

International Petroleum Technology Conference 2024

Dhahran, Saudi Arabia
12 - 14 February 2024

Volume 1 of 10

ISBN: 978-1-7138-9685-2

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© (2024) by Society of Petroleum Engineers
All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

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

VOLUME 1

APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN RESERVOIR ENGINEERING

Application of Deep Neural Network (DNN) in Reservoir Simulation for Hydraulic Fracturing and Production of Unconventional Wells	1
<i>R. Li, J. Fu, T. Gao, P. Zhang</i>	
Physics-Informed Machine Learning Application to Complex Compositional Model in a Giant Field.....	13
<i>Guido Bascialla, Coriolan Rat, Soham Sheth, Daniel Dias, Mohammad Reza Heidari</i>	
Post-Match Ensemble Analytic Techniques to Investigate Posterior Forecast Uncertainties	26
<i>S. Lo Forte, E. Della Rossa, M. Amr. Aly, F. Grilli, E. Radice, E. Vecchio</i>	
Waterflood Optimization in Nahr Umr Sandstone Reservoir in Bahrain Field Using Ensemble of Novel Analytical Techniques	39
<i>A. E. Aljowder, F. Alkuwari, L. Konwar, A. Mohamed, E. Alowainati</i>	
Machine Learning Accelerated Phase Flash Calculation for CO ₂ -Brine System Considering Capillarity Effect	54
<i>Billal Aslam, Zeeshan Tariq, Bicheng Yan</i>	
Uncertainty Quantification and Management in Model Calibration and History Matching with Ensemble Kalman Methods.....	71
<i>A. A. Al-Turki, K. J. Hammad, S. B. Sudirman, Z. N. Sawlan</i>	

COMPLETIONS — CASE STUDIES

Utilization of Compact Unitized Wellhead System for Unconventional Wells	84
<i>M. Alsaeed, M. E. Mukhlifi, M. Al Amer</i>	
Dissolvable Ball as a Temporary Fluid Loss Control Device for Multilateral Wells.....	96
<i>I. El Mallawany, Y. Simmons, A. Mohamed, A. Osman</i>	
Completion Philosophy Rejuvenation to Maximize Well Potential in Challenging Sour HPHT North Kuwait Jurassic Gas Fields	107
<i>Mohamed Abdel-Basset, Mohamed Al-Sharad, Mutlaq Al-Arouj, Taha Bloushi, Majdi Al-Mutawa, Moudi Al-Ajmi</i>	
Optimizing Wellbore Cleaning Operations in High Horizontal Depth (HD) -To-Total Vertical Depth (TVD) Ratio Wells: Insights from Case Studies in Challenging Well Profiles.....	130
<i>Olabintan. O Olawale, Ahmed Akram, Yaseen Ismael, Ali Al Yami</i>	

ADVANCEMENTS IN DRILL BITS AND DRILLING FLUID

Optimization of Drilling with High-Frequency In-Bit Sensing.....	145
<i>E. Stolboushkin, A. Kueck, A. Pauli</i>	
Modification of Shale Inhibition Properties Using Novel Drilling Fluids with Gemini Surfactant and Associative Polymer as Additives	159
<i>H. M. Ahmad, A. Javaid, N. Baig, S. Yasin, T. Iqbal</i>	

Comparing Product Performance Through Time of Silicone Based Defoamer and Polyalcohol Based Defoamer in Aqueous Fluid.....	168
<i>M. A. Bu Khawwah, S. A. Alrammah</i>	

INTEGRATED RESERVOIR CHARACTERISATION

An Innovative Approach to Real-Time NMR Permeability Calibration Utilizing Azimuthally Oriented Formation Testing While Drilling.....	178
<i>M. Fouda, A. Taher, O. Ramadan, A. Binghaith, M. Saad</i>	

A Case Study Applying Multi-Well Saturation Height Modeling Combined with Pore Geometry Advanced Petrophysical Rock Types for Integrated Reservoir Characterization and Field Development Studies.....	201
<i>G. W. Gunter, M. Y. Sahar</i>	

Complex Reservoir Typing by Dual Imaging Log, Thin Sections and Advanced Mud Gas Analysis for a Weathered Granite Basement in Transformation Zone, Pearl River Mouth Basin, Offshore South China	211
<i>Lijun Guan, Ting Xiong, Bo Liu, Meng Shao, Xianlei Zeng, Jiheng Zhou</i>	

INTEGRATED RESERVOIR ENGINEERING AND GEOSCIENCES — CASE STUDIES

An Integrated Interdisciplinary Approach to Delivering Successful Infill Wells in a Mature Field	224
<i>X. Yeoh, N. Iliani, A. Fadjarjanto, B. Gallagher, A. Bakar, A. Sikandar, H. Hoeyland</i>	

Unleashing the Potential of Rate Transient Analysis: Transforming the Exploitation of Mature and Tight Fields, 40-Years Mature Field Case Study	236
<i>Amr Gharieb Ali, Mohamed A. Gabry, Ahmed Algarhy, Ahmed Farid Ibrahim</i>	

Study on In-Situ Stress Evolution and Its Impact on Infill Well Fractures Propagation- A Case Study from China	253
<i>Xiaoguang. Wang, Qingxiang. Wu, Zhibin. Jiang, Dan. Xie, Wei. Zhou, Chuanchuan. Qian, Liming. Lian, Jie. Wang, Zheng. Li, Liming. Qu, Xingning. Huang</i>	

Sustainable Redevelopment of the Volve Field Amidst Recent Energy Security Challenges Faced by Northwestern Europe; A Case Study from Central North Sea	263
<i>M. Nauroz Ahmad, M. Yaser, M. Abdel-Basset, R. Abdelrahim, E. Siddique, M. E. Abdelbagi, B. Firmansyah, M. Aktar</i>	

SEISMIC ACQUISITION

Case Study: Saturation Assessment in Low Resistivity Pay (LRP) 1d & 3d Modeling (DH-Libya).....	282
<i>W. Ablil, A. Elsadawi, M. Altownisi, M. Aboelkhier</i>	

EXPLORING CCS FRONTIERS: SCREENING AND EVALUATION

Using AHP and Stochastic TOPSIS for Carbon Storage Screening and Ranking with Uncertainty Analysis.....	299
<i>J. Ma, V. D. Gennaro, B. Tan</i>	

Unpacking the Technical and Financial Challenges of Carbon Capture and Storage in Depleted Gas Fields for a Sustainable and Economically Viable Energy Future: Insights from the Egyptian Nile Delta	310
<i>Mohamed Mahmoud Abdelrahman, Shaun Hoolahan</i>	

Legacy Wells Screening Method for Potential CO ₂ Storage Sites	329
<i>H. Costeno Enriquez, H. Dick, C. Holloway, R. Salter</i>	

AI APPLICATIONS IN DRILLING AND COMPLETIONS I

A Developed Robust Model and Artificial Intelligence Techniques to Predict Drilling Fluid Density and Equivalent Circulation Density in Real-Time.....	341
<i>Mohammed Murif Al-Rubaii</i>	
How Complex Lithology Schemes Affect Drilling Rate Prediction: Machine Learning Study	359
<i>Hany Gamal, Omokayode Omotunde, Miguel Duarte, Omar Mohamed, Salaheldin Elkatatny</i>	
A New Automated Carrying Capacity Index Model Optimizes Hole Cleaning Efficiency and Rate of Penetration by Applying Machine Learning Technique	374
<i>Mohammed Murif Al-Rubaii</i>	

AI APPLICATIONS IN G&G DOMAINS

A Novel Methodology for Forecasting Petrochemical Product Prices in East China Market by Applying ARIMAX Time Series and Machine Learning Models	415
<i>T. Hu, C. Chen, H. Wei</i>	
Online Sequence-Based Deep Learning Approach for Metallic Debossed and Embossed Turbomachinery Blade Text Recognition Application	430
<i>A. Youssef, P. Mishra, M. Vitale, G. Schillaci, G. Veneri, A. Bettini, G. Anatriello, M. Burbui, F. Ceccherini</i>	

BEST PRACTICES IN PROCESS CONTROL AND OPTIMISATION

Hydrocarbon Value Enhancement: A Novel Total Systems Solutions Approach for Contaminants Removal	439
<i>S. R. Pinappu, S. Murugesan, J. K. Jani</i>	
Protecting Boiler Feed Water Pump Against Cavitation Through Applied Mathematical Approach	454
<i>J. Leal, K. Alkad</i>	

CUTTING-EDGE APPROACHES IN PIPELINE OPERATIONS AND MAINTENANCE

Novel Pipeline Inspection Multiparametric Sensor	466
<i>William Palozzo, Claudio Passucci, Emilio D'Alessandro, Simone Arca, Alfiero Leoni, Gianluca Barile, Vincenzo Stornelli</i>	
Composite Repair Validation and Testing: Offshore and Onshore Pipeline Correlation and Findings.....	481
<i>J. Petch, P. Suchada, T. Matina</i>	
Dynamic Flow Behavior Analysis of Wet Gas Pipelines.....	493
<i>S. A. Putra</i>	

UNCONVENTIONAL RESERVOIR CHARACTERISATION

Mechanical Properties of Cenozoic Organic-Rich Shale from North Sumatra and South Sumatra Basins, Indonesia.....	505
<i>E. S. Lanin, H. Sone, B. Sapiie, J. T. Musu, B. Widarsono, M. Hatta, A. Nugraha, B. K. Gunawan, D. A. Nugroho</i>	

An Experimental Study for the Impact of Heating and Cooling on Strength of Unconventional Reservoirs.....	519
<i>F. Khan, M. Mahmoud, S. Patil, A. Raza, M. J. AlTammar, M. Murtaza, M. Al Marri, T. Al Shafloot</i>	

REAL-TIME FIELD PRODUCTION MONITORING

Maximizing Production and Cost Optimization in a Remote Carbonate Oilfield Through a Standalone Waterflooding System: An Oman North Case Study	530
<i>A. A. Al-Mamari, M. A. Al-Ajmi, H. N. Al-Omeiri</i>	
Multivariate Sensitivity Analysis and Real-Time Algorithms in Data-Driven Coiled Tubing Cleanouts Turn Insights into Action	541
<i>Philippe Tardy, Lev Kotlyar, Azwan Hadi Keong, Santiago Hassig Fonseca, Pierre Ramondenc, Jordi Segura, Pavel Spesivtsev</i>	
Digital Solution for Well Surveillance in Stacked Reservoirs with Near-Critical Fluid Systems	556
<i>K. Mogensen, C. Mata, S. Samajpati, P. Cremades, J. E. L. Uribe, M. Al Zaabi</i>	
Application of Remote Monitoring and Controlling Intelligent Separated Layer Water Injection Technology in BQ Oilfield, Dagang	570
<i>Zuchang Song, Yang Liu, Jijun Yang, Huaxing Zhou, Gang Feng, Liaoyuan Huo, Yingying Wang, Yongtao Zhang, Xiaomei Cao, Baoyou Liu, Jie Zheng</i>	
Application of a Bayesian Ensemble Algorithm for Automated Production Diagnostic of Gas Wells with Plunger-Lift	584
<i>Y. Pan, R. Bi, S. Yang, Z. Lyu, X. Ju</i>	
Improving Multiphase Flowmeter Accuracy for Hydrocarbon Allocation and Wet Gas Production of Unconventional Oil-Gas Wells.....	604
<i>M. Fiore, M. A. B. Razali, T. Zhang, K. Yang, G. Jolivet, L. Husoschi, J.-P. Hussenet</i>	

PRODUCTION LOGGING AND TRACER

Seeing Beyond the Obscure Fluid: How an Enhanced Production Logging Approach Helped to Improve the Workover Design.....	621
<i>W. H. Mirza, M. T. Khan, R. Saud, I. B. Espinoza, U. Farooq</i>	
Unlocking Commingled Production Using Geochemical Production Allocation.....	635
<i>S. Mejia, N. Markano, L. Marquez, B. Bonfanti, O. Cortez, A. Paladines, E. Fernandez, S. Piñeiros, E. Alba, M. Mendoza, E. Molina, J. Reyes</i>	
Changing the Status Quo: First Application of Utilizing Novel Tracer Technology for Monitoring Hydraulic Fracture Stage Contribution.....	651
<i>W. Arshad, I. Brohi, S. Pooniwala</i>	
Fluorinated Polyzwitterion Coatings for Stabilizing Colloids and Lowering Retention of Nanoparticles.....	666
<i>S. S. Zhu, H. Chen</i>	

IOR/EOR — CASE STUDIES

Successful Treatment in Water Control with Relative Permeability Modifiers for HP/HT Carbonates	679
<i>José María Petriz, Luis Alejandro García, Erick Acuña, Iván Ernesto Narváez, Sarai Santos, Larry Eoff, Julio Vasquez Estrada, Iván López</i>	

From Lab to a Successful Field Operation: In-Situ Polymer Gel with Adsorption System for Water Shutoff Application	695
<i>A. Almohsin, H. Sharma, M. I. Alabdrabalnabi, W. Kharrat</i>	
Benefits and Challenges of Polymer Flooding in a Heavy Oil Field.....	706
<i>Chiara Callegaro, Paolo Galeazzi, Franco Masserano, Chiara Tritto, Leili Moghadasi, Alberto Viareggio, Joshua Zuber, John Waggoner</i>	

VOLUME 2

First Long-Term Polymer Injectivity (LTPI) Test in Magwa Field Targeting Medium Quality Formation in Wara, Great Burgan Field	729
<i>AbRAR Al-Qattan, Mohammed Al-Murayri, Narjas Almahmid, Sara Alkhuzam, Abbas Sanaseeri, Naser Alajmi, Abraham Hassan, Shweta Kakade, Anirban Banerjee, Carlos Mascagnini, Alexey Adrianov</i>	
Assessing the Performance of Thermally Active Polymer as an In-Depth Conformance Technology in a Mature Waterflooded Reservoir: A Recent Field-Scale Case Study Utilizing Interwell Tracers in Argentina's Largest Oil Producing Field.....	746
<i>Mahdi Kazempour, Rodrigo Santamaria, Leonel Lizarazo, Javier Gomez, Alberto Iuliano, Christian Martinez, Diego Damian Fernandez</i>	

DRILLING AND COMPLETION WELL INTEGRITY

Utilization of Innovative Elastomeric Cement Integrity Sleeve as a Field Proven Cement Assurance Solution: A Sustained Annular Pressure Prevention Case Study	764
<i>A. Osorio, A. Vliegenthart</i>	
Complex Well Intervention Activities to Restore the Integrity of Single Barrier High Risk Gas Well	777
<i>Y. B. Al Amri, Z. A. Al Bulushi</i>	
Wellbore Strengthening Uncertainties and Workflow Optimizations	791
<i>A. Samy</i>	

INNOVATION IN DRILLING PERFORMANCE

A Comprehensive Analysis of Filter Cake Breakers for Non-Aqueous Drilling Fluids	803
<i>K. Stamer, M. Baltaeva, M. Orlov, V. Wagle</i>	
Rheological and PVT Behavior of Synthetic Based Drilling Fluids Under Temperature-Pressure Conditions of the Riser in Deepwater Drilling	822
<i>S. Yanik, I. H. Gucuyener, C. Sinayuc, O. F. Akel</i>	
Unveiling the Stability of Modified Graphene: Insights Through Visual Observation and Light Scattering Technique	838
<i>Mobeen Murtaza, Azeem Rana, Muhammad Shahzad Kamal, Sulaiman Alarifî, Mohamed Mahmoud, Tawfik A. Saleh</i>	

DRILLING PERFORMANCE SOLUTIONS

Cuttings Accumulations Prediction in Deviated & Horizontal Wells with Dimensionless Data-Driven Models.....	846
<i>Mohamed Shafik Khaled, Muhammad Saad Khan, Abinash Barooah, Mohammad Azizur Rahman, A. Rashid Hasan</i>	

The Nature of the Interaction Between Bit-Whirl and High-Frequency Torsional Oscillations.....	864
<i>A. Hohl, A. Kueck, V. Kulke, K. Glowatzki</i>	
Fit-For-Purpose Sweep Pumping Schedule to Improve Operation Efficiency While Achieving Effective Hole Cleaning During Clean Up Cycle at Well Total Depth in an Unconventional Drilling Operation.....	880
<i>G. Yin, S. W. Rogers, V. Q. Le</i>	
Successful Implementations of Drilling Microchips for Distributed Measurement While Drilling	891
<i>Vahid Dokhani, Abrar Alshaikh, Bodong Li, Guodong Zhan</i>	
Well Collision Risk Management by Fully Automated Wellbore Surveying	903
<i>M. ElGizawy, N. Zackman, J. Hernandez, F. Gomez, A. Row</i>	
Conveyance Options for Pipe Recovery in a Stuck Drill Pipe Scenario in Horizontal Wells.....	912
<i>S. Kishore, J. Woods, D. Engel, K. Batyrkhanov</i>	

