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SIPES QUARTERLY

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Society of Independent Professional Earth Scientists

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President's Column

H. Jack Naumann, Jr., #2420
Midland, Texas

H. Jack Naumann, Jr.

Well here we are, still dealing with continued low oil and gas prices, a new administration, and a still unknown and uncertain national and world economic outlook. We may be here for a while, but we have all been here before, and this too shall pass. The last few years have been extremely busy for most of us, and we may now be looking at having a bit more free time on our hands. With this in mind, I would like to encourage you to not let the grass grow under your feet. Use your time wisely and look forward to whatever comes down the road. Speaking of this, I would like to try to encourage each and every one of you to devote some of your time becoming involved as a volunteer or mentor. Our membership is comprised of a unique body of individuals that has much to offer. At any chapter meeting, I can look at the amount of experience and mental abilities of the membership group and I am in awe. We should utilize what we have in this respect. I would like each of you to strongly consider contributing your time, experience and intellect through volunteering. Each one of you can add so much in this capacity. For SIPES or any professional society to be healthy and vibrant, it needs a continual source of volunteers. By becoming involved in your local SIPES

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The Oklahoma Oil Opportunity

by Dan T. Boyd — Oklahoma Geological Survey

Abstract

Both the energy industry and the State of Oklahoma are precariously dependent on natural gas - the price of which tends to reset each year based on the severity of winter weather. A 20-year preoccupation with natural gas has created a situation in which it now accounts for two-thirds of State drilling and about 80% of BOE production, leaving a massive oil resource relatively overlooked. Despite a one-year increase in 2006 production, the first since 1984, record prices in the last several years have not stemmed the long-term decline, with 2007 oil production the lowest seen since 1912.

This study shows that an under-exploited opportunity exists in Oklahoma that is centered on improving recovery in existing fields. The State's original oil in-place (OOIP) volume is over 84 BBO, and long-term decline projections show an estimated ultimate recovery (EUR) volume of about 16 BBO. This 19% aggregate recovery factor, which is the result of complex reservoir geometries and poor reservoir management in the early days, equates to 68 BBO being left in the ground at abandonment. If the studies analyzed here are representative of the State as a whole,

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The following reports on national and environmental issues were presented to the SIPES Board of Directors on January 7, 2009. Vice President of National Energy Bill Finley, authored the Natural Resource Report. Houston Director Phil Martin 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

What a difference a day makes. In this case it literally changes daily. At the risk of being wrong again, it appears the stock market is testing a bottom, and crude oil and natural gas product prices are off a low. But there is still room for tremendous volatility as the world economies adjust to the new world order. This includes downward pressure from perceived lack of demand, and upward pressure as conflicts continue to plague the world stage.

On the legislative front, **H.R. 6709**, the National Conservation, Environment, and Energy Independence Act, introduced in July 2008, was referred to the House Subcommittee on Energy and Environment on September 17. Specifically, **H.R. 6709** was "to greatly enhance the Nation's path toward energy independence and environmental, energy, economic, and national security, by amending Federal policy to increase the production of domestic energy sources, to dedicate fixed percentages of the royalties received for conservation programs, environmental restoration projects, renewable energy research and development, clean energy technology research and development, increased development of existing energy sources, and energy assistance for those in need, and to share a portion of such royalties with producing States, and for other purposes."; essentially to enhance drilling on federal lands including the OCS, and a lot of other little things.

Conversely, the House passed **H.R. 6889**, introduced September 15 and passed September 17, 2008 (pretty quick turnaround).

> "to advance the national security interests of the United States by reducing its dependency on oil through renewable and clean, alternative fuel technologies while building a bridge to the future through expanded access to Federal oil and natural gas resources, revising the relationship between the oil and gas industry and the consumers who own those resources and deserve a fair return from the development of publicly owned oil and gas, ending tax subsidies for large oil and gas companies, and facilitating energy efficiencies in the building, housing, and transportation sectors, and for other purposes."

This is the one that allows drilling off the East Coast similar to the **H.R. 6709** provisions, but ends some tax deductions for five major integrated companies and caps the deductions at 6% for the rest. These tax deductions were to help fund $18 billion in energy tax incentives. **H.R. 6709** failed an attempt to recommit, and **H.R. 6899** is currently on the Senate Legislative Calendar.

As reported by Ryan Ullman of the IPAA,

> "Currently there is a considerable amount of uncertainty regarding what the Senate energy package will entail. *Gang of 10*, five Republicans and five Democrats who originally banded together to craft offshore energy policy, has expanded to twenty, and they are currently working on a bill. In addition to that effort, Senate leadership has been working on a separate bill and has tapped Senator Jeff Bingaman (D-NM) to lead that effort. Senate Majority Leader Harry Reid (D-NV) has stated he will allow Republicans an opportunity to offer their substitute; however, Senate Republicans have not agreed to limit their right to offer amendments to any of the potential bills."

This of course was during the period when things were just starting to look bad. And since then, things have gotten considerably worse. So much so that Californians actually defeated several renewable energy initiatives in the November elections; President-Elect Obama has come off advocating windfall tax proposals; OPEC has lost control of oil prices; and many projects and investment opportunities are drying up. Some of this may be good news for our industry, at least short term, as the pressure is off us to

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be the scapegoat for the world's problems. But don't get complacent, because the industry will be back (assuming we can survive the potential worst case future), and they will be after us again.

Meanwhile, most relevant legislation is on hold as the current administration winds down to transition to the new "team." Speaking of which, Steven Chu, a Nobel Laureate, is nominated to be the new Secretary of Energy. As an experimental physicist, he is an outspoken advocate for alternative energy and nuclear power as a shift away from fossil fuels to combat global warming. He also helped found the Energy Biosciences Institute in a rare collaboration between scientists at UC Berkeley, the oil major BP, the Lawrence Berkeley National Laboratory and the University of Illinois. Some of Berkeley's faculty voiced concerns that "the university was selling out to the industry giant." Old perceptions are difficult to change, but at least this potential new leader seems to have moved on.

If you have been keeping up with my tirades, then you know the score with the Department of Energy. To summarize, a scraped together patchwork of programs with lofty goals but little coherent or coordinated efforts, subject to the whims of a knee jerk and short sighted political arena that has little or no understanding of the real problem.

Or as reported by Kevin Parker in *E&P Magazine* on October 10, 2008, John Hofmeister, CEO of Citizens for Affordable Energy and former president of Shell Oil Company, said at the Ernst & Young's Energy Executive Insight Session held October 9 in Houston:

> "without a strategic, long-term energy policy, the U.S. would continually be hampered by reactive policies that were only band aids, and no cure." … "There are three aspects to such a comprehensive energy policy, in Hofmeister's view: 1) addressing the supply and demand equation, primarily through a comprehensive, rather than reactive, regulatory regime; 2) improved environmental stewardship; and 3) infrastructure rehabilitation." … "With energy being this country's largest industry, other than government," he said, "it's incomprehensible that there is no strategy. Energy bills were passed by Congress in 2005, 2006, and 2007. The best near-term solution, increased off-shore drilling, was largely ignored. Even now, with some of those restrictions having been allowed to lapse, what investor is willing to bet that they won't be re-imposed in the near future?" … "People say trust the free market, but when has there ever been a free market for energy? OPEC sets limits, and the U.S. government denies access. Utilizing wind won't happen without incentives, and one-year extensions of such are ridiculous. Who would invest on that basis? What's needed is comprehensive legislation to address both supply and demand issues," said Hofmeister. … "the U.S. is saddled with an aging infrastructure that must be updated, but there is little political will to do the work that must be done. The infrastructure needed will resemble the way the electricity distribution is accomplished and must incorporate distribution of alternative energy sources." … "Developing and delivering new ways to utilize energy takes years, as much as a decade. Yet politics knows only two-, four-, and six-year election cycles. What's required is leadership that can rise above that. Either that, or our life styles and economic well-being will be sacrificed."

And as reported by Gary Perilloux in the December 3, 2008 issue of the Baton Rouge, Louisiana *Advocate*,

> "Oliver 'Rick' Richard lectured on the political pitfalls, popular scapegoats and the difficult-to-get-cranking alternative fuel sector Tuesday at LSU. But the bottom line for U.S. energy security comes down to one lacking commodity, he said: Courage." … "Sadly in the U.S.," Richard said, "everybody is for the environment until they have to pay for it. And it's been proven over and over again." He goes on to say that it will take courage from the President to push forward policies that address all forms of energy, not just the alternative fuels that can't meet the nation's entire energy demand; courage from legislators to pass legislation that will implement these policies; and courage from the taxpayers to accept the real cost for the energy we use. "What's not courageous, Richard said, is to ignore the fact that the real price of conventional gasoline, when the cost of protecting U.S. interests in the Mideast oil reserves is factored in, rises to $8 to $11 a gallon in the judgment of economists." He adds that "there are many alternative fuels with development costs cheaper than that."

But now we seem to be facing the reverse problem. With oil prices in the toilet (imagine, $40+ is today's toilet) the economic incentive is also not there to invest in the alternative fuels. And it's not just the alternates, conventional hydrocarbon projects are being canceled or postponed, and exploration budgets slashed. Some companies are waiting for costs to come down before committing to move forward. "These delays could curb future global fuel supplies by the equivalent of four million barrels a day within the next five years, according to Peter Jackson, an energy analyst at Cambridge Energy Research Associates. That is equal to 5 percent of current oil supplies," as reported by Jad Mouawad in the December 15, 2008 *New York Times*. Mouawad also stated "Oil demand growth has weakened throughout the industrial world. The International Energy Agency projects that worldwide demand will actually fall this year, for the first time since 1983. So much surplus oil is sloshing around the world right now that some companies, including Shell, are using oil tankers for storage." … "As scores of small wells are shut down, analysts at Bernstein Research have calculated that oil production in North America could decline by 1.3 million barrels a day through 2010, or 17 percent, to 6.14 million barrels a day. This decline, rather than cuts by members of the Organization of the Petroleum Exporting Countries, 'will be the catalyst needed for oil prices to rebound,' Neil McMahon, an analyst at Bernstein Research, said in a conference call this month." … "But analysts warn the world can ill afford a lengthy drop in investment in energy supplies. According to the International Energy Agency, to

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meet the growth in global population and the rising affluence expected in the future, the world will need to invest $12 trillion in order to increase its oil and natural gas supplies." The United States remains the world's largest oil consumer, and if we start shutting in our domestic production and curtailing investment, we will end up being that much more dependent on foreign sources in the future. And when the economy starts to recover, we will see another steep spike in prices.

On other front, Carol Browner, a past EPA Administrator under Bill Clinton and Al Gore, is nominated to the position of Assistant to the President for Energy and Climate Change. In that role, Browner would be responsible for implementing the president-elect's promise to create millions of jobs in a green energy economy and reduce greenhouse gas emissions. As an advocate of global warming issues, we should expect this new administration to begin implementing the National Ambient Air Quality Standards passed during her reign at EPA but largely ignored by the Bush administration, which she called "the worst environmental administration ever." She became unpopular with a number of industry groups and with conservatives in Congress while at EPA. Hopefully she will be too busy creating all those "green" jobs to implement the warming issues. Regardless, with the current infatuation with global warming issues, it is unlikely that any incentives will be doled out to the hydrocarbon industry given the current economic situation.

I conclude this installment with selected excerpts from the executive summary from the IEA Report, *World Energy Outlook 2008.*

• The world's energy system is at a crossroads. Current global trends in energy supply and consumption are patently unsustainable — environmentally, economically, socially. But that can — and must — be altered; there's still time to change the road we're on… What is needed is nothing short of an energy revolution.

• Oil is the world's vital source of energy and will remain so for many years to come, even under the most optimistic of assumptions about the pace of development and deployment of alternative technology… The surge in prices … has alerted people to the ultimately finite nature of oil (and natural gas) resources. In fact, the immediate risk to supply is not one of a lack of global resources, but rather a lack of investment where it is needed … much of the (current investment) increase is due to surging costs and the need to combat rising decline rates — especially in higher-cost provinces outside of OPEC. Today, most capital goes to exploring for and developing high-cost reserves, partly because of limitations on international oil company access to the cheapest resources. Expanding production in the lowest-cost countries will be central to meeting the world's needs at reasonable cost in the face of dwindling resources in most parts of the world and accelerating decline rates everywhere.

• Securing energy supplies and speeding up the transition to a low-carbon energy system both call for radical action by governments — at national and local levels, and through participation in coordinated international mechanisms. Households, businesses and motorists will have to change the way they use energy, while energy suppliers will need to invest in developing and commercializing low-carbon technologies. To make this happen, governments have to put in place appropriate financial incentives and regulatory frameworks that support both energy-security and climate-policy goals in an integrated way. Removing subsidies on energy consumption, which amounted to a staggering $310 billion in the 20 largest non-OECD countries in 2007, could make a major contribution to curbing demand and emissions growth. High international oil prices, by deterring consumption and encouraging more efficient demand-side technologies, push in the same direction, but only at the expense of economic growth and of living standards in consuming countries, both rich and poor. And some of the alternatives to conventional oil that high prices encourage are even more carbon-intensive. Many countries have made progress in crafting national responses, but much more needs to be done. A new international climate agreement is but a first essential step on the road toward a sustainable energy system; effective implementation is just as crucial. Delay in

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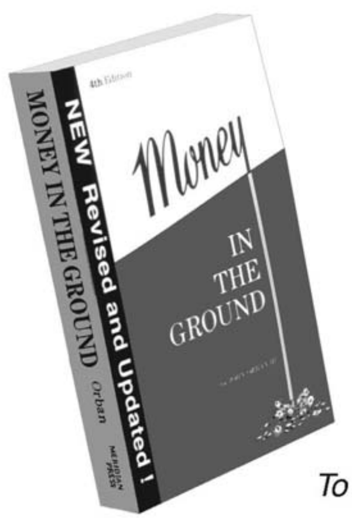

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doing either would increase the eventual cost of meeting any given global climate target.

• Globally, oil resources might be plentiful, but there can be no guarantee that they will be exploited quickly enough to meet the level of demand projected in our Reference Scenario. One major uncertainty concern the rate at which output from producing oilfields declines as they mature. This is a critical determinant of the amount of new capacity and investment that will be needed globally to meet projected demand. The findings of a detailed field-by-field analysis of the historical production trends of 800 fields, … indicates those observed decline rates (the observable fall in production) are likely to accelerate in the long term in each major world region. This results from a fall in the average size of field and, in some regions, an increase in the share of production that is expected to come from offshore fields.

• Faster natural decline rates will mean a need for more upstream investment, both in existing fields (to combat natural decline) and in new fields (to offset falling production from existing fields and to meet rising demand).

• For all the uncertainties highlighted in this report, we can be certain that the energy world will look a lot different in 2030 than it does today. The world energy system will be transformed, but not necessarily in the way we would like to see. We can be confident of some of the trends highlighted in this report: the growing weight of China, India, the Middle East and other non-OECD regions in energy markets and in CO_2 emissions; the rapidly increasing dominance of national oil companies; and the emergence of low-carbon energy technologies. And while market imbalances could temporarily cause prices to fall back, it is becoming increasingly apparent that the era of cheap oil is over. But many of the key policy drivers (not to mention other, external factors) remain in doubt. It is within the power of all governments, of producing and consuming countries alike, acting alone or together, to steer the world toward a cleaner, cleverer and more competitive energy system. Time is running out and the time to act is now.

Conclusion

The issues discussed in this report emphasize the need for long range thinking and planning we have already seen to be in short supply. Not mentioned here is the report discussion about the global warming initiative and its impact on this planning. My primary concern is the potential for abuse to our industry’s infrastructure over this issue which could make our contributions unviable economically, and continue to frustrate any attempt to establish meaningful forward thinking solutions to the problem.

As suggested elsewhere, massive investments in existing infrastructure as well as exploration and research into new technologies is required to stabilize the supply demand issue. It is suggested that incentives could be necessary to encourage such investments, but we must all be willing to pay the real cost of these incentives. This cost appears to be escalating daily as the world economy stagnates under the burdens the financial crisis continue to unfold. Where will this money come from? My fear is that there will be another hunt for the guilty rather than an assessment of the problem to find a solution.

On the research spending front, non defense R&D in this country is most heavily weighted toward Health. Energy research is only slightly more than that for the Environment, and both are less than 10% of the total.

Conversely, The IEA has published a graph of the investment in worldwide energy research showing that the primary emphasis is on nuclear energy (right in line with Chu's emphasis). True renewable energy research is about 10% of the total, and fossil fuel research is only slightly more than that. I suspect that most of the fossil fuel research addresses issues with coal, and subsequently very little is geared toward oil and gas. At the Group of 8 meeting [2007], world leaders spoke of $10 billion a year in R&D investments, which would simply return the effort to what it was a few decades back. Many experts see the need for at least triple this level of investment.

■ ENVIRONMENTAL REPORT

President Obama announcing two important appointments to environmental posts. The nominations must be confirmed by the Senate.

The whole world sits up and takes note as the U.S. continues to lead with its direction on the economy, energy, and the environment. The most important current environmental news is the filling of five important posts in those areas by President Obama. Obama stressed the importance of energy and climate policy to the nation's economy and security as he announced his appointments to those key posts, which are a mixture of old and new faces.

The group has environmentalists cheering for the most part, but includes serious scientists and experienced individuals who are obviously sincere about their goals. There are conflicting views among his appointees, with some pushing for a carbon tax, but hopefully the more scientific members will guard against unrealistic policies that could endanger the U.S. economy. Obama will clearly be walking a tight rope between his own environmental views and plans to revive the economy.

First on the list is Nobel Prize winning physicist Dr. Steven Chu, director of the Lawrence Berkeley National Laboratory, who was appointed by President Obama to serve as Secretary of Energy. Chu is one of four major

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Dr. Steven Chu, Secretary of Energy.

energy and environmental appointments who will spearhead the executive branch's efforts on energy and the environment. He has argued that shifting away from fossil fuels is essential to fighting global warming, yet stressed the Energy Department's role in supporting scientists, public and private, as well as innovations that he said, "can transform the entire landscape of energy demand and supply." He is a particular proponent of nuclear and solar power, and biomass, and is deeply involved in the $500 million Energy Biosciences Institute which was partly funded by BP with a focus on bio-fuels. Chu has strongly criticized corn-based ethanol, which was strongly supported by Obama in the Senate and in his campaign.

The second appointee is former EPA Chief Carol Browner, who becomes Assistant to the President for Energy and Climate Change. In her role as "Climate Czar" she will coordinate environmental, energy, climate and related matters. Browner has stated that global warming is "the greatest challenge ever faced." She previously served as legislative director for Senator Al Gore, who is said to be hovering in the background as unofficial environmental advisor to Obama. While working with Gore, Browner was instrumental in the Clean Air Act and also had the position of administrator of the EPA during the Clinton Administration. On a milder note, Browner is head of the Audubon Society, and is married to former New York Representative Thomas Downey who heads a lobbying firm including clients involved in energy policy. No conflict of course.

Carol Browner, Assistant to the President for Energy and Climate Change.

Lisa Jackson, Director of Environmental Protection Agency.

