

Society of Petroleum Engineers

# 13th Abu Dhabi International Petroleum Exhibition and Conference

ADIPEC 2008

November 3-6, 2008  
Abu Dhabi, United Arab Emirates

Volume 1 of 3

Printed from e-media with permission by:

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571  
[www.proceedings.com](http://www.proceedings.com)

ISBN: 978-1-60560-699-6

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

Copyright © 2008 by the Society of Petroleum Engineers  
All rights reserved.

For permission requests, please contact the 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)

## TABLE OF CONTENTS

### VOLUME 1

<b>Improving Road Safety in Corporate Fleet Settings – Engaging Technology, People, Government Organizations (police) and Non Government Organizations (NGOs).....</b>	1
<i>O.F.A. Al Kurdi</i>	
<b>Optimization of Coiled Tubing Interventions to Stimulate Extended Reach Water Injection Wells in a Field in Saudi Arabia.....</b>	8
<i>F.I. Beheiri, M.M. Saudi, S.A. Metwally, N.S. Al-Shammary, F. Al-Meshhal, J. Noguera, L. Sierra</i>	
<b>Evaluation of Gas, Water, WAG Injections, and Infill Wells for Improving Recovery of One of Iranian Reservoirs .....</b>	15
<i>M. Sadooni, K. Shahbazi, A. Hashemi, M.R. Abdali</i>	
<b>Performance Evaluation Of Non-Conventional Wells In Hassi-Messaoud Field, Algeria .....</b>	24
<i>B. Youcef, B. Kamel</i>	
<b>Identifying Layer Permeabilities and Skin Using a Multi-Layer Transient Testing Approach in a Complex Reservoir Environment .....</b>	55
<i>M. Eissa, S. Joshi, K. Singh, A. Bahuguna, M. Elbadri</i>	
<b>Improved Method for Compositional Modeling Using a Fine Scale Geological Description Within Gas Injection Pattern in Carbonate Reservoir .....</b>	68
<i>T. Obeida, A. Gibson, H. Al-Hashemi, B. Baruah</i>	
<b>Short-Term and Long-Term Aspects of a Water Injection Strategy .....</b>	74
<i>B.A. Stenger, A.B. Al-Katheeri, H.H. Hafez, S.H. Al-Kendi</i>	
<b>Flow Anisotropy Analysis From Multiwell-Testing of Sabiriyah Field, North Kuwait .....</b>	87
<i>A. Alkouh, H-Y. Chen</i>	
<b>Hybrid 5-way Dune Statics Solution for an Abu Dhabi Land 3D Seismic Survey .....</b>	100
<i>G. Ajlani, M. Mahgoub, A. Leveque, A. Haddabi</i>	
<b>Real-Time Drill Bit Wear Prediction by Combining Rock Energy and Drilling Strength Concepts .....</b>	106
<i>B. Rashidi, G. Hareland, R. Nygaard</i>	
<b>Pipeline Construction Challenges in Brownfield.....</b>	115
<i>H.A.B. Thabet, M.M. Murad</i>	
<b>A New Cement Sealant System for Long-Term Zonal Isolation for Khuff Gas Wells in Abu Dhabi .....</b>	121
<i>A.S. Al-Suwaidi, A.A. Soliman, K. Jammeli, M. Arif, B. Elatrache, T. Fattah, M. Agnani, E. Voon</i>	
<b>Laboratory Study of Miscible Carbon Dioxide Flooding of UAE Carbonate Oil Reservoirs.....</b>	134
<i>R. Almehaideb, S.A. Shedad, A.Y. Zekri</i>	
<b>The Total Control of Well Integrity Management .....</b>	145
<i>L. Smith, D. Milanovic</i>	
<b>A Laboratory Investigation of Water Abatement Chemicals for Potential Use in the Wanaea Oil Field .....</b>	154
<i>H.H. Sidiq, R. Amin, T. Kennaird</i>	

