Since I'm getting so little feedback on my diatribes, I figure either everyone agrees, or no one's reading this stuff anyway. Either way, I'll continue.

The next topic is compromise. I have heard it said that some individuals believe that compromise means nobody wins. The corollary might be, without compromise everybody loses. Or in the case of a democratically elected majority, the majority ends up lording it over the minority. Kind of like the senate's 60 vote rule. With the way the government is polarized, it appears Washington subscribes to this philosophy.

(Continued on Page 19)

William R. Finley, #2167
Lafayette, Louisiana

The Haynesville Shale: What We Have Learned in the First Two Years
by Richard K. Stoneburner, Petrohawk Energy Corporation — Houston, Texas

Note: This article is from the Dallas Chapter, and is the third in a new series submitted by SIPES Members and Chapters.

Abstract

While there was considerable geologic study, leasing activity, and early drilling that occurred prior to March 2008, the Haynesville Shale play became a publicly-defined gas shale reservoir at that time. Numerous other gas shale reservoirs had been discovered and had undergone considerable development by that time, most notably the Barnett, Woodford and Fayetteville Shales. However, none of those reservoirs had a number of the unique characteristics that the Haynesville had, most specifically the geopressure that has aided greatly in achieving repeatable flow rates that are typically two to five times higher than the best wells that had been completed in any gas shale reservoir previously. As a result of these flow rates and associated reserve profiles, the play achieved notoriety that had not been seen in the natural gas industry for many years.

(Continued on Page 22)
The following reports on national and environmental issues were presented to the SIPES Board of Directors on February 17, 2010. Vice President of National Energy Kenneth J. Huffman, authored the National Energy Report, and J. R. Cleveland submitted the Environmental Committee Report. The views and opinions expressed are those of the authors. Some of the information presented is in the public domain and is available from a variety of sources; other references were selected by the authors, and are noted on their reports.

## NATIONAL ENERGY

The deadline for the submission of this article has me sitting down just as we begin a new year and decade. As all the numbers for 2009 are being finalized it is clear that if the stock market is used as an economic indicator, this period was a poor decade from an investment perspective.

The annual average return from 2000 to the end of 2009 is in negative territory, before being adjusted for inflation. The negative return follows the '90s annual return of 18.2 percent, and 17.5 percent for the '80s. The only other decade of negative returns was the 1930s. Even the dismal decade of negative returns was the 1930s. Even the dismal period was a poor decade from an investment perspective.

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The negative return follows the '90s annual return of 18.2 percent, and 17.5 percent for the '80s. The only other decade of negative returns was the 1930s. Even the dismal 1970s, with the oil embargo, returned 5.9 percent. Historically there have not been two consecutive decades of negative returns. The current economic downturn, resulting from the collapse of the financial markets in the U.S. that cascaded around the globe, seemed to bottom out last March. Since that time the markets have regained some of the lost ground, but a large number of the small investors have chosen to sit out this run up. Some say this market is an indicator of economic recovery; however, many are not convinced the bad news has ended.

Given the pre-unconventional gas relationship between natural gas pricing and the Gross Domestic Product (GDP) both positively and negatively, the importance of knowing where the economies of the U.S. and world are trending is critical to the pricing predictions of oil and gas. The Energy Information Agency (EIA) forecast uses a 2.0 percent growth in 2010 followed by a 2.7 percent growth in 2011.

While I agree with the EIA's forecasts for the GDP growth, I find it amusing at times that whether it is pricing or the economy, nearly all the prognosticators end up with some hockey stick curve that eventually turns up rather than down. It seems no one wants to be the predictor of a downturn.

Allen Auerbach, an economist at the University of California Berkeley, sees debt levels continuing to rise to "unsustainable levels" and estimates the GDP-to-debt ratio will be greater than 100 percent by the middle of the next decade without the government action to cut spending and increase taxes. Knowing that the partisan politics being played in Washington will prevent any real solution from congress, the expectations of an even weaker dollar may be a reality we deal with in the not too distant future.

### 2009 Review

A few articles back I qualified myself as a geologist, not an analyst. Geologists deal better with reconstructing the history of an area than determining its future. Looking back, the years 2009 and 2008 brought us a modest core inflation rate of 1.8 percent. Consumer prices experienced a rise of 2.7 percent for 2009 which was much more than the 0.1 percent in 2008, which had been the smallest gain in half a century.

Energy costs for the past 12 months shot up 18.2 percent after they dropped 21.3 percent in 2008. Gasoline rose by 53.5 percent after falling 43.1 percent in 2008. A trend, when graphed, mirrored many of the major stock indexes in 2009. Housing weighed in on the core inflation number, dropping 0.3 percent representing the biggest annual decline since 1968. This was a reflection of the high unemployment rates and the poor consumer confidence. Medical and education costs both increased 3.4 and 5.2 percent respectively, going against the trend seen in most of the other sectors.

The average price in 2009 for West Texas Intermediate (WTI) crude oil was $62 per barrel, after hitting a daily low of $34.03 in February and closing the year at $70.36 per barrel. Global oil demand declined for the second consecutive year, a result of the economic slowdown in that period.
Consumption has been increasing since the middle of 2009, while the U.S. crude production increased by 360,000 barrels per day from 2008 levels. China was the world leader in consumption growth, and is expected to hold that position for the next couple of years. Surplus OPEC production is expected to remain high, giving them pricing control and possibly increasing their 40 percent share of the world market they controlled in 2009.

The 2009 annual average natural gas spot price at the Henry Hub was $4.06 per MCF based on EIA data. This reflects an initial January average of $5.15 per MCF to a daily low in the first week of September of $2.06 per MCF and an ending price of $5.82 per MCF, which was only $0.41 above where it began the year. The EIA estimates natural gas consumption fell by 1.5 percent primarily a result of the economic downturn. This low pricing was also affected by the 3.7 percent increase in total marketed natural gas produced during 2009. The withdrawal of gas from storage began the week of December 4, 2009. By this time there was 3,837 BCF of gas in storage which was 275 BCF above the previous record of 3,565 BCF reported in October of 2007. The colder-than-normal December and January have resulted in some record withdrawal rates early in the season, but the storage volume is still above the 5-year storage average.

EIA reported the net electrical power generated in the U.S. dropped by 3.8 percent from October 2008 to October 2009. This was the 15th consecutive month the net generation was down compared to the same calendar month of the previous year. This parallels the Federal Reserve reporting industrial production had declined 7.1 percent from October of 2008, the 16th consecutive month that same month industrial production was lower than in the previous year. Coal-fired generation was 7.6 percent lower and natural gas-fired generation was off 1.6 percent from October of 2008. Hydroelectric generation was up by 29.8 percent due to October of 2009 being the wettest October in the last 115 years. Wind generation was up by 34.7 percent and nuclear was down by 8.1 percent.

Even with the drop in coal-fueled generation, it contributed 44.4 percent of the nation's electric power. Natural gas contributed 23.7 percent, nuclear 20.2 percent, petroleum 1.0 percent, hydroelectric contributed 6.8 percent, Renewables (biomass, solar, wind, others) contributed the remaining 3.6 percent. All sectors (residential, commercial, and industrial) saw a decrease in the cost of electrical power with the average retail price in October being 9.81 cents per kilowatt hour. This was a 2.3 percent drop from October of 2008 when the price was 10.04 cents. Electricity is a secondary source of energy, generated through the consumption of a primary source. This point is sometimes missed by much of the general public along with the need for transmission lines and infrastructure to connect the grids and lines that carry the electricity to the users.

(Continued)
Who uses this stuff?

It doesn't matter if you are talking about the west, midwest, east, or southern regions of the U.S., everyone relies on energy for transportation. In each of the regions transportation is the number one or two highest sector of consumption. This sector is the largest user of petroleum, followed by the industrial sector.

The American family and their standard of living are hooked on the energy that fuels the life style to which we have become accustomed. Just walk into your kitchen or TV rooms and count the lights glowing back at you. It all takes energy to run. The cell phone, laptop, or 18-wheeler all consume energy that comes to our society at a cost, both economically and environmentally.

Technology has increased our efficiency in the use of the resources we consume as has public awareness and conservation. The new technologies that have allowed for the recovery of shale-gas reserves (whether economic or not) have opened the door for a low carbon source that could be a contributor to the diversity of energy sources that may carry our society in a cost-effective way into the foreseeable future.

UN figures suggest that meat production is responsible for about 18 per cent of global carbon emissions (including the production of animal feeds and the destruction of forest land for cattle ranching.) The UN claims direct emission of methane from cows and pigs is a significant source of greenhouse gasses, and that methane is 23 times more powerful than carbon dioxide as a global warming gas.

Stern is deeply concerned that popular opinion has so far failed to grasp the scale of the changes needed to address climate change. Lord Stern did state that he is not a strict vegetarian.

Robert and Brenda Vale have published a book titled Time to Eat the Dog: the Real Guide to Sustainable Living. They claim that man's best friend could be one of the environment's worst enemies. According to their calculations, the carbon footprint of a pet dog is more than double that of a gas-guzzling SUV. Cats have roughly the paw print of a Volkswagen Golf. The Vales also believe that a pet's environmental impact is not limited to their carbon footprint because dogs and cats also devastate wildlife, spread disease, and pollute waterways.

Their calculations are based on the amount of meat and cereal a medium-sized dog eats in a year. John Barrett at the Stockholm Environment Institute says, "Owning a dog is really quite an extravagance, mainly because of the carbon footprint of meat."

