

# **Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC)**

Abu Dhabi, United Arab Emirates  
31 October – 3 November 2022

Volume 1 of 13

ISBN: 978-1-7138-6302-1

**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© (2022) by Society of Petroleum Engineers  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2023)

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](mailto: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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

### **AI AND DIGITAL TRANSFORMATION: AUTONOMOUS OPERATIONS AND DE-MANNING— ADVANCE TECHNOLOGIES**

First Proof of Concept for an Integrated Robot Supervision System .....	1
<i>Grégoire Audouin, Rémi Lannes, Gildas Collin, Eric Bartoli, Jean-Michel Munoz, Hugo Potapieff, Matt Graves, Guillaume Chevet, Tommaso Paniccia</i>	
Video Analysis of Flare Stacks with an Autonomous Low-Cost Aerial System.....	29
<i>Muaz Al Radi, Hamad Karki, Naoufel Werghi, Sajid Javed, Jorge Dias</i>	
NEB De-Manning and Digital transformation .....	43
<i>Basma Ali Banihammad, Abdulla Rashed Al Zaabi, Hamoud Al Kindi, Jigar Modi, Mohannad Rafat</i>	
How Drone Data Capture and a Visual Intelligence Platform Offer Unparalleled Insight into Capital Project Delivery .....	51
<i>Barry McGinn</i>	

### **AI AND DIGITAL TRANSFORMATION: AUTONOMOUS OPERATIONS AND DE-MANNING—WELL DIGITALISATION**

Using Ai to Optimize the Use of Gas Lift in Oil Wells.....	60
<i>David Docherty, Dale Erickson, Scott Henderson</i>	
Real-Time Enabled Digital Technologies Solution to Deliver Consistent Performance in Gas Wells Construction .....	71
<i>Edison Barrera, Andres Nunez, Mauricio Corona, Arnott Dorantes, Kamal Atriby, Uttam Aswal, Daria Ponomareva</i>	
Digitalization Deployed – Enabling Sustainable Operations with Autonomous Well Control .....	84
<i>Helmut Schnabl, Helmut Wimmer</i>	
Remote Automated Well Test Operation on Un-Manned Well-Head Tower to Achieve Operational Safety and Efficiency .....	104
<i>Mehul Joshi, Padmanabhan Ramabhaskaran, Ankit Shah, Sandeep Soni, Rohan Gupte, Jitendra Mitra</i>	

### **AI AND DIGITAL TRANSFORMATION: BREAKTHROUGH TECHNOLOGIES**

Changing the Game of Unpiggable Pipeline Integrity: The Petronas Ultra Long Range Acoustic Technology (ORCA™) .....	115
<i>M Nazmi M Ali, Ahmad Sirwan M Tuselim, M Hisham Abu Bakar, M Fithri Azad A. Kalam Azad, M Fadhli Azami, Lukman Ab Rahim, Manzoor Ahmed Hashmani, Zazilah May, Noor A'In A Rahman, Muhammad Shazwan Mahmud, Mohammad Firdaus Hashim</i>	
Decision-Driven Subsurface Surrogate Model for Development Optimization Under Uncertainties .....	125
<i>Jizhou Li, Yufen Shao, Yuzixuan Zhu, Kevin Furman</i>	

Switching to Cruise Control with Next Generation Well Design Software..... 141  
*Peter Levison Mwansa, Sara Bakhti, Mohamed Ali Hassan, Per Inge Remmen*

Multi-Frequency Data Acquisition Model and Hybrid Neural Network for Precise Electromagnetic Wellbore Casing Inspection ..... 156  
*Guang An Ooi, Moutazbellah Khater, Mehmet Burak Ozakin, Tarek M. Mostafa, Hakan Bagci, Shehab Ahmed*

### **AI AND DIGITAL TRANSFORMATION: COMPUTER VISION TECHNIQUES FOR SOLVING OPERATIONAL CHALLENGES**

Shell Autonomous Integrity Recognition - Machine Vision Application for Inspections..... 169  
*David Blom, Ilya Berchenko, Farid Samie, Darian Frajberg*

Synthetic Data Generation for Machine Learning Applications in the Energy Industry ..... 180  
*Yazeed Alnumay, Ali J. Alrasheed, Hassane Trigui, Abdulwahab Halawani, Mohammed Alshiekh, Sahejad Patel*

Computer Vision Based Smart CCTV Solution ..... 189  
*Fahad Alam, Ammar Alraeesi*

### **AI AND DIGITAL TRANSFORMATION: CONNECTED WORKER, AND AR/VR APPLICATIONS**

Safeguarding the Most Valuable Asset in Critical Sour Facilities..... 193  
*Mubarak Maskari, Zayid Habsy, Jawahar Kumar Murugiah, Lesley Tallentire*

Use of Virtual and Augmented Reality to Digitize and Optimize Turbomachinery Assembly Operation..... 203  
*Nicoletta Fiore, Francescosaverio Chiari, Mahamad Riyaz*

Digital Fit Workforce is the Enabler to Digital Transformation..... 221  
*Waad Saeed Al Ameri, Sabeer Kohinoor, Khalid Al Awadhi*

Transforming Maintenance Delivery Through Scaled Deployment of Connected Worker ..... 228  
*Keith David Scott*

### **AI AND DIGITAL TRANSFORMATION: DATA MANAGEMENT AND GOVERNANCE**

The Challenges with Drilling Real-Time Data and Proposed Data Management Framework ..... 241  
*Majed A. Alzahrani, William B. Contreras Otalvora, Bader M. Alotaibi, Beshir Aman*

Universal Wellpad Control: An Open Automation and Control Platform with Zero-Trust and Zero-Touch Provisioning System..... 253  
*Tao Cheng, Pat Moore, Dean Samara-Rubio, Seongwoo Lee*

Assets Information and Data Management for a Mature Digital Twin ..... 265  
*Wael Almadhoun*

Need an Early Oil, Get Your Corporate Data in Shape ..... 279  
*Abdul Sattar, Waseem Khan, Amir Mahmood*

## **AI AND DIGITAL TRANSFORMATION: DIGITAL TWIN—ENGINEERING AND DESIGN**

Fenja Digital Twin with Automated Advisory: A Solution for Operational Excellence .....	292
<i>Alireza Forooghi, Christian Trudvang, Gaurav Gupta, Gustav Kjoerrefjord, Hassan Karimi</i>	
Digital Twin and Big Data Technologies Benefit Oilfield Management .....	310
<i>Wenhua Lai, Hu Zhang, Dawei Jiang, Yanhui Wang, Rongde Wang, Jun Zhu, Qiulin Chen, Yuan Gao, Weixiang Li, Dengpan Xie</i>	
Advantages of a Compositional Framework for Well and Surface Network Modeling .....	320
<i>Kristian Mogensen, Swarjit Samajpati</i>	
The Digitalization of Well Intervention Operations: From Proof of Concept to Proof of Scale .....	331
<i>Maisa Monteiro Da Cunha, Laura Helen Aldren, Kibir Desta, Donald Carnegie, McKenzie William Howells, Daniel Seal</i>	

## **AI AND DIGITAL TRANSFORMATION: DIGITAL TWIN—PROCESS AND OPERATIONS**

Physics-Based Structural Digital Twins to Minimize Downtime & Maximize Lifetime .....	355
<i>Simon Sierra, Jerry Wong, Mat Podskarbi, David Knezivic, John Bell, Mohamed Guidoum</i>	
Deep-Learning-Based Surrogate Reservoir Model for History-Matching Optimization.....	364
<i>Alaa Maarouf, Sofiane Tahir, Shi Su, Samat Ramatullayev, Coriolan Rat, Chakib Kada Kloucha, Hussein Mustapha</i>	
Machine Learning Based Prediction of PVT Fluid Properties for Gas Injection Laboratory Data .....	375
<i>Kassem Ghorayeb, Kristian Mogensen, Nour El Droubi, Samat Ramatullayev, Chakib Kada Kloucha, Hussein Mustapha</i>	
A Dynamically Reconciled Digital Twin for Operations Optimization and Decision Support.....	392
<i>Patrick Thorpe</i>	

## **AI AND DIGITAL TRANSFORMATION: DIGITAL TWIN—ROADMAP AND STRATEGY**

Digital Twin Application for Boosting Oil Production, Predictive Analytics of Asset Integrity and Mid-Term Forecasting of Field Performance .....	405
<i>Ilya Vorobev, Timur Koshkin, Mikhail Prokopev, Yulay Rakhmangulov, Semyon Kombarov</i>	
How Digital Twins Will Help to Unlock United Nations Sustainable Development Goals.....	427
<i>Noora Alamir</i>	
Saudi Aramco's Process Digital Twin: Advances & Implementation Strategy .....	436
<i>Abdullah H Al Ghazal, Gabriel A Winter, Abdulaziz M Al Nutaifi, Ahmed A Al Shaikh, Talal A Altook, Yufeng He</i>	
A Holistic Approach to the Development of Digital Twin Advisor for Upstream Production Process .....	446
<i>Muhammad Zakwan Mohd Sahak, Maung Maung Myo Thant, Afidalina Tumian, Zalina Harun, Eugene Castellano, Su Be Chee, Kathryn Tan</i>	

## **AI AND DIGITAL TRANSFORMATION: DRIVING DECARBONISATION, ENERGY TRANSITION, AND HSE**

GHG Emissions Tracking on Artificial Lift .....	455
<i>Rami Osman, Fernando Bermúdez, Mohammed Shono, Noor Alnahhas, Hafsa Yazdani, Michael Letan</i>	
Dynamic Flare Monitoring Platform for Continuous Emission Monitoring and Reduction During Well Test and Well Cleanup Operations .....	463
<i>Yakov Alexandrovich Shumakov, Alexander Zhandin, Rebecca Comley, Bertrand Theuveny</i>	
SmartHSE: Comprehensive AI-Based Safety Monitoring Solution for Work-Sites .....	478
<i>Youssef Tamaazousti, Dmitry Egorov, Abdallah Benzine, Umar Asif, Mohamed Amri, Abed Benaichouche</i>	
Near-And Remote-Field Eddy Current Data Fusion: Wellbore Casing Inspection with Hybrid Neural Networks.....	489
<i>Guang An Ooi, Tarek M. Mostafa, Moutazbellah Khater, Mehmet Burak Ozakin, Hakan Bagci, Shehab Ahmed</i>	

## **AI AND DIGITAL TRANSFORMATION: EMERGING TECHNOLOGIES—3D PRINTING, BLOCKCHAIN, AND QUANTUM COMPUTING**

3D Printing Laterals for Sand Filters.....	503
<i>Rakan Wajdi Banna, Ahmed Mohsen Orfali, Ensan Mahmoud Elayoubi, Abdulaziz Yehya Asiri, Mirza Mansoor Baig, Imran A. Khan</i>	
Quantum Computation for End-to-End Seismic Data Processing with Its Computational Advantages and Economic Sustainability .....	510
<i>Ashutosh Kumar</i>	
Improving Petroleum Real Options Calculation by the Application of Quantum Artificial Intelligence. ....	517
<i>Heru Setyabudi, Iman Herwidiana Kartowisastro, Agung Trisetyarso, Edi Abdurachman</i>	
Competitive Commercial and Technical Advantages of Digitization for On-Demand Additive Manufacturing in Oil and Gas Industry .....	532
<i>Mohammed Awadallah, Mustafa Abdelkader, Farah Younis, Yaser Bin Zubaa, Fatima Al Zaabi, Ali Al Ali, Adel Al Aidarous, Pedro Carreiras</i>	
Say No to Carryovers .....	539
<i>Sudhanshu Kumar Yadav, Mohammad Ahmad Al Muhairi, Ahmed Obaid, Rasha Al Hosani</i>	
Advanced Analytics and Diagnostic Rules Automatically Notify Operators About Developing Failures in Rotating and Reciprocating Machines.....	551
<i>Fayyaz Karim Qureshi, Abdelhady A Hady Mohamed</i>	
Early Detection of Compressor Liquid Carryover Enhanced by Multiple Facilities Monitoring.....	564
<i>Mattia Pezzola, Fabio Turconi, Alfredo Gamboa Ortiz, Francesco Beduschi, Alessandro Mosca</i>	
IMGESA (Integrated Meteorological and Geohazard System Advisory) as Predictive Analytics Tool for Managing Geohazard Impacts to Pipeline.....	575
<i>Muhammad Joehan Bin Rohani, Azam Bin A. Rahman, M Syazwan Kamil Bin Abdullah, M Nazmi Bin Ali, I Wayan Eka Putra, Hazwani Binti Hidzir, Ehsan Amirian</i>	

## **AI AND DIGITAL TRANSFORMATION: INNOVATIVE USE CASES I**

Private 5G Practice in Oil and Gas Industry.....	586
<i>Abdullah Mohammed Alanazi, Naif Radhyan Almutairi, Abdullah Ahmed Aseery, Salah M. S Al Buraiky, Amani M. Rafie, Abdullah Abdulrahman Alrumaih</i>	
Enabling Multiple Digitalization Opportunities Using Latest Wi-Fi 6.....	607
<i>William Louis Langford, Ayman Khalifa Al Kalbani, Ahmed Ali Al Kaabi, Ahmad Hassan, Rodel Francisco Arce, Rajkumar Koodali, Kunal Chaudhary</i>	
Digital Integration to Realize the Limit (RTL) in the Giant Greater Burgan Reservoir.....	619
<i>Qasem Dashti, Hanan Abdulrazzaq, Nouf Al-Shammari, Haytham Al-Habashi, Meshal Al-Rumaidhi, Francy Franco, Yaser Muhammad, Roshan Prakash, Samuel Iheanaetu</i>	
Creating Value from Front End Digitalization Versus Conventional Work Processes .....	634
<i>Nurul Aminah Mohd Azmi, Grant Veroba, Saiful Azuan Abdul Aziz, Muhammad Aizuddin Zainalabidin, Khaidir Ariffin</i>	

## **AI AND DIGITAL TRANSFORMATION: INNOVATIVE USE CASES II**

Digital Transformation Drives Reduction of the Inactive Strings Count. A Success Story in a Major National Oil Company.....	650
<i>Warda Awadh Al Braiki, Rayner Samuel Davila, Adriana Del Carmen Molina, Mohammed Azhar, Zayed Iqbal Shaik, Afra Saeed Alyaqoubi, Haitham Alaa Eldin</i>	
GHG Reduction in Gas Dehydration Using IR 4.0 .....	662
<i>Abdullah Younis Al-Aiderous</i>	
Takamul: A Digital Solution to Manage New Oil Performance from End-to-End .....	671
<i>Hilal Al Shabibi, Junaid Ghulam, Nasser Al Azri, Mushtaq Mohammed, Awadh Sheheimi, Khalid Al Khabouri, Amina Al Raisi</i>	
Which Technology is Right for Your Field? – Quantifying Technology Significance .....	680
<i>Noureldien Darhim Mohammed</i>	

## **AI AND DIGITAL TRANSFORMATION: INTEGRITY AND MAINTENANCE**

A Novel Approach to Building an Autonomous System that Enables Predictive Maintenance for Compression Systems.....	694
<i>Gaojing Cao, Xiangzeng Wang, Jinlong Kang, Quansheng Liang, Yundong Xie, Paul Williams, Gayatri Kartoatmodjo, Richard Henson, Fabian Florez, Jining Cui, Andrew Fendt, Xiaotao Mu, Lang Wang, Wan Yang, Bo Zhang, Jianping He, Haibo Zheng</i>	
Pipeline Integrity Management and the Invent of Analytics for Corrosion Threats.....	707
<i>M. Nazmi B. M. Ali, Ahmad Sirwan B. M. Tuselim, M. Hisham B. Abu Bakar, M. Fithri Azad B A. Kalam Azad, Nurazzura Binti M. Fuzi, M. Afiq B. M. Suhot</i>	
AI and Digital Transformation: Integrity and Maintenance .....	717
<i>Amran Hamed Al Aamri, Khalid Khamis Al Fahdi</i>	

## VOLUME 2

Development of an Artificial Intelligence-Based Well Integrity Monitoring Solution .....	725
<i>Prihandono Aditama, Tina Koziol, Dr. Meindert Dillen</i>	

### **AI AND DIGITAL TRANSFORMATION: IOT AND EDGE COMPUTING**

Case Study for the Deployment of Private LPWA (Low Power Wide Area) Network in ADNOC Onshore for Remote Monitoring and Operations .....	744
<i>Muhammad Shahzad Ahmed, Eisa Yousef Al Bloushi, Mahdi Abdula Al Bloushi, Asad Ali</i>	

Making Under Uncertainty - Edge Intelligent Decision for Drilling: From Data to Actions in Real Time Well Engineering .....	757
<i>Robello Samuel, Abhishek Agrawal</i>	

Cloud-Edge Combination: A Novel Intelligent Intermittent Pumping Optimization and Control Method for Tight Oil Wells .....	767
<i>Xishun Zhang, Cai Wang, Yizhen Sun, Junfeng Shi, Hanjun Zhao, Ruidong Zhao, Weidong Jiang, Jinya Li, Xiang Zhou, Xiang Liu, Ran Yi</i>	

Digital Solution for Production Optimization and Production Losses Estimation Using Data Analytics in Real Time in a Brown Field .....	776
<i>Hugo Quevedo, Luis Marchán, Willem Sepúlveda, Galo Calvache, Christian Bonilla, Santiago Dávalos, Wilson Guillén, Jaime Tacuri, Geovanny Ramos, Marcelo Cattani, Edgar Chicango, Alexander Pineda</i>	

### **AI AND DIGITAL TRANSFORMATION: ML AND NLP TECHNIQUES FOR SOLVING OPERATIONAL CHALLENGES I**

Well Intervention Opportunity Management Using Artificial Intelligence and Machine Learning .....	787
<i>Dushyant Singh Shekhawat, Vishal Deygun, Bhartendu Bhatt, Rajeev Ranjan Sinha, Praprut Songchitruksa, Karthick Vadivel, Adarsh Dhiman, Apurv Jain, Parimal Unmesh Shaha, Ralf Holy</i>	

A System to Inspect Corrosion Under Insulation via Temporal Thermography & Artificial Intelligence .....	807
<i>Ahmed Al-Jarro, Ali Alshehri, Ayman Amer, Abdulrahman Althobaiti, Hamad Saiari, Fatima Alsalman, Muntathir Albaqshi, Godine Chan, Anthony Kakpovbia, Edvardas Kairiukstis, Matthias Odisio, Weiwei Qian, Arjun Roy, Bilal Saad, Vladimir Shapiro</i>	

A Business-Oriented Feature Selection Method for Enhancing Machine Learning Based Digital Tools Adoption in the Energy Industry .....	817
<i>Andrea Corneo, Mauro Suardi, Lorenzo Lancia, Francesco Cannarile, Alessandra Fidanzi</i>	

Optimizing Rig Scheduling Through AI .....	824
<i>Jimmy Thatcher, Morgan Eldred, Abhijith Suboyin, Abdul Rehman, David Maya</i>	

### **AI AND DIGITAL TRANSFORMATION: PRODUCTION/DRILLING**

Sea Water Injection Department's Unmanned Operation .....	834
<i>Ahmed Mustafa Alrammah, Saleh Saad Alfuwaires, Fadhel Ghuwainem</i>	



Digitizing Drilling Process Using Low-Code Cloud Powered Solution.....	839
<i>Sultan Alshardi, Ericson Asemebo, Shabeer Acheerakath, Ahmed Ismail, Eslam Elabsy, Anoud Alshkeili</i>	
Expanding Downlink Capabilities Using Autonomous Directional Drilling with Rotary Steerable Systems.....	854
<i>Samba Ba, Jinsoo Kim, Prateek Goel, Hussein Sahli, Arun Chacko, Olakunle Olanubi, Steve Lojek, Loic Hoarau</i>	
Remote Digital Technologies Driving Innovation - A Case Study on Subsea Operations.....	864
<i>Maxine Bell, Anojan Sriskandarajah, Victor Heaulme, Fouzi Bouillouta, Alex Seinuah</i>	

## **AI AND DIGITAL TRANSFORMATION:ML AND NLP TECHNIQUES FOR SOLVING OPERATIONAL CHALLENGES II**

Utilization of ML to Validate Pressure and Temperature Measurements.....	870
<i>Ali Haitham Alquraini, Mohammad Saeed Al Kadem, Ali Radhi Al Ssafwany</i>	
Expert System for Question Answering on Anomalous Events and Mitigation Strategies Using Bidirectional Transformers and Knowledge Graphs .....	881
<i>Jaijith Sreekantan, Chad Hutchison, Pratuat Amatya</i>	
Intelligent Production Optimization Decisions: Prioritizing Production Optimization Through Machine Learning Aided Uplift Quantification.....	892
<i>Akriti Sharma, Alex Chonghyun Ahn, Jihoon Park, Vikash Singh, Mariana Rodriguez-Buno, Amr El-Bakry, John Kwong, Brett Garrison, Tyler Gelowitz</i>	
Full-Stack Machine Learning Development Framework for Energy Industry Applications.....	913
<i>Jie Chen, Changqing Yao, Pandu Devarakota, Mohamed Sidahmed, Zexuan Dong, Sai Kanuparthi, Jia Wei</i>	

## **DRILLING: ADVANCE IN COMPLETION PERFORMANCE**

Advances in an Integrated Analysis Workflow of Distributed Acoustic Sensing and Distributed Temperature Sensing for Water Injection Profiling on a Horizontal Well .....	920
<i>Veronique Mahue, Peter Dawson, Erick Jimenez, Ahmed Al Kiyoumi, Ahmed Al Tamimi, Alaa Othman, Gladwin Correia, Mohand Alyan, Shardul Parihar</i>	
An Innovative Wellbore Cleanup Solution for Non-Cemented Lower Completions Saves 27 Million\$ in ADNOC Onshore .....	934
<i>Esha Narendra Varma, Peter Levison Mwansa, Mohammad Husien, Abdul Raman Bin Bahrom, Raymond Saragi, Ali Sulaiman Ahmed Binsumaida, Musabbeh Khamis Al Samahi, El Walid Ben Mohamed El Mounni, Juma Sulaiman Al Shamsi, Ahmad Othman Alshaigy, Anchit Gaurav, Khaled Abdelhalim</i>	
Case Study of the First Large Bore Remote Open Fluid Loss Control Device Compatible with all Multilateral Well Levels.....	961
<i>Ibrahim El-Mallawany, Marc Normand, Ricardo Bernal, Arrauf Shukor</i>	
Enhancing Well Integrity and Well Completion Flexibility with a Remotely Operated Multi-Cycle RFID Sub-Surface Isolation Valve.....	972
<i>Chris Munro, Jonathan Rodriguez, Terry Thain, Sabatino Di Mario, Danilo Iglesias, Steven Dornic</i>	

## **DRILLING: ADVANCES IN CEMENTING AND ZONAL ISOLATION**

A Novel Cement Additive to Prevent Gas Migration in Producing and Abandoned Oil and Gas Wells.....	982
<i>Abdelmjeed Mohamed, Bruno Giovannetti, Saeed Salehi, Farag Muhammed</i>	
15 Years of Foamed Cementing in Oman: Future Applications and Lessons Learned from 270+ Foamed Cementing Operations .....	994
<i>Zahra Al Sulaimi, Sara Al Adhali, Jamie Austin</i>	
Single Slurry Modification to Improve Well Integrity in NEB Field .....	1000
<i>Widi Mahesa, Alhanoof Musabah Alsaadi</i>	
Ultra-Low-Invasion Non-Damaging Spacer System and Nano-Silicate Based High-Crush Resistant Cement Cures Lost Circulation and Established Well Integrity: A Case Study .....	1012
<i>Rameez Anwar, Hossam A. Elmoneim, Syed Hamza Ahmed, Arif Yousuf</i>	

## **DRILLING: ADVANCES IN WELL INTEGRITY AND WELL CONSTRUCTION**

Gas Kick Well Control Situation in High-Temperature Well Managed with Oil-Based Mud and Managed Pressure Drilling Technology .....	1024
<i>Salvatore Spagnolo, Matteo Giubertoni, Emanuele De Bonis, Giovanni Cavagnero, Arianna Sirugo</i>	
Metal Expandable Packers Deliver Cement Assurance for Improved Well Integrity .....	1044
<i>Paul Roderic Hazel, Mathieu Wallach, Dapo Adeniyi</i>	
Technical Feasibility of a Through Tubing Circumferential Zonal Isolation Gamma Scanner for Plug and Abandonment Implementations.....	1055
<i>Feyzi Inanc, Allan Jones, Peng Yuan, Toyli Anniyev, Johan Kverneland, Pierre Chuilon</i>	
Innovative Riserless Drilling Technique to Mitigate Low Risk Shallow Hazard in Ultra-Deepwater Well West Africa.....	1071
<i>Rozaidi Toha, Abdullah Zainal Abidin, M Azam Aziz, M Syazwan Ahmad Shafei, Anas M Sofian</i>	

## **DRILLING: ADVANCES IN WELL INTERVENTION**

Beyond the Known Coiled Tubing Limits, First Coiled Tubing Intervention in a 40,000+ ft Well in the UAE: An Outlook of Downhole Tools Technology, Testing and Special Equipment Deployment to Successfully Accomplish the Project Objectives.....	1089
<i>Renny Ottolina, Giuseppe Ambrosi, Ella Tuoyo, Miguel Veronesi, Jose Jimenez, Abdulmohsen Al Marzooqi, Yaman Shbeb, Salim Al Ali, Haitham Al Braik, Hassan Obaid Humoudi, Gladwin Correia</i>	
The Sensor Ball Revolutionizes Wireline Operations .....	1099
<i>Nasser M Al-Hajri, Sulaiman T Ureiga, Muhammad Imran Javed, Hassan S Alqarni</i>	
A New Rigless Approach for Fishing a Stuck and Parted Coiled Tubing in a Live Well .....	1107
<i>Gianluca Allegretti, Marco Lerose, Alessandro Mangione, Stefano Di Vincenzo, Salvatore Luppinan, Julio Cervantes, Mohamed Lamine Tarchi, Paolo Cerri, Mohamed Lakhdar Abid, Robert Boyce, Hadjer Mahmoudi, Safa Mebarki, Nacer Ridha Ahmim</i>	

A Cost-Effective Through-Tubing Gravel Pack Rigless Installation via Intelligent Coiled Tubing .....	1125
<i>Kareem Badrawy, Nestor Molero, Mona Kewan, Seif Seoudi, Alaa Elkaragy, Roshdy Shalaby, Ahmed Desouky, Hedi Slama</i>	

### **DRILLING: ARTIFICIAL LIFT**

First Application of Intelligent Gas Lift System in ADNOC Offshore Field to Improve Profitability Through Enhanced Gas Lift .....	1138
<i>Zhihua Wang, John Andrew Wills, Juan Faustinelli, Walid Abdulhai, Stephen Faux</i>	
An Innovative Method to Enable Well Kick-Off and Liquid Unloading Using Dry Ice .....	1150
<i>Prasad Karadkar, Mustafa Alkhowaildi, Aslan Bulekbay</i>	
Foam Assisted Lift Journey in PDO .....	1159
<i>Babak Ghaempanah, Basel Al Azri, Cornelis Veeken, Ahmed Al Rashidi, Thabit Daraai, Dragos Cruceru, Said Al Hasani</i>	
Divergence of Dynamometer Card Analysis from Actual Field Results at Light and Heavy Oil Fields of Mehsana .....	1170
<i>Kuldeep Chanchlani, Ranjit Gogoi, Sukumar Awasthi, Deepak Gunwant, Nikhil Khanduja</i>	

### **DRILLING: AUTOMATION AND ARTIFICIAL INTELLIGENCE IN DRILLING OPERATIONS I**

Machine Learning Model for Drilling Equipment Recommender System for Improved Decision Making and Optimum Performance .....	1187
<i>Chakib K. Kloucha, Bassem S. El Yossef, Imad Al Hamlawi, Muzahidin M Salim, Wiliem Pausin, Anik Pal, Hussein Mustapha, Soumil Shah, Ahmad Naim Hussein</i>	
Significant Stuck Pipe Event Reduction Realized Through Structured Holistic Approach Machine Learning and Artificial Intelligence .....	1197
<i>Yasir Salehi, Attia Ziada, Zahran Rawahi</i>	
Continuous Dynamic Drill-Off Test Whilst Drilling Using Reinforcement Learning in Autonomous Rotary Drilling System .....	1207
<i>Kingsley Williams Amadi, Ibiye Iyalla, Prabhua Radhakrishna, Mortadha Torki Al Saba, Marwa Mustapha Waly</i>	
Step Change in Drilling Performance Through Surface Automation in Onshore Abu Dhabi .....	1220
<i>Imad Al Hamlawi, Andrew Creegan, Nahum Ronquillo, Luis Baptista, Mohamed Jalbout, Mouza Al Nuaimi, Khaja Azizuddin</i>	

### **DRILLING: AUTOMATION AND ARTIFICIAL INTELLIGENCE IN DRILLING OPERATIONS II**

Optimizing Future Drilling Center Location Using Advanced Analytics and Machine Learning Algorithms in Offshore Abu Dhabi .....	1231
<i>Rail Salimov, Benoit Jaffres, Jamal Alblooshi, Arlen Sarsekov, Maxim Chirkov, Humaid Al Kuwaiti</i>	
Artificial Engineering Intelligence (AeI) - Connected Microservices for Drilling Optimization and Real Time Well Engineering .....	1242
<i>Robello Samuel</i>	

Ensemble Machine Learning Model for Predicting Rock Drillability Rate for Composite Lithology ..... 1252  
*Hany Gamal, Ahmed Alsaihati, Wael Ziadat, Ahmed Abdulhamid Mahmoud, Salaheldin Elkatatny*

Drilling Operations Real-Time Monitoring and Alerting Using Advanced Machine Learning Algorithms..... 1263  
*Majed A Alzahrani, Bader M Alotaibi, Beshir Aman*

### **DRILLING: AUTOMATION AND ARTIFICIAL INTELLIGENCE IN DRILLING OPERATIONS III**

15KPSI MSF System with Metal Expandable Open-Hole Packers; Making a Difference in Delivering Required Capabilities to Challenging Wells..... 1271  
*Ahmed M. Al Haji, Kenechukwu O. Ufondu, Rommel Ernesto Arias Urbina, Mohammad Noor Nazri*

Enabling Shallow Reservoir Development in Malaysian Deepwater Field Via Statically Underbalanced Mud with MPD Applications ..... 1280  
*Magdelene Jia Wern Lee, Eskandar Mohd Sukri, Muhammad Idham Adli Musa, Sheau Hun Ong, Muhammad Aizat Bin Abu Bakar, Harni Farihah Binti M. Safari Lai*

Practical Guide to Successful Wireline Formation Pressure Testing Across Highly Deviated and Depleted Sections ..... 1299  
*Nata Franco, Mauricio Corona, Mohamed Almahroos, Thiago Kestring, Adriano Oliveira*

Safer and Faster Drilling through AI Driven Permanent Cuttings Monitoring - An Operator's Approach ..... 1315  
*Georg Ripperger, Jörg Peisker, Patrick Oberschmidleitner, Richard Josef Werner Kucs, Doris Winkler*

### **DRILLING: BREAKTHROUGH DRILLING TECHNOLOGIES**

First Industrial High Power Laser Field Deployment: Lab to Field ..... 1333  
*Sameeh I. Batarseh, Saad M. Mutairi, Damian P. Sanroman, Wisam J. Assiri*

Formation Evaluation from Logging While Drilling Prospective the Effects of Drilling Dynamics and Environment, Case Study from Abu Dhabi ..... 1346  
*Ahmed Mohamed Soliman, Hamad Awad Khairy, Islam Elabsy, Lichuan Deng, Taif Yousif Ali, Firdaus Nazlan*

Using In-Bit Data Capturing Sensors to Identify and Reduce Dysfunctions Using a Higher Drilling Efficiency Shaped Cutter Solution ..... 1369  
*Rami Kouzaiha, Salem Sayyaleh, Ahmed Khalil, Ahmed Borayek, Mahmoud Reyad, Atheer Al Otaibi*

