Hydrocarbons of the Viosca Knoll 204 Field Pensacola Clay, Upper Miocene, Northeastern Gulf of Mexico, with Gas Source Implications and Trends

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ABSTRACT

The Viosca Knoll (VK) 204 Field consists of lease blocks VK 204 and VK 203 and is located in the Gulf of Mexico approximately 108 miles southeast of New Orleans. The field contains 16 wells: 10 wells produced out of the Pensacola Clay (Upper Miocene), 5 were dry holes, and 1 targeted the Knowles Limestone. Ranking third in production from the Pensacola Clay Formation, the field is unique in producing large quantities of oil from the formation. Gas produced has a specific gravity of 0.6 suggesting a thermogenic source similar to gas fields in the Norphlet (Upper Jurassic) and James Limestone (Aptian) formations in the Mobile (MO) and Viosca Knoll areas. Faulting in the area provided a conduit to deeper source rock to supply gas to the field. In the southeastern portion of the VK 204 Field, the deepest sands are oil charged and consistent with a deeper hydrocarbon source bed.

Four additional fields containing oil have been discovered in the deeper James Limestone (Aptian) and Andrew (Albian) formations along trend with the VK 204 Field: VK 340, 384, and 385, and Main Pass (MP) 253 fields. Together, these fields define a sweet spot for oil that runs parallel to the Lower Cretaceous Shelf Edge (LKSE), and comprise a Miocene to Lower Cretaceous age reservoir system charged by a common source. Further supporting evidence for migration across the LKSE is oil and thermogenic gas (specific gravity [sp gr] 0.6) discovered in other Pensacola Clay equivalentaged fields near the shelf edge in Chandeleur (CA) blocks 41, 42, and 43, and MP blocks 86, 159, 160, 161, 162, and 163.

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