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قسم

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OPTIMIZATION OF WELL TRAJECTORY AND MUD WEIGHT USING INTEGRATED MECHANICAL EARTH MODEL: A CASE STUDY FROM THE GULF OF SUEZ

By

Ahmed Mohamed Ibrahim Abdel Fatah El Batal

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Petroleum Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY,
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Title of Thesis:

Optimization of well trajectory and mud weight using integrated mechanical earth model: A case study from the Gulf of Suez

Key Words:
Mechanical Earth Model, Wellbore Stability, Pore pressure, Rock Failure Criterion, Safe mud Window.

Summary:

The Wellbore stability problems cost the petroleum industry billions of US dollars each year. Those problems range from drilling operations, completion and production, workovers, to EOR (Enhanced Oil Recovery). The expected problems are borehole breakout or collapse, drill pipe sticking, sand production, formation compaction, casing collapse, etc.... In the presented research; three fields from the south central of Gulf of Suez have been studied, focusing on the wellbore stability occurred while drilling, to predict the optimum mud weight window for each inclination and azimuth, stability of the rock for underbalance drilling, and anticipated drilling problems

DISCLAIMER

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the reference section.

Name: Ahmed Mohamed Ibrahim Abdel Fatah El Batal Date:

Signature:

DEDICATION

I would like to dedicate this work to my family the constant source of blessing and motivation.

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