct–2 Nov Denver, CO	8–10 October San Antonio, TX	30 Sept–2 Oct New Orleans, LA		
Society of Professional Well Log Analysts (SPWLA)	14–18 May Colorado Springs, CO				

Shaded boxes indicate that all aspects of meeting are managed by the American Association of Petroleum Geologists
Global Development and Conventions Department
P.O. Box 979, Tulsa, Oklahoma 74101-0979 USA +1 918 560 2679
Updated 14 July 2011 / Dates are subject to change

GEO LINK POST

USGS TAPESTRY OF TIME AND TERRAIN <http://tapestry.usgs.gov> The CCGS is donating to all of the 5th and 6th grade schools in the Coastal Bend. Check it out—it is a spectacular map. You might want a framed one for your own office. The one in my office has glass and a metal frame, and it cost \$400 and it does not look as good as the ones we are giving to the schools. Call Owen 510-6224 if you want one for your office for \$150. Duncan, Mike, Chris, Dave, Bob Randy, Seb., Kevin, Ken, Craig, Patrick, Robert.

FREE TEXAS TOPO'S <http://www.tnris.state.tx.us/digital.htm> these are TIFF files from your state government that can be downloaded and printed. You can add them to SMT by converting them first in Globalmapper. Other digital data as well.

FREE NATIONAL TOPO'S [http://store.usgs.gov/b2c_usgs/b2c/start/\(xcm=r3standardpitrex_prd\)/.do](http://store.usgs.gov/b2c_usgs/b2c/start/(xcm=r3standardpitrex_prd)/.do) go to this webpage and look on the extreme right side to the box titled TOPO MAPS DOWNLOAD TOPO MAPS FREE.

<http://www.geographynetwork.com/> Go here and try their top 5 map services. My favorite is 'USGS Elevation Date.' Zoom in on your favorite places and see great shaded relief images. One of my favorites is the Great Sand Dunes National Park in south central Colorado. Nice Dunes.

<http://antwrp.gsfc.nasa.gov/apod/astropix.html> Astronomy picture of the day — awesome. I click this page everyday.

<http://www.spacimaging.com/gallery/ioweek/iow.htm> Amazing satellite images. Check out the gallery.

<http://www.ngdc.noaa.gov/seg/topo/globegal.shtml> More great maps to share with kids and students.

www.geo.org Don't forget we have our own web page.

<http://micro.magneet.fsu.edu/primer/java/scienceoptiscu/owersof10/>

<http://asterweb.jpl.nasa.gov/galery/default.htm> Great satellite images of volcanoes

<http://terra.nasa.gov/gallery/> More here

www.ermapper.com They have a great free downloadable viewer for TIFF and other graphic files called ER Viewer.

www.drillinginfo.com This is an incredible (subscription) well and completion data service for independents. Can be demo'ed for free.

<http://terrasrver.com/> Go here to download free aerial photo images that can be plotted under your digital land and well data. Images down to 1 meter resolution, searchable by Lat Long coordinate. Useful for resolving well location questions.

<http://www.fs.fed.us/gpnf/volcanocams/msh/> This is a live cam of Mt. St. Helens refreshed every 5 minutes. At the bottom are old videos of past eruptions in this cycle. It is worth a watch especially now.

Louisiana Board of Professional Geoscientists

As you may know, the Louisiana Board of Professional Geoscientists was created by Act 974 of the 2010 Louisiana Legislative Session. Like most things run by the state, it is underfunded and behind schedule. About the only thing done so far was the election of Dr. Madhurendu Kumar as acting Chairman of the Board, even though there is no board as of yet. Unfortunately, there are several dates and deadlines involved with the board. And please keep in mind that I just came into possession of this information this week. But anyone applying for the Professional Geoscientist designation before January 1, 2012 will not be required to submit a written examination if they meet other statutory requirements. Here is the rub: At this time, there is no application, examination, or statutory requirements. I spoke to Dr. Kumar yesterday, and he is offering the following remedy, to quote "put everyone's mind at peace." If you submit a letter to him, stating your name and personal information, and that you intend to apply for P.G. designation, he will consider that as an application that can be grandfathered in. And you can even email him. Dr. Kumar also told me that he is going to lobby to have the grandfather date pushed back, as the board is far from up and running, but that will take, LITERALLY, an act of the Legislature. So there is no way of knowing if and when that will happen. So I am going to recommend to everyone that is interested in having the P.G. designation, they should go ahead and act now.

Physical Address: Dr. Madhurendu Kumar
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617 N. Third, 9th Floor
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Email: madhurendu.kumar@la.gov

Phone: 225-342-5501

Contributed by:

Art Johnson
New Orleans Geological Society

CANCELLED

Gulf Coast Association of Geological Societies



61st GCAGS Annual Convention
October 16 - 19, 2011
Veracruz, Mexico

GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES GOM GEOLOGY GOES BEYOND BORDERS!

An ancient Aztec icon, **OLLIN**, inspired the 61st GCAGS Annual Convention. Ollin represents transformation and creative evolution and also symbolizes the idea AMGP's geologists have about this Convention expressed by its theme: **"Sharing knowledge to add value"**. The convention features a first-class technical program in the relaxed ambiance of the port city of Veracruz.

For the very first time you will have a chance to attend a meeting offering an integrated technical program with an unabridged regional vision of the geology of the Gulf of Mexico.

