



Geophysical Society of Pittsburgh



*Proudly Presents Tuesday, December 3rd, 2013
At
Grand Concourse, Pittsburgh, Pennsylvania*

A case history of integrating 3D seismic with completions data and microseismic for fracturing a tight carbonate reservoir

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Abstract: Almost by definition, tight reservoirs require hydraulic fracturing to provide the pathways for hydrocarbons to move to the wellbore. Key to the exploration and production of such reservoirs is understanding the local deviations in the regional stress field, as well as understanding the local idiosyncrasies of the natural fracture systems. It is the purpose of 3D seismic data to provide the acoustic camera needed to see these spatial heterogeneities between the wells.

The presentation will start with a simple cartoon discussion of basics concerning stress and fractures. Then the interpretation of an actual tight, oil-filled carbonate reservoir will be presented. This will show how completions data, LWD, and microseismic measurements validated conclusions from a high-quality 3D seismic survey – and how this enabled the interpretation to be extended away from the wellbores.

From there we will move backwards in the project workflow by saying a few words about the imaging, the data conditioning, and then finally the data acquisition and survey design. These brief discussions will show how the usefulness of the seismic data was brought about. For instance, key to survey design was the requirement for full azimuth recording, and key throughout the entire workflow was attention to amplitude integrity. Related to these were also the issues of signal-to-noise ratios and resolution.



Biography: *Mark Egan is currently the worldwide Chief Area Geophysicist in the Geosolutions Product line for WesternGeco, a subsidiary of Schlumberger. Additionally he serves with the Geosolutions' Unconventional Seismic Solutions team. Mark received a BS in Physics from Duquesne University in 1975, an MS in Acoustics from the University of Houston in 1978, and a Ph.D. in Geophysics from the University of Houston in 1988. Mark began his career at Geophysical Services Inc. (GSI) in 1975 as a marine data processor. Mark continued working in seismic data processing, holding successive positions in marine data processing, while working on his advanced degrees, reaching the rank of Area Geophysicist in 1984 for GSI's successor company Halliburton Geophysical services. (HGS). In 1992 he accepted the position of Saudi Arabia Chief Geophysicist for Geco-Prakla and Middle East Chief Geophysicist based in Dubai in 1997. In 2001 Mark became Chief Geophysicist supporting worldwide marketing for WesternGeco based in London. Mark returned to Houston in 2003 where he has held a series of positions both managing and supporting Reservoir and Integrated seismic solutions for WesternGeco/Schlumberger.*

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Cost \$40 non-members, \$35 members, (\$20 for Students). Meeting Location: Grand Concourse, 100 West Station Square, Pittsburgh, PA, 15219, 412.261.1717**