

SPE/IADC Middle East Drilling Technology Conference and Exhibition 2009

Managing Limited Resources to Overcome Today's Challenges

**Manama, Bahrain
26 – 28 October 2009**

ISBN: 978-1-61567-745-0

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© (2009) by the Society of Petroleum Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2010)

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

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Solid Expandable Technology for Zonal Isolation of Loss Circulation Formation: Case Study Shuaiba Formation	1
<i>J. Ekpe, A. Alexeenko, J. Al-Thuwaini, M. Emad, and R. Khanlarov</i>	
Breaking Records in North Kuwait Deep Gas Fields Drilling 16-in. Hole Sections at Greater Depths	7
<i>Mohammed Al-Saeedi, Meshal Al-Khaldy, V.S. Mahesh, Ali Jaffar, Anthony Brown, and Maneesh Sharma</i>	
Drilling Wells With Narrow Operating Windows Applying the MPD Constant Bottom Hole Pressure Technology—How Much the Temperature and Pressure Affects the Operation’s Design	22
<i>M. Arnone and P. Vieira</i>	
Underbalanced Drilling Technology Adds Reserves and Enhances Ultimate Recovery	38
<i>Salar Babajan, Shell Abu Dhabi, and Hani Qutob</i>	
Applying a New Systematic and Dynamic UBD Procedure Prevented Formation Damage, Wellbore Collapse and Improved Oil Production in Hassi Massoud Field	48
<i>Ali Berkat, Khelil Kartobi, Amine Mazouzi, and Okba Dhina, Hani Qutob, Naiem Barakat, Fudge Grayson, and Ayman Marei</i>	
Identification and Characterization of Producing Fractures in Naturally Fractured Reservoirs Using PIWD	55
<i>Ali Berkat, Khelil Kartobi, Mazouz M Cherif, Hani Qutob, and Naiem Barakat</i>	
Re-design of Casing Program Due to Enhanced Shale and Salt Stability	63
<i>Luigi Moroni, Alain Denax</i>	
Specially Formulated Drilling Fluid Prevents Differential Sticking, Mud Losses, and Wellbore Instability in Oil and Gas Wells in Saudi Arabia	71
<i>Adel A. Al-Ansari, Faisal M. Al-Mutair, M.H. Al-Kilani, Saleh A. Al-Haidary, Mishal S. Al-Baloosh, A. A. Al-Nimer, Walid G. Al-Zahrani, Vickneswaran Veloo, Mario Villalobos</i>	
From Fast Track to Fast Success - J4 Small Field Development Accelerates Performance Improvement Process, Northwest Bintulu, Malaysia	79
