

# **SPE Deepwater Drilling and Completions Conference 2012**

**Galveston, Texas, USA  
20-21 June 2012**

**ISBN: 978-1-62276-136-4**

**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© (2012) by the Society of Petroleum Engineers  
All rights reserved.

Printed by Curran Associates, Inc. (2012)

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)

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

# TABLE OF CONTENTS

<b>SPE 144565 Improving Horizontal Wells Offshore Operations and Production Management Through the Deployment of Inflow Control Devices in Bouri Field, Libya</b> .....	1
<i>Mustafa Amari, Nasser Ali Misherghi, Hossein Ali Algdamsi, Hosam Eldin Mohamed Sharaf, Mohamed Lakhdar Abid, Francisco Porturas, Adel Zeglal, Hassan Jaloal</i>	
<b>SPE/IADC 145400 Achieving Brazilian Extended Reach Drilling Records on Polvo Project with Ultra-High Torque Connection</b> .....	19
<i>Nathan Biddle, Luciana Osório, Hector Arevalo, Marcelo Velho, Vincent Flores, Scott Granger, Fabien Carrois</i>	
<b>SPE 145719 Cementing in Front of Soluble Salt Zones</b> .....	31
<i>C. A. Simão, C. R. Miranda, A. A. Vargas, R. F. L. Pereira, R. L. L. Santos, M. A. S. Soares, A. C. F. Conceição</i>	
<b>SPE 146501 Reaming on Demand - Selective Activation of an Integrated Under Reamer at the Grane Field in the North Sea</b> .....	52
<i>Jos Pragt, Wolfgang Herberg, Matthias Meister, Carl Clemmensen, Gaute Grindhaug, Knut Hanken</i>	
<b>SPE 146521 Effective Use of Passive Inflow Control Devices to Improve the Field Development Plan</b> .....	67
<i>Tarik A. Abdelfattah, Sudiptya Banerjee, Gonzalo A. Garcia, Hang Nguyen</i>	
<b>SPE 146531 Advances in Drilling and Evaluation Technology Create New Opportunities for Deepwater High-Pressure Wells</b> .....	86
<i>Hal Edwards, James Rask, Juergen Maehs, Matthew Wandstrat, Brian Donadieu</i>	
<b>SPE 146652 Offshore ESP Selection Criteria: An Industry Study</b> .....	93
<i>Michael C. Romer, Mark E. Johnson, Pat C. Underwood, Amanda L. Albers, Russ M. Bacon</i>	
<b>SPE 147279 Development and Characterization of a Modified Polymeric Material for HP/HT Downhole Sealing Applications</b> .....	106
<i>Jiaxiang (Jason) Ren, Dave Gerrard, Ping Duan, Chau Vu, Hoi Yin Leung</i>	
<b>SPE 147409 Nano-enhancement of Elastomers for Improved Downhole Barrier Performance</b> .....	113
<i>John C. Welch, Caleb R. Newman, David P. Gerrard, Oleg A. Mazyar, Vipul Mathur, Vu Thieu</i>	
<b>SPE 147419 Frac-Packing: Best Practices and Lessons Learned from over 600 Operations</b> .....	128
<i>John Weirich, Jeff Li, Tarik Abdelfattah, Carlos Pedrosa</i>	
<b>SPE 147451 The Application of Light and Ultra-Light Weight Proppant in Horizontal Well Sand Control: Unified Model and Case Histories</b> .....	149
<i>Zhongming Chen</i>	
<b>SPE 147480 Advancement in Acid-Precursor Chemistry for Removal of Drill-in Fluid Filter Cake</b> .....	161
<i>Xiaolan Wang, Kern Smith, Jennifer Cutler, Brian Beall</i>	
<b>CSUG/SPE 147547 Comparison of Downhole Control System Technologies for Intelligent Completions</b> .....	169
<i>Joel Shaw</i>	
<b>SPE 147747 Quantification of Drillstring Integrity Failure Risk Using Real-Time Vibration Measurements</b> .....	176
<i>Yezid Arevalo, Ashley Fernandes</i>	
<b>SPE 149625 Innovative Whipstock Technology / Procedures Successfully Complete Challenging Low-Side, Uncemented Casing Exits: UK North Sea</b> .....	186
<i>Andrew Finlay, James Bain, Alan Fairweather, James Ford</i>	
<b>SPE 149757 Advantages of Integrating Geomechanics Modeling and Hydraulics Modeling in Well Planning and Execution</b> .....	193
<i>Virgil Hargis, William Fowler</i>	
<b>IADC/SPE 150047 Successful Qualification and Deployment of a High-Pressure Drill Pipe Riser in West Africa</b> .....	208
<i>Mathieu Camus, Pascal Auclair, Barrie Horsburgh, Yann Gallois, Christophe Rohart, Henri Williams, Yannick Mfoulou</i>	
<b>SPE 150276 A Comprehensive Theoretical and Experimental Study on Fluid Displacement for Oilwell Cementing Operations</b> .....	216
<i>Pedro Esteves Aranha, Cristiane Richard De Miranda, Walter F. Cardoso Jr., Gilson Campos, André Leibsohn Martins, Frederico C. Gomes, Simone Bochner De Araujo, Marcio S. Carvalho</i>	
<b>SPE 150343 Review of Methods for Uniaxial Compressive Rock Strength Estimation in Deepwater Formation With Uncertainty Quantification in Wellbore Stability Analysis in Absence of Core Measurements</b> .....	225
<i>Rajeev Ranjan Kumar, Dhiresh Govind Rao</i>	
<b>SPE 150345 Centralizer Selection and Placement Optimization</b> .....	235
<i>Gefei Liu, Lawrence Weber</i>	