The Vales have calculated the environmental impact of other types of pets also. A goldfish, for example, has the equivalent carbon footprint of two mobile telephones. They suggest that if people must have a pet they should get one that is dual purpose, such as a hen, which offsets its impact by laying edible eggs, or a rabbit, which can end up on the dinner table.

(Continued)
At the extreme end of the environmental culture is the idea that people are a plague on the earth, ravaging its surface for food and resources, polluting its atmosphere and endangering its species. In order to save our planet, this group believes the government needs to establish population control and give carbon credits to one-child families, a type of “Cap and Trade” for babies.

Environmental writer Andrew Revkin states, “Probably the single most concrete and substantive thing an American, young American, could do to lower our carbon footprint is not turning off the light or driving a Prius, it’s having fewer kids, having fewer children.”

John Holdren, Director of the Office of Science and Technology Policy, wrote in 1969 that “if the population control measures are not initiated immediately, and effectively, all the technology man can bring to bear will not fend off the misery to come.” He also stated that for the United States, “210 million now is too many and 280 million in 2040 is likely to be much too many.” (The current U.S. population is over 300 million.)

The writer of an article on Investors.com points out that people with views such as these consider people as a burden, not as a resource. He reminds us that “with bodies come minds. Our species can consciously apply problem-solving techniques to the project of expanding its resource base and providing new and cleaner sources of energy. Minds matter economically as much as hands and mouths.”

We do need to be responsible in the way we treat our planet, but we need to avoid the extremes. Some costs are just too high or too far out there.
The Denver Geophysical Society is proud to announce the Second Annual Innovative GeoScience Technologies Symposium. Attendees of this conference will be presented with the advantages of refocusing attention to several non-3D seismic techniques that can find faults, fractures and compartments in tight gas and fractured shale plays.

Registration Includes
Deadline - April 16, 2010
11 speaker presentations
Presentation reference guide
Poster sessions
Plated lunch
Snacks throughout the day
Networking social hour post presentations

For further information on sponsorship, to review short abstracts of presentations to be given at the symposium, or to register visit www.denvergeo.org
SIPES Honorary Member John J. Amoruso, #335, of Houston, Texas will receive AAPG’s Outstanding Explorer Award at the group’s 2010 Convention in New Orleans. Larry D. Bartell, #2526, of Houston, Texas will also be honored with this award.

AAPG’s Distinguished Service Award will be presented to SIPES Members Martin M. Cassidy, #3148, of Houston, Texas; Rebecca L. Dodge, #2297, of Wichita Falls, Texas; Dwight M. Moore, #3023, of Houston, Texas; and Terence G. O’Hare, #2692, of Dallas, Texas.

SIPES Honorary Member, Patrick J.F. Gratton, #412, of Dallas, Texas will be presented AAPG’s Michel T. Halbouty Outstanding Leadership Award at the AAPG Convention in New Orleans in April.

William T. Goff III, #2068, of Denver, Colorado will receive the SIPES Outstanding Service Award at the SIPES 47th Annual Meeting in Colorado Springs. He is serving as co-chair of this event.

George D. Klein, #2705, of Houston, Texas has recently published his memoir titled, Rockknocker: A Geologist’s Memoir. The book outlines his life from early childhood, graduate school, work as an oil company researcher, university professor, science administrator, and as a geological consultant. It is available through Amazon, Barnes and Noble, as well as from the publisher at http://www.ccbpublishing.com/gdklein.html.

George P. Mitchell, #117, of Houston, Texas will receive AAPG’s Special Award at the group’s 2010 Convention on April 11 in New Orleans, Louisiana.

Former Dallas Member G. Frederick (Ted) Shepherd, #27, will be posthumously awarded SIPES Honorary Membership, the Society’s highest award, at the 2010 SIPES Convention in June. A Founding Member and past president of SIPES (1968), he is honored for his professional service and pioneering work in earth science data preservation.

Also receiving SIPES Honorary Membership will be Daniel L. Smith, #1647, of Houston, Texas. This award has only been presented on twenty-one previous occasions. A past president of the SIPES Foundation (1993), Dan has also served as AAPG President. He continues to work with the SIPES Houston Chapter and with AAPG.

Victor L. Cooper, #2171, of Oklahoma City, Oklahoma will receive the SIPES Outstanding Service Award on June 22, 2010 in Colorado Springs, Colorado.

Daniel Smith
Many thanks to the members listed below for their continuing support of our society. 2010-2011 members will be printed in the May 2010 Quarterly.

Promoter – $2500
H. Jack Naumann, Jr. — Midland, TX

Oil Finder – $1000
Wilbur C. Bradley — Wichita, KS
William C. Burkett — Midland, TX
Stewart Chuber — Schulenburg, TX
Arlen L. Edgar — Midland, TX
Scott G. Heape — Addison, TX
Marcus D. Maddox — Midland, TX
J. Phil Martin, Jr. — Houston, TX
Michael A. Pollok — Purcell, OK
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Paul M. Strunk — Corpus Christi, TX

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Michael N. Austin — Broomfield, CO
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Donald G. Gifford — Dallas, TX
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(Continued)
SIPES 2010 POST CONVENTION FIELD TRIP

CRIPPLE CREEK & VICTOR GOLD MINE
The Cresson Mining Operation - Thriving in a “Plotted Out Area”
Conducted by Tim Brown, Exploration Manager for Cripple Creek & Victor Gold Mining Company

Thursday June 24, 2010 • 9:00 am to 4:00 pm • $140 per person before 5/21/10

Tour includes round-trip bus transportation, professional tour staff, box lunch, soft drinks, water, snack and gratuities.
Tour is limited to 31 people. Register early!

Cornerstone Group Continued

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Craig E. Moore — Houston, TX
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Carl M. Padgett — Houston, TX
M. Davis Payne — Midland, TX
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Charles D. Schmidt — Valley Center, KS
John T. Schulz, Jr. — Portland, TX
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William M. Smith — Houston, TX
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Jeffry A. Smith — Midland, TX
Steven R. Trudeau — Dallas, TX

*
FORT WORTH

The November meeting of the Fort Worth SIPES Chapter was held at the Fort Worth Petroleum Club. Twenty-two members and guests attended.

Chairman Russ Hensley opened the meeting and welcomed the attendees, who introduced themselves. Dennis Gleason, #2995, gave a talk entitled "Geostatistics and Reserve Estimates." This talk was also presented at the 2009 SIPES Convention and is available from the SIPES Foundation film library on DVD.

Dennis explained and applied familiar terms like "mean, standard deviation, bi-modal histograms" to four projects that included the Gulf Coast, South Texas, a non-conventional gas reservoir, and forensic engineering.

Data that comes from small populations make analysis tricky . . . although they sometimes can cover the range of possibilities, they might not tell the entire story. Experimentation with bin width, and using power, linear, and logarithmic analysis of reserves compared with initial average rates in barrels of oil per day can vary widely.

Rules of thumb . . . there exist no rules of thumb for the Barnett Shale. The geology has to be done and each well is unique. The same data can give different results.

In another case, the field had low volume oil wells that didn't match up with the forecast.

Dennis pointed out that reserves are somewhat analogous to fish: 1) they're either in the boat, or 2) on the hook, or 3) there are fish in the lake but not yet caught, or 4) there's water.

SIPES Fort Worth Chapter

NEW ORLEANS

The New Orleans Chapter's October 20 meeting was held at Andrea's Restaurant in Metairie. Our invited guest speaker was Arthur Berman, #3062, of Houston, who presented a stimulating talk entitled "Shale Plays and Lower Natural Gas Prices." Mr. Berman offered a contrarian viewpoint to the economics of the current and popular pursuit of the various shale gas resource plays by certain oil and gas industry operators. Mr. Berman provided specific examples from the Barnett, Fayetteville and Haynesville Shales that indicate that the current production data from these reservoirs do not support the reserve levels claimed by some of the companies operating within these trends. Based on his analyses in all of these trends, he concluded that the reserve predictions based upon standard decline-curve methods are overly optimistic, as there appears to be a dubious correlation between the initial production rates and the estimated ultimate recovery (EUR). In addition, the actual average well life appears to be much shorter than predicted which has a negative effect on the projected volume of commercially recoverable reserves. At the same time, many companies and financial analysts state that shale gas plays are profitable in the $4-5/mcf range when in actuality the marginal cost of production is in the $6-8/mcf range. If Mr. Berman's cautionary position is close to being accurate, then the end game to these shale plays may prove to be rather financially compelling to the players involved.

Our November meeting was held in conjunction with the API Delta Chapter's 12th Annual GNO Joint Industry Association Luncheon at the newly renovated Roosevelt Hotel in downtown New Orleans. Fourteen local societies participated in this event. The luncheon was a sell-out primarily because of the preeminent keynote speaker, Michael Economides, professor at the University of Houston. Professor Economides is considered by many as the premier world expert on the geopolitics of energy. He has written numerous industry-related books including his 2000 best-seller, The Color of Oil, and his most recent one, Energy: China's Choke Point. Dr. Economides addressed the audience citing excerpts from his new book which he autographed following the meeting. His 2010 price prediction for oil is $85/barrel by the third quarter, and his 2010 average price for natural gas is $4.50. He predicted that the current glut in natural gas supplies will continue for the next 4-5 years, whereas the oil shortage will continue and escalate once the global economy gets back on track. In addition, he believed that the United States' reliance on foreign oil imports will continually increase as governmental policies enacted under the Obama administration will further impede access to public lands for oil and gas exploration. He also believed that the current government's strong support of the pursuit of alternative/renewable energy resources is futile and will provide very little improvement to our domestic energy supply picture. Historically, he pointed out the fact that during the time of the 1973 Oil Embargo, oil, natural gas and coal provided 87% of the world's total energy. At the beginning of 2009, these same energy resources were still supplying 87% of the world's energy needs, and in thirty years they are projected to still be at 87%! When one subtracts nuclear and hydroelectric energy from the remaining 13% of the total supply, it becomes immediately evident that alternative/renewable energy resources add only a minuscule amount to the total world and domestic energy supply picture.