<b>Matrix Stimulation of Thick Carbonate Formation: High Rate Acid and CT Acid Treatments—A Case History .....</b>	159
<i>F.D. Rachmawati, R. Andika, T.M. Simanjuntak, A. Aimar, R. Wijaya, P. Abubakar</i>	
<b>Lean Duplex Materials for Line Pipe Applications in Sweet and Slightly Sour Environments .....</b>	171
<i>I. Rommerskirchen, S. Lemken, R. Hoffmann</i>	
<b>Controlling Gas Channeling and Altering it to a Kind of Natural Gas Lift in an Iranian Offshore Oil Field .....</b>	182
<i>M.D. Nezhad</i>	
<b>Better Contracting in Oil &amp; Gas Markets - Finding Mutually Acceptable Ways of Securing the Best Supply Chains in a Tight Market.....</b>	194
<i>K. Nouwailati</i>	
<b>Using Crystallized Superabsorbent Copolymer for Plugging High-Permeability Channeling and Vugular Communication .....</b>	199
<i>P. Albirez, E.D. Dalrymple, J. Vasquez, A.E. Adokpaye</i>	
<b>Data Architecture of Real-Time Drilling and Completions Information at Saudi Aramco .....</b>	216
<i>M.M. Khudiri, M.A. Shehry, J.D. Curtis</i>	
<b>Downhole Fluid Analysis Integrating Insitu Density and Viscosity Measurements - Field Test from an Oman Sandstone Formation.....</b>	224
<i>M. Khalil, H. Rumhi, M. Randrianavony, K. Cig, O.C. Mullins, S. Godefroy</i>	
<b>Utilization of Acoustic Logging Technology to Identify Failed Barriers in Offshore Wells .....</b>	233
<i>F. Shnaib, P. Beaumont-Smith, T. Alagba, K.K. Nasr</i>	
<b>Help Them Grow or Watch Them Go! .....</b>	240
<i>S.H. Qutob</i>	
<b>Horizontal Well Performance Optimization using Linearized Inflow Control Devices.....</b>	244
<i>D. Krinis, N. Al-Dawood, Y. Soremi</i>	
<b>Managing Water and Gas Production Problems in Cantarell: A Giant Carbonate Reservoir in Gulf of Mexico .....</b>	251
<i>T.S. Daltaban, A.M. Lozada, P.A. Villavicencio, F.M. Torres</i>	
<b>A New Approach to Dealing With High Pressure Cemented Annulus in Re-Entry Wells .....</b>	270
<i>J.A. Ashhab, N. Khan, D. Boyd</i>	
<b>Combination of a Unique Stabilized Bi-Center Bit and Vibration Dampening Tool Improve Hole Opening Performances Through Interbedded Formations in Saudi Arabia .....</b>	275
<i>J. Al Thuwaini, M. Emad, W. Mohamed, R. Chafai, A. Murdock</i>	
<b>Solid Expandable Technology for Zonal Isolation of Loss Circulation Formation: Case Study Shuaiba Formation .....</b>	288
<i>J. Ekpe, A. Alexeenko, J. Al-Thuwaini, M. Emad, R. Khanlarov</i>	
<b>Managing a Successful Exploration Drilling Campaign in Saudi Arabia: A Case History.....</b>	294
<i>J. Ekpe, A. Alexeenko, A. Zeid, B. Ahmed, G. Haddad</i>	

<b>Specific Design Process Associated With Simulation Tools Improve PDC Bi-Centre Application Definition and Deliver Solution in Directional Environment .....</b>	299
<i>M. Al-Umran, M. Al-Hameli, A. Al-Mumen, B. Cuillier, B. Boussa, P. Cortes, A. Dourfaye, H. Boussahba</i>	
<b>Evaluation of Miscible and Immiscible Gas Injection in One of the Iranian Fields.....</b>	313
<i>S. Delfani, A. Mortezapour, A.Q. Firouz, S.R. Shadizade</i>	
<b>Interface Management .....</b>	326
<i>R. Collins, R. Durham, R. Fayeck, W. Zeid</i>	
<b>New Technique to Cure Losses in UeR Formation in South Oman Field— A Case Study .....</b>	336
<i>S.K. Mahapatra, E. Stevenson, A. Al Fadhli</i>	
<b>Application of Statistical Proxies to Speed Up Field Development Optimization Procedures .....</b>	342
<i>J. Onwunalu, M. Litvak, L.J. Durlofsky, K. Aziz</i>	
<b>Lessons Learned and Management Information used in the Successful Implementation of a Competence Assurance Process .....</b>	356
<i>S. Al Matroushi, R. Kochanczyk, F. Baba-Ali, A.A. Mohammed, K. Al Shekali, J. Verkoelen, J. Dupuis</i>	
<b>Novel Approach to High Water Cut Measurement in a Mature Oil Field .....</b>	364
<i>C. Sandau, J. Waddell, T. Berthelet</i>	
<b>Well Design, Execution &amp; Collaboration: An Operator's Tool for the Planning and Drilling of a Deepwater Gulf of Mexico Well.....</b>	371
<i>J.L. Breidenthal, C.A. Ochterbeck</i>	
<b>New Application of an Inline Separation Technology in a Real Wet Gas Field .....</b>	379
<i>A.A. Hamoud, A. Boudi, S.D. Al-Qahtani</i>	
<b>Deployment of a Rotodynamic Multiphase Pump in a Remote Hilly-Terrain Oil Field in Saudi Arabia.....</b>	384
<i>A.A. Hamoud, A. Boudi, S.D. Al-Qahtani, N. Al-Dayil</i>	
<b>Multiphase Well Rate Measurements Applied to Reservoir Analysis .....</b>	393
<i>S. Tasic</i>	
<b>TAML Level 3 Tri-lateral with Sand Control Application for Saudi Aramco.....</b>	400
<i>I. Refai, A. Assal, J. Fould, T. O'Rourke, M.H. Haque, N.S. Akram</i>	
<b>Environmental Study for Two Gas Pipelines Through the Baltic Sea.....</b>	411
<i>J.R. Valeur, J.B. Larsen, N. Stroebaek</i>	
<b>Field Development Plans Optimization by Modeling Fluids Flow Impact and Assessing Intelligent Wells on Reservoir Performance .....</b>	423
<i>E. Elrafie, G.D. Al-Qahtani, M. Agil, A. Rincon, F-M. Colomar</i>	
<b>A Successful Process for Embracing Uncertainty and Mitigating Risk - From Geological Understanding to Development Plan Optimization of a Saudi Complex Reservoir .....</b>	440
<i>E. Elrafie, I. Zabalza-Mezghani, T. Abbas, Y. Kozlov, R. Craghill</i>	
<b>Improved Performance of Downhole Active Inflow Control Valves through Enhanced Design: Case Study .....</b>	455
<i>S.M. Al Mubarak, A.H. Sunbul, D. Hembling, T. Sukkestad, S. Jacob</i>	
<b>Evaluation of the Bitumen Intervals in a Carbonate Reservoir, Case Study in Abu Dhabi Onshore field, UAE .....</b>	461
<i>M. Haggag, A. Al-Yaaqoobi</i>	

