**Denver SIPES March 24, 2016 Meeting**

***“Using Sequence Stratigraphy to Optimize Target Selection”*, presented by Jeffrey A. May, PhD**

**Our Presenter:**

Jeff received his B.A. in Geology from Earlham College, M.S. in Geology from Duke University, and Ph.D. in Geology from Rice University. He has worked in the oil and gas industry for over 30 years: as a research geologist with Marathon Oil Company (1981-1994); as a geological and geophysical consultant with Enron Oil & Gas (1994-1996) and GeoQuest Reservoir Technologies (1996-1998); as an exploration geoscientist with DDD Energy (1998-2001); and with EOG Resources beginning in 2001, first as Chief Stratigrapher and more recently as Chief Geologist, until his retirement in 2011.

Jeff has conducted sedimentologic, sequence stratigraphic, and seismic stratigraphic projects on basins and fields worldwide. Areas of expertise include onshore and offshore Gulf of Mexico; onshore and offshore California; Uinta, Green River, Washakie, Denver, Powder River, and Williston Basins; northern and eastern Egypt; and Natuna Sea, Indonesia. At EOG, he provided regional to prospect-scale stratigraphic interpretation and evaluation plus training in support of all divisions. Jeff also conducts a variety of classroom and field seminars on clastic facies, deep-water sandstones, mudrock deposition and stratigraphy, and sequence stratigraphy, most notably for the American Association of Petroleum Geologists, the Petroleum Technology Transfer Council, Nautilus Worldwide, many oil and gas companies, and universities. In addition, he has published numerous papers and abstracts on deep-water sandstones, sequence stratigraphy, geophysical interpretation, and mudrock deposition. Most recently, Jeff completed an AAPG Distinguished Lecture tour and was presented the best luncheon speaker award by RMAG for 2013.

﻿**Abstract:**

Sequence stratigraphy is not THE answer in optimizing the selection of horizontal targets in resource plays. But it is an extremely useful, and oftentimes necessary, tool that should be used when defining sweet spots and evaluating reservoir intervals.

Sequence stratigraphy can aid subsurface geologic interpretation and evaluation in numerous ways. It (1) provides an increased understanding of depositional controls on reservoir vs. non-reservoir facies, (2) promotes better well-log correlations, (3) aids in reservoir prediction, (4) offers a framework for data integration, (5) guides sample collection from core, (6) delivers better reservoir flow models and volumetric calculations, (7) helps in choosing and staying within the target zone, and (8) furnishes input for completion design.

This talk focuses on four aspects of optimizing horizontal targeting based on sequence stratigraphic concepts. First, the importance of establishing accurate correlations based on flooding surfaces and parasequences is demonstrated for the Parkman and Baxter sandstones. Second, the significance of reservoir compartmentalization in highstand vs. falling stage systems tracts is described for the Viking, Woodbine, Sussex, and Frontier-Turner systems. Third, identifying different types of erosional surfaces and their impact on hydrocarbon production and the landing of laterals are highlighted for the Frontier-Turner and Bakken intervals. Finally, the significance of assessing vertical variations in reservoir and mechanical properties within a sequence stratigraphic framework are revealed for the Marcellus, Eagle Ford, Avalon, and Niobrara shales.