
Deepwater Depositional Environments and their Unique Challenges within Gunflint Field, Gulf of Mexico

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EXTENDED ABSTRACT

The Gunflint Field is primarily located in southern Mississippi Canyon (MC) blocks 948 and 992, in approximately 6100 feet of water (Fig. 1). Hydrocarbons are located in Middle to Lower Middle Miocene deepwater sandstones within a four-way structural high. This presentation will focus on the depositional environments of the reservoirs within Gunflint.

Gunflint was initially discovered in August 2008. Seven reservoirs were discovered with a variety of hydrocarbons from rich oils to dry gas. Three reservoirs will be discussed in this presentation: A, B, and C, respectively, from shallow to deep. Reservoirs A and B were discovered between the depths of 24,000 feet tvdss (true vertical depth subsea) and 24,325 feet tvdss (Fig. 2). Reservoir A is interpreted to be an amalgamated braided channelized system with poorly defined channels and scours, cross-cutting a sandsheet environment. Reservoir B is interpreted to be a compensationally stacked channelized system with similarities to reservoir A. Difference lies in the amount of heterolithics present within each reservoir. Sand on sand contact is more widespread within reservoir B across the field while reservoir A has increasing amounts of heterolithics to the south of the field.

Reservoir C was discovered at the depth of 26,525 feet tvdss and has a gross thickness of 140 feet (Fig. 3). Reservoir C can be divided into five distinct sand lobes that are, with the exception of the deepest lobe, generally consistent in thickness throughout the field. The five lobes are divided through heterolithic boundaries that can be correlated across the field. Each reservoir present within Gunflint presents unique challenges when it comes to producing this field. An in-depth understanding of the depositional environment of the reservoirs will contribute to the successful production and longevity of the field.

Noble Energy and partners plan to commence production of Gunflint mid-2016.

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