

# Fluvial Nature and Evolution of Fuyang Reservoir in Daqingoilfield, China

YU Xinghe, LI Shengli, DU Haifeng

China University of Geosciences, Beijing 100083, China

## Abstract

Fuyang reservoir in Daqing oilfield belong to the 3rd and 4th member of Quantou Formation in Cretaceous System, with apparent thickness of small, fast lateral changes in character. Its main depositional micro-facies belongs to distributary channels of delta plain and subaqueous distributary channel of delta front. Because the understanding for the fluvial distribution and evolution of Fuyang reservoir was unclear, it has constrained oil and gas exploration and development in this area for the long-term. Fuyang reservoir has been subdivided into 7 sequences of four-order on the base of systematic analysis of 45 well loggings and the application of principles of sequence stratigraphy. Through more than 3100m of cores specific description and classification of lithofacies, focusing on the vertical changes of sedimentary characteristics, such as lithology, grain size, thickness, fossils, colors and etc., especially the analysis of hydrodynamic conditions, thus fluvial characteristics of Fuyang reservoir have been studied in detail. Two major categories and six types of channel migrating patterns have been summed up. They are respectively as high sinuous lateral-accreting, middle sinuous crevassing and low sinuous filling-branching pattern of single-phase channel, chute cutoff, neck cutoff and ephemeral pattern of multiple-phase channel. In order to have a better study on the connectivity of sandbodies, 10 types of sandbody contact relationships in vertical and lateral have been set up based on research of channel patterns.. The application of method combining with core, logging, and seismic data, there obtained the map of depositional facies on each four-order sequences, and analyzed the characteristics of fluvial evolution of Fuyang reservoir in the study area, thus proposed the sedimentary style of meandering river in north and anastomosing river in south. This understanding is beneficial to guide the oil and gas explorations. There are 3 drills have experienced a good validation of industrial oil flow.

**Keywords:** Fuyang reservoir, Quantou Formation, distributary channels of delta, Channel migrating patterns, single and multiple phase channel.