INTEGRATED RESERVOIR MODELLING

Pushing the Limits of Gas Recovery Factor Through Holistic Integrated Network Modelling for Natural Depletion Drive Brown Fields.....	926
<i>P. M. Yip, A. K. Sinha, R. B. Md Rabi, W. Wan Mohamad, V. Gaur, H. A. Law, A. B. Hamid</i>	
Integrated Workflow for Reservoir Development and Optimization in a Low-Seismic-Resolution Formation: A Case Study of a Gas Reservoir in Pakistan.....	936
<i>Saad Bin Abrar, Sheraz Ahmed, Majid Najeeb Siddiqui, Hafiz Mustafa Uddin Sheikh, Ghulam Muhammad Waqas</i>	
Breaking the Chain, Novel Use of Adaptive Model Approach for Reservoir Modelling Reduces Time Duration of Project and Improves Collaboration	949
<i>A. R. Thompson, C. E. Zerpa Bolivar</i>	
Field Development Plan Defined by Technology: Pressure Transient Analysis and Spectral Decomposition Integrated with Production Made the Difference	963
<i>Z. Ardhi, M. Glukstad, A. Rafliansyah, M. Al Abdali, P. Govinda, R. Mohanty, H. Shabibi</i>	
An Improved Method for Oil-Water Contact Determination in Connected Fractured-Caved Reservoir Modeling Restricted by Data of Oil Displacement by Cyclic Water Injection.....	979
<i>Qi Zhang, Mengqin Li, Wen Cao, Ge Niu, Jing Zhang, Qi Wang</i>	

BORE HOLE GEOLOGY

Deep Learning Applications for Well Log Correlation.....	990
<i>J. Fu, R. Li, T. Gao, P. Zhang, C. Wang</i>	
An Evaluation of Imaging-While-Drilling Technologies: A Comparative Study of Functionality, Applications, and Performance of Different Sensors	1000
<i>Ida Bagus Gede Hermawan Manuaba, Mohammed AlHassan, Ahmed Taher, Hussain Najrani</i>	
Advanced Corrections of LWD High-Resolution Resistivity Images in Hostile Downhole Environments.....	1016
<i>Ida Bagus Gede Hermawan Manuaba, Mohammad Kadhem Aljishi, Nicklas Ritzmann, Mohamed Gouda</i>	
OBM Resistivity Imaging in Formations with Wide Resistivity Range, Multi-Frequencies Acquisition to Identify Features of Different Characteristics	1029
<i>Ramy Abd El Kader, Ayman Al Khamry, Mandefro B Woldeamanuel, Mohamed Gouda</i>	

CARBON CAPTURE SOLUTIONS: INTEGRATING SUBSURFACE TECHNOLOGIES, NOVEL METHODS, AND GLOBAL INITIATIVES

- Balancing Surface Facilities & Well Design to Comply with Cap-Rock Integrity in CO₂ Storage Projects: Experience from UAE 1041
Siqing Xu, Aurifullah Vantala, Imtiaz Ali, Mohamed Baslaib, Aaisha Al Keebali, Satya Perumalla, Ayman Samy, Luciana Concilio, Hemant Singh, Carlos Mascagnini, Shekhar Pandya, Hiren Kasekar
- A Novel Method for Accurate Measurement of Fluid Saturation in Shaly Sandstone During CO₂ Sequestration 1064
Jidong Gao, Bin Yuan, Wei Zhang, Hongbin Zhang

INDUSTRIAL BREAKTHROUGH — OVERARCHING THEMES

- Carbon Life Cycle Assessment of Non-Metallic Downhole Tubulars..... 1080
P. Sarmah, A. AlAdawy, T. Powell
- How Corporations Succeed by Solving World's Toughest Problems - Tackling Climate Change with an Elite Business Research Consortium and AI-Enhanced Leadership: Decision-Making Endeavor in the Face of Climate Change 1099
Muhammad Affan Uddin Ali Khan, Clifford Louis, Abdul Ahad Manzoor, Syed Imran Ali, Shaine Muhammadali Laliji, Syed Muhammad Aun Ali, Javed Haneef, Faiq Azhar Abbasi, Muhammad Sami Khan, Syed Talha Tirmizi, Muhamad Kamran

AI APPLICATIONS IN DRILLING AND COMPLETIONS II

- A Data-Infused Methodology for Estimating Swelling Potential in Shales Exposed to Various Completion Fluids 1112
Mohammad Rasheed Khan, Zeeshan Tariq, Mobeen Murtaza, Bicheng Yan, Muhammad Shahzad Kamal, Mohamed Mahmoud, Asiya Abbasi
- Early Warning Method to Detect Mud Motor Stallings Incidents in Drilling Operations Using Machine Learning.....1125
B. Zomarah, B. Alotaibi, M. Zahrani, A. Alsaihati
- Drilling Anomalies Identification Using Near Bit Vibrations1136
A. Iufriakova, N. Bukhanov, P. Golikov, A. Bakulin

INNOVATION IN PROCESS SAFETY AND ENGINEERING

- An Optimized Equation of State Thermodynamic Model for Hydrocarbon Volumetric Calculations Based on Wide-Range Experimental Data1146
O. M. Shaaban, M. Ali, O. Alomair

TECHNICAL INSIGHTS INTO ASSET INTEGRITY MANAGEMENT

- Annulus Testing as the Integrity Management Method for Steel-Reinforced Thermoplastic Pipe.....1162
K. Kovalenko
- Development of a Mechanistic and Data-Driven Model for Multiphase Flow Leak Detection in Pipeline.....1179
Abinash Barooah, Muhammad Saad Khan, Mohammad Azizur Rahman, Rashid Hassan, Ibrahim Hassan, Ahmad K. Sleiti, Sina Rezaei Gomari, Matthew Hamilton

ESP

- Innovative Best Practices Field Case Study: Proactive Strategies Enhancing Operation Excellence & Extending Electrical Submersible Pumps (ESPs) Run Life1198
M. I. Al Hinai, F. Al Saadi, Q. Y. Al-Rawahi, F. Rajaibi, A. A. Al Bimani, A. Al Ghadani, A. Al-Ismaili, A. Soliman
- Fiber Reinforced Thermoplastic (FRTP) Sucker Rods Providing High Strength Light Weight Low Cost and Environmentally Responsible Artificial Lift Efficiencies.....1211
J. Saponja, C. Coyes, M. Conner

AUTOMATION AND DATA-DRIVEN APPROACHES IN RESERVOIR ENGINEERING

- Optimize Computational Throughput of Reservoir Simulation Workflows in a GPU Based High Performance Computing Environment..... 1237
S. Soffientini, P. Panfili, A. Ferrari, L. Dovera, E. Della Rossa, D. Fragola, E. Abbate, A. Ortega, A. Rosa, Mark Khait, Yongpeng Zhang, A. Cominelli
- Use of Ranking and Clustering Analysis for Robust Well Placement and Efficient Reservoir Sweep 1252
M. A. Al-Ismael, F. F. Abouheit, N. Y. BuKhamseen
- A Bayesian Optimization Workflow for Integrated Asset Management Under Uncertainty 1267
T. Taha, M. Abdallah, M. Shabani, E. Gringarten
- Automatic Placement of Infill Wells During Simulation Run-Time..... 1282
B. O. Kayode, K. D. Stephen, A. A. Kaba
- Data-Driven Approaches for Quick Performance Assessment of Hydrocarbon Reservoirs 1304
A. I. Alrassan, A. A. Al-Turki, T. M. Al-Zahrani
- An Innovative Model Preconditioning Approach for Fast and Reliable History Matching 1316
B. O. Kayode, K. D. Stephen, R. Albeshri
- A Data Driven Novel Perspective for Day-To-Day Digital Integrated Asset Operation Model and Business Intelligence Tool Utilization 1339
Mohamed Albadi, Ayesha Alsaeedi, Mohamed Alzeyoudi, Fahed Alharethi, Maryam Alhammadi, Manar Elabrashy, Sarath Konkati

WELLBORE FLUID TECHNOLOGIES

- Customized Drilling Fluids Solutions for Challenging Geothermal Wells 1359
T. Olivares
- Sustainable Drilling Fluid Design; Utilizing Waste Biomass as Drilling Fluid Additive 1372
Azam Khan, Arshad Shehzad Ahmad Shahid, Muhammad Khurram Zahoor
- Research and Application of Completion and Workover Fluid Technology in Heavy Oil Reservoir in Ecuador..... 1387
Li Baojun, Luo Pingya, Zhao Xiangyang, Chen Long
- Extraction of Halophytic Oil and Its Application in the Formulation of Oil-Based Mud System 1399
Munira Akhtar Khan, Ayesha, Rida Siddiqui, Shaine Mohammadali Lalji, Syed Imran Ali, Javed Haneef, Muhammad Adeem Abbas

DRILLING SOLUTION OPTIMISATION

- Revolutionizing Drilling Efficiency in Hard and Abrasive Formations Through Innovative Cutter Development and Design Optimization..... 1416
A. Suleiman, M. J. Bailey, Ali Mutlaq Qahtani, Yusef Mohammed Alhassan, Ahmed Omar Hashim, P. Centala, S. Roberts
- A Sustainable Approach to Drilling in Shale Formations with Fresh Water-Based Mud System..... 1438
Mohammed Ba Geri, Demond Kauffman, Tariq Almubarak

VOLUME 3

- Development of High Temperature Resistant Soft Metal Sealing Components in Downhole Tools..... 1453
Huijuan Guo, Jianghao Li, Xiping Song, Guodong, David Zhan, Baodong Wang
- The Influence of Red Mud Additive on Drilling Fluid Performance: Comparison Between Calcite in Conventional Drilling Mud and Red Mud Additive 1475
R. AlBoraikan, B. Bageri, T. Solling
- Optimization of Complex Channel Sand Development Using Ultrahigh-Definition Multilayer Mapping-While-Drilling Technology in Offshore China 1489
Xijia Guo, Liuhe Yang, Chao Li, Chao Wang, Kai Wu, Shuzhong Li, Zairong Fu, Lili Zhang, Tianyun Xu, Zhong Hu, Fei Wang, Haifeng Wang

STUCK PIPE PREVENTION

- Experimental Study on Stuck Pipe Release by BHA Whirling 1501
K. Machocki, A. Aljohar, I. Nazzari, V. Vaziri, M. Wiercigroch
- Case Studies of a Novel Digital Twin System for Real-Time Early Identification and Warning of Pipe Stuck..... 1511
Jiawei Zhang, Qing Wang, Lingzhan Zou, Jingping Yu, Jijun Li, Yun Yang, Yang Zhang, Zhixue Zhao
- Prevention of Stuck Pipe Events and Robust Real-Time Identification of Root Cause Using Physics Based Models in Combination with Bayesian Network Models 1523
Michael Yi, Pradeepkumar Ashok, Michael Behounek, Spencer White, Trey Peroyea, Taylor Thetford, Gary Hickin, Julie Pearce
- Real-Time Detection of Stuck Pipe Utilizing Hybrid AI-Physical Prediction Models 1542
Mohammed A. Malki, Mahmoud F. Abughaban, Albara' A. Alshawabkeh, Thiago Teixeira Guimaraes
- Improving Well Productivity Through Better Perforation Design 1563
M. A. Fituri, J. Munoz, A. Al Harbi, A. Abouganem

GEOSTEERING, AND WELL PLACEMENT AND OPTIMISATION

- Near-Bit, Real-Time Measurements from an Innovative Ultra-Deep Electromagnetic Tool for Proactive Geosteering in Horizontal Wells 1585
H. Wu, N. Clegz, A. Duriez, J. Ma, D. Wu, E. Bikchandaev, C. Lozinsky, M. Bittar

New Technology Enables Effective Geosteering Optimization in Low Resistivity Pay – Case Study from Offshore China.....	1598
<i>Yong Yang, Wenli Hu, Jin Feng, Xiong Xie, Haifeng Wang, Fei Wang, Chao Wang, Botao Chang, Tong Li</i>	
Well Placement Optimization for Avoiding Caves Using GANs and POMDPs.....	1608
<i>Rayan Kanfar, Lama El Halabi, Tyler Hall, Tapan Mukerji</i>	
Petrophysical Properties Derived from High Frequency Drilling Vibration for Geosteering- A Feasibility Study.....	1622
<i>S. Al-Ofi, S. Ma, S. Ali, S. Maity</i>	
Improving Drilling Safety and Efficiency with 100% Reservoir Exposure in a Challenging Low Resistivity Mature Reservoir Associated with Structural and Geological Uncertainties by Integrating Extra Deep Azimuthal Resistivity Technology in a Source-Less Solution - A Case Study from UAE Offshore.....	1636
<i>Salima Wahbah, Samir Bellah, Tadataka Hattori, Ryuchi Tsuda, Asim Mumtaz, Potshangbam Sanathoi, Mahmoud Hameed, Mohammed Rawy</i>	
Advanced Techniques for Mapping Oil-Water Contacts.....	1648
<i>A. Taher, M. Fouda, H. Osman, A. Alotaibi</i>	
Reducing Geological Uncertainty and Enhancing Reservoir Navigation in a Complex Clastic Reservoir Through Integration of Extra-Deep Azimuthal Resistivity Inversion and Litho-Density Imaging: A Case Study on Minagish Field in West Kuwait.....	1669
<i>T. M. Gezeeri, Y. Halawah, M. Al-Haddad, A. Al-Azmi, S. B. Mohamed, P. O. Odiase, H. S. El Masry</i>	

RESERVOIR CHARACTERISATION I

Fractal Dimension Measurement Using Wireline-Derived Saturation Height Function.....	1682
<i>Mohammad Altayeb, Paul W. J. Glover, Pirooska Lorinczi, Steve Cuddy</i>	
Automation-Assisted and Signal-Driven Relative Geological Time Model Toward Sequence Stratigraphy and Identification of Sand Fairways in a Turbidite System: Case Study, Neuquén Basin, Onshore Argentina.....	1691
<i>N. Daynac</i>	

SUPERCHARGING EMISSION MANAGEMENT THROUGH DIGITAL INNOVATION

Digital Emission Footprint Estimation as a Design Criteria to Fulfil Sustainable Development Goals.....	1706
<i>C. Majumdar, C. K. Naik, A. Garg, H. Suryadi, A. K. Dara, S. A. Hussain, A. Singh</i>	
Navigating the Seas of Sustainability: A Study on Maritime Scope 3 Emissions Through Digital Innovation.....	1721
<i>Kris Vedat, Benjamin Neal, Morgan Eldred, Carsten Sonne-Schmidt, Abhijith Suboyin, Jimmy Thatcher, Abdul Rehman</i>	
Diesel and Emissions Tracking in Real Time: Moving Towards Sustainable Fracturing.....	1740
<i>Abdul Muqtadir Khan, Rishika Narang, Stevanus Dwi Kurniadi, Abraham Ryan, Vaibhav Joshi</i>	
Sustainable Approach to Offshore Recycling: The Role of Digital Technologies in ESG Compliance and True Impact Carbon Emissions Reduction.....	1754
<i>Abhijith Suboyin, Morgan Eldred, Carsten Sonne-Schmidt, Jimmy Thatcher, Abdul Rehman, Hassaan Anjum, Jens Thomsen, Ole Andersen, Ole Udsen</i>	

INNOVATIONS AND INVESTIGATIONS IN CARBON STORAGE MODELLING

Novel Techniques to Improve the Success of Stress Measurements for Mature Fields and CO2 Injection and Storage Projects	1770
<i>J. A. Franquet, P. Chakrabarti, V. N. Telang, J. Vossen</i>	
Comparative Study of CO2 Mineral Trapping: A Numerical Investigation	1787
<i>Johny Mouallem, Muhammad Arif, Arshad Raza, Mohamed Mahmoud</i>	
CO2 Mass Transfer in Porous Media: Implications for Long-Term Carbon Sequestration in Saline Aquifers	1805
<i>E. Basilio, M. Addassi, T. Truscott, H. Hoteit</i>	

AI APPLICATIONS IN PRODUCTION ENGINEERING I

Attention-Based Bi-Directional Gated Recurrent Unit (Bi-GRU) for Sequence Shale Gas Production Forecasting	1814
<i>Mandella Ali M. Fargalla, Wei Yan, Tao Wu</i>	
Prediction of Two-Phase Flow Regimes in Vertical Pipes Using Tree-Based Ensemble Models	1829
<i>H. A. Al-Sharifi, A. M. Alkhudafi, A. A. Al-Gathe, S. O. Baarimah, Wahbi Al-Ameri, A. T. Alyazidi</i>	
Deep-Learning Based LSTM for Production Data Analysis of Hydraulically Fractured Wells	1844
<i>Fengyuan Zhang, Minghao Xu, Chao Deng, Wei Zhang, Chuncheng Liu, Zhenhua Rui, Hamid Emami-Meybodi</i>	
Evaluation of Machine Learning Techniques for ESP Diagnosis Using a Synthetic Time Series Dataset	1861
<i>M. Alhashem, R. Lastra, M. Ahmed, L. Ghouti</i>	
Research on Intelligent Optimization of Intermittent Lift Systems for Low Production Oil Wells	1872
<i>Gaoqiang Ma, Yanwen Yu, Ruidong Zhao, Junfeng Shi, Jianyu Wang, Xishun Zhang, Shiwen Chen, Guanhong Chen</i>	
A Robust New Method for Optimizing Intelligent Reservoir Production	1882
<i>Cunliang Chen, Xiaodong Han, Qiongyuan Wu, Xiaoming Chen, Bin Liu, Zhiqiang Wang, Shibo Sun</i>	

