
V. K. Rao, Directorate General of Hydrocarbons, Ministry of Petroleum, New Delhi, comments:

The author has identified three genetic units, viz., channel lag, in-channel and over bank accretions in the Mandapeta Formation and has described in detail the petrophysical and petrographic characteristics of hydrocarbon bearing sands. However, no map/illustration showing geographic distribution of these genetic units/facies in the study area is included in the paper. Rather a time structure map on top of Mandapeta Formation is shown (Fig.3), which has less relevance to the main theme of the paper. Thus, the conclusion drawn by the author that the area to the west and southwest of Mandapeta (without Mandapeta location) is speculative and lacks credence in the absence of a descriptive/demonstrative map.

Yadagiri Kotha, ONGC, Jorhat, Assam replies:

At the outset I would like to thank Dr. V.K. Rao, Directorate General of Hydrocarbons, Ministry of Petroleum, New Delhi for evincing keen interest in my paper. Point-wise reply to the issues raised by Dr. Rao are as follows:

1. This is first ever integrated sedimentological analyses of the complex and the oldest petroleum system that has rightly been described. The only culmination is around MD-A, G and H having a major palaeo-channel possibly resulted in better sorting as compared to other areas of the field which favoured the hydrocarbon entrapment. In a fluvial braided depositional realm, a map depicting the geographic distribution of genetic units resulting from complex milieu of sedimentation is rather difficult. To quote Andrew Miall (1996) is befitting in this context. He is not only the doyen of fluvial sedimentology but also versatile in other fields of earth sciences. Heconcedes in his widely acclaimed book on Fluvial Deposits that the ancient fluvial deposits are very difficult to map. Reconstruction of closely spaced outcrops and/or
subsurface sections seems to be near impossible due to extreme magnitude and scale of channel hierarchy. This is also true in the case of Mandapeta field.

2. Nevertheless, in the author's view, a close grid, systematic, extensive and continuous coring in some planned wells would help to some extent in bringing out such a map. But the question is of available core length. To cite one example, for diagenetic characterization of offshore Baramian hydrocarbon bearing sandstones in South Gabon basin, West Africa, the coring density in each well was 420 m, 141 m, 260 m and 163 m (Giroir et al. 1989).

3. Although the main theme of the paper is in the field of sedimentology, the author's effort has been to provide a semblance of synergy and holistic data integration for a meaningful interpretation of the geoscientific problem. Working in a compartmentalised and divisionistic fashion would no longer be tenable in this era of synergy. With this urge, the inclusion of time structure map is a value-addition and is useful for a varied cross section of geoscientists. I hope that this reply answers all the queries of Dr. Rao. Therefore, the conclusions drawn in my paper are in the right perspective and are relevant.

References


S. Das, c/o Dwaipayan Das, 104 Koramangala Industrial Estate, 5th Block, Bangalore - 560 095, comments:

On going through the above article I find some incongruities in their statements which I am discussing below:

1. A perusal of Fig.3 shows a groundwater divide trending NW-SE and running from Kamalpur to Saratpalli and beyond between Arra and Namosagardanga. Groundwater samples from Birja, Dhabani, Shibpur, Malangdighi and Jemua, located on the northern side of the groundwater divide, should not be influenced by the polluting sources 'S1' and 'S2', lying on the southern side of the divide. The same is true of the groundwater samples from D. Bandhunagar and Waria lying upgradient from the polluting source 'S2'.

2. The concentration of the pollutant decreases with increasing distance from the polluting source with more and more recharge in the groundwater flow direction. Further, phenol is likely to be adsorbed by the clayey and silty materials in the sedimentary sequence. Hence influence of the polluting sources S1 and S2 at distances of 11 to 18 km is unlikely.

3. The authors have not shown the City Centre on the map. The city centre is located right over the Durgapur beds of Jurassic age, which are generally hard and compact. How the authors have correlated the weathered upper parts of Durgapur beds, as phenolic compounds like coaliferous or carbonaceous deposits occurring below the Neogene sediments in the eastern extension of the Raniganj coalfield.

4. Table 1 lists the groundwater samples with their locations, but excludes the sources of water samples – dug wells (unconfined shallow zones), tube wells (deeper confined zone) and depth ranges. After all, the entire sedimentary sequence of several hundred metres cannot be polluted.