<b>Seismic and High-Resolution Sequence Stratigraphy of the Upper Cretaceous Simsima Formation, Onshore Abu Dhabi Oil Field, United Arab Emirates.....</b>	469
<i>M.A. Hozayen, C.J. Strohmenger, K. Mueller, S.H. Al-Marzouqi, M. Shuaib</i>	
<b>Comparison of 3D VSP and High Resolution Surface Seismic Images for Improved Reservoir Monitoring and Characterization.....</b>	480
<i>K. Mueller, W. Soroka, M.N. Al Baloushi, O.S. Al Jeelani, B. Paulsson, A. Chavarria</i>	
<b>SPE International Symposium &amp; Exhibition on Formation Damage Control.....</b>	488
<i>T.K. Tarabzouni</i>	
<b>Reservoir Rock Typing From Crest to Flank: Is There A Link? .....</b>	491
<i>M. Basiuni, S. Negahban, A. Dawood, A. El Mahdi, T. Jamal</i>	
<b>Building a Deterministic 3D Model of Tar Mat deposits in a Carbonate Reservoir in a Geologically Consistent Manner: A Case Study from Offshore Abu Dhabi .....</b>	513
<i>P.J. Ruelland, C.T. Lehmann, K.I. Al Hosany, D.O. Cobb</i>	
<b>Technology Enhancements for the Application of Magnetic Bearings in Critical Wet Sour Gas Applications.....</b>	532
<i>R. Gadangi, R. Wu, G. Chevallier, K. Weeber</i>	
<b>Reconciling Production Decline With Reservoir Connectivity: Field Study.....</b>	547
<i>M. Khasanov, V. Krasnov, A. Petrov, M. Kelkar, A. Bahar</i>	
<b>Harnessing the Information Mammoth... New advances in Data Management in Engineering IT .....</b>	562
<i>S. Gibbons</i>	
<b>A Practical Guide for Identifying and Solving Air Cooled Heat Exchanger Performance Problems in the Field.....</b>	568
<i>M. Ellmer</i>	
<b>Estimating Cementation Factor (m) for Carbonates Using Borehole Images and Logs.....</b>	581
<i>M. Akbar, J. Steckhan, M. Tamimi, T. Zhang</i>	
<b>Prediction and Estimation of Capillary Pressure for Wettability and Wettability Variations Within Reservoir .....</b>	591
<i>M.N. Derahan, M.K. Zahoor</i>	
<b>3D OBC Seismic Survey Parameters Optimization for a Carbonate Field Offshore Abu Dhabi, United Arab Emirates .....</b>	610
<i>T. Ishiyama, D. Painter, K. Belaid, H. Ikawa, A.S. Al-Suwaidi, J. Karwatowski, D. Barwick, M. Kaneko</i>	

## VOLUME 2

<b>Normalized and De-Normalized PVT Methodology for Black Oil Simulation.....</b>	623
<i>Y. Dabbour, I. Sener, M. Al Marzouqi</i>	
<b>The Application of High Integrity Protection Systems to Prevent Topside Overpressure which Caused by Water Injection .....</b>	637
<i>J. Wang, W. Lili, L. Yonghao, Z. Yueping</i>	
<b>HSE Management in a Drilling Environment .....</b>	641
<i>A. May, A. Moonen, S. Logan, J. Allinson</i>	
<b>Challenges of Optimizing Oil Recovery of “Tight Carbonate” Reservoir Onshore Abu Dhabi Oil Field, United Arab Emirates .....</b>	647
<i>M. Benlacheheb, M.A. Edris, O.H.S. Al Jeelani, S.H. Al-Marzouqi, M. Al Sheehi, T.A. Al Hashemi</i>	