Solution for a Challenging Narrow Margin Deepwater Drilling Conditions - A Case Study from Lebanon ..... 1392  
*Jose Antonio Martinez, Mina Tawfik Kamel, Dmitry Galiakbarov, Stephen John Bruce*

### **DRILLING: COMPLETION AND PRODUCTION TECHNOLOGIES**

Successful Deployment of Acid-Resistant Dissolvable Frac Ball for Multi-Stage Acid Stimulation Application in an Offshore Multi-Lateral Well ..... 1405  
*Rommel Arias, Ricardo Bernal, Muzzammil Shakeel, Marc Normand*

Single Trip Multizonal Resin Sand Consolidation and Fracturing, A Novel Technique in Sand and Fines Control .....	1417
<i>M Rizwan Rozlan, Nurfarah Izwana Salleh, Sunanda Magna Bela, M Al Perdaus Misron, Suman Kumar</i>	
Benefits of Hydraulic Jet Pump for Unloading a Well Over Conventional Nitrogen Lift Method .....	1430
<i>Kamaran Azeez, Marwan Abdelbary, Abid Ur Rehman</i>	
First Run of 17 Swellable Packers in Sahil Field with 15 AICV as a First New Technology Trial in ADNOC Onshore .....	1440
<i>Maryam Ali Yahya, Mohammad Ibrahim Alhathnawi</i>	

### **DRILLING: COMPLETION DESIGN FOR LIFE CYCLE**

Achieving Remarkable Long ESP Run Life Exceeding 9 Years Continuously in Brown Oil Field Thru Leak Free Production in Highly Corrosive Environment .....	1455
<i>Mostafa Mahmoud Kortam, Hany Rafat Elrayek, Amr Alkhoully</i>	
Extending the Performance of Standalone Sand Screens (SAS) with Flow Segmentizers in Gas Wells.....	1472
<i>Siti Nur Amira Shaffee, Hasyimah Ghazali, Preveen Kumar Rajan, Wan Amni Wan Mohamad, Maung Maung Myo Thant, M Farris Bakar</i>	
Well Completion Design Integrity Evaluation Including Thermal and Stress Analysis for Multi-Zone & Multilateral Well Completions .....	1490
<i>Noman Shahreyar, Benjamin Butler, Hussain Al-Sheyrey</i>	
Enhanced Single Trip Upper Completions for ERD Applications .....	1507
<i>Shardul Parihar, Zhihua Wang, John Andrew Wills, Jane Mason</i>	

### **DRILLING: DRILLING PERFORMANCE AND EFFICIENCY I**

Utilization of a Building Blocks Concept to Develop a Joint Technical Scope of Work of Electric Line Logging Services for All Abu Dhabi Onshore and Offshore Operations.....	1515
<i>Bassem S. Elyossef, Karim Nasr, Abdulaziz S. Al Mazrooei, Sam G. Fitzpatrick, Ashraf R. Abu Safieh, Assad Farooq, Muna S. Al Marzouqi</i>	
Field Deployment and Validation of Novel Wellbore Strengthening Design Criteria and Enhanced Fracture Gradient in a Depleted Reservoir in Malay Basin.....	1523
<i>Chee Phuat Tan, M Solehuddin Razak, Siti Shahara Zakaria, Abiabhar Abitalhah, Wan Nur Safawati Wan Mohd Zainudin</i>	
New Generation Rotary Steerable Bottom Hole Assembly for Extreme Drilling Dynamics Conditions .....	1537
<i>Reckmann Hanno, Heinisch Dennis, Herbig Christian, Hohl Andreas, Peters Volker, Krueger Sven</i>	
Improving Drilling Performance Using Drilling Efficiency Optimization (DEO) .....	1556
<i>Abdullah Al Braiki, Ahmad Taha, Hilal Al Rubaiey, Hashil Al Naabi, Yasin Al Lawati, Anees Al Subhi, Qasim Al Hinai, Mohammed Radwan</i>	

### VOLUME 3

#### **DRILLING: DRILLING PERFORMANCE AND EFFICIENCY II**

- Potential Cost Optimization and Efficiency Through the Innovative Hybrid Contracting Model in the Southern of Sultanate of Oman..... 1566  
*Zulfa Arfi, Nichapa Akaramethakorn, Issa Mahruqi, Mohammad Aziz, Mohamed Radwan, Abdullah Riyami*
- Mud Loss Prediction in Realtime Through Hydromechanical Efficiency..... 1577  
*Tariq Saihood, Rebello Samuel*
- Drilling and Cementing Through Highly Active Shallow Gas Field..... 1587  
*Abdulqawi Alfakih, Amir Galaby, Nauman Sadiq, Robert Famiev, Mohammed Khalil Nafi*
- Maximizing Marginal Fields Profitability Via Drilling Multi-Lateral Wells to Reduce Well Count and Well Cost: Dual Lateral Well with Single ESP and Smart Lower Completion ..... 1601  
*Mahmoud Mohamed Abdelhay Mostafa, Sunil Kwon, Hyunjung Oh, Ali Mubarak Al Braiki, Fatema Al Shkeili, Ayman El Shahat*

#### **DRILLING: INNOVATIVE DRILLING TECHNOLOGIES**

- First Deployments of Friction Adjustable Stabilizer Technology in the GCC ..... 1611  
*Denya Pratama Yudhia, Philippe Rabis, Erwan Couzigou, Adel Al-Marzouqi, Fahed Salem Al Ameri, Gerry Ryan*
- Embedded Force Sensing at the Cutter..... 1626  
*Alexis Koulidis, Guodong Zhan, Shehab Ahmed*
- Designing Novel Hard-Coating Free Erosion-Corrosion Resistant Nano-Composite(s) for Oilfield Applications: From Pump Liners to Washpipe Sleeves ..... 1638  
*Ting Roy, Kamel Ben Naceur, Yoshihiko Koyanagi, Chihiro Furusho, Siggie Meissner, Hifzi Ardic, Indranil Roy*
- Improving Drilling Efficiency through Heterogeneous Formations and Reduce Stick Slip Levels after the Implementation of Self-Adjust Depth of Cut Technology in Oil Well ..... 1650  
*Sarah Abdulla Alkhalazal, Munir Jelal Mahdi, Jonathan Lee Quintero Barrera, Mohannad Aljishi*

#### **DRILLING: LOSS CIRCULATION AND FLUID MANAGEMENT**

- High Fluid Loss Squeeze and Reticulated Foam Lost Circulation Material LCM Plugs 40,000 Microns Lab Simulated Fracture/Vug Opening..... 1660  
*Sharath Savari, Jacques Butcher, Mustafa Al Hulail*
- Innovative Approach for Lost Circulation Treatment in Surface Hole Across Naturally Fractured Limestone Formations Offshore UAE..... 1671  
*Mohammed Rebbou Benberber, Omar Nazih, Adelson Jose Calleia De Barros, Ahmed Abdelrahim Almaazmi, Alexandre Bezerra De Melo, Mohamed Ahmed Abdelsattar, Michelle Carine Santos Rocha, Patrick Ndjore Manga, Sherif Mohammed, Mohamed Ahmed Basha, Mohamed Bashandy*

Step Change in Controlling the Gas-Cap in Highly Depleted and Fractured Formation..... 1683  
*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*

Innovative Fluid Technology Enhanced Wellbore Integrity, Optimizing Casing Sections in the Bandurria Sur Field in Argentina ..... 1703  
*Martin Cejas, Jose Manuel Juaristi, Allan Claus Hedegaard, Reinaldo Maldonado*

## **DRILLING: MANAGING WELLBORE STABILITY IN CHALLENGING ENVIRONMENTS**

Wellbore Stability Analysis Using Elastoplastic and Thermo-Elastoplastic Approaches ..... 1718  
*Osman Hamid, Gbenga Oluyemi, Reza Sanaee*

Successful Deployment of Drill Through Turbine Casing Reamer Shoe in Longest Challenging Intermediate Sections on Abu Dhabi Jack Up Operations..... 1734  
*Hanifan Mayo Biyanni, Prashant Gohel, Omar Nazih Jadallah, Philippe Rabis, Erwan Couzigou, Fahed Salem Al Ameri, Callum Law, David Charles, Kevin Robertson*

Minimizing Salt Creeping Through Geomechanics Application and Systematic Drilling Fluids Design in Ultra Deepwater Wells - Operator's First Experience in West Africa..... 1747  
*Faieqah Zainal Abidin, Rozaidi Toha, M. Nizam M. Zin, M. Baihaky M. Abdullah, Remy Azrai M. Amin, M Solehuddin A. Razak*

Innovative Solutions to Subsurface Challenges in Deep Hard Rock High Temperature Slim Wells..... 1757  
*Khalifa Omair Wahshi, Boris Jean Thomas, Saud Ali Khaldi, Younis Said Haji, Yasir Mohammed Salehi, Roger Shihche Yuan, Ali Khalfan Mahrooqi, Khalid Nasser Harthy, Fahad Said Habsi*

## **DRILLING: NEW COMPLETION TECHNOLOGIES AND TECHNIQUES I**

Successful Implementation and Optimization of MLT Technology ..... 1775  
*Ahmed Hilles, Youssef Ali Kassem, Daniel Beaman, Kechang Wang, Benjamin Butler*

Intelligent Pipe: A Multi-Annuli Monitoring Solution..... 1784  
*Francois-Xavier Bulard, Emmanuel Tavernier, Lucas Kling*

DST in Deep Offshore Exploration: Pushing the Limits ..... 1795  
*Sebastien Arnold, Vincent Jaffrezic, Gregory Dubes*

Removing the Requirement for Deburr Runs on a Field Development Multizones Well Completion ..... 1807  
*Kyle Ivar Jamieson, Joven John Ravelo Cayao, Paul Roderic Hazel, Bala Prasad, Sunday Michael Ibitomihi, Madan Kumar Kolakalapudi, Stewart James Thomson*

## **DRILLING: NEW COMPLETION TECHNOLOGIES AND TECHNIQUES II**

Making Non-Metallic Downhole Tubulars a Reality - Challenges & Way Forward ..... 1821  
*Ali Hijles, Fauzia Waluyo, Serena L. M. Goh, Ahmed Aladawy, Omar El Shamy*

Application of Resin Sand Consolidation as Primary Sand Control: Case Study of a New Development Well in Offshore Sarawak ..... 1834  
*M Ariff Naufal Hasmin, Suzanna Juyanty M Jeffry, Fuziana Tusimin, Hwan Roh Cheol, Saurabh Anand, Amr Zeidan, Nadiah Kamaruddin, Nurfuzaini A Karim, Mizuar Omar*

Smart In-Situ Gas Lift System Using ICVs and Dial System ..... 1855  
*Talha Saqib, Omar Tajammal Mirza, Abdel Moez Sabri, Sultan Dahi Al-Hassan, Saeed Salem Al-Hajri, Issam Rezk Mefleh*

Assessment of Shape Memory Polymer Sand Control Performance and Integrity under Field Conditions via Geomechanical Simulation ..... 1866  
*Arjang Gandomkar, Romain Guises, Jose Pedreira*

### **DRILLING: OVERCOMING CHALLENGES, SIGNIFICANT DRILLING CASES STUDIES**

Successful Delivery of the First Extended Reach Well Using an Integrated Multidisciplinary Approach; A Case Study in a Mature Field, Onshore Abu Dhabi UAE..... 1880  
*Ayman El Shahat, Mohamed Osama Abd Elmeguid, Luis Gerardo, Abdalla Saleh Saleh, Saeed Mohamed Almazrouei, Ali Sulaiman Bin Sumaida, Ahmed Abdulla Al Mutawa, Chuma Ibeziako, Faisal Siddiqui, Shamsa Al Menhali, Fawad Zain Yousfi, Rohit Deshmukh, Sanjiv Kumar, Ashim Dutta, Rathnakar Reddy, Mohamed Ahmed Baslaib, Alexander Mikhaylov, Lama Atallah, Mena Nasrallah, Wael Fares, Tariq Hasan Hamdan, Mohammad Husien*

New Low ECD OCIEF (Organophilic Clay-Free Inverted Emulsion Fluid) Weighted with Manganese Tetroxide Showed Superior Performance in Different Fields: Success Story of Drilling with Ocief in High Overbalance Environment Without Downhole Problems, Stuck Pipe Events and Non-Productive Time..... 1890  
*Vikrant Wagle, Abdullah Yami, Abdullah Almoajil, Michael Onoriode*

Slimhole One Piece Matrix Design Bit Technology Showed Significant Integrity and Performance Improvements in Coil Tubing Operations in Middle East..... 1906  
*Pablo Rojas, Jonathan Quintero*

Record Setting Casing Run-In Speed Attributed to Significant Surge Reduction System Tailored for Deepwater HP/HT Operation in India ..... 1918  
*Shruti Gupta, Mikhil Dange, Francois Missiaen, Animesh Kumar*

### **DRILLING: REAL-TIME MONITORING AND DRILLING OPTIMISATION**

A Novel Realtime Well Collision Avoidance Monitoring by Definitive Dynamic Surveys and Passive Magnetic Ranging ..... 1936  
*Mahmoud Elgizawy, Mark Fraser, Ross Lowdon, Jamie Dorey*

Machine Learning Delivers Automated Feedback on Real Time Key Performance Indicators During Drilling Operations..... 1950  
*Ara Krikor, Shreepad Purushottam Khambete, Paulinus Abhyudaya Bimastianto, Michael Bradley Cotten, Lucian Toader, Fernando Jose Landaeta Rivas, Shahid Yakubbbhai Duivala, Muhammad Idrees Mughal, Suhail Mohammed Al Ameri, Erwan Couzigou, Adel A/rahman Al-Marzouqi, Wiliem Pausin, Laurent François Vallet, Bertrand Chevallier, Antoine Vaslin, Nadeem Hidayat Ullah, Ahsan Qadir, Hassan Walid Al Khufash, Raneef Mohamed Shareef, Muhammad Ashar Ul Islam*

Artificial-Intelligence-Based Well Placement Look Ahead Concept ..... 1965  
*Mohamed Said Mahiout, Faisal Naif Al Enezi, Gagok Imam Santoso, Mohammed Satti Ali Elhaj*



Successful DST Operation in Deep, HPHT, Wildcat Exploration Well Deploying the Newest Technology in Wireless Telemetry SRO and Upgraded Bottomhole Sampling System.....	1985
<i>Firman Paluruan, Abilana Dwi Rama, Lennon Panuturi Sitompul, Rahmad Jatikusuma, Kristoforus Widias Tokoh</i>	

### **DRILLING: STEP CHANGE IN DRILLING FLUIDS**

Successful Implementation of Nanoparticle Deformable Sealing Polymer to Eliminate Differential Sticking of Zeil Sand- A Case Study from Gulf of Suez.....	2000
<i>Amr Eissa, Ahmed Mamdouh, Mohamed Abdelrazik, Ashraf Abdel Maksoud, Abdallah Ouda, Ahmed Hamdy, Mohamed Farouk, Lotfi Ibrahim, Ayman Salama, Ragab Saber</i>	
Development of a New Reservoir Drilling Fluid to Achieve Matrix Injection .....	2012
<i>Alexandra Morrison, Mahesh Biyani, Sunita Kadam, Sohini Bose, Bill Zhou</i>	
A Challenge for Making a Risk Map of Lost Circulation Based on Geomechanical Evaluation in a Complex Carbonate Reservoir in Offshore Abu Dhabi.....	2023
<i>Kimikazu Tsusaka, Shun Saito, Motohiro Toma, Yassar Goyara Goyara, Denya Pratama Yudhia, Kengo Fukuda, Takahiro Toki, Hitoshi Matsubuchi</i>	
Latest Generation Flat Rheology Fluid Enables Successful Drilling at High Overbalance Conditions Utilizing Multi-Functional Nanoscale Additive.....	2039
<i>Tulio Olivares, Rafael Pino, Juan Carlos Rojas, Alessandro Cascone</i>	

### **DRILLING: SUSTAINABILITY AND ENVIRONMENT IN DRILLING OPERATIONS**

Innovative Sealant for Mitigating Methane Gas Emission in Abandoned Oil and Gas Wells .....	2047
<i>Daniel Heras Murcia, Mahmoud Reda Taha, John Stormont</i>	
Sustainable Treatment of Wastewater Generated by Oil & Gas Drilling Rig Camps .....	2055
<i>Dennis Kronborg Alexandersen, Tom R. Headley, Stephane Prigent, Marcus Schmuelling</i>	
Methodological Engineering Approach in Designing Injector and Observation Wells Incorporating MMV Requirements in Carbonate CCS Project in Offshore Malaysia .....	2066
<i>Muralithran Balakrishnan, Rahimah Bt A Halim, Ahmad Luqman Johan, M Qayyum Ahmad Ani, Ahmad Fadhli Ismail, Yun Thiam Yap, Hazlan Abd Hakim, M Aizat Abu Bakar, Harni Farihah Bt M Safari Lai</i>	
Asphaltite Uintaite: Approved for Sensitive Marine Environments for Drilling Operations .....	2078
<i>Katuska Aguilar, Ernesto Dario Montes, Ghery Sotomayor, Ashley Reimann</i>	

### **ENERGY TRANSITION AND DECARBONISATION: ADVANCES IN CO2 STORAGE**

Potential for Permanent CO2 Geological Storage, an Onshore Abu Dhabi Large Scale Assessment.....	2097
<i>Siqing Xu, Mohamed Baslaib, Aaasha Keebali, Humberto Para, Ahmed Binamro</i>	
Strategies for Attaining CO2 Sequestration with Environmental Integrity .....	2113
<i>Adam Peltz, Scott Anderson, Nichole Saunders, Jona Koka, Jenna Graham, Bea Portela</i>	
Repurposing Depleted Gas Fields into Potential Carbon Storage Sites - Case Study of Assessment and Screening Methodology .....	2128
<i>Mohamed Fakhrullah Haron, Rakesh Ranjan, M. Jazlan Zulhaimi, Sarah Muhammad Afandi, Puveneshwari Narayanan</i>	

Managing CO <sub>2</sub> Phase Behaviour in Depleted Reservoirs .....	2140
<i>Lui Acevedo, Owain Tucker</i>	

### **ENERGY TRANSITION AND DECARBONISATION: CARBON CAPTURE TECHNOLOGIES AND INTEGRATION**

DMX™ Demonstrator for CO <sub>2</sub> Capture: First Results of Experimental Campaign .....	2153
<i>Clément Salais, Christian Streicher, David Albarracin-Zaidiza, Vincent Carlier, Pierre Bachaud, Bernard Petetin, Maxime Lacroix, Vania Santos-Moreau</i>	
Experience In Onshore and Offshore CCS Development.....	2166
<i>Owain David Tucker, Lesley Rantel Seldon</i>	
Technoeconomic Considerations for Carbon Dioxide Capture and Storage Projects .....	2183
<i>Betty Kong Ling Pun, Armen Abazajian, Maria Vlachopoulou, Tarik Ihab Kamel</i>	
Hybrid Membrane and Solvent Acid Gas Enrichment for Enhanced CO <sub>2</sub> Capture.....	2198
<i>Milind M Vaidya, Sebastien A Duval, Feras Hamad, Ahmad A Bahamdan, Faisal D Al-Otaibi, John O'Connell, Shabbir Ghulam, Olatunde O Onasanya, Richard Baker, Tim Merkel, Kaeeid Lokhandwala, Witopo Salim, Jay Kniep</i>	

### **ENERGY TRANSITION AND DECARBONISATION: CARBON FOOTPRINT MANAGEMENT**

Policy Incentives to Scale up Green Energy Supply .....	2211
<i>Suhail Diaz, Nasser Al Hammadi, Shashi Prakash, Joshva Martto, Omar Baobaid</i>	
South Oman Cluster GHG and Carbon Footprint Reduction Journey - Achievements and Aspirations.....	2228
<i>Mathen Muthalaly, Kamlesh Kumar, Pankaj Agarwal, Rodoljub Mihajlov, Zeyana Kindi, Fatma Harthy, Aiman Quraini, Abdullah Hadhrami</i>	
Carbon Footprint Reduction Through the Use of Drones for Inspection Activities .....	2246
<i>Yazeed Alnumay, Hesham Jifri, Ahmed Albrahim, Amjad Felemban, Fadl Abdellatif</i>	
Carbon Footprint Management Using Blockchain .....	2257
<i>Heba Ahmed Kadry</i>	

### **ENERGY TRANSITION AND DECARBONISATION: CCS INTEGRATED PROJECTS**

A Quantum Gravity AI Framework for CO <sub>2</sub> Storage Monitoring and Optimization.....	2270
<i>Klemens Katterbauer, Abdallah Al Shehri, Abdulaziz Al Qasim</i>	
Development of a New Ultra-Selective Solvent to Reduce the Cost to Capture CO <sub>2</sub> from a H <sub>2</sub> S-Rich Natural Gas .....	2279
<i>Frédéric De Meyer, Renaud Cadours, Bénédicte Poulain</i>	
Onshore Abu Dhabi Carbonate Saline Aquifer CO <sub>2</sub> Storage - An Integrated Technical Feasibility Study.....	2296
<i>Carlos Mascagnini, Aaasha Khalfan Al Keebali, Siqing Xu, Humberto Parra, S. K. Masalmeh, Muhammad Chughtai, Satya Perumalla, Chris Harper, Hemant Singh, Anirban Banerjee, Colin Cranfield, Rafael Khamatdinov</i>	

Assessment of Integrated MMV Plan for CCS Projects in Depleted Gas Reservoir and Saline Aquifer Offshore Malaysia: From 4D Time Lapse Seismic Perspective.....	2315
<i>Pankaj Kumar Tiwari, Debasis Priyadarshan Das, M Noor Fajarimi C Mat, Renato Jordan Leite, Prasanna Chidambaram</i>	

## **ENERGY TRANSITION AND DECARBONISATION: CO2 TRANSPORTATION AND DEPLOYMENT OF CCS**

Liquid CO <sub>2</sub> Transportation and Storage; A Comparison of Low Pressure and Medium Pressure Solutions.....	2329
<i>Damoon Nasser</i>	
Embedding CO <sub>2</sub> Leakage Modelling in MMV Planning for Marine Environmental Risks in an Offshore CCS Application .....	2343
<i>Pankaj Kumar Tiwari, M Amir Rashidi, Debasis Priyadarshan Das, Prasanna Chidambaram, M Syafeeq Ebining Amir, Raj Deo Tewari, Rahim Masoudi</i>	
Building Safe CO <sub>2</sub> Transport Infrastructure: The Cornerstone of CCUS.....	2357
<i>Louis Simon, Florian Thebault, Anas Obeidat, Nicolas Bouchart, Leila Faramarzi</i>	
Trapped Gas Saturation Measurement in 2-phase and 3-phase Experiments to Support CCS and CO <sub>2</sub> EOR Projects in Carbonate .....	2372
<i>Shehadeh Masalmeh, Ali Al-Mesmari, S. Amir Farzaneh, Mehran Sohrabi</i>	

## **ENERGY TRANSITION AND DECARBONISATION: ENERGY EFFICIENCY AND SUSTAINABILITY I**

The Journey Towards Net Zero Emissions for the Second Largest Asset in Petroleum Development Oman .....	2387
<i>Osama Mohammed Al Kindi, Vincent Hugonet, Sara Al Balushi, Taher Al Ghailani, Suleiman Al Hinai, Marwan Al Sawafi, Riham Al Ismaili, Mandhr Al Farsi, Mohammed Al Abri, Raied Dabbagh, Hilal Al Bahri</i>	

### **VOLUME 4**

Combining Renewable Microgrids and Energy Storage: Decarbonizing Offshore Assets by Means of Offshore Floating Solar and Wind .....	2399
<i>Saverio Ventrelli</i>	
Innovative Industry Lead Project for Renewables for Subsea Power.....	2410
<i>Ian Roger Crossland, Paul Slorach, Andrea Caio, Jay Parle, Cameron McNatt</i>	
Solutions for Offshore Renewable Energy Storage: PowerBundle and Repurpose Pipeline Energy Storage (ROPES).....	2422
<i>Kevin De Klerk, Azril Syazwan Hazim, Ernst Kloster, Daniel Buhagiar, Alasdair Gray</i>	

## **ENERGY TRANSITION AND DECARBONISATION: ENERGY EFFICIENCY AND SUSTAINABILITY II**

Electrification in Industry: The Most Efficient Way Towards Decarbonization.....	2441
<i>Stefan Diezinger, Benjamin Dennhardt</i>	

How to Build a Sustainable Offshore Platform: A New Design Philosophy..... 2450  
*Stewart Maxwell*

Process Quick-Look Assessment – A Booster for Decarbonization..... 2457  
*Vaillant Guillaume, Mata-Freitas Elder, Roquet Damien, Little Patrick, France Laurent, Deleersnyder Matthieu*

Maximizing Profitability and Sustainability, Minimizing Carbon Footprint in Gas Recycle Developments by Optimizing Gas Injection Parameters to Conform to Dynamic Changes in Reservoir Performance ..... 2469  
*Juma Almaazmi, Muhammad Arianto, Salem Almenhali, Shamma Almansoori, Hiyam Almuntheri, Aristeidis Karamessinis, Ahmed Al Sayegh, Mubashir Ahmad*

### **ENERGY TRANSITION AND DECARBONISATION: ENERGY MANAGEMENT AND DECARBONISATION**

Estimation of Geothermal Electric Power Production from Mature Oil Fields ..... 2479  
*Andres Negre, Khadija Andjar, Elsa Muller-Shernetsky, Martin Lantoine, Emerson Marfisi, Guillaume Suzanne, Felipe Medellin*

More Energy & Less Emission from Waste Heat – Case Study..... 2490  
*Indrajit Dutt, Waneya Al Ketbi, Eisa Salem Saeed Al Jenaibi, Saqib Sajjad*

Facility Energy Strategy Development and Process Optimization: A Case Study from Saudi Aramco Khurais Facility ..... 2500  
*Hatem A. Bajuaifer, Ashiff Khan, Abdullah A. Al Zahrani*

Netzero Targets, Carbon Neutral Production... Yes You Can!..... 2513  
*Koenig Eric*

### **ENERGY TRANSITION AND DECARBONISATION: HYDROGEN IN ENERGY TRANSITION**

Accelerating the Path to Net Zero with Blue Hydrogen: A Route to Achieving Best-In-Class Environmental Performance and Economics..... 2521  
*Robert Hardy, Neha Vijn*

Electrode Placement Evaluation in Radio Frequency Hydrogen Generation Using Multiphysics Simulation ..... 2530  
*Travis St. George Ramsay*

Waste to Sustainable Aviation Fuel: How to Recover Refused Carbon and Hydrogen ..... 2549  
*Giacomo Rispoli, Alessia Borgogna*

Pyrolysis of Macroalga *Macrocystis Pyrifera* for Production of Green Carbon-Negative Hydrogen ..... 2558  
*Carolina Arias Gallego, Shashank Sakleshpur Nagaraja, Mani Sarathy*

### **ENERGY TRANSITION AND DECARBONISATION: INNOVATIONS IN RENEWABLE TECHNOLOGIES**

Clean Energy from Oil: A Process to Generate Low Cost, Low Carbon Electricity from Mature and Depleted Oil Fields..... 2570  
*Michael John Lundin Aikman*

Techno-Economic Assessment of Blue Hydrogen Technologies.....	2595
<i>Satyadileep Dara, Ibrahim Khan, Eisa Al Jenaibi, Sandeep Dhebar, Ganank Srivastava, Mostafa Shehata</i>	
Could Petroleum Sludge be Used to Produce Biomethane as a Renewable Energy Source?.....	2609
<i>Jean H. El Achkar, Abrar Ben Husain, Nadeen Alotaibi, Noor Alhaddad, Taiyeba Alamgir, Husain Alshamali, Yousef Alshammari, Mohammad Almuhanha, Abdullah Albekheet, Khaled Alenezi, Mortadha T. Alsaba</i>	

## **ENERGY TRANSITION AND DECARBONISATION: METHANE MONITORING AND REDUCTION I**

Game Changer in Subsurface Flare Reduction.....	2626
<i>Moosa Salim Al Rahbi, Nada Abdullah Al Sidairi, Amal Mohammed Al Ghafri, Sultan Ahmed Al Ismaili, Ahmed Sulaiman Al Rashidi, Kamran Fahmeed Awan</i>	
MethaneSAT - A New Tool Purpose-Built to Measure Oil and Gas Methane Emissions from Space .....	2634
<i>Steven Hamburg, Ritesh Gautam, Daniel Zavala-Araiza</i>	
Practical Solutions for Small Volume Associated Flare and Vent Gas at Offshore Platforms Towards GHG Emissions Reduction.....	2645
<i>Siti Nur Amira Shaffee, Maung Maung Myo Thant, M Zakwan Mohd. Sahak, M Faizal Sedaralit</i>	
Technical and Economic Analysis of Mini LNG from the Utilization of Gas Flare by Optimization of Liquefaction Process .....	2653
<i>Khoir Lazuardi Khoir, Ade Rafsanjani Ade, Widi Hernowo Widi</i>	

## **ENERGY TRANSITION AND DECARBONISATION: METHANE MONITORING AND REDUCTION II**

Development of Inline Testing in Sour High Pressure Fields .....	2674
<i>Asaad Al-Busaïdi, Ghusn Al-Shabibi, Ali Al-Khanbashi, Rashid Al-Jabri, Al Khattab Al-Mahrooqi, Fadhil Al-Amri, Rached Chaari, Zakariya Al-Battashi, Rodoljub Mihajlov, Habib Al-Khusaibi, Abdullah Al-Hadhrami</i>	
VOC Recovery System for Crude Oil Tanker Loading.....	2682
<i>Merhane Kamel, Khalid Al Shehhi</i>	
Strategies for Reducing & Monetizing Fugitive Methane Emissions from Natural Gas Infrastructure .....	2691
<i>Stefan Diezinger, Gautam Chhibber, Georgios Siasios</i>	
Multiscale Oil and Gas Methane Emissions Data: From Measurements to Mitigation.....	2701
<i>Daniel Zavala-Araiza, Stefan Schwietzke, Steven Hamburg</i>	

## **FIELD DEVELOPMENT: ADVANCES IN CARBONATE STIMULATION**

Lessons Learned from Implementing Smart Liners for Improved Matrix-Acid Stimulation of Carbonate Reservoirs.....	2713
<i>Kristian Mogensen, Fahad Al Hosani</i>	

Utilizing PulseJet Technology to Enhance Water Injectors Injectivity .....	2726
<i>Abdullah Saud Al Ruqaishi, Ahmed Al Ghammari, Erik Ferdiansyah, Najeeb Al Harthi, Alexey Plotnikov, Oleg Zazuliak, Noman Inamov, Oleksandr Hryhoruk</i>	
Novel Organically Modified Nanoparticles Stabilized Emulsified Acid Paves Way for Productivity Enhancement in High Temperature Gas Reservoirs .....	2735
<i>Rajendra A Kalgaonkar, Majid Aljama, Amy J Cairns, Eyad Alali</i>	
Combination of CO <sub>2</sub> Foam and Fit-For-Purpose Fluids During Acid Fracturing Revive Potential of a Jurassic Well in a Depleted, High-Temperature Carbonate Reservoir in North Kuwait .....	2746
<i>Peiwu Liu, Abdel Kader Barakat, Ruslan Kalabayev, Abrar Mohamed Salem, Valentin Pochetnyy, Fahad Allothman, Naser Almatroud, Abdullah W Baidas, Mohammad Rashid Al-Othman, Zamzam Mohammed Abdul Samad, Mohammad Khaled Al-Mousharji, Ali Fadhel Abdullah, Mohammad Hussain Ateyah, Meshari Khalid Shtail, Abdullah Ali Al-Enezi</i>	

