

SPE Norway Subsurface Conference 2020

Online
2 – 3 November 2020

ISBN: 978-1-7138-2117-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2020) by Society of Petroleum Engineers
All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact Society of Petroleum Engineers
at the address below.

Society of Petroleum Engineers
P. O. Box 833836
Richardson, Texas 75083-3836

Phone: (800) 456-6863
Fax: (972) 952-9435

books@spe.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

SESSION 1: DRILLING AND WELL I

WELL DESIGN CHANGES EXTEND WELL LIFE IN SUBSIDING OVERBURDEN AT VALHALL FROM 7 TO 24 YEARS.....	1
<i>T. Kristiansen</i>	

LOGGING AND GEOSTEERING WITH A GREEN BHA - RADIOISOTOPE-FREE LWD FORMATION EVALUATION INCLUDING DEEP AZIMUTHAL EM AND HIGH-RESOLUTION IMAGING IN OBM	18
--	----

M. Horstmann, C. Shrivastava, J. Denichou, G. Halset, M. Firi

NON-NEWTONIAN FLUID FLOW MEASUREMENT IN OPEN VENTURI CHANNEL USING SHALLOW NEURAL NETWORK TIME SERIES AND NON-CONTACT LEVEL MEASUREMENT RADAR SENSORS	35
---	----

N. Noori, T. Waag, H. Viumdal, R. Sharma, M. Jondahl, A. Jinasena

SESSION 2: RESERVOIR I

ATTIC OIL RECOVERY IN THE ALVHEIM FIELD.....	46
<i>K. Langaas, N. Gueze, E. Jeurissen</i>	

SIMULATION STUDY FOR FIELD IMPLEMENTATION OF WAG AS INITIAL DRAINAGE STRATEGY	67
---	----

A. Larsen, T. Forland, E. Oian, D. Jarlsby

TOPSIDE DISTRIBUTED ACOUSTIC SENSING OF SUBSEA WELLS	82
--	----

A. Ellmauthaler, B. Seabrook, J. Maida, G. Wilson, J. Bush, J. Dupree, M. Uribe

LITHOFACIES CLASSIFICATION AND DISTRIBUTION FOR HETEROGENEOUS CHANNELIZED SYSTEM BASED ON NEURAL NETWORK PROCESS: CASE STUDY FROM MIDDLE EAST CARBONATE RESERVOIR	95
---	----

A. Al-Ali, K. Stephen, A. Shams

SESSION 3: OPTIMISING OPERATIONS EFFICIENCY

INNOVATIVE ONE TRIP SYSTEM HELPS QUALIFYING CREEPING SHALE AS PERMANENT BARRIER FOR PLUG AND ABANDONMENT OF WELLS ON THE GYDA FIELD.....	108
--	-----

T. Stokkeland, E. Malde, P. Staveland, Y. Froyland, S. Dybvik, J. Jacobsen, T. Bstn, S. Opedal

A STRUCTURED APPROACH OF RELIABILITY DEMONSTRATION TEST IN THE DEVELOPMENT OF ELECTROMECHANICAL REMOTELY OPERATED DOWNHOLE CONTROL DEVICE FOR INCREASED OPERATIONS EFFICIENCY	114
---	-----

J. Chakkungal, M. Christie, P. Shrivastava

A FAST ALGORITHM FOR INTEGRATED ASSET MODELING	122
--	-----

P. Cunningham, J. McCann, M. Bouhdaid

DRIVING OPERATIONS EFFICIENCY THROUGH RIGHT SKILLING AND REMOTE OPERATIONS	133
<i>A. Khan, I. Hamre, A. Nabili</i>	

SESSION 4: DRILLING AND WELL II

AUTOVISCOSITY - A VITAL STEP TOWARDS AUTOMATION OF THE DRILLING FLUID PROCESS ON DRILLING RIGS	144
<i>K. Bjorkevoll, M. Aghito, B. Lund, B. Blom-Jensen, G. Torpe, J. Brevik, A. Fjogstad</i>	

A DRILLING COMPANY'S PERSPECTIVE ON NON-PRODUCTIVE TIME NPT DUE TO WELL STABILITY ISSUES	156
<i>N. Krygier, A. Solarin, I. Orozova-Bekkevold</i>	

HOW TO DEVELOP AND IMPROVE INDUSTRY - ACADEMIA RELATIONS	165
<i>T. Kaland</i>	

EFFECT OF LONG-TERM AGING IN CARBONATED BRINE ON MECHANICAL PROPERTIES OF A NOVEL CEMENT SYSTEM WITH AN EXPANDABLE AGENT	177
<i>J. Todorovic, N. Opedal, B. Werner, J. Clausen, A. Kvassnes</i>	

SESSION 5: RESERVOIR II

IMPLEMENTATION OF ENSEMBLE-BASED RESERVOIR MODELLING ON THE ÆRFUGL FIELD.....	187
<i>O. Tveteraas, G. Vey, A. Hjellbakk, K. Wojnar</i>	