EXPLORING THE CUTTING-EDGE CAPABILITIES OF ROBOTICS, ADVANCED SENSING, AND IOT

Application of Autonomous Real-Time Digital Twin for Structural Health Monitoring and Integrity Assessment of Damaged Fixed Offshore Structures	1893
<i>M. L. Shahir, E. L. Shawn, B. S. Wong, L. L. Ann, W. S. K. Ellis, C. C. Y. Belden, H. C. W. Michelle, S. N. Mekan, K. A. A. Anas, B. S. Sarah, K. B. Ickx</i>	
High Bandwidth Distributed Acoustic Sensing for Microcrack Detection	1909
<i>A. Turolla, M. Zampato, S. Correr, L. Schenato, L. Palmieri</i>	

INNOVATIVE APPROACHES IN GAS PROCESSING I

Natural Gas Sweetening Using Ternary Blend of MEA, DEA and PZ: Energy, Exergy, CO2 Emission Analysis, Sensitivity Analysis and 2 Level Full Factorial Design	1921
<i>R. Sornumpol, K. Maneeintr, P. Prathana Nimmanterdwong</i>	

Novel Process for the Separation and Regeneration of Methanol from Hydrocarbon Condensate on an FPSO.....	1939
<i>P. Elumalai, H. Kumar, C. Salunkhe, J. E. Ong, S. Nandeeswaran</i>	

MODELLING AND SIMULATION

Enhancing Production Forecasting in Fractured Shale Gas Reservoirs Using a Hybrid ARIMA-EMD-LSTM Approach.....	1949
<i>Junyu You, Xiaoliang Huang, Yonghao Li, Qiulong Yu, William Ampomah</i>	
Automated Workflow to Couple Hydraulic Fracture Modeling Results into Dynamic Simulation Process for Unconventional Reservoir	1962
<i>Elhadi Belaifa, Moemen A Abdelrahman, Abdullah A Almubarak, Adedayo D Adebamiro</i>	

BROWNFIELD OPTIMISATION

Success Story of Production Improvement in a Matured Carbonate Reservoir in Bahrain Field Using Radial Drilling Technology.....	1968
<i>Lakshi Konwar, Ajithkumar Panicker, Aljawder Abdulla, Salman Younis, Garadah Abdulla, Saeed Darwish, Ali Waleed, Wakil Naira, Ebrahim Alawainati</i>	
A Step Change; Achieving Excellence in Optimizations and Exceeding Global Top Quartile in a Brown Field.....	1986
<i>A. Al-Hajri, G. T. Al Shukaili, G. Urdaneta, F. Al Adi, M. Kaabi, S. S. Al-Kindi, W. Kiyumi</i>	
Successful Implementation of Foam Batch Jobs for Gas Well Deliquification	1998
<i>Taher Al Hadhrami, Babak Ghaempanah, Ghusun Al Aamri, Ardia Kusela, Ahmed Al Rashidi</i>	

FIELD DEVELOPMENT AND OPTIMISATION

Experiment and FEM Modelling of Stress Shadow Effect in Multi-Stage Hydraulic Fracturing to Optimize the Stimulation.....	2009
<i>Zheng Li, Jingyi Wang, Ian Gates, Tiange Chen, Zigang Zheng, Wenfeng Lyu, Jian Gao, Hongwei Yu</i>	
Addressing Reservoir Management, Operational Challenges and Strategic Planning Utilizing the Dynamic Model of the Worlds' Largest Clastic Reservoir - The Wara-Burgan.....	2023
<i>Amina Al-Samhan, Adnan Al-Shamali, Shahad Al-Nemran, Wuroud Al-Fadhli, Muhammad Yaser, Syed Zeeshan Jilani, Jorge E Maldonado, Manuchehr Yunusov, Muhammad Ibrahim</i>	
Alkaline/Surfactant/Polymer (ASP) Flooding: Laboratory Evaluations, Simulation Studies and Pilot Planning for a Matured Carbonate Reservoir in Bahrain	2039
<i>L. Konwar, I. AL. Anaisi, E. Alwawainati, O. Matar</i>	
Impact of Horizontal Well Open Hole on Sweep Efficiency in a Polymer Flood	2062
<i>Taher Al Ghailani, Marwan Al Sawafi, Salim Al Mukhaini</i>	
Full-Scale Immiscible WAG Optimization and Management in Yarakta Project (East Siberia)	2075
<i>A. Andriushchenko, A. Pshenichniy, A. Zhaglova, D. Burdakov</i>	
The Application of Foam and Gel Compositions to Control Gas Inflow in Production Wells: From Laboratory Studies to Injection	2101
<i>P. N. Belovus, A. V. Penigin, A. V. Shirobokov, A. A. Oleynik, B. R. Minnebaev, E. R. Saifullin, M. A. Varfolomeev</i>	

Unconventionally Hydraulic Fractured Wells to Develop a Tight Sour Oil Reservoir a Case Study from Oman South	2123
<i>A. M. Al Harrasi, M. Al Kalbani, Y. Ouyang, A. Al-Khusaibi, K. M. Al Tobi, T. Lefeber, D. Smirnov, A. Al-Shabibi, S. Al-Jarradi, A. J. Al Harrasi, A. Al Ghammari, Z. Al Saadi</i>	

ADVANCEMENTS IN STIMULATION AND NANOTECHNOLOGY

Acid Stimulation Challenge on Subsea Gas Wells with Depleted Reservoir Pressure	2136
<i>Batara Pande, Ronald Binilang, Johannes Sare, Shanni Herputra, Massimo Rossi, Basuki Rachmat, _ Andrianto, Marco Colombo, Tirza Hahijary, Astari Merati</i>	
Effect of Mixed Mineralogy on Etching Profile and Conductivity in Acid Fracturing in Naturally Fractured Carbonate Reservoirs	2152
<i>Jianye Mou, Xi Xia, Budong Gao, Shicheng Zhang, Xinfang Ma, Fei Wang</i>	

VOLUME 4

DELIVERING COMPLEX WELLS

The Benefit of In-Bit Sensing for Efficient Drilling of Deep Reach Lateral Wells in HFTO Prone Interbedded Abrasive Lithologies in North America Land	2169
<i>A. Hanafy, A. Kueck, A. Pauli, X. Huang, J. Bomidi</i>	
Integrated Engineering Approach to Drill a Complex Horizontal Well with Stringent Requirements Dictated: A Case Study from Offshore North West Java, Indonesia	2192
<i>Bintang K. Yuda, I Nyoman Ridhanta, M. Fajar Sany, Aris Kurniawan, Bayu Arie Punto Adi</i>	
Real Time Optimization of Drilling Parameters During Drilling Operations	2210
<i>Qasim Al Hinaai</i>	

DEVELOPMENTS IN DRILLING PERFORMANCE

New Bit Design with Rotary Steerable System Unlocks Next Drilling Chapter: Improving DLS Capability and Drilling Performance	2233
<i>Ali Al-Meer, Jawad Nesaiif, Ahmed Osman, Ayrat Fakhrylgayanov, Venkat Radhakrishnan, Eman Alibrahim, Rodrigo Varela, Paul Silva, Mansour Alabdullah, Reema Gassas</i>	
Preventing Drill String Twist Offs Due to HFTO Coupled with High Stick-Slip RPM for RSS BHAs	2249
<i>Varun Singh</i>	
Prediction and Optimization of Rate of Penetration by Simulation, Case Study from Kuwait Fields	2260
<i>Ali Alajmi, Faisal Aladwani</i>	
Monitoring and Optimizing Mud Motor Efficiency and Degradation in Real Time	2276
<i>Z. Zhang, Y. Shen, W. Chen, S. Ba, F. Scarioni, D. Vasquez, D. Belov, J. Converset</i>	
Achieving Operational Excellence Using an Interactive Drilling Time Analysis and Benchmarking Methods	2288
<i>Mustafa Amer, Asem Radhwi, Amr Othman</i>	
Digital Integration Scope in Fracturing: Leveraging Domain Knowledge for Intelligent Advisors— Part I	2306
<i>Abdul Muqtadir Khan</i>	

INTEGRATED RESERVOIR ENGINEERING AND GEOSCIENCES I

- Optimizing Horizontal Well Geosteering and Reservoir Evaluation in Complex Marginal Oil Field with Ultra-Deep Reservoir Mapping and Ultra-High-Definition Multilayer Mapping-While-Drilling Technologies..... 2336
Donghao Wu, Yan Li, Wei Li, Lili Zhang, Fei Wang, Chengqian Chen, Cang Li, Xiaoning Yu, Chao Wang, Haifeng Wang, Shuai Wang
- Increasing Production Capacity of a Low Resistivity Pay Reservoir Associated with a Highly Flooded Environment in a Fault Corridor – a Successful Case History from UAE Onshore 2349
Hocine Khemissa, Sulaiman S. AL Jaber, Ayesha Eid Al Suwaidi, Sangeeta Singhal, Ernesto Lenin B. Chang, Ahmed Saif Al Mesafri, Parmanand D. Thakur, Asim Mumtaz, Sanathoi Potshangbam, Mahmoud Hameed, Krishnan Saravanakumar
- Channel Characterization in Sandstone Formation Using Pressure Transient Analysis - A Practical Overview to Define Geological Attributes 2361
Rahmah L. Alawami, Adan H. Tello Gomez, Ferney G. Moreno Sierra, Imad Brohi
- Study on 4D Geomechanical Modelling for Fault Critical Re-Active Stress Evaluation in Underground Gas Storage 2372
Daiyu. Zhou, Yongliang. Tang, Wei. Zhou, Zangyuan. Wu, Yiming. Wu, Gengping. Yan, Zhaoting. Huang, Haiying. Wang, Zheng. Li, Yang. Li, Liming. Lian, Liang. Zhang, Ying. Fu, Xingning. Huang

RESERVOIR CHARACTERISATION II

- Simulation of Reservoir Charge to Predict Fluid Compositional Distribution: A New Way to Test the Geologic Model 2381
Tarek S. Mohamed, Morten Kristensen, Shu Pan, Kang Wang, Carlos Torres-Verdin, Oliver C. Mullins
- Experimental Identification of Permeability Reduction Factors in the Danish North Sea During Produced Water Reinjection 2400
Maksim Kurbasov, Karen L. Feilberg
- Aspect-Ratio-Dependent Pore-Size Distribution from MICP Measurement 2413
Juntao Ma, Lin Liang, Mohammed Fadhel Al-Hamad, Marie Van Steene, Shouxiang Mark Ma, Wael Abdallah

TOWARDS NET ZERO: INNOVATIONS IN EMISSIONS REDUCTION

- Driving Efficiency Forward: Harnessing Digitalisation for Rig Energy Management..... 2429
F. M. Saghir, M. Y. Daif, M. A. Alarfaj
- Towards Net Zero - Better Decision Making for Enterprise Level Green House Gas (GHG) Emission Management and Accounting 2441
Muhammad Aqmal Bin Ratasha, M. Syahezat Bin Ismail, Ahmad Sulaiman Abd Aziz, Gareth Williams, Emily Rees

UTILISING MODELLING FOR EFFICIENT CARBON STORAGE

- Impact of Heterogeneity on CO₂ Storage in Carbonate Saline Aquifers..... 2453
Andrea F. Nolting, George A. Eleftheriou, Hisham M. Alqassab, Martin J. Terrell

Numerical Simulation Study on Enhanced Efficiency of Geological CO ₂ Storage with Nanoparticle.....	2468
<i>J. Kumasaka, Y. Sugai, F. Ishibashi</i>	
Interpretable Machine Learning for Prediction of Minimum Miscibility Pressure in CO ₂ -Oil System Considering Nano-Confinement Effect	2478
<i>Bing Wei, Yujiao He, Junyu You, Shuqin Wen, Jinyu Tang</i>	
Wellbore and Caprock Integrity During CO ₂ Injection in Saline Aquifer.....	2490
<i>Y. Han, H. H. Liu, K. Alruwaili, M. J. Altammar</i>	

UTILISING EMERGING TECHNOLOGIES TO ACCELERATE THE ENERGY SECTOR'S ADVANCEMENT

AI Based Unstructured Document Geotagging Solution.....	2502
<i>Anik Pal, Nirbhay Mishra, Mihir Gandhi</i>	

AI APPLICATIONS IN PRODUCTION ENGINEERING II

Increased Electric Submersible Pump Runtime and Reduced Deferment at Oriente Basin by Applying Digital Rapid Response Ranking and Event Detection System.....	2515
<i>Jorge Yanez, Santiago Davalos, Roberto Fuenmayor, Paul Castellanos, Neida Corella, Heidi Tipan, Caren Basantes, Erick Jacome, Xavier Chicango, Geovanny Ramos, Prasoon Srivastava, Nael Sadek, Amin Claib, Francisco Endara, Pedro Vivas</i>	
Geochemical-Based Coupled Modeling Approach for Low Salinity Surfactant Polymer (LSSP) Injection: Impact of Temperature, Salinity, Surfactant Concentration, and Sulfate Spiking on Surfactant Adsorption.....	2523
<i>Ilyas Khurshid, Yacine Addad, Imran Afgan, Akmal Nazir, Khurram Farouque, Tommy Ness, Lunde Morten</i>	
The First Horizontal Carbon Oxygen Logging with an Advanced Processing Approach to Precisely Estimate Up-Dip Oil Saturation Across a Mixed Water Salinity Reservoir, Case Study, Kuwait	2549
<i>M. Elias, K. Al-Quoud, E. Sergeev, M. Raffi, P. Ikande, L. Tagarieva</i>	
A Model for Determining CO ₂ Emission Reduction Targets in China's Oil and Gas Industry	2561
<i>C. Lyu, Y. Lv, J. Zhang</i>	
Structured Enterprise Architecture Approach in Transforming Well Planning & Operations into a Digitally Enabled Business Forstering Architecture Agility Towards Future Industry Requirements.....	2568
<i>M. Hadi Hamzah, Rohaizat Ghazali, Afzal Hizamal Abu Bakar, Dzulkarnain Azaman, M. Nasri Jamalludin</i>	
Step Change in Controlling the Gas-Cap in Highly Depleted and Fractured Formation.....	2575
<i>Ali Salim Al Sheidi, Hatim Abdul Raheem Al Balushi, Zahran Ahmed Al Rawahi, Ahmed Saleem Al Harrasi, Deutra Mansur, Mohammed Malallah Al Farsi, Hilal Sultan Al Rubaiey, Nadir Ali Al Harrasi, Manish Kumar Choudhary, Cesar Orta</i>	
Revolutionizing Oil Lift Operations: Harnessing Data Analytics for Esp Energy Management, Cost Savings, Co ₂ Emissions Reduction, and Enhanced Pump Runlife.....	2598
<i>Muktar Kindi, Adnan Ghadani, Suhail Shekaili, Fahad Aufi, Suhail Al Wahaibi, Carlos Moreno Gomez</i>	
A Novel Workflow for Predicting Seismic Reservoir Characterizations - OBN Case Study - Western Offshore, India.....	2609
<i>Walid Abd El Mawla, Saumya Goswami, Rania Hassan, Uday Shanker Mishra, Souvik Sengupta, Omar Aly, Anubhavi Mukherjee, S. Basu, S. Mohapatra, Anand Prakash, Vikash Saluja</i>	

Automated NMR/BHI Results for Realtime Characterization of a Low-Permeability Laminated Reservoir: Validation and Insights from Innovative Interpretation of LWD Data	2619
<i>T. Akindipe, P. Perfetta, C. Shrivastava, Z. J. Ramadan, J. Seitz</i>	
Real-Time Evaluation of the Lost Circulation Zone Based on a Changeoint Analysis of the Mechanical Specific Energy and Standpipe Pressure	2633
<i>Alexey Ruzhnikov, Valerian Guillot, Mauricio Corona</i>	
The Concept of Autonomous Oil and Gas-Condensate Field of Gazpromneft-Yamal	2645
<i>V. S. Zelentsov, P. V. Kozlovskiy, F. A. Gerasimov, E. A. Manko, E. I. Latypov, D.V. Vinogradov, D. V. Minogin, I. L. Romanov</i>	
Automated Wellhead Monitoring Using Deep Learning from Multimodal Imaging.....	2659
<i>Weichang Li, Yong Ma, Damian San Roman Alerigi</i>	
Automatic Recognition of Homogeneous and Heterogeneous Reservoirs Using Deep Learning Technique	2671
<i>Albertus Retnanto, Md Ferdous Wahid, Romeo Indico, Janessa Paderres, Mohamed Malyah, Mahmoud Moussa</i>	
Supervised Machine Learning for Liquid Rate Estimation in Oil Field with Limited Well Monitoring Data: A Case Study of the Handil Oil Field.....	2683
<i>Rahman Setiadi, Masun Hidayat, Mursalim Mardin</i>	
Development of an AI Model to Estimate Flowing Bottom-Hole Pressure in High-Pressure High-Temperature Gas Well	2702
<i>A. A. Al-Ghamdi, R. N. Gajbhiye</i>	
Development of a Hybrid Modelling Approach for Estimating Bottom Hole Pressure in Shale and Tight Sand Wells Using Smart Production Data and Machine Learning Techniques	2717
<i>C. C. Afagwu, G. Glatz</i>	
Development of Two Robust Data-Driven Models Using Machine Learning and Artificial Neural Network Methods to Predict Wells Fluid Rate in a Challenging Offshore Brown Field	2739
<i>M. E. Eldessouky, A. M. Darwish, I. I. Mohamed, T. H. Abdelhalem, A. K. Khalil</i>	

