

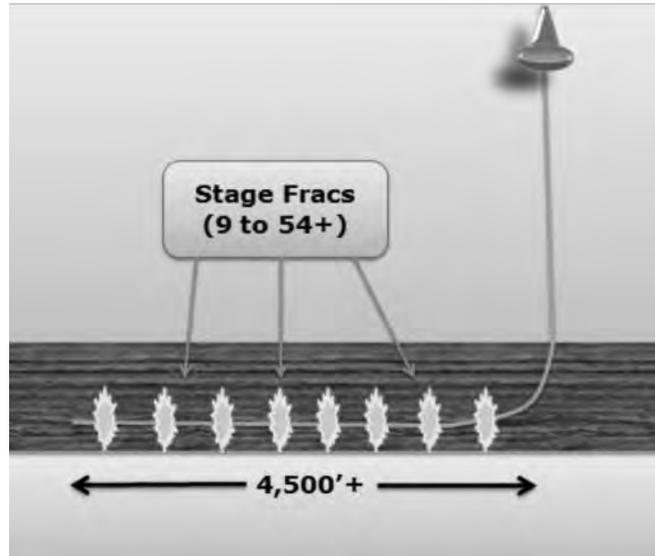
SIPES September Luncheon Meeting

The Resource Play Schism

Phil Martin, New Century Exploration, Inc.

Shale gas and shale oil are the hottest industry buzz words, but that doesn't mean they always inspire delight. In fact the incredibly rapid and important changes in the world of exploration have left some at the station wondering what happened. There is a huge fault line between conventional and unconventional players caused by the profoundly different skill sets and economics of the two exploration models.

The technology that spawned this revolution started when George Mitchell developed a specialized frac for the Barnett Shale, and was perfected when Devon incorporated horizontal drilling and stage fracs on those same properties. This recipe of horizontal drilling plus multi-stage frac technologies or "geococktail" has transformed exploration and is rewarding the companies who best put it to use with stellar growth. It was developed by independents, but the majors have seen the light and are buying in through companies with the know-how, technology, and lease holdings.



Wall Street has fallen head-over-heels for shale plays and the profit-enabling geococktail technology. The low risk and extensible results are irresistible to capital providers. Companies that secured early lease positions are on top and those that moved too slowly are constantly reminded by the huge new tests, TCF-size reserve reports, multi-billion dollar sales and joint ventures being announced on a steady basis. The economic formula is simple: companies book new reserves for every shale well drilled (there are almost no dry holes), then leverage their tumescent balance sheets to raise additional drilling funds in a never-ending cycle. The success has spawned a new gas bubble, but if shale-based companies can maintain their momentum until prices rise they will rule the planet. The wild cards are punitive taxes and regulations that could constrain the use of fracs. Additional benefits are the environmental advantages and smaller footprint of horizontal drilling.

On the other hand Wall Street has pretty much abandoned conventional players and their access to capital is severely constrained. Most now have trouble even climbing up on the shale band wagon due to the technical and economic barriers. Their problems began

with the diminishing returns of conventional exploration in the highly developed onshore provinces and didn't end with the high shale-driven lease and drilling costs. The latest indignities are their exclusion from shale areas by skyrocketing lease costs and plunging gas prices, and the suspension of offshore drilling after the BP spill.



On a career level, the skills and practices of shale exploration are quite different than for conventional exploration. Terms like "vitrinite reflectance, TOC, and thermal maturation" are Greek to conventional players who use jargon like "fault-seal, up-dip, and oil-water contact". Shale exploration and the geococktail require highly specialized and multi-disciplinary teamwork, much of which is not crucial or even applicable in conventional exploration. Considering the lack of common expertise and the economic barriers to joining the shale club, some believe there is little incentive to try. This bi-polar gulf between conventional and unconventional players is to some extent irreconcilable.

