

Source Potential and Oil-Source Correlation in Olpad Formation of Ahmedabad-Cambay-Tarapur blocks of Cambay Basin, India

Neelam Niranjana, S. K. Jain, Anita Gupta, Leena John, Sudeepta Sen, and A. K. Gupta

Regional Laboratory, WOB, ONGC, Vadodara-390009, India

niranjana_neelam@ongc.co.in

Petroleum prospects of Olpad Formation still remain a challenging area to explorationists. To meet this challenge, it is imperative to know depositional pattern and paleo-structural conditions of Olpad Formation for identification of reservoir facies. In margin areas, juxtaposition with effective source rock may account for hydrocarbon accumulation in Olpad Formation. In the basinal part however, prospectivity will depend upon generative capacity of source within Olpad Formation itself. Therefore, in the present work source potential of the Olpad Formation has been assessed in the area.

In the eastern side, thick source sequences with moderate potential to generate hydrocarbons have developed in drilled sections of Indrora and Gamij fields and these are immature to early mature. In the west, Sanand-C has encountered 280m excellent mature source rock. In central part of the basin, Wadu-A has about 230m, Kalol-D has 160m and Wadsar-A has 90m source rock with fair generation potential and the sequences are at peak maturation state. As the central part has already generated hydrocarbons, original potential might have been much higher than seen at present.

In Cambay Tarapur Block, Olpad Formation in general does not show source characteristics except in Piswada-A and Indernaja-A which have (305m and 80m) fair to excellent source unit in catagenetic stage.

Thus in basinal part, adequate source is present for charging reservoirs within Olpad Formation. Oil in eastern margin has migrated up dip from low in the west.