INTEGRATED — CASE STUDIES

Accelerating Learning in the Unconventionals Through Integrated Field Experiments.....	2756
<i>T. G. Benish, J. S. Brown, K. K. Decker, J. D. Habrial, Y. Liang, R. Manchanda, H. A. Meier, A. Solomou, K. Srinivasan, D. S. Vice</i>	
What Low Frequency Distributed Acoustic Sensing Revealed of the Hydraulic Fracturing in Tight Oil Reservoir: Ordos Case Study.....	2768
<i>Yin Qi, Tongwu Zhang, Qiang Chen, Bing Ma, Jie Bai, Kai Ye, Jie Tang</i>	
First Unconventional Najmah Horizontal Well Unlocked the Reservoir Potential and Setup Development Strategy Roadmap in Green Jurassic Gas Field	2781
<i>M. Abdel-Basset, Y. Al-Otaibi, S. Al-Ajmi, S. Al-Mulla, T. Bloushi, M. Al-Mutawa, M. Al-Ajmi, A. Hadi</i>	
Research on Production Improvement with Static and Dynamic Geomechanical Modelling for Hydraulic Fracture Optimization in Unconventional Resource-A Case Study from China.....	2797
<i>Liming. Qu, Wei. Zhou, Zhibin. Jiang, Dan. Xie, Sheng. Zheng, Chuanchuan. Qian, Liming. Lian, Jie. Wang, Lisha Qi, Zheng. Li, Xingning. Huang</i>	

Study on the Influence of DFN on Hydraulic Fracture Propagation for Horizontal Wells in Unconventional Resource - A Case Study from China.....	2809
<i>Hui. Wang, Wei. Zhou, Rangbin. Wu, Yamin. Shang, Zheng. Li, Guohao. Li, Xuerui. Huangfu, Mengjie. Zhao, Xiaolong. Liu, Yutong. Wu, Liming. Lian, Xingning. Huang</i>	

WELL INTERVENTION

Reinvigorating Production from High-Pressure Carbonate Reservoirs: An Innovative Stimulation Technique Combining Single Phase Retarded Inorganic Acid System with Coiled Tubing Intervention in South-East Kuwait	2820
<i>B AlShammari, M Slama, K Badrawy, N Rane, M Al-Adwani, L AlOtaibi, M Al-Mousharji, H Al-Mehanna, R Sunagatov, S Fajardo</i>	

Empathetic Leadership and Purpose-Driven Strategies in the Global CCUS Landscape - Deliberating the Economic Feasibility and Prudent Risk Mitigation for the Implementation of CCUS Within the North American and Global Ecosystem - Scrutinizing Ecosystem Consequences and Alleviating HS Hazards, with an Emphasis on Rigorous Well Testing and Enhanced Safety Protocols.....	2833
<i>Muhammad Sami Khan, Clifford Louis, Abdul Ahad Manzoor, Syed Imran Ali, Shaine Muhammad Ali Laliji, Muhammad Affan Uddin Ali Khan, Syed Muhammad Aun Ali, Javed Haneef, Faiq Azhar Abbasi, Nimra Yousaf</i>	

Improving Well Accessibility and Productivity with Multi-Lateral Tool Technology.....	2856
<i>H. S. Mashhad</i>	

Reducing CO2 Emissions During Wellbore Cleanout Operations by Employing Coiled Tubing Fluid Oscillation Tool – a Case Study	2869
<i>H. Elmoneim, A. Yousuf, K. Shahzad, R. Anwar, S. Y. Khokhar, M. S. Saeed, S. Inam, M. Sana-ul-hussnain, I. Shafee, M. Haider</i>	

VOLUME 5

Optimizing Rig Based Interventions in Tri-Lateral Oil Producer Wells Through the Use of Coiled Tubing Optical Telemetry, Multilateral Indexing Tool, and Single-Phase Retarded Inorganic Acid: A Successful Illustrative Example from the North Kuwait Field.....	2888
<i>Omar Abdulrazzaq Hamadah, Mohamed Hedi Slama, Kareem Badrawy, Abdullah Ali Al-Ibrahim, Esraa Mohammad Ahmad Habeeb, Abdul Mohsen Al-Obaidi, Shamseldin Zakrya, Dalal Salman Al-Subaiei, Mariam Abdul Raheem Jamal, Mizan BinOmar Chong, Jassim Hamed Barki, Priya Ranjan Kumar, Afrah Aiyad Mohamed Al-Hassan, Rustem Sunagatov, Sergio Rondon Fajardo</i>	

IOR/EOR CHEMICAL FLOODING

Engineered Low Salinity Waterflood in Carbonate Reservoirs? Boosting Fluid-Fluid Interaction and Oil Recovery by Cost Effective Additives.....	2903
<i>Hideharu Yonebayashi, Takeshi Hiraiwa, Masaaki Tange, Masaru Sawata, Khuloud Tareq Khlaifi, Risa Sakurai, Sami Bahri, Abdalla Abdelfattah Abed, Yuto Inokuma, Sultan Hamdan Alkaabi, Mohammad Fattahi Mehraban, Robert Stalker, Gordon Graham</i>	

Reliable EACN Determination for Dead and Live Crude in Microemulsion Systems.....	2921
<i>H. F. Yoga, N. R. Gasimli, R. T. Johns</i>	

Pore-Scale Mechanism of Surfactant-Polymer Flooding and the Improvements on Oil Displacement Efficiency.....	2940
<i>Shaohua Chen, Jinxun Wang, Tianping Huang, Mohammed B AlOtaibi</i>	

Application of Pore Network Modelling in Simulating Surfactant EOR Coreflooding Experiment: A Case Study in Clastic Rock Sample Using CT-Scan Coreflood Equipment.	2953
<i>R. A. Affandi, S. R. McDougall, N. I. Kechut</i>	
Modeling of Low Salinity Polymer (LSP) Interactions in Carbonates from Geochemical and Surface Chemistry Perspectives	2975
<i>Anas M. Hassan, Ahmed S. Adila, Emad W. Al-Shalabi, Aaron G. Tellez Arellano, Muhammad S. Kamal, Shirish Patil</i>	
Strategies to Design Fit for Purpose EOR Pilots by Integrating Dynamic and Static Data in a Highly Heterogeneous Oolitic Carbonate Reservoir	2996
<i>Mohammed Yunus Khan, Mohammed Taha Al-Murayri, Satish Kumar Eadulapally, Haya Ebrahim Al-Mayyan, Deema Alrukaibi, Anfal Al-Kharji</i>	

ADVANCEMENTS IN WELL COMPLETIONS

15K Multi-Entry Cemented Multi-Stage Fracturing System-Alternative Completion Method for Deep Tight Gas Wells	3016
<i>Rasim Serdar Rodoplu, Awad Alenezi, Mohammed Dahlan, William T. Tait</i>	
First Horizontal Deployment of Remedial Conformable Sand Control Technology in Colombia - Qualification and Case Study	3035
<i>S. Stewart, J. Bermudez, C. Mazo, R. Miri, M. Salimi, A. Nouri</i>	
Exploration and Application of Integrated Approach for Sand Control and Remediation	3050
<i>Huaxing Chen, Jian Zou, Yufei Wang, Ming Pang, Yigang Liu</i>	
A Skin Factor Model of Sliding Sleeve and Its Production Optimization	3062
<i>LI Binwang, WANG Zhiming, ZENG Quanshu</i>	

WELL PLANNING OPTIMISATION

Practical Implementation of Combining Wellbore Survey Tools for Optimized Wellbore Position Accuracy.....	3075
<i>M. Houbiers, M. ElGizawy, A. Ledroz, J. Bang, R. Lowdon, D. Aklestad</i>	
Successful Field Trials for Tracking Casing Exit: Innovative Sensing Technology Application.....	3092
<i>Hany Gamal, Hector Gomez, Meshari Alshalan, Amjad Alshaarawi</i>	
Delivering Successful Quadlateral Wells Campaign in the Middle East: Milestones & Lessons Learned.....	3103
<i>Mbarek Maafri, Mahmoud AlGaier, Moustafa Farhat</i>	
ERD Record in Shallow Weakly Consolidated Formation with Remarkable Efficiency	3119
<i>Tao Xie, Xinxin Hou, Hai Lin, Lei Zhang, Tianyang Li, Zhiheng Li, Wen Wang, Guiping Wang, Kejin Chen</i>	

FORMATION EVALUATION — CASE STUDIES

Abnormal Viscosity and Other Implications of Reservoir Connectivity Inferred from Reservoir Fluid Geodynamics: A Case Study from Deepwater Gulf of Mexico.....	3131
<i>Tarek S. Mohamed, Carlos Torres-Verdin, Oliver C. Mullins</i>	

When Machine Learning Helps to Understand a Facies Controlled Two Ways Tilted Contact in a Large Carbonate Reservoir	3143
<i>Frederic Robail, Satyashis Sanyal, Ismail Marzuki Gazali, Ahmad Nazmi B. M. Noor Azudin, Seyed Mehdi Tabatabai, Ratih Wulandar, Zulfikar Lubis</i>	

Optimizing Reservoir Analysis in Complex Transition Carbonate Formation: Insights from Multi-Logging Measurements and Time-Lapse Analysis- A Case Study from Abu Dhabi	3158
<i>Eslam Elabsy, Hamad Khairy, Ahmed Soliman, Lichuan Deng, Hassan Mostafa</i>	

INTEGRATED RESERVOIR ENGINEERING AND GEOSCIENCES II

Performance of Polyamidoamine-Enhanced Inhibitor in Mitigating Silicate Scale from Alkaline Surfactant Polymer (ASP) Flooding	3171
<i>B. C. Tan, I. M. Saaid, S. Q. Mahat, A. A. A. Razak, P. T. Bhaskoro, A. Anuar, A. A. Ahmed, A. U. Abubakar</i>	

Representative Elementary Volume as Key Parameters to Improve Grid Stability on Multi-Point Statistic Based Reservoir Models	3182
<i>Ose Budiman, Allende G. A. Azhar, Abdul Latif Setyadi</i>	

How the Memory Multidetector Pulse Neutron Logging Helped to Achieve a High-Quality Results While Reducing the Costs – Case Studies in Malaysia	3196
<i>S. Loo, J. Willick, R. Pemper, N. Mekic, K. Binti Khalid, D. Johare, A. Goh, C. Huong</i>	

Maximization of the Productivity Index Through Geometrical Optimization of Multi-Lateral Wells in Heterogeneous Reservoir System	3212
<i>Rana S. Amin, Ibrahim M. Abdulwahab, N. M. Anisur Rahman</i>	

Quality Assessment of Downhole Reservoir Fluid Sampling by Predicted Interfacial Tension	3222
<i>Mohammed Al-Hamad, Tariq Matter, Shouxiang Mark Ma, Wael Abdallah</i>	

Bridging the Gap: A Pathway to Robust Rock Strength Modeling and Reliable Sand Production Risk Assessment in Thermal Steam Project	3233
<i>H. Al Riyami, M. Al Syabi, R. Al Zadjali</i>	

Production Forecasting and History Matching of Hydraulically Fractured Reservoirs Using a Pressure Depletion Volume (PDV) Method.....	3247
<i>Yakai Tian, Ruud Weijermars</i>	

BOREHOLE GEOPHYSICS AND ROCK PHYSICS

Anisotropic Rock-Physics Model and Its Applications to Laminated Reservoirs Analysis	3263
<i>S. Vorobiev, T. Zharnikov, V. Vorobiev, C. Ayadiuno</i>	

Unleashing Potential: Maximizing Fracking Performance with an Innovative Mechanical Stratigraphy Framework in the Complex Reservoir: Rock Physics Approach	3281
<i>L. M. Al Hilali, M. H. Al-Aamri, K. J. AL Hooti</i>	

Relationships Between Rock Acoustic Dispersion and Petrophysical Properties for Enhanced Formation Evaluation	3294
<i>S. Ali, S. Ma, S. Al-Ofi</i>	

Identification and Characterization of Sonic Dual Arrival Events in High-Angle and Horizontal Wells for Enhanced Formation Evaluation and Well Placement	3305
<i>N. Bennett, J. A. Donald, O. Akinyose, J. Liu, S. Ma, S. Ghadiry, W. Abdallah</i>	

BASIN EVOLUTION MODELLING

- A Streamline Based Lagrangian Method to Investigate Two-Phase Flow in Hydrocarbon Recovery..... 3317
M. J. Ahammad, M. Azizur Rahman, J. M. Alam
- Integrated Charge Assessment in Nashpa Block Area of Kohat Fold and Thrust Belt of Pakistan 3328
A. Bartha, M. Ali, F. H. Siddiqui, A. I. Bhatti, T. Joppen, M. A. Nawaz, S. Akhtar, I. Khan

HARNESSING GEOTHERMAL ENERGY

- Reuse of Abandoned Hydrocarbon Wells and Reservoirs for Geothermal Energy..... 3344
T. Nassan, D. Baganz, H. Alkan, M. Amro

SUSTAINABLE SOLUTIONS FOR ENERGY PRODUCTION IN OFFSHORE AND REMOTE ENVIRONMENTS

- Geothermal Exploitation Via Recycling Supercritical CO₂ After Thermal Recovery in Deep Heavy Oil Reservoirs..... 3360
Yu Li, Chao Peng, Waleed Ali Khan, Huiqing Liu, Qing Wang, Xiaohu Dong, Wai Lam Loh
- Biomethane Value Chain Enhancement: Development of a Digital Tool for Preliminary Techno-Economic Evaluations and Sustainability Assessment..... 3370
F. Abbate, A. Bosetti, M. Guidolin, R. S. Pinna, L. Dovico, R. Franco, M. Lacquaniti, S. Menegon, M. Zampato

STRATEGY, COLLABORATION AND ETHICS IN DIGITAL TRANSFORMATION

- From Drilling to Production: Digital Solutions for Automation and Remote Operations in the Amazon Region..... 3384
Johanna Gallegos, Hugo Quevedo, Kevin Etcheverry, José Romero, Hugo Vázquez, Paola Rueda, Javier Anaya, Karen Peña, Julia Carrera
- Federated Learning for Seismic Data Denoising: Privacy-Preserving Paradigm 3402
Kamalesh Kumar Mandakolathur Guruprasad, Gayatri Sunil Ambulkar, Geetha Nair

ADVANCED STRATEGIES FOR PRODUCED WATER MANAGEMENT

- Challenge of Produced Water Treatment on Offshore Unmanned Wellhead Platform in Aung Sinkha Field..... 3420
Suebsook Jiranoot
- Water Evacuation and Separation Improvement for Onshore Facilities 3432
Nur Fatimah binti@Ahamad Ahmad, Norfaiz Izzat binti Mat Sharf
- Purification of Produced Water from Kuwaiti Oil Fields Using Ceramic Membranes..... 3453
F. Al Salem, T. Thiemann, K. Kawamura, A. Nakamura, V. Poulouse, H. Saibi
- Use of Cellulosic Esters Derived from Coffee Ground Wastes as Sorbent Material for the Purification of Produced Water from Kuwaiti Oil Extraction Operations 3466
F. Al Salem, T. Thiemann, V. Polouse, H. Alshamsi, M. Alaryani, M. Alshamsi, B. Selem, M. Youssef, S. Hasan
- Performance Aspects of Water Quality in Disposal Wells..... 3476
Basil Alfakher, Kern Smith, Luai Alhamad, Joel Ulloa

TECHNICAL ADVANCEMENTS IN CRUDE OIL PROCESSING

- Synthesis and Performance Evaluation of a Novel Nano Hybrid Chemical Additive on Indian Crude Oil 3492
Zarana Patel, Jinal Patel, Ashish Nagar
- Research and Practice of Smart Laying Exploiting Technology in Tight Oil Development..... 3507
He Zuqing, He Yuxi, Tu Yulin
- Insights into H₂S Scavengers and Corrosion Inhibitor Interactions for Sour Crude Applications 3520
F. Alotaibi, M. Rafie, T. Almubarak, A. Alomair
- The Design of Green Molecules for Demulsification..... 3531
K. Ekoue-Kovi, W. Jakubowski

EXPERIMENTAL TESTING AND EVALUATION

- Hydrocarbon Generation from Oil Shale Using Thermochemical Fluids: Integration of Geochemical, Petrophysical, and Core Flooding Methods..... 3543
S. S. Aljurf, A. Elyasa, A. M. Hassan, A. A. El-Husseiny, I. S. Abu-Mahfouz, M. A. Mahmoud
- Challenges of Laminated Shaly Rocks Evaluation and Fit-For-Purpose Core Analysis Workflow 3559
S. Al-Ofi, S. Ma, R. Al-Hammad, J. Zhang
- Experimental Investigation of Oil Displacement Caused by Fracturing Fluid Imbibition in Hydraulically Fractured Oil-Wet Shale Reservoirs 3569
Zhu Jian, Wang Fei, Liu Li, Wang Jiabin, Xiong Dong, Dong Zhuo, Bi Herun, Zhang Shicheng
- Complexities in the Characterization and Index Measurements of the Unconventional Qusaiba Rock Member from Qassim Region, Saudi Arabia 3580
E. Gramajo, R. M. Rached, A. E. Ghrezy, E. Malouf, K. Ayranci