### **FIELD DEVELOPMENT: ADVANCES IN ROCK AND FLUID CHARACTERISATIONS**

SCAL for a Giant Carbonate Reservoir: A Critical Step Towards Identifying EOR Targets.....	2762
<i>Ali Alsumaiti, Shehadeh Masalmeh, Abdul Ravoof Shaik, Budoor Alshehhi</i>	
Compositional Uncertainties in Laboratory PVT Data.....	2778
<i>Younus Bilal, Whitson Curtis Hays, Martinsen Sissel</i>	
Generation of a Regional Fluid Database for Gas Condensate Assets in a Thrusted Carbonate Environment of the Northern Emirates.....	2804
<i>Harshil Saradva, Christna Golaco, Matthew Robert, Siddharth Jain, Thurley Callum, Abdulhafid Bentaher, Masoud Al Hamadi</i>	

### **FIELD DEVELOPMENT: ADVANCES IN WATER FLOODING MANAGEMENT AND OPPORTUNITIES FOR MATURE RESERVOIRS I**

A Successful Rigless Water Shut Off Solution in an Open Hole Horizontal Water Injection Field in the Sultanate of Oman Using a Water-Swelling Polymer System.....	2818
<i>Mohamed Amin Khalil, Sharifa Nasser Al Kharusi, Stephen Persac, Hamood Al Harthi, Ahmed Al Naabi, Hilal Al Mufarji</i>	
Enhanced Oil Recovery at Zero Cost. Will Cyclic Waterflooding Breath a New Life into Mature Oil Fields? A Case Study in South Kazakhstan.....	2833
<i>Adil Mukanov, Aimurat Kudalsha, Duman Kassenov</i>	
High Resolution Streamline Modelling for the First Deep Reservoir Conformance Treatment Campaign Targeting the Wara Formation of the Greater Burgan Field in Kuwait.....	2843
<i>Mohammed Taha Al-Murayri, Abrar Al-Qattan, Atheer Alfadhli, Mohammad Alshareef, Jorge Eliecer Maldonado, Manuchehr Yunusov, Muhammad Nasir Ibrahim</i>	

### **FIELD DEVELOPMENT: ADVANCES IN WATER FLOODING MANAGEMENT AND OPPORTUNITIES FOR MATURE RESERVOIRS II**

Selective and Reversible Water Shut-Off Agent Based on Emulsion System with Nanoparticles Suitable for Carbonate Reservoirs at High Temperature and High Salinity Condition .....	2864
<i>Masashi Abe, Jumpei Furuno, Satoru Murakami, Takashi Sonoda, Vitaly Sergeev, Masaaki Tange, Takeshi Hiraiwa, Hideharu Yonebayashi</i>	

Brownfield Performance Data Driven Analysis and Integration with Urban Planning to Generate Field Development Plan in a North Kuwait Multi-Stacked Giant Reservoir.....	2879
<i>Reem Alabbas, Somnath Majhi, Rajendra Mishra, Manish Kumar Jha, Issa Abu Shiekah, Gerbert De Bruijn, Jeffrey Vann</i>	
Maximum Reservoir Contact (MRC) Water Injector Well Performance in ADNOC Onshore Carbonate Reservoir Equipped with Limited Entry Liner (LEL) Smart Completion.....	2893
<i>Sara Abdulla Al Shkeili, Khalid Javid, Nouredine Benourkhou, Saleh Ali Al Sayari, Moza Saeed Al Dhuhoori, Indra Utama, Subba Ramarao Rachapudi Venkata, Ernesto Lenin Chang, Alvaro Jimenez, Muhammad Zubair Tanvir Chaudhry, Kristian Mogensen, Fahad Mustafa Hosani</i>	
Physics-Informed Spatio-Temporal Graph Neural Network for Waterflood Management.....	2902
<i>Hamed Darabi, Amir Kianinejad, Amir Salehi</i>	

### **FIELD DEVELOPMENT: BEST PRACTICES IN UNLOCKING VALUE IN MARGINAL FIELDS**

Impact of Diagenesis on the Reservoir Properties of the Cretaceous Kharai Formation, Sajaa Field, Sharjah, United Arab Emirates.....	2913
<i>Madhujya L Phukan, Saad A Siddiqi, Asma Almunaifi, Matthew J Robert</i>	
Extra Deep Azimuthal Resistivity Application for Efficient Well Placement in a Long Horizontal Drain: Mitigating Challenges Due to Heterogeneity in Thin Target Carbonate Reservoirs Associated with Water Encroachment in a Mature Field – A Case History from Abu Dhabi Offshore.....	2925
<i>Hocine Khemissa, Omar Imad Al Mutwali, Alwai Yaseen Al Safi, Ashraf Muhammad, Sundos Ibrahim Alabed, Ali Saeed Alfelasi, Aysha Alkhoori, Asim Mumtaz, Sanathoi Potshangbam, Mahmoud Hameed, Romie Valerio, Krishnan Saravanakumar, Paul Wharton, Mohammed Rawy</i>	
Multilateral Fishbone Wells Utilization to Unlock the Production Potential and Analyze the Interference Phenomena of Marginal Field with Depletion Drive Mechanism.....	2936
<i>Ismail Magomadov, Saad Abdallah Balhasan, Mohamed Elsayed, Hafsat Abdullahi Abbas</i>	

### **FIELD DEVELOPMENT: BREAKTHROUGH TECHNOLOGIES TO UNLOCK OPPORTUNITIES**

First Worldwide Implementation of 6-Inch Slim Advanced Downhole Formation Tester in Challenging North Kuwait Deep Tight Jurassic Gas.....	2954
<i>Mohamed Abdel-Basset, Saad Al-Ajmi, Fahad Al-Otaibi, Mejbek Al-Azmi, Majdi Al-Mutawa, Taha Bloushi, Sarah Alajmi, Hazim Ayyad, Mahmoud Metwally, Djisan Kho, Omur Murat Nohut</i>	
Coiled Tubing Underbalanced Drilling Implementation Planning in Tight Gas Reservoirs (First Time in ADNOC Group of Companies).....	2970
<i>Fawad Zain, Rohit Villas Deshmukh, Nama Ali Al Mteiri, Mohamed Ahmed Baslaib, Mohamed Osama, Ayman Elshehat, Ali Sulaiman Bin Sumaida, Fouad Abdulsalam, Mubashir Ahmed, Tarek Soliman, Alfonso Mantilla</i>	
Unlocking Oil Potential in Mature Oil Fields Using Sand Agglomeration Technology and Eliminating Artificial Lift Pre-Mature Failures.....	2983
<i>Sulaiman Mandhari, Nawal Al-Amri, Said Riyami, Iman Busaidi, Faisal Saadi, Rifat Kayumov, Ahmed Hilal, Ricardo Trejo</i>	

The Method of Directional Radial Drilling of Channels for Stimulation of Oil Rims .....	2995
<i>Ilya Galas, Ayrat Bashirov, Vitaly Makarenko, Salavat Miftakhov, Ilya Lyagov, Lee Dolman, Danila Gulyaev, Anastasia Nikonorova</i>	

### **FIELD DEVELOPMENT: CHEMICAL EOR**

Assessment of World First Two Polymer Injectivity Tests Performed in Two Giant High Temperature/High Salinity Carbonate Reservoirs Using Single Well Simulation Models and PFO's Analysis .....	3008
<i>Juan Manuel Leon, Shehadeh K Masalmeh, Ali M Alsumaiti, Mohamed Baslaib</i>	

First Polymer Injectivity Test in the Wara Formation of the Great Burgan Field: Strategic Milestone to Fast-Track Phased Commercial Polymer-Flooding Development .....	3029
<i>Mohammed T. Al-Murayri, Abrar Al-Qattan, Abraham Abdelgadir Hassan, Wafaa Al-Ghanim, Prakash Jadhav, Shweta Kakade, Anirban Banerjee, Alexey Andrianov, Echo Liu, Malcolm J. Pitts, Elia Skeans, Elio S. Dean</i>	

Synergies of Alkali and Polymers - Decreasing Polymer Costs and Increasing Efficiency .....	3052
<i>Rafael E. Hincapie, Ante Borovina, Torsten Clemens, Eugen Hoffmann, Muhammad Tahir, Leena Nurmi, Hendrik Foedisch, Sirkku Hanski, Jonas Wegner, Alyssia Janczak</i>	

A Polymer Flood Pilot with Autonomous Outflow Control Device Technology and Resilient Cost Management from South Sultanate of Oman .....	3076
<i>Ameera Al Harrasi, Salim Badi, Gerardo Urdaneta, Mohammed Ramli, Said Kindi, Yousuf Sinani, Khalfan Harthy</i>	

### **FIELD DEVELOPMENT: CHEMICAL EOR AND LOW SALINITY APPLICATIONS**

EOR Signature in Carbonate Reservoirs from Extended Low-Salinity Waterflooding in Oman.....	3087
<i>Badar Salim Al Busafi, Nuzha Al Rawahi</i>	

Encouraging Chemical EOR Field Results: First Multi-Well ASP Flooding Pilot Project in a Carbonate Reservoir Worldwide .....	3096
<i>Mohammed Taha Al-Murayri, Dawood S. Sulaiman, Abraham Abdelgadir Hassan, Naser A. Al-Ajmi, Bastien Thery, Remi Maillon, Jimmy Nesbit, Malcolm John Pitts, Elio Dean, Elia Skeans, Robert Matthew Dean, Chris James Britton</i>	

Effect of Water Softening on Polymer Adsorption on Carbonates Through Single-Phase and Two-Phase Studies .....	3112
<i>Anoo Sebastian, Muhammad Mushtaq, Emad W. Al-Shalabi, Waleed Alameri, Kishore Mohanty, Shehadeh Masalmeh, Ali M. Alsumaiti</i>	

Unique Synergistic Surfactant Mixture to Match Ultralow Interfacial Tension with Solubility at High Temperature and High Salinity .....	3128
<i>George Herman, Nicole Lichterfeld-Weber, Christian Bittner</i>	

### **FIELD DEVELOPMENT: DATA-DRIVEN APPLICATIONS IN FIELD DEVELOPMENT DOMAIN**

Introducing Data-Driven Virtual Viscosity Measurements .....	3139
<i>Volodimir Karpan, Samya Al Farsi, Hanaa Al Sulaimani, Dawood Al Mahrouqi, Rifaat Al Mjeni, Diederik Van Batenburg</i>	



Data-Driven Characterization of Saturation Distribution for a Heterogeneous Carbonate Reservoir in Middle East .....	3155
<i>Chenji Wei, Ruijie Huang, Jian Yang, Yan Gao, Lihui Xiong</i>	
Multidisciplinary Data Integration for Artificial-Intelligence-Assisted Well Placement and Trajectory Design Optimization Under Uncertainty .....	3165
<i>Shi Su, Sofiane Tahir, Kassem Ghorayeb, Samat Ramatullayev, Xavier Garcia-Teijeiro, Assef Mohamad Hussein, Chakib Kada Kloucha, Hussein Mustapha</i>	
Machine Learning for Prediction of CO2 Foam Flooding Performance .....	3178
<i>Mohammad Rasheed Khan, Shams Kalam, Sidqi A. Abu-Khamsin, Abdul Asad</i>	

### **FIELD DEVELOPMENT: DEVELOPMENT OPPORTUNITIES OF SOUR GAS FIELDS I**

Evolution of Well Completion Strategy in Deep High-Pressure Sour Environment to Enhance Rig-Less Operations & Optimize Rig Workover Operations .....	3188
<i>Hamood Al-Hajri, Anees Al-Subhi, Fanis Khayrutdinov, Asaad Al-Busaidi, Ibrahim Al-Shukaili, Humaid Al-Abri, Zahir Al-Abri, Abdullah Al-Hadhrami</i>	
A Successful Milestone Accomplishment of Sour Gas Well Testing Operation.....	3198
<i>Shemaisa Ahmed Alsenaidi, Mohamed Mubarak Albadi, Mubashir Ahmad Ahmad, Nnamdi Ahmad Dike, Noura Ahmad Alsaadi, Abdulla Ahmad Alhosani, Zeeshan Ahmad Ahmad</i>	
State-Of- The Art Corrosion Inhibitor Development to Mitigate Pitting Corrosion in the Presence of Elemental Sulfur and Poly Sulfides in Sour Oil and Gas Systems.....	3206
<i>Nihal U. Obeyesekere, Douglas C. Dickey, Jonathan J. Wylde</i>	

### **FIELD DEVELOPMENT: DEVELOPMENT OPPORTUNITIES OF SOUR GAS FIELDS II**

Successful Completion of First Ever CO2-Foamed Hydraulic Acid Fracturing Pilot Campaign in Jurassic Gas Wells of KOC Delivering Exemplary Well Clean Up and Production Performance.....	3216
<i>Danah Al-Muhanna, Zamzam Ahmed, Aliah Al-Qallaf, Ayo Ajayi, Mohammad Al-Othman, Erkan Fidan, Yousef Al-Salali, Moudi Al-Ajmi</i>	

## **VOLUME 5**

North Kuwait Jurassic Gas Experience of Expanding Multistage Completion Strategy for Managing Deep Tight Gas Development Challenges.....	3230
<i>Mohamed Abdel-Basset, Yousef Al-Otaibi, Taha Blushi, Anood Al-Dhafiri, Majdi Al-Mutawa, Mamoun Abdelbagi, Ahmed Hadi</i>	
Operational & Social Challenges of Sour Gas Well Testing Operation in Brown Field.....	3256
<i>Zeeshan Ahmad, Abdullah Alhaj Al Hosini, Mohammed Ibrahim Al Janahi, Abdulla Mohammed Al Marzouqi, Muhammad Ali Siddiqui, Mubashir Ahmad, Anubhav Agarwal</i>	

### **FIELD DEVELOPMENT: DEVELOPMENT TRENDS ON COMPLEX RESERVOIRS AND MATURE FIELDS**

Reservoir Performance Analysis of Eighty-Four Years of Immiscible Gas Injection in a Matured Carbonate Reservoir, Bahrain Field .....	3271
<i>Mohamed Hameed, Lakshi Konwar, Isa Alanaisi, Waleed Ali, Ebrahim Alawainati</i>	

Successful Intervention into a Six-Leg Multi-Lateral Well Using an Electrical MultiLateral Tool Deployed on Real-Time Hybrid Coiled Tubing for Acid Stimulation of a Kuwait Field - A Case Study..... 3296  
*Fahad Bastaki, Mohammed Al Matar, Mizan Omar, Jassim Barki, Mariam Jamal, Fayez Al-Mutairi, Sabry El-Aziz, Zakaria Albahar, Mehanna Al-Mehena, Nakul Khandelwal, Sapna Chawla, Rishika Gaur, Mohammad Alkreebani, Joshua Travesso*

Best Practice of Lower Completion Screening Technique for a Marginal Oil Field – Case Study from Onshore UAE ..... 3311  
*Chairul Dani, Gabriel Carrasquel, Elin Haryanto, Iftikhar Khattak*

Application of a Rigorous Scale Prediction Workflow to the Analysis of CaCO<sub>3</sub> Scaling in an Extreme Acid Gas, High Temperature, Low Watercut Onshore Field in Southeast Asia ..... 3322  
*Giulia Ness, Kenneth S Sorbie, Mark Gough, Rifky Akbar, Jonathan J Wylde, Alex Thornton*

### **FIELD DEVELOPMENT: EOR GASES MOBILITY CONTROL**

Enhancing CO<sub>2</sub> Foam Viscosity and Stability at Harsh Reservoir Conditions Through the Synergetic Interactions of Surfactant and Polymer ..... 3334  
*Jawad Al-Darweesh, Murtada Saleh Aljawad, Muhammad Shahzad Kamal, Zuhair Al-Yousef, Mohamed Mahmoud*

Insights into Hybrid Smart Water Assisted Foam (SWAF) Flooding in Carbonate Reservoirs: A Combined Numerical and Experimental Approach..... 3345  
*Anas Mohammed Hassan, Mohammed Abdalla Ayoub, Mysara Eissa Mohyaldinn, Emad Walid Al-Shalabi*

A Laboratory Study to Develop Co<sub>2</sub>-Foam Formulation for High Temperature and High Salinity Carbonates Reservoirs in Abu Dhabi ..... 3382  
*Valentin François Guillon, Nicolas Gland, Celeste Odier, Eric Delamaide, Ali Hassan Almesmari, Ali M. Alsumaiti, Shehadeh K. Masalmeh*

CO<sub>2</sub> EOR Challenges and Opportunities to Enable CCUS Strategies ..... 3397  
*Gervasio Pimenta, Carolina Romero*

### **FIELD DEVELOPMENT: EOR/IOR TECHNOLOGIES ADVANCEMENT**

Research and Successful Field Application of Nanosilica System for Gas Shutoff in Horizontal Well ..... 3407  
*Ayman Almohsin, Hassan Hashem, Ali Sadah, Mesfer Mahtani*

Design of In-Depth Conformance Treatment in the Mangala Polymer Flood Project ..... 3419  
*Alain Zaitoun, German Omonte, Jerome Bouillot, Nazanin Salehi, Stephan Bellin, Joyjit Das, Ritesh Kumar, Sunit Shekhar, Brian Horn, Abaan Ahmed, Alok Kumar, Gaurav Sharma, Suresh Kumar*

Fiber Optic Surveillance for Water and Polymer Conformance Monitoring in an EOR Project in Petroleum Development Oman ..... 3437  
*Mohammed Salim Al Hashemi*

Pilot Tests of Enhanced Oil Recovery by Integrating Conformance Control Treatment and Surfactant Flooding for Low Permeability Reservoirs ..... 3449  
*Nancy Chun Zhou, Meng Lu, Yajun Liu, Jianshen Li, Fuchen Liu, Wenhong Li, Xinwei Wu, Tianli Rao, Kun Zhao, Lu Yang, Yajun Wang, Renchao Gu*

## **FIELD DEVELOPMENT: EXCELLENCE IN GAS FIELD DEVELOPMENT**

- Integrated Standpoint for Monetizing High CO<sub>2</sub> Field with Deliberation of Technical Evaluation and Project Economics ..... 3464  
*Sukrut Shridhar Kulkarni, Marliana Bt Mohammad*
- Case Study of Successful and Optimal Strategy to Test and Evaluate Three Target Reservoirs in Single Exploratory Well ..... 3482  
*Faisal Anwar Siddique, Muhammad Adeel Aslam, Imran Khan, Yasir Abbasi, Zaid Khan, Syed Tariq Hasany*
- Optimization Experience on the Use of Carbon Steel Tubing for Sweet Corrosive Gas Field ..... 3493  
*Farih Mitraningsih, Boris Styward, Kristoforus Widyas Tokoh, Irene Angela*
- Application of Dynamic Models to Generate Optimal Injection Distribution to Maximize Condensate Recovery at Partial Recycle Voidage Replacement Scenarios..... 3510  
*Muhammad Ali Arianto, Aristeidis Karamessinis, Juma Mohamed Almaazmi, Salem Saleh Almenhali, Ahmed Ali Al Sayegh, Hiyam Hamed Al Muntheri, Shamma Hala Almansoori*

## **FIELD DEVELOPMENT: GAS DEVELOPMENT PLAN OPTIMISATION AND PROJECT ECONOMICS**

- Improved Field Production Planning and Cost Optimization Using Predictive Analytical Choke Performance Model and Intelligent Alarms in an Integrated Platform..... 3518  
*Ayesha Alsaeedi, Mohamed Mubarak Albadi, Fahad Alharthi, Manar Elabrashy, Mohamed Alzeyoudi, Ammar Al-Ameri, Eissa Al Mheiri, Ahmed Al Bairaqa, Mubashir Ahmed, Shemaisa Alsenaidi, Abdelrahman Gadelhak, Ashraf Shaker, Mahmood Douglas, Maryam Al Hammadi, Sarath Konkati, Sandeep Soni, Hamda Alkuwaiti, Melvin Hidalgo*
- Optimum Field Development Plan Using High Simulator Resolution to Increase Recovery Factor by 35% in Mature Gas Asset in South-Est of Algeria ..... 3529  
*Karim Slimani, Miryam Dalachi, Nacera Maache, Taha Ben Haoua, Mohamed Samy, Amine Zami, Rachida Anik, Nassima Moussaoui, Amina Medjber*
- Hydraulic Fracturing QA QC Indispensable to Delivering Both a Successful and Economic Fracture Program..... 3542  
*Hussein Al Salmi, Ahmed Al Shueili, Musallam Jaboob, Mohammed Al Qassabi*
- Deep-Set Velocity String for Liner Deliquification ..... 3554  
*Amira Salim Hajri, Babak Ghaempanah, Ahmed Rashidi, Cornelis Veeken, Kamran Awan*

## **FIELD DEVELOPMENT: GAS INJECTION APPLICATIONS**

- First-Contact Miscibility Development in a High-Temperature, Ultra-Sour Reservoir Fluid System Offshore Abu Dhabi ..... 3571  
*Kristian Mogensen, Sergey Goryachev*
- CO<sub>2</sub>-GOGD Subsurface Analysis in Fractured Carbonate in the Sultanate of Oman ..... 3586  
*Robert Bos, Dawood Mahruqi*
- Impact of Viscous Instabilities on WAG Displacement ..... 3593  
*Arne Skauge, Tormod Skauge, Kenneth Stuart Sorbie, Marcel Justin Bourgeois, Paulo Lee Kung Caetano Chang*

CO <sub>2</sub> and Ethane-Based Enhanced Oil Recovery (EOR): Laboratory Evaluations and Simulation Studies for a Matured Carbonate Reservoir in Bahrain.....	3606
<i>Isa Alanaisi, Lakshi Konwar, Ali Almeftah, Ebrahim Alawainati</i>	

### **FIELD DEVELOPMENT: GETTING THE MOST FROM FIELDS MONITORING AND SURVEILLANCE**

Production Profiling of a Long Dead Well – A Prime Case Study of Operational and Technical Excellence Using Simultaneous Lifting and Logging Services.....	3628
<i>Shahbaz Akram, Haleem Yousaf, Omar Nawaz, Zaid Ashraf, Talha Zubair, Muhammad Sohaib Tanveer, Abdul Bari, Hamza Ali, Muhammad Omer Farooq, Nestor Molero, Rao Shafin Ali Khan, Muhammad Amir Naveed</i>	
Injection Profiling for Intelligently Completed Wells Equipped with Fiber Optics .....	3647
<i>Mohamed Adil, Lingies Santhirasekaran, Nabilla Arief Tham, Brian Seabrook</i>	
Novel Application of Inflow Tracers in Record Well for Assessing 1-MD Reservoir.....	3662
<i>Mohand Alyan, Shardul Parihar, Latifa Alhaji, Edmund Leung, Craig Elder, Alaa Othman, Ahmed Altamimi, Manal Alharbi, Ahmed Al Kiyoumi, John Wills</i>	
Water Cut Estimation Using ESP Sensor Reading and Well Test Data: A Novel Approach.....	3675
<i>Brahmantiyo Aji Sumarto, Bogi Haryo Nugroho, Bibi Hussain Akbar, Huda Jassim Al-Aradi, Muhammad Arief Joenaedy, Pajar Rachman Achmad, Zainal Hakim</i>	

### **FIELD DEVELOPMENT: HYBRID EOR TECHNOLOGIES**

SmartWater Synergy with Chemical EOR: Studying the Potential Synergy with Surfactants.....	3684
<i>Abdulkareem M. Alsofi, Jinxun Wang, Mathieu Salaun, David Rousseau, Mikel Morvan, Subhash Ayirala</i>	
A World First Innovative Hybrid EOR Pilot in a Giant Carbonate Reservoir in Abu Dhabi : Pilot Design and Field Deployment .....	3696
<i>Yatindra Bhushan, Arit Igogo, Shahid Al Baloch, Mohamed Abdulla Al Blooshi, Sara Hasrat Khan, David Chappell, James Brodie, Aamna Al Tenaiji, Mona Yousif Al Ali, Siqing Xu, Shehadeh Masalmeh</i>	
Evaluation of Simultaneous Injection Concept and Other Water Based EOR Strategies for a Carbonate Reservoir in North of the Sultanate of Oman.....	3717
<i>Prateek Kathel, Zainab Rawahi, Johannes Van Wunnik, Jeroen Groenenboom, Rob Harris, Hanaa Al Sulaimani, Rifaat Al Mjeni, Adnan Dhahli, Abdul Aziz Balushi, Ibrahim Shukri</i>	
Polysulphate: A New Eor Additive to Maximize the Oil Recovery from Carbonate Reservoirs at High Temperature.....	3731
<i>Md Ashraf Islam Khan, Iván Darío Piñerez Torrijos, Saja Hussam Aldeen Algazban, Skule Strand, Tina Puntervold</i>	

### **FIELD DEVELOPMENT: INNOVATIVE APPROACHES FOR FIELD DEVELOPMENT OPTIMISATION**

Innovative Approach to Develop an Old Complex Reservoir Bearing Multi-Billion Barrels of Reserves in a Middle-East Carbonate Field.....	3750
<i>Dania Wayel Younes, Osama Mohamed Keshitta, Khaled Husain Alameri, Yann Bigno</i>	

Challenging Traditional Practices in Conventional Reservoirs: Overflushing, Water Conformance and Pillar Fracturing Combination, S Field, Ecuador.....	3761
<i>Alvaro Javier Izurieta, Wilson Leonardo Padilla, Christopher Jonathan Mayorga</i>	
Oil Rim Development by Waterflooding: Lessons Learned from the South Turgai Basin Case Studies.....	3781
<i>Adil Mukanov</i>	
A Fit-For-Purpose ESP Technical Solution Enables 17% Production Increase in Complex Reservoirs in Mature Fields in Ecuador .....	3795
<i>Fernando Leon, Juan Pancho, Ernan Franco, Diego Balseca, Fernando Ruales, Maria Elena Quinzo, Mauricio Perez, Jorge Villalobos</i>	

### **FIELD DEVELOPMENT: INTEGRATED ASSET MODELLING VALUE CREATION**

An Integrated Pore-to-Process Model for the Largest Clastic Oilfield in the World.....	3815
<i>Qasem Dashti, Hanan Abdulrazzaq, Nouf Al-Shammari, Haytham Al-Habashi, Meshal Al-Rumaidhi, Oluwole A. Talabi, Francy Milena Franco, Yaser Muhammad, Michael Qiong Zhang, Roshan Prakash, Nicolau Goula Masllorens, Samad Ali</i>	
Intelligent Deepwater Advanced Solutions Hub for Value Maximization Throughout Asset Lifecycle.....	3840
<i>Sam Ryu, Carmela Chaney, Wei Xu, Amanda Hill, Yifei Zeng, Amitava Guha, Wei Sun, Luis Garza-Rios, Michael Firmian, Xiaojun Huang, Benjamin Smith, Steven Ford</i>	
Embedding Physics and Data Driven Models for Smart Production Optimization. Field Examples .....	3854
<i>Carlos Mata, Dorzhi Badmaev, Luigi Saputelli, Richard Mohan, Erismar Rubio, Maha Al Shehhi, Rail Salimov, Mamar Eldjabri</i>	
An Algorithm for Calculating Incremental Production in an Integrated Asset Model .....	3875
<i>Peter Richard Paul Cunningham, Su Huan Yapp, Hendrik Kornelis Willem Leegte, Daryan Salah Taher</i>	

### **FIELD DEVELOPMENT: MAXIMISE FIELD DEVELOPMENT VALUE WITH MACHINE LEARNING I**

Integration of Deep-Learning-Based Flash Calculation Model to Reservoir Simulator.....	3887
<i>Kassem Ghorayeb, Kristian Mogensen, Nour El Droubi, Chakib Kada Kloucha, Samat Ramatullayev, Hussein Mustapha</i>	
Novel Machine Learning and Data Analytics Approach for History Matching Giant Mature Multilayered Oil Field.....	3903
<i>Edy Suwito, Julfree Anto Dongan Sianturi, Andi Irawan, Pahala Richard Panjaitan, Yawar Saeed, Agus Dwi Priyanto, Mohamed Ahmed Elfeel</i>	
Reservoir Connectivity and Compartmentalization Inference Using Drainage Volume and Dynamic Data .....	3926
<i>Alanood I. Alrassan, Ali A. Alturki, Tareq M. Alzahrani, Michael J. King</i>	
Use of Machine Learning Approach on the Results of a 3D Grid Model to Identify Impacting Uncertainties and Derive Low/High Production Profiles, FRF Team.....	3939
<i>Bruno Van-Dunem Martins, Alexandre Lesage, Baptiste Rondeleux, Nicolas Thomazo, Philippe Barrault</i>	

## **FIELD DEVELOPMENT: MAXIMISE FIELD DEVELOPMENT VALUE WITH MACHINE LEARNING II**

- Machine Learning-Based Horizontal Well Placement Optimization Leveraging Geological and Engineering Attributes..... 3949  
*Amir Salehi, Hamed Darabi, Amir Kianinejad*
- An Effective Method of Estimating Nuclear Magnetic Resonance Based Porosity Using Deep Learning Approach..... 3964  
*Zeeshan Tariq, Manojkumar Gudala, Zhen Xu, Bicheng Yan, Shuyu Sun, Mohamed Mahmoud*
- Data-Driven Prediction Method of Water Cut Based on Random Forest Regression Model..... 3977  
*Yihang Chen, Yimeng Zhu, Yong Li, Dandan Hu, Shuzhe Shi, Yajing Chen, Qian Yao Li, Fei Gu*
- Achieving Productivity and Operational Efficiency, and High-Quality Data Through Automation in Well Log Data Quality Control and Acceptance Process Using AI/ML Techniques..... 3989  
*Bibi Hussain Akbar, Brahmantiyo Aji Sumarto, Bogi Haryo Nugroho, Mohammad Joenaedy Arief, Huda Jassim Al-Arabi, Pajar Rachman Achmad, Zainal Hakim*

## **FIELD DEVELOPMENT: NEW TECHNOLOGIES TO ENHANCE MARGINAL FIELDS PRODUCTIVITY**

- Enhanced Approach for Asphaltene Risks Study to Unlock Hundred Millions Barrels Stranded Oil ..... 3999  
*Salim Kaouche, Pawan Agrawal, Osama Keshtta, Yann Bigno, Mohamed Elhassan, Shaikh Rakkad Al Ameri, Abdullah Al Ghailani, Mohamed Saidoun*
- Acid Stimulation in EOR – A Novel Operating Philosophy: Case Study from Mukhaizna Oman ..... 4011  
*Talal Al-Aulaqi, Sultan Al Battashi, Hussain Al Bulushi, Hashim Al Hashmi, Sultan Al Amri, Ali Al Habsi, Salim Al Hakmani, Al Husain Al Qabtan, Ahmed Al Rashdi, Mohamed Al Manhali, Jamal Al Wardi, Bader Al Mufarraji, Omar Al Mamari*
- Natural Fractures Help Unlocking Tight Carbonates: Re-Developing the Natih B Reservoir in a Giant Field in the Sultanate of Oman ..... 4022  
*Loic Bazalgette, Nawal Aamri, Chris Field, Robert Bos, Sabah Tooqi, Lingli Wei, Kholood Nofli, Khoula Manji, Wafa Hadhrami, Wafa Shizawi, Adil Hasni, Salim Shuaili, Khalid Shuaili, Sharif Al Bahri, Yousuf Al Jabri*
- Which is the Most Attractive IOR Method to Produce the Venezuelan Highly Viscous Oil Resources in the Energy Transition Era? A Comprehensive Review of Research and Field Applications..... 4033  
*Fernancelys Rodriguez, Eric Delamaide, David Rousseau, Samir Bekri*

## **FIELD DEVELOPMENT: OIL DEVELOPMENT PLAN OPTIMISATION AND PROJECT ECONOMICS**

- Capital Efficiency Improvement of an Infill Water-flood Project of a Clastic Reservoir Field in South of Oman..... 4055  
*Zainab Al-Rawahi, Waleed Al Hadhrami, Azza Hussaini, Sanjoy Sengupta, Raied Dabbagh, Sami Nofli, Balqees Kharusi, Abdulrahman Hadhrami, El Hafed Habhouba, Ashwaq Al-Rawahi, Conny Velazco Quesada, Benioe Parappallil Mathew, Temitayo Oreagba, Mohammed Al-Ghannami, Saif Al-Harthy, Jasper Van Berkel, Majid Al-Mahrooqi, Suleiman Al-Hinai*