New Jersey Environmental Protection Commissioner Lisa Jackson has been named director of the EPA under Obama. Jackson formerly served as chief of staff to the governor of New Jersey (Jon Corzine), and was previously commissioner of the New Jersey Department of Environmental Protection. She is the first African-American woman to serve in any of those three positions. She also has worked previously for the EPA and brings serious experience to the table. She is a good choice with a record of supporting strict regulations in environmental matters, but tempered with pragmatic compromises.

Rounding the list is Los Angeles Deputy Mayor Nancy Sutley who will run the White House Council on Environmental Quality. She also brings serious EPA experience to bear, having served as special assistant to the EPA Administrator in Washington during the Clinton Administration. Sutley previously served on the California Environmental Protection Agency and the California State Water Resources Control Board where she established strict water standards and regulations. She is the first prominent gay person to earn a senior role on Obama's new team.

Nancy Sutley, Head of White House Council on Environmental Quality.

In selecting Colorado Senator Ken Salazar as Secretary of the Interior, Obama took a moderate course in public lands management. This was a far wiser choice than the favorite of the environmentalists, New Mexico Representative Raul Grijalva, who vehemently opposed virtually any use of public lands for energy, mineral or forest product development. Senator Salazar voted for the **Energy Policy Act of 2005** and was a member of the Senate's *Gang of 16*, a bipartisan group that helped craft a moderate approach to energy production issues. Regardless, he is still likely to push for more stringent regulation of oil and gas development.

Senator Ken Salazar, Secretary of the Interior.

Global Warming

Aside from the important political issues regarding the environment, there have been other interesting earth and space related weather trends. The Intergovernmental Panel on Climate Change has declared an end to the debate and predicted a continuous progression of global warming caused by man's use of hydrocarbons.

Other experts, such as Professor James Lovelock, think that climate change comes in fits and starts, with spells of consistency, even slight declines, between the jumps to greater heat. In his book, "The Vanishing Face of Gaia," he compares the rise in temperatures to the profile of a mountain, much like the sort of investment growth curve that asset managers probably showed their clients a few years ago, one that rises smoothly without a break from now into the future.

We now know that Fannie Mae, Freddie Mac and Lehman Brothers can interrupt such plans and turn them into a chasm of global recession. Could it be that global warming trends might also be subject to alternate swings of direction?

Earth and Space Weather

There is an interesting correlation between solar activity and global temperatures. The most cogent explanation has been advanced by Dutch scientist Henrik Svensmark, whose lab demonstrations show that cosmic rays from space spawn ions that play an integral role in seeding the

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formation of clouds. Svensmark also demonstrated that solar radiation could deflect a significant percentage of cosmic rays from reaching earth, resulting in a thinner cloud cover and increased solar warming of the earth. Periods of lesser solar activity have the opposite effect and result in cooling.

Whatever rhyme or reason, the climatic winter of 2007-08 was a cold one. In Iowa it was the 19th coldest winter on record and in California the 27th. Snowfall was 4 to 6 times the normal amount from Iowa to Wisconsin and was above normal in New England and much of the Rockies, to the joy of the ski areas. The average temperature across the contiguous U.S. was the coolest since 2001, in fact it was the 54th coolest winter since national records began in 1895.

Now the winter of 2008-09 is shaping up to also be quite cool across much of the world. In Europe, the media blessed the summer with articles such as one on May 21, titled "Climate change threat to Alpine ski resorts," only to turn 180 degrees on December 19 with one headed "The Alps have best snow conditions in a generation." And so far this has been the coldest winter in the U.S. in eleven years. All considered, the evidence would almost seem to question the huge worldwide panic over man-made global warming. Just when politicians have been enacting the most costly measures ever proposed to fight this menace, the tide has turned in three ways.

First, all over the world temperatures dropped in a manner unpredicted by the computer models that were the main scare. Last winter temperatures fell and many parts of the world saw snowfalls on a scale not seen for decades, and this winter is starting out to be worse. After several flat years global temperatures have dropped enough to wipe out much of their net rise in the last century. Even Houston has already seen record lows and it actually snowed enough to stick in parts of the city just before Christmas.

Secondly, in 2008 there were some hairline cracks in the "scientific consensus" in favor of man-made global warming. At the Manhattan Declaration last March some of the world's most glorified climate experts ascended a plateau of honesty when they conjectured that some predictions may have been based on politically motivated and blatantly manipulated data and computer models producing convenient fictions.

Thirdly, with the global economic meltdown, the reality began to emerge that the world can no longer afford all those quixotic schemes for "combating climate change" with which they were so happy to indulge themselves in more comfortable times. The sun began to shine through the foolishness that we should divert trillions of dollars in an attempt to reduce emissions of carbon dioxide by 80 per cent. All those grandiose projects for "emissions trading," "carbon capture," thousands of sub-economic wind turbines, converting vast areas of farmland from producing food to "bio-fuels," are being exposed as enormously damaging and futile gestures, costing astronomic sums we no longer possess.

Whatever changes the weather brings in coming years, and however imperfect the computer models prove to be, it is incumbent upon the world to make every effort to conserve our resources. Large new discoveries of shale gas in the U.S. would be even more beneficial if greater portions were used for electric generation and as a transportation fuel. Maybe Obama and the Congress will wake up and listen to Boone Pickens on this one.

▪

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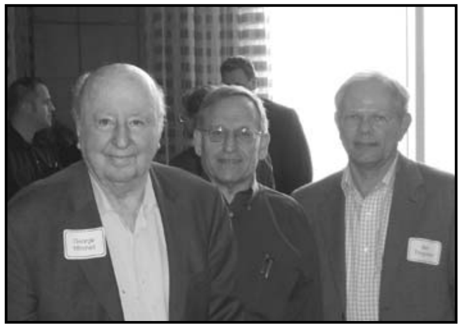
HOUSTON

The SIPES Houston Chapter's October luncheon was held at the Petroleum Club, with Dan Steward of Republic Energy, as our guest speaker. His discussion was titled "The Barnett Shale Play: Phoenix of the Fort Worth Basin, a History." Mr. Steward began his presentation by giving special recognition to George Mitchell, #117, who was in attendance at the luncheon. Mr. Mitchell's leadership and commitment to his technical staff at Mitchell Energy lead to the commercialization of the Barnett Shale play.

Mitchell Energy entered into the Wise, Jack and Parker counties in the 1950s in pursuit of the development of the Fort Worth Basin Bend Conglomerate. This formation was a significant source of income for Mitchell Energy, and the infrastructure associated with it made up a large part of the company's assets. In 1982, Mitchell Energy's evaluation of the Bend Conglomerate suggested that the company's production base could not be sustained beyond the early 1990s. George Mitchell then charged the company with finding something else to take the place of the Bend, and maintain the existing assets. Many different exploration targets in the basin were reviewed, the Barnett Shale being one of them.

Over the next ten years a database was compiled and technology was developed which lead to a small area of the Barnett Shale in eastern Wise and western Denton counties to be commercial with the favorable gas prices that were received under a contract with Natural Gas Pipeline (NGPL). In 1995, Mitchell Energy allowed NGPL to buy out this gas contract which forced Mitchell Energy to reduce cost and make the wells more profitable. When gas prices increased, Mitchell Energy was no longer constrained by the prior contract volume limitations and Barnett production increased significantly.

The gas prone area of the Barnett Shale now extends to over 6,000 square miles with over 2,000 horizontals per year being drilled. The technologies developed over twenty-five



SIPES member George Mitchell (L), October guest speaker Dan Steward of Republic Energy (center), and Bill Torguson.

years in the Barnett Shale play are now being used to rapidly develop numerous other shale plays across the United States. These shale plays are increasingly becoming a major part of the United States' energy supply.

On November 20, Jeff Requarth and John Morris of Savannah Oil and Gas were our guest speakers. Their discussion was titled "Perseverance and Technology: Significant Recent Exploration Success Winchester North and South Fields, Wayne County, Mississippi." The North and South Winchester fields are located in Wayne County, Mississippi near the Alabama state line. The fields are trend extension discoveries from the Winchester Field, discovered by the LL&E #1 Jordan well in 1968. The authors drilled a successful offset to this field in 1989, followed by four development and exploratory dry holes in the Winchester area. It was not until 2005, when a 43 square mile 3D was shot to image the steep flanks of the Winchester Salt Ridge, that the authors were able to accurately map the Smackover structure and locate the discovery wells.

Although both North and South Winchester Fields are small in size, both less than 300 acres, they are expected to recover over 11 million barrels of oil equivalent. The two fields combined are currently producing over 4,100 barrels of oil per day and 9 million cubic feet of gas per day from eleven wells. The gas contains approximately 6 percent hydrogen sulfide and the oil is sour.

The two Smackover "salt wall" fields are situated along the steeply dipping (20 – 60 degrees) east flank of the North – South trending Winchester salt ridge. The "salt wall" trap places the upper Smackover reservoir against the Louann Salt, which serves as an effective lateral seal. The vertical seal is provided by Haynesville evaporites. The final components of the petroleum system include a world-class source rock in the lower member of the Smackover Formation and extensively dolomitized grainstones of the upper Smackover serving as the reservoir compartment.

At the November Houston SIPES Chapter luncheon meeting, the following officers were voted by acclamation to be the Houston Chapter SIPES officers for 2009: Chairman Mark Gregg; Chairman Elect Stephen Hartzell; Treasurer Glen Pankonien; and Secretary Paul Babcock.

Our 12th chapter luncheon of 2008 was a well-attended, joint luncheon meeting with the Houston Association of Petroleum Landmen on Thursday, December 18. Paul Strunk, #1869, and Patrick Nye, #3105, long-time Texas Gulf Coast oil and gas prospect generators with American Shoreline in Corpus Christi, presented their talk titled "Wind Energy – It's Up in the Air." They and their company were the drivers behind the Penascal Wind Farm Project, the first wind farm on the Gulf Coast, located south of Corpus Christi. While many folks have talked and touted wind power, they went out and got it done.

Paul and Pat outlined the numerous obstacles to a wind power project. A successful project starts with the wind-sustained speeds of 16+ mph, blowing at least 35% of the time and preferably during the peak demand, late afternoon/early evening hours. A five-year wind study documenting the favorable wind conditions enables one to ultimately line up financing. If you have these favorable wind conditions, located on a large, long-term lease with good surface-use agreements, construction access, and nearby transmission capabilities and capacity, then you can proceed with the various required studies.

(Continued)

Studies include environmental, regulatory (including FAA) and wildlife. Much publicity has been directed to bird fatalities, and in the instance of this project, the avian study entailed over 4,000 hours in the field.

Scattered throughout these challenges, regulatory and permitting issues, wind-power projects are not entirely endorsed by the local public, where the projects are scheduled due to "NIMBY" issues. When the project becomes a "GO" and substantial financing ($ 1 B) is in place (affected by world market conditions and pricing), there is currently a two-year wait on transformers and equipment.

When the challenges are met, and the project is up and running, one can take pride in the creation and development of a clean, "green," renewable energy source. Benefits include reduction in emissions, with no water-use issues, as well as creation of domestic source of energy and jobs. At this time, wind-power projects are supported by tax credits (and possible future carbon credits). A unique feature related to wind power, unlike oil and gas production, is that it has no decline – it is flat!

Glen Pankonien
2008 Secretary

■

OKLAHOMA CITY

Our Chapter had our noon luncheons on the first Wednesday in October and November in the Petroleum Club in downtown Oklahoma City. In October we had David Pursell, Head of Macro Research at Tudor Pickering, Holt and Company Securities. Mr. Pursell received B.S. and M.S. degrees from Texas A & M University (1985 and 1987), and has a diverse background in the petroleum industry. He was one of the founding partners of Pickering Partners Incorporated. Mr. Pursell presented us with an updated version of the talk he gave to our national convention in New Orleans "Oil and Gas Supply, Demand, and Pricing." Since it is a timely topic, it was well received and generated numerous questions.

Our November speaker was George Johnson, #2724, a member-at-large, past president and a national director of SIPES from Amarillo, Texas. George received his B.S. and M.S. degrees in geology from West Texas State University in 1968 and 1977. He has an excellent background in the petroleum industry and in 1980 he founded Sunshine Exploration Company and continues today as its president. George presented the talk he gave to our national convention in New Orleans "Turning Water into Oil, Hartley County, Texas." This was a story concerning a new discovery seven miles southeast of the Lathem granite wash field. The discovery well came in for 320 BOPD from the Des Moine Granite Wash, hence Southeast Lathem field was born.

Our laminated USGS Geologic Map program is progressing. In late October Mike Pollok, #2512, our chapter secretary donated a map to the 5th grade middle school class in Purcell, Oklahoma. Owen Hopkins, #2986, founder of the map program, came in from Corpus Christi, Texas to make the presentation. Owen made an excellent presentation as the students were spellbound for over an hour. They were highly interested and asked numerous questions. This is an excellent program which other chapters perhaps should consider.

Kudos to our chapter members David Campbell, #1729, and Jon Withrow, #0910, who each received the Distinguished Alumni Award in late November. These awards were presented during the inaugural awards banquet of the Mewbourne College of Earth and Energy, University of Oklahoma. They were cited for their many years of contribution and service to the Department of Geology and Geophysics and Alumni Adversary Council of the University of Oklahoma.

Our Chapter did not have a luncheon meeting in December, however, we had our annual Christmas party. It was well-attended by members and spouses and again was a huge success.

Tom Rowland
Chairman

■

IN MEMORIAM

We regret to note the passing of the following members:

Joseph H. Ambrister, #2020
of Allen, Texas
who died on February 4, 2009
❖
Robert A. Anderson, #336
of Lafayette, Louisiana
who died on November 7, 2008
❖
Charles E. Branham, #2699
of Oklahoma City, Oklahoma
who died on February 4, 2009
❖
Paul H. Carter, #2882
of Houston, Texas
who died on November 12, 2008
❖
Henry L. Cullins, Jr., #
of Houston, Texas
who died In October 2008
❖
Charles M. Forney, #857
of Corpus Christi, Texas
who died on June 5, 2008
❖
Frank D. Kozak, #1707
of Midland, Texas
who died on November 27, 2008
❖
Lewis L. Shackelford, Jr., #424
of Dallas, Texas
who died on December 13, 2008
❖
C. W. Smith, #90
of Oklahoma City, Oklahoma
who died on December 15, 2008
❖
Albert M. Tolbert, #48
of Salado, Texas
who died on March 10, 2008
❖
M. H. Vaughn, #2083
of Oklahoma City, Oklahoma
who died on June 12, 2008
❖
John J. Wanner, #304
of Denver, Colorado
who died on December 26, 2008
❖

THE

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SIPES Chapter Meeting Information

AUSTIN

Chairman: Doug Watkins
V-Chrmn: Ward Davenport
Secretary: TBA
Treasurer: Dwight Cassell
Meets: The County Line (On the Hill) 1st Thursday

CORPUS CHRISTI

Chairman: Patrick Nye
V-Chrmn: Stephen Thomas
Secretary: David Desenberg
Treasurer: Duncan Chisholm
Meets: Town Club Last Tuesday of month

DALLAS

Chairman: Terry O'Hare
V-Chrmn: Doug Essler
Secretary: Mike Taylor
Treasurer: Keith Brownlee
Meets: Dallas Petroleum Club 3rd Tuesday

DENVER

Chairman: Jim Applegate
V-Chrmn: Connie Knight
Secretary: Dave Read
Treasurer: Tom Stander
Meets: Wynkoop Brewing Co. 4th Thursday

FORT WORTH

Chairman: James Robertson
V-Chrmn: James Robertson
Secretary: TBA
Treasurer: TBA
Meets: Variable locations Variable dates

HOUSTON

Chairman: Mark Gregg
V-Chrmn: Steve Hartzell
Secretary: Paul Babcock
Treasurer: Glen Pankonien
Meets: Petroleum Club 3rd Thursday

LAFAYETTE

Chairman: Ellis Guilbeau
V-Chrmn: Johnny Walker
Secretary/Treasurer: David Bieber
Meets: Petroleum Club 2nd Wednesday

MIDLAND

Chairman: Tom Gentry
V-Chrmn: Steve Robichaud
Secretary: David Overton
Treasurer: Pete Schrenkel
Meets: Midland Country Club 3rd Wednesday

NEW ORLEANS

Chairman: Louis Lemarie'
V-Chrmn: Mike Fein
Secretary: Al Baker
Treasurer: Reese Pinney
Meets: Andrea's Restaurant 3rd Tuesday

OKLAHOMA CITY

Chairman: Tom Rowland
V-Chrmn: James Jackson
Secretary: Mike Pollok
Treasurer: Victor Cooper
Meets: The Petroleum Club Bank One Bldg., 35th Floor 1st Wednesday

SAN ANTONIO

Chairman: J. L. Jones
V-Chrmn: Joe Smith
Secretary/Treasurer: Joe Finger
Meets: Petroleum Club 3rd Thursday

CORPUS CHRISTI

The Corpus Christi Chapter had the privilege of listening to Mannti Cummins, manager of wind projects for American Shoreline, Inc. at the October luncheon. Mr. Cummins presented an overview of South Texas wind farm projects entitled "Thar She Blows." The presentation addressed the Peñascal Wind Farm and included the economic impact and green energy possibilities of the project and other wind projects in South Texas.

Our November guest speaker, James R. (Jim) Garrison, Jr., Ph.D. of the Geoscience Department at Texas A&M Corpus Christi presented "The Nueces Incised Valley Revisited: A Reinterpretation of the Sedimentology and Depositional Sequence Stratigraphy of Preserved Pleistocene and Holocene Valley-fill Sediments."

October luncheon guest speaker Mannti Cummins.

The December event was our Annual SIPES Christmas Party at the Corpus Christi Town Club and was festive and well-attended. New officers were announced that included: Chairman Patrick Nye; Vice Chairman & Program Chairman Stephen Thomas; Treasurer Duncan Chisholm; Secretary David Desenberg; and National Director Owen Hopkins.

Patrick Nye
Chairman

■

LAFAYETTE

The Lafayette Chapter's October meeting continued the tradition of our annual BBQ at the Girard Park Pavilion. The weather was picture-perfect and we had a very large turnout to enjoy food from Dwight's Barbecue. Also in October, Jim Gamble, #2524, organized our annual dove hunt near Lake Charles that was enjoyed by members and guests. It was a great success with most hunters getting their limits of birds.

The November meeting was our largest member-attended event of the year as Jim Bollich (retired geologist) entertained us with his heroic account as a Bataan Death March survivor. Jim has written ten books and has been awarded numerous medals and accolades for his service to our country. It isn't every day that you get to shake the hand of a real live American hero. Those who are a part of the "Greatest Generation" are quickly disappearing, and we owe them a huge debt of gratitude for their service to this country and our way of life.

The December meeting was a stunning success with our members and their significant others attending a sit down meal at the Lafayette Petroleum Club. We also installed new officers for the coming year with the current officers agreeing to accept another year at their current positions. Lafayette Chapter officers for 2008-2009 are: Chairman Ellis Guilbeau; Vice Chairman Johnny Walker; Secretary/Treasurer David Bieber and Director Bill Finley.

