

Technology Driven Exploration Plays - Onshore U.S.: Their Evolution

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Historically, high cost technology driven plays were initiated and dominated by Major oil and gas companies. Management, in concert with technical specialists, identified and then funded potential high risk/high-reward projects. Evaluation of these projects generally began within the company's research department. It was here that the many facets of the potential play, whether it be geologic, geophysical, engineering or operations would be studied and a knowledge base and technology developed. If economic analysis indicated feasibility, the research group would then work with the exploration and development arms to put the project together and begin its field evaluation.

In the implementation process, technical teams consisting of personnel generally trained through the research department were a must. During the course of the play different facets were reevaluated and tweaked. Service companies were brought in to assist, but in no way dictated or controlled the direction of the analysis. As a result, service companies generally were not the lone source of new concepts or technical breakthroughs.

As the Majors began deemphasizing U.S. onshore exploration and started concentrating in offshore and international areas, their research groups tended to move away from evaluation of the onshore and their technical training and team building for onshore projects declined. The void was left to be filled in by the independents and as a result much of the technology driven exploration in onshore U.S. for the last 30 years originated with smaller companies and, in many cases, through trial and error.

The development of the Barnett Shale play and its subsequent effect on gas shales worldwide is a perfect example of this change. Mitchell Energy initiated the Barnett Shale play in 1982 not because a research study had been carried out or a feasibility analysis done; to the contrary, a study of the company's north Texas properties indicated that the existing Atoka development program would only have a reserve-sustaining life of ten years. By 1992, the company was going to have a commerciality problem with its biggest asset. George Mitchell then presented his North Texas staff with an edict: "find a replacement for our depleting Atoka gas reserves." It was through the trials and tribulations from this edict and the resultant team building that the current emphasis on shales was born.

Today service companies, academia and technical consortiums are called upon to provide a tremendous source of new understanding and breakthroughs. However, some techniques are not fully vetted and their promotion may serve the need of a specific group rather than the betterment of technology. We can never put the profit motive behind us, but the increase of science and dissemination of gained knowledge needs to be a priority. In addition, integrated technical teams under current product pricing conditions are not always fostered nor required by many of the operators in the plays. In fact in many cases they are teams in name only. Mitchell's Barnett Team evolved through joint hardship by its members learning and building on its many failures, without this team effort I do not believe the Barnett would have succeeded. Team building has to be an industry priority. In this current world of technology driven plays our industry is attempting to build, integrate, spread and effectively apply knowledge and technology in ways and speeds not experienced in the past. We must strive to meet this challenge.