## VOLUME 6

- Field Study Application of Ensemble Based Assisted History Matching and Optimization for Reservoir Management..... 4069  
*Fahim Forouzanfar, Santosh Verma*
- Rethinking the Flow Management Strategy: Introducing Advanced Lower Completion as a Sustainable Technology in Brownfield Asset..... 4079  
*Maryvi Martinez Santiago, Jhon Ortiz, Bhanu Bethapudi, Gulraiz Mirza, Firdaus Noordin, Dicky Trisnadi, Tawheed Mohammed, Mazna Al Obeidi, Abdulrahman Soufi, Cesar Leal*

### **FIELD DEVELOPMENT: OPTIMISED WORKFLOWS FOR RESERVOIR MODELLING AND SIMULATION I**

- Assessing 3D Bedding Plane Effects on Well Performance in a Field-Scale Unconventional Reservoir Model Using EDFM..... 4090  
*Joseph Alexander Leines-Artieda, Mauricio Xavier Fiallos-Torres, Franklin Useche, Rahul-Mark Fonseca, Salah El Din Mahmoud, Maryam Alqaydi, Amena Alharthi, Abdulla Al Hashmi, Travis Ramsay, Aamer Al Bannay, Xueling Song, Wei Yu, Jijun Miao*
- Accelerated FDP Reservoir Studies in Challenging Brownfields Utilizing Digital Cloud Technologies ..... 4106  
*Anas Bin Abdullah, Yong Han Seah, Stefanie Mei Mei Chuah, M Saiful Nizam Bin A Wahi*
- Use of Numerical Simulation Enhanced by Machine Learning Techniques to Optimize Chemical EOR Application ..... 4130  
*Guillaume Suzanne, Amir Soltani, Sebastien Charonnat, Eric Delamaide*
- Key Learnings from Application of Ensemble-Based Modelling on Three Giant Carbonate Oilfields for Optimal Economic Decisions Under Static and Dynamic Uncertainties ..... 4149  
*Salahaldeen Alqallabi, Mohamed Tarik Gacem, Faisal Al-Jenaibi, Sofiane Tahir, Saeeda Mohamed Al Ameri, Djamel Eddine Ouzzane, Mustapha Adli, Lyes Malla, Victor Omar Segura Cornejo, Ayesha Almarzooqi, Rinat Sunagatullin, Sri Rejeki Hidayati, Deepak Kumar Voleti, Fatima Al Messabi, Hiroki Montani, Toshiaki Shibasaki, Kengo Tani, Farzeen Mohamed, Rubakumar Sankararaj, Sylvain Ducroux, Konrad Wojnar, Laurent Gourc*

### **FIELD DEVELOPMENT: VALUE ADDED PRACTICES FROM ADVANCED RESERVOIR MODELLING**

- An Integrated Solution for Reservoir Model Initialization with Areal and Vertical Composition Variation in the Presence of Tilted Contacts ..... 4167  
*Kassem Ghorayeb, Sofiane Tahir, Shi Su, Nour El-Droubi, Georges Assaf, Samat Ramatullayev, Chakib Kada Kloucha, Hussein Mustapha*
- Addressing the Challenges of Simulating EOR and CO2 Storage Projects at Reservoir Scale: Accurate Estimation of Trapped Gas Saturation ..... 4181  
*Shokoufeh Aghabozorgi, Mehran Sohrabi*
- An Ensemble-Based Infill Well Location Solution: A Cloud Native Application for Automating Well Placement and Evaluation..... 4200  
*Wanida Pongtepupathum, Philipp Lang, Tobi Adeyemi*

The Accurate and Efficient Simulation of a Fractured Tight Gas Condensate Reservoir Using Embedded Discrete Fracture Model .....	4211
<i>Chengwu Yuan, Wei Yu, Soheil Ghanbarzadeh, Chuxi Liu, Jijun Miao</i>	

### **GEOASCIENCE: ADVANCES IN REGIONAL GEOLOGY I**

Paleo Structure Reconstruction to Reveal the Phenomenon of Paleo Hydrocarbon Contact- A Case Study on a Three Major Fields Onshore Abu Dhabi .....	4228
<i>Abusaa Khalifa Elila, Andi Ahmad Salahuddin, Oluwaseun Fadipe, Syofvas Syofyan, Saif Ghanim Al-Shamsi, Shaikha Obaid Al-Naqbi</i>	

Development Mechanism of Ultra-Low Permeability Limestone Reservoirs: A Case Study of the Cretaceous S-Reservoir in H Oilfield, Iraq.....	4241
<i>Chaozhong Ning, Xili Deng, Xuan Liao, Youjing Wang, Guangya Zhu, Haiying Han, Jing Yang, Jiaheng Chen, Nai Wang, Nan Li, Yukun Lan, Changqian Zhu, Shudai Peng, Lei Shao</i>	

Reservoir Characteristics and Integrated Method to Illustrate Mishrif Stratigraphic Prospect in Western UAE .....	4251
<i>Dengyi Xiao, Guangcheng Hu, Qunli Qi, Min Zhao, Hanzhou Fan, Li Wang, Xin Chen, Wenyuan Tian, Maryam Al Shehhi, Ashis Shashanka, Shuangting Cheng, Junhui Hu</i>	

Understanding Reservoir Heterogeneities in a Lower Cretaceous Thamama Reservoir .....	4262
<i>Anthony J.-B. Tendil, Stuart J. Hatter, Laura Galluccio, Catherine Breislin, Saif Ghanim Al-Shamsi, Syofvas Syofyan, Asma Hassan Ali Bal Baheeth, Fitra Adlan, Ishan Raina, Bashar Mansour</i>	

### **GEOASCIENCE: ADVANCES IN REGIONAL GEOLOGY II**

Abu Dhabi Fold-Thrust Belt Dilemma of Jebel Jais Outcrops: Impact on Hydrocarbon Trapping Mechanism in Eastern Abu Dhabi.....	4278
<i>Abdelwahab Noufal, Muhammad Aamir, Khalid Obaid, Ibrahim Al Ali, Ismail Al Hosani</i>	

Carbonate Sedimentary Facies Characteristics and Model of the Lower Cretaceous Thamama Group in the United Arab Emirates .....	4302
<i>Anxiong Deng, Anurag Grover, Xiaoli Gao, Abrar Al Mesmari, Ailing Wang, Jahan Zeb Ahmed, Lu Lv, Saif Ghanim Al Shamsi, Wenhao Zhao</i>	

Capturing Reservoir Quality Heterogeneities at the Stage of Sedimentological Coding: An Innovative Depositional Environment Scheme .....	4311
<i>Laura Galluccio, Catherine Breislin, Anthony J.-B. Tendil</i>	

Sedimentary Characters and Flow Transitions of Reworked Carbonates: A Case Study of Cenomanian-Turonian Reworked Sediments in the Eastern Abu Dhabi, UAE.....	4322
<i>Takahiro Shimomura, Motoyoshi Yamanaka</i>	

### **GEOASCIENCE: ADVANCES IN SEISMIC ACQUISITION AND PROCESSING**

An Unprecedented Uplift in Seismic Imaging from an Ultra-Shallow Water Field, Offshore Abu Dhabi .....	4336
<i>Afra Naser Almheiri, Subhrankar Paul, Shady Hassan, Carlos Barajas, Behdad Safaei, Mohamed Mahgoub, Guillaume Marie Cambois</i>	



FWI Using Reflections in Shallow Waters Offshore Abu Dhabi .....	4343
<i>Olivier Hermant, Oleg Khakimov, Carlos Barajas, Bastian Hutahayan, Mohamed Mahgoub, Guillaume Cambois</i>	
Unlocking UAE's Largest 3D Onshore Seismic Survey – Processing Challenges in Eastern Abu Dhabi .....	4357
<i>Stefano Trezzi, Abdulla Seliem, Mohamed Mahgoub, Guillaume Cambois, Anna Glushchenko, Pavel Vasilyev, Abdulla Saad Al Kobaisi</i>	
Full Azimuth Multi-Rays Pre-Stack Depth Migration in the B Block .....	4364
<i>Jiangtao Liu, Ming Yu, Yan Yu, Qunli Qi, Yu Ji, Min Zhao, Yingpeng Chen, Shuangting Chen, Chen Yang, Junxiao Sun, Mingqiu Zhao, Xin Hu, Junqi Gao</i>	

### **GEOSCIENCE: ADVANCES IN SEISMIC RESERVOIR CHARACTERISATION (INVERSION, 4D)**

Time-Lapse Walkaway VSP Analysis Using Advanced 4D Attributes to Monitor CO2 WAG EOR Pilot in a Carbonate Field Onshore Abu Dhabi .....	4377
<i>Moza Mohamed, Mary Humphries, Muhammad Waqas, Jahan Ahmed, Frank Ofowena, Aysha Alhamed, James Bailey</i>	
Seismic Motion Inversion Based on Geological Conditioning and Its Application in Thin Reservoir Prediction, Middle East .....	4392
<i>Chen Xin, Zhao Min, Cui Jingbin, Qi Qunli, Yu Haisheng, Li Xiaoliang, Xiao Dengyi, Chen Shuangting, Zhao Mingqiu, Wang Bo, Gao Junqi, Li Qiang, Peng Bo, An Fuli, Gao Xiaoli</i>	
Subtle Fault Prediction Technique Based on the Integration of Deep Learning and Seismic Spectral Decomposition.....	4399
<i>Li Qiang, Chen Xin, Xiao Dengyi, Zhao Min, Qi Qunli, Yang Jianfang, Li Xiaoliang, Peng Bo, An Fuli, Wang Bo, Gao Xiaoli, Yang Chen</i>	
Advanced 3D Seismic Studies Delineate Paleo Geomorphology and Facies Distribution at the End of the Thamama Depositional History, Dubai Offshore.....	4407
<i>Adnan Muhammad, Xavier Goddyn, Luis Moreira, Melroy Anthony D'Cruz, Juan Pablo Freile, Nagendra Mehrotra, Simon Payne Storey, Christopher Han</i>	

### **GEOSCIENCE: CASE STUDIES: EXAMPLE OF NEW TECHNOLOGY IN GEOSCIENCE**

Interpreting Subtle Faults and Multiple Horizons Layers Using Machine Learning and Data Driven Approach .....	4431
<i>Bilal Saeed Syed, Jagannath Mukherjee, Tadeo Ditia, Abdulla Seliem, Abdulla Saad Al Kobaisi, Ben Andrews, Alejandro Jaramillo, Phil Norlund</i>	
Application of an Integrated Geochemical Approach to Assess Hydrocarbon Presence and its Composition Below the Hitherto Free Water Level. A Case Study from Flank Appraisal Wells of a Producing Field in the Onshore UAE.....	4445
<i>Syofvas Syofyan, Syed Asif Ahsan, Tamer Koksalan, Asma Hassan Ali Bal Baheeth, Saif Ghanim Al-Shamsi, Ashraf Lotfy El Gazar, Ahmed Adnan Ali Alkhawaja, Wei Chenji</i>	
Tar Modelling Offshore Abu Dhabi with the Arab Formation as Active Source Rock.....	4462
<i>Jorg O. W. Grimmer, Antonio Alaminos, Mohamed Al Jawhari, Hani Buhindi, Haifa Al Harbi, Laura Cajas, Edmundo Peralta</i>	
Automated Well Location Optimization Using Wish Technology.....	4473
<i>Masoud Motlagh, Arthur Thenon, Ahmed Ismail, Nicolas Eberle, Pierre Bergey</i>	

## **GEOSCIENCE: EMERGING LOGGING TECHNOLOGIES AND INTERPRETATION METHODS**

- New Scheme for Sonic Verticalization in a Highly Deviated Well, in a Complex Carbonate Field, Onshore Abu Dhabi, UAE..... 4484  
*Xiaoli Gao, Anurag Grover, Ailing Wang, Jahan Zeb Ahmed, Wenhao Zhao, Abrar Al Mesmari, Lu Lv, Anxiong Deng*
- Reservoir Characterization, Bridging the Scale from Micro to Macro..... 4493  
*Yasmina Bouzida, Eduardo Adrian Cazeneuve, Angelos Mavromatidis, Khalfan Al Ali, Thomas Leythaeuser*
- Elimination of Pilot Hole and Successful Landing in Sweet Zone Using Ultra-Deep Resistivity Mapping in a Mature Field of Kuwait: Case Study ..... 4504  
*Nitin Rane, Ebraheem Al-Duraia, Khalid Bojarahs, Anandan Mudavakkat, Reham Abbas H Dashti, Jassim Mohammad Hassan, Ali D Al- Khaldy, Abdulaziz Hassan, Khalid Ali Al-Hindi, Tarek Fathy Al-Attar, Nasser F. Alhajri, Nadir Farhi, Alexander Kharitonov, Mohamed Samie, Benjamin Clarion, Anar Abdulkarim*
- Novel Approach for Porosity Quantification in Carbonates Using Borehole Images ..... 4520  
*Abdelwahab Noufal, Mounir Belouahchia, Mohamed Amri, Nidhal Belayouni, Alexander Petrov*

## **GEOSCIENCE: GEOSTATIC AND GEOLOGICAL MODELLING**

- First 3D Reservoir Model of a Giant Brown-Field (Around 1000 Wells) Built with Zero Pseudo-Wells..... 4530  
*Setiyo Pamungkas, Sanat Aidarbayev, Fatema Yousef Ali Al-Hammadi*
- State-Of-The-Art of Carbonate Pore Type and Permeability Modelling: An Approach of Petro-Acoustic Modelling by Using Lucia Rock Fabric Number (RFN) in Central Luconia, Offshore Sarawak ..... 4538  
*Kuok Hsu Ling, Hapiz Zulkipli*
- Rock Types Modelling Impact on Field Development and Volumes; A Case Study from Lower Shuaiba Carbonate Reservoir in Field WU ..... 4556  
*Bashara Mahrouqi, Ahmed Al Salehi, Al Khansa Aadi, Pierre Olivier, Liali Qasmi, Sakharin Suwannathatsa, Khalfan Mahrazy*
- Well Exposed Geological Outcrops Enhancing Reservoir Static Modeling..... 4567  
*Prashveen Prasad, Saad Balhasan, Gbubemi Harrison, Belkasim Khameiss*

## **GEOSCIENCE: MACHINE LEARNING IN GEOSCIENCE I**

- A Machine Learning Approach to Predict the Permeability from NMR T2 Relaxation Time Distribution for Various Reservoir Rock Types ..... 4579  
*Emad Mohamed, Mahmoud Elsayed, Amjed Hassan, Mohamed Mahmoud, Ammar El-Husseiny*
- Machine-Learning-Assisted Well-Log Data Quality Control and Preprocessing Lab ..... 4599  
*Nader Gerges, Gennady Makarychev, Luisa Ana Barillas, Alaa Maarouf, Midhun Madhavan, Sonal Gore, Lulwa Almarzooqi, Sylvain Wlodarczyk, Chakib Kada Kloucha, Hussein Mustapha*

Using Machine Learning to Capture High-Permeability Streaks in Reservoir Models ..... 4621  
*Manish Kumar Singh, Humberto Parra, Obeida El Jundi, Houcine Ben Jeddou, Chakib Kada Kloucha, Hussein Mustapha*

Doing More with Less: Application of Machine Learning Regularization for Well Log Predictions and Model Building in Sparse Data Environment ..... 4632  
*Hifzhul Arif Ahmad Munif, M Izzuljad Ahmad Fuad, Abd Rahman Ahmad Sharif, Makky Sandra Jaya, Wong Chan, Santosh Mishra*

## **GEOSCIENCE: MACHINE LEARNING IN GEOSCIENCE II**

Deep Learning Based Seismic Elastic Properties Inversion Guided by Rock Physics ..... 4639  
*M Izzuljad Ahmad Fuad, Makky Sandra Jaya, Sharif Abdrahman, Chean Lin Lew, May Law*

Machine Learning Look-Ahead Application for Geosteering with Uncertainty Estimation ..... 4649  
*Fabio Marco Miotti, Jaijith Sreekantan, Kara Meunier*

Reservoir Property Distribution Constrained with 3D Seismic Data in a Tight Carbonate Reservoir: A Machine Learning Based Approach ..... 4674  
*Mina Sameh Salib, Naema Obaid Alzaabi, Jahan Zeb Ahmed, Mohamed Tarik Gacem, Atiqurrahman Bin Abd Rashid, Warda Salem Albreiki, Ali Hasan Ba Hussain, Abdulrahman Mabrook Alkarbi, Hajir Mohamed Al Qawadi*

Uncertainty Analysis for Seismic Salt Interpretation by Convolutional Neural Networks ..... 4685  
*Fan Jiang, Konstantin Osypov, Julianna Toms*

## **GEOSCIENCE: MAKING BETTER DECISIONS: ROLE OF GEOSCIENCE IN UNCERTAINTY ASSESSMENT**

Multi-Field Integrated Rock Type Framework Optimisation in Thrusted Carbonates of The Thamama Group to Reduce Modelling Uncertainty and Improve Reservoir Characterisation ..... 4694  
*Matthew James Robert, Harshil Saradva, Shams Obaid, Siddharth Jain, Bhawesh Chandra Jha, Tim Salter*

Data Integration of Reservoir Architecture & Petrophysical Properties from Extra-Deep Azimuthal Resistivity Inversions to Optimize Lower Completions Designs ..... 4715  
*Bandar Mutairi, Yanhui Wang, Mohammed Alahmadi, Enrico Ferreira, Asim Mumtaz*

Case Study of Secondary Pore System and Bimodal Reservoir Rocks of Permian-Triassic Khuff Gas Reservoirs in an Offshore Field, Abu Dhabi ..... 4732  
*Jialiang Hu, Pradeep E. Menon, Amna Al Yaqoubi, Mohamed S. Al-Shehhi, Mahmoud A. Basoni, Osemoahu Omobude, Ali M. Alsumaiti, Hesham T. Shebl, Mahmoud Ibrahim*

Spending Less and Getting More: Impact of 3D Seismic Processing and Inversion in an HPHT Carbonate Field Development With Only Single Well & Legacy 3D Seismic ..... 4748  
*Chee Leong Lai, Matthew Choo, Fariz Fahmi*

## **GEOSCIENCE: NEW EXPLORATION PLAYS**

Regional Assessment of the Upper Jurassic Hanifa and Tuwaiq Mountain Formations, Abu Dhabi: Implications for Prospectivity ..... 4757  
*John F. Aitken, Amogh Chitrao, Anni Xie, Oluwaseun Fadipe, Jawaher Al Shamsi, Aurifullah Vantala, Kate Al Tameemi*

New Exploration Plays in Sohar Basin UAE .....	4776
<i>Glen Williams, Callum Thurley, Edward Cox, Donald Neil Stewart, Mark Sarssam, Masoud Al Hamadi</i>	
Exploration History and the Application of New Technologies Contributes to the Discovery of New Reserves in a Marginal Field in a Mature Basin, Abu Dhabi.....	4797
<i>Motoyoshi Yamanaka, Jawaher Al Shamsi, John Aitken</i>	
Characterization of Late Aptian Upper Shuaiba Sequences in Western Abu Dhabi Based on Newly Acquired 3D Seismic Data .....	4808
<i>Arnab Nag, Barnali Tokhi</i>	

**GEOSCIENCE: OPEN AND CASED LOGGING TECHNOLOGIES AND INTERPRETATION METHODS I**

CO2 Plume Detection Using Ras, Temperature and Noise Tools in A CO2 WAG Reservoir .....	4826
<i>Arit Igogo, Astia Hutajulu, Yassin Farouk Mohamed Sallam, Sara Hasrat Khan, Yatindra Bhushan, Mona Yousif Al Ali, Reem Ali Mabkhout Alseiari, Mohamed Abdulhameed Aidroos Alwahedi, Shareefa Ahmed Al Hammadi, Aamna Al Teneji</i>	
Delineation of Multi-Phase Wellbore and Formation Fluid Distribution in Abu Dhabi's Onshore Horizontal Wells.....	4847
<i>Yonghwee Kim, Ahmed Saber Abdel Aziz</i>	
Application of Logging While Drilling - Nuclear Magnetic Resonance in Reservoir Evaluation and Geosteering: A Case Study in Marrat Reservoir, Umm Roos Field, West Kuwait .....	4861
<i>Kim Long Nguyen, Mahmoud Fawzy Fahmy, Bekdaulet Dzhaykiev, Paul Osadebamwen Odiase, Rasha Al-Morakhi, Mohammed Mubarak Al-Ajmi, Naveen Kumar Verma, Riyad Quttainah</i>	

**GEOSCIENCE: OPEN AND CASED LOGGING TECHNOLOGIES AND INTERPRETATION METHODS II**

Predictive Analytical Solution to Permeability in Horizontal Wells from Multi Probe Production Logging and Flowing Gauge Data.....	4880
<i>Rathnakar Reddy Peesu, Deepak Kumar Voleti, Nnamdi Dike, Sara Al Ameri</i>	

**VOLUME 7**

Enabling Synthetic PLT Through Integration of Brittleness Indicator and Porosity-Independent Permeability to Improve Understanding of Expected Flow Profile in an Unconventional Reservoir: Case Study from Kuwait .....	4901
<i>Anar Abdulkarim, Sabry Abd El-Aziz</i>	
High Resolution Acoustic Analysis for Improved Formation Evaluation of Carbonate and Clastic Reservoirs.....	4911
<i>Said Mahiout, Vladislav Torlov, Mohamed Gouda, Ahmed Abouzaid</i>	

## **GEOSCIENCE: R&D: GEOSCIENCE TECHNOLOGY DEVELOPMENT AND DEPLOYMENT**

- Determination of Caprock Porosity and Permeability Using Drill Cuttings and Core Samples of a Potential CO<sub>2</sub> Storage Site – A Case Study ..... 4921  
*Wan Muhammad Luqman Bin Sazali, Andreas Busch*
- Delineating Karsts, Small-Scale Faults, and Fractures by Using a Global Stratigraphic Framework to Integrate Conventional Seismic Attributes with Diffraction Imaging in a Giant Offshore Field, Abu Dhabi. .... 4930  
*Yassar Goraya, Ali Al Felasi, Nicolas Daynac, Stuart Walley, Marc-Antoine Dupont, Hiroyuki Inoue, Ahmed Mubarak Al Khamiri, Alia Hasan Hindi*
- A New Generation, Multi-Sensor MLWD Device for Optimized Drilling Performance and Reservoir Insight: A Case Study, Offshore Abu Dhabi..... 4942  
*Wael Fares, Nashat Abbas, Jamal Al Nokhatha, Tim Parker, Ahmed Montasser, Muhammad Mubeen*
- Determination of Hydrocarbon Compounds in Rocks by Ultrasonic Extraction Gas Chromatography-Mass Spectrometry ..... 4953  
*Junchi Bao, Wei Jin, Yusheng Wang, Ge Jiang, Yan Yan*

## **GEOSCIENCE: STATE OF ART IN RESERVOIR CHARACTERISATION (SCAL, RRT, CORE INTEGRATION, PNM, DIGITAL ROCK PHYSICS)**

- Longest Extended Reach Drilling Well Drilled in Middle East Geosteered Within 5 Ft Stratigraphic Thickness Target Zone ..... 4961  
*Nashat Abbas, Jamal Al Nokhatha, Syed Haider, Khaled Radwan, Mustafa Al Hashmi, Khaloud Al Nayadi, Nouf Alqaydi, Wael Fares, Ahmet Aki, Eslam M. K. Abdou*
- Integration of Static and Dynamic Data in Sequence Analysis and Its Application in Oilfield B, Middle East..... 4974  
*Fuli An, Xin Chen, Dengyi Xiao, Xiaoliang Li, Cong Ma, Bo Peng, Bo Zhao, Qunli Qi, Bo Wang, Qiang Li, Caiqin Liu, Xiaoli Gao*
- A Carbonate Case Study Investigation Using a Petrophysical Rock Type Workflow Using Deterministic to Machine Learning and Introducing Multi-Well Capillary Saturation Height Modeling. .... 4984  
*Gunter W. Gary, Sahar Y. Mohamed, Allen F. David, Viro J. Eduardo, Watfa Mohamed, Negabahn Shahin*
- Elastic Full Wavefield Inversion: The Benefits and the Challenges in Clastic and Subsalt Setting..... 5005  
*Anatoly Baumstein, Partha Routh, Kyle Basler-Reeder, Young Ho Cha, David Tang, Jay Barr, Alex Martinez*

## **GEOSCIENCE: STRUCTURAL GEOLOGY, ROCK PHYSICS, AND GEOMECHANICS**

- Geomechanical Modelling to Identify Sub-Seismic Faults and Fractures Characteristics Using Elastic Dislocation (ED) Theory: A Case Study from Potwar Foldbelt, Upper Indus Basin (UIB) of Pakistan ..... 5014  
*Imran Khan, Shakeel Ahmad, Rana Faisal Shahzad, Muhammad Akram Qureshi, Zahoor Khan, Shabeer Ahmad, Uzair Hamid Awan*

Overburden Drilling Challenges & Their Possible Mitigations Using Integrated Seismic Structure Characterization in a Giant Carbonate Field in Middle East .....	5027
<i>Jamal Ahmad, Naeema Ahmed Mohamed, Sarra Husain Alhammadi, Khulood Ahmed Almazrouei</i>	
The Critical Roles of Geomechanical Modeling During Exploration Phase .....	5039
<i>Osman Hamid, Gbenga Oluyemi, Reza Sanaee</i>	
Internal Deformation of Layered Evaporites, Gotnia Formation, North Kuwait: Insights from Seismic Characterization and Sandbox Experiments .....	5055
<i>Thibaud Pichot, Stefan Doublet, Narhari Rao, Allan Odreman, Vijaya Kidambi, Hamad Al Rashedi, Talal Al Mutairi, Parshant Bansal, Munir Ahmad, Sylvie Schueller, Jean-Marie Mengus, Pascal Richard</i>	

### **HEALTH AND SAFETY: ENVIRONMENTAL STEWARDSHIP AND SUSTAINABILITY**

SPECTRA: A Portal to Combine and Harness the Best Satellite Methane Emissions Data Available to Guide Operators on Their Decarbonization Journey .....	5066
<i>Jean-Francois Gauthier</i>	
Reverse Osmosis Technology to Improve Hse Sustainability in Artificial Islands .....	5074
<i>Suhail Kunnath Valappil, Nitheesh Kumar Unnikrishnan, Sultan Al Yamani, Saleh Al Ameri, Mouza Al Nuaimi</i>	
An Innovative and Well-Demonstrated Approach Toward Achieving Zero-Flaring .....	5087
<i>Khalid Hamdan Al Hatmi, Asa'D Nasser Al Mashrafi, Mohammed Salim Shaikh</i>	

### **HEALTH AND SAFETY: HSE FOCUS ON HUMAN FACTORS AND WELLBEING**

A Novel Approach to Prevent Process Safety Incidents by Integrating & Strengthening Process Safety Barriers & Operational Excellence Frameworks in Upstream & Downstream Segments of Oil & Gas Operations .....	5100
<i>Muhammad Tayab, Zubair Awan, Vishal Shah, Abdulla Saif, Fatima Al Hameli</i>	
My HSSE&AI - A Novel Approach in Combining Safety Leader Program with Machine Learning Capability .....	5108
<i>Widi Hernowo, Rosif Ridho, Sunarto Sunarto</i>	
Shifting Paradigm of Mental Hygiene; A Novel Approach to Mitigate Workers' Distress in Oil and Gas Industry .....	5122
<i>Adeela Khalid, Michael Felfernig, Ajaz Purra, Francis Eric Ramirez, Mariam Alshamsi, Zafar Dwedari</i>	
Improving Organizational Culture : High Reliability Organization .....	5133
<i>Ali Ahmed Abdulla Al Ali</i>	

### **HEALTH AND SAFETY: INNOVATION AND DIGITILISATION IN HSE**

Trust in AI for HSE .....	5139
<i>Saif Al Ghafri, Younis Hinai, Morgan Eldred, Jimmy Thatcher, Abhijith Suboyin, Ivan Gee, Monika Adriana, Hassaan Anjum</i>	

An Integrated Management of Change Program (MOC) for Oil and Gas Industry through Blockchain Technology and Smart Contracts. ....	5153
<i>Sandipan Laskar</i>	
Augmented Reality Delivers Differential Value in Safety Assurance on Rigs Onshore Abu Dhabi During Covid-19 Pandemic Courtesy of the Wearable Camera.....	5163
<i>Peter Levison Mwansa, Ahmad Othman Alshaigy, Dawoud Saleh Madani Almaeeni, Khalifa Ghulam Hussain Qasem, Luiz Rego, Premachandran Nair, Hussain Ahmed Saeed Baniyas</i>	
Process Override Switch: A New Digital Management Tool to Maximize Transparency and Help the Management of Change Process in a Giant Brownfield Oil Plant.....	5173
<i>Gianmarco Rossi, Luca Cadei, Michele Bitetti, Rocco Gerardi, Davide Vaccari, Martino Ghetti, Alessandro Vavalà, Cristina Bottani, Antonio Ricci, Vittoria La Placa</i>	

### **HEALTH AND SAFETY: SUCCESS FACTORS FOR PROCESS SAFETY MANAGEMENT**

API's Process Safety Site Assessment Program (PSSAP®): Programmatic Updates, Regional Assessments and New Programs Discussion.....	5185
<i>Colin M. Frazier, Alexa S. Burr, Ryan D. Meng</i>	
Advanced Leak Detection Applications for Pipeline Integrity Management Using Vibroacoustic Technology.....	5194
<i>Marco Marino, Silvio Del Giudice, Fabio Chiappa, Giuseppe Giunta</i>	
Changes in Blast Scenarios Due to Plant Expansions – Impact on Buildings .....	5206
<i>Kuriakose Mathew Molelputhenpura, Manur Ajith Shenoy, T S Subramanian, Ibrahim Al Awadhi</i>	
Application of Practical Problem-Solving Techniques to Reduce Wells Process Safety Incidents in Workover Operations .....	5220
<i>Faisal Saud Al Hinai, Ahmed Mahmood Al Lawati, Yahya Badar Al Amri</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 1**

Steamflooding Sandstones by Converting Horizontal Producers to Horizontal Injectors with Different Flux Rates .....	5230
<i>Rawa'A Mubarak Al Aamri, Hussain Ali Al Bulushi, Zainab Mohammed Al Ajmi, Yahya Mohammed Al Shukri, Ibrahim Khalfan Al Mazrooe, Hamid Sanjoor Bait Khalifa</i>	
Application of Autonomous Inflow Control Valve (AICV) in Reducing the Gas Production in Ultra-Light Oil Reservoir: Case Study .....	5241
<i>Djamal Kherroubi, Zaharia Cristea, Hocine Berrahmoun, Sameer Punnapala, Yunnus Berdiyev, Alexey Tveritnev, Shamma Saeed Alshehhi, Mahmoud Abd El-Fattah, Nicholas Hooper, Brent Brough</i>	
Total Business Transformation to Future Proof the Business, Build Change Agility, and Drive Sustainability and Cost Optimization .....	5253
<i>Vivek Seth, Deepak Goyal</i>	
Remote Monitoring of Equipment Performance Through a Customized Real-Time Performance Solution .....	5262
<i>Muhammad Uddin Kalhoro, Khaled Abdulla Al-Saedi, Hesham Khalid Al-Awadhi, Muhammed Nadeem</i>	