Chapter Chairman Ellis Guilbeau (L) giving Steve Hennigan his membership certificate and stamp at the December meeting.

David Bieber
Secretary

■

MIDLAND

During the October luncheon, Lee Sanders presented a program titled "Log analysis of the Wolfberry." Lee, a retired Halliburton log analyst, shared his template for using conventional log suites to analyze the data from re-entry candidates and new wells. His paradigm uses a tested approach of parameter requirements to identify the potential pay zones in this new play. He presented a way to look through the shaly zones for economic completions.

In November, the luncheon program was focused on the economics of the wind farms that are proliferating in West Texas. S. Dale Heiskell and John C. Rutledge of the tax appraisal consulting firm Pritchard & Abbott, Inc. in Fort Worth, Texas were the presenters. Pritchard & Abbott provides the appraisal expertise for many of the taxing entities in West Texas including Midland County. Their presentation gave us insight into the economic structure and profit margins of wind turbine electrical generation. This is an alternative energy that is growing toward providing a greater portion of our national electrical supply. The main point: they aren't economic without taxpayer subsidies.

The Midland Chapter takes a break in December and does not meet.

The results are in. The efforts of several local professional organizations, including the Midland Chapter of SIPES, helped the Midland Independent School District provide the AAPG "More! Rocks in Your Head" continuing education program to a number of teachers. It was a huge success. Fifty-one primary and junior high science educators participated. Most of the teachers found the program provided tools they could present to their students to give a background in earth science and the oil and gas industry.

David Overton
Secretary

■

NEW ORLEANS

During our October 21st luncheon at Andrea's Restaurant in Metairie, Ken Huffman, #2936, with LaBay Exploration presented his talk entitled "Rabbit Island, SL 340 Revitalized – Getting New Energy from an Old Rabbit." Ken's presentation was an informative update to a similar one that he made at the national convention in May 2008. (This talk is available on DVD from the SIPES Foundation Video Film Library). The luncheon meeting attendance was somewhat reduced because of its coincidence with the Louisiana Prospect Expo in Lafayette which is a popular venue among the local independents.

The November meeting was held in conjunction with 11th Annual GNO (Greater New Orleans) Joint Industry Association Luncheon. This event was held on November 18 at the Royal Sonesta Hotel in New Orleans, and was hosted by eighteen industry associations. The keynote speaker was Mark Singletary, who is editor and publisher of the New Orleans Publishing Group. Mr. Singletary has been in the newspaper business for over thirty years and is presently responsible for the local publication of CityBusiness and the Daily Journal of Commerce. Mr. Singletary's talk was entitled "The Recovery vs. Normalcy of New Orleans and Its Challenges." In addition to Mr. Singletary, Ms. Pamela Senatore, who is vice-president of Horizon Initiative, was present to give an update on that organization. The Horizon Initiative, a non-profit organization that was started over a year ago, comprises a group of over 400 culturally, racially and socially diverse business and civic leaders who are dedicated to increasing prosperity and the quality of life for all New Orleanians through economic development.

On December 16, the New Orleans Chapter returned to Andrea's Restaurant for its holiday luncheon which was its typical "open mike – no speaker" venue.

Al Baker
Secretary

DALLAS

The Dallas Chapter of SIPES co-sponsored, with the Ellison Miles Geotechnology Institute, the Barnett Shale Symposium VI at Brookhaven College in Farmers Branch, Texas on October 21. The theme of this year's symposium was "The Impact of Natural Resource Development in the Urban Environment," featuring presentations on non-technical issues concerning development of the Barnett Shale across the Dallas-Fort Worth Metroplex. U.S. Congressman Pete Sessions of the 32nd District of Texas was the featured lunch speaker. Congressman Sessions stressed the need for our country to develop a thoughtful energy plan, and to effectively use our own natural resources first. The symposium and lunch registered 85 attendees.

U.S. Congressman Pete Sessions (L), features symposium lunch speaker, with Continuing EducationCommittee Chairman Stan Pittman.

Panel of speakers from Advanced Drilling Technologies (L to R) Tom Roelfs, Tom Gipson, Ovidio Alcaro, Tom Jones, and Terry O'Hare, SIPES Dallas Chapter Vice Chairman.

Our November 18 lunch meeting was held at Royal Oaks Country Club, our regular venue. A panel comprised by the management of Advanced Drilling Technologies presented the evolution and current state-of-the-art of coiled-tubing drilling technology. The panel included Ovidio Alcaro, executive manager; Tom Gipson, co-founder; Tom Jones, rig manager; and Tom Roelfs, vice president of operations. Although there are a number of variables to consider, coiled-tubing drilling technology today allows a 6-1/4" hole drilled to an approximate total depth of 4,500'; an 8-3/4" hole size is limited to about 3,500.' The best application for CT drilling is in soft formations due to the limited weight on bit which can be supplied by the drillstring.

The following executive board for the Dallas Chapter for 2009 was elected at the November meeting: Chairman Terry O'Hare; Vice Chairman Doug Essler; Treasurer Keith Brownlee; Secretary Mike Taylor; Membership Chairman Don Muth; Activities Chairman David Bissmeyer; Continuing Education Chairman Robert Webster; National Directors Bobby Greenwood and Dick Cleveland; TEC Representatives Ed Gonzales and James Henderson.

Christmas Party at the Dallas Petroleum Club.

The annual Christmas Party was held at the Dallas Petroleum Club on the evening of Saturday, December 6, 2008. Following cocktails and dinner, The Mike Drake Band provided musical entertainment for 130 chapter members and guests. A great time was had by all.

Mike Taylor
Secretary

DENVER

The Denver Chapter continued its fall program with local SIPES member John Wright, #2497, as our October speaker. John is one of our former chapter chairs, and a highly-respected evaluation engineer. His talk was titled "Economics of the Barnett Gas Shale Play as a Potential Model for Emerging Plays." The presentation was a statistical evaluation of public domain data over randomly selected areas of the play to determine the economic sensitivity and nuances of arguably the hottest exploration and development play in the lower 48 with an eye toward evaluating shale plays in general. Although much attention and study has been conducted on the Barnett Shale, John's analytical approach resulted in some very interesting, and somewhat surprising results. The economic sensitivity of different areas of the play and comparison of horizontal versus vertical drilling was of particular interest. For members involved in shale plays, specifically the acquisition and development phases, John's conclusions gave plenty of food for thought. For those not involved in the unconventional resources, they were eye opening. Perhaps you should not always believe what you read or listen to all the field rumors you hear!

In November, our chapter was pleased to host current national vice president and Fort Worth Chapter SIPES member Lee Petersen, #2838. Lee presented his very encouraging grass roots exploration talk entitled "Finding Oil without Use of Computers, Remote Sensing, Seismic, and Non-conventional Methods, Part II." Recognizing budgetary restrictions for most SIPES members with regard to participation in expensive technology-based plays "du jour," Lee presented several examples of opportunities that were developed and exploited by plain old critical thinking. The application of observation, deduction, and rational thinking resulted in significant discoveries in the Midland Basin and Eastern shelf of West Texas.

Members and spouses enjoying the Christmas Party at the Briarwood Inn.

Good old-fashioned geology talks are very popular with our chapter as evidenced by the good attendance at Lee's talk. Part I of this of this talk was a paper presented by SIPES member Charles E. (Gene) Mear, #2463, (1926-2007) at the Southwest Section AAPG in 1996. Lee presented some of this information at the 2008 SIPES Convention last year; this presentation is available on DVD from the Foundation's Earth Science Film Library.

The Chapter concluded a very good year with its annual Christmas party in early December. Following up on a suggestion by Chairman Bob Cluff, we changed the venue and format of the event in an effort to spruce things up a bit. The party was held on December 11 at the Briarwood Inn, located at the foothills of the Rockies in Golden, Colorado. Thanks to the generous support of several individual members, a terrific party was enjoyed by the largest turnout we have had in years.

Emily and Bill Goff at the annual Christmas Party in December.

As is our custom, next year's officer slate was announced at the Christmas party. The chapter will be lead in 2009 by Chairman Jim Applegate, Vice Chair and Program Chairwoman Connie Knight, Secretary Dave Read and graciously returning Treasurer Tom Stander. Thanks were given to outgoing Chairman Bob Cluff, Vice Chair Jim Applegate and Treasurer Tom Stander for an excellent 2008. During 2008, our membership grew nicely; the talks, picnic/golf tournament and Christmas party were very well attended; and most important, the strength of the chapter really improved. Thanks for a job well done by our officers, volunteers and supporters of the Chapter.

In closing, the Denver Chapter is the host for the 2010 Annual Meeting at the beautiful Cheyenne Mountain Resort in Colorado Springs, Colorado in late June. Convention Co-Chairmen Mike Austin and Bill Goff will be contacting the different chapters for input on the technical sessions.

Bill Goff
Membership Chairman

FORT WORTH

Rather than a monthly luncheon, the Fort Worth Chapter held a joint social with the Dallas Chapter on October 9 at Willhoite's Restaurant in the historic downtown area of Grapevine, Texas. Members of both chapters had a chance to renew acquaintances with old friends, make some new friends and exchange information about the projects and opportunities that various members were pursuing. The get-together was enjoyed by all, and the Fort Worth Chapter thanks the Dallas Chapter for organizing the event. The Fort Worth Chapter did not meet in November and December, but will resume its monthly schedule with a luncheon on January 19, 2009.

The Fort Worth Chapter officers for the first half of 2009 will be the same as in 2008.

For the first time, the Fort Worth Chapter is co-hosting the SIPES Annual Meeting in Hilton Head this April. The general meeting chairman is Phil Carlisle, #2557, and Lee Petersen, #2838, is the technical program chair. Make your plans now to attend this educational and fun-filled event that gives you the chance to meet fellow independents from across the country. A list of technical program speakers is printed on page 37. You can register online at www.sipes.org; or use the registration book and fax or mail your forms to the Dallas office. We look forward to seeing you there!

Also, please note that the Fort Worth Chapter is no longer meeting at the Fort Worth Petroleum Club on the 3rd Thursday, but is meeting at variable times and locations to avoid conflicts with other societies, events and holidays.

Jamie Robertson
Chairman

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WELCOME NEW MEMBERS

The following new members were approved by the
SIPES Membership Committee from September 12, 2008 - January 2, 2009:

SIPES NO.	NAME	CHAPTER	SPONSORS		
3159	William D. Bennett	San Antonio	S. Chuber	C. Walker	J. Watkins
3160	David M. Scull	Dallas	W. Leel	D. Muth	T. O'Hare
2652	Bruce J. Bahlinger	New Orleans	Reinstatement		
1216	Willis E. Conatser	New Orleans	Reinstatement		
3161	Clayton E. Lee	Oklahoma City	S. Howery	B. Jackson	V. Cooper
3162	Martin R. Shumway	At-Large (Worthington, OH)	P. MacKenzie	L. H. Wickstrom (DPA)	S. Zody
3163	Thomas F. Sewak	Dallas	C. Walker	E. Tessem	P. Carlisle
3164	Mark A. Worthey	Dallas	D. Gifford	W. Leel	B. Greenwood
3165	Jim Patrick Miller	Lafayette	S. Porter	B. Sydboten	J. Walker
3166	Clifford S. Foss	Houston	L. Jones	P. Babcock	K. McMichael
3167	Mark D. McCuen	Houston	R. Parker	R. Schott	J. Bennett
3168	John Moffitt	Houston	S. Daniel	R. Parker	N. Neidell
3169	Benjamin Winkelman	Houston	L. Sternbach	K. Lanning	C. Sternbach

there are many opportunities, using simple techniques, to economically recover additional oil in fields throughout the State.

The major technical obstacle to a systematic search for these opportunities is scattered, inaccessible, and incomplete well and production data. This issue is being addressed through a non-profit initiative, called Energy Libraries Online, of the Oklahoma City Geological Society, the Oklahoma Well Log Library, and the Oklahoma Geological Survey. This multi-year project is now underway, but will require additional financial support to see it through. If operators are provided the tools necessary to identify opportunities that can tap even a small part of this untapped oil volume, a resurgence in activity and production is assured, with all of the financial benefits that these will bring to the industry and the State.

This article has been revised and updated from work that was originally published in the May/June 2008 edition (Volume 58, No. 6) of the 'Shale Shaker', which is the bimonthly journal of the Oklahoma City Geological Society.

Oklahoma Oil Trends

Current Status

Oklahoma oil exploration began over 100 years ago, with early successes propelling the territory to statehood in 1907. Rapid development of many of the largest oil reservoirs led to State production peaking in 1927. There have been intermediate highs and lows in oil production since that time, with the last peak occurring during the price-driven 'oil boom' in the late 1970s and early 1980s. Excepting a slight increase in 2006, oil production has declined steadily, regardless of price, since 1984. The disconnect between price and production is demonstrated by the intermediate price peaks in 1990, 1996, and 2000 that did little to slow the long-term drop in production, and the fact that it took four years of record prices to achieve even a modest bump in 2006 (**Figure 1**).

The price of oil in Oklahoma, and the rest of the world, has been on an upward trend since 2002, with the 2007 average price setting a record at $69.01/Bbl, and the 2008 price likely to set yet another all-time record. Despite this, Oklahoma's average daily oil production in 2007 dropped 5 % (or 8,767 BOPD); which is the lowest seen since 1912. The production figures shown in Figure 1 include condensate, but this represents less than 3% of the total liquid hydrocarbons produced (Soltani, 2008).

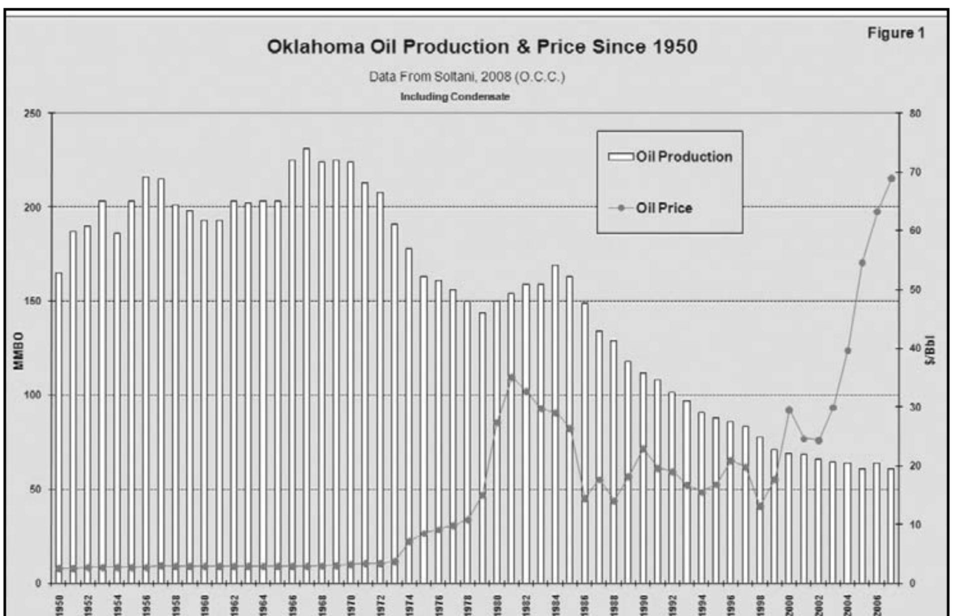

Figure 1. Oil production and average crude-oil price (unadjusted) in Oklahoma from 1950 through 2007. From Soltani (2008).

The easiest way to boost a region's oil production is to find large, long-lived fields. Unfortunately, in Oklahoma these days are long past, as our last 100 MMB field (Postle) was discovered in 1958 and the last 10 MMB field (Wheatland) in 1981 (Boyd, 2002a). Over 500,000 wells have been drilled in the last 100+ years, with tens of thousands of separate oil accumulations and over 3,000 named oil fields discovered. As a result, although deeper potential may exist in some older fields, the prospective oil-producing regions of the State have been extensively explored.

Because discoveries are no longer a significant component of new oil production, future reserve additions must largely come from improvements to the recovery in existing fields. Most Oklahoma oil production comes from fields that have been producing for decades in which the average well makes about 2 BOPD. Although small, undrained accumulations continue to be found, usually in or adjacent to existing fields, the possibility of finding one or more new oil fields large enough to significantly affect the State's long-term production decline has become vanishingly small.

In 2007 4,066 wells were completed in Oklahoma, with 25% of these (1,010) as oil completions. Most of these were in existing fields, with more than one quarter of the total being workovers (IHS Energy, 2008). Oil-targeted drilling grew modestly between the price run-up beginning in 2002 and 2006, but 2007 has seen an 8% decrease and this is likely to continue in 2008 (**Figure 2**). In fact, although the rate of oil well abandonment has dropped in the last two years, the number of active oil wells in Oklahoma remains in long-term decline (Soltani, 2008).

(Continued)

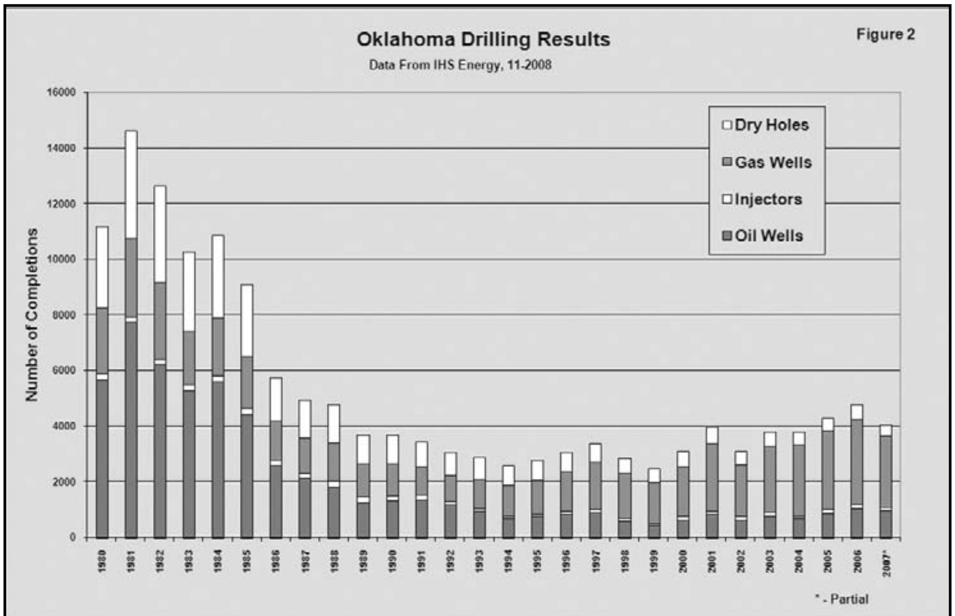

Figure 2. Oklahoma well-completions from 1980 through 2007, showing the trend away from exploration, based on dry hole percentage, and towards gas development. From IHS Energy, 2008.

There are plausible explanations for why oil drilling and production continue to fall in what is still a high price environment: 1) Operators are concerned that prices will be insufficient to recoup large initial investments, 2) The economics for natural gas are better, giving gas-targeted drilling an advantage, or 3) There is not enough producible oil left to justify a large-scale evaluation of improved recovery projects.

