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Analysis of Drilling Parameters to Mitigate Problems by Using the Managed Pressure Drilling Simulator"

Drilling is one of the most crucial processes in petroleum industry after the exploration phase. World's economy relies completely on an oil market. The low price of oil will make a trouble for oil industry to continue routine operations. It is a key challenge for petroleum industry to utilize a cost effective method to reduce Non Productive time (NPT) and to mitigate the various problems encountered during drilling such as stuck pipe, lost circulation and Gas and water influx etc in very narrow pressure window. The high NPT may increase the rig cost. Thus nowadays the Manage Pressure Drilling (MPD) technology has been widely used worldwide by which it is possible to drill the well safely and economically.
The present study focuses on the simulation of available drilling parameters by using standard ERDS software for managed pressure drilling (MPD) and its applications that can mitigate various drilling problems and significantly reduce NPT. The series of simulations was performed by selecting the shale, sand and lime stone formation with maximum interval of 20 ft and depth of 4280ft. The water based mud having density of 16.7ppg with flow rate of 750gpm was used to simulate the drilling parameters such as Equivalent circulating density (ECD), pressure profiles and velocity profile in narrow window. This technique is mostly applied in depleted formations with reduced pressure and save the drilling economy by controlling the down hole factors desired pressure window.

Keyword: ERDS Software, Dtilling parameters, NPT.

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