A Structured Approach to Rejuvenate Service Life of Marine Structures.....	5273
<i>Manur Ajith Shenoy, T S Subramanian, Ibrahim Al Awadhi</i>	
Unveiling the Value of Data - An End-to-End Data Analytics System at Scale for Logging Operations .....	5282
<i>Vladislav S Torlov, Majed F Kanfar, Sachit Saumya, Oscar Gill</i>	
The Method of Deep-Penetrating Acid Treatment in Radial Channels for Stimulation of Carbonate Reservoirs.....	5293
<i>Renat Latypov, Nikolay Divyanin, Sergey Kleymenov, Sergey Kozhin, Ilya Galas, Ayrat Bashirov, Vitaly Makarenko, Salavat Miftakhov, Dolman Lee, Danila Gulyaev, Anastasia Nikonorova, Andrei Naumov</i>	
Multilateral Technology in the Middle East: 25 Years of Evolution.....	5306
<i>Matthew Kelsey, Thomas Fanchin, Micah Janzen, Bandar Alharbi</i>	
Journey to Zero Lifting & Minimum Congestion for Rigless Activities in Block 61 bp Oman.....	5317
<i>Taimur Al Shidhani, Sultan Al Harrasi, Asma Al Darai, Ishaq Al Sulaimani, Marwa Al Juma, Mohamed Najwani, Khalid Al Fadhli, Sultan Al Abri</i>	
Re Configuring and Restaging Centrifugal Compressors for Depleting Reservoir Pressures .....	5325
<i>Roy Sahadevan</i>	
Applied Framework for Managing Sustainable Retrograde Gas Condensate Reservoirs.....	5336
<i>Rowa Tawfiq, Asma Alahmadi</i>	
Electrostatic Dust Removal for Solar Panels.....	5349
<i>Shamma Saleh Al Teneiji, Sherooq Saleh Al Teneiji</i>	
Saudi Aramco Awards Winning Project.....	5357
<i>Piero Abbate, Silvio Sparano</i>	
An Advanced Three Phases Allocation Approach in Multi-Stacked Reservoirs with High Complexity on Historical Data During Field Development Plan .....	5364
<i>Saeed Majidaie, Muhammad Hamzi B Yakup, Nurul Nadhira Bt Idris, Ahmad Khanifar, Noridah Kechut, Nourreddine Benayad</i>	
Machine-Learning-Based Automation of Formation Testing Data Interpretation and Analysis.....	5386
<i>Samat Ramatullayev, Hussein Mustapha</i>	
Integrated Model Framework in a Giant Gas Condensate Field for Well Performance Evaluation, Monitoring, Performance Tracking and Remedial Action .....	5398
<i>Ayesha Alsaeedi, Mohamed Mubarak Albadi, Fahad Alharthi, Manar Elabrashy, Mohamed Alzeyoudi, Ammar Al-Ameri, Eissa Al Mheiri, Ahmed Al Bairaq, Mubashir Ahmed, Shemaisa Alsenaidi, Abdelrahman Gadelhak, Ashraf Shaker, Mahmood Douglas, Maryam Al Hammadi, Sarath Konkati, Sandeep Soni, Vishal Verma, Apurv Raj</i>	
First CO <sub>2</sub> Energized-Fracturing Technology in Highly Depleted and Tight Reservoir Unlocks Vast Potential: Case Study from North Kuwait Field.....	5410
<i>Ali Abdullah, Mohammad Al-Othman, Abdullah Al-Enezi, Meshari Shtail, Mohammad Ateyah, Mohammad Al-Mousharji, Kutbuddin Bhatia, Alaa Alboueshi, Amr Abdelbaky, Walid Eid</i>	



Short and Long-Term Fracture Permeability Tests Under Stress on Pre-Salt Low Permeability Carbonates After Acid Treatment or with Proppants ..... 5419  
*Kun Su, Pierre Barlet, Jan V. M. Borgomano, Melissa Castets, Cedric Caillet, Ruhhiyyih Okullo, Cecilia Azevedo, Francisco Ferreira, Magali Beele, Dimas Coelho, Francileide Costa, Andrea Sá, Mateus Schwalbert, Carlos Abreu, Pedro Silvany*

Deep Reservoir Conformance Control for the Wara Formation of the Greater Burgan Field: Lab Evaluation, Numerical Simulation and Field Implementation Design ..... 5430  
*Mohammed Taha Al-Murayri, Laila Hayat, Abrar Al-Qattan, Anfal Al-Kharji, Jerome Bouillot, German Omonte, Nazanin Salehi, Alain Zaitoun*

Remote Operations of Oil & Gas Fields – A Key Enabler to Achieve Operational Excellence and Digital Transformation ..... 5443  
*Basma Ali Banihammad, Abdulla Rashed Al Zaabi, Nasser Hassan Alahbabi, Hamoud Al Kindi, Abdalla Qambar Al Ameeri, Usama Abdul Zahir, Sara Alhammadi*

## **KNOWLEDGE SHARING EPOSTER: STATION 2**

A New Fault Sealing Analysis Method Based on PSDM Seismic, Well Logging and Reservoir Performance and its Application in K Mature Oilfield..... 5454  
*Chen Xin, Li Jianlin, Zhao Min, Qi Qunli, Li Xiaoliang, Li Dongyang, Yu Wenwen, Yan Xiaohuan, Chai Junxian, Xiao Dengyi, Chen Shuangting, An Fuli, Yang Chen, Peng Bo, Wang Bo, Zhong Weixiang*

Commingled Production, a New Era in Mature Fields. Lessons Learned and Practices in ESP Lifted Wells Achieved 29 % Incremental Production During Initial Implementation in Shaya Project..... 5463  
*Jorge Luis Villalobos, Kevin Ismael Andagoya Carrillo, Maria Elena Quinzo, Andres Orozco, Luis Carlos Enriquez, Carlos Reyes, Patricio Gonzalez, Richard Torres*

Agile Field Development Study Leveraging Fast-Tracked Reservoir Modeling and Data Analytics While Incorporating Reservoir Uncertainties ..... 5478  
*Husain Ali Al Lawati, Salim Musalam Al Hashmi, Nabil Al Harthy, Ahmed Fadhl Mustafa Ahmed, Kathryn Joanna Clark Fletcher, Galvin Singh Shergill, Salman Zahid, Ammar Ahmad, Omair Hameed, Shawwal Shahid, Mundhir Al Bahrani, Zainab Al Kindi*

Working the Agile Way to Fast Track the Hydrocarbon Maturation Process ..... 5490  
*Jasbindra Singh, Renato Borbajo, Behrooz Bashokoo, Aisha Sariri, Said Riyami, Bahjat Haddad, Al Anood Al Breiki, Mohamed Radwan, Mohammed Rajhi, Al Zaina Sulaimani, Heiko Hillgartner, Mohammed Khusaibi, Issa Mahruqi, Nasser Azri*

Wells Operations Data Visualization Through GIS Mapping Software..... 5501  
*Saif Al Aufi, Asif Ismail, Maadh Al Mamari, Mahra Al Ruwaisi, Rafael Cruz, Ishaq Haddabi, Khamis Al Bulushi, Fahad Al Khatri, Hamed Al Manhi, Abdallah Al Kalbani, Saif Al Yaroubi, Jawad Hashmi, Abdullah Mashrafi*

Unleash the Potential of Upstream Data Using Search, AI and Computer Vision ..... 5511  
*Hasan Mahdi Asfoor, Dalal Abadi Alharbi*

Flowlines Identification Using Cathodic Protection for Repair Activities ..... 5526  
*Abirami Krishnan Gunasekaran, Vairamani Raju*

Navigating Through a Complex and Highly Fractured Carbonate Structure: A Case Study from an Onshore Abu Dhabi Field U.A.E..... 5535  
*Rajiv Mani Tripathi, Sajith Girinathan, Byungsoo Ji, Wamiq Nasr Siddiqui, Janine Maalouf, Sameh Yahyia Sulieman, Jaja Uruzula Abdulrahim, Sudipani Shasmal*

Predicting UCS with Neural Network and Benchmarking Actual ROP for Further Drilling Optimization.....	5553
<i>Alexey Alexeyenko</i>	
Online Robotic Inspection of Above Ground Storage Tanks without Outage.....	5562
<i>Ali Humaid Al Shamsi, Shan Mohan Castelino</i>	
An Enhanced Integrated Asset Model for Offshore Field Development Strategy.....	5570
<i>Eleonora Azzarone, Roberto Rossi, Giovanni Cirillo, Giacomo Micheletti</i>	
Impossible to Possible - Decommissioning the UAE's Oldest Oil Refinery with Zero Flaring .....	5585
<i>Mohamed Abbas Alkhoori, Salem Saleh Al Breiki, Manoj Pankajakshan Leelamma</i>	
AI Assisted Well Performance Prediction Based on Production Profiles Clustering .....	5596
<i>Dorzhi Badmaev, Carlos Mata, Fahed Braik, Luigi Alfonso Saputelli</i>	
Modeling a Successful Pilot Application of Novel Fine Stabilizer Technology to Predict Oil Well Productivity: A Benchmark for Field Replication.....	5610
<i>Luky Hendraningrat, Nora Aida Ramly, Latief Riyanto, Salina Baharuddin, Seyed Mousa Mousavimirkalaei</i>	
Organisational Management System in the Digital Transformation Era.....	5622
<i>Muzahidin Muhamed Salim, Ian Traboulay, Elfadl Ibrahim, Sara Al Wehaibi, Nasser Ballaith</i>	
Coupling of a Reservoir Simulator with Geochemistry for Chemical Enhanced Oil Recovery .....	5630
<i>Angelo Kennedy Lino Limaluka, Yogarajah Elakneswaran</i>	
A New Strategy to Minimize the Surfactant Adsorption on Saudi Carbonate .....	5645
<i>Shams Kalam, Sidqi A. Abu-Khamsin, Muhammad Shahzad Kamal, Shirish Patil, Syed Muhammad Shakil Hussain, Emad W. Al Shalabi, Anas Mohammed Hassan</i>	
Automated Fluid Rheology Measurement at the Drillsite .....	5655
<i>Nathan St. Michel, Jianhui James Xu, Jonathan Harrist, Guodong David Zhan, Abdulwahab Aljohar</i>	
Managing 4 (Four) Major Offshore Projects Amid COVID 19 Pandemic - A Case Study from Health & Safety (H&S) and Quarantine Management .....	5671
<i>Tommy Nugraha, Widi Hernowo, Mohammad Alfianto, Muhammad Djabbar Yulianto</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 3**

Developing a Fractured Reservoir Concept in an Unfractured Carbonate Reservoir, Offshore U.A.E.....	5682
<i>Christopher Sellar, Hassan Mostafa Mohamed, David Rafael Contreras Perez</i>	
From Lone Workers to Connected Workers – How Technology is Transforming Safety .....	5707
<i>Dr. Elie Daher</i>	
Industrial Internet of Things to Improve HSE Performance.....	5715
<i>Sean Stinson</i>	

### **VOLUME 8**

Waterflooding Communication Analysis at Well and Layer Levels Using Energy Balance and Capacitance Resistance Methods.....	5725
<i>Atul Kshirsagar, Huijuan Yu, Colin Bertrand Cranfield, Steve Green, Gui Feng</i>	

Un-Realize Application of LWD Multipole Sonic Tool for Evaluating Cement Quality: Optimizing the Well Operation in a Highly Deviated North Kuwait Deep Jurassic Well Case Study .....	5752
<i>Majdi Al-Mutawa, Ali Hussein Saffar, Mejbel Saad Al-Azmi, Fahad Barrak Al-Otaibi, Naser Bader Abdulmohsen, Mohsen Mohammed Ragaey, Joshi Girija Kumar, Abdulrahman Ahmad Alomar, Devendra Nath Tiwary, Ihsan Taufik Pasaribu, Khaled Al-Bannai, Djisan Kho</i>	
Soft Computing Approach for the Prediction of Surfactant Adsorption .....	5762
<i>Shams Kalam, Sidqi A. Abu-Khamsin, Muhammad Shahzad Kamal, Shirish Patil, Emad W. Al Shalabi</i>	
Real Time Data Analysis Unveils Potential Savings in Drilling Operations Through Invisible Lost Time Automated Tool .....	5771
<i>Fernando Landaeta Rivas, Michael Cotten, Paulinus Bimastianto, Shreepad Khambete, Ara Krikor, Suhail Al Ameri, Erwan Couzigou, Adel Al Marzouqi, Wiliem Pausin, Mohammad Al Shahtoor, Hassan El Masri, Umer Shabbir</i>	
Application of 4D Geomechanical Modelling for Fault Critical Re-Active Stress Evaluation in Underground Gas Storage .....	5793
<i>Dong Chen, Wei Zhou, Ji Luo, Zhaoting Huang, Hanbing Xu, Ying Fu, Ronghong Cheng, Liming Lian, Quan Jin, Xia Qiao, Mimi Wu, Xiao Yang, Xingning Huang</i>	
Integrated Production Optimization Leads Significant Gain from North Kuwait Jurassic Gas Challenging Deep Tight Carbonate Fields .....	5802
<i>Mohamed Abdel-Basset, Mohammad Al-Sharad, Danah Al-Muhanna, Hind Bin Mutlaq, Kholoud Al-Mefleh, Mansour Al-Awadhi, Yousef Al-Salali, Hanan Bushehrai, Khaled Nazar</i>	
Integrated Concept Analytics and Development Optimization Under Uncertainties .....	5817
<i>Yufen Shao, Jizhou Li, Ming-jung Seow, Yuzixuan Zhu, Yuanyuan Guo, Daman Pradhan, Deepak Malpani, Kevin Furman</i>	
Field Development Simulation of a Mature Field with High Sealine Pressure and Well Eruptivity Issues .....	5836
<i>Charles-Henri Koeck, Pawan Agrawal, Praffula Goyal, Abdelaziz Bensadok, Alexis Madoz</i>	
Reducing Composition Characterization Uncertainties Through Advanced Machine Learning (ML) Techniques - Data Clustering .....	5847
<i>Arwa Mawlod, Afzal Memon, Nikolaos Varotsis, Vassilis Gaganiis, Vicky Anastasiadou, John Nighswander, Muataz Salem Al Shuaibi</i>	
A Practical Capacitance–Resistance Model Approach to History Matching and Full Field Chemical EOR Forecasting .....	5859
<i>Hamza Salim Humaid Al-Rawahi, Dirk Jan Groenendijk, Johannes Maria Van Wunnik, Dawood Ahmed Al Mahruqi, Diederik Vanbatenburge, Volodimir Karpan, Mohammed Al-Abri</i>	
A Smarter Way to Drill: First Autonomous Directional Drilling Run in Kuwait Delivers 8.5" Landing Section in Record Time - Case Study from North Kuwait .....	5880
<i>Nadir Farhi, Mohamed Ahmed Abdel Samie, Moataz Mahmoud Eldemerdash, Thiago Queiroz De Medeiros, Alexander Kharitonov, Walid Saher Nouh, Sarah Alqattan, Mohammed Yuousef Boushahri, Alsubaie Tareq Ebrahim, Malek Baqer Hussain, Sajan John</i>	
An Intelligent Approach to Predict Minimum Miscibility Pressure of Injected CO <sub>2</sub> -Oil System in Miscible Gas Flooding .....	5897
<i>Ghulam Haider, Muhammad Arqam Khan, Faizan Ali, Ayesha Nadeem, Faiq Azhar Abbasi</i>	

Calibration of Numerical Reservoir Models Permeability Using Correlated Seismic Amplitude with Pressure Transient Data.....	5911
<i>Mohamed Shams, Ahmed El-Banbi, Islam Yehia, Laura Capra</i>	
Defining Success Criteria and Fit for Purpose Reservoir Monitoring Plan for a Hybrid CO2 EOR Pilot in a Giant Carbonate Field .....	5920
<i>Sheharyar Mansur, Muhammad Muneeb Virk, Ruslan Makhiyanov, Carolina Romero, Igor Potapieff, Khadija Ahmed Daghar, Haitham Ali Al Saadi, Amer Ashour Elbekshi</i>	
COVID19 Challenges and Opportunities in IT Audit .....	5934
<i>Sumaya Sulaiman Al Hosani, Dr. Eisa Ali Al Hammadi</i>	

#### **KNOWLEDGE SHARING EPOSTER: STATION 4**

Striving Toward Zero Harm: How the Roll-Out of a Digital Application Helped a Global Company Increase Employee Engagement and Improve EHS Performance.....	5942
<i>Shamrose Yaqoob, Salman Khan</i>	
Serious Injuries and Fatalities – A Study of Data and Prevention Strategies .....	5950
<i>David Bibby</i>	
Managing Accelerated Water Breakthrough in High Permeability Contrast Waterflood Reservoirs, and Achieving Production Conformance Through Injection Redistribution Strategy .....	5958
<i>Kausalyah Nalasavagan, Harun Bin Abdul Rahman, Mohd Fairuz Bin Azman, Rizal Bin Bakar</i>	
Two Decades of Mangala Field Journey - Key Highlights, Learnings and Recommendations .....	5976
<i>Dhruva Prasad, Aditya Kumar Singh, Sunit Shekhar, M Suresh Kumar, Amitabh Pandey</i>	
A New Workflow to Study the Impact of Artificial Maturations on the Petrophysical Properties of Unconventional Shale Rocks.....	5998
<i>Amjed M. Hassan, Mahmoud K. Elsayed, Ali A. Oshaish, Salah M. Al-Ofi, Ammar Ammar H. El-Husseiny, Israa S Abu-Mahfouz, Mohamed A. Mahmoud, Mohamed O. Abouelresh, Hussein M. Attia</i>	
Best Practices to Achieve Optimization for Large Scale Offshore Carbon Capture & Storage Facilities .....	6010
<i>Mohd Uzair Zakaria, Suhana Muhamad, Muhammad Aizuddin Zainalabidin, Aina Suharny A Rahman, Ashwin Kumar Narayanan, Wan Mahsuri Wan Hashim, Nik Fauziah Nik Omar</i>	
Automatic Drilling Operations Coding and Classification Utilizing Text Recognition Machine Learning Algorithms .....	6026
<i>Mustafa Mohamed Amer, Bader M Otaibi, Amr I Othman</i>	
Self-Supervised Learning for Automated Seismic Wavelet Extraction.....	6037
<i>Haibin Di, Aria Abubakar</i>	
Integrated Rig Management Platform .....	6049
<i>Flavio Ferrari, Davide Fenaroli, Jean Michelez, Jacopo Magni</i>	
Empowering the Workforce of the Future Through Strategic Data Science Framework to Demystify Digitalization in ADNOC Onshore to Create Sustainable Business Value .....	6070
<i>Nagaraju Reddicharla, Prabhaker Reddy Varnam, Premachandran Nair, Salwa Mohamed Al-Marzooqi, Mayada Ali Sultan Ali</i>	

The Professional Career Path; A Structured and Transparent Guide for Career Progression and Strengthening Professional In-House Capabilities .....	6080
<i>Sumaiya Mohamed Al Mandhari, Khalid Salim Al Ghammari</i>	
Machine Learning Vs. Statistical Models Approach: A Case for Probabilistic AFE Cost in Drilling .....	6095
<i>Muhammad Nasir Muhammad Yunus, Wan Mohd Syazwan Wan Ibrahim, Ahmad Afiq Mahadi, Muhammad Arief Fikry Zainalabidin, Muhammad Faizuan Aminuddin, Edo Pratama, Mohd Redzuan Abdul Rahman, Ikhwan Yusoff</i>	
Quantitative Prediction of Lost Circulation Risk Ahead of Bit Using Leaky Noisy-Or Gate Bayesian Networks and Seismic Attributes.....	6109
<i>Duo Yuan, Baoping Lu, Syed Tabish Haider</i>	
Automating Trajectory Design in a Cloud-Based Planning Solution .....	6119
<i>Hendrik Gunawan Suryadi, Haifeng Li, Lu Jiang, Qing Liu</i>	
Development of a Machine Learning Technique in Conjunction with Reservoir Complexity Index to Predict Recovery Factor Using Data from 18,000 Reservoirs.....	6131
<i>Mehran Pooladi-Darvish, S. Hamed Tabatabaie, Camilo Rodriguez Cadena</i>	
Drilling with Casing to Address Formation Troubles in Surface Hole.....	6139
<i>Alexey Alexeyenko, Kyungnam Han, Maxim Petrenko, Eduard Chutchev</i>	
Digitalization of Corrosion Management – Use Cases for Oil and Gas 4.0 .....	6150
<i>Prafull Sharma, Aliakbar Oskuie, Chiraz Ennaceur, Mehrdad Silatani</i>	

## **KNOWLEDGE SHARING EPOSTER: STATION 5**

Investigating Integrated Chemical Treatments for Iron Oxide Removal in Water Injection Operations .....	6158
<i>Hussain Abdullah Al-Ibrahim, Luai Abdullah Alhamad, Mohammed Ahmed Alnjaidi, Ali Hussain Alsalem</i>	
Parameter Sensitive Inter-Well Tracers to Map Reservoir Conditions.....	6169
<i>Giuseppe Maddinelli, Martin Bartosek, Lucia Bonoldi, Leili Moghadasi, Dario Renna, Davide Moscatelli</i>	
Successful Through Tubing Perforation in Dual String Completion.....	6183
<i>Salvatore Spagnolo, Pasquale Pollio, Pasquale Cappuccio, Gianni Baldassarri, Gabriele Carpineta, Marco Colombo, Alfonso De Clemente, Alessandro Picciani</i>	
Reduce Collision Risk and make Informed Decision with Cost Effective Well Placement Database for Abu Dhabi Exploration Blocks.....	6196
<i>Nabila Iabbassen, Bassem El Youssef, Arhama Rashed Al Shamsi, Muna Salman Al Marzouqi</i>	
Maximizing Reserves Value Using Multilateral Wells - A Decision Support Tool and Key Applications.....	6204
<i>Eglier Yanez, Luigi Saputelli, Fahad Al Hosani</i>	
Single-Trip Completion Technology Development for ERD Wells.....	6223
<i>Fraser Murray, Keith Wee, Yao Fernand Kouadio, Shardul Parihar, John Andrew Wills</i>	
Foredeep Prospectivity in a Compressional Tectonic Regime, the Pabdeh Group, Ras Al Khaimah .....	6237
<i>Paul H Swire, Giacomo Firpo, Michael Hibbert, Thibaut Burckhart</i>	

Lower Jurassic Tight Gas Exploration Potential in Offshore Abu Dhabi.....	6257
<i>Ahmed A. Taher, Mariam K. Al Hammadi, Muna H. Al Shuwaihi, Aurifullah Vantala</i>	
Hollow Bit: The First Worldwide Campaign Result of a Breakthrough Technology of Slot Recovery Technique in Offshore Abu Dhabi Field.....	6269
<i>Kengo Fukuda, Hanifan Mayo Biyanni, Motohiro Toma, Samaawi Moslim Moslim, Takahiro Toki, Ali Yousef Al Zaabi, Abdelrahman Najjar, Omar Chammout</i>	
Building an Effective Ecosystem for an Integrated Community of Practice and Frustration-Free Technical Knowledge Hub that Maximizes Engagement and Participation of Local and Field Resources Across Multiple Operating Countries.....	6286
<i>Jose David De Sousa Drumond, Georgia Kotsiopoulou</i>	
Companies' Group Drilling Operations Centralized Lessons Learned Process and Platform.....	6296
<i>Nabila Iabbassen, Osama Al Shekaili, Muna Salman Al Marzouqi</i>	
A Novel Engineered Drilling Solution for Improving Backreaming and Drilling Efficiency .....	6305
<i>Chee Wah Wong, Nicolas Sluys, Mohd Khirfan, Nitheesh Kumar Unnikrishnan, Saleh Al Ameri, Sultan Mohamed Al Yamani</i>	
Successful First Rigless Fully Retrievable ESP System Installation with Coiled Tubing in West Kuwait: Case study.....	6315
<i>Mohammad Ahmed Al-Matar, Mohammed Al-Haddad, Abdulaziz Najaf, Mubarak Al-Obaidly, Hedi Slama, Kareem Badrawy, Wael Mahmoud, Abdullah Baidas</i>	
Production of Waxy Low-API Oil from Deep Exploratory Well with Hydraulic Lift System - A Case Study.....	6326
<i>Shuaib Ahmed Kalwar, Abdul Quddos Awan</i>	
De-Risking Cavings by Coupling Spalling Rate and Numerical Geomechanics Modeling .....	6335
<i>Hussain Albahrani, Mohammad Alqam, Adnan Makrami</i>	
Implementation Challenges in Automation of Gas Lift Optimization Workflow: A Case Study for Digital Fields Journey.....	6348
<i>Mohamad Mustaqim Mokhlis, Mohd Ashraf Basarudin, Muhammad Firdaus Hassan, Roberto Fuenmayor, Rajesh Trivedi</i>	
Latest Innovative Technology for Inspecting Fired Heaters.....	6354
<i>Ashwaq Abdulla Al Jasmi, Sikkandar Hussain, Mohamed Albahrani, Yousef Al Shekaili</i>	

## **KNOWLEDGE SHARING EPOSTER: STATION 6**

Implementation of Advanced Bit and BHA Design Software for Drilling Performance Improvement in Offshore Abu Dhabi.....	6365
<i>Denya Pratama Yudhia, Bilal Iftikhar Choudhry, Roopinder Singh, Juan Del Alvarez Salas, Philippe Rabis, Erwan Couzigou, Adel Al-Marzouqi, Fahed Salem Al Ameri, Mohamed Selim Ayadi</i>	
Planning, Preparing and Executing the First Successful Multistage Proppant Zipper Frac Job in an Horizontal Drain in Middle of Gachsran Formation in Biogenic Wells Project.....	6377
<i>Khaled Hamad Al Dhaheeri, Abdulla Salem Al Mehri, Saif Abdulrahman Al Mulla, Akhlaque Mohamed Mulla, Sherif Abdelaziz Elazab, Moataz Nagy Kazamel, Fernando Ruiz, Hajer Mohamed Al Shehhi, Eisa Daban Al Shamisi, Ahmed Abdulla Al Mutawa, Anwar Alam, Taliwati Ao, Anil Singh Negi, Nabil Abdulrahman Alharbi, Claudio Larrusa, Ahmed Al Shehhi, Ronald Mendez, Mohamed Hadini</i>	

A New Application of Pressure Transient Analysis to Calculate Completion Efficiency in Long Horizontal Wells with Limited Entries: Flow Restrictions and Well Architecture .....	6400
<i>Abdullah M. Al Qahtani, Bader A. Al Qahtan</i>	
Rapid NMR T2 Extraction from Micro-CT Images Using Machine Learning .....	6411
<i>Yiteng Li, Xupeng He, Marwa Alsinan, Hyung Kwak, Hussein Hoteit</i>	
Additive Manufacturing Bearing Design for Performance Improvement and Carbon Footprint Reduction .....	6421
<i>Daniele Panara, Carlo Maria Martini, Domenico Berterame, Sara Bruscoli</i>	
Maximizing the Value of NMR Logging while Drilling, a Combination of Laboratory Measurements and Well Log Data concept. ....	6433
<i>Amr Mohamed Serry, Sharifa Yousif Yousif, Sultan Ahmed Budebes, Hasan Mohamed Zakaria, Mohamed Safer Efera</i>	
Optimizing Wireline Formation and Evaluation Operations in Deep Horizontal Wells: Case Study .....	6448
<i>Nata Franco, Mauricio Corona, Mohamed Almahroos, Thiago Kestring</i>	
Improving Well Completion Operations on the First Five Zone Smart Completion on Multi-Lateral Well in Offshore Abu Dhabi .....	6459
<i>Jodi Mesra, Ziad Talat Abu Libdi, Takahiro Toki, James Wood, Tajrul Shaheer Tajudin</i>	
Evaluating Automated Orientation Perforation Tools for Application to Breakdown Pressures, Sand Production and Orientation Error .....	6478
<i>Elspeth Melissa Crawford, Bader Azib Alzahrani, Salman Saad Aljindan, Oscar Areujo</i>	
A Drift-Flux Model for Upward Two-Phase High-Velocity Flow in Large Diameter Pipes .....	6489
<i>Woochan Lee, Paulo Waltrich</i>	
Machine Learning in Automating Carbon Storage Site Assessment .....	6509
<i>Zexuan Dong, Ilyana Folmar, Jay Chen, Ligang Lu, Qiushuo Su, Puneet Seth, Mohamed Sidahmed, Manoj Sarfare, Ihab Akil</i>	
Unlocking the Potential of Twin-Screw Multiphase Pumps: Field Applications, Performance Simulation, and Recent Challenges with Case Study .....	6518
<i>Mohamed Gamal Mohamed Abdalla, Ramzi Ali</i>	
Drilling to the Limits. A Step Change in Drilling Operations by Utilizing Innovative Drilling Scrapers Technology Tools Enable to Optimize the Drilling Performance with Low Risk and Saves 1.5 Rig Days Per Well in UAE Onshore Fields.....	6539
<i>Roswall Enrique Bethancourt, Mohammed Sarhan, Mazin Al Reyami, Peter Levison Mwansa, Basma Naeem Kodiah, Sneha Sam, Anchit Gaurav, Khaled Abdelhalim</i>	
Anionic Nanoparticle Based Formulation to Control and Cure Moderate to Severe Losses.....	6556
<i>Noktan Mohammed Alyami, Vikrant Wagle, Abdullah Saleh Alyami, Rajendra Kalgaonkar</i>	

## VOLUME 9

Lessons Learnt from First Time Coiled Tubing Underbalanced Drilling Implementation in Adnoc Group of Companies.....	6568
<i>Mohamed Osama Abd El Meguid, Ayman El Shahat, Ali Sulaiman Bin Sumaida, Ahmed Abdulla Al Mutawa, Abdalla Saleh Saleh, Saeed Mohamed Almazrouei, Alfonso Mantilla, Fawad Zain Yousfi, Mohamed Ahmed Baslaib, Abdulrahman Hasan Al Ali, Mariam Ahmed Al Hosani, Ahmed Mohamed Al Baira, Ihab Nabil Mohamed, Aditya Ojha, Fatima Omar Alawadhi, Tarek Solaiman, Nama Almtairi, Bondan Bernadi, Pedro Rangel, Maged Basha, Shuai Cui, Yerlan Jumagaliyev, John Rennox</i>	

A Success Story of the First Miscible CO2 WAG Miscible WAG Pilots in a Giant Carbonate Reservoir in Abu Dhabi.....	6575
<i>Reem Ali Mabkhout Alseiari, Yatindra Bhushan, Arit Igogo, Manjit Kumar Singh, Saeeda Al Marzooqi, Shareefa Ahmed Al Hammad, Sara Hasrat Khan, Moza Abdelrahman Mohamed, James Brodie, Aamna Al Tenaiji, Mona Yousif Al Ali, Aaasha Khalfan Al Keebali, Shehadeh Masalmeh</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 7**

Transforming Production Phase WIMS to a Game Changer Smart Well Integrity Monitoring System with Real Time Automated Engineering Analytics .....	6589
<i>Mohammed Jasem, Oka Fabian, Graeme Dawson, Madhukar Silari, Bader Al Junaibi, Srinvisa Challagundla, Steven Noble, Obadah Al Sawadi, Jose Rodriguez, Pavel Mylnikov, Haoyou Ge</i>	

New Generation of Environmentally Friendly Nanoshale Inhibitor Water-Based Drilling Fluids .....	6605
<i>Hassan Sakar Alqahtani, Mohammed Khaled Al-Arfaj, Mohammed Faisal Alhasseni, Mohammed Abdullah Alotaibi</i>	

Comprehensive Design and Diagnostic Approach for Horizontal Completions in Carbonate Environment .....	6613
<i>Hashem Alobaid, Abdul Muqtadir Khan, Abdulrahman Almulhim, Jon Hansen, Artem Kabannik</i>	

Foundational Study of Artificial Intelligence Reservoir Simulation by Integrating Digital Core Technology and Logging Data to Optimise Recovery .....	6630
<i>Alberto Lener</i>	

A Machine Learning Based Accelerated Approach to Infer the Breakdown Pressure of the Tight Rocks.....	6648
<i>Zeeshan Tariq, Bicheng Yan, Shuyu Sun, Manojkumar Gudala, Mohamed Mahmoud</i>	

Application of Linear Programming in Optimisation of Gas Blending Operations.....	6661
<i>Timur Zhainakov, Yin Chao Chong</i>	

Centrifugal Compressor Seal and Bearing Rubbing Due to a Destructive Repeatable Reverse Rotation .....	6673
<i>Mohammed Ashour, Mustafa Shalabi, S. G. Rengasamy</i>	