The Chapter's December meeting was once again held at Andrea's Restaurant and was our typical holiday venue with an open mike meeting. Lively arrays of topics were verbalized amidst festive spirits.

Al Baker
Secretary
MIDLAND

Our October lunch program was presented by David Pursell with Tudor, Pickering Holt & Company in Houston, Texas. He spoke about "The Outlook on Oil and Gas Fundamentals and Prices." His presentation focused on U.S. natural gas, and reviewed the recently-released Tudor Pickering Holt & Company U.S. Natural Gas Supply Study, and the near and long-term industry implications.

David Pursell is responsible for macro energy analysis. He started his petroleum engineering career at ARCO Alaska in Anchorage with production and reservoir engineering assignments on the North Slope and the Cook Inlet. Currently, he serves as chairman of the IPAA Supply Committee. He received his bachelor's and master's degrees in petroleum engineering from Texas A&M University. Our October meeting sponsor was Weatherford Labs.

The Midland Chapter set up a booth at the WTGS Fall Symposium in late October to publicize SIPES, and to meet with potential members. We received several compliments on our booth, and we spoke with many potential members.

The November meeting was sponsored by Welltec. Our program was presented by J. Phil Martin, #2390, president of New Century Exploration, Inc. in Houston. Phil's talk was titled "The Haynesville Shale: Boom and Bust." It has been estimated that there are over 200 years of power usage for the U.S. locked in various organic rich shales in numerous sedimentary basins across the country. The Haynesville Shale appears to be the largest found so far but the big question is one of economics and the answer is complicated.

The Haynesville Shale Play became public almost two years ago and the picture of its true potential is now emerging. (See page 1). From the outset, the play had the distinction of driving lease costs higher and on a larger scale than had ever happened in this country. This was quickly followed by a collapse of natural gas prices in 2008 which created a quandary for many oil and gas operators that were locked into costly lease positions requiring extensive drilling over the next few years to avoid expirations. While it has caused pain on the E&P side, and sucked the air out of many other trends, it has been a blessing for the service companies whose services are in high demand for the costly and complicated drilling and completion of the hundreds of wells being drilled. It is ironic that there has been a "boom" taking place in North Louisiana and East Texas to drill wells that are uneconomic at low gas prices.

The Eagle Ford Shale has now grabbed the exploration headlines but the main drilling activity remains in the Haynesville. Like most plays, the "sweet spots" are slowly emerging and, while the jury is still out, it appears at this point that the Louisiana portion is superior. There will undoubtedly be many sub-regional "sweet spots" found in both states. Haynesville Shale wells have a steep decline, but the reserves will likely last for many years. These low-risk, long-term reserves are loved by Wall Street and make sense for public companies that can generate value through higher stock prices, but make much less sense for others that require quicker returns. The Haynesville Shale Play has created a technology bloom that is helping birth additional shale plays. The magnitude of these new reserves is great news for the energy demands of our country, but the Haynesville is no place for the timid, and gives new meaning to the term "no pain, no gain."

Phil Martin received a B.S. in geology from Louisiana State University and an M.S. in geology from the University of Southwestern Louisiana. He has managed exploration programs in Texas and Louisiana for over twenty years. His specialty is 3D seismic exploration. In addition to SIPES, he is a member of AAPG, HGS, SEG, Onshore Exploration Independents, and the Houston Producers Forum. He is chairman of the board of the Geological Data Library, and sits on the board of the Houston Energy Council. He is currently serving as president of the SIPES Foundation and secretary of the SIPES National Board.

Nov 18 2010

Chapter Chairman David Overton (left) and October guest speaker Dave Pursell.

November speaker Phil Martin from Houston.

COMING SOON

SIPES Foundation
2010
No Hassle Raffle
Tickets

Your Raffle Contributions
Support Seminars,
Scholarships,
Publications & More

Winning Tickets will be Drawn
June 22, 2010
You Don’t Need to be Present to Win!
CORPUS CHRISTI

Monthly meetings for the Corpus Christi Chapter took a decidedly different flavor during the last quarter of 2009. Gone were the typical technical talks with a sprinkling of financial speakers. Rather, the counterpoint began in October with a recruitment meeting at the Executive Surf Club in downtown Corpus Christi. Numerous prospective members were invited, and less active members were encouraged to attend. The occasion doubled as the opportunity to honor ten members with twenty or more years of membership. Those honorees include Don Kling, Jack Sulik, Bob Luker, Leonard Howard, Dan Pedrotti, Carroll (Blackie) Pitzer, Charlie Brocato, Bob Owen, Paul Strunk and Joe McCullough. The October meeting, spearheaded by Membership Chairman Brian Calhoun, included great fellowship, with the last members reportedly leaving the meeting well past 9:00 p.m.

The November meeting featured a talk by local businessman and historian Jim Maloney on the 1919 Hurricane that devastated Corpus Christi. Jim is a partner in Energy Gas Compression, a local gas compressor company. The 1919 Storm was an absolute surprise to the then small but thriving community of Corpus Christi, striking after dark and leaving nearly 1,000 dead. Jim and co-author Murphy Givens, recently published a very compelling book, 1919 - The Storm, on the subject replete with many pictures gathered by Mr. Maloney.

For December, the chapter celebrated the holiday season with a Christmas party at the Corpus Christi Town Club. Music was provided by the Sonny Hill Trio, and dinner featured either prime rib or fish. At the last minute and under great duress, the decision was made to include spouses! Despite the many conflicts epidemic with the season, the event was well-attended and enjoyed by all.

David Desenberg
2009 Secretary

SAN ANTONIO

On October 14, our local SIPES Chapter had an annual joint meeting with the South Texas Geological Society (STGS) at the Petroleum Club. The program for the luncheon/joint meeting was "Eagle Ford Shale Exploration Models: Depositional Control on Reservoir Properties." The guest speaker was Kevin P. Corbett, of Wrangler Resources, LLC, in Denver, Colorado. There was great attendance with a full house.

At our November 17 meeting, Steven Bircher, of Hampson-Russell Software and Services Division of CGS/Veritas in Houston, Texas, presented a program on "Current Methods in AVO Modeling and Analysis."

For December, again the local SIPES Chapter joined with the STGS for a grand gala Christmas party on December 10, 2009. The Christmas event was very well attended. There was great music provided by an ensemble composed of three musicians from Trinity University, a great food buffet, and great Christmas spirits provided by several of the oil industry service companies. All attending had a great time and at 9:00 p.m., a number of door prizes were awarded based on ticket numbers passed out at registration time.

The officers of the San Antonio Chapter have not changed since last year. One item of note is Joe Smith, our local vice chairman and luncheon program director, moved to Dallas (Plano) this past December. The absence of Mr. Smith is a great loss to the chapter due to his great program/speaker arrangements. The local chapter wishes to thank Joe for all his hard work, time and effort, and personal contribution to our chapter and luncheon program.

J. L. Jones
Chairman
DALLAS

The Dallas Chapter's regular lunch meeting was held October 20 at the Dallas Petroleum Club. Lee Petersen, #2838, of Oro Quay Corporation in Fort Worth, was our speaker and he presented his topic "Finding Oil Without Use of Computers, Remote Sensing, Seismic and Non-Conventional Methods (Part II)." Lee gave three examples where the use of existing well data, coupled with creative, analytical thought, resulted in the development of significant oil and gas reserves in, and along trend with, fields long after their initial discoveries. Areas discussed were the East Corrigan Field in Terry County, Texas; a large area in eastern Schleicher County, Texas; and the East Flowers Unit in Stonewall County, Texas. Lee stressed the importance of mentoring the next generation of oil-finders in order to pass on basic exploration fundamentals. Part 1 of Lee's talk was presented at the 2008 SIPES Convention in New Orleans and is available on DVD from the SIPES Foundation.

New member Paul Summerlin, #3187, was introduced at the October meeting.

Our November 17 lunch meeting was also held at the Dallas Petroleum Club. Gary Crews, director of customer service for Spatial Energy Co. in Plano presented "Application of High-Resolution Satellite Imagery in the Oil and Gas Industry." Satellite imagery has evolved from resolution capability of about five meters prior to 2000, to today's resolution of 50 cm, with a mapping accuracy of three to four meters. The oil and gas industry is the largest commercial user of satellite imagery; applications are virtually unlimited. Imagery is acquired by satellites orbiting the Earth at altitudes from 450 km to 700 km. Any point on the planet can be seen by the satellites every three to four days. Image licenses may be acquired from the data server's library, or on a custom-order basis.

On December 9, our annual Christmas social was held at the Petroleum Club and the new officers were announced. The event was enjoyed by everyone and the Petroleum Club staff did an excellent job. The new officers selected for 2010 for the Lafayette Chapter are Danny Fredericks, chairman, Travis Helms, vice chairman and Steve Sinitiere, secretary/treasurer. Our National Directors are Bill Finley and James Hardwick.

