

Prediction of Stand Pipe Pressure Using Conventional Approach

Dipankar Chowdhury, Pål Skalle, Mohammed Mahbubur Rahman

Abstract

In rotary drilling operation, the hydraulic circuit typically consists of stand pipe, rotary hose, swivel, Kelly, drill pipe, drill collar, drill bit and the annulus between the drillstring and the open hole or the casing. Stand Pipe Pressure, abbreviated as SPP, is defined as the total frictional pressure drop in the hydraulic circuit. SPP, an important drilling parameter in selecting proper mud weight, can be calculated using different rheological models. In this paper, the results obtained using the four widely used rheological models namely the Newtonian model, the Bingham plastic model, the Power law model and the Herschel-Bulkley model are presented. The rheological data used are collected by performing circulation test while drilling a vertical well in the Po valley, Italy. The rheological constants associated with each of the four models are calculated using regression analysis over all the six Fann viscometer readings obtained for the water based mud used. For the three flow rates used during the circulation test, SPP has been predicted with a maximum error of 1.2% when compared with the measured values. The Bingham plastic model produces best SPP estimates for all the three flow rates for the drilling condition considered.

Keywords: SPP, rheological models, frictional pressure drop

DOI = 10.3329/ceerb.v13i1.2703

Chemical Engineering Research Bulletin 13 (2009) 7-11

References

Full Text: [PDF](#)

Chemical Engineering Research Bulletin ISSN Print: 0379-7678 Online: 2072-9510

Indexed by *Chemical Abstract Service (CAS)*, *CEABA-VtB*, *Google Scholar* and *DOAJ*

BanglaJOL is supported by [INASP](#)

USER

Username

Password

Remember me

JOURNAL CONTENT

Search

All

Browse

- [By Issue](#)
- [By Author](#)
- [By Title](#)
- [Other Journals](#)

FONT SIZE

INFORMATION

- [For Readers](#)
- [For Authors](#)
- [For Librarians](#)

ABOUT THE AUTHORS

Dipankar Chowdhury
Department of Petroleum Engineering and Applied Geophysics, Norwegian University of Science and Technology, Trondheim-7491 Norway

MSc in Petroleum Engineering

Specialization: Drilling Engineering

Pål Skalle
Department of Petroleum Engineering and Applied Geophysics, Norwegian University of

Science and
Technology,
Trondheim-7491
Norway

PhD

Associate
Professor,

Drilling Engineering

*Mohammed
Mahbubur Rahman*
Department of
Petroleum and
Mineral Resources
Engineering,
Bangladesh
University of
Engineering and
Technology,
Dhaka-1000
Bangladesh

PhD

Assistant
professor,

PMRE, BUET

RELATED ITEMS



[Author's
work](#)

[Related
studies](#)

[Book
searches](#)

[Databases](#)

[Relevant
portals](#)

[Pay-per-
view](#)

[Online
forums](#)

[Teaching
files](#)

[Government
policy](#)

[Media
reports](#)

[Web search](#)

ARTICLE TOOLS



[Print this
article](#)



[Indexing
metadata](#)



[How to cite
item](#)



[Finding
References](#)



[Review policy](#)



[Email this
article](#) (Login required)



[Email the
author](#) (Login required)