1) As is being demonstrated yet again in late 2008, long-term price forecasts can be driven by many factors that are impossible to predict, and operators in Oklahoma have been affected by all of them. Although it is easy to understand a hesitancy to invest in oil, it is believed that over the long term demand will continue to rise and oil prices will remain strong (Boyd, 2005). Notwithstanding the current global economic recession, long-term demand growth will continue until deliverability can no longer keep pace. Regardless of one's view of when 'peak oil' will occur, in today's world there are certainly many more factors that could bring about price increases than those that could push prices lower.

2) Despite its recent decline, the 2008 average gas price in Oklahoma will likely exceed that of 2007. At $6.48/MCF it is the second highest annual average price in history, but unknowns associated with winter weather severity give gas prices a down-side that oil lacks. The average gas well in Oklahoma still produces about 135 MCFPD, which on a BOE basis is more than 10 times what the average oil well produces. So even if natural gas prices fall relative to oil, their ability to generate cash flow is still far greater. This income discrepancy, combined with Oklahoma's large, unconventional, gas plays, makes industry's preoccupation with natural gas easy to understand.

3) Is there enough producible oil left for it to make a comeback ? This cannot be easily answered, because each area, field and reservoir must be evaluated on its own merits. This review will show that there are many fields published in the geologic literature that have significantly underperformed when compared to closely analogous fields. However, the objective here is not to evaluate the economics of individual oil projects, but simply to prove that sufficient potential exists to justify evaluating the possibilities.

History (How We Got Here)

Oil exploration in Oklahoma began before there was any real any understanding of why and where it might occur. It had been known to exist in the subsurface long before Statehood through the drilling of water wells that became contaminated by crude oil. Early wells intentionally looking for oil were usually drilled near seeps, with the first commercial success coming adjacent to a seep near Bartlesville in 1897. The Nellie Johnstone ushered in the oil age to Oklahoma and began a meteoric rise in territorial and then State fortunes in which annual crude production went from 1,000 barrels in 1897 to 43.5 million barrels in 1907 - the year of Statehood (Franks, 1980) (**Figure 3**).

The oil produced in 1907 was only the beginning, as the oil-rush continued with a steady stream of enormous discoveries. These included Cushing (1912), Burbank (1920), Seminole District (1923), and Oklahoma City (1928), each of which would produce more than 500 MMBO (**Figure 4**). Oil production peaked in 1927, and rose and fell many times thereafter. Increases in production came through discoveries, increased allowables, large secondary recovery projects, or price-driven surges in drilling activity. Falls in production were caused by forced curtailment (due to low price), reduced drilling activity, or, as is the case now, a natural, long-term decline in field production.

All geologic provinces eventually reach a point at which the potential reward no longer justifies the risk and expense of large-scale exploration. When this happens activity moves elsewhere, and for Oklahoma this occurred in the late 1960s. The price of crude oil had remained nearly flat for decades, and discovery sizes no longer justified widespread exploration. In 1967 oil production began a long downhill slide that was only briefly interrupted by the drilling boom in the late 1970s and early 1980s (Fig. 1).

Most of the oil discovered in Oklahoma was found during a time

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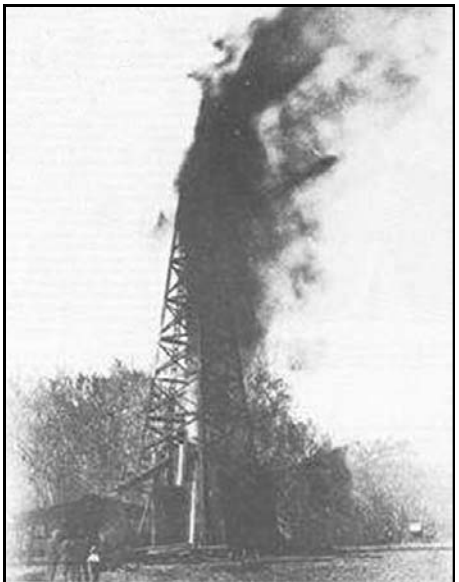

Figure 3. The Nellie Johnstone #1, drilled in 1897 just south of Bartlesville, established the first economic production in Oklahoma. Photograph taken from Franks, 1980.

when natural gas, especially that seen in association with oil, was viewed mainly as a drilling hazard. Early wells were drilled with cable tool rigs that, unlike modern rotary rigs, operate without drilling mud and therefore any mechanism to control fluid flows. A discovery meant a blowout, with gas in the air and oil on the ground. The gas was vented or flared and earthen dams were used to collect the oil. If a well encountered a large gas flow, it would be vented, sometimes for days, to determine if there was an oil rim beneath. If oil did eventually cone into the well, it was produced and the gas flared. If not, the well would be plugged. An example is the discovery well for Wewoka Field, the R. H. Smith - #1 Betty Foster, which was drilled in March 1923. After penetrating a few inches into a sandstone, this well blew out flowing 20 MMCFPD and 'spraying oil'. The 'oil', which clearly was initially gas condensate, increased to 200 BOPD in a few days as underlying oil coned into the well, causing the gas flow to decrease. This permitted a deepening of the well, making it capable of a rate of 3,500 BOPD (Franks, 1980).

The frontier mentality in the State's early history made it reluctant to intervene in what were viewed as 'private business practices'. Although the Oklahoma Corporation Commission was formed in 1907 to regulate the oil industry, the organization was chronically understaffed. The lack of inspectors forced it to rely on an honor system in which the industry became largely self-regulating. As a result, independent oil producers themselves were the first to address what were termed 'intolerable conditions in the oil fields'. In addition to numerous large oil spills and fires, these conditions included a waste of natural gas that by 1913 had assumed 'scandalous proportions'. In this year the federal government estimated that $20,000 of gas was wasted each day at Cushing Field alone and that the daily waste of gas Statewide was equal to 10,000 tons of coal. (Using the standard of 14 cf per pound of bituminous coal, this equates to 280 MMCFPD, or 102 BCF in that year.) This attention was viewed by many as a pretext for the federal government to extend its authority over Oklahoma. This never happened, but it did prompt preventative action to be taken. In 1914 the OIPA advocated regulation of the industry, with the focus on prorationing. (Franks, 1980).

The practice of flaring huge quantities of gas in Oklahoma's early oil fields, with the resulting loss of reservoir energy, had a devastating impact on recoveries and caused rates to plummet after peak production was reached. Healdton Field, which was discovered in 1913, peaked in 1916 at 95,000 BOPD. (It was noted in Franks, 1980 that individual wells in this field were flaring up to 13.5 MMCFPD.) By 1918 the field was capable of only 40,000 BOPD, and by 1924 only 16,000 BOPD. Another example is Burbank Field, where July 1923 peak production of 122,000 BOPD fell to an average in 1924 of 60,000 BOPD, which further fell to 37,000 BOPD by 1926. Although the presence of abundant gas in the oil had the benefit of making pumping equipment unnecessary, flaring was recognized, even at this time, as reducing oil recovery. However, the atmosphere was such that large-scale gas flaring remained the accepted practice (Franks, 1980).

The volume of gas flared in the early days in Oklahoma is impossible to quantify directly because flow rates were guesstimates and there was no requirement to report gas production that was not sold. In the studies reviewed for this report it was found that most oil accumulations were found at or just below gas saturation.

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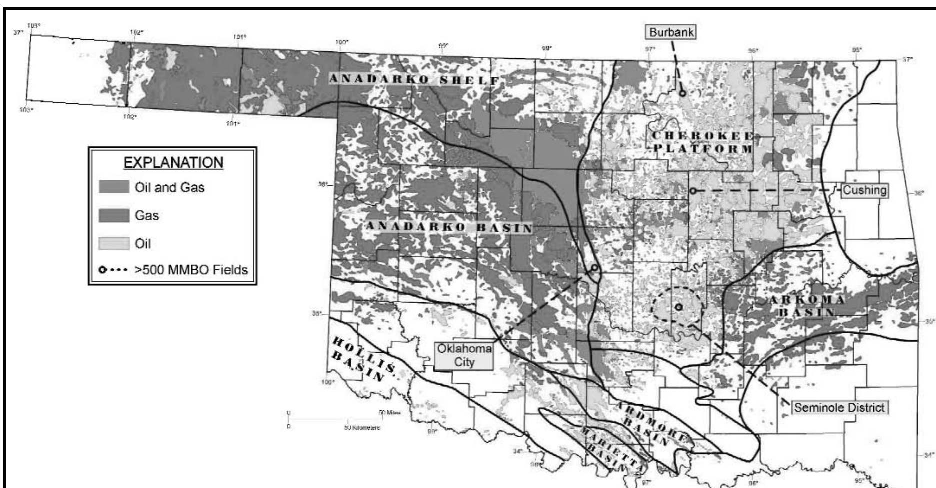

Figure 4. Map of major geologic provinces of Oklahoma showing oil and gas fields distinguished by GOR and oil fields with more than 500 MMB recovery. Modified from Boyd (2002b).

This is confirmed by the number of fields that were discovered with small gas caps or formed secondary gas caps immediately after production began. The average (weighted by field size) initial gas to oil ratio (iGOR) for the fields studied was 665 standard cubic feet per stock tank barrel (scf/STB). This is in substantial agreement with the average (unweighted) iGOR from the government compiled in the TORIS database, which is 724 scf/STB (U. S. Dept. of Energy, 1984).

If the average produced GOR through abandonment pressure is roughly three times the initial value (Knapp, 2006), the Statewide associated gas volume should be about 1995 scf/STB. By linking gas with oil production in this way it becomes possible to estimate how much associated gas was liberated as oil was produced. By subtracting from the associated gas volume the gas that was actually sold, it is possible to estimate how much was vented or flared. This estimate ignores non-associated gas that may have been flared from gas caps. It also assumes that all gas sold was associated gas which, given high GORs and huge oil sales, seems a safe assumption (**Figure 5**).

The first year in which more than 1 BCF of gas was officially sold in Oklahoma was 1906. From this time, peaking in 1927 and continuing through 1942, the calculated volume of associated gas is much greater than that on which taxes were paid. From 1900 through 1942, 6.9 trillion cubic feet (TCF) of gas and 5.13 BBO were sold. The oil produced should have generated 10.2 TCF of associated gas, so if the produced GOR estimate is accurate, the volume of gas vented and flared in Oklahoma during this time was about 3.3 TCF. This formula generates a 1913 flared volume of only 53 BCF, which is roughly half the previously quoted federal estimate of 102 BCF for that year. Although 3 to 6 TCF is a relatively small amount in a State that through 2008 has sold more than 100 TCF, its real impact was in the reduction of oil recoveries.

There were other early practices that reduced oil recovery, including 1) the coning of water into oil reservoirs through over-production, 2) uncoordinated, patch-work waterfloods in which a poorly understood reservoir geometry left large areas unswept, and 3) subsurface cross-flow in which commingled zones exchanged fluids or where uncased wells allowed oil reservoirs to charge permeable water-bearing zones. However, the practice that had the most profound impact on oil recovery in the State was that of gas flaring. This reduced recovery by rapidly reducing reservoir pressure and gas saturation in the oil, and by leaving behind unproducible oil saturations through the smearing of oil into gas caps. Ultimately however, this is only water under the bridge. What is important is that a great deal of oil remains in the ground.

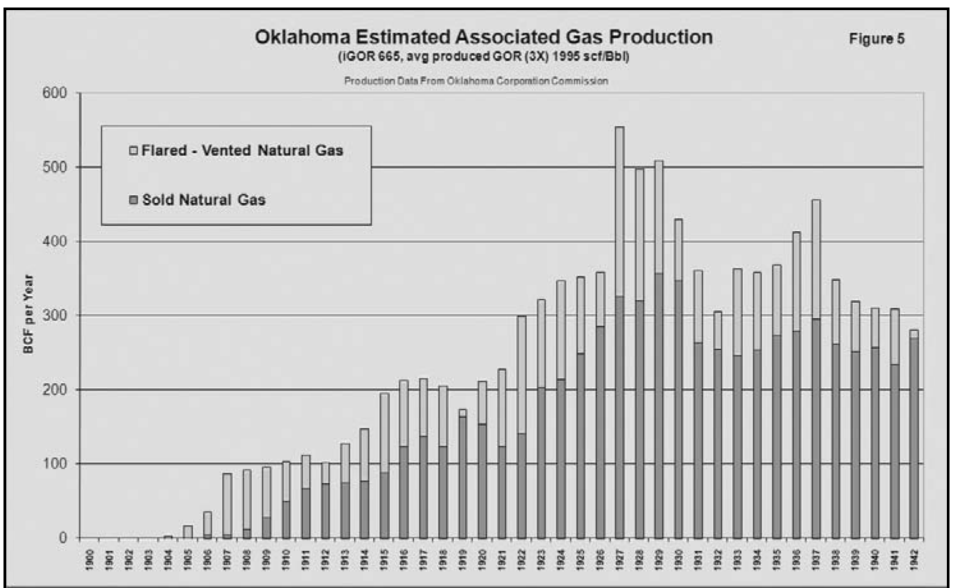

Figure 5. Estimate of associated gas production in Oklahoma from 1900 through 1942. Production based on an average produced GOR of 1995 scf/Bbl. Flared/vented gas is the difference between the total calculated and that sold.

The Future (Where We're Going)

One of the objectives of this analysis was to determine how much oil will be left in the ground, given a continuation of the current production decline. The first step in this process is to establish ultimate recovery. This task is never easy, but it is made simpler by the fact that most of the State's production comes from wells that have produced for decades, and because discoveries large enough to affect State production will no longer occur.

In their latest reserve estimate in 2005, which is based on a poll of the State's operators, the Energy Information Administration of the U.S. Department of Energy projected Oklahoma's proved oil reserves at 588 MMBO (E.I.A., 2005). The same poll taken in 2000 placed reserves at 621 MMBO, meaning that proved reserves dropped only 33 MMBO in a five-year period in which 332 MMBO were produced. Obviously, the near doubling of crude oil prices in that period did much to improve the average operator's outlook, but through it all the decline in production since 1995 has averaged just over 3.0% per year.

If State production remains in long-term decline it is possible to calculate a range of remaining oil reserves. Although this estimate carries many assumptions, it does show the effect that changes in the long-term decline have on EUR volumes. Using the 3.0% decline experienced since 1995, and carrying it through the year 2050, remaining reserves as of January 2008 are 1,434 MMB. If the decline is increased to 4.0%, still less than the

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5.0% decline seen in 2007, remaining reserves through the year 2050 are 1,206 MMB (**Figure 6**). The cutoff in 2050 and the final per well production rates (1/2 BOPD and 1/3 BOPD) were arbitrary, as the actual economic threshold is impossible to predict. One of the most significant results of this projection is that a 1% reduction in the rate of decline increases ultimate oil recovery in Oklahoma by nearly ¼ billion barrels.

Given these assumptions, the range of remaining oil reserves is surprisingly narrow. In both the 3.0% and 4.0% decline cases, remaining reserves are significantly greater than the 588 MMB reported by the E.I.A. So, given a continuation of current trends in drilling and plugging, and an average abandonment rate for an oil well in Oklahoma of less than ½ barrel per day, there is good reason to believe that more than a billion barrels are left to produce. This means that in a status quo situation, ultimate recovery for the State will be slightly more than 16 BBO. The good news is that, short of a price collapse, the chances are excellent Oklahoma will produce at least twice the oil now carried as reserves. The bad news is, if correct, we are about 92% produced and the end is in sight.

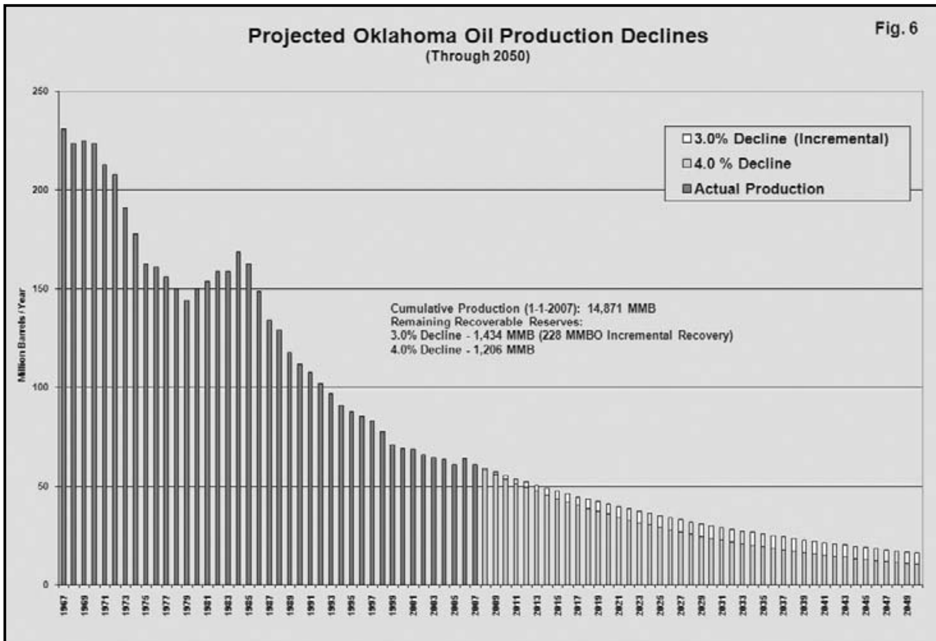

Figure 6. Projected Oklahoma oil production using 3.0 and 4.0% annual declines through 2050. Both cases end with the average well producing less than ½ BOPD. This suggests the ultimate oil recovery for the State will be slightly more than 16 BBO.

Defining Oklahoma's Oil Resource

Procedure

The task of determining the volume of oil that was originally in-place is daunting. The State contains tens of thousands of separate oil accumulations, at depths from a few hundred to more than 11,000 feet, located in thousands of fields scattered across almost every county. This oil resides in hundreds of named reservoir-intervals of every description, trapped in every conceivable trap type, and produced through a variety of natural and artificial drive mechanisms. Given such complexity, the key is simplification. This begins with the placement of all oil reservoirs into three major classes: Blanket Sandstones (BS), Carbonate Shelves (CS), and Fluvial-Dominated Deltaic Sandstones (FDD). These correspond to what the Department of Energy calls Strandplain\Barrier, Shallow Shelf\Open, and Delta\-Fluvial Dominated reservoirs (U. S. D.O.E., 1993).

To draw statistically meaningful conclusions, reservoir, fluid, and related data were gathered on as many oil accumulations as possible. Because of the time necessary to produce these data from scratch, and because so much excellent work has already been done, information was acquired primarily through studies available in the literature. Although those with volumetrics were the most useful, valuable data were gleaned from work from even in the earliest days of the industry, where oil/gas analyses, initial rate and GOR, cumulative production by reservoir, and production techniques were noted. The best reservoir descriptions, including core-derived porosity/permeability, begin in studies from the late 1940s, with volumetric analyses becoming routine by the mid-1950s. The quality of the work in these studies was generally quite good, and even those with missing data or ambiguous results contributed valuable information.