- 155 technical presentations featuring Deepwater Setting, Geology, and Economics: 95 from southern and western GOM, 53 from northern GOM, and 7 from Cuba.
- Symposium: "Jurassic Regional Framework and Reservoirs in the Gulf of Mexico".
- A luncheon conference.
- 6 short courses including *Fractured reservoirs with examples from southern Mexico and Petroleum provinces of Mexico*.
- 3 field trips to classic localities of eastern and southeastern Mexico: *Chicontepec, Sierra Madre Oriental, and Sierra de Chiapas*.
- Exhibition including networking events.

Student activities and spouse/guest programs are an integral part of the Convention.

DON'T MISS THIS LANDMARK CONVENTION!

For more information visit:

www.gcags2011.com

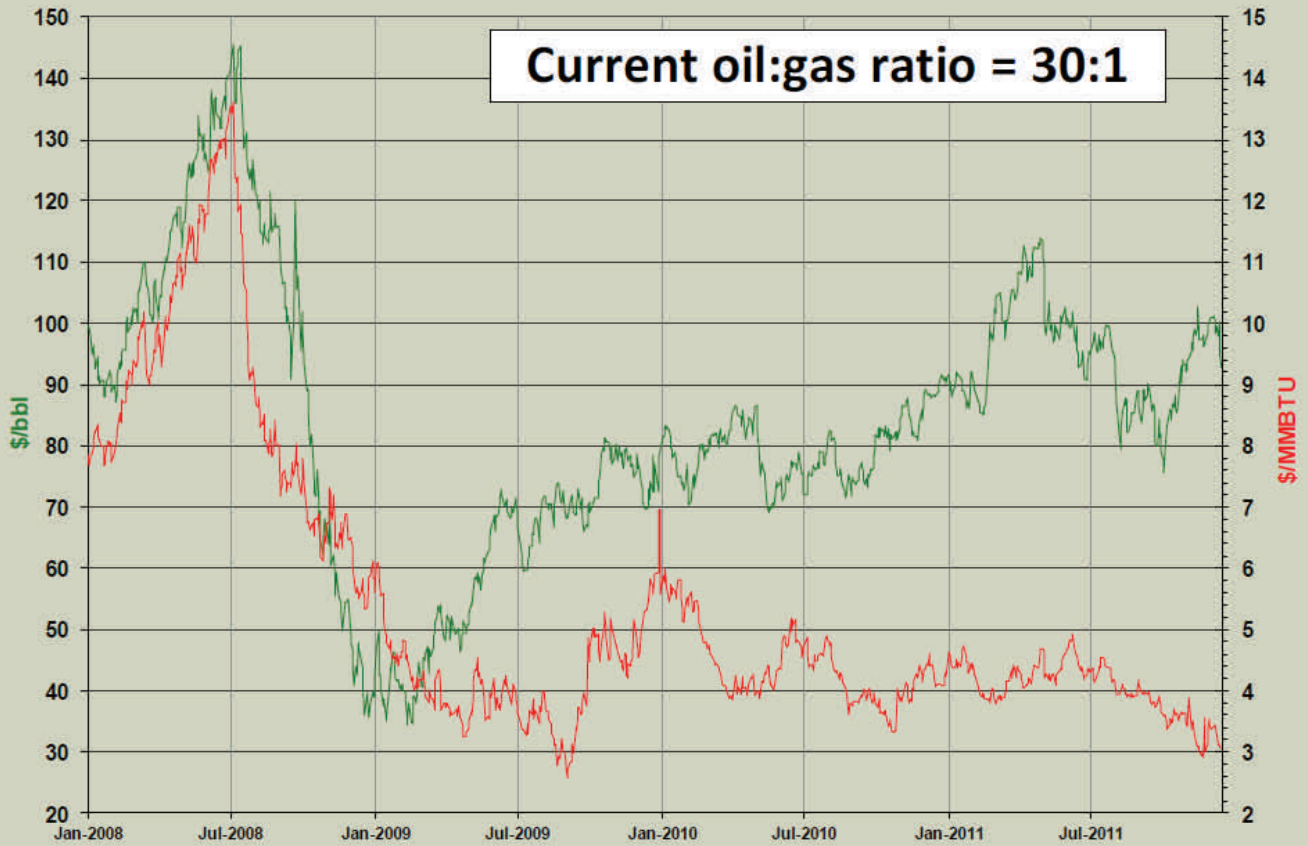
We look forward to seeing you all in Veracruz!



Hosted by the
Asociación Mexicana
de Geólogos Petroleros



NYMEX DAILY SPOT



Current Oil & Gas Prices	OIL	GAS	OIL-12-Mo Strip	GAS-12-Mo Strip
NYMEX Close Friday 12/16/11	\$ 92.88	\$ 3.06	\$ 88.05	\$ 4.27
ICE* current(12/19 @ 7:42 AM)	\$ 94.25	\$ 3.06	<i>*Intercontinental Commodities Exchange</i>	

SOURCE: Oil & Gas Asset Clearinghouse

TURN IT TO THE RIGHT!



Do you have any articles that you want to share with the MGS membership?

Something you read online or something you wrote.

Please email them to the MGS Editor at mgs@treetop.us.com.

We would like to add more content from the membership.

Attention MGS Members:

June 2012 will be the last month the MGS Bulletin will printed and mailed out. From that point on the only version will be in digital .PDF file format.

MGS BOLAND SCHOLARSHIP FUND

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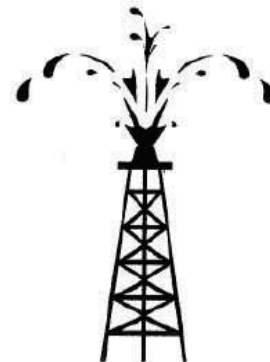
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