Steve Sinitiere
Secretary/Treasurer

The 2010 Executive Board for the Dallas Chapter was elected at the November meeting; new officers are as follows: Chairman Doug Essler; Vice Chairman & Program Chairman Don Muth; Treasurer David Scull; Secretary Carol Shiel; Membership Chairman David Bissmeyer; Continuing Education Chairman Robert Webster; National Directors Bobby Greenwood and Dick Cleveland; and TEC Representatives Ed Gonzales and James Henderson.

LAFAYETTE

Our 2009 annual barbeque lunch under the pavilion at Girard Park was held during October. It turned out to be a beautiful sunny day which was a well-deserved break from the previous days of continuous rain and gray skies. Over fifty members attended the barbeque picnic and enjoyed some great food from Dwight's. Everyone got a chance to visit with each other and catch up on the industry, economy and politics. Our SIPES chapter is a close-knit organization and this social event is an excellent chance for our members to share ideas, relax and have a few laughs with their fellow geoscientists.

At the November meeting of the Lafayette Chapter, Martin Cassidy from the Department of Earth and Atmospheric Sciences at the University of Houston, presented his talk on "Sub-Aerial Basins below Sea Level Provide Unexpected Reservoirs." Dr. Cassidy provided examples of sub-aerial basins across the globe and how these geological settings can be excellent exploration targets.

On December 9, our annual Christmas social was held at the Petroleum Club on the evening of Saturday, December 5. Following cocktails and dinner, The Mike Drake Band provided musical entertainment for over one hundred chapter members and guests. A great time was had by all.

Mike Taylor
2009 Secretary
HOUSTON

On October 15, 92 attendees listened to Frank Wales, geological advisor with Devon Energy present his topic “What Makes a Shale System - Gas Producible? How and Why Producibility Might Vary.” Shale gas plays are all the rage today and are under study or development around the world. (See page 1). A company should consider a methodology for understanding and quantifying the characteristics of different shale gas plays. Frank gave us a glimpse of the approach one such company is developing. The Devon approach allows for the classification of shale-gas systems by quantifying the relationships of the developed petroleum system and the resulting influences upon components of the original sediments.

Impactful hierarchical items regarding shale gas producibility include mineral suites, pore pressure, heterogeneity, organic matter, clay, fluid and textural types, gas source, gas storage, wettability, fracture fabric, seal types, fracture “fills” and dehydration types. Measurements and analysis of these components provide Devon, through a system of tornado charts and “prompted” sidebar displays, the capability to quantify these shale gas plays. Their particular system can get very complex with 90+ indices as it integrates these 15 components and also subdivides by basinal settings and clay maturities. The result of this, or a similar approach, should allow a company to classify the shale-gas potential of a play, identify sweet spots and calibrate one shale gas play to another.

David Heikkinen, managing director, and head of E&P research with Tudor, Pickering, Holt & Co., spoke before a joint November HAPL-SIPES luncheon crowd of 130+ on his topic “The State of the Oil & Natural Gas Industry; Where do Things Go from Here?” David shared his thoughts and insight into the underpinnings related to our industry and the near and far-term outlook for commodity prices.

Our industry has been on a wild ride with unimaginable swings in commodity prices. If one’s decision-making was based on a simple utilization of the forward strip pricing for natural gas over the last ten years, the historical reality overlaid on that strip pricing means that you would have been correct about 5% of the time. David’s look-back graph indicated that more than 50% of the time, the strip price was too high (many times ranging 5-30%). On the flip side, more than 40% of the time, the strip was too low (with three times the difference was over 50%).

David shared his company’s basis for building their natural gas wellhead supply model. It is underpinned by extensive data gathering and analysis of defined basin areas, including six major shale plays. From this, they build a solid production base and decline forecast, in addition to modeling new drill wells and their theoretical type curves. After extensive history matches and calibration, these are assembled and combined with rig counts and forward type well and basin curves and ultimately utilized to make forecasts. David had several examples of the calibrations and history matches regarding the Barnett Shale as an example. The company also incorporates the impact of the emerging, impactful shale gas plays that are affecting the gas supply. They would then run various sensitivities, including rig counts by basins that enabled them to forecast production, rig counts regional outlooks, etc.

The company’s views today include onshore gas production declining (GOM production is plummeting), and with a current onshore rig count unsustainably low, gas prices and activity (rig counts +5%) will rise in 2010. Regions will be impacted differently. Longer term, there will be fewer rigs in fewer places, with a marginal cost of supply of $6.50. Other wildcards include ultimate shale-gas performance, macro-variables (LNG, renewable, Canadian imports, and overall demand) and infrastructure build-out.

The annual Houston Chapter Fall Social was held on Friday, November 13 at the Petroleum Club. The night was clear and the downtown skyline was a magnificent backdrop for the members and guests who were in attendance. The evening started with a social period where everyone gathered, renewed friendships, and enjoyed a glass of wine. A big thanks goes out to B.K. Buongiorno, who outdid herself with the handmade name tags and table decorations. The evening was capped off with a talk and slide show from Michael Turco, chief of the USGS Texas Water Science Center. He presented information about the severity of the storm surge generated by Hurricane Ike. The data collected by Mike and his colleagues allowed them to record the water depth of the surge as it moved inland.

(Continued)
He substantiated his findings with a series of dramatic before-and-after aerial photographs illustrating the devastation left behind by the storm. The talk proved to be interesting to both our members and their guests.

Henry Posamentier, Sr., geological consultant with Chevron Energy Technology Company, discussed “Using 3D Seismic Data to Predict Lithology in the Subsurface: Applications of Seismic Geomorphology and Seismic Stratigraphy from Deep Water to Shelf” to a sellout SIPES crowd in December. Dr. Posamentier’s premise is that an interpreter familiar with a wide range of depositional patterns and understanding of depositional systems can tackle E&P interpretations involving lithology, reservoir rock and seals. Especially in high-cost environments and deep-water settings, any insight that serves to reduce risk and provide understanding of the subsurface is meaningful.

High-quality 3D seismic data can provide tremendous insight by providing direct imaging of depositional elements, which when combined with an integration of seismic stratigraphy and seismic geomorphologic analysis, can aid in the prediction of lithology, reservoir architecture and sedimentary processes. The 3D seismic volume allows one to confirm their seismic section interpretation (stratigraphy/geology) with the plan view (geomorphology), to derive a more thorough, integrated interpretation.

Dr. Posamentier provided numerous surface examples of modern depositional settings, shallow-buried (high resolution data of recent sediments) and deep seismically-imaged examples that provided numerous analogs to depositional systems and lithologies.

Paul Babcock  
Secretary  
and  
Steve Hartzell  
Chairman

### SIPES Chapter Meeting Information

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DENVER

On October 22, the Denver Chapter of SIPES continued its 2009 speaker series at the Wynkoop Brewery with a presentation from Bruce Karr, a seismic processor with Fairfield Industries in Denver. His presentation, entitled "Seismic Processing and Beyond," outlined in excellent detail what Bruce called the "boring stuff" within the seismic processing realm which needs to be handled properly in the field and processing shop to make sure that money is spent wisely and that the client receives a product that mirrors sub-surface reality.

Using several examples from Kansas, Bruce outlined how a 3-D layout can be modified to increase fold and how testing and analyzing the number of sweeps and vibs in field tests can dramatically improve final processed results. Once in the processing shop, special attention needs to be paid to frequency analysis, first break picks and the number of layers that can be recognized from the data. In addition, in areas where seismic structures can be in the order of 5-10 milliseconds, such as Kansas, special attention is required for refraction and residual static analysis; if not handled properly, this can mask real structure or create false ones. Finally, both noise and multiple analyses are critical to revealing the useful data. Bruce also stressed how important it is for the client to be in close communication with the field managers and processors in order to supply important geological information along the way.

On November 19, Don Stone from Sherwood Energy in Denver gave the luncheon presentation entitled "Kinematic Analysis with Examples from the Rocky Mountain Foreland Province." Don explained that during the early days of his fifty-plus year career in the Rocky Mountain province, the knowledge of oil field structures located within basement-involved thrust-generated folds was constrained solely by surface expression, incomplete well control and widely-spaced 2-D seismic lines. However, with the application of 3-D seismic technology, these features can now be imaged in great detail, and animation techniques can be employed that allow for a detailed kinematic analysis of these structures. Animations constructed with continuous profiling moving through a 3-D volume orthogonal to the strike of the causal thrust are very revealing. As the profile movie advances from the tip of the thrust to the area of maximum fault displacement and fold amplitude, a moving image of the structural development of the structure is created. Bottom-up and top-down time-slice animation of the same 3-D volumes also contributes to a better understanding of the kinematic development by clearly exhibiting the nucleation and upward-propagation of the fold. Don showed examples from the Salt Creek anticline on the Casper Arch and from the Big Horn Basin. Analysis of 3-D volumes along the Garmesa shear zone on the Uncompahgre Uplift and along the Sussex shear zone were shown to illustrate the technique’s usefulness in unraveling the complexities found in wrench terrains. Don’s final examples showed the value of the technique in analyzing meteorite impact structures, such as oil-producing Redwing Field in North Dakota.

No technical luncheon meeting was held in December, but on the evening of December 16, fifty members, spouses and friends congregated at the Briarwood Inn in Golden for the Annual Holiday Party. A fine time was had by all as the Denver Chapter closed out another very successful year.