The data recorded include general location information, reservoir property and trap information, fluid properties, production and volumetric calculations, and information concerning the study type and issues affecting its applicability. The studies originated from a variety of sources, including 1) the Oklahoma Geological Survey, 2) publications from the AAPG, the Journal of Petroleum Technology, and the Oil and Gas Journal, 3) professional groups, including the Oklahoma City, Tulsa, Ardmore, and Panhandle Geological Societies, 4) governmental studies from the US Bureau of Mines, the USGS, the Department of Energy, and the Oklahoma Academy of Science, and finally 4) theses and dissertations from OU. Where possible, these data were compared to those published in the TORIS database (U.S. Dept. of Energy, 1984).

Each of the 225 studies examined had useful information, but the volumetrics and recovery factors in many were unusable. For these the most common disqualifier was the inability to confirm production, either because of missing data, or because the productive area had increased to the

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point that the study's volumetrics had become meaningless. Many excellent field studies had to be excluded from recovery factor statistics because cumulative production quoted from original operator records, often from the 1950s or '60s, was much more than that shown in the latest IHS data. For fields in which production was shown as commingled, production was only assigned to leases in which the reservoir under study was listed first. Of the studies with volumetrics that were reviewed, roughly half (123) had verifiable production (BS-24, CS-25, FDD-74) (**Figure 7**). (Appendix). The recovery factors quoted are based on these studies.

The three reservoir types, although very broad, are useful in defining some of the most fundamental factors affecting oil recovery. These include subsurface geometry, reservoir heterogeneity, pore volume, porosity type(s) and permeability. The impact these factors have on fluid movement through the reservoir helps determine drive mechanism, and ultimately recovery factor. By comparing oil fields with similar trap types and reservoirs it becomes possible to assign an 'ideal' recovery factor to similar fields based on the results of those that performed the best. In a review of this nature, it is impossible take into account all of the variables that can affect recovery factor. However, general rules of thumb can be drawn for common reservoir/trap types that can help identify under-performing fields throughout the State.

Blanket Sandstones (BS) refer primarily to the Ordovician-age Simpson reservoirs, which are clean, well-sorted, high quality sandstones. These include the Bromide, McLish, Oil Creek, Tulip Creek and Wilcox Sandstones (Fig. 8). A single Misener study was included in this group because, although aerially restricted, it is composed of eroded Simpson-age sandstones with similar porosity and permeability (Appendix). Blanket sandstone reservoirs generally have high porosity and excellent permeability. They are laterally continuous, and as a result, trap only on structural highs. Their drive mechanism is dominantly solution gas drive, with varying degrees of water support. Water movement is dependent on how much reservoir below the oil/water contact is in communication with the oil trap, which in these laterally continuous reservoirs is usually controlled by faulting off-structure.

Carbonate Shelf (CS) reservoirs studied are limestones and dolomites ranging in age from the Cambro-Ordovician Arbuckle dolomite to the Mid-Pennsylvanian Oswego Limestone. The most important producers in this category are the Arbuckle, Hunton and various Mississippian limestones. Carbonate reservoirs are often stratigraphically trapped along the regional truncation of a porous facies, but where porosity is pervasive they can also be found structurally trapped. Carbonates are often dual-porosity reservoirs in which a low porosity/permeability matrix is enhanced by dissolution features (molds, vugs, and caverns) and fractures. The dissolution features and fractures greatly increase wellbore access to the lower permeability matrix that would otherwise not be of reservoir quality. A single Arkansas Novaculite study was included in this group because of its similar dual-porosity system and production characteristics (Appendix).

Fluvial-Dominated Deltaic (FDD) reservoirs are by far the most important group in Oklahoma. They are Pennsylvanian and Permian in age, with the most productive being the Bartlesville, Deese, Morrow, and Red Fork. They are a diverse group of sandstones which, although mostly deposited as channel-fills (distributary channels and incised valley-fills), also include overbank splays and various types of marine-reworked deltaic sandstones, including distributary mouth bars and tidal channels. Reservoir quality is highly variable, with the various channel-fill sandstones being by far the best. The defining characteristic of FDD reservoirs is their limited aerial extent and a complex subsurface plumbing system. For this reason, although structure can sometimes influence the trap, even FDD reservoirs occurring on structural highs have a strong stratigraphic component. Like the BS reservoirs, the drive mechanism tends to be solution gas drive, but with little or no water support (**Figure 8**).

The published findings were generally taken at face value, under the assumption that in a large sample there should be an equal tendency to overestimate as underestimate any particular parameter affecting volumetric calculations. There were several cases in which all of the key vari-

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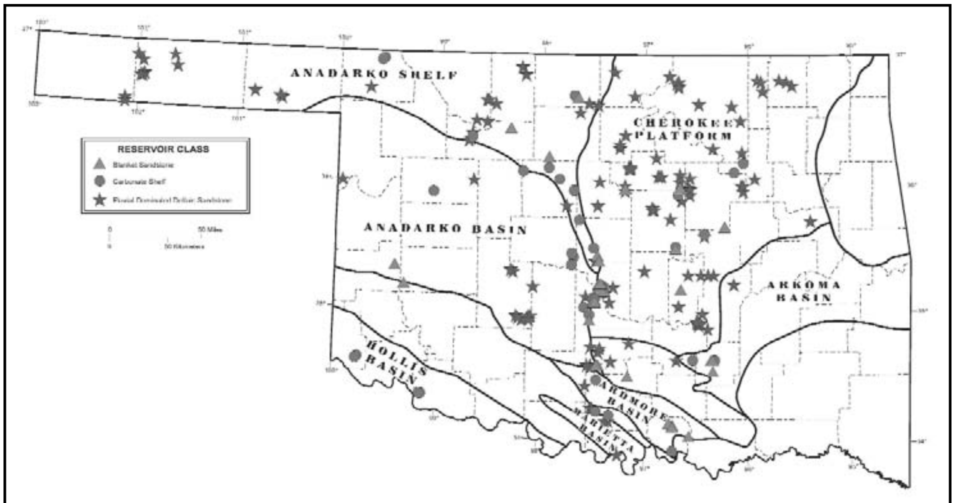

Figure 7. Map showing major geologic provinces and the location and reservoir class of the reservoir studies that were analyzed in this report.

SYSTEM	SERIES	GROUP	RESERVOIR CLASS (BS) Blanket Sandstone	RESERVOIR CLASS (CS) Carbonate Shelf	RESERVOIR CLASS (FDD) Fluvial-Dominated Deltaic Sandstone
Permian	Leonardian	Sumner			Fortuna, Wichita, Noble-Olsen
	Wolfcampian	Chase			
		Council Grove			Wolfcamp, Beasley
		Admire			
Pennsylvanian	Virgilian	Wabaunsee			
		Shawnee			
		Douglas			Tonkawa, Swastika
	Missourian	Ochelata		Lansing	Healdton, Osage-Layton, Hoxbar
		Skiatook		Missouri Lime	Layton, Wade, Burns-Brundage, Medrano, Cleveland, Marchand
	Desmoinesian	Marmaton		Oswego	Deese
		Cherokee			Prue, Senora, Skinner, Gibson, Dora, Red Fork, Hart, Bartlesville, Osborn, Booch
	Atokan	Atoka			Gilcrease, Muskogee
	Morrowan	Morrow		Union Valley	Morrow, Keyes, Cromwell, Kelly
	Springeran	Springer			
Mississippian		Chester		Manning (Ark. Novaculite)	
		Meramec		Meramec, Sycamore	
		Osage		Osage, Miss. Chat	
Devonian			(Misener)		
Silurian		Hunton		Hunton	
Ordovician					
		Viola		Viola	
		Simpson	Bromide, Wilcox, Tulip Creek, McLish, Oil Creek		
		Arbuckle		Arbuckle	
Cambrian					
Pre-Cambrian					

Figure 8. Generalized Oklahoma stratigraphic column highlighting the oil reservoir classes and the names of those reviewed in this report.

ables necessary to estimate OOIP were provided, but the calculated recovery factor turned out inordinately high. For some the calculated recovery factor was multiples of the reservoir class average, such as an FDD reservoir with more than a 70% recovery factor. Anomalies could usually be traced to the addition of zones within the reservoir interval, or an expansion of the productive area since the study date. Reservoir and other data from these studies were still valid, but these fields were omitted from recovery factor statistics. Although disqualifying studies in which the recovery factor was deemed too high may introduce a systematic error that would tend to underestimate recovery factors, smaller scale commingling in those studies that were used should tend to cancel this potential bias.

This analysis is predicated on a number of key assumptions. The first is that the fields and reservoir studies that were reviewed represent a statistically representative cross-section of those that exist throughout the State. Also, because the work of dozens of geologists has been used, one must assume that the studies are of equal quality and that there is no systematic bias that would tend to over- or underestimate recovery factors. As will now be discussed, the largest source of uncertainty in this analysis is not in the pore volumes calculated, but in the oil produced.

Challenges

There were many challenges associated with a project of this scope, but by far the most serious involves data availability, especially early production data. The best publicly available database in Oklahoma is that compiled and maintained by IHS Energy. Their monthly oil production data begins in 1970 and their well database has records for about 490,000 wells. The State database (NRIS), which is offered online by Oil Law Records, begins monthly oil production in 1979 and has records for about 455,000 wells. The total number of wells drilled in Oklahoma is believed to be well over 500,000. Because of its earlier start date for monthly production and larger number of well records, the IHS Energy database was used to confirm and update production for the studies that were reviewed.

Unfortunately, even the IHS Energy database has serious shortcomings, most of these due to circumstances beyond their control. Because the State has not consistently distinguished condensate from oil, all volumes quoted as oil refer to total hydrocarbon liquids. If the average condensate yield for all Oklahoma gas reservoirs is 5 barrels per MMCF, this would amount to roughly 500 MMBC lumped into the gross oil production volumes. While this is a large volume, it still represents only about 3% of the total liquid hydrocarbon production for the State.

There are other, more serious production data issues. Using Tax Commission data, the Oklahoma Corporation Commission has compiled annual, Statewide 'oil' production volumes since 1900 and annual volumes by county since 1975. These official numbers show a cumulative recovery of 14.871 billion barrels (Soltani, 2008). Total liquid hydrocarbon production in the IHS Energy database, including the 'beginning cums', which refer to production prior to 1970, is 12.935 BBO (IHS Energy, 2008). The missing 1,936 MMBO, representing 13% of State production, is not accounted for in any digital database. Fortunately, a random comparison of IHS to Vance Rowe (hard copy) production in fields that appeared to be underreported confirms that much

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of the 'missing' oil is carried by Vance Rowe.

An additional 2,995 MMBO, or 20% of State production, was produced from wells in which the cell identifying the productive reservoir is either blank or marked 'Unknown'. IHS Energy does record multiple reservoirs for wells in which more than one reservoir was listed by the operator. This has helped identify the source of some commingled production. However, for 383 MMB of production, or 3% of State production, the official reservoir name is 'Commingled'.

Another production data problem relates to oil produced from secondary/enhanced recovery units, usually waterflood units. Here the State has no requirements regarding water injection or production, only requiring operators to report the total monthly (oil-gas) volume for the entire unit, regardless of its size. With operator records now largely lost, this has made it all but impossible to identify areas in larger waterflood units where producible volumes of unswept oil may still reside. This policy has resulted in a single quarter-quarter section in Cushing Field assigned a cumulative production of 425 MMBO, and one at Burbank with 315 MMBO (IHS Energy, 2008).

Thus, in the most complete production database in the State, a total of 5,314 MMB, or 36% of total production, is either missing or has no reservoir identified. This has made it nearly impossible to determine cumulative recoveries or calculate recovery factors for fields that were the subject of many excellent studies. Often cumulative production shown through the date of the study, usually in the 1950s or 1960s, and provided by the operator, is many times that shown by IHS as the cumulative production through 2008. Such studies could not be used in recovery factor statistics.

Results

With a 16 BBO estimate of ultimate oil recovery, the next step is to determine the OOIP volume from which this production has or will come. Because recovery factors vary with reservoir type, this involves apportioning cumulative production into one of the three reservoir classes described previously. This fixes the relative contribution of each class, which combined with an average recovery factor based on field study statistics, makes it possible to calculate an overall OOIP.

Classifying each Oklahoma oil reservoir into one of three reservoir classes at first seems overwhelming. The N.R.I.S. listing of productive reservoirs includes about 7,500 names, exactly as reported (and spelled) by operators. Even IHS Energy, which has streamlined this list, still has over 3,000 named reservoirs. Luckily, the vast majority of oil reservoirs have fewer than a handful of completions, and with this in mind, only those reservoirs with at least 10 completions were counted. Commingled completions, where the individual reservoirs were identified, had their production assigned to the first reservoir listed.

There are only 167 reservoirs with at least 10 oil completions, and although they represent a small percentage of the total named, they account for over 98% of the 9,280 MMBO assigned to specific reservoirs (IHS Energy, 2008). There are 6 BS, 36 CS, and 125 FDD reservoirs with at least 10 oil completions. By summing their production it was found that BS reservoirs accounted for 17.5%, CS reservoirs 18.5%, and FDD sandstones 64.0% of the State's cumulative production that is assigned to a specific reservoir (**Figure 9**).

If it is assumed that unassigned and missing production is of a roughly equal proportion, the actual cumulative production for the three reservoir classes to date is: 2,592 MMBO for BS reservoirs, 2,740 MMBO for CS reservoirs, and 9,478 MMBO for FDD reservoirs. If the wells producing from these reservoirs decline at roughly the same rate, they should also make up the same proportion of the ultimate oil recovery. Thus, given current trends, roughly one sixth of Oklahoma's ultimate oil recovery will come from BS reservoirs, one sixth from CS reservoirs, and two thirds from FDD reservoirs. This may actually understate the relative importance of FDD reservoirs to Oklahoma, as much of the unassigned production, which was produced mostly in the early years, was from the shallower FDD reservoirs.

In addition to collecting data on all of the variables affecting volumetric calculations, a great deal of other information was also gathered. In this way, studies that had incomplete or unverifiable information concerning volumetrics could make valuable contributions in other areas. The following is a brief summary of some of the geological/engineering findings that

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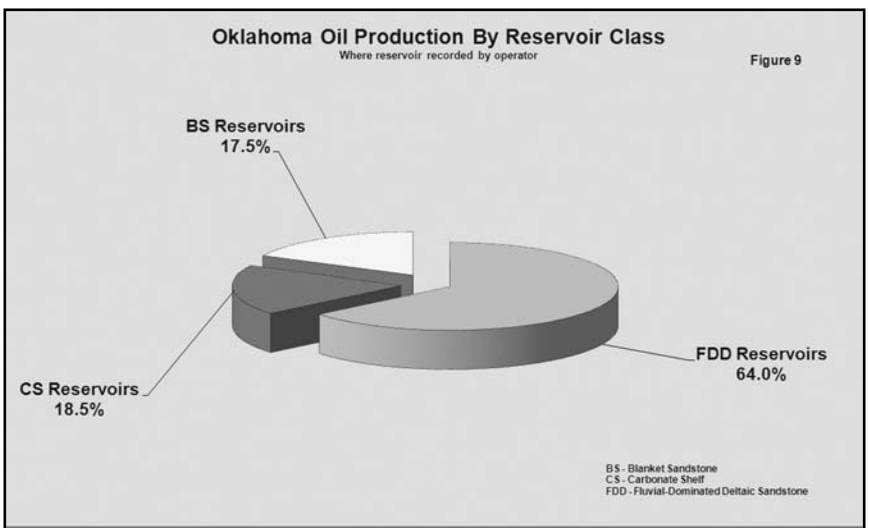

Figure 9. Oklahoma oil production by reservoir class.

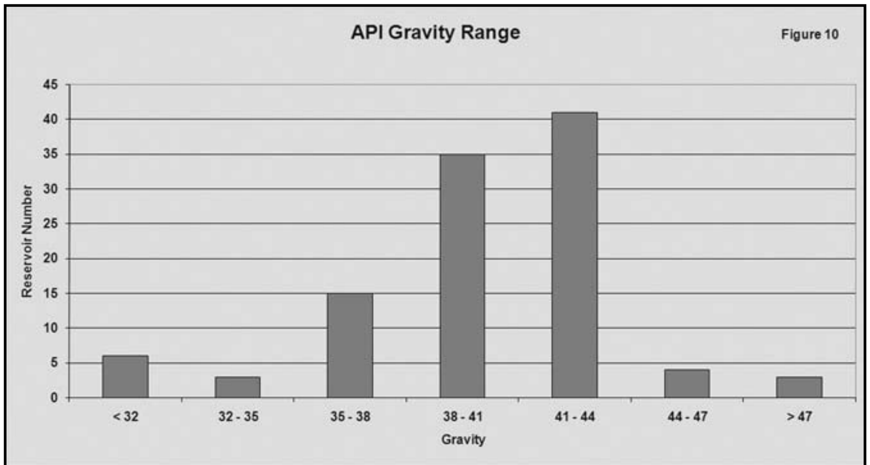

Figure 10. API gravity range for the studies analyzed in this report. The higher values probably have a component of gas condensate.

were gathered from the 225 oil field studies that contributed in some way to this report.

In the studies reviewed reservoir depths ranged from 720' to 11,400', with the vast majority between 3,000 and 9,000'. For those giving an initial reservoir pressure, it was found that two thirds began at or near hydrostatic (0.43 psi/ft.), or 'normal' pressure. The remaining third were mostly underpressured, with most of these located on the Anadarko Shelf. The few that began overpressured were mostly in the Anadarko Basin. It was rarely indicated whether the initial reservoir pressure was measured directly or calculated from the shut-in tubing pressure. Those that were calculated will tend to underestimate the true bottom-hole pressure, and this may account for some reservoirs that appear to have started underpressured.

Regarding fluid properties, as stated earlier, the weighted average for the iGOR was 665 scf/Bbl. The distribution of oil gravity ranges from a low of 20o API to a high of 50o API, with most values between 37o and 42o API (**Figure 10**). Taking the published numbers at face value, the average gravity for the oil in the studies reviewed was 39.6o API. However, any values in the mid-40s and higher are likely in part condensate, which if discounted, would reduce the overall average. Regardless of any possible inconsistencies, the bulk of the crude oil found in Oklahoma is high-quality, very light, and began with ample dissolved gas.

Reservoir statistics, which were only core-derived, quantitatively highlight some of the differences between the three reservoir classes. Although they were deposited in different environments, BS sandstones and FDD sandstones have similar porosity distributions. The FDD reservoirs are more numerous, but the average porosity in their oil pay, at 16.2%, is very close to the blanket sandstone's 15.2%. The porosity distribution (matrix) for CS reservoirs, as well as their average porosity of 7.9%, is much lower than that of the other two reservoir classes. In fact, without the dissolution/fracture component, many of these would not be of reservoir quality (**Figure 11**).