<b>Commercial ASP Flood Test in Daqing Oil Field .....</b>	654
<i>C. Jiecheng, X. Dianping, B. Wenguang</i>	
<b>Integrity Management during Design Stage Reji Baby/Technip .....</b>	670
<i>R. Baby</i>	
<b>A Modeling Feasibility Study Indicates Seismic AVO has Potential to Discriminate between Brine and Hydrocarbon in Middle East Carbonate Reservoir.....</b>	680
<i>S.L. Mahmoud, A.A. Othman, W. Soroka, T. Romero, A. Smith</i>	
<b>Strategic Approach in Tackling Performance .....</b>	689
<i>T. Carroll, R.N. Beaumont, J. Gill</i>	
<b>Cyclic Water Injection Improves Oil Production in Carbonate Reservoir.....</b>	702
<i>L. Surguchev, N.H. Giske, L. Kollbotn, A. Shchipanov</i>	
<b>An IOC's Experience in Implementing Digital Oilfield Technologies .....</b>	715
<i>J.M. Hacker</i>	
<b>SIMOPS, Intending to Break North Field Records in String Time per Well.....</b>	726
<i>A. Vos, A. Cross, B. Lismont, J. van Venrooij, R. Quaden, S. Byrne</i>	
<b>Direct Strength Measurements of Shale Interaction with Drilling Fluids .....</b>	738
<i>T. Hemphill, Y. Abousleiman, M. Tran, S. Hoang, V. Nguyen</i>	
<b>Estimation of Interwell Connectivity in the Case of Fluctuating Bottomhole Pressures .....</b>	746
<i>D. Kaviani, J.L. Jensen, L.W. Lake, M. Fahes</i>	
<b>Safe Behaviour as a Function of Consequences - B:f(C) .....</b>	762
<i>J. Tucker</i>	
<b>4C Seismic Data Analysis for Reservoir Monitoring in Shallow-water Environment .....</b>	775
<i>Y. Sun, K. Berteussen</i>	
<b>Charge and Structural Timing in Relation to Hydrocarbon Prospectivity for Paleozoic Reservoirs in Abu Dhabi.....</b>	780
<i>H.S. Alsenani, A. Taher, M.R. Alzaabi, S. Almenhal, G.C. Stone, N. McAllister, B. Bierley</i>	
<b>Using a Digital Plant Architecture to Prevent Abnormal Situations .....</b>	790
<i>A. Dennant</i>	
<b>Using Closed Loop Adaptive Control to Optimise Plant Operations .....</b>	796
<i>A. Dennant</i>	
<b>Rock-Typing of Upper Jurassic (Arab) Carbonates, Offshore Abu Dhabi .....</b>	799
<i>C.T. Lehmann, K.I. Al Hosany, D.O. Cobb, A. Al-Hendi</i>	
<b>Innovative Approach to Incidents Investigation Improves Contractors HSE Performance .....</b>	819
<i>Z.M. Ataya</i>	
<b>An Innovative Approach in Tracking Injected Water Front in Carbonate Reservoir Off Shore Abu Dhabi.....</b>	823
<i>M.M. Amer, O. Al-Farisi, T. Hiraiwa, M. Attia, A. Al-Habshi, A. Madjidi</i>	
<b>New Methodology for Optimized Field Development Plan, Why Do We Need To Introduce Dynamic Rock Typing “Case Study for Simulation Model Improved Accuracy and Reliability” .....</b>	830
<i>F. Al-Jenaibi, K. Hammadi, L. Salameh</i>	
<b>A Novel Combustion Turbine Inlet Air Cooling System.....</b>	841
<i>M.M. Zamzam, A.M. Al-Amiri</i>	

<b>High-Resolution Sequence-Stratigraphic Correlation and Facies Characterization of Upper Thamama (Lower Cretaceous) Reservoir Units and Non-Reservoir Zones, Abu Dhabi, United Arab Emirates.....</b>	857
A. Al-Mansoori, C.J. Strohmenger, A.A. Ghani, J.C. Mitchell	
<b>Successful Application of Swell Packer Technology to Shut-off Water Production in Horizontal Wells – Case Studies from Onshore Abu Dhabi .....</b>	866
A.A. Aboukshem, A.B. Al Katheeri, M.M. Kenawy	
<b>The Value of Formation Pressure Measurements While-Drilling a Case Study from Offshore Abu Dhabi .....</b>	874
X. Poirier-Coutansais, E. Baud, E. Mirtz	
<b>Large Hole LWD Compressional Sonic, New Age of High Quality Seismograms in Offshore Abu Dhabi, U.A.E. ....</b>	881
G. Mercado, O. Al Farisi, D. Boyd	
<b>3D OBC Seismic Data Processing for Two Overlapping Carbonate Fields Offshore Abu Dhabi, United Arab Emirates .....</b>	892
T. Ishiyama, D. Painter, K. Belaid, S. Gazet, A.S. Al-Suwaidi, J. Karwatowski, M. Mahgoub, K. Furuya, A. El Dakhakhny, R. Sinno	
<b>AVO Application in a Carbonate Offshore Oil Field, U.A.E.....</b>	898
H. Ikawa, G. Mercado, A. Smith	
<b>Analysis of Low Frequency Passive Seismic Data from an Experiment over a Carbonate Reservoir in Abu Dhabi .....</b>	909
K. Berteussen, M.Y. Ali, J. Small, B.T. Anjana, B. Barkat	
<b>Gas Condensate Pseudopressure in Layered Reservoirs.....</b>	917
K. Singh, C.H. Whitson	
<b>Remediation of Hazardous Materials with an Emphasis on NORM .....</b>	931
M.A. Sharkey, J.M. Burton	
<b>Surface Deformation Around the Musandam Peninsula Detected by Differential SAR Interferometry .....</b>	937
T. Onuma, K. Berteussen, N. Fujita	
<b>Understanding the Corrosion Inhibitor Partitioning in Oil and Gas Pipelines .....</b>	945
M. Achour, C. Johlman, D. Blumer	
<b>Importance of Mercury Injectiion Capillary Pressure (MICP) Measurements at Pseudo Reservoir Conditions.....</b>	952
P. Mitchell, I. Al-Hosani, Y. Al Mehairi, M.Z. Kalam	
<b>Managing Mature Indian Offshore Fields - A Case History .....</b>	963
N.K. Mitra, A. Kumar	
<b>Challenges in Highly Sour Gas Environment Containing Elemental Sulphur.....</b>	971
M. Girgis	
<b>Substituting Nitrogen for Hydrocarbon Gas in a Gas Cycling Project.....</b>	986
J. Linderman, F. Al-Jenaibi, S. Ghori, K. Putney, J. Lawrence, M. Gallet, K. Hohensee	
<b>Prudent and Integrated Production Planning to Maintain Excellent Operations in Angsi Field, Peninsular Malaysia Operations .....</b>	996
S. Hadi, A. Osman, A.I. Bahrun, M.T. Khalid, M. Ismaon, P.A. Rahim	
<b>Delivering Efficiency in Performance by Exploiting Advanced Management Information Systems for Well Integrity Processes.....</b>	1003
J. Al Ashhab, H.A. Khreibeh	