David Read
Secretary
OKLAHOMA CITY

The Oklahoma City Chapter's main events during the quarter were noon luncheons in October and November, and our annual Christmas party in December. Other activities included a joint presentation of a seminar and the presentation of geological maps to school classes. We were happy to have SIPES Foundation Earth Science Scholarship recipients that attend school in Oklahoma at one of our meetings last fall. Sarah Harris, who is working toward a bachelor of science degree in petroleum engineering at Oklahoma University, attended the October luncheon. Jonathan Funk who is working toward a master of science degree in geology, attended the November meeting. Unfortunately no new members were recruited in October, November, or December.

We would like to take this opportunity to congratulate and announce our Oklahoma City Chapter officers for 2009 and 2010. James Jackson will be the chairman; Harold Hanke, vice chairman; Mike Pollok, secretary; Vic Cooper, treasurer; Kathy Gentry, membership chair; Tom Rowland (past chairman) political affairs chairman; Connie Allen, public relations chair; and Tom Smith will represent our chapter as a National Board Member.

Our Oklahoma City Chapter of SIPES sponsored a joint seminar with the Oklahoma City Geological Society on October 6, at Ted’s Café Escondido. The seminar, "How to be an Independent," was well-attended and drew many recently laid-off geologists and engineers, as well as many old timers. Presentations were made by several of our members. Mike Pollok's portion of the seminar was "The Potential for the Big Bucks $$ . . . An Independent Geologist's Perspective." Suzanne Rogers, #2729, spoke on "Land Issues." Steve Meese presented "Perspectives on Selling Your Deal."

Our October luncheon speaker was Joseph C. Stuckel, president and principal of Geosearch Logging, Inc. Joseph received a B.S. degree in geology from Kent State University in 1969, and has been providing geological and hydrocarbon logging services for twenty-five years. He researched, wrote, and presented technical papers on drilling and under-reaming techniques, gas detection techniques, techniques for determination of abnormal pressure and identification of pressure depleted reservoirs, surface mapping of hydrogeological processes and geologic interpretation using aerial photos.

His topic was "Advances in Technology for Gas Detection and Surface Logging," Modern day gas detection, instrumentation, software and computerization have transformed "surface logging" to a useful service for formation evaluation. Total gas analysis, gas chromatographs, log displays, show reports, and digital photography are all transmitted instantaneously via satellite and Internet. Analysis and interpretation of gas and sample shows with WITT's compatibility and satellite technology can now be made and reviewed in "real time." Mudlogs are now available to be utilized as a comprehensive well history with the ability to overlay and include wireline log data as part of the final log presentation.

Our November luncheon speaker was Dan Boyd, a Certified Petroleum Geologist with the Oklahoma Geological Survey. He spent the first twenty-two years of his career as an exploration and development geologist in the petroleum industry, working in a variety of areas in the United States, as well as in Pakistan and Indonesia. Dan was granted a master of science degree in geology from the University of Arizona.

His talk, "The Booch Gas Play in Southeastern Oklahoma" featured the Booch stratigraphic interval that produces natural gas in Oklahoma from the Arkoma Basin and the southern part of the Cherokee Platform. It is defined in the subsurface as stratigraphically equivalent to the lower three quarters of the lower Desmoinesian (middle Pennsylvanian) McAlister Formation. The Booch is composed of eight northerly sourced progradational sequences bounded by flooding surfaces.

IN MEMORIAM

We regret to note the passing of the following members:

Paul W. Foster, #490 of Dallas, Texas who died on February 13, 2010

Harold E. Mathy, #1405 of Lafayette, Louisiana who died on November 13, 2009

Mark T. Owen, #3085 of Midland, Texas who died on December 22, 2009

John L. Read, #1446 of Palo Alto, California who died on November 29, 2009

David M. Rolling, #1719 of Dallas, Texas who died on January 4, 2010

In December, our annual Christmas Party was held at Sportsman's Country Club. It was attended by 31 members and 29 guests for a total of 60 individuals. Dozens of eye-catching and delicious cakes, pies, and cookies were available for dessert. Many gracious thanks to Dorothy Cooper and friends for preparing these delicacies. We wish to thank Vic Cooper and all others that worked to make this a joyful, festive holiday event.

Our chapter's goal of placing a framed USGS Geological Map of the U.S. in every school that teaches earth science in Oklahoma is well underway. Four maps were placed in October all in the Norman Schools: Monroe, Lakeview, Madison, and Truman. We anticipate our members placing many more maps during the spring school term. Map presentations to a class are accompanied by a geological talk from a SIPES member.

James Jackson
Chairman
**TUESDAY, JUNE 22**

**Garden of the Gods & Trading Post Tour**
9:00 a.m. - 12:00 Noon
$60.00 per person
($85.00 After 5/21/10)

**Whitewater Rafting Tour**
9:00 a.m. - 2:00 p.m.
$225.00 per person
($250.00 After 5/21/10)

**Cliff House Lunch & Shopping in Manitou Springs**
11:30 a.m. - 4:30 p.m. — $120.00 per person
($145.00 After 5/21/10)

**Peterson Air and Space Museum & Air Force Academy Tour**
1:30 - 5:00 p.m.
$120.00 per person

**WEDNESDAY, JUNE 23**

**Pikes Peak Cog Railway Tour**
8:30 a.m. - 1:00 p.m.
$150.00 per person

**Florissant Fossil Beds & Quarry Tour**
8:30 a.m. - 12:30 p.m.
$100.00 per person
($125.00 After 5/21/10)

**Foothills Jeep Tour**
1:30 - 4:30 p.m.
$140.00 per person
($165.00 After 5/21/10)

**Glen Eyrie Castle Tour & Tea**
1:30 - 5:30 p.m.
$115.00 per person
($140.00 After 5/21/10)
Which brings us to the founding of the republic. If you watched the You Tube video created by the John Birch Society available through the Acadiana Tea Party web site (see my August '09 installment), you might remember governments are classified as monarchy/dictatorship (governed by one), oligarchy (governed by a few), democracy (governed by the majority), republic (governed by law), and anarchy (governed by no one). I will not go into detail of the types; suffice it to say the founding fathers intended this country to be governed by the rule of law, thus a republic, and specifically a constitutional republic, and not a democracy. The distinction being, in a republic the majority rule of a democracy cannot infringe upon the rights of the minority.

Since the ratification of our constitution, we have managed to define many areas where this rule of the majority cannot be applied. These include freedom from infringement upon individual rights of religious beliefs, speech, and discrimination because of race, sex, or national origin. These were either specifically spelled out in the constitution, or included based on current interpretations of the intention of the founding fathers. And yet, even these freedoms continue to be challenged as the majority tries to standardize society, or the minority continues to dilute it.

Buying this definition, we then live in a constitutional republic using democratic procedures tested by judicial prudence to protect the rights of the individual against persecution and discrimination. By inference then, freedom of belief and speech gives each of us a right to have our opinion about any and all things. We can also express that opinion in any fashion, as long as the rights of others are not infringed upon (discriminated against), and we otherwise do no harm to persons or property. But we don't have the right to impose our opinion on others. That might be democratic (given the majority agrees with your opinion), but we would be infringing on the rights of others; so then the rule of law applies, and you get your right to defend yourself in court.

Last time I wrote about how people form opinions based on an interpretation of data, then get stuck defending that idea from contrary data. And in the case of democratically elected officials, attempting to force their interpretation on the rest of us. Even going so far as to manipulate or suppress the data to make their interpretation more palatable. And if that doesn't work, simply pontificating that it will be good for the economy. This is where we are with the Cap and-Trade Bill. This deeply-flawed (not just my opinion) legislation will not be debated any more than health care was, and the only boost to the economy will be to favored sectors and businesses (not electric or hydrocarbon) at the expense of all others. If history is any judge, the current majority in congress is likely to force their opinion down the throat of the minority.

Which brings us to belief. As individuals express their opinion to be the correct answer, they begin to believe in the rightness of their cause (right makes might), and once they convince the majority, then their might will make right. I want to believe that our elected representatives are doing what they believe (whatever their individual motives) to be the right thing for the common good. But belief is multifaceted, and belief doesn't always make truth. Sometimes the popular opinion is wrong, and in the end it was really only an opinion, even if based on a strong belief. (Remember, terrorists believe they are right and justified in their actions as fervently as any true believer, no matter what others opinions are of that belief.)

And how do you convince the majority to buy into your belief? In the spirit of upcoming Mardi Gras, Throw me something mister! The IRS currently estimates that the lower half of taxpayers only contribute 2.99% of taxes paid, while the rest of us chip in the remaining 97%. Recent proposals to pay cash to more wage earners on the low end of this scale through refundable tax credits would tip the balance so that over 50% would pay no net federal taxes. We would then have a situation where it would be impossible to pass legislation to reduce government, even if it were critical to avoid a budget crisis, because there would be no incentive to do so by a majority which was not paying any of the bills.

Secondary to this is tax reform or simplification. Checked the tax code lately? If the majority of the voting public has no liability/interest in the tax code, don’t expect it to get any easier. And once this majority gets past the stigma of no new taxes, expect to see more penalty taxes like the ones being debated for the banks and Cap and Trade. How far behind will other windfall type taxes be?