Core permeability values were recorded in many of the studies that were reviewed, and here the two sandstone reservoir classes differ. The FDD reservoirs were deposited mostly as channel-fills and therefore contain more fine-grained material than the well-winnowed blanket sandstones. Although the FDD sandstones can be as permeable as the BS, their average permeability is 68 md, compared to 121 md for BS sandstones. The CS reservoir's distribution is somewhat bimodal, with all but three reservoirs having very low permeability. The 21 md average is misleading because it applies to only what can be effectively measured from core i.e.: matrix permeability. In the subsurface this lower matrix permeability can be greatly improved by dissolution features and especially fractures; both natural and artificial (**Figure 12**).

Oil in the Ground

Recovery factor ranges were calculated for each of the three reservoir classes. These are based on the studies in which the OOIP was given or where enough critical information was given to calculate the OOIP. In those cases where the initial oil saturation or formation volume factor was not given, these values were estimated based on comparisons to analog fields. (OOIP = Area in acres x Thickness in feet x Average Porosity % x Average Initial Oil Saturation % x

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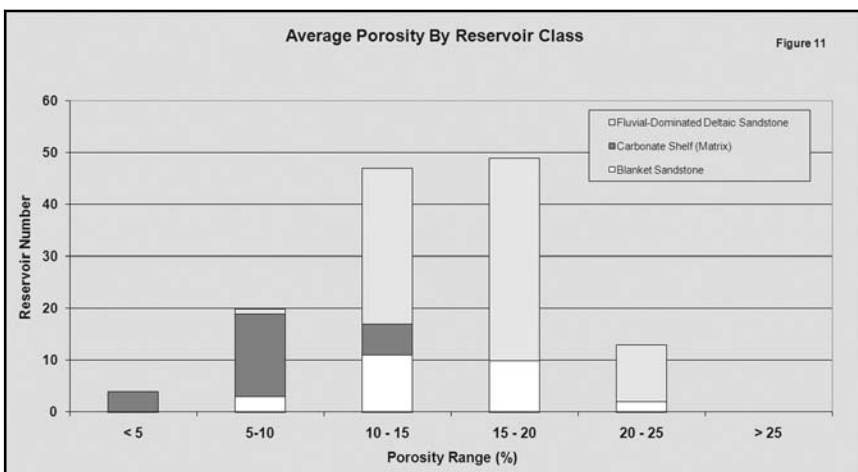

Figure 11. Average porosity by reservoir class. Values are core-derived averages of the productive part of the reservoir for the studies analyzed in this report.

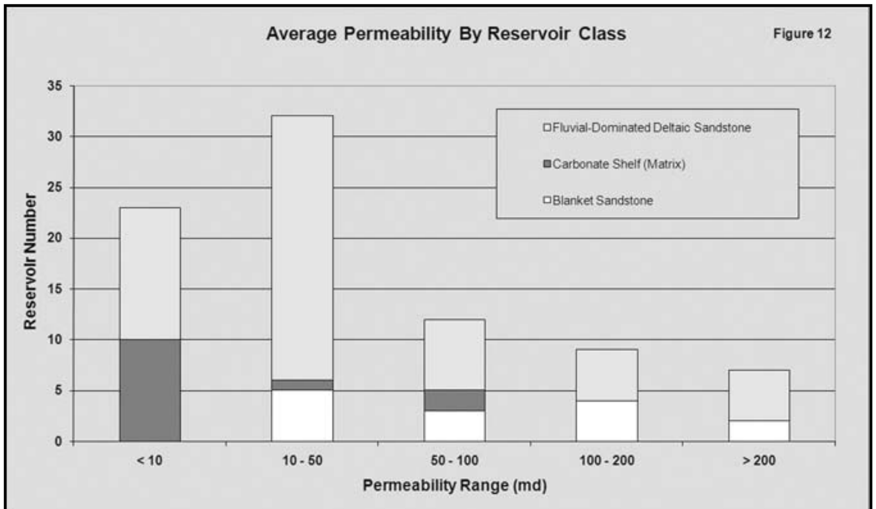

Figure 12. Average permeability by reservoir class. Values are core-derived averages of the productive part of the reservoir for the studies analyzed in this report.

7,758 Barrels per Acre-Foot / Formation Volume Factor in Reservoir Barrels per Stock Tank Barrel).

For each of the studies reviewed the EUR was calculated by maintaining the last month's production flat for 8 years and adding this to cumulative production (**Figure 13**). This simplistic approach, because of almost universally low production rates, seldom left more than a few percent of the EUR left to produce. However, if oil prices can keep wells economic and producing significantly below 1/2 BOPD, this estimate will be somewhat conservative. Because EUR is a fraction of OOIP, an error of a few percent in the EUR will have a minimal impact on the overall recovery factor.

The recovery factors that were calculated for fields in each of the three reservoir classes varied considerably, in some cases due to the nature of the reservoir, in others because of how it was produced. Carbonate shelf reservoirs tend to concentrate on the lower end of the recovery scale, while the blanket sandstones stand out in the higher ranges. Average recovery factor values for each reservoir class were weighted by dividing the summed EURs by the summed OOIPs. This gives larger fields, which account for the bulk of production, more weight than the more numerous small fields. This weighting should give a more representative picture of the average recovery factor for the three reservoir classes. The higher level of attention focused on larger fields could also give them better recovery factors than similar reservoirs in smaller fields. The following are the average ultimate recovery factors calculated for Oklahoma's major reservoir classes: Blanket Sandstone - 44.1%, Carbonate Shelf - 10.0%, and Fluvial-Dominated Deltaic Sandstone - 21.2% **(Figure 14)**.

Assuming that recovery factors from the oil reservoirs in this study are representative of those throughout the State, it becomes possible to calculate an OOIP for all of Oklahoma. Based on the proportionate share of total production of the three reservoir classes stated above, the aggregate recovery factor for all oil reservoirs in the State is about 19.0%. This yields an OOIP for the State of 84.2 BBO, with 68.2 BBO projected to still be in the ground at abandonment. This assumes a continuation of the current production decline until an ultimate recovery of 16.0 BBO (an additional 1.1 BBO) is reached. Clearly, any program that can yield even a small percentage of the oil left behind has the potential to dramatically increase the State's EUR (**Figure 15**).

Because every oil accumulation is different, even in the same reservoir class, a wide range of recovery factors are possible. In BS reservoirs with high permeability, if the structure is unbroken and water support strong, recovery factors well over 50% are possible. Despite this, about half of the studies reviewed calculated recovery factors of less than 30%, often substantially less. In some cases this reflected poorer reservoir quality, but more often occurred in structurally complex fields. Unlike unbroken structures that are essentially self-flooding, these tended to have weaker water support and a higher probability of undrained fault-blocks or missed attic oil.

In the CS reservoirs, where matrix porosity and permeability are relatively high and secondary porosity in the

(Continued)

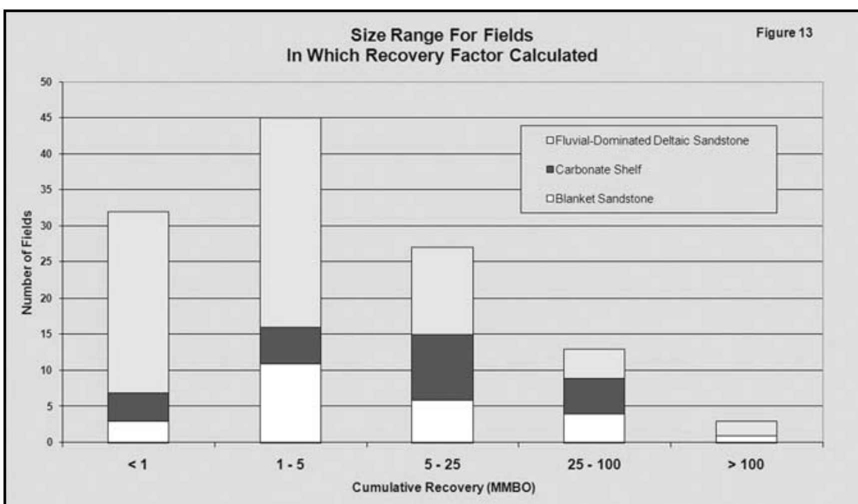

Figure 13. Size range, in MMBO of cumulative recovery, for fields in which recovery factor was calculated.

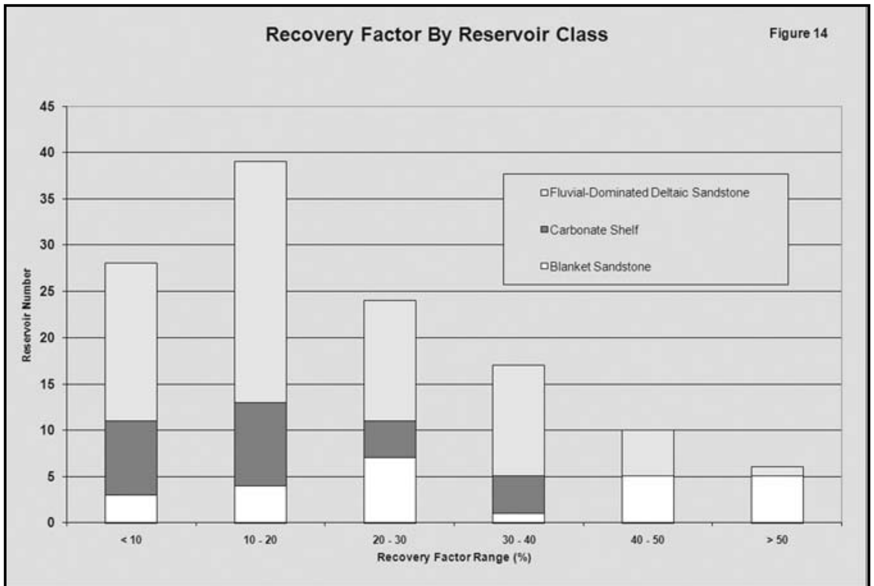

Figure 14. Recovery factor by reservoir class for fields in which recovery factor was calculated.

form of vugs and fractures are abundant, recovery factors of over 35% were recorded after waterflooding. However, about half of the studies reviewed had recovery factors of less than 15%. For many of these the oil produced appeared to have come mostly from the secondary porosity system, with little input from the poorer quality matrix. For those fractured carbonate shelf reservoirs with poor quality matrix, production usually started very strong, but declined dramatically within a few months. A de-watering program designed to reduce reservoir pressure and force matrix oil into the fracture system may be able to substantially improve recovery in some of these.

The largest reservoir class in Oklahoma is the FDD sandstones. They account for about two thirds of the OOIP, and have recovery factors that range from 52% to less than 5%. Stratigraphically they are by far the most diverse class of reservoirs, ranging from multi-story channels fills more than 200' thick with 25% porosity and darcies of permeability, to overbank splay or mouth bar sandstones a few feet thick that can barely flow oil. The majority of those studied in the literature were the higher quality FDD reservoirs, i.e.: channel-fill sandstones, where the better recoveries after waterflooding range from 32% to 44%. For most of the FDD channel-fill oil reservoirs a typical scenario involves primary production of 10 to 15% of the OOIP, followed by secondary (waterflood) recovery of an additional 10 to 15%. In cases where flow barriers are minimal and sweep efficiency is good, even higher recoveries are possible. For the roughly half of FDD channel-fill reservoirs in which the estimated recovery factor is less than 20%, a more detailed review is certainly warranted.

In spite of the rather arbitrary cutoffs quoted, a review of oil reservoirs for improved recovery should not be restricted to those below a particular recovery factor. Rather, on a first pass screening, BS reservoirs with less than 30%, CS reservoirs with less than 15%, and FDD reservoirs with less than 20% are obvious candidates for a closer look. Few of the studies reviewed quoted irreducible oil saturations or movable oil volumes. However, with the three reservoir classes leaving behind 56% to 90% of the OOIP, in most cases the critical issue should not be the volume of movable oil.

There are many ways in which the results cited here could be somewhat inaccurate. However, because of the overall quality of the studies on which the statistics in this report is based, there is little doubt that if trends continue, a very large volume of producible oil will be left in the ground at abandonment. A number of these studies were able to accurately predict ultimate recovery (primary + secondary) only a few years after the discovery of a field. Some, often with the help of a reservoir simulation, made recommendations concerning how to improve recovery, including changes in the injection pattern, re-completions, or new wells that, despite large incremental recovery estimates, were never implemented. Some fields were waterflooded, while others that appeared analogous, were not. In others the flood response was weak or delayed, indicating poor sweep. For

(Continued)

Figure 15 **Oklahoma Original and Remaining Oil In-Place Volumes (MMBO) By Reservoir Class**

Reservoir Class	% of Cum Prod	E.U.R. (Max)	Average Recovery Factor	1/RF%	OOIP	Rem OIP
BS	17.54%	2,806	44.1%	2.27	6,370	3,564
CS	18.43%	2,949	10.0%	10.00	29,490	26,541
FDD	64.03%	10,245	21.2%	4.72	48,356	38,111
Total	100.00%	16,000 (1-1-2008 Cum = 14,871)	<<<< Aggregate 19.0% >>>>		84,216	68,216

Figure 15. Table showing Oklahoma original and remaining oil in-place volumes (MMBO) by reservoir class. Share of cumulative production based on proportions of IHS Energy production assigned to specific reservoirs. OOIP volumes assume same recovery factor for all production from that reservoir class and are based on an EUR of 16 BBO.

Figure 16

Incremental Oil Possibilities For Three Arbitrary Average Recovery Factors*							
		Avg RF (Max)		Avg RF (Intermediate)		Avg RF (Min)	
Reservoir Class	Avg RF (Actual)	RF	Incr Oil	RF	Incr Oil	RF	Incr Oil
BS	44.1%	50.0%	376	47.5%	217	45.0%	57
CS	10.0%	20.0%	2,949	15.0%	1,475	12.5%	737
FDD	21.2%	30.0%	4,255	25.0%	1,838	22.5%	629
Total			**7,580**		**3,530**		**1,423**

* - In MMBO

Figure 16. Table showing incremental oil recoveries given three possible increases in average recovery factor for three reservoir classes.

many, the field that was studied significantly under-performed relative to analogous reservoirs under similar conditions.

If the studies evaluated here are even remotely representative of the State as a whole, the possibilities for improving oil recovery seem nearly endless. Although economics were not considered, a large percentage of the fields reviewed, in all three reservoir classes, appeared to have significant improvement potential. High quality seismic is an important component in evaluating most BS or structurally trapped CS reservoirs. Overall, the best possibilities are in the FDD reservoirs, which represent the largest volume of remaining oil, and where complex stratigraphy has created a subsurface plumbing system that can be difficult to unravel.

What can ultimately be produced is impossible to predict, but if the average recovery factor for each reservoir class can be improved, it is possible to calculate a range of possibilities. If average recovery factors in each reservoir class are increased to 'ideal' levels (BS- 50%, CS- 20%, FDD- 30%), which are based on the results in some of the better performing fields, the incremental increase over current projections are BS-5.9%, CS-10%, and FDD-8.8%. This case yields an incremental recovery of over 7.5 BBO, or about half the current State EUR. Although technically possible, this is shown only for comparison and is not considered realistic. Though, when starting with a remaining OIP of 68 BBO, even very modest improvements to average recovery factors generate large volumes of incremental oil. This is illustrated in the minimum case scenario in which the average net improvements in recovery factor over current projections are: BS-0.9%, CS-2.5%, and FDD-1.3%. In this example, where all recovery factors are significantly below levels that are routinely achieved in the better managed fields, the incremental volume of producible oil is still a staggering 1.4 BBO (**Fig. 16**).

Recommendations

It is fitting, as the State begins its second century, that a concerted effort be initiated to revitalize production of the resource that led to Statehood. To accomplish this, steps must be taken to enable operators to identify where it is possible to economically recover oil that will otherwise be left in the ground.

Data

Oklahoma's historically hands-off attitude towards oil and gas data has created a situation in which service companies and geologic societies have become the main repositories for these data. A program called Energy Libraries Online Inc. (ELO), founded by the Oklahoma City Geological Society and The Oklahoma Well Log Library, is now underway. This online reference library will eventually contain scanned images of virtually all of the hard-copy data now housed in these two libraries, as well as those housed in Ardmore Geological Society Library and the State oil and gas data that are maintained by the Oklahoma Geological Survey at the Oklahoma Petroleum Information Center.

Even the best organized and maintained hard-copy collections cannot compare to digital databases. In addition to their ability to archive irreplaceable documents, they bring together the many, disparate data elements that earth scientists need to evaluate oil and gas in the subsurface. The ELO database will put in one place scout cards, completion data, well logs (including strip, electrical, and mud logs), and production data. In addition to organizing and archiving all subsurface data in one place, one of the most important benefits the ELO system will bring to operators is access to early production data, scout information and strip logs, which today is difficult to impossible.

Energy Libraries Online requires financial support for this important work to be carried out, so this report would not be complete without a recommendation, directed at anyone that can see the value of this effort, to make a contribution. With such persuasive evidence that significant volumes of producible oil are going to be left in the State's oil fields, little more needs to be done than to give the industry the tools necessary to find it. If access to these data increases oil-targeted drilling and production, every facet of the State economy will receive a boost. Beyond energy, the ELO effort will also assist Oklahoma scientists in other areas of vital research, including the study of groundwater resources and environmental issues.

<u>Production</u>

The lack of early production data is a major roadblock to operators seeking to revive old fields. IHS Energy data are severely handicapped by the nearly two billion barrels of missing production mentioned previously, and monthly data that begins in 1970.

(Continued)

The inability to obtain monthly production data from inception, and thereby reliably assign cumulative production on a lease basis, is one of the largest impediments to finding substandard recoveries and thereby producing additional oil. Drilling and secondary/enhanced recovery activity is easy to identify with complete monthly production data. However, because 70% of Oklahoma's oil was produced before 1970, in most of the fields that were examined the 'beginning cum' number dwarfs the volume on which monthly production is shown. Thus, the production curve usually shows little more than the tail of a decline that began long before 1970.

Complete production data do exist on microfilm and microfiche at the Oklahoma Tax Commission, but these records also include confidential tax data, and therefore are unavailable for large-scale, public use. (Limited lease production requests can be filled on a case by case basis by OTC personnel.) Hard-copy monthly lease production data from 1935 have been available at the Oklahoma City and Tulsa Geological Society libraries in their collections of Vance Rowe production books. These monthly production values will be hand-entered into a digital database and be available online through the ELO system.

Because Vance Rowe production begins nearly 40 years after production began in Oklahoma, these data may not completely solve the State's oil production issues, but they will vastly improve the situation. They will help put most of the State's oil production into a monthly framework, and hopefully find a home for much of the missing 2 BBO of production. This will make it possible to review detailed production histories and verify cumulative production for many more fields than is possible now. It will also make it possible to calculate reliable recovery factors and more easily identify and high-grade improved oil recovery candidates. Without reliable production data an operator runs the risk, especially in an older field, that the incremental oil being sought has already been produced.

Strip Logs

The Oklahoma Geological Survey is the final stop for most of the hard-copy data used by the State's oil and gas industry. In addition to the hard-copy 1002A forms, it is also the repository for the electric logs submitted by operators to the State. It is estimated the Survey has paper electric logs for about 365,000 wells. Most of these are available through service companies in digital format. However, a key dataset that has been unavailable to the industry is the State's collection of approximately 100,000 hand-drawn strip logs. These are one of the first datasets scheduled to be scanned and should be available online in the near future.

