

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Cairo University

MULTIPHASE WELL TESTING IN BOUNDED RESERVOIRS

By

Mostafa Reda Sanad

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
INTERDISCIPLINARY - MASTER OF SCIENCE
in
GAS PRODUCTION ENGINEERING

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

Multiphase Well Testing in Bounded Reservoirs

Key Words:

Multiphase; Bounded Reservoirs; Agarwal; Fraim; Pseudo-time

Summary:

Well testing in gas and multi-phase (Volatile oil & Gas condensate) reservoirs cannot be analyzed in the same way of oil reservoirs as the gas properties and phases saturations and properties are functions of reservoir pressure. using pseudo-time and pseudo-pressure functions for gas and multiphase systems considers the properties variation and gives an equivalent incompressible fluid behavior. This is a comprehensive study of applying different types of time functions (**Real time**, **Agarwal pseudo-time** and **Fraim pseudo-time**) on dry gas and multiphase systems to conclude guidelines to help to determine the most suitable time function that gives most accurate value of certain well test parameter under certain reservoir boundary condition for both of dry gas and multiphase systems.

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 references section.

Name: Mostafa Reda Sanad

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Signature

Dedication

I must express my gratitude to my parents who were always there for me, you were always the support and the power, thank you for being in my life.

I would like to thank my small family, thank you my wife, my beautiful daughter and my little son, thank you for everything. Thanks to my brother and sisters and their partners, you were always the model who pushed me to do more to follow your success.

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