A NOVEL APPROACH TO WELL INFLOW MODELLING USING COMPUTATIONAL FLUID DYNAMICS FOR BALDER AND RINGHORNE FIELDS	203
<i>H. Samosir, T. Hansen, L. Djayapertapa, M. Byrne</i>	

WHEN CAN A STOCK-TANK OIL BE A CONDENSATE?.....	224
<i>K. Meisingset, A. Cely, C. Bergo, T. Yang</i>	

SCREENING OF NANOPARTICLES WITH CONSIDERING THE PORE STRUCTURE AND INITIAL OIL CONNECTIVITY EFFECTS.....	235
<i>M. Omran, S. Akarri, A. Bila, O. Torsaeter</i>	

HIERARCHICAL CHARACTERIZATION AND MODELLING OF DEEP-WATER SLOPE CHANNEL RESERVOIRS.....	253
<i>K. Soni, T. Manzocchi, P. Haughton, M. Carneiro</i>	

SESSION 6: DIGITALISATION

THE DIGITALIZATION JOURNEY OF THE BRAGE DIGITAL TWIN	279
<i>P. Kronberger, P. Dabrowski, J. Chacon, P. Bangert</i>	

SEARCH AND CONTEXTUALIZATION OF UNSTRUCTURED DATA: EXAMPLES FROM THE NORWEGIAN CONTINENTAL SHELF.....	289
<i>C. Caso, S. John, P. Malec, T. Stray, E. Vollset</i>	

APPLICATION OF MACHINE LEARNING IN OFFSET WELL PLANNING	295
<i>K. Adlakha, E. Lyngvi, N. Larssen, M. Tvedt</i>	

DIGITAL TWINS FOR WELL PLANNING AND BIT DULL GRADE PREDICTION	306
<i>M. Shirangi, E. Furlong, K. Sims</i>	

SESSION 7: DRILLING AND WELL III

DEEP REINFORCEMENT LEARNING APPLIED TO MANAGED PRESSURE DRILLING	320
<i>M. Arno, J. Godhavn, O. Aamo</i>	
HYBRID APPROACH FOR DRILLING AUTOMATION	330
<i>M. Aghito, K. Bjokevoll</i>	
RESERVOIR DEPLETION CHALLENGES - A GEOMECHANICS WORKFLOW FOCUSED ON OPTIMIZING LATE-LIFE FIELD DEVELOPMENT.....	340
<i>N. Thompson, L. Renli, H. Reitan</i>	
MATERIALS FOR WELL INTEGRITY – SHORT-TERM MECHANICAL PROPERTIES OF CEMENT SYSTEMS.....	353
<i>M. Kamali, M. Khalifeh, A. Saasen</i>	
DRILL-BIT DESIGN HELPS MITIGATE CONSEQUENCES OF WELL COLLISION	366
<i>T. Veras, R. Bacon, T. Arvik</i>	

SESSION 8: RESERVOIR III

ACCOUNTING FOR MODEL ERRORS OF ROCK PHYSICS MODELS IN 4D SEISMIC HISTORY MATCHING PROBLEMS: A PERSPECTIVE OF MACHINE LEARNING.....	377
<i>X. Luo, R. Lorentzen, T. Bhakta</i>	
OPTIMIZING WELL ECONOMIC LIMITS USING ENSEMBLE-BASED OPTIMIZATION ON OLYMPUS FIELD.....	408
<i>Y. Chang, G. Nffivdal, R. Lorentzen</i>	
A REVOLUTION IN PERFORMANCE USING A GPU BASED SIMULATOR.....	419
<i>J. Siavoshi, K. Mukundarkrishnan</i>	
HIGH-FREQUENCY, AZIMUTHAL, SONIC LWD TOOL HELPS TO IMPROVE COMPRESSONAL VELOCITY PROCESSING IN FORMATIONS WITH HARSH LOGGING CONDITIONS: CASE STUDY	427
<i>M. Acharya, A. Al-Mershed, A. Abdulkarim</i>	
OPTIMAL WELL PLACEMENT USING MACHINE LEARNING METHODS: MULTIPLE RESERVOIR SCENARIOS.....	437
<i>S. Mousavi, H. Jabbari, M. Darab, M. Nourani, S. Sadeghnejad</i>	

SESSION 9: PRODUCTION AND WELL OPERATIONS

DEVELOPMENT AND PRACTICAL APPLICATION OF AN ANALYTICAL WELL FAILURE MODEL THAT IMPROVES WELL SAFETY AND PRODUCTION EFFICIENCY	449
<i>S. Girling, J. McIntosh, P. Lumbye, H. Nielsen, S. Patterson, P. Lutzen</i>	
USE DYNAMIC SIMULATION TO DIAGNOSE THE STARTUP FAILURE OF A LONG HORIZONTAL WELL IN THE NORTH SEA	461
<i>B. Hu, A. Olsen, N. Hewitt, M. Branchflower</i>	

A RAPID, SIMPLE, PORTABLE TOOL TO DESIGN AND ANALYSE THE VALUE OF
INFLOW CONTROL DEVICES ICD AND AUTONOMOUS INFLOW CONTROL DEVICES
AICD 478
B. Prakasa, G. Corona, C. Allen

Author Index