

Chapter Five

Conclusion and Recommendations

5.1 Conclusion:

The designing of slim hole by sidetracking from abandon well in hamra oil field are very complex and require making a lot of analysis to ensure drilling operation efficiency and reduce drilling problems. Through this project we come into the following conclusions:

- Constructed well profile from abandon well to target by build-up rate (BUR) 3deg/30m, and inclination 44.25 deg and also found dogleg severity 3degree or less which can make the process of drilling without key seat problems which consider one of the most complex drilling problems in directional drilling.
- BHA has been designed and selected to provide enough WOB to obtain successful drilling process and enough weight to deviate bit to the pre-planned trajectory.
- Slim hole side track simulation have been done by using FE software which provide good results and capability to open window through production casing using Backer Huge bit milling.
- Surge /Swab have been calculated and found the density during swab 10.1ppg and during the surge is equal 10.37 ppg. So that avoiding the problem comes from surge and swab. From the analysis of surge and swab plot we found that time of pulling and running for every stand is range between (10 - 200) sec.
- Suitable flow rate has been found (240) gpm that make drilling operation safety and ensure a good clean up to bottom and without cutting transport problem which is one of serious slim hole well problems.
- Wellbore stability software program has been designed to analysis fluid mud density which make slim hole well drilled with a suitable mud density program by graphically depicting the mud stable regions and fracture and collapse margin limits.

- Torque and drag analyzed and found sinusoidal buckling below KOP and this because inclination of well, this analysis considered acceptable result because it occurs apart from drill pipe at drill collar and HWDP region.

5.2 Recommendation:

After the completion of this study, and analysis the results we recommended the following points that must be taken into consideration for further studies:

1. Exploiting abandon wells to access new target close to it, rather than drilling new wells. Also it reduces the high costs of the drilling.
2. Make economical analysis of the slim hole.
3. Take into consideration the analysis of critical speed and determine the maximum permissible speed also making well control.
4. Conduct stress analysis in the drill string and the possibility of fatigue or failure.
5. We also recommended using software in designing BHA behavior.

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