<i>Trevor Spalding, M. Syazwan B Ahmad Shafei</i>	
The Use of High-Performance Spacers for Zonal Isolation in High-Temperature High-Pressure Wells	90
<i>G.D. Sarap, M. Sivanandan, S. Patil, A. P. Deshpande</i>	
Costly Shoe-Track Drilling Practices Using Conventional and Rotary-Steerable Systems Evaluated: A Summary of Lessons Learned, Proposed Best Practices, and Software-Driven Recommendations	97
<i>Hank Rogers, Earl Webb, Jim Tilley, Brett Fears</i>	
Preventing Shallow Water Flow in North Sea Exploration Wells Possibly Exposed to Shallow Gas	106
<i>T. Landbø Opseth, B.T. Ribesen, T.N. Tran, A. Hinton, M. Laget, G. Lende, A. Saasen</i>	
Roles of Managed Pressure Drilling Technique in Kick Detection and Wellcontrol – The Beginning of the New Conventional Drilling Way	116
<i>Paco Vieira, Maurizio Arnone, Fernando Barragan</i>	
Best Practices and Lessons Learned From 15 Years of Experience of Cementing HPHT Wells in Italy	126
<i>F. Frittella, M. Babbo, A.I. Muffo</i>	
Dealing with the Challenges of UBD Implementation in Southern Iranian Oilfields	132
<i>Arash Shadravan, Mohammad Nabaei, Mahmood Amani</i>	
The Role of Multilateral Drilling Technology in Increasing Productivity in the Middle East Fields	142
<i>Abouzar Mirzaei Païaman, B. D. Al-Anazi, Gh. A. Safian, J. Moghadasi</i>	
Pressurized Mud Cap Drilling Drastically Reduces Non-Productive Time in Soka Field, South Sumatera	148
<i>Michael Runtuwene, Sanny Suprihono, Dany Rizka, Andi Eka Prasetya, Julmar Shaun Toralde, and Steve Nas</i>	
A Practical Approach to Evaluating Directional Drilling Performance	155
<i>Chimerebere O. Nkwocha</i>	
Advancements in Pressure Resistant Tool Joints for Intervention Riser, Under-Balanced Drilling, and Completion Applications	173
<i>Andrei Muradov, Michael J. Jellison, Barry J. Vinson</i>	
Deep Drilling Challenges in OIL’s Assam Field—A Case Study	184
<i>K.K. Borah and S.K. Mishra</i>	
Saudi Aramco RTOC, Collaborative, Safe and Effective Delivery of Wells From Start to Finish	190
<i>M.M. Khudiri, N.A. Naser, M.A. AlShehry, A.A. Nassir, and H.K. Mokhtar</i>	
A Unique Cement Slurry Overcoming Low Temperature, Shallow Water/Gas Flows in Deepwater Cementing	202
<i>Chengwen Wang, Ruihe Wang, Yuhuan Bu, and Weidong Zhou</i>	