DRILLING AND WELL PLACEMENT IN UNCONVENTIONALS

- Optimizing Frac Plug Drill-Out and Clean-Out Performance in High Pressure/Temperature Extended Reach Laterals Using Hydraulic Completion Rigs..... 3592
S. Vinasco, M. Tourigny, M. O'Brien, J. Frantz, K. Hollerich, J. Griffith

VOLUME 6

- Integrating Reservoir Mapping and High-Resolution Imaging Technologies Leads to Deliver the Fastest Well with Enhanced Production in an Unconventional Limestone 3606
Saad Al Ajmi, Mejbil Al-Azmi, Fahad Al Otaibi, Girija Joshi, Chinmaya Pattnaik, Dania Issa, Tarek Danash, Izabella Tikhonova, Kresimir Vican, Anar Abdulkarim

GEOCHEMISTRY AND FLUID CHARACTERISATION

- Characterizing Unconventional Hydrocarbon Resources Through Geochemical Analysis..... 3621
Abdulaziz Alghamdi, Amjed Hassan, Mohamed Mahmoud, Ammar El-Husseiny, Israa S. Abu-Mahfouz
- Enhancing Fluid Characterization in Oil and Gas Exploration: A Global Approach to GOR-Composition Relationship 3629
S. Suman, Z li, P. Satapathy

Experimental and Numerical Study on the Phase Behavior and Distribution Characteristics of Oil-CO ₂ -Water Three-Phase Fluid During Pre-CO ₂ Energized Fracturing in Shale Reservoirs.....	3648
<i>Xiao Han, Zhaojie Song, Sen Deng, Binhui Li, Peiyu Li, Lichao Zhang, Yilei Song</i>	

ARTIFICIAL LIFT OPTIMISATION

Increasing Oil Production with Jet Pumps by Reducing Pressure Losses in the Jet Pump-Sliding Sleeve Coupling	3662
<i>J. Soria, A. Izquierdo, F. Córdova, B. López</i>	
A Statistical Approach Analytics and Considerations for Extending ESPs Run Life	3672
<i>Mostafa M. Albori, Ahmed A. Al-Khalaf, Hashim A. Alsadah, Cleavant J. Flippin</i>	

CARBONATE RESERVOIR DEVELOPMENT

Integration of Visualization Experiment and Advanced Simulation for Flow Dynamic Evaluation and Development Scheme Optimization in the Water and Gas Flooding Process: A Case Study in a Fractured Reservoir in Bongor Basin	3686
<i>K. Xiao, X. Li</i>	
Complex Reservoir Characterization of Ultra Tight Naturally Fractured Carbonate Over-Pressured Gas Condensate Reservoir Using Dynamic Data Analysis.....	3699
<i>Sadam Hussain, Zaheer Ahmed, Saad Mehmood, Abdul Azeem, Muneez Iqbal, Mufaddal Murtaza Zakir, Muhtashim Ejaz, Xingru Wu</i>	
Influence of Acid Type on Wormhole Generation and Carbonate Rock Properties.....	3713
<i>A. Alomair, T. Almubarak, N. Alqahtani, Sinan Caliskan</i>	

WELL INTERVENTIONS AND ABANDONMENT

Designing Matrix Acidizing Treatments with Particulate Diverters—Part I: Model and Predictions	3729
<i>Philippe M. J. Tardy, Murtaza Ziauddin, Konstantin Vidma, Abdul Muqtadir Khan</i>	

INNOVATIVE WELL PLANNING

Simulation of Ultrasonic Doppler System for Drilling Mud Flow Measurements	3756
<i>T. Zharnikov, A. Ryabova, I. Dobrovolskii, K. Katterbauer</i>	
Historical Strategy Roadmap to Reduce the Operation Time for Drilling 8-1/2 Inch Production Hole Section in an Unconventional Drilling Operation.....	3769
<i>G. Yin, D. A. Ramos, J. P. Sinesi, M. A. Jan</i>	
Enhancing Drilling Efficiency with Flanked Non-Planar Shaped PDC Cutters.....	3782
<i>A. Suleiman, S. Roberts, M. J. Bailey, S. Doudou, A. Hallal, J. Perez</i>	

CASE STUDIES IN TECHNOLOGY APPLICATIONS

Driving Operational Excellence: Cost Savings and Performance Optimization Through Tripping and Connection Time Optimization.....	3805
<i>Hany Gamal, Said Albahri, Hassan Essa, Mayank Srivastava, Noor Alghamdi, Wahid Shaikh</i>	
A Graphical User Interface for Hard Rock Drilling Optimization System	3817
<i>A. Atashnezhad, M. F. Al Dushaishi, G. Hareland</i>	

A Comprehensive Overview on Inefficient Events and Key Technologies of Multi-Branched Well Drilling and Completion: Cases in the Middle East	3834
<i>D. Zeng, Z. Wang, Z. Tian, K. Fan</i>	

ADVANCES IN WELL LOGGING

Hydrocarbon Saturation Evaluation Behind Gravel Packing and Complex Completion Through Advanced Pulsed Neutron Logging.....	3844
<i>L. H. How, C. Cavalleri, N. Yusuf, W. A. Tolioe, S. H. Daud, D. Johare, M. S. Hendrawati</i>	
Acquiring Real-Time Data in Under Balanced Coiled Tubing Drilling for Geosteering: The Current Success and Factors Limiting Physics Boundaries.....	3857
<i>Mohd Azizi Ibrahim, Faisal Naif Enezi, Fatimah Mohammed Alnasser</i>	
Dispersion Corrections on LWD Quadrupole Data: Methods and Results	3867
<i>S. Schimschal, T. Geerits, L. Wu, R. Sy</i>	
Advanced Wireline Log Acquisition and Innovative Data Processing, Along with an Integrated Petrophysical Methodology, Unleash the Full Potential of Cycle II/III Reservoir Offshore Sarawak	3879
<i>T. B. Nordin, A. A. Azid, L. W. Ong, M. Z. Abdullah</i>	
Novel Application to Estimate Cement Quality by Means of Elemental Spectroscopy Data.....	3895
<i>Heri Tanjung, Abdullah A. Al-Fawwaz, Elsayed Ouda Ghonim, Han Ngoc Tran</i>	
A Novel Multi-Probe Solution to Overcome Fluid Sampling Challenges in Low Permeability Carbonate Reservoirs in the Middle East	3906
<i>V. N. Telang, S. Sepehri, Renoy Mathew</i>	

OUTCROPS, ANALOGUES, AND STRUCTURAL GEOLOGY

A New World Revealed with Amazing Detail: Using the Latest WAZ Seismic to Review Key Structural Elements of the Fahud Salt Basin, Oman	3918
<i>M. N. Al Hooti, M. M. Glukstad, M. Farfour</i>	
Diagenesis of Platform Carbonates Flanking the Tazoult Salt Wall (High Atlas, Morocco)	3931
<i>A. Travé, A. Chaves, M. Moragas, V. Baqués, J. D. Martín-Martín, E. Saura, G. Cofrade, D. Cruset, D. Munoz-Lopez, I. Cantarero, E. Playà, E. Carola, J. Vergés</i>	

FAULTS AND FRACTURES/DETECTION AND CHARACTERISATION

Multi-Level Transfer Learning for Optimal Features Prediction.....	3943
<i>Muhammad Sajid</i>	
Beyond Surface Imaging: Acoustic Deep Shear Wave Imaging Bridges the Gap for Accurate Fracture Detection and Mapping	3949
<i>Ida Bagus Gede Hermawan Manuaba, Rayan A Ghanim, Abdullah Haji, Ahmed Abouzaid</i>	

INNOVATIONS IN CCUS MONITORING AND RISK MITIGATION TECHNIQUES

Role of Fluid Injection in Induced Seismicity	3963
<i>Oliver Rojas Conde, Siddharth Misra</i>	
Establishing Best Practices for Well Abandonment in CCS	3980
<i>H. Costeno Enriquez, H. Dick, R. Salter, S. Lee</i>	

Seismic Attributes Contribution for CCUS Monitoring Projects	3991
<i>M. Amrouche</i>	

AUTOMATED SYSTEMS AND ADVANCED SENSING: UNLEASHING THE POTENTIAL

Clustering Intermittent Pumping: A Novel Low-Cost Intelligent Producing Method for Multiple Wells Based on Edge Computing	4001
<i>Cai Wang, Junfeng Shi, Ruidong Zhao, Weiquan Zhu, Huan Li, Kun Ding, Xishun Zhang, Yizhen Sun, Yanwen Yu, Xiang Zhou, Xiang Liu</i>	
Off-The-Shelf IoT Gateways as a Viable Alternative to Traditional HMI Devices	4011
<i>A. Mohamed, T. Almuhi, M. Rahamtallah, N. Ghizawi, A. Louiz, K. O. Elsheikh</i>	
Testing the Robustness of Quadruped Robots for Unmanned Inspection Activities in the Energy Industry.....	4024
<i>Manuel Pencelli, Luigi Bono Bonacchi, Marta Fiorucci, Guido Schillaci, Ali Youssef, Andrea Politano, Alessandro Bettini, Daniele Porciani, Lorenzo Salusti, Stefano Cioncolini, Giovanni De Magistris</i>	

AI APPLICATIONS IN RESERVOIR SIMULATION AND MANAGEMENT

Predicting Subsurface Reservoir Flow Dynamics at Scale with Hybrid Neural Network Simulator	4034
<i>Marko Maucec, Ridwan Jalali, Hassan Hamam</i>	
Physics-Informed Neural Networks for Modeling Flow in Heterogeneous Porous Media: A Decoupled Pressure-Velocity Approach	4044
<i>Ali Alhubail, Marwan Fahs, Francois Lehmann, Hussein Hoteit</i>	
Integration Between Different Hydraulic Fracturing Techniques and Machine Learning in Optimizing and Evaluating Hydraulic Fracturing Treatment	4057
<i>I. El Khouly, Ahmed Sabet, Mahmoud A. A. El-Fattah, M. Bulatnikov</i>	
Long-Term, Multi-Variate Production Forecasting Using Non-Stationary Transformer	4075
<i>A. Kumar</i>	

EXCELLENCE IN PROJECT MANAGEMENT AND CONSTRUCTION

Offshore Platform Design Innovation: A Success of Accommodating More Wells and Safety Systems.....	4089
<i>A. Nengkoda, A. S. Saad, A. A. Mokhtar, M. H. Hajri, A. S. Zahrani, T. A. Shamekh</i>	
Challenges in Gas Injection Compressor Foundation Design and Construction	4098
<i>H. M. Al Balushi, M. Al Mahrouqi, J. Al-Shaaili</i>	

FRACTURE DESIGN AND DIAGNOSTICS

Real-Time Wellhead Pressure Prediction: An Integration of Deep Learning and Physical Modeling.....	4115
<i>Yufeng Li, Mao Sheng, Shengxu Jin, Chao Zhou, Qinrui Sun, Shouceng Tian</i>	
Fracture Monitoring and Characterization Using Unsupervised Microseismic Data Analysis.....	4127
<i>Siddharth Misra, Aditya Chakravarty</i>	
Optimization of Fluid Lab Testing for Conventional Proppant Fracturing Applications in HT Reservoirs.....	4144
<i>A. Yudin, M. Farouk, Z. Al-Jalal, N. Nurlybayev, R. Jalil, A. Klyubin</i>	

While Fracturing Stage Evaluation Workflow	4162
<i>Y. M. Ghuwainim, A. F. Ibrahim, M. M. Ali</i>	
Case Studies in Integrated Fracture Design and Well Spacing Optimization in Shale	4175
<i>G. J. Fowler, M. W. McClure, A. Singh, R. Irvin, D. Ratcliff, C. Ponnors, J. Rondon</i>	
Cluster Spacing Effect on the Fracture Interference Including Stress Shadow	4191
<i>Ahmed Farid Ibrahim</i>	

HYDRAULIC FRACTURING

Enhancing Reservoir Productivity in Carbonate Formations Propped Vs Acid Fracturing Strategies at Lekhwair Area	4206
<i>Z. Al Malki, M. Al Manthari, A. Al Aamri, A. A. Al Farsi, A. A. Al Wahaibi, P. Salleh, K. H. Al Bahri, A. Al Mahrouqi, M. Al Wahaybi, A. Christiawan, Rioka Yuyan</i>	
Innovative Application of Solid Degradable Particles Mitigates Plug Failure and Efficiently Enhances Acid Fracturing Plug and Perf Operation	4237
<i>Faisal Albuwainain, Abdulrahman Almulhim, Stefano Farias, Ibrahim Anwer</i>	
Polyols: A Green, Non-Toxic, High Temperature Stabilizer for Hydraulic Fracturing Fluids.....	4250
<i>T. Almubarak, M. I. Alabdrabalnabi, A. Albaiz, M. Al Yami</i>	
Comparison of Different Type of Acid Diversion in Acid Frac Stimulation and Their Effectiveness to Well Production	4268
<i>Mudhish A. Aldawsari, Mutaz M. Ahmed, Basem F. Alshoura, Rio Wijaya, Johannes Vossen</i>	

EMBRACING ML/AI PETROPHYSICAL INTERPRETATION

Real Time Petrophysics Via Artificial Intelligence in Brown Field Development	4287
<i>Jamari Mohd Shah, Salmi Sansudin, M Imran M Fadhil, Ismail Marzuki Gazali, Ahmad Fakrudin Zakeria, Husiyandi Husni</i>	
Advancing Relative Permeability and Capillary Pressure Estimation in Porous Media Through Physics-Informed Machine Learning and Reinforcement Learning Techniques	4297
<i>R. Kalule, H. A. Abderrahmane, S. Ahmed, A. M. Hassan, W. Alameri</i>	
Deep Learning for Predicting Evaporite Salt in the Mediterranean: A Case Study	4309
<i>Fan Jiang, Soumili Das, Szymon Ligeza, Konstantin Osypov, Jean-Christophe Wrobel-Daveau, Stathopoulou Aikaterini, Pagoulatos Aristotelis</i>	
Advanced Machine Learning Framework for Enhanced Lithology Classification and Identification	4318
<i>P. Zhang, T. Gao, R. Li, J. Fu</i>	

VOLUME 7

INTEGRATED ASSET MODELLING AND SIMULATION

Simplified Power-Law Model for the Material Balance of Gas Reservoirs Experiencing Water Influx	4331
<i>N. Hosseinpour-Zonoozi, T. A. Blasingame</i>	
Novel Methods for Simulating Reservoirs with Tilted Fluid Contacts.....	4352
<i>A. Kashinath, S. Jayasinghe, E. Dow, U. Middya, A. H. Dogru</i>	

Production Analysis of Offshore Gas Wells (UK North Sea) Using Bootstrapped Arps Method:
Reserves Estimation Without Reservoir Model..... 4361
C. C. Afagwu, R. Weijermars

Learnings from Inflow Control Devices (ICD) Design Optimization Utilizing Dynamic Reservoir
Simulation Modeling..... 4389
W. Hidayat, M. Abd. Karim, M. Albassam

OVERCOMING CIRCULATION LOSSES

How to Use Expansion Rubber to Form an Adaptive Sealing Layer to Solve Severe Loss——
Materials, Effects and Theory..... 4405
K. X. Cui, D. Q. Li, J. H. Liu, F. Li, Y. L. Tu

Engineered Polymeric Solution for Lost Circulation Treatment in Fractured Limestone and
Sandstone Formation: Case Studies 4417
*Syed Hamza Ahmad, Rameez Anwar, Arif Yousaf, Saad Yousaf Khokhar, Hossam A. Elmoneim,
Abdul Asad*

DRILLING RISK MITIGATION

Performance Improvement Through Continuous Learning – a Case Study of World's First Unified
30 and 20 Casing While Drilling Project..... 4426
*A. Soi, S. Prakash, R. Sharma, M. Zayyan, S. Narayanan, D. Herrera Gomez, J. P. Halma, A.
V. Balen*

Lost Circulation Material Size Selection for Naturally Fractured Rocks 4439
K. Nguyen, A. Mehrabian, A. Santra, D. Phan, A. Bathija

Catalyzing Reservoir Revival: A Cutting-Edge Approach for Safe Drilling in Depleted Reservoirs
with Unconventional Liner Deployment and Cementing 4453
Uzma Chisti, Qasim Ashraf, Mohsin Usmani, Usman Dawood

Intelligent Optimization of Drilling Parameters Based on Multiple Drilling Agents 4469
Zhijun Pei, Xianzhi Song, Zhijian Hu, Tao Pan

Rethinking Event Detection and Drilling Processes Using High-Speed Downhole Telemetry and
MPD Know-How 4486
A. Johnson, M. Boucher, S. Pink

New Mechanical Solutions for Isolating Severe Losses in High Temperature Wells 4500
Guodong David Zhan, Yang Yao, Huijuan Guo, Abdulwahab Aljohar