So far it appears that our elected representatives are unable to rein in spending or increase revenue to pay for existing or new programs, while continuing to increase the size of government. Any potentially controversial legislation is purposefully scheduled to be debated and voted on in non election years, while actions favorable to reelection are passed in time to sway the voters back home with Look how I have helped you, and what a great job I am doing for you. The division on the controversial issues is generally along party lines, which tend to be based on ideology. But the expectation is that these will have been forgotten by the next election. Consequently, really important legislation gets squelched or watered down by an inability to compromise.

For an outsider look at the history of America, I recommend America, Empire of Liberty by David Reynolds. There is much to enlighten, and I have not finished it yet, but leave you with the following excerpt:

“...Britain had tried to make the vast new empire pay for itself, provoking a backlash to defend popular rights. In 1776 the Declaration of Independence summed up those rights, purporting to show how they had been undermined by the British Crown, and justified the creation of a new government in order to preserve them.”
WELCOME NEW MEMBERS

The following new members were approved by the SIPES Membership Committee from October 7, 2009 to February 2, 2010

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Continuing from Mr. Reynolds: "The Constitution of 1787 was therefore a bundle of compromises – between big states and small states, between North and South, between the federal government and the states, between the executive and the legislature, between the principles of democracy and aristocracy."

I am personally tired of the bickering and inability to really be bipartisan. Since when is a good idea the exclusive right of a particular party or ideology or individual? Truly good things that benefit the country can come from anyone. It seems to me that making the deal one-sided only fosters animosity and results in revenge when the shoe gets to the other foot. If health care for all is such a good idea, then adjust it so both sides can agree (not just bribe the opponents). We need to mix the colors and move forward as a Democratic Republic. Let's learn to compromise and see the country turn purple, not continue to be either red or blue.

But that's just my opinion.
drilled exploratory wells, took conventional cores, and tested the reservoir with vertical completions. One of these first wells was the Encana Adcock #1. It was drilled in Section 15-T13N-R9W in Red River Parish, Louisiana. The well spudded in January 2006, and was tested extensively during mid-year 2006, but it was in June 2007 that the core analysis and completion details were presented to the members of the Core Lab Gas Shale Consortium. At that time the consortium comprised approximately forty members. Most, if not all, member companies were present in Denver when it was revealed that the Haynesville Shale had petrophysical, geochemical and completion results that suggested the shale could be an exceptional gas shale reservoir.

Later that year the first horizontal completion was made. The Chesapeake SLRT #2H was drilled in Section 26-T16N-R15W in Caddo Parish, Louisiana. The well was completed in October 2007 and had an Initial Production Rate of 2.6 Mmcf/d on an 18/64” choke with 1570# flowing casing pressure.

Late 2007/Early 2008

Petrohawk Energy was one of the companies in attendance in Denver when the data on the Adcock was released. Shortly after that release the company concluded that its acreage position in the Elm Grove/Caspiana field area in Bossier and Caddo Parishes (shown in Figure 2) could be a very prospective area for the Haynesville Shale. This premise was primarily supported by the presence of a Haynesville penetration, the EGP #9-15 (shown by an arrow in the cross section in Figure 3) within this acreage block. Drilled in 2004, the well encountered over 200’ of porous Haynesville Shale that when compared to the Encana Adcock, located approximately twenty miles to the south-southeast, actually had superior petrophysical characteristics based on conventional Triple Combo open hole log data.

This data point provided Petrohawk the confidence to prepare to drill its initial horizontal test in the Haynesville.

On March 12, 2008, Petrohawk held its annual Analyst Day meeting in New York City during which it presented its initial public commentary on the Haynesville Shale play and its impending initial test in the play.

(Continued)

Figure 2: Locator Map of Northwest Louisiana/East Texas
On March 28, 2008, Chesapeake Energy held its 2nd Quarter Conference Call during which they made sweeping remarks regarding how they felt about the potential of this new play. Mr. Aubrey McClendon, Chesapeake’s CEO, stated that “the Haynesville Shale has a chance to become the most significant play in the company’s future.” These statements effectively advised the industry that the Haynesville Shale was indeed a highly prospective gas shale reservoir that very possibly could be one of the most prolific gas fields discovered in the Lower 48 in decades.

**Middle to Late 2008**

Within weeks of the March pronouncements made by Petrohawk and Chesapeake, the competition for leases in Northwest Louisiana, specifically in Caddo, Bossier, Red River and DeSoto Parishes, escalated dramatically. While a number of companies joined in the effort to acquire leases that were prospective for the Haynesville, there were primarily two companies that competed: Petrohawk and Chesapeake. Encana already had a substantial position as a result of its early work, and companies like Questar, Exco, El Paso and Comstock were essentially satisfied with their legacy positions, particularly when the bonuses for three-year leases reached their peak of approximately $25,000 per acre in the summer of 2008.

Early well results were very rare when this period of heavy competition for leases was occurring. One of the first completions that was made public during this time was the Penn Virginia Fogel #5H. Announced on May 30, 2008 and located in Harrison County, Texas, its 8.0 Mmcf/d Initial Potential was a positive result that fueled additional speculation that this reservoir was indeed prolific.

Petrohawk had continued to be extremely competitive for leases, primarily in northwest Louisiana where it was drilling its initial horizontal well, the EGP #63H (data shown on Figures 4 and 5). The well spudded on March 31 and was not completed until June 26. However, when on June 28 the well produced 17.1 Mmcf/d on a 24/64” choke with 5500# flowing casing pressure, and when that result was announced on June 30, the play reached a level of competition that could only be compared to the heyday of the East Texas Field.

In the fall of 2008 when the financial turmoil mounted and natural gas prices began their rapid descent, leasing activity in the Haynesville also saw a corresponding drop. The frenzy that had peaked during the summer of 2008 was temporarily over, and the play entered its next phase: field extension and development.

**Accumulation of Geologic Data**

As the leasing activity dropped to a trickle during the balance of 2008, it was during this time that the industry saw the mutual benefit of sharing technical data in order to better understand all aspects of this challenging, but prolific, play. It was during this time that Petrohawk initiated and effectively caused trading relationships with virtually every operator in the play. These trades were not simply limited to open hole logs. In almost all cases they involved all open hole data including core data as well as drilling reports, completion reports and daily production data. This vast dissemination of data was integral in advancing the geologic and reservoir engineering understanding of the field and reservoir.

(Continued)
Figure 4: Open hole log and core slab of Petrohawk EGP #63H

Figure 5: Plot of Perm vs. Gas Filled Porosity from Petrohawk EGP #63H
Figure 6: Comparison of TIFF and LAS log data, with core data shown as dots on LAS image

Figure 7: Generalized Haynesville Shale Net Pay Isopach
The Haynesville Shale Continued

possession of over 150 Haynesville LAS files, 50 wells with whole core data, and 50 wells with rotary sidewall core data. Specifically, the large data base of LAS files and core data provided an excellent opportunity to integrate both sets of data in order to model the logs to the core (shown in Figure 6). These data, in conjunction with Estimate Ultimate Recovery (EUR) projections from production data on over 150 wells, have resulted in what is believed to be a very controlled interpretation of where the commercial boundaries to the field are. These boundaries are generally represented in Figure 7.

**Reserve Forecasting**

By the time that the Haynesville Shale was discovered, a number of gas shale reservoirs had extensive production history to help establish what decline curve parameters best fit for gas shales. The most established of these is the Barnett, followed by the Fayetteville and the Woodford. Almost all accredited reservoir engineering firms acknowledged the following general statements about decline curve interpretations for gas shale reservoirs:

- Gas shale reservoirs’ decline curves display hyperbolic characteristics, with hyperbolic factors generally ranging between 1.0-1.3.
- Gas shale reservoirs display high initial decline rate, generally between 65-80%.
- Gas shale reservoirs have low terminal decline rates, generally between 5-7%.

*Figure 8* is a normalized decline curve for all of Petrohawk’s operated wells as of the end the 3rd quarter 2009. It is readily apparent that the trend of these decline curves is hyperbolic. Included on this curve is the 7.5 Bcf type curve that best fits the reserve estimate that Petrohawk is observing in its operated wells. This curve is based on a first 30-day average of 16 Mmcf/d, a 1.1 hyperbolic factor, an 85% first year decline, a 6% terminal decline and a 32-year well life.

**Recent Field Developments**

There have been several significant developments in the trend in the past few months. One has been the extension of the field to the southwest into Shelby and Nacogdoches Counties, Texas. This area, known as the Shelby Trough, has been notably developed by Common Resources, EOG Resources, Devon, Cabot and Petrohawk. While the results are too recent to suggest that this area of the field will result in the type of reserve profiles that are seen on the core of the play in northwest Louisiana, there have been multiple completions in excess of 15 Mmcf/d, as well as the well with the highest reported rate in the play, the Devon Kardell #1H in San Augustine County which had an Initial Potential of 30.7 Mmcf/d.

(Continued)

The other significant recent developments are the num-

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Figure 8: Normalized “Time Zero” Decline Curve Petrohawk Operated Wells with 7.5 Bcf Type Curve
The Haynesville Shale Continued

The Haynesville Shale continued. A number of wells that have been reported to have been completed in the Bossier Shale, which is a shale member located approximately 300' above the Haynesville that exhibits petrophysical and geochemical characteristics very similar to the Haynesville. A number of wells in Sabine and DeSoto Parishes, Louisiana have been completed at rates ranging from 8 Mmcf/d and 17 Mmcf/d. Additionally, there are numerous wells that are currently targeting the Bossier Shale. All of these data suggest that the Bossier could be another commercially viable reservoir within the southern area of the Haynesville trend.