In the days before rotary drilling and the requirement for drilling mud, wells were drilled using cable tool rigs. Cable tool wells have only air in the hole, creating an essentially continuous DST in which anything less than oil-to-surface was considered a dry hole. This made it impossible to run electrical logs, so operators recorded the subsurface formations penetrated on what is called a 'strip log'. These logs vary in what they contain and the detail in which it is recorded, but most record depth, lithology, fluid type, shows and initial potential. For some of these, there is no API number or well spot, making a single, narrow strip of yellowing paper virtually the only record of that particular well.

Rotary drilling was invented in the late 1920s and became the dominant drilling technique by the mid-1930s. Although the evolution to rotary drilling was gradual, if one assumes that every well drilled prior to January 1, 1935 was drilled with a cable tool rig, then about 104,000 Oklahoma wells, of which 62,000 were oil wells, were drilled using cable tool rigs (IHS Energy, 2008). Based on this, strip logs represent the only subsurface data for over one quarter of the State's oil wells and one fifth of all of the wells ever drilled. While these do not have the utility or resolution of electrical logs, when used with more modern logs they can dramatically improve subsurface control. This is especially true in areas where early drilling predominates, which includes every major area where oil is produced. It is not known how many of the early cable tool wells are represented in the combined strip log collections of the OCGS, TGS, AGS and the OGS. This is because duplicates were created when more than one geologist or driller looked at the cuttings. However, without doubt the vast majority should be represented.

Operators

The recommendation to operators is simply 'Don't give up on oil'. Poor field management in the early days, complex reservoirs, diverse ownership, and a lack of basic well and production data have combined to leave, even at this late stage in the industry, large quantities of moveable oil in the ground. If the studies evaluated in this article are indicative of those throughout the State, the economically remaining producible oil volume is very large. The primary hurdle, and it will remain a large one, is in identifying it. After that, the techniques recommended here for its production tend to be decidedly low-tech: new wells, water in the ground in new or modified waterfloods, or water out of the ground in dewatering operations.

A great deal of the secondary recovery work done thus far has been piecemeal. Except in the largest fields, there has been little coordination between operators and undoubtedly little detailed, field-wide reservoir simulation work. A map of the waterflood unit boundaries in the NRIS database (those active since 1979) shows an irregular patchwork of secondary recovery projects that overlay less than half of currently producing oil leases in Oklahoma. Based on the field studies carried out by the OGS, many of these waterflood units have been subdivided into smaller areas that are operated in isolation and at

(Continued)

cross-purposes with the management of adjacent units. In the survey of field studies in this review it was found that many had muted and/or delayed responses to injection that clearly show that sweep efficiency was poor.

A technique that has shown promise in some clastic, and especially carbonate dual-porosity reservoirs is called 'de-watering'. It works best in fractured rocks with low matrix permeability where there is significant down-dip water, but it can also be effective in clastic reservoirs with thick transition zones or where high and low permeability zones are juxtaposed. Such reservoirs often have very low recovery factors because only the oil stored in the high permeability part of the dual porosity system (usually secondary porosity) is drained. After this the oil rate drops dramatically, with little loss in reservoir pressure, as water rises through the reservoir. Although the lower permeability (matrix) component of the reservoir is still largely undrained, most operators will give up at this point. However, with sufficient water pumping and disposal capability one can reduce the reservoir pressure until the associated gas in the unproduced oil expands. This oil can then be pushed into the fracture system and ultimately the wellbore. In West Carney Field the dewatering technique took a Hunton (CS) reservoir with cumulative production of just 38 MBO and 0.5 BCF to one with reserves of 2.2 MMBO and 16 BCF (Chernicky, 2002a). A number of the low recovery CS reservoir field studies showed production curves strongly suggestive of a dual porosity system that might lend themselves to this recovery technique.

New Dominion L. L. C., a leader in the de-watering technique, has also had success in a Red Fork (FDD) reservoir in Mount Vernon Field. Here aggressive water production and the resulting drop in reservoir pressure has allowed associated gas in intervals of low permeability and high water saturation to push oil into larger pore systems and fractures. In this field incremental recovery was increased 1.26 MMBO + 18.5 BCF + 1.77 MMBC (Chernicky, 2002b).

There are a variety of more exotic improved recovery options that may be viable in selected areas. The injection of gas, microbes, detergents, surfactants, as well as in-situ combustion techniques have all been applied with varying degrees of success. CO2 injection has received much press recently, often in the dual role of both oil enhancement and sequestration. However, while there are a handful of fields in which CO2 is being used successfully to enhance oil recovery, its widespread use should be viewed with caution. Because of the many old and undocumented wells in most of the oil producing areas of the State, issues of cross-flow into other reservoirs, including aquifers, as well as surface leakage will likely be persistent problems.

Any systematic effort to identify underachieving oil reservoirs in Oklahoma will be manpower intensive and require collaboration between engineers, geologists, and landmen. Areas where original operator records are available (especially those showing pressures and water production) are ideal, but certainly in most areas an incomplete data set will add an element of risk to any improved recovery project. Drilling, log, completion, and production data for Oklahoma are scattered, with some existing only in hard-copy. Access to these data will be greatly facilitated with the completion of the ELO system, which will bring almost all hard-copy data to one place, in a digital format. Even more important will be the addition of two major datasets that are not yet accessible, but critical to the effort described in this report. These are the Vance Rowe production data, which will push monthly production records back to 1935, and the State's major strip log collections. ELO will help to fill critical gaps in our knowledge and greatly facilitate the search for underachieving oil reservoirs.

Conclusions

Oil production in Oklahoma has fallen almost continuously since 1984, with record prices in the last several years having a minimal affect on the long-term decline. Although large oil discoveries are no longer possible, huge volumes of producible oil are waiting in thousands of existing fields. Early production practices (which allowed for the flaring of 3-6 TCF of associated gas), fragmented ownership, and a variety of complex reservoirs will combine to leave 81% (68 BBO) of the State's OOIP in the ground at abandonment. A review of the geologic literature shows examples of low recovery that can be addressed relatively simply, through waterfloods, modified waterfloods, de-watering, new wells and/or recompletions.

Historically haphazard production reporting and data dissemination has greatly complicated efforts to systematically evaluate oil possibilities in Oklahoma. However, while this has discouraged operators from evaluating oil possibilities in the past, it has also helped to create the current opportunity. As data issues are addressed and the long-term price of oil rises, as it surely must, a large-scale re-evaluation of Oklahoma's oil reservoirs is inevitable. The results of such an effort have the potential to reduce the long-term production decline, extend the life of meaningful oil production for decades beyond current estimates, and directly and indirectly benefit virtually every area of the State.

There is no shortage of challenges associated with such an undertaking, but if the studies reviewed here are in any way representative of the State as a whole, the oil volumes and potential rewards for the State and the industry are enormous. The volume that may be recoverable through a wide-scale effort is impossible to predict, but every 1% of the remaining oil in-place represents a staggering 680 MMBO of incremental recovery. At $50 per barrel (excluding associated gas production) every 100 MMBO produced represents $5.0 billion in total income and

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$350 MM net to the State in gross production tax revenues. What are we waiting for?

Acknowledgements

The author would like to thank the IHS Energy Group, who provides the Oklahoma Geological Survey the free use of their database, which greatly facilitated the completion of this study. A debt of gratitude is also owed Roy Knapp, professor of petroleum and geological engineering at the University of Oklahoma College of Earth and Energy, and Tim Brown, executive director of Energy Libraries Online, who had useful ideas that were incorporated into this study.

References Cited

Boyd, D. T., 2002a,
Oklahoma oil: past, present, and future: Oklahoma Geology Notes, v. 62, no. 3, p. 97-106.

____, 2002b,
Map of Oklahoma oil and gas fields (distinguished by GOR and conventional gas vs. coalbed methane: Oklahoma Geological Survey Map GM-36, 1 sheet, scale 1:500,000.

____, 2005
Oklahoma Oil and Gas Production: Its Components and Long-term Outlook: Oklahoma Geology Notes, v. 65, no. 1, p. 4-23.

Chernicky, D. and Schad, S. T., 2002a
Hunton Transition Zone in Oklahoma: A Case Study in West Carney Field, Lincoln County, Oklahoma Geological Survey Circular 107, pp. 179.

Chernicky, D. and Schad, S. T., 2002b
Development of Transition Zone Reserves Around Abandoned Production: Case Study of Mount Vernon Field, Lincoln County, Oklahoma, Oklahoma Geological Survey Circular 108, pp. 61-72.

E.I.A., 2005
U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves Annual Report, Web site: http://www.eia.doe.gov/neic/infosheets/petroleumreserves.htm

Franks, K. A., 1980,
The Oklahoma petroleum industry: University of Oklahoma Press, Norman, 284 p.

IHS Energy, 2008,
Data supplied by Petroleum Information/Dwights LLC dba IHS Energy Group, August 1, 2006, all rights reserved.

Knapp, Roy, 2006
Professor, Petroleum and Geological Engineering, University of Oklahoma, personal communication.

Soltani, Cameron (ed.), 2008,
Oil and gas information: Oklahoma Corporation Commission, Web site: http://www.occ.state.ok.us/Divisions/OG/annualreports.htm

U.S. Department of Energy, 1984
TORIS (Total Oil Recovery Information System), National Energy Technology Office, Tulsa, Oklahoma

U.S. Department of Energy, 1993
Oil and Gas Technology Transfer Activities and Potential in Eight Major Producing States, Vol. 1, performed under contract No. FG22-91BC14818 for the Interstate Oil and Gas Compact Commission Oklahoma City, Oklahoma, 13p.

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Appendix : Listing of Volumetric Studies

Original Field Name	Reservoir Name	Date	Author
Blanket Sandstone			
Aylesworth Dist SE	Oil Creek	1994	Roger Spring
Centrahoma	McLish	1975	W. P. Anderson
Centrahoma	Oil Creek	1994	Roger Spring
Coyle SE	Wilcox	1994	Robert Tehan
Criner -Payne	Bromide	1963	Lloyd Gatewood
Davis SW	Oil Creek	1981	Thomas Current
Eola-Robberson	McLish	1981	Bill Harrison compiler
Eola-Robberson	Oil Creek	1981	Bill Harrison compiler
Eola-Robberson	Bromide	1981	Bill Harrison compiler
Hunter S	Misener	1979	Mike Kernan
Madill N	Bromide	1965	Joseph Kornfeld
Madill N	McLish	1994	W. E. Jackson
Noble NW	Tulip Creek	1994	Harry Buck
Noble NW	Oil Creek	1994	Harry Buck
Noble NW	McLish	1994	Harry Buck
Noble Townsite	Tulip Creek	1994	Paul Smith
Noble Townsite	Bromide	1994	Paul Smith
Oconee E	Oil Creek	1973	Don Morris
Oklahoma City	Wilcox	1968	Lloyd Gatewood
Oklahoma City	Oil Creek	1968	Lloyd Gatewood
Prague W	Wilcox	1994	Lee Lamar
Rich Valley	Wilcox	1963	D. W. Bell
Washington N	Bromide	1994	Paul Smith
Washington N	Tulip Creek	1994	Paul Smith
Carbonate Shelf			
Buffalo N	Lansing	1963	B.D. Price
Buffalo N	Arbuckle	1963	B.D. Price
Centrahoma	Viola	1975	W. P. Anderson
Cheyenne Valley	Hunton (Henryhouse)	1994	Kathy Lippert
Cottonwood Creek	Arbuckle (Brown Zone)	1994	David Read
Criner -Payne	Hunton	1963	Lloyd Gatewood
Dibble SE	Hunton	1963	Harold Meuller
Dover-Hennessey	Manning	1963	John Ware
Dover-Hennessey	Meramec	1963	John Ware
Edmond W	Hunton	1981	Bill Harrison compiler
Fitts	Viola	1981	Bill Harrison compiler
Isom Springs	Arkansas Novaculite	1981	L.S. Morrisson
Lincoln	Oswego	1962	Charles Durham
Mustang (partial)	Hunton (Bois d'Arc)	1973	William London
Mustang (all)	Hunton (Bois d'Arc)	1995	Robert Ho
Noble NW	Viola	1994	Harry Buck
Noble Townsite	Viola	1994	Paul Smith
Oklahoma City	Arbuckle	1968	Lloyd Gatewood
Prague W	Hunton	1994	Lee Lamar
Putnam	Oswego	1963	Donald Brown
Rich Valley	Miss Chat	1963	D. W. Bell
Rosenwald	Union Valley	1957	M. R. Smith
Shalom Alechem	Sycamore	1974	Lee R. Riley
Sooner Trend	Meremec-Osage	1975	S. A. Harris
Washington N	Viola	1994	Paul Smith
FDD			
Alamo SW	Osborn	1994	Marion Hutchinson
Allen	Gilcrease	1981	Bill Harrison compiler
Allen (partial)	Booch	1981	Bill Harrison compiler
Allen (partial)	Booch	1981	Bill Harrison compiler
Antioch SW-Elmore City N	Gibson	1948	Marshall Dayton
Balko S	Morrow (A)	1995	Rick Andrews
Binger E	Marchand	1980	Louis Ford
Blackwell	Tonkawa	1997	Kurt Rottman
Blackwell Lake E	Osage-Layton A	1996	X. Yang
Blackwell Lake E	Osage-Layton B	1996	X. Yang
Blackwell Lake E	Osage-Layton C	1996	X. Yang
Blackwell Lake E	Osage-Layton D	1996	X. Yang
Boyd	Morrow (Upper)	1961	Panhandle Strat committee
Burbank S	Burbank	1963	T. A. Matthews
Butner NW	Senora	1958	James Duck
Canton	Lw Morrow B & C	1995	Rick Andrews
Carmen N	Red Fork	1997	Rick Andrews
Cement	Noble Olsen	1981	Bill Harrison compiler
Cement	Fortuna	1981	Bill Harrison compiler
Cement	Wade	1981	Bill Harrison compiler
Cement	Medrano	1981	Bill Harrison compiler
Cherokee NE	Red Fork	1963	Eugene F. Culp
Coyle SE	Skinner	1994	Robert Tehan
Cushing	Prue	1981	Bill Harrison compiler
Dibble N	Osborn	1974	Gene Jeary
Dora	Dora Sd	1941	W. I. Ingham
Elmwood W	Morrow	1963	John Dowds
Eola-Robberson	Skaggs Sand	1981	Bill Harrison compiler
Eva NW	Kelly Sand	1961	W. W. Williams
Fitts W	Cromwell	1981	Bill Harrison compiler
Flat Rock	Bartlesville	1954	C. H. Riggs
Glencoe SE	Red Fork	1994	Chris Fowler
Glenn Pool	Glenn Sand	1994	Kuykendall, Matson
Golden Trend	Hart	1981	Bill Harrison compiler
Greasy Creek	Booch	1995	Bob Northcutt
Griggs S	Wichita Sand	1961	Lloyd Pippin - Leland Poling
Griggs S	Wolfcamp (Winfield Sd)	1961	Lloyd Pippin - Leland Poling
Guthrie SW	Skinner	1996	Kurt Rottman
Healdton (partial)	Healdton Sand	1981	Bill Harrison compiler
Healdton (all)	Healdton Sands	1953	C. H. Riggs et al
Higgins S	Morrow	1994	Robert Tehan
Katie	Gibson	1949	Chandler, William A
Lake Blackwell E	Osage-Layton	1996	Jock Campbell
Layton Sand Unit	Layton	1972	James Pate
Long Branch	Prue	1996	Rick Andrews
Long Branch	Red Fork (ch-fill)	1997	Rick Andrews
Long Branch	Red Fork (other)	1997	Rick Andrews
McQueen SW	Swastika	1994	W. E. Jackson
Mount Vernon (B)	Red Fork	2002	David Chernicky
Mount Vernon (comb)	Red Fork	2002	David Chernicky
Muskogee	Muskogee	1959	C. H. Riggs
Norge NW-Verden	Marchand	1974	T. B. Curlee
Oakdale	Red Fork	1968	Gustavo Gonzalez-P.
Ohio-Osage	Bartlesville	1997	Andrews-Northcutt
Oklahoma City	Prue	1981	Bill Harrison compiler
Otoe City S	Red Fork	1997	Kurt Rottman
Paradise	Bartlesville	1997	Rick Andrews
Pauls Velley E	Burns-Brundidge	1949	Frank Folger
Perry SE	Skinner	1996	Kurt Rottman
Perry Townsite	Skinner	1993	S. B. Cline
Pleasant Mound	Cleveland	1997	Kurt Rottman
Quapaw	Bartlesville	1952	James West
Reck	Deese Basal	1994	J. T. Boyce
Rice NE	Purdy "C"	1995	Rick Andrews
Rice NE	Purdy "B"	1995	Rick Andrews
Rosenwald	Cromwell	1957	M. R. Smith
Russell NW	Bartlesville	1997	Rick Andrews
Salt Fork N	Skinner	1996	Rick Andrews
Salt Fork SE	Skinner	1963	W.R. Sumter
Sivells Bend	Beasley	1958	Bracken, Barth W.
Sturgis E	Purdy Sd	1961	W. W. Williams
Tecumseh NW	Red Fork	1994	Fletcher Lewis
Unity N	Keyes Sd	1961	W. P. Buckthal
Wewoka NW	Booch	1995	Kurt Rottman

Appendix: Listing of studies in which the confidence in volumetric calculations and production are high.

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President's Column Continued

Chapter or the SIPES National Organization, you not only help the association and its membership, but also yourself. Volunteering for these positions does not take any more time than reading the daily news, but the rewards for you and others are well worth the effort. I am a firm believer that you get out what you put in. I can attest that the individuals that I have been able to meet and associate with through SIPES have **been** a major influence to me personally. Don't be bashful; ask your local chapter chairman to put your name in as a volunteer, and you will not regret it. Don't just limit this involvement to SIPES; your other professional societies, local community programs and schools will benefit from your involvement. What better thing than helping others in your work and the community in which you live!

The other part of volunteering I would like you to consider is mentoring. The one thing that our students and young professionals can grow and benefit from is having someone with the knowledge and experience (such as our membership), step up and offer personal guidance. In my career as a geologist, I have had several individuals that took the time and patience to teach or encourage me when I was just starting out. I still live by these lessons and examples that were passed to me, and they have made profound and positive changes in my life. I gained and have enjoyed my career more fully in earth sciences from these folks taking a little time and making an effort. By volunteering time at your local elementary school, you'll see that the interest these youngsters have in earth science is amazing. Earth science is a subject that is lightly taught in our public schools and we have the information and knowledge that we can easily pass on and encourage at these influential ages. Take the time and effort to become involved in your local state or community colleges and encourage students. Especially make the time for that new geologist or engineer that you may meet that may be working in your community. These are things that are easy to do, and it just takes the mental commitment and a little time and you will be the beneficiary of your own efforts.