<b>Design and Fabrication of a Low Rate Metering Skid to Measure Internal Leak Rates of Pressurized Annuli for Determining Well Integrity Status .....</b>	1009
<i>A. Al-Tamimi, S. Al-Mansoori, S. Samad, M. Al-Shagga, A. Hussain, G.J. Ghneim, A. Sakkaf</i>	
<b>Using the Optimal Through-Casing Measurement to Maximize Oil Recovery: A Case Study From The Western Desert, Egypt .....</b>	1016
<i>M. Van Steene, B. Herold, D.J. Dutta, Y. Abugren, S. Hosny, A.B. Badr, I. Mahgoub, A. Zidan</i>	
<b>Impact of ERD Wells with HP/HT Downhole Conditions on Drill String Integrity.....</b>	1024
<i>J. Franchi, W. Gamisans, A. Baryshnikov</i>	
<b>Removal of Overburden Channel Effects through Channel Velocity Modeling and Prestack Depth Migration for an Oil Field Offshore Abu-Dhabi .....</b>	1033
<i>M. Takanashi, M. Kaneko, N. Monzawa, S. Imahori, T. Ishibashi, A. Sakai</i>	
<b>The Development of an Integrated Prioritization and Tracking System to Insure the Integrity of Safety Critical Systems .....</b>	1040
<i>S. Cooke, A.E. El Dine</i>	
<b>Steam Injection into Fractured Carbonates – The Physical Recovery Mechanisms Analyzed and Upscaled .....</b>	1045
<i>A. Bychkov, M. Verlaan, P. Boerrigter, T. van Heel, J. van Dorp</i>	
<b>Recent Innovations and the Importance of Planned Maintenance &amp; Inspection Procedures .....</b>	1054
<i>D. Warriner</i>	
<b>Challenges for Integrated Permeability Modeling Incorporating Conceptual Fracture Model in the Jurassic Carbonate Reservoir in a Mature Oil Field, Offshore Abu Dhabi .....</b>	1062
<i>H. Kojima, Y. Umezawa, S.M. Salman, K.E. Hosani, T. Masuzawa</i>	
<b>Company Growth through Challenges and Innovations for Well Construction.....</b>	1072
<i>S. Kikuchi, A.S. Fada'q</i>	
<b>Professional Development Advisors: The Link between Line Organizations, Management and the Training Organization .....</b>	1083
<i>T. Aggour</i>	
<b>3-D Seismic Evidence of Tertiary - Cretaceous Karsts &amp; Collapse Disturbances from Offshore Oil Field in Abu Dhabi and Outcrop Analogs from Jebel Hafit, United Arab Emirates.....</b>	1090
<i>R. El Awawdeh, N. Khouri, A. Al Neyadi, Z.J. Shevchek, H. Shebl, H.E. Edwards, A. Gombos, M. Johns</i>	
<b>Interpreting Different Seismic Data Cubes Leads to New Insights for an Offshore Field, Abu Dhabi, United Arab Emirates .....</b>	1103
<i>N. Khouri, R. El Awawdeh, Z.J. Shevchek, C. Harris, J.M. Reilly, G. Zelewski, A. Gombos, M. Johns</i>	
<b>Experiences and Benefits Gained through Implementation of the First Intelligent Field in Saudi Aramco (QATIF Field).....</b>	1111
<i>F.M. Al-Dossary, A.A. Al-Ghamdi, A.S. Al-Ahmari</i>	
<b>ADCO's Experience and Lessons Learnt in Managing Major Project (Bu Hasa Facilities Development).....</b>	1120
<i>A. Al Jaber, M. Hussain</i>	
<b>Material Selection for Downhole Sour Environments .....</b>	1129
<i>A.N. Moosavi, K. Rumash, M. Kadri</i>	

<b>The CTour Process, An Option to Comply with Zero Harmful Discharge Legislation in Norwegian Waters - Experience of CTour Installation on Ekofisk After Start up 4th Quarter 2007 .....</b>	1136
<i>K. Voldum, E. Garpestad, N.O. Anderssen, I.B. Henriksen</i>	
<b>Wireline “creep” .....</b>	1146
<i>P. Fitzgerald</i>	
<b>Development and Application of Pressure Systems Integrity Management through Risk Based Inspection Audits in Abadan Refinery .....</b>	1159
<i>S.J. Hashemi, S. Javadpour, M.N. Bajestani, M.R. Zahiri</i>	
<b>Maximum Reservoir Contact Wells: Six Years of Performance-Lessons Learned and Best Practices .....</b>	1167
<i>S. Salamy, S. Al-Mubarak, H. Al-Mubarak, N. Al-Dawood, A. Al-Alawi</i>	
<b>Optimizing Production in Maximum Reservoir Contact Wells with Intelligent Completions and Optical Downhole Monitoring System .....</b>	1174
<i>I.H. Al-Arnaout, M.H. Al-Buali, S.M. Al-Mubarak, S.M. Al-Drweesh, M.A. Zareef, E.S. Johansen</i>	
<b>Installation for Pressure Reduction of Hydrocarbon Gases in a Near Isothermal Manner .....</b>	1187
<i>A. Valente</i>	
<b>Measurement of Water-Cut in Challenging Flow Conditions using Infrared Technology .....</b>	1194
<i>M.A. Al-Saiyed, S.A. Warsi, J.E. Phillips, S.K. Gilani, M.A. Zareef, J. Lievois</i>	
<b>Training and Development Case History: Evolution of Open-hole Logging Applications from Post-Drilling to While Drilling Requires a New Generation of Geoscientist.....</b>	1208
<i>F.P. Hearn, K. Trichel, K. Thanabalasingam</i>	
<b>Enhanced Oil Recovery Pilot Testing Best Practices .....</b>	1218
<i>G.F. Teletzke, R.C. Wattenbarger, J.R. Wilkinson</i>	

