

# NORTH AMERICAN EXPLORATIONISTS

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## Trap Analysis At Wilburton Field (Oklahoma) Better Defines Exploration Risks In The Arkoma Basin

by Charles A. Sternbach

HGS North American Explorationists Group Dinner Meeting- November 16, 1993  
Social Hour, 5:30 p.m., Dinner, 6:30 p.m., Technical Presentation, 7:30 p.m.  
Post Oak Doubletree Inn

Trap analysis has widespread application for prospect evaluation of fault-bounded structural closures in the Mid-Continent. Trap analysis involves detailed study of how the objective reservoir section is juxtaposed with the sealing section across a fault and can be used to predict prospect viability and potential hydrocarbon column heights for faulted anticlines. This method was successfully applied to lower Ordovician dolomite

objectives in faulted structures along the Marathon-Ouachita Orogen.

The deeper pool Arbuckle discovery by ARCO at Wilburton Field in late 1987 set off a drilling boom in the Arkoma Basin. Before and after Wilburton, many Arbuckle dry holes were drilled which violated principles of trap analysis. Many failed wildcats did not have proper fault throw on the critical trapping fault to juxtapose Arbuckle

reservoir section with down thrown (post Simpson) seal section. Attributes of successful prospects must include fault displacements within a range controlled by sealing stratigraphy. Trap risks can be evaluated prior to drilling with a good structure map and knowledge of local stratigraphy and it's rock properties (including capillary entry pressures).

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### CHARLES A. STERNBACH -Biographical Sketch



Charles A. Sternbach earned a Ph.D. in carbonate geology (1984) and a M.S. in clastic sedimentology (1981) at Rensselaer Polytechnic Institute, Troy New York. He is originally from New York City, where he received a B.A. from Columbia University (1980).

Charles is a senior geologist for Shell where he has worked a variety of assignments over the last ten years. For the first five years he drilled wildcats looking for and finding gas in the Michigan Basin Prairie du Chien clastic play. More recent-

ly, he has focused on the search for oil and gas in lower Ordovician (Ellenburger, Knox, Arbuckle) carbonates in several basins throughout the Mid Continent, especially along the Ouachita-Marathon Orogen. He is currently using 3D seismic to increase oil reserves from Permian to Ordovician carbonate reservoirs in and around selected Shell Permian Basin producing properties.

Charles is in his second year as treasurer for the North American Explorationists Group of the HGS.