What the Future Holds

While over 250 wells have been completed in the play to date and there are an estimated 100 rigs currently operating, the play is still in its early stages of development and there are still many things to learn about the reservoir. The following are just a few of the questions that will only be answered with more completions and more production history:

• What will be the optimal well spacing?
• What percentage of the prospective area will be uneconomic to develop if natural gas prices remain low?
• Will the current assumptions for decline curve projection change?
• What will prove to be the optimum production practice?

• How much additional value will be added by the Bossier Shale?

These questions and more will further define how much gas the Haynesville Shale will ultimately produce. However, at this stage of the field development it is apparent that all indications suggest that it is in fact one of the largest and most productive natural gas accumulations in the Lower 48.

Richard K. Stoneburner, president and chief operating officer of Petrohawk Energy Corporation, is currently responsible for all phases of upstream operations for the company. Prior to his current role he served as Executive Vice President-Exploration. Previous positions include Vice President-Exploration of 3TEC Energy Corporation from December 1999 until its merger with Plains Exploration & Production Company in June 2003. Prior to joining 3TEC, Mr. Stoneburner worked as a geologist for a number of E & P companies including Hugoton Energy Corporation, Stoneburner Exploration and Texas Oil and Gas. Mr. Stoneburner has over thirty years of experience in the energy business and has a bachelor of science degree in geological sciences from The University of Texas at Austin and a masters of science degree in geology from Wichita State University.
Why can’t a workstation generate contours that make sense geologically? Why don’t computers honor well control? What gridding algorithm should I use? How do I utilize the workstation-generated contour product in my interpretation workflow?

These are just a few of the questions I have been asked when mentoring younger (and sometimes older) geoscientists on effective use of geoscience workstations. Many of these questions can be answered with a basic understanding of gridding and contouring software. This approach is the same for each workstation vendor. The basic procedure is simply:

1) Input a set of x-y-z control points (e.g., well control)
2) Build a regularly-spaced grid with a z-value assigned to each grid node by an interpolation algorithm
3) Thread contours through the grid nodes

Continuing with the theme of prior articles, I will describe workstation gridding and contouring in the context of the Yegua prospect that I am developing. This work is performed on a GeoGraphix Discovery workstation.

I have already correlated logs from a number of wells in my prospect area. Formation tops and fault picks have been entered into the project database. Figure 1 shows a map of EY-1 subsea depths and Fault A offsets and depths. My interpretation of Fault A is also shown on this map. Well #1 happens to have a good 15-foot sand with an excellent show in the EY-1 formation. This could set up an attractive prospect.

Figure 1. EY-1 depths and fault picks with fault interpretation.

Figure 2. Computer contours on 2000-foot grid. Upper panel shows contours only; lower panel shows grid nodes and grid values.

(Continued)
In my first pass, EY-1 control points are contoured on a 2000-foot grid, that is, a regularly-spaced grid with 2000 feet between each node in both the x- and y-dimensions. A minimum-curvature gridding algorithm is applied. A 20-foot contour interval is selected. The output, overlain on the control points, is shown in Figure 2. The software has treated Fault A as a discontinuity, as appropriate.

The computed grid is usually hidden, as in the upper panel of Figure 2. In this panel, it can be seen that depth control points at wells #1 and #A-3 have not been honored by the contours. To gain a better understanding of why this occurred, the grid has been toggled on in the lower panel. Grid nodes are represented by “+” signs. Nodes are each 2000 feet apart. Calculated z-values are posted next to each node.

The contours honor the grid nodes. Are the grid nodes wrong? Did I use the wrong gridding algorithm? Consider the #A-3 mistie. The nearest grid node, about 200 feet NW of #A-3, has a z-value of -9664 feet. Apparently, too much weight was placed on #A-1 (600 feet away, z-value of -9676 feet) and not enough weight on #A-3 (z-value of -9658 feet) and #1 (3200 feet away, z-value of -9641 feet) for contours to tie #A-3 at this grid interval.

I now take a second pass at contouring the EY-1, this time with a 1000-foot grid. The same minimum-curvature gridding algorithm and 20-foot contour interval are used. Figure 3 shows the result, overlain again on the well control. The upper panel shows that the contours now tie wells #1 and #A-3. Grid nodes are toggled on in the lower panel for inspection.

Obviously, there is more detail in the contours of Figure 3 using the 1000-foot grid than in the contours of Figure 2 with the 2000-foot grid. Why don’t we just use a finer grid? The

(Continued)
answer to this question is in the trade-off between grid-spacing and compute time. Compute time increases with increasing grid-node count. If control points are sparsely spaced relative to grid nodes, a finer grid provides diminishing returns in terms of final contours but can drive up compute effort to the point of being unmanageable on the workstation. Grid-node count can also increase if greater extents are included. It is often desirable to crop the extents of the area to be gridded to the immediate area of interest so that a finer grid can be applied.

Figure 4 shows contours based on a 200-foot grid for comparison. It can be seen that these contours are not much different from the contours based on the 1000-foot grid.

Other questions concern how the contours are threaded through the grid nodes and editing of such contours. Each contour line contains its own control points that are calculated from grid nodes. These contour control points lie on the defined grid between each two adjacent grid nodes that bound the contour value. Figure 5 shows a close-up of the -9700-foot contour with contour control points toggled on. It can be seen that these points line up on the rows and columns containing the grid nodes, their distance from adjacent grid nodes being interpolated from grid node values, and that the -9700 contour intersects each of them.

Contours can be revised by manipulating these contour control points. Such efforts can be tedious and time consuming, especially if a fine grid was used to generate the contours. Furthermore, if well control or fault interpretation is updated and the contour layer has to be recreated, prior edits will be lost.

There are a vast number of finer points to computer gridding and contouring that are not addressed in this article, such as:

1) Contouring around faults and pinchouts
2) Annotation (contour labels, etc.)
3) Extrapolation in areas with no control
4) Alternative gridding algorithms (e.g., kriging)
5) Grid math (grid-to-grid) calculations
6) Color fill and shaded relief maps

What about the prospect? Perhaps you see the potential trap downthrown to Fault A from well #9, but none of the workstation generated contour maps described above show any structural closure.

Good old-fashioned hand contouring can resolve this. Figure 6 shows my hand-contours overlain on well control. Note that, not only do these contours tie well control, but they make sense geologically! The rollover structure updip of the show well planimeters at 400 acres closure. Assuming the EY-1 to be 15 feet thick, and at 1200 mcf/ac-ft and 200 Bbl/MMcf recoverable reserves, this prospect could hold over 7 BCF gas and 1.4 million barrels condensate.

If you have a Technology Corner article you would like to submit for publication in the SIPES Quarterly, please email it to Larry Rairden at rairden@novageoscience.com.
How I Became an Independent

by Tom L. Rowland, #2792 — Edmond, Oklahoma

**EARLY YEARS**

As a youngster growing up on the east side of Oklahoma City in the 1940s, a number of wells were drilled in our area which were part of the Oklahoma City Field. I was fascinated by these drilling operations and spent a lot of time asking the geologist that was watching the well how he knew where to drill, about the rocks he was observing, and numerous other aspects concerning the geologist’s role in oil exploration. That is when I decided I wanted to be a geologist.

My parents taught me a good work ethic as I held different jobs throughout my teenage years. Upon graduation from high school, in 1952, I entered the University of Oklahoma with the intention of getting a degree in geology. After playing baseball at OU for a couple of years my grades were not the best so I decided I had better concentrate on my school work. I worked in a boarding house for meals and finished my degree and graduated in June 1956.

There were 125 geology graduates that year, and most did not get employment in the oil and gas industry, as jobs were almost non-existent owing to a downturn in exploration. I was lucky as I got a summer job with La Gloria Oil and Gas Company in their San Angelo, Texas office.

They were a fairly large independent company with a main office in Corpus Christi, Texas. I was planning on entering graduate school to work on a master’s degree in the fall, so this job fit my schedule well. I graduated on a Sunday afternoon and rode a train that night to San Angelo, Texas. That morning they gave me a new company car and sent me to Denver City, Texas to watch a development well that was drilling to the Devonian dolomite. I would have lost had I not rough necked for one summer, so I knew the interworkings of drilling a well and I had a subsurface geology mapping course and sample running course my senior year. I spent the remainder of the summer watching wells in Osage County, Oklahoma, and doing subsurface mapping in the office. Upon completion of the summer job I knew how an independent company operated and the duties of an independent geologist. I entered OU Graduate School in the fall of 1958 and received a master’s in geology in 1959. While in graduate school, I taught a petrology lab.

**ACADEMIC AND RESEARCH YEARS**

During my final year, while finishing my master’s degree, I joined the Oklahoma Geological Survey. I worked with Louise Jordan, and we completed a state map - *OGS Map GM-5* illustrating Pre-Pennsylvanian Rocks of Oklahoma. This project provided me the opportunity to become familiar with the Pre-Pennsylvanian subsurface of Oklahoma.

Upon finishing this project and receiving my degree I joined St. Clair Lime Company, located in Sallisaw, Oklahoma. They had a lime plant in Sallisaw, and an underground limestone mine and crushing operation north of Marble City in northern Sequoyah County, mining Hunton limestone which in this area is a high calcium limestone of chemical grade quality. I was in charge of quality control, and exploration for low magnesium limestone. This involved examination of underground mine faces for dolomite and a coring program from the surface in order to facilitate the direction of the mining operation. I acquired a wealth of experience in the carbonate industrial mineral industry.