### VOLUME 3

<b>Managing Downhole Parameters During Re-entry and Intervention to Improve Operational Efficiency .....</b>	1234
<i>L. Joppe, J. McNicol</i>	
<b>Phanerozoic Plate Reconstructions of the Middle East: Insights Into the Context of Arabian Tectonics and Sedimentation .....</b>	1242
<i>C.A. Johnson</i>	
<b>Seeking the Hidden Threat: Applications of a New Approach in Pipeline Leak Detection .....</b>	1258
<i>J. Elliott, R. Fletcher, M. Wrigglesworth</i>	
<b>Proposed Methodology to Predict Electric Power Requirements for ESP Wells in a Heavy Oil Field - A Case Study .....</b>	1268
<i>R. Brito</i>	
<b>Utilizing Online Water Detection to Automate Production Management .....</b>	1286
<i>K. Mohaj</i>	
<b>Measurement of the Volumetric Temperature Distribution in Bulk Liquid Tanks.....</b>	1290
<i>T. Nguyen, A. Stojcevski, R. Veljanovski, J. Chandran</i>	

<b>Optimization of Drilling Operational Parameters and UBD Feasibility Study in a Mature UAE Field Wells .....</b>	1295
<i>A.H. Al Jarwan, A.M. Al Menhali, K.A.M. Al Kindi</i>	
<b>Facies Modeling Using Multiple-Point Statistics: An Example from a Carbonate Reservoir Section Located in a Small Part of a Large Shelf Margin of Arabian Gulf, UAE .....</b>	1312
<i>I. Arslan, M.T. Ribeiro, M. Al Neaimi, I.Hendrawan</i>	
<b>Sweet and Sour Gas Injection as an Enhanced Oil Recovery Method in Abu Dhabi Offshore Oil Fields .....</b>	1321
<i>R. Uchiyama, Y. Yamada, H. Ishii, L.A. Salameh</i>	
<b>Injection Wells with Integrity Challenges on the NCS.....</b>	1328
<i>B. Vignes, S.A. Tonning, B.S. Aadnoy</i>	
<b>Rehabilitating Marine Jetty with Cathodic Protection.....</b>	1341
<i>M.S. Siddiqui</i>	
<b>Exploring Organisational Understanding and Capability through Crisis and Emergency Exercises .....</b>	1346
<i>D. Evans</i>	
<b>Standardizing the Approach for Offshore Pipeline Lifetime Extension .....</b>	1354
<i>J.G. Franklin, B.E. Stowell, T.P. Jee, M. Hawkins</i>	
<b>SPE International Symposium &amp; Exhibition on Formation Damage Control.....</b>	1361
<i>Rajendra Pania</i>	
<b>Improving Oil In Place Estimation through an Improve Water Saturation Prediction – A Case Study in the Middle East .....</b>	1369
<i>M. Al Hammadi, S. Al-Maskari, E-S. Radwan</i>	
<b>Onshore Multiple Attenuation Study on Abu Dhabi Seismic Data Successful at Removing Unwanted Noise.....</b>	1375
<i>M.S. Al Jenaibi, M.S. Al Nahhas, W. Soroka, M. Cogan</i>	
<b>Improving Lifecycle Project Delivery Through Better Decision-Making Under Uncertainty .....</b>	1381
<i>S. Yawanarajah, J. Williams, K. Carrell, T. Webb, M. Cox</i>	
<b>3D Multiple Attenuation in the F-XY Domain: A Case History from Abu Dhabi.....</b>	1385
<i>M.S.B. Maroof, M.S. Al Nahhas, W. Soroka, A. Leveque, S. Spitz</i>	
<b>Compositional and PVT Analysis for Determining Liquid Dropout in Pipelines.....</b>	1391
<i>T.E.H. Esmaiel, A.A. Al Qallaf</i>	
<b>Sharing Patented Technology on Disposal of Oily Effluents - An Ideation, Innovation and Implementation Experience.....</b>	1405
<i>S. Kapoor, A. Jain, M.L. Panwar</i>	
<b>Neural Net Prediction of Porosity From Seismic Successfully Used to Improve the Reservoir Model Away From Well Control .....</b>	1408
<i>N. Al Zaabi, W. Soroka, A. Abousetta, A.S. Kaya</i>	
<b>Geosteering Optimization in Thin Carbonate Reservoirs .....</b>	1415
<i>L. Ramos, S. Ali, S. Al Maskary, S. Abou-Mostafa, E. Mrito, P. Padav, A. Aki</i>	
<b>Evaluation of Wellbore Clean Up Fluids by Comparing Laboratory Test Results with Field Production Data.....</b>	1425
<i>N. Al-Kitany, B. Ghosh, Y.F. Eldin, A.S. Al-Bemani, H. Al-Hadhrami</i>	