Halite Pore Space Plugging Evaluation Based on the Logging Data for the Cambrian Ara Group Intra-Salt Tight Carbonate Reservoirs (South Oman Salt Basin) .....	6686
<i>Dmitrii Smirnov, Mohammed Hashmi, Abdullah Al Hadhrami, Omar Al Isae, Khayrutdinov Fanis, Pankaj Agrawal, Kamlesh Kumar, Saqer Kaabi</i>	



Iron Sulfide Chemical Dissolver Deployment in Water Wells.....	6701
<i>Nasser M Al-Hajri, Sulaiman T Ureiga, Muhammad Imran Javed, Saleh J Marri</i>	
Adoption of Cluster Based Sequestration Strategy for Realizing Net Zero Carbon Emission .....	6710
<i>Shahrul Nizam Bin Mohd Radzi, Muhammad Yazuwan Sallij Bin Muhammad Yasin, Suhana Binti Muhamad, Wan Fatin Izyan Binti Wan Mohd Zamri</i>	
Innovative Process to Set Record Length of Cement Plug in an Offshore ERD Well .....	6721
<i>Mile Latinovic, Andrey Konstantinovich Verhozin, Natalia Andreevna Klementyeva</i>	
FDP Business Case to Support Company De-Carbonization Strategy by CO2 Conversion .....	6731
<i>Mohamad Yousef Alklich, Hui Peng, Karem Alejandra Khan, Nidhal Mohamed Aljneibi, Xili Deng, Min Tong</i>	
Innovative Dynamic Laboratory Testing Methods and Workflow for Evaluating and Mitigating Carbon Dioxide Injection Challenges in Geological Storage Prospects.....	6742
<i>Stephnie Peat, David Jones, Daniel Boyde, Dario Frigo, Gordon Graham, Tuyet-Hang Le-Goff, Frederic Lagarde</i>	
Effective Interbed Multiple Attenuation with Exploration-Scale Seismic Data.....	6757
<i>Xueyi Jia, Haiyang Wang, Anatoly Baumstein, Young Ho Cha, Vijay Gottumukkula, Inmaculada Dura-Gomez, Alex Martinez</i>	
Thermal Analysis of the Wellbore System During Drilling Operations Using an Improved Drilling Simulator.....	6764
<i>Mostafa Magdy Abdelhafiz, Joachim Oppelt, Luiz Adolfo Hegele</i>	
Test Protocol for Corrosion Resistant Alloys and Application to Material Selection for Ultra Sour Reservoir Containing Elemental Sulphur, in Continuation of SPE-203337-MS .....	6778
<i>Bogdan Andres, Chandrasekar Vengan, Akio Mizukami</i>	
Not All Unconventional Reservoirs are Similar MENA Regional Vs Global Anisotropic Rock Index and Mechanical Characterization – Part 2 .....	6787
<i>Eduardo Gramajo, Rached M Rached</i>	

## **KNOWLEDGE SHARING EPOSTER: STATION 8**

A Unique High Temperature, Low Rheology Divalent Brine-Based Reservoir Drilling Fluid Improved Horizontal Drilling Performance in Hard Sandstone Formation.....	6807
<i>Erik Kerkhoff, Ahmed Ismail, Jacques Butcher, Matthew Huestis, Aubyii Rekieh</i>	
Reducing Drilling Risk in Extremely Sour Formations with Novel Scavenger in a Clay Free Non-Aqueous Fluid System.....	6821
<i>Mena Nasrallah, Salvatore Spagnolo, Matteo Giubertoni, Emanuele De Bonis, Giovanni Cavagnero, Mohamed Hafez</i>	
Holistic Approach to Reduce Methane Emission by Monetizing Gas Flaring in Oil & Gas Sector.....	6831
<i>Roberto Saldano, Natavan Zeynalzadeh, Arnoldo Perez Michelangeli, Kamalahasan Khassanin</i>	
Achieving Decarbonization Through the Transformation of Existing Pipelines for Hydrogen - Methane Blends.....	6846
<i>Matthew A. Nakatsuka, Ganesh Kumar Arumugam, Venkat Kamavaram, Andrea C. Mansfeld, Sumil S. Thapa, Vinod P. Veedu</i>	

Energy and Ghg Management of a Giant Oilfield: A New Digital Way to Face Challenge and Certify the Results .....	6857
<i>Gianmarco Rossi, Luca Cadei, Michele Bitetti, Rocco Gerardi, Davide Vaccari, Martino Ghetti, Marilena Forte, Laura Collura, Antonio Ricci</i>	
A Life Cycle Carbon Footprint Calculator for Early Quantification of the Environmental Impact of Oil and Gas Services and Products .....	6869
<i>Edgar Montiel, Kinda Nachef, Elodie Marquina-Guinois, Karen Spenley, Robert Van Kuijk</i>	
Case Study: Application of Wireless Condition Based Monitoring by Applying Machine Learning Models .....	6877
<i>Muhammad Shahzad Ahmed, Mahdi Abdula Al Bloushi, Asad Ali</i>	
Anti-Foam Injection Optimization .....	6890
<i>Addisu Tadesse Derebe, Salem Al Neyadi, Fadhal Mohsen Nasser, Ibrahim Al Nuaimi, Brama Damanik, Ahmed Ibrahim Romi</i>	
Using a Hybrid Off-Grid Semi-Fixed Solar System to Power a Water Pump in a Water Supply Well in Remote Areas .....	6902
<i>Sharifa Mohammed Al Ruheili, Khansaa Hamed Al Mahrmi, Khalid Hamood Al Wardi, Mohammed Marhoon Al Hashmi, Omar Salim Al-Jaaidi</i>	
Carbon Capture, Utilisation & Storage in Offshore Facilities .....	6913
<i>Jazpin-Cross Chiemerie Nwosu</i>	
Successful Geostopping Using a Recently Developed LWD Look-Ahead Ultra-Deep EM Resistivity Tool .....	6936
<i>Jin Ma, Karol Riofrio, Nigel Clegg, Supriya Sinha, Hsu-Hsiang Wu, Artur Kotwicki, Torstein Skorve, Yngve Bolstad Johansen</i>	
Squeeze Deployed Sulfide Inhibitor Successfully Averts Challenging Sulfide Scale Deposition in Permian and Williston Unconventional Basins .....	6948
<i>Cyril Okocha, Alex Thornton, Jonathan Wylde</i>	
Wireline DAS Conveyed Walkaway VSP Trial in the Khazzan Field, Oman - Planning, Operation and Results .....	6963
<i>Abdullah Al Anboori, John Northall, Jasem Al Araiimi, Said Al Habsi, Ahmed Al Lawati, Sawsan Al Saadi, John Morrison, Stephen Crumley, Raida Al Shabibi, Peter Cook, Cenzino Calista, Rafael Guerra</i>	
Machine Learning Applications of 4D Seismic in Carbonate: Case Study Offshore Abu Dhabi.....	6981
<i>Mohamed Abdelghany Mahgoub, Yasir Bashir, Andy Anderson Berry</i>	
The World's Largest Contiguous Onshore and Offshore 3D Seismic Survey is Getting Even Larger .....	6988
<i>Saif Ali Al Mesaabi, Guillaume Marie Cambois, James Cowell, David Arnold, Mohamed Fawzi Boukhanfra, Saeed Hamad Al Karbi, Mohamed Mahgoub</i>	
Extending the Capability of Electromagnetic Corrosion Inspection Beyond Five Tubulars .....	6999
<i>Junwen Dai, Ahmed Fouda, Xusong Wang, Freeman Hill</i>	
Drilling in Area of Unstable Shallower Formations Prone to Cellar & Rig Pad Collapse: Turning the Impossible to Possible .....	7010
<i>Syed Zahoor Ullah, Abdulqawi Al Fakih</i>	

## **KNOWLEDGE SHARING EPOSTER: STATION 9**

- Nano Technology Micro-Emulsion Technology Removed Invert Emulsion Fluid Filter Cake  
Damage After Delayed Action Across Sandstone Reservoir ..... 7019  
*Tulio Daniel Olivares, Walid Al-Zahrani, Kreke Latter, Temu Mukoro*
- First Implementation of In-House Developed Base Oil in UAE Offshore Drilling Operation..... 7030  
*Mohamed Haddad, Falah O. Alhameli, Riad Nesheer Khan, Babar Muhammad Zaheer,  
Ahmed Saleh, Adelson Jose Calleia De Barros, Mukund Jibhau Sonawane, Neeraj Mukund  
Kulkarni, Fabio Barros Fernandez Goncalves*
- Large Scale PEMS for Tracking GHG and Criteria Pollutants ..... 7059  
*Jan Sandvig Nielsen, Mogens Weel, Magnus Falkenberg*
- Sedimentology and Diagenesis and Their influence on the Reservoir Quality: A Case Study of the  
Late Cenomanian Mishrif Formation, Western Region, Abu Dhabi ..... 7067  
*Madhujya L Phukan, Saad A Siddiqi, Shamma Alshehyari, Bashar Mansour, Maryam  
Alshehhi, Ashis Shashanka, Hu Guangcheng*
- Enhanced Flow Profile Evaluation by Combining Acoustic Noise Log and Thermal Modeling in  
Complex Design Wells..... 7078  
*Ibrahim Seddik, Firdaus Noor Din, Alaa Shbair, Ahmed Fawzy, Abdullah Manea, Mourad  
Benfriha, Artur Galimov, Peter Raouf, Neil Sookram*
- Integration of High-Definition Karst Mapping and Quantitative Porosity Analysis from Borehole  
Image to Improve Well Placement in Complex Carbonate Reservoir of East Java Basin..... 7093  
*Olivia Azwar, Dian Permanasari, Nadia Ardikani, Nabilah Adani, Didit Kusuma, Budi Abrar,  
Taufik Nordin, Tonny Fadjar Widiyanto, Elvara Priyanka, Figa Roosa, Isra Febrianto  
Soenarwi*
- Repairing Seawater Intake Basin With 100 MM\$ Saving by Avoiding Production Cut and  
Optimizing Capex..... 7107  
*Saravanan Venkatachalam, Tapas Ray, Mohamed Abdulla Shaye*
- Expediting Chemical Enhanced Oil Recovery Processes with Prediction of Chemical Reaction  
Yield Using Machine Learning ..... 7120  
*Ashutosh Kumar, Robin Marlar Rajendran*
- A Digital Transformation Journey for a Mature using Production Technologies and Innovation  
Principles..... 7127  
*Yeniffer Lopez Ruiz, Nidia Rocio Cardenas, Gary Nelson Tagarot, Julia Marlene Carrera,  
Gian Marcio Gey, Fernando Fuquene, Annalyn Josefina Azancot, Angélica María Vargas*
- Best Practices and Lessons Learnt from a Comparative Study of LWD Formation Pressure  
Measurement in Static and Circulating Wellbore Conditions in ERD Wells ..... 7136  
*Khalid Javid, Alvaro Sainz, Guido Carlos Bascialla, Mohamed Ali Alkendi, Hamad Rashed Al  
Shehhi, Amina Al Hammadi, Salama Meherbi, Viraj Nitin Telang, Mohammed Abdul Majid*
- Slim Multistage Fracturing—One of the Most-Successful Solutions in the Most Recent 15 Years of  
China's Multistage Fracturing History..... 7150  
*Geng Zhao, Jeremie Fould, Yifan Dong, Changwei Li, Ying Huo, Xiaoli Liu, Yang Liu, Qiang  
Wang, Shengfang Yang, Ting Jin, Qian Ma, Tao He*
- Scalable Port Inspections Through Underwater, Terrestrial and Aerial Robotic Platforms ..... 7165  
*Lashika Medagoda, Mitchell Galea, Suchet Bargouti, Junaid Khan, Toby Dunne, Steve Potiris,  
Zain Ul Abidin, Irsa Anwar, Jordan Jolly, Lloyd Windrim, Fazilai Charolia*

Gap to Potential Identification through An Online Process Digital Twin .....	7183
<i>Suresh Machingalthodi Kumar, Mahmoud Abdul Hameed Al Mahmoud, Nawal Al Yahyaee</i>	
Understanding Fluid Variations in the Arab Formation in Abu Dhabi: New Technologies for Detailed Reservoir Fluid Characterisation.....	7194
<i>Peter Nederlof, Erik Tegelaar, Chakib Kloucha, Travis St. George Ramsay, Osemoahu Omobude, Fatima Al Darmaki</i>	
Industrial Facility Top-Down Green House Gas Emissions Quantification Using in-House Gas Analyzer AUSEA Deployed by Drone.....	7205
<i>Ludovic Donnat, Nicolas Huet</i>	
High-Throughput Experiments and Kinetic Modeling of Oxidative Coupling of Methane, OCM Over La <sub>2</sub> O <sub>3</sub> /CeO <sub>2</sub> Catalyst.....	7218
<i>Sultan Alturkistani, Haoyi Wang, Kiran Yalamanchi, Ribhu Gautam, Mani Sarathy</i>	
Foam-Oil Displacements in Porous Media: Insights from Three-Phase Fractional-Flow Theory.....	7238
<i>Jinyu Tang, Pablo Castaneda, Dan Marchesin, William R. Rossen</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 10**

Smart Nano Clay to Reduce Water-Based Mud Filter Cake .....	7257
<i>Ummi Alia Abdul Latif, Zuhayra Nasrin Chong Khairul Ikhwan Chong, Dr. Hadi Belhaj</i>	
Design of an Integrated Sustainable Energy System .....	7266
<i>Stephanie Pauline Anyanga</i>	
Sedimentological, Diagenetic, Petrophysical Controls on the Miocene Submarine Deposits, Gulf of Suez: Implications for Reservoir Quality .....	7292
<i>Kareem B. Abdelhalim, Ahmed E. Radwan, Tharwat A. Abdelfattah, Mohammed N. Shabaan, Mohammed A. Elkhawaga, Ahmed A. Kassem</i>	
Automated Image Processing of Petrographic Thin Sections for Digital Reservoir Description: A Bridge to Correlate with Core and NMR Data .....	7306
<i>Rathnakar Reddy Peesu, Deepak Kumar Voleti, Ashim Dutta, Prabhakar Reddy Vanam, Nagaraju Reddicharla</i>	
How to Build a Digital Twin with Strong Justification & Return of Investment: Case Study from OQ Oman .....	7329
<i>Khulood Mohammed Al Maawali, Khalid Khamis Al Fahdi</i>	
Implementing a Hybrid Digital Twin Approach in a Crude Unit Operation .....	7336
<i>Sergio Sama Rubio, Toni Giménez</i>	
DNN Inversion of Gravity Anomalies for Basement Topography Mapping.....	7351
<i>Zahra Ashena, Hojjat Kabirzadeh, Xin Wang, Youngsoo Lee, Ik Woo, Mohammed Ali, Jeong Woo Kim</i>	
GPU-Based High-End Desktop Computing, A Cost-Effective Solution to Improve Reservoir Simulation Performance .....	7361
<i>Maria De Los Angeles Hernandez Quintero, Leonardo Patacchini, Khaled Al Remeithi, Luis Alfredo Figuera, Mark Khait</i>	

Using the Properties of Carbon Composite Rod to Decrease the Uncertainty of Along Hole Depth Measurement, Leading to Increased Confidence in Field Wide Geological Models and Well Placement .....	7372
<i>Duncan John Troup</i>	
Integrated Multiple Seismic Attributes Study for Value-Based Insight and Reservoir Characterization of Hydrocarbon Assets - A Data Science Approach .....	7389
<i>Samiran Roy, Kalyan Saikia</i>	
Reservoir Characterization of the Middle/Upper Jurassic Sargelu and Najmah Formations, West Kuwait: Key Workflows and Findings for Future Development of Unconventionals .....	7396
<i>Rasha Al-Morakhi, Naveen Verma, Kim Long Nguyen, Nicholas Nelson, Dawn Hayes, Harry Rowe, Jules Reed, Ibrahim Ghiniwa, Sean Arrington, Dario Stemberger, Santhosh Narasimhan, David Sutton</i>	

## VOLUME 10

Tackling Mixed Scales Issue in Oilfield Using a Novel Robust Scale Dissolver.....	7404
<i>Nora Aida Ramly, Luky Hendraningrat, Latief Riyanto Riyanto, M Azmeer Rodzali, Salina Baharuddin</i>	
Supplier Performance Management for Successful Project Execution and Adding Value to Supply Chain .....	7413
<i>Muhammad Kashif, Dalya Al-Rawas</i>	
Delivered the First Maximum Reservoir Contact Well in Giant Mature Field Using Source-Less LWD Technology; Case Study, Onshore Abu Dhabi .....	7441
<i>Andrei Holmquist, Parmanand Thakur, Ernesto Barragan, Mohamed Bazuhair, Vikram Kumar Pandey, Sangeeta Singhal, Nurbek Nazarbayev, Wael Fares, Ahmed Ghobashy, Muhammad Mubeen</i>	
Integrating the Fully Coupled Geomechanical with Thermodynamics Modeling for Accurate Pore Pressure Prediction - A Case Study from China.....	7452
<i>Wei Li, Yangyi Xing, Xu Qin, Weiming Chen, Lin Jiang, Tongtong Luo, Hanbing Xu</i>	
Rapid Detection of Methane Super-Emitters Through Advanced Interpretation .....	7462
<i>Aditi Chakrabarti, Mathieu Dauphin, A. Ballard Andrews, Lukasz Zielinski, Kashif Rashid, Junyi Yuan, Andrew Speck</i>	
A Workflow to Analyze Vertical Formation Heterogeneity and Optimum Geological Grid Layering Using Petrophysical Logs.....	7468
<i>Nader Gerges, Gennady Makarychev, Alaa Maarouf, Luisa Ana Barillas, Midhun Madhavan, Sonal Gore, Chakib Kada Kloucha, Hussein Mustapha</i>	
Navigate Narrow Pressure Windows with Superior Performance and Minimal Risk Using Flat Rheology Oil-Based Drilling Fluids.....	7477
<i>Tulio Daniel Olivares, Walid Al-Zahrani, Chidiebere Anioke, Wafa Saeed Sultan Aldarini</i>	

## **KNOWLEDGE SHARING EPOSTER: STATION 11**

Low-Carbon and High-Efficient Heat Provision by High-Temperature Heat Pumps with Subsequent Steam Compression.....	7485
<i>Stefan Diezinger, Christian Huettl, Jochen Schaefer, Christian Paul, Arne Lienau</i>	

EV Adoption Case Study: Analysis of the Infrastructure Required .....	7493
<i>Syed Tabish Haider</i>	
Lithofacies Based Fluid Prediction Using Machine Learning .....	7503
<i>Yunsheng William Li, Syed Sadaqat S. Ali, Abdulmohsin Abbas Maskeen</i>	
Horizontal Well Calibration Using Zone Log Matching and Machine Learning .....	7515
<i>Hesham Hasan, Humberto Parra, Arshia Gerami, Manish Kumar Singh, Obeida El Jundi, Slobodan Stojic, Houcine Ben Jeddou, Tarik Gacem, Chakib Kada Kloucha, Hussein Mustapha</i>	
Completion Barrier Glass Plug with Integrated Bypass Sleeve.....	7524
<i>Amier Mousa</i>	
Diyab Gas Export Pilot Project Early Leakage Detection .....	7532
<i>Baque Marc</i>	
Case Study on the Impacts of an Automated Condition Assessment System Deployed Across Offshore Production Facilities.....	7544
<i>Eric L Ferguson, Marco Castillo, Abraham Kazzaz, Toby F Dunner</i>	
Modelling Reservoir Souring Mitigation Strategy Based on Dynamic Microorganisms Interactions .....	7553
<i>Hasrizal Abd Rahman, M Faizal Sedaralit, Suzalina Zainal, Julia R. De Rezende</i>	
A Marginal Field and a Thin Saturated Lower Cretaceous Reservoir Development Through Integrated Seismic Reservoir Characterization - Onshore Case Study - Al Dhafra Petroleum – UAE.....	7569
<i>Hany Mohamed Hassan, Karim Mostafa Elsadany, Walid Abd El-Mawla Abd El-Karim, Omar Aly, Ramy Moahmed Elasrag, Yassien Hemdan Moahmed, Yehia Sabry, Ivica Mihaljevic</i>	
Real-Time Compressional Sonic Log Prediction from Drilling and Mud Gas Data Using Machine Learning .....	7582
<i>Ruba M. Afffi, Fatai A. Anifowose, Mokhles M. Mezghani</i>	
Power Generation Through Back-Pressure Steam Turbine Utilizing Waste Process Steam.....	7592
<i>Atul Rege, Ravi Chandra Dahagam, Rahul Mukherjee</i>	
Evaluation of Miscanthus Gasification and Oxy-Combustion Carbon Dioxide Removal Potential with Carbon Capture Towards Implementation of Bioenergy with Carbon Capture and Storage in England.....	7603
<i>David Kaiser, Shashank Sakleshpur, Mani Sarathy, Ribhu Gautam, Murali Khandavilli, Carolina Arias Gallego</i>	
Field Water Management Using Inline Water Separation.....	7626
<i>Ramsey James White, Fahd I Alghunaimi, Norah W Aljuriyed</i>	
Vibration and Steam Leaks Monitoring Using a Batteryless IIoT Powered by Waste Heat Using LoRaWAN Wireless Protocol in Chemical Plants .....	7635
<i>Raul Aragones Ortiz, Maria Oliver Parera, Roger Malet Munte, Maria Teresa Marquez Garda, David Comellas Vogel</i>	
Solving the Problem of Sulphur Deposit in Gas Injection Compressors .....	7656
<i>Sudhanshu Kumar Yadav, Mohammad Ahmad Al Muhairi, Mohamed Saeed Al Khanbouli</i>	

Monitoring Injected Magnetic Nanoparticles Movement with Distributed Magnetic Sensor .....	7664
<i>Mohamad Hafizal Mad Zahir, Suzalina Zainal, Chean Lin Lew, Ridhwan Zhafri Kamarul Bahrim</i>	
Study on the Influence of Natural Fracture Modeling on Hydraulic Fracture Propagation for Horizontal Wells in Unconventional Resource - A Case Study from China .....	7671
<i>Jie Li, Hanbing Xu, Qiyong Xiong, Yonggang Yi, Wei Zhou, Liwei Zhang, Shengen Chen, Liming Lian, Meiting Zeng, Xiao Yang, Xingning Huang</i>	
Depth Surface Update Using Velocity Model Integration Workflow .....	7680
<i>Buthaina Abdullah Al Anbouri, Linda Hodgson, Abdullah Al Anboori, Peter Cook, Khalil Al Rashdi</i>	
Is Water Cut Influenced by Natural Fractures in South of Sultanate of Oman Porous Clastic Reservoirs? An Answer Based on Integrated Observations .....	7700
<i>Ghadna Al-Sulaimi, Loic Bazalgette, Salim Al-Shuaili, Mohammed Al-Harathi, Fakhriya Al-Shuaibi, Samantha Large</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 12**

A Sustainability Project Towards Zero Continuous Flaring and Zero Venting of Oil & Gas Facilities .....	7712
<i>Mohd Faizal Ghazali, M Sahir Ahmad Shatiry, Halizah Kader Ibrahim, Thahir Sk A Aziz, M Amir Fikri Basri, Mei Li Teh, Ahmad Faheem Md Sani, Raja Nurul Hasif Raja Nazri, Nor Farhana M Aris</i>	
Sequence Stratigraphy and Paleobathymetry of the Lower-Middle Miocene Succession, Gulf of Suez, Egypt.....	7721
<i>Abdel Rahman M. Kelany, Sherif F. Farouk, Ahmed A. Kassem, Mohamed E. Abuel Majd</i>	
Smart Mobile Worker for FCS PM .....	7730
<i>Omar Al Khatab Al Kindi, Fahad Khamis Al Kalbani</i>	
Well Integrity Surveillance with High Sensitivity Temperature Distributed Sensing .....	7738
<i>J. Andres Chavarria, Marcel Grubert, Chris Minto, Euan Adams</i>	
Digitalization and Data Automation: The Path for a More Efficient Well Integrity Data Management and Cost-Effective Responses .....	7746
<i>Mouna Nizar</i>	
A Multi-Layered Strategy to Manage Foaming in Ultra-Sour Gas Sweetening Units .....	7756
<i>Eman Al Ali, Ravi Srinivas, Jawwad Kaleem, Ganank Srivastava, Mostafa Shehata</i>	
AI-Assisted Thin Section Analysis, The Making of a Geologically-Realistic Digital Interpretation.....	7766
<i>Nicolas Leseur, Alba Franco, Li Xin, Fan Yang, Olga Lokhanova, Mounir Belouahchia, Rashid Belmeskin, Zaynab Habibi, Hesham Shebl, Mohamed Tamimi</i>	
Carbonate Reservoir Permeability Estimation from Borehole Image Logs.....	7775
<i>Dr. Abdelwahab Noufal, Mounir Belouahchia, Mohamed Amri, Nidhal Belayouni, Alexander Petrov</i>	
Integration of Seismic Attributes and Borehole Images for Exploring the Prospectivity of Late Jurassic and Early Cretaceous Carbonates in North Western Desert, Egypt .....	7786
<i>Osama Abdelaziz Osman, Ahmed Gamal-Eldeen Hanafy, Ahmed Mamdouh Nour, Mostafa Hussein Benyamin, Rabie Seddik Mostafa, Ramy Eid Eid, Hosni Diab Diab, Mohamed Said Redwan</i>	

Enhance Compressor Performance by Value Engineering .....	7805
<i>Ankit Saxena, Hamed Al Hammadi</i>	
Successful Delivery of a Breakthrough Implementation of Novel Well Testing Operation Philosophy: Open Sea Extended Well Testing Operation with Temporary Tanker for Crude Evacuation and Storage for Field S Appraisal Project in Malaysia .....	7824
<i>S. Abd Hamid, S. Abdullah, W. Chan, Z. Mokhtar</i>	
Commingled Well Test Analysis (CWTA) and its Application to Assess Health of Multiphase Flow Meters (MPFM) for Deep Water Conventional Assets .....	7837
<i>Susobhan Patra, Kushal Kedia, Divakar Gollu, Justin Gantt, Ted Long</i>	
The ExxonMobil Brazil Technology Collaborative: A Team of Teams Cross-Silo Leadership Experiment .....	7847
<i>Gareth David Jones, Shawn Fullmer</i>	
Digital Control Tower – Instantaneous Visibility, Granularity and Decision Support for an LNG Mega Project.....	7855
<i>Yogesh Chandra Srivastava, Abhishek Srivastava, Consuelo Granata, Tanvi Garg</i>	
IBTIKAR Digital Lab - A Collaborative Approach towards Research and Development Challenges in Oil and Gas Upstream .....	7863
<i>Rauf Iqbal, Pranav Kumar, Muhammad Aamir, Shaikha Obaid Al-Naqbi, Salahuddin Abdullah Jan, Pravin Kumar, Jagannath Mukherjee</i>	
Synthesis of Epoxy Resin Based Geopolymer Utilizing Saudi Arabian Volcanic Ash for Primary Well Cementing Applications .....	7873
<i>Khawlah Alanqari, Abdullah Al-Yami, Vikrant Wagle</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 13**

Modelling of the Upper Jurassic Petroleum System, Abu Dhabi: Implications for Play and Prospect .....	7880
<i>Oluwaseun A. Fadipe, John F. Aitken, Huda S. Al-Salmi, Pierre V. Laer, Aurifullah Vantala</i>	
Identification of Trends Driving Reservoir Heterogeneity at Multiple Stratigraphic Intervals in a Giant Middle Eastern Carbonate Reservoir.....	7900
<i>Christopher Sellar, David Rafael Contreras Perez, Alicia McGeer, Maitha Mubarak Al Mansoori, Aleš Vršić</i>	
Empowering Frontline Workers to Work Effectively with Hands-Free Computing Devices .....	7918
<i>Hussain Ahmed Saeed Alyassi</i>	
Enhancing Plant Reliability Through Risk Management of Single Point of Failures (SPoF) in Sour Gas Facility.....	7928
<i>Nitish Kumar Jain, Sameer Surendra Narsapur</i>	
How Can Digital Technologies Help Companies Overcome the Decarbonization Challenges?.....	7936
<i>Michele Cacciari, Rishabh Singhal</i>	
Application of Computer Vision in Diagnosing Water Production Mechanisms in Oil Wells .....	7945
<i>Osama Elsayed Abdelaziem, Ahmed Ahmed Gawish, Sayed Fadel Farrag</i>	
Gys-Recon a Field Reconnaissance Engine Based on a Combination of Gis, Machine Learning, and Computer Vision Technologies on Satellite Images and Maps .....	7965
<i>Yassine Elhallaoui</i>	



Time-Lapse Pulsed Neutron Logging Helps Maximize Recoveries from Mature Field - Case Study from Mangala Field of Rajasthan, India .....	7978
<i>Alok Kumar, Shraddha Sigtia, Joyjit Das, Rupdip Guha, Abaan Ahmed, Vivek Shankar, Suresh Kumar, Nishi Chauhan, Ravinder Kumar, Sandeep Ramakrishna</i>	
Electroless Nickel Plating Applications to Enhance Corrosion Protection, Equipment Reliability and Cost Effectiveness in Centrifugal Compressors.....	7995
<i>Alice Pranzetti, Michelangelo Bellacci, Filippo Cappuccini, Emanuele Rizzo</i>	
Integration of Computed Tomography Scanning and Nuclear Magnetic Resonance Results with Conventional Laboratory Test Data for Effective Reservoir Characterization.....	8012
<i>Elizaveta Shvalyuk, Alexei Tchistiakov, Mikhail Spasennykh</i>	
4D Seismic Feasibility Study for Monitoring Complex Carbonate Reservoir in Onshore, Abu Dhabi .....	8024
<i>Nepal Singh, Rafael Celma, Didier Rappin</i>	
Agile Development of Machine Learning (ML) for Conventional Artificial Lift Systems in the Middle-East .....	8033
<i>Ahmed Ajmi, Antonio Andrade, Luis Vargas, Angus Mackay, Mahir Al-Busaidi, Faris Al-Kharusi, Ahmed Azri</i>	
Cloud-Based Machine Learning System for Large Scale Implementation of Virtual Meters for Production Optimization .....	8044
<i>Yujun Johnny Chen, Nikhil Gulati, Subbu Annamalai, Amir Delgoshai, Zhaoyang Larry Jin, Riyad Muradov</i>	
Power Consumption Forecast Tool Based on Machine Learning Model Utilizing Plant Capacity Production .....	8054
<i>Abdulkarim F. Wathnani, Abdullah A. Boti</i>	
Unlocking the Potential of Slug Control Deployment Using a Newly Developed Foam Chemical.....	8061
<i>Siti Fatimah Sarah Sagar, Luky Hendraningrat, Nor Hadiyah Halim, Azmeer Rodzali, Ivy Chai Ching Hsia, Latief Riyanto, Salina Baharuddin</i>	
Transforming Well Planning through an AI-Assisted Well Trajectory Optimization Approach Applied to an Offshore Field in the Middle East.....	8069
<i>Laila Zayed Almarzooqi, Rahul Mark Fonseca, Hani Ahmed Buhindi, Ebtessam Khaled Binabadat, Imad Al Hamlawi, Norbert Dolle, Olga Meshcheriakova</i>	
Leverage Telemetry Scada and Machine Learning on Pumpjack Wellhead Production Facilities .....	8080
<i>Tedy Susanto</i>	

#### **KNOWLEDGE SHARING EPOSTER: STATION 14**

Effects of Diagenesis and Depositional Settings on the Reservoir Quality of the Barremian-Aptian, Kharai Formation: A Case Study from the Bahrain Field, Kingdom of Bahrain .....	8095
<i>Jayanta Bardalaye, Ali Almuntaser, Ibrahim Jaber, Madhujya L. Phukan, Saad A. Siddiqi, Ishan Raina</i>	
Cloud-Based Agile Reservoir Modelling Enriched with Machine Learning Improved the Opportunity Identification in a Mature Gas Condensate .....	8108
<i>Mohamed Hassan El Dabbour, Amr Labib, Ali Soliman, Ayman Fadel Said, Hany Shalaby, Khaled Mohamed Mansour, Mohamed Nagy Negm, Oliver C Mullins, Mohamed Ahmed Elfeel, Hassan Elsayed Daa, Mahmoud Ali Shihab, Abdelrahman Agam, Farah Adel Seifeldin, Mohamed Hashem Mostafa</i>	