One thing we have started in SIPES is encouraging members to write a small bio on "How I Became an Independent." Many of our members have stepped up and written a brief story on how they got to where they are, and I have thoroughly enjoyed each and every one of these articles in the *SIPES Quarterly* (see page 36). It is a unique piece of history that we can pass on, as each of us has a similar, but usually a totally different, path that led us to become independents. So, please take an afternoon, write your story and send it to Diane Finstrom in Dallas. It will be published in the *SIPES Quarterly* and we eventually will be putting these together and printing them in book form.

In closing, remember, take some time and effort and put your best foot forward and get involved…. You will not regret it!

H. Jack Naumann, Jr.

▪

by Marc Maddox, #2777 — Midland, Texas

Independents have always gravitated toward cost-efficient alternatives to the powerful and expensive tools available to big company scientists. Most of us have been exposed to data management programs like Geoquest and Petra. For me it has not been possible to justify the cost of purchasing and maintaining one of these products. It seems that the cost effectiveness of owning Petra or Geoquest software, paying the maintenance fees, and subscribing to the data, can best be realized if working with the data every day nearly all day long, and then most effectively if working huge datasets, as in field studies. Some independents consulting on a full-time basis can pass through the associated costs to clients and can also make full use of these mainstream data management systems.

This article is written to suggest an alternative that I have used for many years, and that has proven cost effective. That alternative is a sophisticated graphics program called Canvas. This is a product put out by ACD Systems of America. Utilizing Canvas has transformed my work style in many ways. First and foremost, work maps are just that up until show time, and then with a simple print command they become the final presentation. To best communicate how Canvas can serve as a poor-boy data management system I will try to describe a simple project from start to finish. First is a summary of the features of the program I like best:

- The program allows me to draw my own contours. It is not a mapping program.
- Canvas allows you to work in layers: think a base map with mylar overlays. Even at my tender age I can relate to that analogy!
- Virtually any image can be imported into canvas to enhance the presentation.
- Images can be scanned in, made transparent, and then laid "over" color layers to highlight acreage, a section on a log, or anything that needs attention drawn to it.
- The final presentation has the appearance of a professionally drafted and airbrushed product.
- The program is easy and intuitive to use: I taught myself to use it without attending any classes, just by working through the examples in the product manual.
- There are enough Canvas users that it is always possible to find someone to call with a question.
- Sales and support is fantastic. The salesman I have dealt with is extremely helpful, accessible and knowledgeable.

General description of project workflow

Step one: Find a base map. Canvas has GIS capability and can import digital map data from state or commercial sources. Most states now offer this data at unbelievably low prices. These maps have wells spotted plus all sorts of cultural data like pipelines. Many times I will just use a copy of an existing paper map, scan the image in and import it into Canvas, and either work directly on the scanned image or re-draw the map on an overlying layer using the image as a guide to spot wells and draw in survey lines.

Step two: Using the text tool, put anything on the map that is needed. Separate layers can be created for each datum to be mapped. These layers can be turned on and off as desired. I title each layer with a descriptive term (Structure: Strawn for example). On each layer the tops and other information pertinent to that horizon can be input with the text tool, and then using the polygon tool the contours can be added. The system is totally flexible. Options include line thickness and color. Polygons can be filled in (to show oil contact) or left without fill. Layers can be displayed simultaneously: show the Strawn structure and isopach on the same print if you want. The power to visually display your concept is limited only to the user's creativity.

It is easy to add new layers, delete old layers, update the map as wells are drilled or new information is collected. Total freedom!

For cross sections the work progression is somewhat different. Here is where the program can function as an alternative to more expensive data management systems. First I create a "library" of log images. These can be downloaded free from many states now. Other options are to purchase digital images or scan in paper logs you have in your file or borrow from the log library. I began purchasing images from A2D a couple of years ago when it became apparent that I was spending $200 worth of time to scan in a log that could be purchased for $15. The nice thing about buying logs from commercial services or downloading them from the state is that they are available 24 hours a day seven days a week – perfect for the independent! Log images are organized into folders labeled by state and county. As various areas are worked through, my library expands without taking up any floor space.

Workflow for creating a cross-section

Step one: Acquire logs as described above. Log images are imported into Canvas using the "place" command. I prefer to place all log images on a single layer, and habitually label this layer "images." Log images can be cropped, stretched in one or two dimensions, rescaled to match other log images of different scales (for example if you have only a one-inch scale of one log you would like to compare to a five-inch log). It's unbelievable what can be done and very liberating – there are no limitations! I will generally put perforations and tests on the logs and "group" these notations to the image so that this data will stay with the log.

(Continued)

Step two: Make the log images transparent, then create a layer under the images and draw polygons with color filling to highlight correlations, shows, oil-water contacts, etc.

Step three: Create a layer over the images to draw in correlations and add text notations of significant data.

Step four: Create a title layer. A title block can be placed anywhere in the file you like, but I will generally make a separate layer for the title block.

Step five: Place an index map. For this it is easy to take the map created for the structural presentation and paste it into the cross section file. When placing a map, its scale can be changed to fit the space available on the cross section.

With Canvas it is possible to create a map or cross section, then print only selected parts. These can also easily be converted to PDF files and attached to emails.

Some pertinent information about Canvas

Electronically delivered licenses of Canvas 11 Pro (without GIS) are $349.99 each. Canvas 11 with GIS is $649.99.

Educational discounts are available to faculty, staff and students of accredited learning institutes. Please contact ACD's sales department for additional information and pricing at directsales@acdsystems.com.

A Canvas 11 Media Kit including a printed user guide, an installer CD, and a clipart/fonts DVD is available for an additional $50.00 plus shipping. The Canvas 11 Media Kit includes a printed user guide (approximately 500 pages, however, neither GIS nor CGM Seismic information is included).

System requirements

Windows

- Pentium® 4 or better
- Microsoft® Windows® Vista™ or XP Home or Professional (with Service Pack 2 installed)
- 512 MB RAM installed (1 GB RAM recommended)
- 250 MB free hard disk space
- 16-bit color or higher (True color recommended)
- 1024x768 or higher screen resolution recommended
- Mouse and keyboard. Scanner optional for importing graphics
- Host of industry standard devices supported
- CD-ROM drive. DVD drive to use Clipart library DVD

Canvas 11 is Windows only (XP, Vista) however many of our Mac customers have moved forward with Canvas 11 by installing a Windows operating system on their new Intel Macs and running in that environment.

Canvas tutorials can be found here:

http://www.acdamerica.com/support-canvas/tutorials/tutorials.html

The complete User's Guide including GIS and CGM Seismic is available electronically at:

http://files.acdsystems.com/english/support/canvas/11/canvas%2011%20user%20guide.pdf

Fully functional Canvas 11 with GIS trial licenses may be downloaded here:

http://store.acdsee.com/store/acd/en_US/DisplayProductDetailsPage/productID.80759800

If you are interested in learning more about Canvas please contact Rick Zink at directsales@acdsystems.com. ■

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(Continued)

News of Members

Marlan W. Downey, #2711, of Dallas, Texas will receive AAPG's Sidney Powers Memorial Award at the 2009 AAPG Convention in Denver on June 7.

◆

Robert G. Font, #2163, of Plano, Texas was the recipient of the 2008 AIPG Martin Van Couvering Memorial Award. It was presented at the AIPG-AHS 2008 Symposium in Flagstaff, Arizona on September 23, 2008.

◆

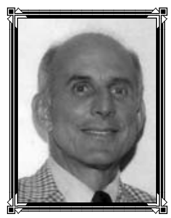
SIPES Director **Owen R. Hopkins**, #2986, of Corpus Christi, Texas will receive AAPG's Public Service Award at the 2009 AAPG Convention in Denver.

◆

Michael S. Johnson, #228, of Denver, Colorado will receive AAPG's Outstanding Explorer Award at the 2009


Robert Font


Owen Hopkins


Michael Johnson


Peter MacKenzie


Ray Thomasson

AAPG Convention. **Larry L. Jones**, #2486, of Houston, Texas will receive AAPG's Distinguished Service Award.

◆

Peter MacKenzie, #2991, of Worthington, Ohio is a candidate for secretary of AAPG.

◆

Joseph B. Schindler, #2983, of Benbrook, Texas is serving as president of the Fort Worth Geological Society.

◆

M. Ray Thomasson, #2636, of Denver, Colorado will receive the Michel T. Halbouty Outstanding Leadership Award in June at the AAPG Convention.

■

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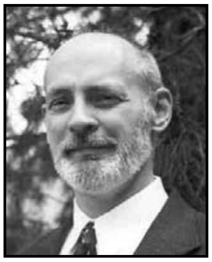
How I Become an Independent

by Lee M. Petersen, #2838, Oro Quay Corporation – Fort Worth, Texas

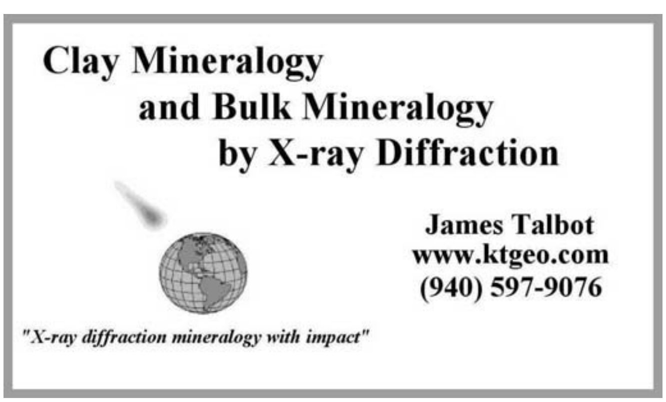


Lee Petersen

I suppose I have always been somewhat independent by nature, a personality trait that partly explains why geology seemed like an interesting major in college; there are few absolutes and always room for new ideas in this science. It may also explain why geology is my second or third career.

Like many people my age, I began this career with a staff position at a major oil company. I loved it, and could hardly believe that I was getting paid to have that much fun, but realized, in time, that I could never retire from there – the stultifying bureaucracy and office politics were just too much for me. I migrated to smaller companies. The founder of one of them, a man I greatly respected, told me that it was the end of fun at any good oil company when they got big enough to have a "Human Resources" department or a company airplane, and I have pretty much found that to be true. I learned more and had success at each company, but finally figured out that I was frustrated working for a paycheck, when in fact what I really wanted to do was work for profit, a piece of the action.

So with the help and advice of several friends who were consulting, I applied a time-tested method: I procured a part-time consulting contract, which I figured I could barely live on while I prospected with the rest of my time, and quit my job. The first kink in my plan came right away; my late employer wanted me to consult for them too. I didn't particularly want to, so I quoted a rate that (I thought) was so absurdly high that they would balk. They didn't, and in fact wanted all the time I would give them. So then I was making good money, but didn't have enough time to prospect the way I wanted. I learned some valuable lessons though: not to be afraid to price yourself high in the market, and to learn to just say "no" sometimes.



I worked longer hours than I ever had before to keep my consulting clients happy, but also to make time for prospecting. I inventoried every basin and shelf I had ever had any success in for potential plays to work. I remembered prospects and plays I had proposed to former employers that they had never acted upon in many years. I rented some shared office space with another geologist and a landman, in the same building as the log library, and lease-purchased some GIS software so I could produce my own professional-looking maps and cross sections. It was very expensive at the time, but worth it. I joined the Petroleum Club and SIPES so that I could be exposed to successful independents.

There were many setbacks along the way. I made my first prospect sale to a small family-owned drilling company. I didn't have enough money to buy leases, but knew the company from previous dealings and trusted them. They bought the leases but the two brothers running the company both died within six months of each other and the company fell apart. Since the leases were not recorded in my name, I never did get them out of the remains.

I spent six months putting together an old oil field acquisition with a 3D survey and lots of upside when oil was only $18/bbl, and sold the idea to a financier. They agreed to put up the money for my bid, but kept wanting to see just one more month of production data before they would sign the check and someone else beat me to it and bought the field.

I sold another prospect idea, but the key lease was tied up in a lawsuit and unobtainable. I gave myself a stomach ulcer, worrying about feeding my family and paying my bills (I was the only income, and we were raising a large family). I let myself get talked into going back to work for my oldest (first) consulting client; a mistake that I rectified.

Finally, after years of success as a consultant but little to show for prospecting, I was approached by a small drilling company through a consultant friend and previous co-worker. They were hungry for relatively shallow Permian Basin prospects, and I negotiated an exploration retainer under which the drilling company would supply logs and other data, a geotech, put up the money for leases, and drill the wells, and I would get paid a reduced fee for prospects and retain an override and/or a carried working interest in every well. They were as good as their word; we signed the contract in March and by September of that same year they were drilling my first Canyon Sand prospect in Schleicher County, Texas. It was successful, and by the first of the next year I started getting run checks. The producing income from that field grew to be enough to live off of, and I was able to quit consulting altogether

(Continued)

and only work on prospecting and projects that I had a direct interest in. Since that time, I have had another successful west Texas prospect drilled, and have worked for a piece of a start-up company.

It took me six years to make the transition from employee to consultant to independent. The most difficult part was balancing cash flow from consulting that I needed to support my family with the time and dollars needed for prospecting. But it was all worth it, and I wish I had started sooner! In retrospect, several factors were key to my eventual success: 1) Mentors who taught me to think critically and creatively, and how to find oil. 2) Long-term goals and perseverance. "I'm a great believer in luck, and I find the harder I work, the more I have of it." – Thomas Jefferson 3) A network of friends and contacts in the industry (including many in SIPES) who gave me advice, encouraged me, and ultimately put me in contact with my first successful prospect sale. The importance of a good network cannot be overemphasized. 4) The support of my family. 5) Investing in myself and my business.

There is nothing else in the world quite like hearing a drilling break or watching a log come up on a well that you proposed and own a piece of.

"All men dream, but not equally. Those who dream by night in the dusty recesses of their minds wake in the day to find that it was vanity: but the dreamers of the day are dangerous men, for they may act their dream with open eyes, to make it possible." - T. E. Lawrence, *The Seven Pillars of Wisdom*

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 2009 Convention Technical Program

Speakers Listed Alphabetically

◆ **Robert Cluff, #1832 — The Discovery Group, Inc., Denver, CO**
"Shale Gas: Opportunities and Challenges for Independents"

◆ **Dennis Gleason, #2995 — Gleason Engineering, Fort Worth, TX**
"Geostatistics and Reserve Estimates"

◆ **Andree Griffin — XTO Energy, Inc., Fort Worth, TX**
"Urban Drilling in the Barnett Shale"

◆ **Stephen Henderson — Oxford College of Emory University, Oxford, GA**
"Chattanooga to Atlanta: The Significance of Geology on the Atlanta Campaign During the Civil War"

◆ **Russell Hensley, #2870 — Xplore Energy, Fort Worth, TX**
"Wind Turbines on Our Land? A West Texas Family's Experience"

◆ **Wayne Hoskins, #2661 — The MapSnapper Group, Euless, TX**
"Challenges of Urban Seismic"

◆ **David Koger — Koger Remote Sensing, Fort Worth, TX**
"Low-Cost Prospecting and Logistical Planning with Remote Sensing Photogeology"

◆ **Bruce Langhus — ALL Consulting, Tulsa, OK**
"Produced Water Management and Unconventional Natural Gas Development"

◆ **Phil Martin, #2390 — New Century Exploration, Inc., Houston, TX**
"Haynesville Shale Reveals its Secrets"

◆ **Dave Pursell — Tudor, Pickering, Holt & Co. Securities, Inc., Houston, TX**
"Oil and Gas Supply and Demand"

◆ **Jackie Reed — Consultant, Hilton Head, SC**
"Devonian and Ordovician Shale Gas Potential in the Appalachian Basin"

◆ **Dan Smith, #1647 — Sandalwood Oil & Gas, Inc., Houston, TX**
"Send in the Clowns...Wait, They're Already Here!"

◆ **Jimmy Thomas, #2710 — Nagual Exploration, LLC, Fort Worth, TX**
"The Maturing of the Barnett Shale"

◆ **Rick Turner — Barrow-Shaver Resources Company, Tyler, TX**
"The Uncertainty of Carbon Dioxide — Climate Driver or Climate Rider?"

◆ **Tony Weber — Natural Gas Partners, Irving, TX**
"Equity Funding, Oil & Gas Business Trends"

◆ **Jeffrey Wendt — The Eagle Wing Group, Inc., Fort Worth, TX**
"Delivering a Message to Garcia — Ethics at its Best"

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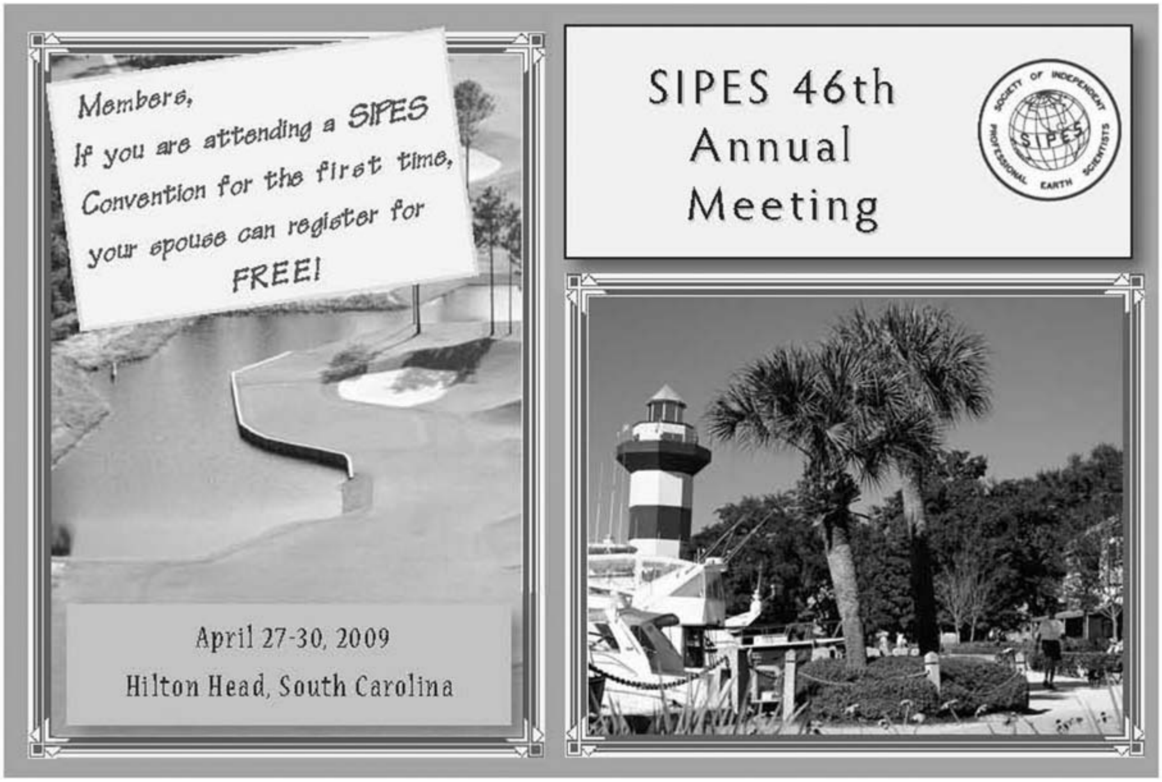

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