<b>Extending the Range of Multiphase Metering to Challenging High Water Cut Gas-Lifted Wells: TOTAL ABK Field Application.....</b>	1434
<i>D. Costa, J-P. Couput, F. Hollaender, B. Pinguet, T. Koshy</i>	
<b>Utilizing Real Time Logging While Drilling Resistivity Imaging to Identify Fracture Corridors in a Highly Fractured Carbonate Reservoir .....</b>	1448
<i>T. El Gezeery, F. Al Saqrani, E.I. Archibong, S. Al-Radhi</i>	
<b>Uncertainty Signal Analysis for a 4D-Seismic in a Middle East Carbonate .....</b>	1475
<i>S . Vega, K.A. Berteussent</i>	
<b>Challenges of Seismic Processing of Transition-Zone Data: Comparison of Three State-of-the-Art Approaches .....</b>	1480
<i>M.T. Hadidi, H.A. Nehaid, A. Abousetta, A. Yahia, W. Soroka</i>	
<b>Platform and Field Life Assessment and Extension .....</b>	1485
<i>B.G. Hudson</i>	
<b>Soft-Sensing for Multilateral Wells With Downhole Pressure and Temperature Measurements .....</b>	1495
<i>B. de Kruif, M. Leskens, R. van der Linden, G. Alberts</i>	
<b>Using a Dynamic Coupled Well-Reservoir Simulator to Optimize Production of a Horizontal Well in a Thin Oil Rim.....</b>	1501
<i>E.D. Nennie, G. Alberts, E. Peters, E. van Donkelaar</i>	
<b>Health Reporting System in the Oil &amp; Gas Business .....</b>	1509
<i>C. Zappador, G. Gomez, A. Madera, F. Uberti</i>	
<b>An Integrated Case Study from Seismic to Simulation through Geostatistical Inversion .....</b>	1517
<i>S. Soni, W. Littmann, D. Timko, H. Karkooti, S. Karimi, S. Kazemshiroodi</i>	
<b>Treatment and Recovery of Oil-Based Sludge Using Solvent Extraction.....</b>	1528
<i>D.M. Abouelnasr, E. Zubaidy</i>	
<b>Yardstick for Talent Pipeline in Oil and Gas Industry in India .....</b>	1535
<i>U. Chatterjee</i>	
<b>Effective Recruitment Strategy in a Short Skills Market.....</b>	1544
<i>D. Strathdee</i>	
<b>Impact of the Effective Implementation of Project Integrated Quality System (IQS) From Early Stages of Design Development .....</b>	1548
<i>M. Daoud</i>	
<b>Thermal Maturity Model of the Arabian Plate.....</b>	1557
<i>S.R. Pietraszek-Mattner, G.J. Grabowski, R. Chaker, W.B. Maze, G.A. Ottinger, M.J. Hardy</i>	
<b>Correlations for Optimum Separation Pressures for Sequential Field Separation System .....</b>	1566
<i>M.S. AL-Jawad, O.F. Hassan</i>	
<b>Experimental and Numerical Comparison of Flooding Schemes to Enhance Recovery of Light / Medium Heavy Oil in an Offshore Oilfield.....</b>	1579
<i>B. Yang, H. Jiang, S. Yang, M. Chen, Y. Fang</i>	
<b>How to Ensure That Required Metering Uncertainty Are Kept to a Minimum During Operation.....</b>	1590
<i>A.E. Smorgrav</i>	
<b>Insights from Monitoring of Heavy Oil Production in Peace River, Canada.....</b>	1596
<i>K.P. Maron, S. Bourne, H. Klemm, A. van den Beukel, P. McGillivray</i>	