SIPES September Luncheon Meeting continued on page 57

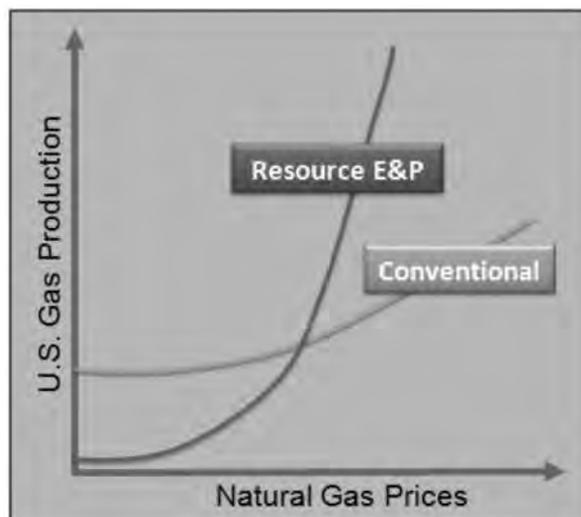


But while the world is focused on the ascendance of shale plays and the demise of conventional exploration, another choice offers salvation. Tight sands (and other tight rocks) are a different type of resource play but they share more attributes of conventional exploration. The geococktail is an ideal application for revitalizing tight sands and the transformation of that sector may turn out to be as important as shale. The early adaptors may be tomorrow's biggest winners.

Tight sand resources have one foot in the conventional world and another in the unconventional, but thanks to the geococktail they can now claim the best of both. Although not as big as shale reservoirs, tight sand fields tend to cover larger areas than conventional ones, mainly as a result of migration issues. During primary migration hydrocarbons exit the source rocks across all common boundaries. In conventional reservoirs expelled oil and gas enter a water environment and migrate up-dip into compressed traps, but in tight sands, migration is limited and reserves are more likely to remain locked in place across broader areas, based on rock properties. There is negligible migration within shales.

Also, although flow rates and drainage areas have always been restricted in tight sand reservoirs, however geococktail technology has changed the game. It is not unusual for extended-reach, multi-stage-fracked horizontal wells to deliver over 10 times the flow rates and EURs of vertical wells. Although they often display hyperbolic declines like shales, tight sand declines are flatter and likely to be much longer. Tight sands are also more likely to contain producible oil than shales, although there are exceptions, such as the Bakken.

A huge opportunity exists for tight sands. Many tight reservoirs have been historically underdeveloped and even prematurely abandoned due to pre-geococktail economics. Tight sands exploration also shares more traits with conventional exploration than with shales, providing an opening for transitioning conventional players. Of course everyone, including those already there, must learn to use the essential new technologies.



In summary, the geococktail (combination of horizontal drilling and multi-stage frac technology) is the white knight of the exploration world, enabling new plays and reviving old ones with a mix of risk factors and economics. Resource production is able to respond more quickly to increased demand due to its greater concentration of wells and infrastructure. There is a serious schism in exploration and specific skills are not transportable across all plays. Shale plays are the hottest but not all shale wells are commercial at today's prices and it is critical to recognize the difference. Conventional exploration has higher risk, is difficult to fund, and has turned in the direction of oil. Tight sand exploration shares the lower risk and larger extent of shale plays and may have the best economics of all as geococktail technology continues to improve. ■

SIPES Luncheon Meeting *continued on page 59*

SIPES September Luncheon Meeting

continued from page 57



Biographical Sketch

PHIL MARTIN is a fourth-generation earth scientist with B.S and M.S. degrees in Geology from LSU and the University of Louisiana at Lafayette. He started his career at Union Texas Petroleum before forming his own independent company.

Mr. Martin is President of New Century Exploration, Inc., a privately-held company with operations from prospect through pipeline in Texas and Louisiana. He is a Certified Petroleum Geologist, Certified Earth Scientist in SIPES, and a Licensed Professional Geoscientist in Texas. He is a member of AAPG, HGS, SEG, Onshore Exploration Independents, and Houston Producers Forum. He is Chairman of True Electric, LLC and Geological Data Library. He is on the board of the Houston Energy Council and the Houston Chapter of SIPES and is Vice President of the SIPES National Board. He is also a member of the AAPG Trustees Foundation, the LSU Foundation, and the European Association of Geoscientists & Engineers.

SIPES September Luncheon Meeting