

Petroleum Systems in an Intracratonic Basin Setting, South-central Sudan

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The Muglad basin is the largest and perhaps best understood of the Interior cratonic basins of the Sudan. The initial exploration in the basin was conducted by Chevron who succeeded in discovering the largest composite fields in the basin to date, Heglig and Unity. Greater Nile Petroleum of which Talisman is a 25% owner presently operates the concession. Since inception GNPOC has more than doubled reserves with 3P reserves now in excess of 1000 MMB accounting for production that recently peaked at 240,000 bopd.

The Muglad Basin formed in earliest Cretaceous times, its location controlled by pre-existing basement fabric. The basin is characterized by 2 major, and several minor rifting phases but it is apparent that structural adjustments have occurred along both old and newly formed faults throughout basin history. The primary source rock is in the Early Cretaceous Abu Gabra Formation. Basin reconstructions indicate multiple episodes of hydrocarbon migration. Trapping types are a combination of 4 way dip closures and tilted fault blocks. The major limiting control on trap size is cross-fault seal. To date almost all of the exploration has concentrated in the eastern half of the area leaving more than half of the concession under-explored.