<b>SPE 150546 Horizontal Openhole Gravel Packing in Wells with Long Blank Pipe and Screen Sections</b> .....	242
<i>Y. R. Costante, A. Trondsen, R. Bergkvam, H. Hodne, A. Saasen</i>	
<b>SPE 150548 The Effect of Drilling Fluid Content on Magnetic Shielding of Downhole Compasses in MWDS</b> .....	263
<i>K. Tellefsen, S. Ding, A. Saasen, P. A. Amundsen, A. Fjogstad, T. Torkildsen</i>	
<b>SPE 150714 Borehole Instability in Tertiary Shales in the Norwegian North Sea</b> .....	271
<i>Olav-Magnar Nes, Reidar Bøe, Eyvind F. Sønstebo, Kjetil Gran, Sturla Wold, Arild Saasen, Arild Fjogstad</i>	
<b>SPE 151044 Thermally Insulated Tubing Application to Prevent Annular Pressure Buildup in Brazil Offshore Fields</b> .....	288
<i>M. V. D. Ferreira, A. R. Santos, V. Vanzan</i>	
<b>SPE 151100 First Application of EC-Drill in Ultra-Deepwater - Proven Subsea Managed Pressure Drilling Method</b> .....	298
<i>M. Mir Rajabi, K. Toftevang, R. S. Stave, R. Ziegler</i>	
<b>SPE 151145 Improved Oversight Increases Service Quality for Deepwater Cementing Operations</b> .....	310
<i>G. G. DeBruijn, M. Bogaerts, P. Khalilova, F. Moretti, E. Voon</i>	
<b>SPE 151176 The Effect of Equivalent Diameter Definitions on Frictional Pressure Loss Estimation in an Annulus with Pipe Rotation</b> .....	316
<i>Olatunbosun Anifowoshe, Samuel O. Osisanya</i>	
<b>SPE 151235 Modeling Dynamic Behavior of Bottomhole Assemblies Containing an Underreamer</b> .....	326
<i>G. Ishak, J. Daily, S. Miska, R. Mitchell</i>	
<b>SPE 151279 A New Buckling Severity Index to Quantify Failure and Lock-up Risks in Highly Deviated Wells</b> .....	337
<i>S. Menand</i>	
<b>SPE 151377 Anomalous Behaviors of a Propagating Borehole</b> .....	352
<i>Luc Perneder, Emmanuel Detournay</i>	
<b>SPE 151475 Design and Qualification of an Ultra-High Pressure Perforating System</b> .....	359
<i>Nauman Mhaskar, Mark Sloan, William Myers, William Harvey</i>	
<b>SPE 151787 Deepwater Drilling in Both Hard and Abrasive Formations: The Continuing Challenge of Bit Optimization</b> .....	370
<i>Dominic Murphy, Donald Mackay, James Gilmour, Nicholas Tetley, Prabhakaran Centala, Edward Iwere</i>	
<b>SPE 152861 A Solution to the Problems Associated with Tight-Clearance Boreholes: The Close Tolerance Press-Fit Stop Collar</b> .....	383
<i>J. A. Wimberg, S. A. Tkach, J. M. Marque, K. Domingue, J. Buytaert, K. Harless</i>	
<b>SPE 153154 Resilient Lost Circulation Material (LCM): A Significant Factor in Effective Wellbore Strengthening</b> .....	390
<i>Sharath Savari, Donald L. Whitfill, Arunesh Kumar</i>	
<b>SPE 153439 Modeling Dynamic Shock Loads for High-Pressure/Deep-Water Tubing-Conveyed Perforating Operations in the Gulf of Mexico</b> .....	397
<i>Rick Giunta, Cam Le, Martin Schoener-Scott, Ryan Anderson, Joshua Glass</i>	
<b>SPE 154759 Improvement of Hole Cleaning Through Fiber Sweeps</b> .....	406
<i>Erik Cheung, Nicholas Takach, Evren Ozbayoglu, Reza Majidi, Ben Bloys</i>	
<b>SPE 154928 Challenges Associated with Drilling a Deepwater, Subsalt Exploration Well in the Gulf of Mexico: Hadrian Prospect</b> .....	417
<i>Mark C. Moyer, Scott B. Lewis, Mike T. Cotton, L. Miles Peroyea</i>	
<b>SPE 155426 Efficiency of Removing Filter Cake of Water-Based Drill-in Fluid Using Chelating Agents Utilizing a CT Method</b> .....	431
<i>S. M. Elkhatny, H. A. Nasr-El-Din</i>	
<b>SPE 155475 Multidisciplinary Approach and Engineered Solution Sets New North Sea Performance Benchmarks</b> .....	448
<i>Mark Cockram, Allan Ritchie, John O'Keefe, Rene Van Der Laan, Erik Sundfjor, Olav Larsen, Peter Kleimeer, Tom Rapp, Peter Shotton, Ole Jacob Gjertsen</i>	
<b>SPE 155613 Resin-Based Cement Alternatives for Deepwater Well Construction</b> .....	468
<i>Kay A. Morris, Jay P. Deville, Paul Jones</i>	
<b>SPE 155733 Identifying and Mitigating the Risks of Shallow Flow in Deepwater Cementing Operations</b> .....	475
<i>M. Bogaerts, G. G. DeBruijn, P. Khalilova, F. Moretti, E. Voon</i>	
<b>SPE 155736 Challenges in Setting Cement Plugs in Deep-water Operations</b> .....	484
<i>M. Bogaerts, A. Kanahuati, P. Khalilova, F. Moretti, E. Voon, S. Dighe</i>	
<b>SPE 155743 Wireless Reservoir Surveillance In Deepwater Completions</b> .....	498
<i>Brock Williams, Brent Brough</i>	