Meeting the Challenges of Waste Disposal in the Mainland of Russia—Successful Design and Implementation of the First Full-Scale Drilling Waste Injection Project in Western Siberia	211
<i>Roman M. Fetsenets, Adriana Ovalle, Vic Still, Dmitry Blyus, Talgat Shokanov, Viatcheslav Anokhin</i>	
Plug-Setting Aid Retooled for Uphole-Downdip Plugback Application Enables Pinpoint Slurry Placement in Complex Updip Wellbore	217
<i>Hank Rogers, Donny Winslow, and Paul Boddy</i>	
Additional Parameters for Better Vibration Control	225
<i>Mohammad M. Eltrissi</i>	
Integrating Learning Curves in Probabilistic Well Construction Estimates	244
<i>C. Jablonowski, A. Ettehadtavakkol, B. Ogunyomi, I. Srour</i>	
Targeting Zonal Isolation Challenges on the Strategic Szoreg UGS Project, Hungary	250
<i>Martin Urraca, István Balázs</i>	
Drilling and Completion Challenges and Countermeasures in Kenkiyak Complex Sub-salt Oil Field Development	263
<i>Benjing Dong</i>	
New Approach to Drilling and Completing Horizontal Wells in Extremely Shallow and Unconsolidated Reservoirs	273
<i>Shahryar Saebi, Timo W. Staal, Graeme Dawson, Dennis Miguel, Robert Ooms, Chris Shield, Mohd Razali Paimin</i>	
Deployment Strategies to Reduce Risk in the Acquisition of Formation Evaluation Data	281
<i>Robert Kuchinski</i>	
New Generation PDC Bits Successfully Replace Impregnated Bits Resulting in Significant Performance Improvements and Savings for the Operator	292
<i>Yaqdhan Nabhani, Henry Obame-Ondo, Mahmoud Kindi, Ahmed Saidi, Moosa Al-Sheriyani, Edwin Reek, Chaitanya Vempati, Marco Cruz</i>	
A New Riserless Method Enable Us to Apply Managed Pressure Drilling in Deepwater Environments	304
<i>M. Mir Rajabi, A.I. Nergaard, O. Hole, O.M. Vestavik</i>	
Improving Drilling Efficiency Through Wellbore Stability Analysis in the Gulf of Suez, Egypt	311
<i>Marie Van Steene, Dhruva J. Dutta, Ahmed Abu El Fotoh</i>	
Utilizing Top Drive for Casing Running System Reduce Well Construction Costs and Increase Safety	335
<i>Nazir Shahin, A. Amir El Messiri, Abdel Hamid A. Haddad</i>	
Advancement in Drilling Increases Penetration Rates in Deep, Hard, and Abrasive Formation	346
<i>Deepak M. Gala, Paul Nehus, Paco Vieira</i>	
Bearing Wear Model for Roller Cone Bits	355
<i>G. Hareland, A. Wu, J. James</i>	
Hydraulic Workover Unit is Drilling Shallow Offshore Gas Wells	365
<i>T. Huesecken, H.A. Al Balushi</i>	
Study of Jilh Formation Overpressure and its Prediction	372
<i>Shaohua Zhou, Jamil Al-Hajhog, Michael A. Simpson, Maolin Luo, Mohammed Mohiuddin and Chee Tan</i>	
Successful Casing Cementation in Total Loss Conditions—Case Histories	389
<i>D. Dasgupta, K.M. Suyan, S. Banerjee, S.A. Ravi, Soumitra Chakraborty, Pradip Mondal, V.K. Jain</i>	
An Apparatus and Test Procedure for Qualifying Expandable Connections for Challenging Applications	398
<i>Richard DeLange, Shaohua Zhou, Hojing Choi, Ed Evans, Scott Osburn</i>	
Minimum Requirements for Multi-Station Analysis of MWD Magnetic Directional Surveys	417
<i>Erik Nyrnes, Torgeir Torkildsen, Harry Wilson</i>	
Ultra Slim Rotary Steerable System Achieves World Record Performance in the Middle East	429
<i>Steve Barton, Paul Teasdale, Ian Robson, Paul Cartier, Prashant Gohel</i>	
Solving Bore Hole Instability Problem of Underbalanced Drilling in Several Wells of an Iranian Oil Field	437
<i>Samad Bakhtiarizadeh, Iman Asadi, Ali Yousefi Sadat</i>	
A Review on Impacts of Drilling Mud Disposal on Environment and Underground Water Resources in South of Iran	447
<i>Sahar Bakhshian, Hasssan Dashtian, Abuzar Mirzai P., Bandar Duraya AlAnazi</i>	
An Innovative Material for Severe Lost Circulation Control in Depleted Formations	455
<i>K.M. Suyan, Vinod Sharma, V.K. Jain</i>	
Numerical Computation of a Circulating Drilling Fluid	461
<i>Philippe Gilbert, Yannick Peyson, Olivier Vincke, Philippe Essel, Matthieu Naegel</i>	
Combined Technologies Offer Time-Saving and Efficient Alternatives for Zonal Isolation	468
<i>Robert Dickenson, Jerry Fritsch, Greg Noel</i>	