Upon completion of the project for St. Clair Lime Company I rejoined the Oklahoma Geological Survey in September of 1962. In September 1965 I enrolled in the graduate school at OU in order to begin work toward a Ph.D. in geology.

During my prior three years with the OGS I again worked with Louise Jordan and we completed *OGS Map 9, Pre-Woodford Rocks in Oklahoma*. Additionally I had the good fortune to work closely with two world-class geologists, William E. Ham and Thomas W. Amsden. I published extensively with Bill, but especially with Tom Amsden. Tom and I completed *OGS Map GM-14* which delineated the Silurian and Lower Devonian Strata in the subsurface of Oklahoma. We also renamed the Hunton Group rocks in the surface and subsurface of Northeastern Oklahoma, *OGS Bulletin 105*, and published numerous other papers on Silurian and Devonian rocks. These three years added immensely to my geologic knowledge which was invaluable for my independent consulting years.

In 1969 I was appointed to the OGS staff as I was completing my Ph.D. dissertation. I decided to give academics and research another whirl at least for a while. In 1970 I was appointed to an additional position on the graduate faculty at OU. During my tenure at the survey I consulted in industrial minerals, and oil and gas projects. Also, I directed master’s and Ph.D. students. I was a research geologist in charge of research projects and economic mineral evaluation of carbonate rocks in Oklahoma, and assisted in disseminating geologic information to the public. During all my years with the OGS I gained valuable experience in surface and subsurface stratigraphic analysis, which provided me with a good background for my years as an independent. In January 1975, I decided I’d had enough of academics and research, so I left the OGS to begin working in the oil and gas industry, to fulfill my intention to become an independent geologist.

**OIL AND GAS INDUSTRY**

I joined Michigan-Wisconsin Pipeline Company in their Oklahoma City district office. I wanted company experience in order to become familiar with many aspects of the industry including advanced open and cased hole logging techniques and any other aspects which could be of use as an independent. I completed an exploration project on (Continued)
upper Permian Carbonates, and then was assigned Western Oklahoma and the Texas Panhandle area to explore for drilling prospects. I had at times, two or three other geologists under my supervision.

In August 1977 I left the company and became an independent. I had a partial retainer with Darnell Drilling Company in Oklahoma City, until January 1979. I then was completely self-employed as an independent geological consultant. My first drilling prospect resulted in a Misener discovery in Payne County, Oklahoma. Another well was drilled, also a Misener producer, and both wells made in excess of 200,000 barrels of oil. I had a 2.75% overriding royalty on this prospect. The second prospect I had drilled resulted in a Redfork Sand discovery in Kay County, Oklahoma. This prospect resulted in both Redfork and Mississippi Chat production, with a final total of 32 wells, no dry holes drilled. I had a 3.125% overriding royalty in this project. The project produced over two million barrels of oil and one billion cubic feet of gas.

For the last 22 years I have remained an independent. During this period I have worked many geologic units in various areas of the state of Oklahoma, mainly northwestern, north central, northeastern, and east central.

I have had numerous prospects drilled, both wildcats and development wells, some dry holes, but many producers. I have monitored about 250 wells from the geologic aspect which includes getting leases, picking drilling locations, well site geology from start to casing point, making all the decisions necessary to get the well properly drilled. Once pipe is run and the well is ready for completion, I then would pick the formations and footages necessary to test the well for production. The last six years I have been involved in East-Central Oklahoma in the drilling of Hunton horizontal wells, which was a new experience. Every new project should be a learning experience that can enhance your ability to be a successful independent.

**Final Analysis**

I traveled a somewhat different journey to become an independent as compared to others. During my early years I had a taste of the independent situation followed by academia, research, etc., and finally, to a full-fledged independent geologist. Along this path all the experiences enriched my background for future endeavors.

If you desire to become an independent oil and gas finder you must have an excellent imagination. You should do as much surface geology as you can, for this is the key to understanding subsurface geology and solving the problems arising in oil and gas exploration. Take all the subsurface courses your department offers, hopefully, this will include mapping, sample examination, stratigraphic analysis, and perhaps an engineering course that will teach you open-hole logging. This will give you a reasonably good foundation to become an independent.

After attaining your degree or degrees, I suggest you try employment with a fairly good size independent as this will afford you better training for your ultimate goal to become an independent rather than being employed with a major oil and gas company.

Once you have taken that leap to the independent arena, pick a rather large region to explore. Stay with this area and through regional mapping you will define drilling prospects. Learn all facets of putting together a prospect, and choose good sound operators to drill your prospects. Believe in your prospect to the extent you are willing to take a working interest position. Never stop learning, as each well will be different than the previous. Learn to be a good salesman and do not be afraid to recommend a drilling deal. Do not be afraid to drill a dry hole because all of us have drilled them and will, most likely continue to do so in the future.

Above all, love what you are doing with a good work ethic, as finding oil and gas as an independent is very rewarding.

**How did you become an independent?** Send your 1-2 page account to the SIPES Office in Dallas, or by email to sipes@sipes.org. All stories will be included on a CD that will be published by the SIPES Foundation.
SIPES 2010 Convention Technical Program
Cheyenne Mountain Resort — Colorado Springs, Colorado

Tuesday, June 22

Conventional Oil

Steve Goolsby
“Nebraska — Kleinholz Field Geology and Waterflood Results”

Don Hembre, #1763
“Are There Any More Lyons Oil Fields to be Found in the Denver Basin?”

Ron Broadhead
“Petroleum Geologic Framework of the Tucumcari Basin, East-Central New Mexico, With a Synopsis of Recent Exploratory Activity”

Charlie Bartberger
“Solution-Subsidence Control on Trends and Facies Architecture of Basal-Morrow Fluvial Valleys, Southwest Kansas”

Clayton Painter
“Hartzog Draw and the Shannon Sandstone: New Observations and Constraints Applied to Depositional Models”

Alternate Energy

James Graham
“Renaissance of Nuclear Energy — From Well Field and Mine Production to the Nuclear Reactor”

Lyle Johnson
“Electrical Generation Using Hot Water from a Producing Oil Well”

Loyd Drain
“Opportunities and Challenges Relative to the Development of Power Transmission in the West”

Speaker TBA
“Carbon Dioxide Sequestration”

Wednesday, June 23

Case Histories

George Johnson, #2724
“Southeast Lathem Field, Hartley County, Texas”

Dick Boyce
“Pinon Field Study, Implications for Texas Overthrust Natural Gas Exploration”

Robert Rice
“Corpus Christi Bay — Another 3-D Success”

Sal Mazzullo
“The Mississippian Cowley Formation (Osagean) in Subsurface Kansas — A Mystery Solved”

Planap Award Winner at the AAPG Mid-Continent Section Meeting 2009

Unconventional Reservoirs

Dan Jarvie
“Characteristics of Successful Shale Gas Play”

Pete Stark
“U.S. Unconventional Plays — Trends and Projections”

Marv Brittenham
“‘Unconventional’ Discovery Thinking in Resource Plays: Haynesville Trend, North Louisiana”

Brian Cardott
“Application of Vitrinite Reflectance to Woodford Gas-Shale Plays in Oklahoma”

Steve Sonnenberg, #2158
“The Bakken Petroleum System Tight Oil Resource Play of the Williston Basin”

There will also be an ethics course offered on Monday, June 21, 2010 from 1:00 to 2:00 p.m.
Speaker TBA

Speakers and schedule are subject to change — Please see www.sipes.org for speaker abstracts.
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Harrison Schmitt was the Lunar Module Pilot for the Apollo 17 Mission, and was the only scientist and geologist to step foot on the Moon. Don't miss this opportunity to listen to the story of this mission, and to hear about all the adventure, excitement, beauty and human drama of the exploration of space. During his presentation, Dr. Schmitt will also discuss the Moon's potential role for future energy alternatives, and as a low-cost supply depot for possible expeditions to Mars and even beyond!

Dr. Harrison Schmitt joined NASA in 1965 in the first group of scientists-astronauts. After the Apollo 17 mission, where he spent over 301 hours in space, he resigned from NASA in 1975 to seek a term as a Republican to the United States Senate representing New Mexico where he served one term. Following his senate term, Dr. Schmitt has been a consultant; an adjunct professor of engineering physics at the University of Wisconsin-Madison; chairman emeritus of The Annapolis Center; and, co-founder and chairman of Interlune-Intermars Initiative, Inc., a company advancing the private sector’s acquisition of lunar resources and Helium-3 fusion power and clinical use of medical isotopes produced by fusion-related processes.

Dr. Schmitt will be available to sign his book, *Return to the Moon: Exploration, Enterprise, and Energy in the Human Settlement of Space.*

*This program is generously underwritten by contributions from the SIPES Houston Chapter; SIPES members David A. Eyler, #2314, Marc Maddox, #2777, and H. Jack Naumann, Jr., #2420, of Midland, Texas; Michael A. Pollok, #2512, of Purcell, Oklahoma; and David L. Read, #3070, of Highlands Ranch, Colorado.*

*Register by fax, mail, or online today for early registration rates!*

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FEBRUARY 2010  
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SIPES Vision Statement

To be the pre-eminent organization for furthering the professional and business interests of independent practitioners of the earth sciences. In achieving this vision, emphasis will be placed on (1) professional competence, (2) professional business ethics, and (3) presenting a favorable, credible and effective image of the Society.

Adopted by the SIPES Board of Directors
September 21, 1996