<b>SPE 155867 A Novel Tubing Movement Workflow Increases Efficiency and Planning for Deepwater Frac-Pack Operations</b> .....	509
<i>Ian Boisvert, Marshal Strobel, Michael Szatny</i>	
<b>SPE 156017 Modeling of Axial Vibrations to Allow Intervention in Extended Reach Wells</b> .....	533
<i>Nathan Wicks, Jahir Pabon, Francois Auzerais, Roman Kats, Matthew Godfrey, Yong Chang, Andrew Zheng</i>	
<b>SPE 156164 Careful Planning and Application of an Asymmetric Vibration Damping Tool Dramatically Improves Underreaming While Drilling Performance in Deepwater Drilling</b> .....	548
<i>John McCarthy, Alan Kabbara, Timm Burnett, Ian Forster</i>	
<b>SPE 156167 Different Configurations of Intelligent Well Completions with Three Stacked Frac Packs</b> .....	561
<i>Barney Paternostro</i>	
<b>SPE 156254 Narrow Margin Drilling in Deepwater: Solution Concepts</b> .....	566
<i>Ochuko Eriwwo, Olayinka Adeleye</i>	
<b>SPE 156313 Microemulsion Technology for Synthetic-Based Mud Removal in Well Cementing Operations</b> .....	580
<i>Juan Carrasquilla, Dominique Guillot, Syed A. Ali, Cecilia Nguyen</i>	
<b>SPE 156330 A Wellbore Stability Approach For Self-Killing Blowout Assessment</b> .....	586
<i>Stephen M. Willson</i>	
<b>SPE 156332 Well Planning: A Risk Management Process</b> .....	603
<i>Charles Dudley McManus, Patrick Leach, Paul Wicker, Steve Anderson</i>	
<b>SPE 156364 Transformational Reduction in Non-productive Time through Implementation of Broadband Networked Drill-string and Modified Drilling Practices in an Extended Reach Drilling Campaign</b> .....	610
<i>Daan Veeningen, Martyn Fear, Stephen Willson</i>	
<b>SPE 156370 Application of Mechanical Specific Energy Techniques in Reducing Drilling Cost in Deepwater Development</b> .....	626
<i>Kingsley Amadi, Ibiye Iyalla</i>	
<b>SPE 156394 A Numerical Model for Predicting the Rate of Sand Production in Injector Wells</b> .....	636
<i>S. Azadbakht, M. Jafarpour, H. Rahmati, A. Nouri, H. Vaziri, D. Chan</i>	
<b>SPE 156403 Marine Well Containment Company Progress</b> .....	644
<i>Marty Massey</i>	
<b>SPE 156922 Development of an Improved FLC Pill for Testing Wire Wrap Screens Collapse and Burst Resistance</b> .....	649
<i>George Gillespie, Christopher A. Hall, John S. Sladic</i>	
<b>Author Index</b>	