WELL TESTING ADVANCEMENT

A Case Study on a Real-Time High-Resolution Formation Evaluation with Deep Transient Testing
on Thinly Bedded Reservoirs in Exploration Well: A Net Zero Carbon Emission Well Test Testing
Operation.....4511
T. B. Nordin, M. A. Abu Talib, L. W. Ong, C. C. Ling, E. Motaei, M. Z. Abdullah

Driving Deep Transient Testing with a Complete Digital Workflow – a Sustainable Exploration in
Green Fields 4526
*D. Ling, S. Daungkaew, M. Kristensen, M. Lefranc, A. Sherik, C. Cavalleri, N. Hademi, A.
Gisolf, M. Etchebes, F. Dubost, T. Nordin, M. A. Abu Talib, L. W. Ong, E. Motaei, S. K. T.
Rajan*

PTA Application in Carbon Capture and Storage – Challenges, Diagnostics, Modeling	4544
<i>E. H. Idorenyin, I. M. Al-Abdulwahab</i>	
Advanced 3D Dynamic Model for Forensic Investigation of Reservoir Connectivity in Heterogeneous Systems.....	4559
<i>O. H. Al-Obathani, N. M. Anisur Rahman</i>	
Intermittent Pumping Optimization for Ultra-Low Permeability Reservoirs Sampling	4576
<i>Shiyue Wang, Zhaoya Fan, Guang Rao, Wei Xiang, Rui Qin, Jun Sun, Bonan Ren, Zhiwen Liu, Aydar Galiev, Amr Ismail</i>	
PTA Modelling Approach to Accurately Assess Formation Damage Associated to Wells Completed with Inflow Control Devices	4592
<i>R. J. Phillips Guerrero, S. A. Bin Akresh, M. D. Alodah</i>	
A New Numerical Well-Test Model Using an Analytically Modified Embedded Discrete Fracture Model	4604
<i>Biao Zhou, Zhiming Chen, Zhigang Song, Xurong Zhao, Bin Wang, Olufemi Olorode</i>	

FORMATION EVALUATION OF COMPLEX LITHOLOGIES

Cased Hole Reservoir Evaluation in Old Wells with Complex Completion and Lithology – a Case Study from a Mature Gas Field in the Dnieper-Donets Basin, Ukraine	4619
<i>O. Petrokushyn, L. Abliakimov, V. Kuznetsov</i>	
Enhanced Reservoir Insight and Precise Well-Placement in a Karstic Carbonate Layer with Real-Time Ultra-Deep 3D Inversion: A Case in a Horizontal Appraisal Well, Offshore Abu Dhabi, UAE	4632
<i>Salima Wahbah, Samir Bellah, Tadataka Hattori, Ryuchi Tsuda, Wael fares, Ahmed Ghobashy, Nigel Clegg</i>	
Low Resistivity Low Contrast Saturation Evaluation Applying Anisotropic Rock Physics Model to Sonic Logs.....	4646
<i>T. Zharnikov, S. Vorobiev, C. Ayadiuno, V. Vorobyev, O. Akinyose, M. Ashfaq</i>	
Integrated Advanced Technologies for Heavy Oil Identification Application in Saudi Arabia	4660
<i>Abdulaziz Ahmad Alghareeb, Athbi Al-Sultan, Sultan Al-Dhafeeri, Gagok Santoso, Sarah Alghamdi</i>	
Study on the Method of Identifying Low Resistivity Pay by LWD NMR Water Spectrum Reconstruction Based on Permeability Model in the Guantao Formation, Bohai Basin	4674
<i>Xinlei Shi, Jun Ming, Jiangbo Huang, Yang Zheng, Guangdong Xu, Zhilei Han</i>	
Breaking New Ground: Novel Lithology Estimation Machine Learning Model for Pulsed Neutron Logging Technology	4685
<i>S. Turkey, M. Elias, H. Gamal, P. Ikande</i>	

DEPOSITIONAL SYSTEMS AND DIAGENESIS

Depositional and Diagenetic Controls on Reservoir Quality of the Tuba Formation, Sabriyah Field in Kuwait.....	4706
<i>Swarga Sunil, Ahmad Al-Farhan, Hasan Ferdous, Mohammad Sewilan, Abdullateef Al-Reja, Bukola Komolafe, Afnan Ali, Ali Al-Qallaf, Shamima Akther, Mohammad Al-Oqab, Ebtisam Ghloum, Fowzia Abdullah</i>	

REGIONAL AND NEW PLAY CONCEPT

- Intelligent Solution for Auto-Detecting Lithology Scheme While Drilling by Machine Learning 4720
Hany Gamal, Salaheldin Elkatatny, Abdulaziz M. Abdulaziz

ADVANCES IN GEOSCIENCE RESERVOIR MODELLING

- At-The-Bit Look-Around 3D Inversion; Key Milestone Achieved with Innovative Close to the Bit
Ultra-Deep Azimuthal Resistivity Sensors 4734
A. Elkhamry, A. Al Maimani, M. Fouda, A. Taher

FAST-TRACKING THE FUTURE OF GEOLOGIC HYDROGEN STORAGE

- Reservoir Engineering Aspects of Geologic Hydrogen Storage 4745
J. F. Bauer, M. M. Amro, T. Nassan, H. Alkan
- Advancing Hydrogen Storage in Depleted Gas Reservoirs: A Comprehensive Evaluation of
Dominant Trapping Mechanisms 4763
M. M. Alhotan, M. V. Barbosa Machado, M. Delshad, K. Sepehrnoori
- Underground Hydrogen Storage in Saudi Arabia: Opportunities and Challenges 4776
Amer Alanazi, Jing Ye, Abdulkader Afifi, Hussein Hoteit
- Prediction of Pure Mineral-H₂-Brine Wettability Using Data-Driven Machine Learning Modeling:
Implications for H₂ Geo-Storage 4798
*Muhammad Ali, Zeeshan Tariq, Muhammad Mubashir, Muhammad Shahzad Kamal, Bicheng
Yan, Hussein Hoteit*
- Understanding Field-Scale Hydrogen Storage Performance in Saline Aquifer Using Experimentally
Measured History-Dependent Saturation Function and Numerical Simulation 4810
J. Omeke, M. Siddharth, A. Retnanto

ADVANCEMENTS IN IOR & EOR

- Pressure Transient Analysis (PTA) Enables a New Approach for Building Robust Reservoir
Permeability Distribution for Miscible Gas Injection Development 4827
*Nasser Al Hinai, Pankaj Agarwal, Smirnov Dmitrii, Khayrutdinov Fanis, Saqer Al Kaabi,
Rashid Siyabi, Iman Al Jabri, Ilyas Al Kindi, Harrasi Amira, Al Hinai Alyaqadhan, Aiman
Quraini, Mahrooqi Alkhatab, Abdullah Hadhrami*
- Experimental Investigation of Liquid, Supercritical CO₂, CH₄, and CO₂/CH₄ Mixture to Improve
Oil Recovery 4844
Khaled Enab, Thomas Elizondo, Youssef Elmasry, Leonel Flores, Alfred Addo-Mensah
- Polyaromatic Hydrocarbon-Based Host-Guest Complex for Heavy Oil Viscosity Reduction 4858
Shaohua Chen, Jinxun Wang, Abdulkareem M AlSofi, Mohammed B AlOtaibi
- Foam-Assisted Water Alternating Gas (FAWAG) Injection in Offshore Malaysia Fields: A Single
Formulation Approach for Enhanced Oil Recovery 4873
*A. A. A. Razak, S. Zainal, R. Z. K. Bahrim, I. C. Hsia, N. Razali, M. F. Zaidin, N. N.
Zulkarnain, M. I. M. Amir*
- Experimental Investigation of Non-Chemical CO₂ Microbubbles EOR Performance in Low-
Permeability Reservoirs 4892
Haowei Jia, Haiyang Yu, Huiting Tang, Jianchao Shi, Engao Tang, Yang Wang

Field-Scale Simulations of Water-Alternating-Gas Injection in Morrowan Fluvial Sandstones of Stewart Field, Kansas, Using Captured CO₂ from an Ethanol Plant..... 4908
PO Longe, Sanjaajav Molomjav, R. Barati, Jyun-Syung Tsau, Spencer Musgrove, Jeff Villalobos, Jaques D'Erasmus, Mubarak M. Alhajeri

Comprehensive Piloting Strategy to De-Risk First CO₂ EOR Development in Sultanate of Oman..... 4942
Ramez Nasralla, Jeppe Gavnholt, Sameer Al Baloshi, Reda Amrani, Fadi Aljiroudi, Nicholas Borner, Nabil Al Bulushi

AI AND DATA-DRIVEN APPLICATIONS IN OIL AND GAS I

Real-Time Stick-Slip Mitigation Using Combined Machine Learning and Physics Based Techniques..... 4959
Hana Yahia, Thomas Romary, Laurent Gerbaud, Stephane Menand, Mohamed Mahjoub

Mitigating Nonproductive Time: A Novel Algorithm for Dsl Fault Detection 4974
C. M. Couto-Silva, S. Shetty, A. Olid-Gonzalez, G. Wallez, V. Chatelet, A. Kohar

Continuous Bottomhole Pressure Estimation Using Machine Learning and Physics-Based Methods – a Field Case Study 4983
H. Zalavadia, V. Sabharwal, S. Sankaran

DRIVING ENERGY EFFICIENCY TOWARDS EXCELLENCE

Comprehensive Energy Exergy Economic and Environmental Assessment of an Integrated Organic Rankine Cycle Solid Oxide Fuel Cell and Absorption Chiller System Fueled by Steam Reformed Natural Gas..... 4997
R. Sornumpol, P. Prathana Nimmanterdwong

Improving Energy Efficiency and Reducing Carbon Footprint of Oilfields Using a Rigorous Multi-GOSP Optimization Platform 5014
M. Alhuraifi, A. Ghazal, Y. He, R. White

PRODUCTION ADVANCEMENT IN UNCONVENTIONAL

Opportunities in Utilization of Digital Twins in Unconventional Gas Fields: Enhancing Efficiency and Performance Through Virtual Replication 5027
Nouf Alsulaiman, Karri Reddy, Uchenna Odi, Jaime Rabines, Cenk Temizel

VOLUME 8

Modeling the Effect of Transient Viscous Forces on Sucker Rod Pump Performance and Run Lift 5039
A. A. Aql, E. M. Al-Safran

Advanced Production Diagnostics and Optimized Drilling Strategy: Unlocking the True Potential of Production Data Using Physics and Machine Learning 5063
S. Haider

Experimental Study on Plugging Behavior of Temporary Plugging Particles During Dynamic Increase of Fracture Width 5072
Jianchun Guo, Feng Zhao, Jichuan Ren

ECONOMICS AND DE-RISKING

- Application of Stochastic Petroleum Economics for Unconventional Resources: Estimating the Gas Break-Even Price for a Liquids Rich Unconventional Development 5087
Michael MacPhee, Shamsul Anuar, Abdulbari Alhayaf
- Application of Representative Stochastic Models to Guide Development Decision Making in Large Unconventional Projects with Variable Fluid Composition..... 5100
Mahesh Narayanan, Michael Macphee, Robert Weight, Ghaith Alghaithi

MATRIX STIMULATION

- Single Phase Retarded Acid System: Innovative Solution for Sustaining Well Productivity5114
Qasim. A. Sahu, Rajendra. A. Kalgonkar, Eyad. A. Ali, Mustafa. R. Alzaid

RESERVOIR DATA INTEGRATION AND SURVEILLANCE

- De-Risking Shutoff Opportunities in Complex Dynamic Multiphase Environment with Advanced Pulsed Neutron Measurements: From Petrophysics to Production Logging Applications 5123
C. Cavalleri, R. Mohd Abd Rahman, C. Kin Khong, H. Ng
- Optimized Pressure Transient Acquisitions Improve Development Planning of Tight Rich Gas Fields in Sultanate of Oman 5139
A. M. Hegazy
- Deriving the Unknown Sublayer's Pressure in Producing Gas Wells Using the Selective Inflow Performance Workflow..... 5157
S. Rehman, W. H. Mirza, I. B. Espinoza, U. Farooq
- Assessing the Heavy Oil Waterflood Efficiency Through Integrated Crosswell Testing and Advanced Production Analysis..... 5174
N. Al Harty, E. Rassuli, H. Al Lawati, A. Aslanyan, D. N. Gulyaev, A. N. Nikonorova
- UBCTD Technology in Tight Sandstones. a Success Story by Integrating Petrophysics, Geophysics, Flow Data, and Pressure Transient Analysis to Target Natural Fractures 5200
Ali R. Al-Nasser, Ali J. Al-Solial, Abdulrahman Y. Abushal, Senan H. Bukhamseen

HIGH PRESSURE/HIGH TEMPERATURE CHALLENGES

- Methodology for Preventing Drill String Fatigue Failure in Deep Well with Large Shallow Dogleg..... 5212
Jiawei Zhang, Hongchun Huang, Lingzhan Zou, Qing Wang, Guodong Ji, Xusheng He, Hailiang Li, Wenxing Deng
- Successful Drilling High Pressure Well with Depleted Levels: Field Lessons from Reservoirs in Offshore Jack Up..... 5228
Cesare Antoniucci, Cinzia Di Altobrando, Valeriano Gioia, Marcellino Tufo, Renzo De Blasis, Massimo Ciancaglini, Fabio Santoni
- Risk Reduction and Continuous Improvement in the Deployment of Motorized Intelligent RSS in Unconventional Plays..... 5241
I. Garda

Drilling Campaign of a Marginal Oilfield Set New Records in Bohai Bay with Technology and Management Innovations	5250
<i>Hongbo Huo, Xinxin Hou, Lei Zhang, Hailong Liu, Ruibing He, Yuchen Zhang, Ming Yue, Kejin Chen</i>	

ADVANCEMENTS IN CEMENTING

Test Methodology to Evaluate Cement Compatibility in Strategic Underground Gas Storage for Energy Transition	5261
<i>Federico Cracolici, Vanessa Silvia Iorio, Alberto Viareggio, Elisabetta Previde Massara, Giorgio Volontè, Nicola Giovanni Bona, Daniele Farina, Fabio Parrozza</i>	
A Systematic Cementing Approach to Improve the Shoe Track Integrity: Case Studies from Saudi Arabia.....	5271
<i>Wajid Ali, Faisal Abdullah Al Turki, Mouloud Bouaraki, Don Woody Lawrence</i>	
Innovative Solution to Minimize Oil-Based Mud Formation Damage in Jurassic Depleted Reservoirs.....	5285
<i>Al-Dhafiri Anood, Al-Otaibi Yousef, Bloushi Taha, Al-Mutawa Majdi, Al-Ajmi Moudi, Abdelbagi Mamoun, Sierra Martinez Sebastian, Abdel-Basset Mohammed</i>	
Maximizing Drilling Efficiency: A Novel Solution to Handle Wellbore Ballooning in High Pressure Formation Through Applying a Fit-For-Purpose Drilling Fluid and Managed Pressure Techniques	5302
<i>A. H. Oqaili, T. N. Alzarea, C. O. Iturrios</i>	
Scrubbing Spacer for Gas Storage Well.....	5315
<i>Mohd Sabri Maarof, Faizan Ahmed Siddiqi, Anouar Elhancha, Urooj Khalid Qasmi, Rodney Benjamin Masoud Zuleta</i>	
Development of a New Retarder Recipe Containing Boric Acid, Which Exhibits Excellent Mechanical Properties Suited for the Mid Temperature Range (MTR) in Oil and Gas Well Cementing Operations	5329
<i>Chioma Ohochukwu, Samuel Mathew, Zhang Liang</i>	

FORMATION EVALUATION AND WELL INTEGRITY

How the Innovative Tri-Axial Geophones Helped to Pinpoint the Source of Slow Building B and C Annulus Pressures	5346
<i>T. Mittal, M. Q. Hussain, D. N. Sandra, M. S. Al Shehhi, M. Singh, P. N. Ahmed Khan, J. Wright, I. Baca Espinoza</i>	
High Efficiency Coring in Deviated, Interbedded and Unconsolidated Formation. a Case Study from Offshore Southeast Asia and Potential Technology Enabler for CCUS Wells	5359
<i>I. P. Says, S. Hashim, A. L. Khaw, K. Krishanderan</i>	
Evolution of the Chemistry of NanoTags for Improved Reservoir Characterization Accuracy	5374
<i>S. Sherry Zhu, Marta Antoniv, Gawain Thomas, Martin Poitzsch, Hyung T Kwak</i>	
Reinventing Well Integrity and Zonal Isolation in Well Abandonment Through Prudent Subsurface Data Integration and Novel Dual Casings Cement Bond Assessment Technology	5393
<i>Siti Najmi Farhan Zulkibli, M Zahin Abd Razak, Dzulfadly Johare</i>	
A Study in Ultra-Thin Cement Sheath Evaluation.....	5404
<i>B. Li, J. Olaiya, M. Garcia, S. Kamgang</i>	
Innovative Wellsite Porosity Analysis of Tight Cuttings by NMR	5426
<i>Farhan Ali, Yazan Mheibesh, Andrea Valori, Mohammed Al-Hamad, Wael Abdallah</i>	