Dynamic Simulation to Determine Governing Relief Load for De-Methanizer System.....	8117
<i>Surendarbabu Sivanandam, Maryam Al Marzooqi</i>	
Agile Methodology for the Integral and Eco-Sustainable Management of Oil Projects .....	8134
<i>Mario Fernando Zamora Santacruz, Mario Alejandro Ruiz González</i>	
Energy Efficiency Improvement of a Gas Compressor Through Process Parameters Adjustments.....	8140
<i>Abdulaziz A. Al-Mulhim</i>	
Case Study of First Successful Aqueous Based In-Situ Formation Consolidation Treatment in the Gialo Field, Libya.....	8147
<i>Ahmed Elsayed Ghonim, Mohamed Khalifa, Maharaja Palanivel, Colby Fuser, Hamza Shengarou, Aimen Aljwili, Shaaban Elusta, Fathi Abouzenen, Abdulaati Etabib, Mosaab Mohamed Etajri</i>	
The Power of Data - Unlocking Complex Value Across Petroleum Development Oman Through Six-Sigma Concept.....	8156
<i>Ahmed Al Salmi, Yousuf Al Zaabi, Nasser Al Kindi, Wayne Bryant, Carl Kays, Aisha Al Shukaili</i>	
Unlocking Oil Reserves from Inaccessible Platforms Utilising DSL (First Implementation in Egypt).....	8164
<i>Mahmoud Mohamed Koriesh, Mahmoud Elwan, Eman Shahin, Ali Basyouni, Hamdy Soliman, Osama Okasha, Mohamed Saleh, Frank Heaney</i>	
Investigations in Separator Modelling & Performance in ADNOC, Utilizing Equation of State (EOS) Fluid Models .....	8172
<i>Mohammad Faizul Hoda, Jyotsna Deepak Asarpota</i>	
Predicting ESP failures Using Artificial Intelligence for Improved Production Performance in One of the Offshore Fields in India.....	8201
<i>Sagun Devshali, Shailesh Kumar Tripathi, Dhiraj Dodda, Manish Kumar, Rishabh Uniyal, M. Yadav, S. Malhotra</i>	
Optimization of Reservoir Monitoring Planning, Reporting, and Shortfall Identifications Using a Centralized Automated Integrated Asset Operation Model System .....	8213
<i>Ayesha Alsaeedi, Mohamed Mubarak Albadi, Fahad Alharthi, Manar Elabrashy, Mohamed Alzeyoudi, Ammar Al-Ameri, Eissa Al Mheiri, Ahmed Al Bairaqa, Mubashir Ahmed, Shemaisa Alsenaidi, Abdelrahman Gadelhak, Ashraf Shaker, Mahmood Douglas, Maryam Alblooshi, Maryam Al Hammadi, Saad Ansari, Sarath Konkati, Sandeep Soni, Mansi Jani, Hamda Alkuwaiti</i>	
Cost Effective Decommissioning Liability Solutions for Offshore Structures.....	8226
<i>Isara Boondao</i>	

## VOLUME 11

Effective Front-End Loading Management - Most Occurred Flaws in FEL Execution .....	8235
<i>Padmanaban Manokaran, Fahad Al Rumaiti, Mohamad Bara Adi, Saeed Khalfan Al Suwaidi</i>	
Automation and Digitalization of Polymerflood Viscosity Surveillance Through Machine Learning– A Case Study from Marmul .....	8243
<i>Abdulaziz Al Hashimi, Osama Al Kindi, Samya Al Farsi, Marwan Al Sawafi, Shaikha Al Mawali, Mohamed Al Abri, Suleiman Al Hinai</i>	

Real Time Virtual Flow Metering, A Digital Enhancer for Gas Injection Monitoring and Optimization.....	8256
<i>Giorgio Russo, Fabrizio Ursini, Emanuele Vignati, Erica Grelli</i>	
Successful Implementation of a Digital Production Monitoring Solution Eliminating Data Entropy.....	8268
<i>Faycal Belaid, Zahir Sami, Mohamed Nassim Larachiche, Abdelghani Hemmaz, Rachit Kedia, Azer Abdullayev, Mohamed Amarni, Amar Sadoun</i>	
Asphaltene Inhibitor Screening of Next Generation: Automated High Throughput Experimentation Method .....	8280
<i>Abhishek Punase, Will Burnett, Kyle Addis, Adam Robertson, Jonathan Wylde</i>	
Data Visualization Workflow an Alternative Procedure to Quality Check Static Grids .....	8290
<i>David Rafael Contreras Perez, Amal Almehrzzi</i>	
Energy Management Best Practices .....	8308
<i>Al Qurooni A Faisal, Al Homam W Ahmed, Al Muhainy A Mohammed</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 15**

Semi-Supervised Learning for Geotechnical Soil Property Estimation in Offshore Windfarm Sites .....	8314
<i>Haibin Di, Aria Abubakar</i>	
Smart Energy Analytics for Energy Efficiency Improvement and CAPEX Avoidance.....	8324
<i>Saqib Sajjad</i>	
Real-Time Applications of Sensor Analytics for Production and Injection Profiling .....	8345
<i>Cagri Cerrahoglu, Mohand Alyan, Alberto Mendoza Chavez, Alessandro Delfino, Martin Sundin, Alaa Othman, Ahmed Kiyouni, Ahmed Altamimi, Shardul Parihar, Rahul-Mark Fonseca</i>	
Agile Project Management and its Application to Delivering an Integrated Subsurface Model of a Giant Middle Eastern Carbonate Reservoir.....	8358
<i>Alexander Ashcroft Valente, David Rafael Contreras Perez</i>	
I Own, I Operate, and I Maintain – Operator Basic Care .....	8367
<i>Mohammed Salem Saleh Mohamed, Ahmed Abdulla Mohammed Erhama Al Shemeili, Omar Awadh Halabi Al Hadhrami, Saleh Sandel, Jameel Abubaker Al Menhali, Talal Al Sharji, Omar Ibrahim, Suharjo Paino, Vinoth Kanna Kodaikanal Ananda Narayanan, Hemant Kumar Balakrishnan</i>	
Stochastic Optimization Workflow for Non-Uniform Coarsening of Simulation Grids and Location and Sequencing of Wells .....	8374
<i>Santosh Kumar Verma, Yifei Xu, Shuai He, Alireza Sanai</i>	
Monitoring Health of Minagish Reservoir Through Tracking Movement of Reservoir Fluids.....	8392
<i>Pruthvi Raj Kasaraneni, Tahani Al Rashidi, Mishary Al Zamanan, Girija Shankar Padhy, Jeevan Kumar Silambuchelvan</i>	
Centralized Predictive Analytics & Diagnostics Value Creation .....	8399
<i>Aysha Mubarak Alsulaimani, Pradip Majumdar, Reem Alhammadi, Badhria Alhammadi</i>	

Digital Solution for Water Handling System Surveillance to Enhance Operations and Avoid Production Losses in a Brown Field.....	8405
<i>Jorge Yáñez, Hugo Quevedo, Christian Bonilla, Galo Calvache, Luis Marchán, Willem Sepulveda, Annalyn Azancot, Angelica Vargas, Juan Gallardo, Julia Carrera, Geovanny Ramos, Edgar Chicango, Santiago Dávalos, Jaime Tacuri, Ernesto Bedón, Alexander Pineda, Diego Estevez</i>	
Using Autonomous Control to Stabilize Well Performance without the Downhole Pressure Gauge.....	8418
<i>Zhuo Gao, Syed Zeshan Hyder</i>	
Using Autonomous Control to Maintain Gas Lift Well Flowing Bottomhole Pressure .....	8426
<i>Zhuo Gao</i>	
Automation Via Robotic Process Automation in Pipeline Integrity Management Towards ALARP Risk Level .....	8434
<i>Shaikh Abdullah Shaikh Othman, Mohd Nazmi Mohd Ali Napiyah, Nor Salwanie Zakaria, Khairol Hazman A Karim, Swee Ling Koi, Mohd Fithri Azad Abul Kalam Azad, Aishah Mastura Supian</i>	
Innovative Upscaling First HT/HS Polymer Injectivity Tests Towards Multi-Well Pilots .....	8447
<i>Dyala Amin Mahboobah, Carolina Romero, Viresh Kaduluri, Sawsan Ali, Gervasio Pimenta, Haitham Ali Al Saadi, Abdulla Luqman, Maitha Abdul Rahman Altamimi, Francois Huynh, Flavien Gathier, Guillaume Dupuis, Olivier Francois Garnier</i>	
Gold Standard in House Engineering Design Through Efficient Process Optimization to achieve Excellence in Opex Saving and 40% Reduction in Capex .....	8463
<i>Bashistha Nandi, Fatima Mohamed Al Qaydi, Dana Hashem Al Damasi, Ruwayya Salem Ali Almazrooei</i>	
Subsurface to Surface Congestion Management with Holistic Sustainable Development of Super Giant Multi Stacked Brown Field.....	8474
<i>Mohamed Ali Al Shehhi, Hajer Khamis Al Naqbi, Sultan Sameer Alhemeiri, Sanjeev Kumar Chellappan, Sofia Machado Soares, Anoop Pappy Idicula, Sara Hasrat Khan</i>	
Business Production Target Achievement and an Automated Allowable Workflow Challenges and Opportunities Under the Integrated Asset Operation Model .....	8481
<i>Ayesha Alsaeedi, Mohamed Mubarak Albadi, Fahad Alharthi, Manar Elabrashy, Mohamed Alzeyoudi, Ammar Al-Ameri, Eissa Al Mheiri, Ahmed Al Bairaqa, Mubashir Ahmed, Shemaisa Alsenaidi, Abdelrahman Gadelhak, Ashraf Shaker, Mahmood Douglas, Maryam Alblooshi, Maryam Al Hammadi, Saad Ansari, Sarath Konkati, Sandeep Soni, Apruv Raj, Mansi Jani</i>	
Dynamic Fatigue Life and Integrity Monitoring in Novel Mobile Spiral Intelligent .....	8490
<i>Chris D. G. Minto, Andrew Stevenson</i>	
Non-Combustion Power Generation Technology for Oil & Gas Production Facilities Towards Net Zero Carbon Emission Agenda.....	8500
<i>Muhammad Fadhli Muhammad, Maung Maung Myo Thant, Mohamad Faizal Sedaralit, Siti Nur Amira Shaffee</i>	
De-Carbonisation Through Energy Management.....	8509
<i>Harish Somayajula</i>	

## **KNOWLEDGE SHARING EPOSTER: STATION 16**

Sustaining Forward Momentum Towards Intervention-Less, Reliable and Safe Transportation of Hydrocarbon Through Petronas Digital Pipeline Integrity Management System.....	8520
<i>Aisyah Ahmad, M. Hisham A. Bakar, M. Shahrustami M. Nadzeri, M. Nazmi M. Ali, Ahmad Sirwan M Tuselim</i>	
Improving Observable Leadership Behaviours in Asset Integrity and Process Safety Huddles Through the Utilization of Thriving in Change (TIC) Approach. ....	8533
<i>Adnan Al Shammakhi, Kevin Oelofse, Maram Al Busaidi, Fakhri Al Sukaiti, Bader Al Shekaili</i>	
Successful Implementation of Electronically Delivering the Limit Project for Drilling Process Optimization.....	8543
<i>Hamood Lamki, Abdallah Kalbani, Fahad Khatri, Ashish Joshi, Amira Wahaibi</i>	
Transforming Legacy Production Operations into Smart Asset Operations in Ecuador .....	8555
<i>Yeniffer Lopez Ruiz, Julia Marlene Carrera, Gary Nelson Tagarot, Gian Marcio Gey, Daniel Davalos, Ruben Dario Segovia, Danny Rafael Campana, Dario De Jesus Gonzalez, Annalyn Josefina Azancot, Cesar Briones, Wilmar Andrés Pastrana</i>	
Towards Low Carbon Oil – A Comprehensive Portfolio Analysis for CO <sub>2</sub> EOR/CCUS Opportunities in Oil Reservoirs in the Sultanate of Oman .....	8564
<i>Ramez Nasralla, Rouhi Farajzadeh, Samir Ketkar, Johannes Van Wunnik, Dawood Mahruqi, Rifaat Al Mjeni</i>	
FDP Simulation Studies for Green Fields Cluster Development in Less than 30 Days Utilizing Cloud Technologies.....	8584
<i>Georghios Dorou Papapetrou, Chia Pei Chuen, Mohd Nur Adzizie Mahamad, Ros Aliza Md Rabi, Yong Han Seah</i>	
Complex Dynamic Model History Matched through Utilize Smart Workflows .....	8595
<i>Khawla Abdulla Al-Mentheri, Faisal Salah Al-Jenaibi, Evgenii Gusarov, Maksim Kuzevanov</i>	
Lessons Learned and Achievements from a Successful Sand Control Campaign in Ultra-Deepwater Gas Wells, East Africa .....	8605
<i>Francesco Martocchia, Damien Deffieux, Nelson Obanor, Francesco Battaglia, Daniele Palumbo, Alessandro Rusconi, Giovanni Ricci, Lucio Passini, Gisela Nhambi, Joaquim Chirindja, Hermenegildo Chituto</i>	
Dynamic Mitigation Strategy to Flow Assurance Challenges Associated with CO <sub>2</sub> EOR in an Onshore Abu Dhabi Field.....	8630
<i>Dalia Abdallah, Mark Grutters, Arit Igogo, Manjit Kumar Singh</i>	
Enhancing Drilling and Production Through a Digital Twin Methodology .....	8641
<i>Titto Thomas Philip, Sergej Ziatdinov</i>	
Sulfur Deposition Phenomena in Gas Systems and Lessons Learnt.....	8658
<i>Hatem Hamed Gouhar, Abdulla Ahmed Ekaabi, Prabhakar Reddy Andru, Bader Abdulla Al Teneiji</i>	
Historical Polymer Flood Oil Gain through Outstanding Subsurface and Surface Integrated Operations .....	8667
<i>Marwan Sawafi, Osama Kindi, Abdulaziz Hashimi, Taher Ghailani, Azza Maskari, Moh'D Abri, Suleiman Hinai</i>	

Recent Advancements in Viscoelastic Polymer Flooding EOR Applications in Carbonates and Sandstones.....	8676
<i>Mursal Zeynalli, Umar Alfazazi, Muhamad Mushtaq, Emad W. Al-Shalabi, Waleed Alameri</i>	
Evaluation of Alternative Polymers for Mangala Polymer Flood .....	8706
<i>Vivek Shankar, Shekhar Sunit, Robert Zagitov, Abhishek Kumar Gupta, Suresh Kumar, Ritesh Kumar, Kumarish Pahari, Rahul Agarwal, Petro Nakutnyy, Santhosh Veerabhadrapa</i>	
Improvement of Artificial Lift Pumps Run Life with Aid of Novel New Technologies Addressing Sand Production .....	8730
<i>Said Riyami, Faisal Saadi, Adnan Ghadani, Steve Palmer, Jerin Joy</i>	
Technology for Assuring Integrity of Uninspectable Small Diameter Pipeline Systems .....	8742
<i>James Alexander Phipps</i>	
Avoiding Plant Shutdowns Through Extension of Temporary Clamps Life Time by Engineered Over Enclosures .....	8755
<i>Khaled M Mazen Al Khoujah, Liam Frost, Juma Rashid Al Qaydi, Saeed Al Blooshi, Fatima Hassan Al Mansoori, Shakirov Evgeny</i>	
Delineating Karst, Fault and Fractures Interpretation Through Integration of Seismic Attributes and Diffraction Imaging in Giant Offshore Field Abu Dhabi .....	8764
<i>Yassar Goraya, Ali Saeed Alfelasi, Hiroyuki Inoue, Amna Rashid Al Hmoudi, Chen Yingpeng, Lyu Xiaolin, Manal I. Albeshr</i>	
Gas Maximization Scenarios Leveraging a Countrywide Integrated Capacity Model and Digitalization of Engineering Workflows .....	8773
<i>Iman Hamad Al Selaiti, Maged Mabrook</i>	

### **KNOWLEDGE SHARING EPOSTER: STATION 17**

FRP Materials in Oil and Gas Industry: New Challenge Highlighted.....	8780
<i>Osama Herzallah, Mariam Alsulaimani, Ammar Al Omari, Abdulaziz Almarzouqi, Nouf Braik</i>	
Holistic Performance Review of Through-Tubing Sand Screen as Remedial Sand Control: Best Practices and Lesson Learnt from Past Installations in Offshore East Malaysia Oil Fields .....	8791
<i>Catherine, Ye Lin Tang, Wei Jian Yeap, M Zin Zulkifli, Suzanna Juyanty Bt M Jeffrey, Nur'Ain Minggu, Alvin, Zhi Siang Chin, Randy, Zheng Chen Kong, Aqil M Yusof, Paul Lyan Liew, Muhamad Syazwan Azman, Kumar Praveen, Ilyas Yusnawannie, Mustafaa Bakeri Fahmi Amni, Zaimi B Zainul</i>	
Development of Oil-Water Transitional Zone by Rim Lowering in a Mature GOGD Field in Sultanate of Oman.....	8804
<i>Manish Kumar Choudhary, Sharif Said Saif Al Bahri, Rawan Salim Al Ghatrifi, Kavita Agarwal, Mohamed Khalid Yarabi</i>	
A Numerical Evaluation of the Impact of Wettability on CO <sub>2</sub> Trapping Capacity: Implications for Carbon Geo-Sequestration.....	8816
<i>Haiyang Zhang, Muhammad Arif, Mohammed Al Kobaisi</i>	
Role of Third-Party Certification and Verification for Geological Storage (and EOR) Projects .....	8826
<i>Elizabeth Mackie, Jørg Aarnes</i>	

Quantifying Smart Liner Acid Stimulation Efficiency in Heterogeneous Carbonate Reservoir Using Inline Tracers and PLT .....	8831
<i>Ahmed Bazuhair, Kristian Mogensen, Laila Al-Marzouqi, Hammad Mustafa, Sunil Chitre, Mariam Al Maazmi, Abdelrahman Gadelhak, Mohamed Al Jawhari</i>	
The Benefits of an Integrated Approach (Development, Completion, Production Operation, and Integrity) for Gas-Lift Design on an UAE Offshore Field .....	8841
<i>Vibhuti Dwivedi, Fatema Al Zaabi, Benoit Jaffres</i>	
Enhanced Operational Integrity Management Via Digital Twin .....	8853
<i>Stephen John Matthews, Ross Sutherland, Gareth McIntyre</i>	
An Overview of Retrofitting Abandoned Petroleum Wells for Geothermal Energy Production .....	8865
<i>Rahman Ashena</i>	
Distributed Temperature Sensing (DTS): An Attempt to Compare Multivendor Data Acquisition and Interpretation Process for Possible Standardization at Field A.....	8884
<i>Subba Ramarao Rachapudi Venkata, Dipen Patel, Moza Saeed Abdulla Al Dhuhoori, Ruben Dario Albarracin, Khalid Javid Iqbal Javid, Sami Al Jasmi, Sarath Konkati, Mohammad Kamel Al Mansi, Amr Wak Wak, Boris Titov, Fahad Sajjad</i>	
Novel Engineering Approach Utilizing Underbalanced Coil Tubing Drilling Solutions for Tight Sour Gas Carbonate.....	8897
<i>Mohamed Osama Abd El Meguid, Ayman El Shahat, Ali Sulaiman Bin Sumaida, Ahmed Abdulla Al Mutawa, Abdalla Saleh Saleh, Saeed Mohamed Almazrouei, Fawad Zain Yousfi, Mohamed Ahmed Baslaib, Abdulrahman Hasan Al Ali, Mariam Ahmed Al Hosani, Ahmed Mohamed Al Bairaq, Ihab Nabil Mohamed, Aditya Ojha, Fatima Omar Alawadhi, Tarek Solaiman, Nama Almeiri, Bondan Bernadi, Pedro Rangel, Maged Basha, Sholpan Zhylkaidarova, Ali Wahbi, Yerlan Jumagaliyev, John Rennox</i>	
Well Reservoir Management and Surveillance Enabling Alternate Field Development Leading to Significant Cost Savings.....	8909
<i>Pankaj Agrawal, Dmitrii Smirnov, Fanis Khayrutdinov, Tushar Narwal, Kamlesh Kumar, Ibrahim Shukri, Mathen Muthalaly, Zahir Abri, Aiman Quraini, Abdullah Al-Hadhrami</i>	
Get Better Data to Drive Production Gains in Tight Gas Reservoir Through an Automated Multiphase Measurement Skid and Production Engineering Workflow Integration.....	8921
<i>Bertrand Claude Theuveny, Carlos Garay Andrade, Julio Sanz Vera, Fabian Salas, Claudio Pucci, Alejandro Castro</i>	
Analysis, Comparison, and Results of the Effectiveness of a PDC Bit Containing Fracturing and Shearing Elements When Drilling Challenging Heterogeneous Section Containing Massive Cherts.....	8933
<i>Ygnacio Jesus Nunez, Fernando Ruiz, Ahmed Abdulla Al Mutawa, Eisa Daban Al Shamisi, Rahma Ahmed Al Rahma, Ibrahim Hamdy, Rohan Vijay Jawadekar, Aliya Mohamed Lari, Nicola Connelly, Hany El-Hafez, Juan Carlos Fierro, Lama Atallah</i>	
Green Screen Application Digitalized Approach for the Environmental Management System (EMS).....	8953
<i>Ahmed Abdulraheem Abubakr, Abdullah Omar Alghamdi</i>	

**OPERATIONAL EXCELLENCE: ADVANCES IN WELL INTEGRITY TECHNOLOGY IN LOW-COST ERA I**

- Curing Packer Leak Riglessly Using Bismuth: Results of the Field Pilot..... 8961  
*Andrey Yugay, Bilal Ahmad, Mohamed Masud Akhtar, Sergei Vorozhikhin, Abdulla Omar Almuhammad, Amir Nadeem, Mayank Varshney, Apurv Agarwal, Eisa Abdelaziz Abdalla Al Harmoodi*
- Restoration of High-Temperature Well Integrity via Real-Time Coiled Tubing Patch Application..... 8971  
*Shaturvetan Karpaya, Sylvia Mavis James Berok, Brandon Joseph John Peter, Arie Muchalis Utta, Junnyaruin Barat, Sharon Ellen Lidwin, Hazrina Abdul Rahman, Lilihani Maluan, Sulaiman Sidek, Imania Mustika Purwitaningtyas, Jennie Chin Pui Ling, Charles Albouy*
- Successful Transition from a Legacy Well Integrity Management System to an Integrated, Expandable Platform ..... 8990  
*Obadah Al Sawadi, Rachit Kedia, Mohamed Moselhy, Gamal Abd-Elnasser, Fahd Mohamed, Mohamed Tammam, Wael Korosh, Amar Sadoun*
- Turning the Most Abundant Form of Trash Worldwide into Effective Corrosion Inhibitors for Applications in the Oil and Gas Industry ..... 9002  
*Tariq Almubarak, Majed Almubarak, Majid Rafie, Abdullah Almoajil*

**OPERATIONAL EXCELLENCE: ADVANCES IN WELL INTEGRITY TECHNOLOGY IN LOW-COST ERA II**

- Block-61 Rigless Method for Efficient Permanent Abandonment ..... 9021  
*Sultan Al Abri, Aala Abbas, Musallam Jaboob, Muna Al Abri, Mohamed Najwani, Sultan Al Harrasi, Khalid Al Fadhli, Taimur Al Shidhani, Asma Al Darai*
- Digital Wellhead Integrated System for Production Management ..... 9029  
*Ricardo Avila Reyes, Miguel Machado, Mario Torre, Jitender Sharma, Gian Marcio Gey, Johnson Koa, Thomas Edwards*
- Quantitative Multi-Barrier Evaluation Through Dual Completion Using Time-Domain Electromagnetic Measurements..... 9045  
*Hamdi Bouali Daghmouni, Said Ahmed Al-Shanti, Sergei Vorozhikhin, Pervaiz Iqbal, Sushant Dutta, Mostafa Ismail*
- Reviving a Complicated Idle Well: A Multi-Intervention Example from the Sultanate of Oman..... 9063  
*Hamdan Al Gheilani, Khalid Al Sawwafi, Dragos Crucearu, Pearl Bezboruah, Anton Charushin, Said Al Maskari, Saja Al Balushi, Sami Makawi, Hatem Al Hatmi, Yousif Eltorabi*

**VOLUME 12**

**OPERATIONAL EXCELLENCE: AUTOMATION AND UNMANNED OPERATIONS**

- Implementation of Autonomous Ground Robots on Operational Sites ..... 9072  
*Eric Bartoli, Jean Michel Munoz, Gregoire Audouin, Gildas Collin*



Digital Fields Surveillance and Prescriptive Production Enhancement Candidate - Operator Case Study.....	9092
<i>Sulaiman Sidek, Muhammad Aaqil Bin Ismail, Nik Zarina Suryana Nik Khansani, Dushyant Singh Shekhawat, Nghia Tri Vo, Roberto Fuenmayor, Vishal Devgun</i>	
Ultrahigh H <sub>2</sub> S Well-Testing Operations Using Automated Surface Solutions.....	9107
<i>Asim Alkhuwayr, Prasad Karunakaran, Mazhar Malik, Mostafa Youssef</i>	
Driving Operations Excellence During Covid-19 Pandemic by Capitalizing on Digitalization.....	9120
<i>Muhammad Arif, Abdulla Mohammed Al Jneibi</i>	

### **OPERATIONAL EXCELLENCE: ENERGY OPTIMISING THROUGH ADVANCED PROCESS CONTROLS**

PDO's First Advanced Process Control Technology Optimizing Condensate & LPG Production .....	9130
<i>Mohammed Mustafa Ali Al Humeid, Abdullah Khalfan Salim Al Musalhi, Salim Hamed Thunaiyan Al Mawali, Vinay Kumar Sharma, Khalid Mohammed Sulaiman Al Jahdhami, Ahmed Abdullah Nasib Al Hamer</i>	
Be in Control of Your Operation - Integrating Real-Time Optimization with Advanced Process Control for Optimum Energy Management and Optimization .....	9140
<i>Arvin Singh</i>	
Deployment of a Novel Soft Sensor in the Real Time Optimizer Architecture to Enhance the Integrity and Energy Efficiency of Sulfur Recovery Units .....	9164
<i>Satyadileep Dara, Ibrahim Khan, Eisa Al Jenaibi, Subhendu Sengupta, Vincent Goveas, Nawal Al Yahyaee, Salisu Ibrahim, Anoop Jagannath, Abhijeet Raj</i>	
Enhancing Power Generation Utilizing Turbine Inlet Air Cooling (TIAC) .....	9182
<i>Jehad Fawzi Kutbi, Ioannis Georgiou</i>	

### **OPERATIONAL EXCELLENCE: FACILITIES OPERATIONS, RELIABILITY, AND MAINTAINABILITY I**

Dynamic Optimization of Demulsifier Injection and Water Separation Crude Oil Through Data Analytics.....	9190
<i>Ramsey James White, Miguel Angel Lopez Andreu, Abdullah Abdulrahman Alhamoud</i>	
Integrated Absorption and Regeneration Membrane Contactor Technology for Removal of CO <sub>2</sub> and H <sub>2</sub> S from Natural Gas.....	9199
<i>Athirah Mohd Tamidi, Syafiq M Saleh, Ven Chian Quek, Mahmat Rashid Hanafiah</i>	
Novel Direct Multiphase Real Time Wellhead Measurement Using Wet-Gas Coriolis Technology in a Giant Gas Field- Case Study.....	9212
<i>Ayesha Alsaeedi, Mohamed Mubarak Albadi, Ibrahim Eltony, Noora Al Mahri, Reem Alhammadi, Ammar Al-Ameri, Zeeshan Ahmad, Babar Saleem, Abullais Mundeth, Maryam Alblooshi, Abdulla Al Zarouni, Abdulla Alyammahi, Anubhav Agarwal, Muhammad Siddiqui, Maryam Al Hammadi, Muhammad Nasrullah, Janardhanan Kunissery, Chandramohan Mc, Sherry Jacob</i>	
Achieving Productivity and Operational Efficiency, and High-Quality Data Through Automation in Well Log Data Quality Control and Acceptance Process Using AI/ML Techniques.....	9222
<i>Bibi Hussain Akbar, Huda Jassim Al-Aradi, Pajar Rachman Achmad, Waqar Ullah Khan</i>	

## **OPERATIONAL EXCELLENCE: FACILITIES OPERATIONS, RELIABILITY, AND MAINTAINABILITY II**

- Powder Metallurgy and Additive Manufacturing for Compressors and Pumps: A New Manufacturing Paradigm for Corrosion and Heat Resistant Alloys ..... 9232  
*Piergiorgio Stella, Filippo Ceccanti, Filippo Cappuccini, Michelangelo Bellacci, Simon Kemble, Duilio Vincenzo Biccari, Gabriele Masi*
- Enhancing Upstream Oil Water Separation Efficiency Through Microwave Energy ..... 9244  
*Saeed M. Alamoudi, Mohammed Abdo Alwani*
- A Study on Reliability-Based Assessment of Ageing Fixed Offshore Platforms Located in the Arabian Gulf ..... 9252  
*Abin Pulivelil Thomas, Ole Jan Nekstad*
- Innovative Online ESD Valve Seat Leak Detection Technique Using AE & AI Embedded Methodology in Optimizing Cost/Time & Maintain Plant Integrity ..... 9265  
*Aysha Mubarak Alsulaimani, Pradip Majumdar, Badhria Alhammadi*

## **OPERATIONAL EXCELLENCE: FLOW ASSURANCE AND WATER MANAGEMENT**

- An Innovative Method of Water Management by Desalinating the Produced Water Using Thermal Renewable Energy ..... 9274  
*Sharifa Mohammed Al Ruheili, Felix Tiefenbacher, Khansaa Hamed Al Mahrarni, Nazir Othman Shahin, Omar Salim Al Jaaidi*
- Sustainable Removal of Re-Occurring Scale & Corrosion Products by Textural Analyses Using Petrographic Thin-Sections: A New Cross-Disciplinary Application of a Traditional Geological Technique ..... 9284  
*Wolfgang Hujer, Rainer Kadnar, Stefan Hönig*
- Unloading Liquid Loaded Wells- How Conventional Solutions Contribute to Sustainability Targets ..... 9295  
*Manar Elabrashy, Zubair Khan, Haris Shakeel Abbasi, Ayesha Alsaedi, Mohammed Al Zeyoudi, Marinus Grutters, Eissa Al Mheiri, Ahmed Al Bairaqa, Mubashir Ahmad, Shemaisa Alsenaidi, Zeeshan Ahmad, Ashraf Shaker, Mahmood Douglas, Maryam Alblooshi, Muhammad Siddiqui, Mohamed Mubarak Albadi, Zaharia Cristea*
- Low-Cost Multi-Phase Flow Metering and Assays Technology Using Online Magnetic Resonance ..... 9303  
*Feng Deng, Huabing Liu, Shiwen Chen, Guanhong Chen, Mengying Wang, Chao Liu, Junfeng Shi, Weidong Jiang*

## **OPERATIONAL EXCELLENCE: INNOVATIVE SOLUTIONS TO OVERCOME FLOW ASSURANCE CHALLENGES**

- From Drawing Board to HP award, the Success Story of Annular Injection Mixer (AIM) Using CFD ..... 9324  
*Fariz Maktar, Christian Chauvet, John Sabey*
- Emulsion Interface Model – From Science to Implementation ..... 9336  
*Hon Vai Yee, Estelle Deguillard, Ismail Mohd Saaid, Ivy Chin Hsia, Noor Amira Mohd Fauzi, Jan Van Male, Jan-Willem Handgraaf*