<b>Low Production Tester (LPT) - A Viable Solution for Marginal Wells Testing.....</b>	1601
<i>P. Hodgson</i>	
<b>Extended Binomial Trees for Real Options Valuation in E&amp;P Projects.....</b>	1607
<i>C.F. Galvis, J. Villarreal</i>	
<b>Experimental Measurement and Modeling of Asphaltene Precipitation in Crude Oil.....</b>	1616
<i>M. Nikookar, M.R. Omidkhah, G.R. Pazuki, L. Sahranavard, E.M. Roayaei</i>	
<b>Azimuthal Anisotropy Analysis for Fracture Reservoir Characterisation: Supergiant Field, U.A.E. ....</b>	1622
<i>C. Ribeiro, C. Reiser, F.S. Al-Shekaili, M.S. Al Nahhas, M. Boekholt</i>	
<b>PSSP Seismic Data Processing and Interpretation from Conventional 1C Acquisition in a Supergiant Field – Onshore Abu Dhabi.....</b>	1632
<i>F.S. Al-Shekaili, M.S. Al-Jenaibi, M.S. Nahas, M. Boekholt, R. Sablon, S. Rodriguez</i>	
<b>Carbonate Reservoir Rock Typing – The Link between Geology and SCAL.....</b>	1643
<i>J.S. Gomes, M.T. Ribeiro, C.J. Strohmenger, S. Negahban, M.Z. Kalam</i>	
<b>The Combination of Mechanical Separation with Chemical Separation to Treat Waste Water Offshore.....</b>	1657
<i>F. Gregoire</i>	
<b>Pearl GTL - Assuring Success from the Outset.....</b>	1663
<i>A. Brown</i>	
<b>Efficient Multifractured Horizontal Completions Change the Economic Equation in Latin America through Improved Reservoir Contact and Well Productivity .....</b>	1666
<i>P. Saldunigaray, E.H. Salas, S. Vargas, F. Penacorada, J.M. Bernechea, G. Cavazzoli, F. Cafardi</i>	
<b>Data-Driven Seismic Repeatability Evaluation on a Carbonate Reservoir Offshore Abu Dhabi .....</b>	1673
<i>K. Akama, I. Takahashi, H. Hagiwara, A.A. Sultan</i>	
<b>The DuPont Experience in Sustainability: Lessons Learned .....</b>	1678
<i>B. Alam</i>	
<b>Benchmarking Safety Through Safety Perception Surveys .....</b>	1683
<i>G. Griffioen</i>	
<b>Behavioral Safety at RasGas Company Limited Doha Qatar, Success Factors .....</b>	1691
<i>R. Arunachalam</i>	
<b>A Diagnostic Toolkit to Detect Compartmentalization Using Time-Scales for Reservoir Mixing .....</b>	1699
<i>A.H. Muggeridge, P.C. Smalley</i>	
<b>Simulating the Outcrop: Surface To Subsurface Integration of a Carbonate Reservoir, Khuff Formation, Oman .....</b>	1710
<i>G-J. Reijnders, N. Al-Mohannadi, M. Poppelreiter, S. Finlay, G. Bodewitz, L. Al-Oreibi, V. Zampetti, S. Al-Kindy, J. Amthor, B. Kohre, T. Aigner</i>	
<b>Subtle Faults in Carbonate Reservoirs.....</b>	1715
<i>J. Pion, M. Vesseron, T. Dugoujard</i>	
<b>Properly Executed Underbalanced Drilling Technology Adds Reserves and Enhances Ultimate Recovery.....</b>	1720
<i>S. Babajan, S. Abu Dhabi, H. Qutob</i>	

<b>Applying New Systematic and Dynamic UBD Procedures to Prevent Formation Damage, Wellbore Collapse and Improve Oil production in Hassi Massoud Field.....</b>	1730
<i>A. Berkat, K. Kartobi, A. Mazouzi, O. Dhina, H. Qutob, N. Barakat, F. Grayson, A. Marei</i>	
<b>Advances in Tight Gas Completions - Noel Tight Gas Project .....</b>	1737
<i>K. Kovalsky, P. Kelly</i>	
<b>Multiphase Pump Implementation at Tembungo-B Platform for Petronas Carigali Sabah Operation (SBO), Malaysia (Sharing Best Practices) .....</b>	1741
<i>S.N. A'shikin, R. Rakam</i>	
<b>Minimum and Mandatory HSE Training Program for All Personnel Working in Onshore Oil Operations, Applicability and HR Impact.....</b>	1747
<i>L. Remisio, M. El-Farmaoui</i>	
<b>Application of Well Testing for Well Deliverability Forecasting in Volatile Oil Reservoirs.....</b>	1753
<i>M.O. Sanni, A.C. Gringarten</i>	
<b>Field Development Expansion of a Giant Oil Field in Abu Dhabi Using Artificial Islands as Drilling and Production Centers .....</b>	1766
<i>A. Modavi, W.W. Martin, A.H. Muflehi, J.V. Walters, G. Ismail</i>	
<b>A New Workflow for Comprehensive Petrophysical Characterization of Carbonate Reservoirs Drilled with Water-Base Muds .....</b>	1776
<i>A. Gyllensten, M.I. Al-Hammadi, E. Abousrafa, A. Boyd, R. Ramamoorthy, S. Neumann, T.J. Neville</i>	
<b>High-Resolution 3D VSP Processing - An Example from the Middle East .....</b>	1789
<i>J.A. Chavarria, B. Paulsson, A. Goertz, M. Karrenbach, K. Mueller, S. Marmash, M. Al-Baloushi, W. Soroka</i>	
<b>Condition Management as Part of Asset Management.....</b>	1796
<i>R. Panzke</i>	
<b>Case Histories ? Implementation of New Liner Hanger Technology in South Central Venezuela Significantly Improves Operations in Complex Wells .....</b>	1800
<i>C. Jimenez, S. Soto, A. Leon, P. de Venezuela, M. Batocchio, P. Marval, M. Schoener-Scott</i>	
<b>Control of Sulfate Reducing Bacteria in Oil &amp; Gas Pipelines.....</b>	1809
<i>M.D. Lohithesh, A.K. Agnihotri, B. Lal</i>	
<b>Contracting Basics to Deliver Projects in Today's Supply Market.....</b>	1820
<i>H. Benham, J. Marijt</i>	
<b>Tracking Interwell Water Saturation in Pattern Flood Pilots in a Giant Gulf Oil field .....</b>	1824
<i>Z. Bhatti, Y. Al Mansoori, S. El Sembawy, V. Vahrenkamp, N. Clerc, M. Wilt, S. Reeder</i>	
<b>Who's My Neighbor? – A Method for Optimizing Collaborative Links in Integrated Upstream Operations.....</b>	1835
<i>J. Thomas, A. Pandey</i>	
<b>Author Index</b>	