ROCK EVALUATION TECHNIQUES

- Deriving Effective Permeability to Improve Productivity Prediction Based on Mobility from Pressure Measurement While Drilling and Relative Permeability Test 5437
Xinlei Shi, Yunjiang Cui, Sainan Xu, Wankun Xu, Shenyuan Niu, Zhilei Han

PETROLEUM SYSTEMS

- Origins and Control Factors of Varying Oil Properties in the Lower Cretaceous Zubair Formation, Central Iraq 5450
Yuyuan Li, Zhongrong Mi, Ahsan Mohammed Saeed, Jianhua Qu, Bo Zhang, En Xie, Zhenghong Zhang, Ke Zhang, Mustafa A. Jaed, Yong Xiao, Yang Li, Guang Hu

APPLIED RESERVOIR STUDIES

- Rock Physics Modeling and Iterative Petrophysics Driven Inversion Results: Estimating Subsurface Petrophysical Properties and Characterizing Reservoirs - A Real-Time Case Study of Clastic Gas Field in Pakistan 5461
Adil Azeem, Ali Hameed, M. Muneeb Ali Virk, Faheem Razzaq Awan, Akash Mathur, M. Faraz Abid

- Future Development Path of China's Fossil Energy Under the Background of Carbon Peak and Carbon Neutrality 5481
Yu Jing, Zhou Bo, Li Bing, Fang Pingliang, Zhang Hongyuan, Huang Hongchun, Chen Changchang

- Emphasis of High Order Stratigraphic Sequences Enabled by the Relative Geological Time Modelling Method: Application to Fractured Thin Reservoirs in a Pre-Salt Gas Field, Offshore Netherlands 5493
N. Daynac

- Effect of Lamination-Induced Anisotropy on Fluid Saturation and Petrophysical Properties 5510
Ahmad M. AlZoukani, Farhan Ali, Mohammed Al-Hamad, Simone Di Santo, El-Saied Hassan, Wael Abdallah

EMERGING FRONTIERS IN HYDROGEN STORAGE

- Understanding of Geochemical Reactions in Hydrogen-Injected Wells: Cement Integrity for Safe Underground Hydrogen Storage 5524
Esam Al Dandan, Md Mofazzal Hossain

- The Study of Hydrogen Loss Due to Geochemical Interactions in Depleted Carbonate Hydrocarbon Reservoirs 5538
Angelo Kennedy Limaluka Lino, Yogarajah Elakneswaran, Naoki Hiroyoshi, Moataz Abu-Al-Saud, Dong Kyu Cha, Subhash Ayirala

- Hydrogen Price Race in Australia 5550
Esther Escobar-Burnham, Waldemar Szemat-Vielma

- Numerical Modelling of Hydrogen Diffusion in Elastomeric Materials to Evaluate Wellbore Integrity for Hydrogen Injected Well 5563
Yousef Alhassan, Md Mofazzal Hossain

Sun Powered Green Hydrogen - A Comparative Analysis from the Kingdoms of Morocco and Saudi Arabia 5579
Waldemar Szemat-Vielma, Jurgen Scheibz, Nihad Kasraoui, Faisal Al-Omar

Characterizing Thermal Runaway of Reservoir Rocks Under Electromagnetic Irradiation Towards Hydrogen Generation from Petroleum Reservoirs 5598
Baizheng An, Keju Yan, Qingwang Yuan

An Intelligent Intermittent Pumping Production Technology Based on Fusion of Photovoltaic Unit and Storage Battery 5614
Xishun Zhang, Cai Wang, Yizhen Sun, Ruidong Zhao, Junfeng Shi, Yanwen Yu, Gaoqiang Ma, Manping Li, Shuangtao Li, Zhenkun Shen, Jingwen Xu

SMART ENERGY REVOLUTION: UNLEASHING THE POTENTIAL OF ML/AI

Rapid Production Forecasting for Hydraulically Fractured Wells in Heterogeneous Shales 5627
M. H. Elkady, S. Misra, U. Odi, N. Meehan, A. Silver, K. Reddy, C. Temizel

Smart Computational Algorithms for the Prediction of Interfacial Tension Between Water and Hydrogen – Insights into Underground Hydrogen Storage 5640
Shams Kalam, Mohammad Rasheed Khan, Muhammad Arif

New Dimension to Field Wide Cement Evaluation Based on AI & ML for Pro-Active Well Integrity Management in Matured Oil and Gas Fields 5651
Nagaraju Reddicharla, Prabhaker Reddy Vanam, Deepak Kumar Voleti, Mayada Ali Sultan Ali, Ali Abdulla Al Shkeili

Oil-Water Layer Interpretation Based on BPSO and LSTM Combinational Model 5658
Mengxin Song, Chengci Wang, Bohan Wang

A Comparative Study on Fluid Composition Determination from Near Infrared Spectra Using Deep Convolutional Neural Networks and Partial Least Squares Regression 5665
W. Weinzierl, A. Cartellieri, P. Schapotschnikow

Machine Learning Application for Hydraulic Fracturing Optimization in a China Tight Gas Field 5677
Tianjun Yu, Ming Li, Taiji Wang, Kevin Mullen, Jie Zhang, Beryl Audrey, Hai Hua Yang, Gayatri Kartoatmodjo

Innovative Method to Predict H₂S Concentration from Advanced Mud Logs 5691
Enter: Khalid Qubaisi, Yacine Meridji, Naif Rubaie, Abdullah AlAkeely

AI AND DATA-DRIVEN APPLICATIONS IN OIL AND GAS II

Using Data-Driven Analytics Workflow to Find Out Highly Watered-Out Mechanism and Novel Solution in Horizontal Wells for Heterogeneous Carbonate Reservoir 5704
Dandan Hu, Wenhuan Li, Qianyao Li, Yihang Chen, Yuanbing Wu, Songhao Hu

Clear Skies Ahead: Optimizing Operations Through Large Language Models and AI to Reduce Emissions and Costs for a Regional NOC 5717
Jimmy Thatcher, Assilkhan Amankhan, Morgan Eldred, Abhijith Suboyin, Carsten Sonne-Schmidt, Abdul Rehman

EXPLORING TECHNICAL FRONTIERS BEYOND 4IR

- Navigating Error Reduction: An Investigation of Enhanced Reality Technology and Operator Competency 5729
Ahmed Alaa
- Oil Pipeline Leak Detection Using Deep Learning: A Review on POC Implementation 5738
Ahmed Al Azri, Sultan Al Kaabi, Saud Al Zakwani, Mohammed AL Sulaiman, Afifa AL-Mawali

ROCK CHARACTERISATION AND GEOMECHANICS

- High-Resolution Characterization of Carbonate Source Reservoir Heterogeneity for Enhanced Production Optimization 5747
W. D. Von Gonten, S. Ali, M. Ali, S. Eichman, A. Gupta, E. M. C. Kias, R. Mesdour, M. Al-Bassam, J. Degenhardt, M. Cordes, R. Suarez-Rivera

VOLUME 9

- Integrated Approach for Efficient Reservoir Characterization and Completion of the Silurian Unconventional Formation in Southeastern Turkey 5765
Canalp Özkul, Ismail Omer Yilmaz, Fethi Bensenouci, Kirill Ezhov, Mehmed Ekrem Yazaroglu, Ahmet Ergun Mengen
- Formation Evaluation of Condensate Reservoir Using New-Generation NMR T1-T2 Logging and T2-D Mapping: Case Study in the Permian in China 5780
Bo Zhang, Yanning Zhang, Jinfeng Yu, Gang Luo, Xiaoqiang Wang, Liang Cai, Wei Wang, Yue Wang, Xiu Ming Xian, Xianran Zhao, Jin Long Wu
- Experimental Research of Imbibition Law in the Continental Shale in Sichuan Basin in China 5790
Chao Zhou, Yashu Chen, Zuqing He, Zhifa Wang, Wei Zhang, Yuzhu Xu
- Rock Compaction Dynamic Modeling for Unconventional Reservoirs 5801
Moemen Abdelrahman, Elhadi Belaiifa, Abdullah Almubarak, Adedayo Adebamiro

HYDRAULIC FRACTURE MATERIALS

- New Generation Fracturing Fluid with Superior Proppant Transport and Oil Displacement Functionalities 5807
Genyao Lin, Jiangshui Huang, Bryant Richardi, Stephanie Yu, Jianshen Li, Fuchen Liu, Lijun Lin
- Oxidative Hydraulic Fracturing Fluid to Enhance Production from Source Rock Reservoirs 5820
Katherine L. Hull, Simrat Singh, Brady Crane, Rajesh K. Saini, Khalid M. AlRuwaili, Murtadha J. AlTammar, Younane N. Abousleiman

RESERVOIR MANAGEMENT ISSUES

- Successful Water Conformance Control Using Newly Developed Smart Polymer Gels for Water Shutoff Application 5835
Hemant K. Sharma, Ayman M. Almohsin, Fehead M Subaie, Wassim Kharrat

Optimization of Pulsed Neutron Logging for Real-Time Water Management Through Oxygen Activation and Water Flow Logs	5847
<i>N. Yusuf, C. Cavalleri, W. A. Tolioe, L. H. How, S. H. Daud, D. Johare, M. S. Hendrawati, A. G. A. Halim</i>	
Sulfate-Based Scales: Why Sulfate Ion Concentrations Matter.....	5865
<i>N. Almulhim, F. Alotaibi, M. Rafie, T. Alrufail</i>	
Performance Evaluation of Autonomous Outflow Control Devices in Various Injection Wells, Field Data Review of the Technology Deployments	5876
<i>M. Moradi, G. F. Kvilaas, M. R. Konopczynski</i>	
Emulsified Epoxy Resin for Mitigating Sand Production	5888
<i>F. F. Chang, F. Liang, Christie Lee, Paul Berger</i>	

ROCK AND FLUID PROPERTIES MODELLING

Predicting Reservoir Fluid Properties from Drill Cuttings: Application of GPC-UV Method for Reservoir Fluid Analysis	5899
<i>Tao Yang, Alexandra Cely, Julian Moore, Eric Michael</i>	
Fast and Accurate Determination of Reservoir Fluid Interfacial Tension Using FTIR Spectroscopy	5910
<i>Azizah AlRadhwan, Mohammed Al-Hamad, Wael Abdallah</i>	
Flow Assurance Analysis of Complex Fluid Mixtures: A Case Study Field in Southeast Asia	5922
<i>L. Hendraningrat, S. R. M. Shafian</i>	
Study on the Morphological Characteristics of Micro Remaining Oil in Sandstone Reservoirs of Bohai Oilfield.....	5936
<i>Cuo Guan, Jian Zhang, Xianjie Li, Ke Hu, Hong Du</i>	

DRILLING AND COMPLETION EQUIPMENT

Backup-Ring Optimization for High-Temperature and High-Pressure Applications Through Dynamic Composition Modification in Composite 3d Printing	5946
<i>J. T. Green, I. A. Rybak, C. Glaesman</i>	
First Trial of On-Demand Activated Axial Agitation System on Abu Dhabi Offshore Operation.....	5963
<i>A Wahyudi, H Biyanni, A Tamuli, C Agarwal, L Hermawirawan, M Nowfal, R Che</i>	
Demonstration of a Remotely Set Liner Hanger Setting System Utilizing Acoustic Telemetry.....	5982
<i>A. Hawthorn, D. Groves, G. Osunjaye</i>	

GEOMECHANICAL CONSIDERATIONS IN WELL PLANNING

Evaluation of the Impact of Poor Logging Data on Mud Weight Prediction Through Development of Approximate UCS- Based Correlations for Fracture and Stability Pressure Gradients.....	5992
<i>S. Al Zeer, M. M. Hossain</i>	
Improving Wellbore Stability by Leveraging Real-Time Spectral Gamma Ray Logs.....	6008
<i>Ammar Qatari</i>	
De-Risking the Full Development Cycle of Tight Naturally Fractured Prospects by Integration of Advanced GeoMechanical and Natural Fracture Characterization: A North African Perspective.....	6018
<i>Amir Ghadimipour, Satya Perumalla, Prajit Chakrabarti, Merwan Ben Boudiaf, Sankhajit Saha</i>	

Evaluation of Real-Time and Post-Drilling Petrophysical Data Acquisition Impact on Wellbore Stability and Mechanical Rock Integrity	6038
<i>Ammar Qatari</i>	
Delivering Challenging Wells with Reduced NPT Using Real-Time Geomechanics: A Middle Eastern Perspective.....	6046
<i>Ahmed Ashraf Baghdadi, Johannes Vossen, Souvik Sen, Prajit Chakrabarti, Tuhin Podder, Sourav Mitra, Eman Alabdulmuhsin</i>	
Yielded Zone Characterization While Drilling a Wellbore into Clastic Reservoirs Using Elastoplastic Modeling Approaches	6058
<i>Osman Hamid, Hussain Albahrani, Mohammed Suaid</i>	

INTEGRATED FORMATION EVALUATION

Integration of Rock Typing and Neural Network Techniques for Accurate Permeability Prediction in Heterogeneous Carbonate Reservoirs: A Case Study from Abu Dhabi Offshore Field	6072
<i>Eslam Elabsy, Ahmed Soliman, Lichuan Deng, Sundos Al Abed, Hiroki Montani, Maddiah Al Suwaidi</i>	
Application of a New Imaging Technique in Thin Beds Analysis / Sand Counting of Clastic Reservoirs in Oil Base Mud Environment.....	6089
<i>Endurance Ighodalo, Umar Idris, El-Saied Hassan, Mustafa Ahmad Al Mubarak</i>	
Shale Oil Quality Evaluation of Sand-Shale Laminated Reservoir Based on Wireline Formation Test	6102
<i>Ming Chen, Yongde Gao, Jinbo Wu, Dianqiang Sun, Bonan Ren, Zhaoya Fan, Guang Rao, Bei Gao, Jichao Chen, Zhiwen Liu, Amr Ismail, Aydar Galiev</i>	

GEOMECHANICS AND WELL STABILITY

Use of Advanced Geomechanical Analysis to Define Practical Cut-Offs for Sand Control Decisions	6114
<i>Abbas Khaksar</i>	
Digital Wellbore Stability Prediction with Machine Learning	6126
<i>Peng Liu, Jian Li, Bo Chen, Gongrui Yan, Qihong Lei, Lin Liang, Yansong Huang, Haipeng Zhao, Gaige Wang, Maoyou Sun</i>	
Spiral Hole Moderation Enhances High-Resolution Borehole Image Interpretation Across Fractured Carbonate Reservoirs.....	6139
<i>Alawi Altarouti, Abdullah Alotaibi, Prudencio Guerreiro, Ayrat Fakhrylgayanov, James Dolan</i>	
Study on the Mechanism of Carbonate Formation Strength Degradation Induced by Water-Rock Interaction.....	6152
<i>Dujie Zhang, Daqi Li, Junbin Jin, Yulin Tu, Rached Rached</i>	
Proppant Pack Stability Enhanced by the Combination of New Fiber Technology and Resin-Coated Proppants.....	6163
<i>Franck Salazar, Pedro Artola, Salguero Bruno, Byron Delgado, Santiago Aguirre, Luis Peñaherrera, Jacqueline Boas, Nancy Ormaza</i>	
An Integrated Engineering Approach Aiding the Delivery of the Challenging Build-Up and Lateral Sections in an Exploration Field.....	6174
<i>Ahmed Baghdadi, Souvik Sen, Prajit Chakrabarti, Johannes Vossen, Kashif Malik, Ivan Salmin, Munir Bashir, Ahmed Bakr</i>	

Real-Time Wellbore Stability Assessment Using a New Generation Ultrasonic Logging-While-Drilling Imaging Technique.....	6185
<i>K. Khan, R. Alidi, A. Taher, M. Fouda, M. Hussein, A. Al Maimani</i>	

Predicting Mud Weight Window from Well Logs by Integrating Deep Neural Networks and Physics Models.....	6201
<i>Dung T. Phan, Chao Liu, Murtadha J. AlTammar, Younane N. Abousleiman</i>	

AI AND ML FOR RESERVOIR CHARACTERISATION

Research and Application of Rock Typing Using Deep Learning in Prediction of Carbonate Reservoirs of H Oilfield, Iraq.....	6212
<i>Gao Xiaoli, Lv Lu, Wang Bo, Wang Yongli, Wang Ailing, Hu Junhui</i>	

Decoding the Stratigraphic Heterogeneity of Bengal Basin, India Using Supervised Machine Learning-A Case Study.....	6226
<i>Arijit Sahu, Manomita Kundu</i>	

4D Geomechanics New Modelling Approach Using Machine Learning Predictions for Giant North Kuwait Jurassic Field	6243
<i>M. Haas, N. Al-Hamad, J. Heiland, A. M. Hussein, S. Shekhar, D. N. Srivastava, J. Ramon, M. Abdel-Basset SLB, Abdullah Al-Anzi, Moudi Al-Ajmi</i>	

Coupling Fluid Flow and Geomechanical Deformation Using AI & FEM Approaches	6254
<i>Osman Hamid, Tameem Almani, Sulaiman Alqannas, Ghalia Alshanbari</i>	