ESP Run Life Increased by 230% Using a Small, Customized Device: The Next Step in Flow Assurance and Chemical Injection for ESP-Lifted Wells..... 9346  
*Kevin Ismael Andagoya Carrillo, Jorge Luis Villalobos, Osiris Sierra, Alvaro Correal, María Elena Quinzo, Andrés Orozco, Luis Enriquez, Carlos Reyes, Fernando Leon*

Use of Virtual Metering to Maximize Water Injection Efficiency in an Offshore Field Abu Dhabi..... 9357  
*Rail Salimov, Benoit Jaffres, Jamal Alblooshi, Arlen Sarsekov*

### **OPERATIONAL EXCELLENCE: INNOVATIVE SOLUTIONS TO OVERCOME PRODUCTION CONSTRAINTS I**

Advancements in CO<sub>2</sub> Membrane Separation Technologies: Reducing Emissions and Enabling CCS ..... 9371  
*Tanzim Ahmed Choudhury, George Mahley, Pinkesh Sanghani, Hans Kumar*

Advanced Vibration Analysis and Remnant Life Assessment to Maximize Plant Production Rates..... 9389  
*Khaled Al Khoujah, Antonio Medina, Juma Al Qaydi, Fatima Al Mansoori, Liam Frost, Colin McIlwraith, Daniyal Kaleem*

A Novel Approach for Improving Water Injection Performance in Oil Field by Applying Lean Six Sigma..... 9397  
*Zaaima Sulaiman Al Ghafri, Sulaiman Saad Al Mandhari, Ghusun Amur Al Aamri, Yousuf Salim Al Zaabi*

Innovative Approach to Maximize NGL Recovery Utilizing Process Modeling in Midstream Operations ..... 9423  
*Ahmed Khalid Bu Ali, Mohammed Khalid Almusaiteer, Abdulaziz Saleh Sharaf*

### **OPERATIONAL EXCELLENCE: INNOVATIVE SOLUTIONS TO OVERCOME PRODUCTION CONSTRAINTS II**

Sustainability Driven Produced Water Treatment Technology Solution at Nano-Scale ..... 9446  
*Maung Maung Myo Thant, M Faizal Che Daud, Siti Nur Amira Shaffee, M Faizal Sedaralit*

Super Wells: Disruptive Proposal for Well Production Beyond the Established Fixed Limits (Erosional / Corrosive Limits) Case Study in High Potential Wells in Abu Dhabi Field..... 9455  
*Laila Sayed Almarzooqi, Meera Alqemzi, Pablo Cremades, Juan Enrique Lopez, Carlos Palacios*

Is Fluidic Oscillator a Game Changer in Improving Well Productivity? An Analysis with Case Studies ..... 9480  
*Saad Yousuf Khokhar, Mustansar Raza, Hossam Elmoneim, Arif Yousuf, Rameez Anwar, Saqib Jah Temuri, Salman Saeed Muhammad, Afnan Dar Ahmed, Kamil Shehzad*

### **OPERATIONAL EXCELLENCE: INTELLIGENT PIPELINES AND FACILITIES MANAGEMENT SYSTEMS**

Holistic Risk Based Approach to Manage and Control Plant Piping Vibration Through Digital Online Database ..... 9502  
*Khaled Al Khoujah, Juma Al Qaydi, Fatima Al Mansoori, Saeed Al Blooshi, Colin McIlwraith, Daniyal Kaleem*

API Pipeline SMS Assessment Program: Key Changes and Learnings from Initial Assessment  
Outputs ..... 9512  
*Colin M. Frazier, S. David Toth, Alexa S. Burr*

OPEX Optimisation for Un-Piggable Vent Line/Low Flow Pipeline Inspection via Self-Propelling  
Robotic ILI Tool..... 9521  
*Mohamed Ali Abdullah, Aishah Mastura Supian, M Nazri Ahmad, M Nazmi M Ali Napiah,  
Ahmad Sirwan Mat Tuselim, Muzdalifah Zakaria, Hendra Luthfi Hassan, Mohamed Ridzuan  
Mohamed Abd Salam, Gurin Denis, Lebedev Mikhail, Fertikova Elena, Romanovich Vitaly*

Monitoring and Troubleshooting of Subsea MPFM by KPIs and Virtual Metering Application in  
Offshore Environment ..... 9534  
*Fabrizio Ursini, Antonio Torsello, Simone Fiorita, Abimbola Akinmade, Giuseppe Ciriello,  
Emanuele Vignati, Tumiran Tumiran*

### **OPERATIONAL EXCELLENCE: OFFSHORE AND MARINE TECHNOLOGY**

Importance of Qualitative Risk-Based Chloride Mapping in Material Selection in HC Services ..... 9553  
*Faisal Al Wahedi, Hisham Khalil, Kapil Gupta, Shaikh Al Habshi, Shayma Al Shehhi*

New Method of Offshore Platform Strengthening by Prefabricated X-Frames and Retractable Joints ..... 9563  
*Prabir Kumar Chatterjee, Jinesh Shah*

An Effective and Resilient Approach for Gas Transmission and Distribution Via Network  
Simulation and Modelling for Sustainable Gas Supply ..... 9579  
*Sukrut Shridhar Kulkarni*

Production Excellence Program Enhances Operation Efficiency ..... 9590  
*Fabian Florez, Diego Calderon, Gayatri Kartoatmodjo, Andrew Fendt, Gregor Wilson*

### **OPERATIONAL EXCELLENCE: PROCESS SAFETY AND INTEGRITY MANAGEMENT**

New Technological Possibilities to Perform On-Stream Monitoring of HTHA..... 9601  
*Sergey Putintsev, Herman Lens*

Applying Blockchain Technology to Process Safety with Focus on Integrity Management for Oil  
and Gas Industry ..... 9609  
*Sandipan Laskar*

An Innovative In-House Engineering Solution to Manage the Process Alarms ..... 9623  
*Yogesh Lakshminarayan, Karthik Coimbatore Krishnaprasad, Yogesh Kumar Tank, Hiren  
Harshadkumar Brahmhatt, Ahmed Mohamed Al Teneiji*

Engineering Letter of Assurance (ELOA) ..... 9638  
*Yahya Hamood Al Naumani, Yasser Nasser Sabahi*

### **OPERATIONAL EXCELLENCE: SAFETY CRITICAL SYSTEMS**

Integrity Challenges and Restoration of Sub-Surface Safety Valves by Innovative Rigless  
Techniques..... 9650  
*Zeeshan Ahmad, Abdullah Alhaj Al Hosini, Mohammed Ibrahim Al Janahi, Abdulla  
Mohammed Al Marzouqi, Muhammad Ali Siddiqui, Abdulla Haidar Abdulla Al Zarouni,  
Reem Mohamad Alhamadi*

Well-Integrity Assessment Across Different Geological Areas by Deriving Insights from Complex Knowledge Base ..... 9659  
*Ankit Kumar, Amit Priyadarshan*

Smart Implementation of Asset Integrity Management System (AIMS) at Saudi Aramco Khurais Producing Department Facilities ..... 9665  
*Abdullah Al-Boti*

Adaptive Process Control and Dynamic Optimization: A Real Application on an Upstream Giant Brown Oilfield..... 9672  
*Martino Ghetti, Luca Cadei, Rocco Gerardi, Davide Vaccari, Gianmarco Rossi, Michele Bitetti, Marilena Forte, Laura Collura, Valentina D'Ottavio, Cristina Bottani, Antonio Ricci, Vittoria La Placa*

### **OPERATIONAL EXCELLENCE: STEP CHANGE IN COST OPTIMISATION**

Driving Operational Excellence and Energy Reduction via End-To-End Production & Energy Loss Accounting at an Oil&Gas Client..... 9683  
*Gert-Jan A. F. Fien, Samar M. Semaan*

De-Salting Train Transformers Retrofitting and Optimization Study to Achieve Flexibility and Efficiency in Saudi Aramco ..... 9693  
*Hatem A. Bajuaifer, Ashiff Khan, Khaled N. Mutairi, Amir A. Kothawala*

Composite Materials for Cheaper Oil and Gas Production. Experience in Application..... 9704  
*Anton Ablaev, Konstantin Ruban, Andrey Zozulya, Vladimir Kozlov*

A Sustainable Drive in Well Intervention Operations with Case Studies..... 9719  
*Salman Saeed Muhammad, Mustansar Raza, Hossam Elmoneim, Arif Yousuf, Rameez Anwar, Saad Yousuf Khokhar, Saqib Jah Temuri, Afnan Dar Ahmed, Kamil Shehzad*

### **OPERATIONAL EXCELLENCE: SURFACE AND SUBSURFACE INTEGRATION AND OPTIMISATION**

Maximizing Asset Value Through Unified Gas Injection and Gas Export Management Via Development and Adoption of Integrated Well and Process Automation..... 9740  
*Muhammad Zakwan Mohd Sahak, Maung Maung Myo Thant, Tengku Amansyah Tuan Mat, Zalina Harun, Eugene Castellano, Abhijeet Bhave*

Proactive Management of H<sub>2</sub>S Levels in a Mildly Sour Gas Field Through Production System Optimization: Case Study From Central Luconia Province, Malaysia ..... 9747  
*Haneff Mohd Ali, Siti Ili Fatimah Omar, Adrian Langat, Samsul Mohamad Shah*

Production Optimization and Reservoir Monitoring Through Virtual Flow Metering..... 9760  
*Nitin Maheshwari, Sultan Lobari, Ali Awadh Saary*

### **OPERATIONAL EXCELLENCE: TECHNOLOGIES TO IMPROVE FACILITY PERFORMANCE I**

Detection and Monitoring of Corrosive Oilfield Microorganisms via Novel Biomarker Technologies ..... 9769  
*Sven Lahme, Jaspreet Mand, Kingsley Oparaodu, Dennis Enning*

Orifice Meter Condition Based Monitoring-Tracing the Ten Technical Developments to Standards Board Acceptance.....	9779
<i>Richard Neil Steven, Alick Macgillivray</i>	
Improving Facility Maintenance through Inspection with the Latest Ultrasonic Imaging Technology .....	9799
<i>Niels Pörtzgen</i>	
Predictive Analytics for Third Party Threat and Geohazard .....	9810
<i>M Nazri Ahmad, M Nazmi M Ali Napiah, Swee Ling Koi, Naila Rusma Idris</i>	

**OPERATIONAL EXCELLENCE: TECHNOLOGIES TO IMPROVE FACILITY PERFORMANCE II**

Virtual Tour (4.0) for Adnoc Offshore Assets.....	9819
<i>Partho Mullick, Lateefa Almenhali, Mohamed Alamry, Manea Aljaberi</i>	
The Failure Predictive Index, an Algorithm that Exposes Pre-Failure Conditions on Electrical Submersible Pumps .....	9831
<i>F. Bermudez, M. Shono, N. Alnahhas, M. Letan, H. Yazdani, A. Almubarak</i>	
Erosion Prediction in FCC Unit of Refinery Through Computational Fluid Dynamics Simulation .....	9839
<i>Quiyoom Abdul, Pranab Kumar Rakshit, Ravi Kumar Voolapalli, Prince George, Dileep Kumar Vn, Raviteja Thota</i>	
Monitoring Mechanical Equipment on an Offshore Rig with Contrastive Learning on Acoustic Features .....	9854
<i>Ankit Kumar, Amit Priyadarshan, Pragadeesh K Sekar</i>	

**OPERATIONAL EXCELLENCE: WELLS AND FACILITIES - PERFORMANCE ENHANCEMENT AND ENERGY TRANSITION**

Application of Operational Excellence Concepts in Drilling Operations Through Embedding Learning from Incidents to Enhance Efficiency & Performance to Prevent Well Control Incidents .....	9866
<i>Muhammad Tayab, Mena Salama, Anatoly Ivanov</i>	
AutoBoost and Gas Lift System .....	9873
<i>Ammar Hadim, Yacine Kaci, Mohammed Lakhdar Rahal, Sebaa Mohamed Elfateh, Mohammed Nadjib Okba, Mohamed Lachteg, Abdelhalim Allal, Mahmoud Kasmouri, Lahouari Belbari, Aziz Zeghdoud, Christopher Benie, Mehdi Abdellah</i>	
Hydrogen Stress Cracking Resistance of Seamless Pipes for Hydrogen Storage and Transport Applications.....	9892
<i>Florian Thebault, Vincent Designolle</i>	
WRFM Excellence in Fahud, Sultanate of Oman.....	9899
<i>Hamed Al Waheibi, Ahmed Habib, Abdullah Al Shibli, Hamoud Al Saadi, Salima Al Mabsali, Aamir Awlad Wadair, Salim Yahmad'I</i>	

## VOLUME 13

### **PEOPLE DEVELOPMENT AND DIVERSITY: BALANCING NATIONALISATION WITH DIVERSITY**

Graduate Development Programme and Future Skills .....	9911
<i>Hamood Saleh Al Rashdi</i>	
Ruwad National Training Framework .....	9917
<i>Hanan Al Lamki, Zahir Al Omairi</i>	
Break Down the limiting Walls - Rise Initiative .....	9924
<i>Ibtihaj Jaber Almentheri, Mariam Mubarak Alsulaimani, Ahlam Mohamed Almarzoqi, Sherooq Saleh Alteneiji, Fatima Saleh Alhammadi, Shafir Mohamed Kutty, Marwan Abdulwahab Alawadhi</i>	
Unique Development Plans for UAE Nationals in Dolphin Energy .....	9934
<i>Meera Ahmed Al Maainah</i>	

### **PEOPLE DEVELOPMENT AND DIVERSITY: BUILDING CAPABILITIES THROUGH CONTINUOUS IMPROVEMENT**

Enabling A Nation - How PDO Powers Government Continuous Improvement & Creating Leaders for the Future of Oman .....	9942
<i>Nasser Al Kindi, Yousuf Al Zaabi, Wayne Bryant, Ahmed Al Salmi, Carl Kays, Amir Al Habib</i>	
Low Capital Investment Approach to Foster Organizational Change Towards a Continuous Improvement Culture.....	9952
<i>Mohamed Walid A. Ibrahim, Ashwaq M. Algarni, Khalid O. Alobaid</i>	
No One Is Left Behind .....	9965
<i>Humaid Alremeithi</i>	
Design and Implementation of an Integrated Ecosystem that Maximizes Engagement and Collaboration Inside and Outside of a Technical Cop in the Most Cost-Effective Way: Lessons Learnt from Multiples Success Stories .....	9971
<i>Jose David De Sousa Drumond, Georgia Kotsiopolou</i>	

### **PEOPLE DEVELOPMENT AND DIVERSITY: ENHANCING CULTURE THROUGH LEADERSHIP AND ENGAGEMENT**

Enhancing Youth Employees Experience and Engagement Using a Designed Culture .....	9985
<i>Saif Salem Al Hajri</i>	
People Development - Holistic Approach to Leadership & Development .....	9998
<i>Duncan Salmon, Simon Dick, Yuriy Zhupikov</i>	
Leadership Development and Succession Management.....	10018
<i>Muhammad Adil Naseer, Omran Ali Saabri, Mohamed Abdulla Shayea</i>	
Enhancing Employee Morale by Providing Felxible Workweek Options: A Success Story in Sharjah.....	10026
<i>Fatima Muhammad Shafique, Mohammed Al Haddi</i>	

## **PEOPLE DEVELOPMENT AND DIVERSITY: MEETING FUTURE CHALLENGES THROUGH DEVELOPMENT**

Introducing Energy Competencies for Smart Growth of Youth .....	10034
<i>Fatima Ahmed Al Zaabi, Saqib Sajjad</i>	
Leveraging Technology in Learning & Development .....	10042
<i>Mohammed Abdullah Al Harthy</i>	
Advanced Process and Technology Enablers for Accelerated Onboarding of Young Petro-Technical Professionals .....	10055
<i>Theodor Cristea, Dorothea Cristea</i>	
Disruptive Innovation in People Development.....	10063
<i>Haroon Khan</i>	

## **PROJECT MANAGEMENT: CHALLENGES AND OPPORTUNITIES IN PROJECT MANAGEMENT**

Utilizing LNG Stochastic Model for Better Cost Predictability and Faster Decision Making During Front End Loading Stage.....	10071
<i>Roszie Yanty Rahmat, Ir Mashitah M Jais, Mohd Hamim Mohd Rahim, Mohd Azwan Azli, Sominidevi Veloo, Noradnin Hafeeza Nawawi</i>	
Managing Russian Mega-Projects Amid Geopolitical Turbulence: Challenges and Opportunities for International Cooperation .....	10079
<i>Akimova Irina</i>	
Novel Adaptive Approach for Applying and Combining Traditional Waterfall and Agile Project Management Methodologies .....	10084
<i>Abdallah Magdy Farahat, Domenico Defina</i>	
Fossil Fuels to Hydrogen: Paradigm Shift in Capital Project Management? A Transitional Gas & Oil Eyeglass Review.....	10095
<i>Sujith Pratap Chandran, Prasannakumar K Purayil</i>	

## **PROJECT MANAGEMENT: EPC MANAGEMENT: STRATEGIES FOR SUCCESSFUL PROJECT EXECUTION I**

Proven Effective Contracting Strategy to Enhance Brownfield Capital Projects Execution .....	10116
<i>Mohamed Walid A. Ibrahim, Syed Ali Yousaf</i>	
Yibal Khuff Most Complex Project in PDO.....	10127
<i>Munir Khamis Alhammadi</i>	
Quality Hot Spots and Effective Mitigation for Successful Oil and Gas Projects.....	10135
<i>Manish Bhushan Rawat, Hamdan Helal Al Jneibi</i>	
Unlocking Value Through Integrated Collaboration for Multiple Liquid Mud Plant Facilities in East Malaysia .....	10145
<i>Rozaidi Toha, Remy Azrai M Amin, Hairul Rajab, M Mizuar Omar, Thanavathy Patma Nesan</i>	



## **PROJECT MANAGEMENT: EPC MANAGEMENT: STRATEGIES FOR SUCCESSFUL PROJECT EXECUTION II**

Advance Work Packaging and Workface Planning ADAA .....	10154
<i>Yahya Abdullah Al Balushi, Ibrahim Mohamed Bait Ishaq, Ahmed Abdullah Al Naamani, Bharat Narayan Seth</i>	
End-To-End Digital AWP Based Project Delivery, LNG Case Study .....	10163
<i>Yogesh Chandra Srivastava, Consuelo Granata, Priyanshu Upadhyay, Corrado Algozino, Abhishek Srivastava</i>	
Middle East Capital Projects Struggle with Schedule Performance .....	10172
<i>Daoud Kiomjian, Rolando Gachter</i>	
Hydrogen Projects: Successful Initiation and Realization in Partnerships .....	10186
<i>Daniel Gerhard Kiefer</i>	

## **PROJECT MANAGEMENT: REALISING VALUE IN PROJECT EXECUTION FROM TECHNOLOGIES**

RFID-GPS Enabled Project Material Control .....	10192
<i>Subrat Sahoo</i>	
An Optimization of Corporate Data Management by Cycle Time Reduction of Logging Data Submission in the Database .....	10204
<i>Alexey Tveritnev, Syed Jahangir</i>	
Realizing Net Zero Carbon Emissions for Sustainability of Existing and Aging Offshore Facilities .....	10214
<i>Yen Pinng Chan, Muhammad Yazuwan Sallij Bin Muhammad Yasin, Ir. Suhana Binti Muhamad</i>	

## **PROJECT MANAGEMENT: SMART FIELD TECHNOLOGY/DIGITALISATION IN PROJECTS**

Smart Project Management System (SPMS) - An Integrated and Predictive Solution for Proactively Managing Oil & Gas client Projects .....	10226
<i>Azharuddin Mohammed, Nasser Al Busaedi, Anwar Ali Mohamed, Shah Saud</i>	
Using a Digital Platform as a PMO in a Mega Project .....	10241
<i>K. Varghese Daniel</i>	
Predicting Project Outcomes with the Association of Project Management .....	10248
<i>Alex Robertson</i>	
Unitized Data Analytics Platform for Oil & Gas Operations a Digitalization Breakthrough .....	10266
<i>Nitish Kumar Choudhary, Vinnavadi Chandramouli Babu Sivakumar, Neha Chugh Dwivedi, Srinivas Suluru</i>	

## **UNCONVENTIONAL RESOURCES DEVELOPMENT: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**

- Prediction of Dew Point Pressure for High-Pressure Gas Reservoirs Using Artificial Intelligence Techniques..... 10275  
*Anjed Hassan, Mohamed Mahmoud, Abdulazeez Abdulraheem*
- Data Analytics and Machine Learning Predictive Modeling for Unconventional Reservoir Performance Utilizing Geoengineering and Completion Data: Sweet Spot Identification and Completion Design Optimization ..... 10291  
*Junghun Leem, Abd Hakim Mazeli, Ikhwanul Hafizi Musa, M Fakhruddin Che Yusoff*
- Facilitate Geoengineering and Completions with Machine Learning Methods: Case Study from Ordos Tight Oil Field ..... 10302  
*Jian Li, Qihong Lei, You'an He, Xueliang Han, Yin Qi, Lijun Mu, Yuan Liu, Haoyan Li, Fujian Ma*
- A Machine Learning-Based Data Augmentation Approach for Unconventional Reservoir Characterization Using Microseismic Data and EDFM ..... 10315  
*Joseph Alexander Leines-Artieda, Mauricio Xavier Fiallos-Torres, Amena Alharthi, Salah El Din Mahmoud, Abdulla Al Hashmi, Maryam Alqaydi, Travis Ramsay, Yiwen Gong, Wei Yu, Jijun Miao, Alvaro Escorcía, Franklin Useche, Aamer Al Bannay, Rahul-Mark Fonseca, Kamy Sepehrnoori*

## **UNCONVENTIONAL RESOURCES DEVELOPMENT: CHARACTERISATION AND MODELLING**

- Experimental Investigation of High Pressure, High Temperature (HPHT) Adsorption of Methane and Natural Gas on Shale Gas Samples..... 10334  
*Jyun-Syung Tsau, Reza Ghahfarokhi Barati, Jose Zaghloul, Mubarak M. Alhajeri, Kyle Bradford, Brian Nicoud*
- Integrated Approach for the Quantification of Best Reservoir Quality (kerogen Vs Bitumen) and Production of Unconventional Oil Play - A Case Study From Onshore Abu Dhabi - UAE..... 10344  
*Eziulo Ibe, Bhawesh Jha, Sila Uluyuz, Nawal Kerrouche, Anjana Panchakarla, Aditee Kulkarni, Pierre Van Laer, Hassan Al Marzooqi, Amena Alharthi, Muhammad Baig, Abdulla Al Hashmi, Trevor Brooks*
- Integrated Reservoir, Geology and Geomechanical Characterization for Unconventional Development: Application to the Diyab Play ..... 10360  
*Hamid Pourpak, Eider Hernandez, Maxime Higelin, Maysaa Jaber, Khalid Mansoor, Luther Sullivan, Emmanuelle Baud, Kun Su, Muhammad Zeeshan Baig, Hassan Al Marzooqi, Pierre Van Laer, Amena D. Alharthi, Abdulla Ali Al Hashmi, Trevor Daniel Brooks, Mohamed Elsayed Al Arbai*
- Inter-Well Stress Shadow as a Tool to Improve Productivity and Longevity in Multi-Fractured Unconventional Wells ..... 10373  
*Hernán Buijs, Mahmoud Ibrahim*
- Fault Identification for the Purposes of Evaluating the Risk of Induced Seismicity: A Novel Application of the Flowback DFIT (DFIT-FBA) ..... 10404  
*Danial Zeinabady, Christopher R. Clarkson, Samaneh Razzaghi, Sadjad Haqparast, Abdul-Latif L. Benson, Mohammad Azad*

## **UNCONVENTIONAL RESOURCES DEVELOPMENT: DRILLING PRACTICES AND WELL PLACEMENT**

- Study, Analysis and Methodology Involved in Frac String Rotation to Minimize the Axial Efforts to Enhance Monobore Completion Integrity and Accessibility to Streamline Frac Operations in Unconventional Wells of Abu Dhabi, UAE ..... 10420  
*Fernando Ruiz, Khaled Al Hadidy, Bassem El Yossef, Alexander Amorocho, Ygnacio Nunez, Rakesh Kumar, Mohamed Al Karra, Aliya Lari, Moataz Fahmy, Taha Ramadan, Chuma Ibeziako, Ayman Hebish, Adrian Negoi, Luis Cardozo, Mohamed Al Hendy, Rahma Al-Rahma, Ibrahim Hamdy, Eisa Al Shamisi, Ali Bin Sumaida, Ahmed Al Mutawa, Marco Coscia*
- Using Hybrid Geosteering to Proactively Position a Well in Fractured Tight Carbonate Jurassic Rock – A Middle East Deep-Gas Reservoir Case Study ..... 10442  
*Majdi Al-Mutawa, Taha Bloushi, Saad Abdullrahman Hassan Al-Ajmi, Fahad Khmed Al-Bader, Chinmaya Pattnaik, Ihsan Taufik Pasaribu, Chandan Jyoti Keot, Salih Noreldin Osman, Mahmoud Siam, Mohamed Abdel Basset*
- Deep Reading Well Placement Technology Eliminate Uncertainties to Deliver Deepest Lateral Section in Unconventional High Temperature Jurassic Reservoir Case Study from Kuwait ..... 10456  
*Nadir Farhi, Mohamed Ahmed Abdel Samie, Walid Saher Nouh, Tarek Mostafa Danash, Moataz Mahmoud Eldarmerdash, Izabella Tikhonova, Sarah Alqattan, Ali Hussein Saffar, Majdi Almutawa, Saad Hassan Al-Ajmi, Naser Bader Abdulmohcen, Mohcen Mohamed Regaey, Abdulrahman Ahmad Alomar, Fahad Khmed Albaer, Khaled Ali Al-Hindi, Tarek Fathy Al-Attar*
- Factory Drilling and Fracturing Technology for Tight Sandy Conglomerate Oil Reservoir in the Junggar Basin ..... 10470  
*Long Chang, Lingzhan Zou, Haige Wang, Yangfei Yu, Qi Liu, Lubin Zhuo, Jing Yu, Baocheng Wu, Jiangwen Xu, Jiangang Shi*

## **UNCONVENTIONAL RESOURCES DEVELOPMENT: ECONOMICS AND OPERATIONAL EFFICIENCY**

- The Reasons and Mitigations Behind the Casing Deformation After Hydraulic Fracturing: Cases Studies from Oman Deep Tight Gas Wells ..... 10479  
*Adnan Saif Al Hinai, Ahmed Rashid Al Jahdhami, Shaima Abdulaziz Al Farsi, Juan Carlos Chavez*
- Opportunities for Producing Hydrogen and Low-carbon Fossil Fuels from Venezuelan Conventional and Unconventional Hydrocarbon Reservoirs: An Idea in Times of Energy Transition to Net Zero-Carbon ..... 10490  
*Fernancelys Rodriguez, Hadi Belhaj, Mohammed Aldhuhoori*
- Optimizing Extended Reach CT Intervention Efficiency with Increasingly Complex Operating Environments in Vaca Muerta, Argentina ..... 10514  
*Eduardo Delgado, Eric Bivens, Stefania Cuevas, Jose Di Nardo, Francisco Lorca, Mario Beauregard, Benjamin Lock, Soledad Godoy, Namir Salazar*
- Optimization and Economic Evaluation of Unconventional Reservoirs Hydraulic Fracturing Treatment Based on a Combined Simulation and Machine Learning Approach ..... 10525  
*Amaar Siyal, Chuangchuang Qi, Hadi Belhaj, Waleed Alameri, Emad W. Al-Shalabi*

## **UNCONVENTIONAL RESOURCES DEVELOPMENT: HYDRAULIC FRACTURING**

- Vitamin C: An Environmentally Friendly Multifunctional Additive for Hydraulic Fracturing Fluids ..... 10546  
*Tariq Almubarak, Majed Almubarak, Abdullah Almoajil, Fares Alotaibi*
- Completion Design and Hydraulic Fracturing Evolution in a Tight Reservoir Having Low Poisson's Ratio and Low Young's Modulus: A Case Study in Aishwariya Barmer Hill (ABH) Oil Field, Rajasthan, India ..... 10565  
*Avinash Bohra, Utkarsh Vijayvargia, Shobhit Tiwari, Sumit Gupta, Manish Dutt Kothiyal*
- Fracture Conductivity Enhancement; A Key to Unlocking Potential of Unconventional Tight Oil Resources in the UAE ..... 10577  
*Sherif Abdelaziz Elazab, Franklin Useche, Pierre Van Laer, Muhammad Zeeshan Baig, Trevor Brooks, Abdulla Al Hashmi, Hassan Al Marzooqi, Amena Alharthi, Marco Coscia, Pierre Olivier Goiran*
- A Novel Multiphase Workflow for Tight Unconventionals, with Eagle Ford Well Example ..... 10595  
*Mohamad Majzoub Dahouk, Mathias Lia Carlsen, Ilina Yusra, Curtis Hays Whitson*

## **UNCONVENTIONAL RESOURCES DEVELOPMENT: PRODUCTION ENHANCEMENT TECHNIQUES**

- Generation of Complex Emulsions During the Application of Improved Recovery Methods in Venezuelan Heavy and Extra-Heavy Oil Reservoirs: A Critical Review ..... 10611  
*Fernancelys Rodriguez, Hadi Belhaj, David Rousseau, Mohammed Aldhuhoori*
- Case Study on the Application of In-Situ Combustion for Ultra-Low Permeability Oil Shale from Natih B Formation (Oman): Synthetic Oil Generation and Micro-Scale Pore Structure Changes ..... 10642  
*Mikhail Alekseevich Varfolomeev, Chengdong Yuan, Alexander Vladimirovich Bolotov, Emil Rinatovich Saifullin, Ilgiz Failevich Minkhanov, Seyedsaeed Mehrabi-Kalajahi, Vadim Konstantinovich Derevyanko, Ameen Ahmed Al-Muntaser, Muneer Abdo Suwaid, Kamil Sadikov, Usman Taura, Yahya Al-Wahaibi, Saif Al-Bahry, Sanket Joshi, Ahmed Naabi, Majid Hasani, Rashid Said Al Busaidi*
- Chemical EOR Efficiency for Ultra-Low Permeable Shale Deposits ..... 10656  
*Alexandra Ushakova, Andrey Groman, Anton Kasyanenko, Denis Bakulin*
- Unlock Hydrocarbon Potential of Najmah Kerogen Unconventional Reservoir (West Kuwait) ..... 10672  
*Kim Long Nguyen, Rasha Al-Morakhi, Naveen Kumar Verma, Riyadh Quttainah, Bilal Sajid Sheikh, Ahmed Youssef*

## **UNCONVENTIONAL RESOURCES DEVELOPMENT: WELL COMPLETION PRACTICES**

- Successful Perforating Deployment in Deep Gas Wells Completed with Permanent Fiber Optic Behind-Casing for Hydraulic Fracturing. A State of the Art in Well Delivery. .... 10704  
*Alvaro Javier Nunez, Nasser Khalfan Al Husaini, Al Muntaser Nasser Al Kendi, Hamood Said Al-Yahyaai, Adnan Saif Al Hinai, Mohamed Fathy Abdelazim*
- First Time in Kuwait: Successful Hybrid Multistage Completion Accelerates Production of Najmah Unconventional Jurassic Gas Reservoir ..... 10719  
*Mohamed Abdel-Basset, Taha Bloushi, Majdi Al-Mutawa, Abdulla Al-Saeed, Yousef Al-Otaibi, Ahmed Hadi*

The Efficiency of High Power Laser Perforation in Shale Formations .....	10732
<i>Sameeh I. Batareseh, Saad M. Mutairi, Damian P. Sanroman, Abdullah M. Al Harith</i>	
Novel Frac Sleeve Technology Designed to Replace Plug N Perf and Improve Efficiencies While Significantly Reducing Time to Production and Environmental Impact.....	10743
<i>Chad Michael Erick Gibson</i>	