



New Orleans Chapter Newsletter

Society of Independent Professional Earth Scientists
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Paul Lawless

Resource Play – Playing the Migration Route



Chairman's Column

Last month, 34 members and guests enjoyed an excellent, well documented talk on Grand Bay Field by Andy Clifford with Saratoga Resources.

This month, our speaker will be Paul Lawless, with Helis here in New Orleans. It will be a return visit by Paul, since he gave us a talk on the Bakkan Shale several years ago. This time he will discuss resource plays, a related topic.

We would like to take this opportunity to welcome Louis Vidrine to our membership. Louis was a SIPES member a number of years ago and has been reinstated as an active member.

The prospect Expo organized by Bubba Sanchez with LaBay and the Landman's group (PLANO) will definitely be held. The expo is scheduled for February 27, in conjunction with PLANO's annual executive night, at the Hilton Hotel. By the time you receive this newsletter, you should have an email giving the details of this event.

If you haven't paid spring dues, you are past due!

Louis E. Lemarié

Tuesday, February 18th

Andrea's - Metairie

Registration & Networking - 11:30 AM

Lunch and Talk - Noon

Reservations and guests: Carol St. Germain - 504-267-3466

Paul Lawless received a BS (1986) and a MS in Geology (1989) from Louisiana State University and has been employed as a geologist in the petroleum industry in New Orleans since 1990. He has worked for Texaco, Shell, CNG/Dominion, and now Helis. The first fifteen years of his career centered on active generation of prospects in South Louisiana and in the Deepwater Gulf of Mexico Basin. Since coming to Helis, his duties shifted initially to operations, reservoir geology, and prospect/portfolio analysis primarily for the Gulf of Mexico assets. The last three years his duties have shifted to overview and coordination of Helis' Rocky Mountain area oil resource plays. Paul has authored or coauthored 12 papers concerning Tertiary Stratigraphy of the northern Gulf of Mexico Coast in the GCAGS, GCSSEPM, NOGS, and PTTC. He won the Best Poster Session and Third Best Paper at the 1997 GCAGS. He is a member of NOGS, AAPG, SGS, WGS, and SEG.



Resource Play – Playing the Migration Route

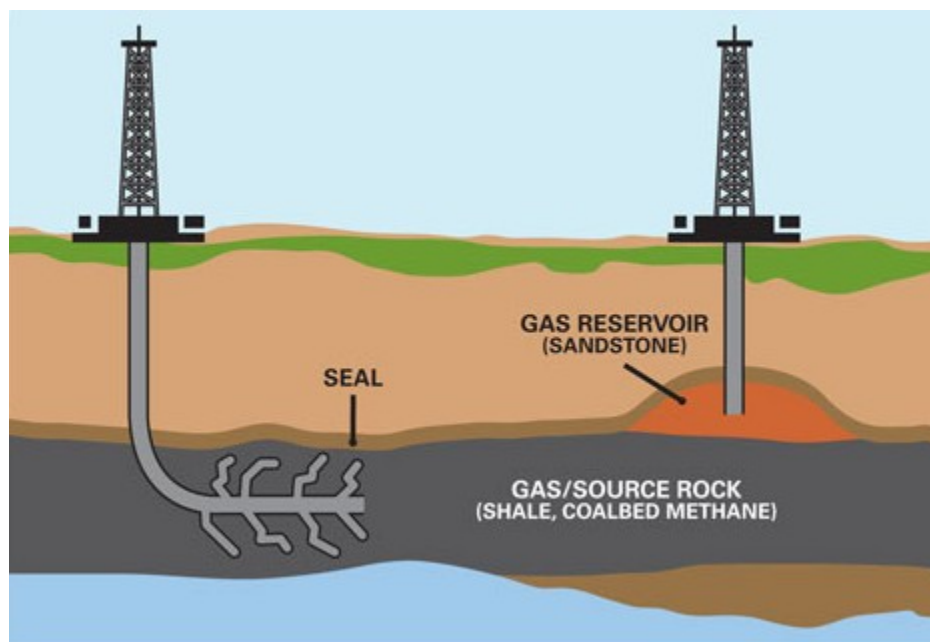
By Paul Lawless

Resource Plays have grown from being perceived as "Shale Plays" to "Source Rock - Migration Route Plays" of a petroleum system. The best resource plays target tight rock with enough permeability that a mechanically fractured well will flow in economic rates with enough reservoir support to make a relatively quick pay-out, large enough estimated ultimate recovery and positive return on the investment. While many source rock shales have been studied for their source potential and generative capacity, it is only recently that source shales and the surrounding rocks have been studied for their sedimentologic differences. The section was never thought of as reservoir rock in the conventional sense as limestones, dolomites, and sandstones had been. In addition, because the resource play reservoir is composed of fine grained sediments laid down in thin-beds, most of the wireline logs run across the section do not see reservoir. As a result, many full cores have been cut through the section trying to understand what the reservoir is.

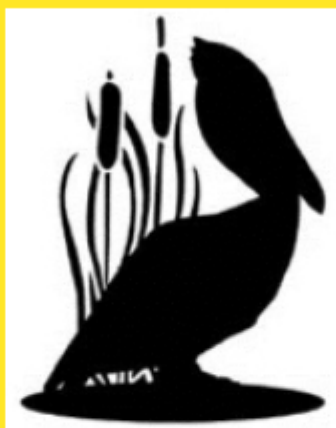
The ideal Resource Play reservoir rock is geopressed due to current and geologically recent hydrocarbon generation. As the permeability in the reservoir is very low, often micro- and nanno-darcy, the geopressure becomes the main drive mechanism giving higher initial rates and better sweeps in these tight reservoirs. As hydrocarbons sweat out of the source beds, they move into expulsion fractures along lamination bedding planes and juxtaposed laminations and beds of slightly larger grain sizes and permeability. Then seeking the lower pressure route away from the higher pressure generative rock, the hydrocarbons migrate up or down into vertical natural fracture and faulting systems and often into more traditional reservoir rock on its migration from the generative area. Many times, these high permeability natural fracture systems are found to have enough storage capacity to make excellent reservoirs in combination with feed-in from the generative source and migration route beds. Examples of this are the Denver-Julesburg's Niobrara trend in the Silo, Hereford, and Wattenberg High field areas and the Gulf of Mexico's Austin Chalk trend. The more traditional reservoir rock portion of the migration route in the North American interior basins such as the Williston (Middle Bakken and Three Forks), Powder River (Sussex, Shannon, and Frontier/Turner), and Appalachian (Point Pleasant) also have very low permeability and have been excellent Resource Play targets. In the Gulf Coast, these rocks, such as the Upper and Lower Tuscaloosa and Woodbine section around the Eagle Ford and Tuscaloosa Marine Shale, have relatively high permeability, and the hydrocarbons leak off into traditional traps with water legs.

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