Case Study Using Hollow Glass Microspheres to Reduce the Density of Drilling Fluids in the Mumbai High Basin, India and Subsequent Field Trial at GTI Catoosa Test Facility	477
<i>B.A. Thyagaraju, K. Krishna Pratap, K.S. Pangtey, Y.N. Trivedi, S. Garg, Gilles P. Georges, David A. Goff, Melvin Devadass</i>	
Effect of Drilling Cuttings Transport on Pressure Drop in a Flowing Well	490
<i>Fadairo A.S. Adesina, Adekomaya Olufemi, Falode Olugbenga</i>	
Remote Real-Time Monitoring of Particle Size Distribution in Drilling Fluids During Drilling of a Depleted HTHP Reservoir	499
<i>Egil Ronaes, Siv Elisabeth Vik, Knut Taugbøl, Åse Sjøholm, Nils Kaageson-Loe</i>	
New PDC Technologies Utilized to Improve Performance in Deep Khuff Gas Wells for Offshore Operator in Abu Dhabi	510
<i>Ehab Mohamed, Octavio Alvarez, Gamal Galal Gomaa</i>	
Case Study of Performance Improvements Offshore Drilling Carbonates Using Specially Designed PDC Bits	519
<i>Basil Al Ramahi, Emad Diab</i>	
Well Casing Integrity Excellence: A Case History of Evaluating Casing Integrity Using Modern Imaging and Corrosion Tool Logs in Ghawar Field in Saudi Aramco	523
<i>Hisham I. Al-Shuwaikhat, Saad M. Al-Driweesh, Ahmed K. Al-Zain, Shaker A. Al-BuHassan, Ibrahim M. El-Zefzafy, Hasan I. Al-Tammar</i>	
Engineered Kick-off Plugs to Reduce Unproductive Downtime in Sidetracking Operation	549
<i>Satinath Banerjee, D. Dasgupta, R.K. Meher, V.K. Jain</i>	
Flexible 4¾ Inch LWD System Enhances Short Radius Horizontal Drilling Applications in Ghawar Field, Saudi Arabia	556
<i>Mohamed Ibrahim Azizi, Adib Al-Mumen, Ali Al-Beloi, Mohammed Al-Hameli, Merie Ibrahim, Bassiouny Aly, Lewis MacIver, David Carr, Hani Qutob</i>	
Using Deep Azimuthal Electromagnetic Resistivity Technology and Rotary Steerable System for Geosteering Complex Sands of Bare Field in the Faja Petrolifera Del Orinoco, Venezuela	564
<i>Pedro Machado, Carlos Rojas, Ruben Guzman, Alberto Ache, Nidal Khalil Hazboun, Karin Gabriela Gonzalez Abad</i>	
Openhole ICD Completion with Fracture Isolation in a Horizontal Slimhole Well: Case Study	577
<i>Dustin Young, Mohammed Al-Muraidhef, Peter E. Smith, Mohammad Zaki Awang</i>	
World-Class Organizations/World Class Safety—How the Best Oil and Gas Companies Achieve and Sustain Outstanding Safety Performance	584
<i>Teg Matthews</i>	
The Performance of Mud Motors With Two Different Bend Housing on Drilling a Lateral Section of Horizontal Wells in North Dakota	590
<i>Andy Syahputra, Bill Blaschke, Jerry Hudson</i>	
Implementation of Real-Time Tubing Inspection in PDO’s South Oman Fields Results in Reduced Costs and HSE Risks	595
<i>Anurag Sharma, Mohammed Al Ruqaishi, Moghrob Al Asmy, Salim Mahrooqi, John Shibu</i>	
Real-Time 3D Modeling and Geosteering in a Heterogeneous Carbonate Reservoir	608
<i>Salem Al-Jaberi, Saeed Dama, Jasim Al-Rayaisah, Saad A. H. Said, Assia Lakhlifi</i>	
Successful Introduction of Next Generation - Reactive Liner Perforating Technology in Pakistan	618
<i>T. Qayyum, K. Khattak, I. Qureshi, T. Aizad, S. Hameed, S. Akhtar</i>	
Dynamic Test Evaluates the Effectiveness of Self-Healing Cement Systems in the Downhole Environment	625
<i>Robert Darbe, Keith Pewitt, Jeffery Karcher</i>	
Inaccessible Drilling Targets and Completions Operation Made Possible by the Alleviation of Excessive Torque and Drag	634
<i>Tim Parker Long, John Edward McCormick, Melissa Anne Frilot</i>	
“PHPA” as a Frictional Pressure Loss Reducer and its Pressure Loss Estimation	645
<i>C. Ercan, M.E. Ozbayoglu</i>	
Risk Management Register (Drilling Operation & Service Companies)	651
<i>Khaled Abdel-Ghani Moussa, Ahmed Abou Soliman, Mohamed Salman</i>	
The Road to ZERO LTI	652
<i>Khaled Abdel-Ghani Moussa, Ahmed Abou Soliman, Philip Prestridge, Zaki Azzam, Mohamed Ahmed Al-Muftehi, Samir Freiwat</i>	
Author Index	