Machine Learning-Assisted Prediction of Electrical Properties for Heterogeneous Reservoirs: Case Study in Mamey Field, Northern Colombia	6266
<i>C. Moya, R. Prado, H. Caycedo, D. Perez, C. Jimenez, L. Martel</i>	

INSIGHTS FROM GLOBAL EXPERIENCES AND CASE STUDIES

A Novel Approach for Carbon Capture & Sequestration Pilot Study in the Western Desert of Egypt.....	6277
<i>M. Eleoni, J. Dredge, Y. De Boer, K. Mansour, A. Ismail, R. ElSayed, I. Merghany, C. Ellamey, A. Agam, A. Taqey, R. Gomes, S. Stojic, A. Nasiri, F. Bouchet, G. Nasreldin</i>	

CO2 as a Service (CO2aaS) Advisory and Optimization Contractual Models for Critical Production Assets	6302
<i>Daniele Porciani, Ilaria Parrella, Michele Lauriola</i>	

PIONEERING TECHNOLOGIES DRIVING TRANSFORMATION

Generative Artificial Intelligence for Geomodeling	6309
<i>Siddharth Misra, Jungang Chen, Polina Churilova, Yusuf Falola</i>	

Machine Learning to Detect Oil-Based Mud Contamination in Oil Samples	6321
<i>F. F. Almalki, M. D. Alotaibi</i>	

Enhancing Predictive Maintenance in an Oil & Gas Refinery Using IoT, AI & ML: An Generative AI Solution	6333
<i>S. Saboo, D. Shekhawat</i>	

Metaverse: Accelerates Upstream Growth with the Power of Immersive Collaboration	6343
<i>Badr Al-Harbi, Muhammad Al-Readean, Amell Al-Ghamdi, Abdullah Al-Akeely</i>	

SEISMIC INTELLIGENCE: UNVEILING EARTH SECRETS WITH ML/AI

- Machine Learning Classifier for Detecting Non-1D Features Using Deep Directional Resistivity Measurements..... 6355
X. Zhong, J. Jith, Y. Chang, J. Gremillion
- Enhancing Reservoir Potential Assessment with Machine Learning Techniques: A Systematic Approach in the X Field 6369
Albertus Suwandi, Ardhi Hakim Lumban Gaol, Steven Chandra

LEVERAGING ADVANCED CONTROL AND AUTOMATION

- Method of Wireless Monitoring System Connection 6402
Ibrahim S Alrashed
- How IEC 61499 Can Be a Key Player Toward a New Sustainable Automatic Control Ecosystem? 6412
M. A. Almaz, S. Almadi, N. Ghizawi, Z. Al Yahaya, S. Ismaeel, Fahad A Amer
- Baseera System for Digitalization of Alarm Management in PDO 6424
Ibtihaj Said Al Harrasi, Yahya Hamood Al Naumani

ADVANCED DEVELOPMENTS IN CORROSION MANAGEMENT

- A Holistic Approach for Mitigating Scale Deposition in Highly Sour Gas Wells 6438
Mauricio A. Espinosa, Jairo Leal, Tao Chen, Qiwei Wang
- Effects of Flow Velocity on Biofilm Formation and Corrosion Behavior of L245 Steel in the Presence of Sulfate Reducing Bacteria..... 6450
Xidi Lyu, Kexi Liao, Zihan Zou, Guoxi He, Shitao Liu
- Quantitative Evaluation and Prevention Technology of Microbiologically Influenced Corrosion Under Deposit in a Middle East Carbonate Oilfield..... 6470
Zhengrong Ye, Guan Wang, Xiang Zhou, Weidong Jiang, Ran Yi, Xiaodong Cui, Zhichao Qiu, Zhiwen Yang

VOLUME 10

- Corrosion Inhibitor Optimization for Sweet Corrosive Gas Field Based on Flow Assurance Study, Inspection Review and Assessment of Corrosion Erosion Likelihood 6485
Farih Mitraningsih, Reni Tri Puji Kumalasari
- Prediction of Microbial Induced Bacteria Using Innovative Semisolid Growth Media for General Aerobic Bacteria at Specific PH..... 6501
Mohamed A. Mahmoud, Ahmed H. Al-Salman
- Effect of Acidizing Additives on the Corrosion Rate of Retarded HCl Recipes..... 6512
N. Almulhim, A. Almoajil

COMPLETIONS AND RIGLESS OPERATIONS

- Enhancing Frac Fluid Recovery in Unconventional Shale and Tight Gas Fracturing with Eco-Friendly Flowback Aids 6525
Ahmed Essam, Khaled Abdelgawad, Ahmed Ibrahim

Automated Plug-And-Perf Decreases Operational Risk and Improves Conveyance Efficiency	6536
<i>J. Walden, A. Mishra, N. Ostermann, L. Padilla</i>	
Use of Transfer Learning in Shale Production Forecasting	6545
<i>Siddharth Misra, Mohammad Elkady, Veena Kumar, Uchenna Odi, Andrew Silver</i>	
A Systematic Approach for Re-Fracturing Optimization and Horizontal Well Production Performance Improvement in Unconventional Resource	6561
<i>Yongliang Tang, Wei Zhou*, Daiyu Zhou, Jie Zhang, Yiming Wu, Peng Wang, Zhiliang Liu, Guohui Li, Liming Lian, Xiaotao Fu, Hongbao Du, Zheng Li, Xingning Huang</i>	

ADVANCED TOPICS IN RESERVOIR SIMULATION AND MODELLING

Forward Modeling Complex Diffusive Gradients and Matching Measured Diffusive and Quasi- Equilibrium Fluid Distributions in Connected Reservoirs.....	6572
<i>Tarek S. Mohamed*, Morten Kristensen, Hani Elshahawi, Carlos Torres-Verdin, Oliver C. Mullins</i>	
A Four-Dimensional Geostress Evolution Model for Shale Gas Based on Embedded Discrete Fracture Model and Finite Volume Method.....	6588
<i>Qiang Wang, Yufeng Wang, Jinzhou Zhao, Yongquan Hu, Chen Lin, Xiaowei Li</i>	
Analytical and Numerical Investigations of the Impact of Anisotropic Elastic Properties on Hydraulic Fracture Geometry.....	6606
<i>A. Shawaf, A. Dehdouh, V. Rasouli</i>	

CASE STUDIES IN WELL CONSTRUCTION

Erosion Mitigation During Testing of High Deliverability Gas Well - A Case Study	6628
<i>I. A. Bashir, S. Inam, M. Sana-ul-Hussnain, I. Shafee, M. Aijaz, R. Ullah, M. Haider, H. A. Qureshi, M. Khan, H. Ahmad, F. R. Awan</i>	
Casing Centralization—Planned Compared to Actual: A Kuwait Case Study	6640
<i>M. A. Fituri, Y. Ali, A. Al-Naqi, J. Saikia, K. Abdulrahim</i>	
Near-Bit-Density-Porosity BHA Configuration and Its Utilization in Realtime Geosteering: A Case Study from the Lower Cretaceous Minagish Oolite Limestone Reservoir in Umm Gudair Field, West Kuwait	6659
<i>N. Al-Khalifa, D. Joshi, S. Al-Langawi, S. Al-Otaibi, A. Al-Dhafeeri, E. Al-Qazweeni, P. Odiase, S. B. Mohamed, A. Adeniyi, S. John</i>	
Risk Mitigation and Drilling Time Reduction Practices with Optimized Wellbore Geometries Implemented in Offshore Shallow-Water Tertiary Wells in Gulf of Mexico	6677
<i>Edison Barrera, Carlos Perez, Jose Manuel Gomez, Jose Alarcon, Maria Andrea Torres, Abelardo Zapata, Pedro Laguado</i>	

DRILLING AND COMPLETION TECHNOLOGIES

Accelerating Drilling Efficiency and Consistency: A Rig-Based Approach to Exponential Drilling Program Improvements	6694
<i>C. Major, T. Hall, W. Stogner, S. Kern</i>	
Role of Ecosystem Partners to Make Nonmetallic Downhole Tubulars a Reality.....	6706
<i>A. Aladawy, A. Malkawi, O. El Shamy</i>	

Best Practices & Inhibitors Utilization to Prevent Sulfide Stress Cracking During Coiled Tubing Intervention in HPHT Sour Wells - A Case Study from Oman.....	6720
<i>Mayank Kumar, Irfan Abdullah, Himanshu Pathak</i>	
Making Non-Metallic Downhole Tubulars a Reality - Materials and Construction	6730
<i>Serena L. M. Goh, Thibault Villette, Ali Hijles, Fauzia Waluyo, Ahmed AlAdawy, Mazen Al Mawla</i>	

PERFORMANCE DRILLING AND OPTIMISATION

Artificial-Intelligence-Based Drilling Risk Prediction - Prevention is Better than Cure.....	6745
<i>Syed Aaquib Hussain, Ketan Hasija, Valerian Guillot, Pierre Sesboue, Ahmed el Ganaini, Todd Hughes</i>	
Experimental Visualization of Downhole Drilling Vibration Using Industrial Drilling Dynamic Recorder	6752
<i>E. K. Maitra, M. F. Al Dushaishi, J. Sugiura, S. Jones</i>	
A Systematic Approach to Drilling Performance Improvement and Risk Reduction in Horizontal Wells.....	6769
<i>Xiaoliang Wang, Bao Zhou, Liang Wen, Hao Qin, Junqi Yang, Guangming Qin, Xiaosha Guo, Yangsong Wu, Xingning Huang</i>	
Effective Options Utilized to Reduce Or Eliminate Non-Productive Time in Case of Severe and Total Losses While Drilling Unconventional Horizontal Wells.....	6780
<i>Salahaldeen S. Almasmoom, Ahmad I. Mugdad, Guoqiang Yin, Faris A. Qahtani</i>	

ROCK GEOMECHANICS AND RESERVOIR FRACTURING

Successful Application of CO2 Foam Fracturing Enables Paradigm Shift in Stimulation Strategy of North Kuwait Jurassic Depleted Reservoirs	6795
<i>Mohamed Abdel, SLB Kholoud Al-Mefleh, Danah Al-Muhanna, Erkan Fidan, Zamzam Abdul-Samad, Yousef Al-Salali, Ayo Ajayi</i>	
Characterization of Induced Fractures in Carbonate Formation Using Multi-Frequency Dielectric Technique	6805
<i>Khalid Alsamadony, Salah Al-Ofi, Wael Abdallah</i>	
A Quantitative Approach to Characterizing Natural Fractures in Tight Gas Sands, Using Data from Mud Loss.....	6823
<i>X. Tan, H. Li, L. Wen, H. Liu, T. Liu, C. Jia, S. Wang, R. Zheng, J. Liu</i>	
Natural Fracture Modeling in Unconventional Dadas-I Member for 3D Seismic Survey in the Southeastern Turkey	6837
<i>Artem Orlov, Canalp Özkul, Fethi Bensenouci, Ekrem Yazaroglu, Ahmet Ergun Mengen, Ismail Omer Yilmaz</i>	
Fracturing Simulation and Design Optimization of Fracture Network in Non-Uniform Stress Field of Deep Shale Gas	6855
<i>Chen Lin, Jinzhou Zhao, Lan Ren, Ran Lin, Jianfa Wu, Jianjun Wu, Yi Song, Mengke Xie, Zheyu Hu</i>	
Coupled Geomechanics and Reservoir Simulation for Gigantic Naturally Fractured Reservoirs	6872
<i>Lei Qiao, Meng Shen, Tameem Almani, Tareq Al-Shaalan, Ali Dogru</i>	
Method to Identify Perforation Locations for Fracturing Deep and Tight Gas Reservoirs.....	6899
<i>K. Xia, W. Wang, Y. Cui</i>	

Cased-Hole Anisotropy Mechanical Properties and Stress Evaluation Using Through-The-Bit Dipole Sonic for Fracturing Optimization in Horizontal Deep Gas Well, North Oman	6912
<i>Mohamed Abdel Azim, Stevanus Dwi Kurniadi, Adam Donald, Pascal Millot, Sumaiya Ali Al Bimani, Shaima AL Farsi, Anam Al Bulushi, Benjamin Mowad</i>	

QUALITATIVE AND QUANTITATIVE INTERPRETATION

Unlocking Reservoir Potential: Machine Learning-Driven Prediction of Reservoir Properties and Sweet Spots Identification.....	6933
<i>M. Khan, A. A. Bery, S. S. Ali, S. Awfi, Y. Bashir</i>	

EXPERIMENTAL FINDINGS AND TECHNOLOGICAL ADVANCES IN CCUS

Effect of CO ₂ Chemical Reactions on Rock Pore Surface Morphology – a Laboratory Study	6947
<i>Gabriela Singer, S. Mark Ma, Songhua Chen</i>	

CO ₂ Soluble Surfactants Assisted Carbon Storage Under Achievable Pressure Gradients: Effect of Surfactant Partitioning Behavior During Continuous CO ₂ Injection	6964
<i>Lei Ding, AbdulKareem M. AlSofi, Muhammad M. AlMajid, Pramod Patil</i>	

Quantifying the Influence of H ₂ S Impurities on CO ₂ Storage Efficiency in Carbonate Reservoirs: An Experimental Findings.....	6978
<i>A. A. A. Razak, I. M. Saaid, M. A. M. Yusof, M. F. Zaidin, N. N. Zulkarnain, M. I. M. Amir, Y. A. Sazali, M. F. Habarudin</i>	

In Situ Characterization of Wettability in CO ₂ -Brine-Rock System Based on X-Ray Microtomography	6995
<i>Qian Chen, Jian Hou, Bei Wei, Yu Xue, Qingjun Du, Yongge Liu</i>	

INNOVATIVE STRATEGIES FOR WATER MANAGEMENT IN THE OIL AND GAS INDUSTRY

An Effective Metal Organic Framework (MOF) for Selective Barium Removal from Oil Field Waters.....	7008
<i>J. Hou, F. AlGhunaimi, T. P. Huang, N. Aljuryyed</i>	

The Influence of Various Parameters on Petroleum Oil Removal from Produced Water with Novel Nanobubbles/microbubbles Flotation.....	7017
<i>M. Colic</i>	

NEW FRONTIERS FOR ADVANCE ENERGY EVALUATION

Predicting Interfacial Tension in CO ₂ /Brine Systems: A Data-Driven Approach and Its Implications for Carbon Geostorage	7034
<i>Mohammad Rasheed Khan, Zeeshan Tariq, Muhammad Ali, Mobeen Murtaza</i>	

Multilayer Perceptron Modeling for the Prediction of Gas Condensate Composition Changes During Pressure Depletion	7045
<i>Aisha Embaireeg</i>	

NEW TECHNOLOGIES FOR WELL OPTIMISATION

Innovative Logging Methodology and Design to Acquire Data in Challenging Multilateral Horizontal Wells	7062
<i>H. S. Aljuaydi, S. X. Mehmood, H. M. Aljasseem, I. I. Miftakhov</i>	
Enhancing Production Efficiency by Unloading Produced Water and Condensate Using Engineered Surfactants: Case Histories	7076
<i>Mohammed Omer, John E. Busteed, Francisco E. Fragachan</i>	
A Simple Yet Impactful Innovation to Optimize Production of Low-Quality Reservoir (LQR) by Using a Modified Venturi Choke, Pilot Case at Matured Waterflood Field Bravo, Central Sumatera Basin.....	7091
<i>Ade Fadli, Aulia Rahman, Daniel Hadi Putranto, Cintani Kusuma Dewi, Muhammad Saeful Nurjaman, Iftikar Luthfi Ramadhan, M. Afton</i>	
Research on the Control Law of Balanced Oil Production of the Fluid Control Valve in Horizontal Section and a Case Analysis	7103
<i>Zuqing He, Jianguo Zhao, Haotian Zheng, Suo Han, Shuo Han, Bensheng Huang, He Yuxi</i>	
Maximizing Profitability Through Automated Production Optimization: A Game-Changer for Digital Oil Field Operations in Kuwait Integrated Digital Field (KwIDF)	7125
<i>H. Al-Rashidi, K. Ranjan, R. Lara, B. Muhsain, S. Singh, D. Tripathi</i>	

FLOW ASSURANCE OPTIMISATION

A Data-Driven Hydrate Plug Detection in Offshore Gas & Condensate Flowlines	7141
<i>A. Della Pietà, C. Galimberti, A. Corneo, S. Scaringi, G. Calzavara</i>	
Utilizing Integrated Network Model to Optimize Production and Prevent Halite Formation in Pipeline Offshore Gulf of Suez.....	7158
<i>M. El Sayed, M. Korish, H. Mousa, A. Moussa</i>	
Increasing Production Through the Application of an Emulsion Viscosity Reducer in an Onshore Gas Lifted Middle East Oil Field	7168
<i>S. Caird, R. Sharief</i>	
Downhole Sludge and Deposition - Characterization and Treatment Design.....	7179
<i>S. A. AlMuhaish, A. M. Al Moajil</i>	

FLOW ASSURANCE REMEDIATION

Technology Driven Natural Flow Production Restoration in Low Pressure Oil and Gas Wells.....	7191
<i>Naresh K. Purusharthy, Mohammed A. Al-Atwi</i>	

Author Index