Pre-Conference Short Course on Microbial Carbonate Buildups, and Reservoirs and Core Viewing of Upper Jurassic Smackover Microbial Reservoir and Associated Facies

Texas A&M University Campus, Pebble Creek Country Club, College Station, Texas, 8:30 AM - 4:30 PM, May 11, 2010

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Purpose:

1. Characterize the geobiological, geochemical, and sedimentological attributes of microbial carbonates.
2. Review the schemes used to classify microbialites.
3. Examine classical outcrop sections that contain microbial carbonate deposits.
4. Compare the characteristics of microbial carbonate reservoirs.
5. Evaluate geologic models for sequence stratigraphy, depositional setting, and porosity development to facilitate the exploration for and development of microbial carbonate reservoirs.
6. Study a core and thin sections for Upper Jurassic Smackover microbial reservoirs and associated facies from the northeastern Gulf of Mexico.

Background:

This short course is designed to provide information to facilitate exploration for microbial buildups and to develop successfully the discovered reservoirs. An increased understanding of the processes controlling microbial buildups, facies, and reservoirs is crucial to obtain this objective. To achieve this understanding, the course reviews the geobiological, geochemical, and sedimentological characteristics of microbial carbonates and the classification schemes utilized to describe microbialites. Classical outcrop sections are examined to determine their utility as outcrop analogs for known microbial carbonate reservoirs. The characteristics of described microbial carbonate reservoirs and associated facies are compared and evaluated. All of this information is then used to construct geologic models related to sequence stratigraphy, depositional settings, and reservoir porosity. Specifically, these models include: establishing a sequence stratigraphic framework to predict the probable occurrence, distribution, orientation, and thickness of microbial buildups and favorable microbial facies, categorizing the depositional settings supporting the formation of microbial buildups and the depositional processes that affect microbial textures, growth forms, and fabrics, and classifying reservoir porosity by identifying reservoir architecture (building blocks), pore systems, and the primary and secondary agents that control reservoir connectivity and quality. A core and thin sections prepared from the cored section is studied to evaluate the geologic models.