

## **Estimation Of Effective Porosity and Saturation Volume by Extended Elastic Impedance Approach: A Case Study**

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The study area is a gas field situated in the deepwater of east coast of India. The depositional setting is channel-levee complex. From seismic many smaller episodes of paleo-channel flow has been distinguished within major channel-levee complexes. The smaller episodes of channels cut-fill and migrate, grow younger from bottom to top, depositing vertically offset sand bodies. Clean-thick channel sands, thinly laminated sands, splay sands and mudstone/shale are the major facies. In this complex geological setup both horizontal and vertical heterogeneity has been observed to a great extent. So the challenge in this field is to capture the reservoir heterogeneity efficiently. Any direct method of determining the reservoir property using transform based on single property viz., amplitude, sweetness, P-Impedance generate only an average outcome, which is devoid of finer details.

Effective porosity and saturation are the key reservoir parameter which plays a vital role in reserve estimation and planning production operations. In the present study extended elastic impedance approach has been adopted for obtaining effective porosity and saturation (Arsalan et al, 2009). Results show that EEI approach is an effective way of deriving petrophysical properties. The output of this study can be effectively used for static model building and volumetric calculation; hence helpful in further field development.