

EVOLUTION OF SHELF MARGIN & DISTRIBUTION OF RESERVOIR FACIES IN EARLY CRETACE, OUS OF CENTRAL INDUS BASIN-PAKISTAN

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Progressive migration of Cretaceous Shelf edge from south-east to north-west with continuous basin downlap suggest three phases of Shelf building. The first phase occurred in the Southeast of the study area and includes both prodelta and delta front Lower and Upper Sembar Formation prograding and down-lapping onto the Chiltan Limestone representing overall regression. The end of Upper Sembar deposition on the shelf was marked by a relative fall in sea level which produced a massive basin ward shift in facies and start of almost a ramp like shelf margin. This lasted for about 30 million years until a major transgressive event spanning over about 7 million years occurred that marks the top of 'C' Sand interval of Lower Goru which is a strong basin wide marker. The last stage appears to show that near shore clastic depositional areas were moving towards the east, over stepping the basin margin. Both the middle and upper Lower Goru sequences show well developed shelf axis in the north of the study area. Several gas discoveries have been made in eastern part of the basin where near shore clastic facies of Lower Goru have been explored with gas discoveries at Miano, Kadanwari, and Mari Deep wells. These shelf sands, also known as shoreface sands, appear to diminish rapidly north-westward and their distribution is more variable south-eastward. This paper is an attempt to explore the regional extent of these sands in west and north where these have not yet been adequately explored. Play fairway based on regional sequence analysis has indicated a number of stratigraphic features generally associated with lowstand deposition and are considered worth further investigation for exploration in Central Indus Basin. These features can generally be expected to have been developed as lowstand slope / basinal distal turbidites in the west and north. Although reservoir quality of these basinal facies is often poor, in view of evidence from Sui Deep well, possibility of secondary porosity by leaching or fracturing due to late uplift can not be ruled out.