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ABSTRACT

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Indian Deepwater Exploration; Concepts, Technology and Challenges

Indian deepwater has joined the global deepwater club as an emerging exploration frontier. More than 40% of the total Indian sedimentary basinal area lies under deepwater (W.D. > 400 M) regime. The deepwater exploration success of Krishna-Godavari in East Coast of India is attributed to application of innovative concepts with a right blend of technology mix. Advances in seismic reflection imaging and extraction of the attributes have arguably been the most important elements in the success story. The image tool in wire line logging adds another strong dimension in integrating the event from the well bore to seismic. Recognition of thin-bedded pay, one of the outstanding contributions to the deepwater geological model, has been possible by integrating the information from different disciplines ranging from geology, seismic, logging, and drilling.

The turbidite paradigm is still dominant in the industry and are the most common deepwater deposits described so far. However, the paradigm is now 50 years old and everything from one centimeter thick, silt laminated mud stone to a fifty meter thick boulder-pebble-sand graded megabed has been called a turbidite. It is now well known that other processes are important and in some cases dominant, particularly in the deepwater channel-levee-overbank and fan lobe complex.

The success story of the Krishna-Godavari deepwater could not be unfolded without some challenges. A few of those are listed as follows:

- ❖ Heterogeneity of reservoir types and continuity
- ❖ Irregular response to seismic attributes
- ❖ Shallow gas hazards and water flows
- ❖ Low rock strength leading to a narrow range between pore pressure and fracture gradient
- ❖ Occurrence of gas hydrates

The way to make deepwater profitable and therefore possible is through technology and an empowered motivated workforce. Technology development need to respond

to two needs: evolutionary technology that allows continuous improvement and efficiency, and enabling technology that allows deepwater developments to keep taking the outsteps into deeper and deeper water.

Though our journey in exploring this frontier has been short, it has been rewarding. We strongly believe that a huge hydrocarbon potential exists in the deepwater frontiers of India. What we need is imagination, courage and the right resources.

“Chances favor the prepared mind”
“Those who win are those who believe they can”