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Overview of the Hugoton Asset Management Project, Southwest Kansas and Oklahoma Panhandle.

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The Hugoton Asset Management Project (HAMP) is a two-year industry-Kansas Geological Survey study of the reservoir systems in the Hugoton Embayment of the Anadarko Basin with modeling the Permian gas reservoir systems and developing a digital field catalog for the pre-Permian reservoirs as primary objectives. The project is a collaboration between the Kansas Geological Survey and nine industry partners designed to provide the knowledge and technical base required for intelligent stewardship, identification of new opportunities, and continued improvement in recovery strategies.

The Hugoton and Panoma Fields, North America's largest, produce from the Wolfcampian Chase and Council Grove groups, respectively, and have yielded 34 TCF gas in Kansas and Oklahoma since the 1930's, an estimated 67% of original gas in place. Remaining gas in this giant stratigraphic trap is mostly in lower permeability pay zones of the 550-foot thick, layered reservoir system consisting of thirteen fourth-order marine-nonmarine sequences.

Direct estimates of water saturation by electric logs are not possible due to deep filtrate invasion. Lithofacies-controlled petrophysical properties dictate gas saturation and accurate discrimination of lithofacies reduces error in predicted permeability and gas volume. The use of neural networks to predict lithofacies at wells, automation and stochastic modeling make it possible to develop robust geologic models for the giant reservoir. Integration of core and log petrophysics with the geologic model provides an accurate static engineering model. Numerical reservoir simulations validate the static model and help identify higher pressure, under produced intervals in the layered reservoir system and forecast future production rates.