



Modelling and optimization of a stimulation treatment in a Danish North Sea field

Mohammadi, M. ; Nick, Hamid

Publication date:
2019

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Mohammadi, M., & Nick, H. (2019). *Modelling and optimization of a stimulation treatment in a Danish North Sea field*. Abstract from Danish Hydrocarbon Research and Technology Centre Technology Conference 2019, Kolding, Denmark.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Danish Hydrocarbon Research and Technology Centre Technology Conference 2019

Modelling and optimization of a stimulation treatment in a Danish North Sea field

M. Mohammadi¹, and H.M. Nick¹

¹Danish Hydrocarbon Research and Technology Centre, Denmark;

M. Mohammadi

AWF2

Improvement of the drilling methods and well productivity have been focused on underground energy harvesting for decades. Radial Jet Drilling (RJD) has been brought to attention, as it requires small volume of water, reduces risk, and expenses, which make this technique more lucrative. RJD is done by hydraulic jetting through the well to make lateral wells with a smaller diameter. RJD can be, therefore, considered as a potential technique to boost the efficiency of the wells (E. Peters et al., 2015). However, according to its complex interaction with the main well, the robust numerical model is required to predict its performance.

This research aims to investigate the sensitivity of selected parameters such as length, angle, and location of RJD on one of Danish North Sea. A commercial reservoir simulator based on finite difference method is used to analyze the sensitivity. Thus, the modelling can provide valuable data concerning effectiveness, location, optimum length and number of lateral wells. Based on this data the optimize RJD model on the field can be achieved which lead to increasing in recovery factor and optimized operation.

Keywords: Radial Jet Drilling, Numerical simulator, Finite Difference, Optimization.

References: Peters, E., et al. "Radial drilling for Dutch geothermal applications." Utrecht: TNO report, 2015.

