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Reservoir Characterization of the Hunton Group in the West Edmond Field, Oklahoma

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West Edmond Field is located in central Oklahoma, and is one of the largest Hunton Group oil accumulations in the Anadarko Basin. Oil and gas are stratigraphically trapped to the east against the Nemaha Ridge, to the north by a regional wedge-out of the group, and in intraformational diagenetic traps. Hunton Group reservoirs are the Bois d'Arc and Frisco Formations, with lesser production from the Chimneyhill Limestone, and Haragan and Henryhouse Formations. Field production exceeds 170 million barrels of oil (MMBO) and 400 billion cubic feet of gas (BCFG).

The reservoir characterization study of the Hunton Group in West Edmond Field is in conjunction with the U.S. Geological Survey petroleum systems-based assessment of oil and gas resources for the Anadarko Basin province. Three cores have been examined as part of this study: the Streeter 1 well, which is located in a southern West Edmond lease, and is currently undergoing dewatering prior to gas production, and two wells in the northern half of the field. Petrographic analyses of core samples indicate complex diagenetic relationships in the Hunton which influence permeability and reservoir quality. Based on 1-D burial history models calibrated to temperature and vitrinite reflectance data, the Woodford Shale source rock is mature for oil in the area of West Edmond Field, though migration of Woodford oil from deeper in the basin likely contributed to hydrocarbon accumulation.

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