

## **Diagenetic Imprints and their Effect on Porosity Modifications in Bassein Limestone- A Case Study in the Area East of Neelam Field, Mumbai Offshore Basin.**

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Hydrocarbon occurrence has already been proved in the Middle-Late Eocene Limestone of Bassein Formation in different structures of Heera- Panna- Bassein block of Mumbai Offshore Basin. Present work is outcome of sedimentological study of the five wells namely A, B, C, D and E covering microfacies analysis, diagenesis and porosity modifications in Bassein Formation. Foram wackestone to foram-bioclastic packstone characterizes the Bassein Formation. Stylolaminations along with selective dolomitisation, partial sparitization of matrix with development of microspar and dissolution process are dominant diagenetic imprints observed in these microfacies. Good secondary porosity is observed in the form of solution vugs observed at certain levels in wells A, B and C due to karstification, leaching / dissolution of grains. The porosity in other structures of the area under study has been occluded by sparitization as well as filling of solution channels by blocky spary calcite. Subsequent dissolution of the spary calcite has generated minor secondary porosity in some intervals at later stage.

In general, reservoir characteristics in terms of development of porosity in Bassein Formation is poor to moderate except in the paleohighs where Bassein formation is subjected to prolonged subaerial exposures resulting in karstification and localized development of porosity.