

## **Petroleum System Related to 85° E Ridge: a Conceptual Study**

**Satyabrata Nayak, Suman Das, Rabi Bastia, and Bhabesh Kar**

*Reliance Industries Ltd, Mumbai, 400701, India, [satyabrata.nayak@ril.com](mailto:satyabrata.nayak@ril.com)*

85° E Ridge, one of the important N-S trending aseismic ridges lies in the Eastern offshore of India. The ridge has been interpreted to be formed during passage of Indian plate over stationary hotspot known as “Kerguelen”. Although several studies have been carried out to understand the evolution and genesis of ridge, its importance in hydrocarbon exploration is yet to be probed. In the present work the importance of 85° East Ridge in hydrocarbon potential has been discussed with the help of available seismic data as well as conceptual model in the deep Mahanadi Offshore Basin. Emplacement of ridge in the deeper oceanic crust has significant influence on sediment dispersal pattern from the early part of Late Cretaceous times till the end of Oligocene. The ridge acts as barrier for sediment transport at least till Oligocene time. The well developed lows between isolated highs related to the ridge are favorable for source rock generation and maturation. Well developed channel feature and the depositional fairway evident from seismic data and isopach maps point toward the reservoir potential in the area. On the other hand the isolated closure at the top of the ridge as well as onlap of Paleogene sediments are quite important for the entrapment condition. Published data from similar aseismic ridge elsewhere shows the possible exposure of ridge in shallow water / sub aerial condition hence chances of carbonate build up on the top of ridge is very much feasible. With systemic and careful approach the area can provide good locale for hydrocarbon potential for the country in future.