

SPE Deepwater Drilling and Completions Conference 2016

**Galveston, Texas, USA
14 – 15 September 2016**

ISBN: 978-1-5108-3140-7

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© (2016) by Society of Petroleum Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact Society of Petroleum Engineers
at the address below.

Society of Petroleum Engineers
P. O. Box 833836
Richardson, Texas 75083-3836

Phone: (800) 456-6863
Fax: (972) 952-9435

books@spe.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Multiscale Characterization of Foamed Cement Using X-Ray Microcomputed Tomography	1
<i>X. Pang, J. Maxson, W. Jimenez, J. Singh, R. Morgan</i>	
Challenging Offshore Dynamic Kill Operations Made Possible With the Relief Well Injection Spool.....	22
<i>R. Oskarsen, O. Rygg, M. Cargol, B. Morry</i>	
Reducing Drilling Cost by finding Optimal Operational Parameters using Particle Swarm Algorithm	32
<i>R. Self, A. Atashnezhad, G. Harelard</i>	
A Next-Generation Shock-Capturing, Multi-Phase Flow Simulator for Perforating Applications in HPHT Environment	44
<i>D. Bale, R. Satti, M. Ji, J. Howard</i>	
The Use of Propellants to Stimulate and Enhance Productivity from Tight, Damaged and Low-Quality Reservoirs	58
<i>J. Gilliat, R. Satti</i>	
Underbalance and Cleanup Optimization of Perforated Completions Using a Novel Fast Computational Model.....	69
<i>D. Bale, R. Satti</i>	
A Novel Inflow Control Device Design Philosophy of Optimizing Horizontal Well Performance.....	82
<i>M. Cao, X. Wu, Y. An, G. Han, R. Wang, B. Liang</i>	
Reaming and Drilling Practice Optimization using Modeling and Simulation Techniques	92
<i>C. Herbig, C. Linke, H. Reckmann, A. Hohl, D. Heinisch, A. Boyd, M. Vial, R. Taylor, A. Kenworthy, S. Murphy</i>	
Innovative Forging Process Allows Safer and Cost Effective Heavy Duty Landing String for Deepwater Applications	105
<i>L. Bordet, J. Franchi, S. Granger, A. Vierke</i>	
Successful Deployment of Electro-Hydraulic TCP Firing Head Improves Safety and Reduces Rig-Time	120
<i>E. Stolboushkin, J. Gilliat, P. Hills, S. Zuklic</i>	
Mathematical Modeling of Gas in Riser	143
<i>U. Aarsnes, E. Hauge, J. Godhavn</i>	
A New Technology That Delivers Long-Term Chemical Treatment During Well Stimulation: Organic Deposits, Inorganic Scales, and Corrosion Control	152
<i>S. Mukhopadhyay, N. Akaiige</i>	
Reservoir Protection Strategy and a High Performance Drill-In Fluid for Deepwater Wells in the South China Sea.....	161
<i>X. Zhao, Z. Qiu, M. Wang, Y. Liu, G. Chen, S. Liu, J. Zhou, X. Xing</i>	
A Semi-Analytical Solution for Estimating the Fracture Width in Wellbore Strengthening Applications	172
<i>J. Zhang, M. Alberty, J. Blangy</i>	
A Numerical Study on the Thermal Behavior of Wellbores.....	184
<i>M. Ferreira, T. Hafemann, J. Barbosa Jr., A. Silva, R. Hasan</i>	
Investigating the Influence of ESP on Wellbore Temperature, Pressure, Annular Pressure Buildup, and Wellbore Integrity	204
<i>Y. Kang, Z. Liu, A. Gonzales, R. Samuel</i>	
Multilateral Technology With Intelligent Completions: Challenges and Solutions for Deepwater Subsea Well Operators.....	219
<i>M. Glaser, S. Saldanha</i>	
Delayed-Release Acid System for Remedial Cleanup of Well Perla-7.....	229
<i>F. Cedeno, L. Deen, J. Martinez, Y. Rojas, V. Martinez, P. Plazola, M. Segatto, R. Martinez</i>	
A Perforating Tool Kit as a Computational Paradigm.....	239
<i>J. Wight, G. Craddock, D. Haggerty, F. Rojas, J. Montiverdi, A. Yadav, M. Magdaniel, F. Rios, K. Harive</i>	
Fluidic Diode Autonomous ICD Single-Phase Testing	247
<i>G. Corona, S. Greci, B. Least, W. Yin, J. Plumlee</i>	
Metal-to-Metal Sealing and Anchoring Expandable Hanger in Gulf of Mexico: Development, Collaboration, and Execution	256
<i>O. Dagle, J. Johnson, D. Moeller</i>	
A Technical Approach for Successfully Drilling Unconsolidated Sands in Critical Applications	262
<i>R. Mahrous, N. Elshout</i>	
Reticulated Foam Enhanced High Fluid Loss Squeeze LCM for Severe Lost Circulation Management in Highly Fractured Formations.....	274
<i>S. Savari, J. Rolfson, R. Williams, D. Whitfill, H. Wang</i>	

Real-Time Wellbore Stability Evaluation for Deepwater Drilling During Tripping	284
<i>F. Zhang, Y. Kang, Z. Wang, S. Miska, M. Yu, Z. Zamanipour</i>	
Modeling and Simulation of Annular Pressure Buildup APB Management Using Syntactic Foam in HP/HT Deepwater Wells.....	303
<i>Z. Liu, R. Samuel, A. Gonzales, Y. Kang</i>	
Designing Lost Circulation Material LCM Pills for High Temperature Applications	316
<i>S. Kulkarni, S. Savari, N. Gupta, D. Whitfill</i>	
Dynamic Underbalance Applied with Gun Hanger Technology for Early Oil Production with Artificial Lift System	326
<i>J. Patino, F. Gainza, G. Cosios</i>	
Finite Element Modeling to Determine Perforating Gun Collapse Failure Modes and an Engineered Solution.....	339
<i>G. Craddock, J. Wight, K. Harive</i>	
Post-Perforation Cleanup for Single Run Multizone Completion in a Complex Deepwater Well.....	348
<i>P. Maher</i>	
Investigation of Shock Wave Interference in Low-Debris Perforating Gun System.....	359
<i>E. Robey, C. Hoelscher</i>	
Thermal Wellbore Strengthening: System Design, Testing, and Modeling	367
<i>B. Hoxha, O. Incedalip, A. Vajargah, A. Hale, E. Oort</i>	
Cementing Design and Placement Methods to Optimize Seal Integrity and Lower Cost for Deepwater Wells Drilled With Non-Aqueous Drilling Fluid.....	390
<i>P. Sonnier, L. Watters, D. Clapper, B. Head, G. Scherer, R. Prod'Homme, M. Choi, Z. Zhang</i>	
Investigating the Chemical Nature of Flat Rheology	414
<i>M. Hilfiger, C. Thaemlitz, E. Moellendick</i>	
On the Instability of Cement-Fluid Interface and Fluid Mixing.....	425
<i>H. Karbasforoushan, E. Ozbayoglu, S. Miska, M. Yu, N. Takach</i>	
Overcoming the Challenges of Running Large Diameter Casing Through High Inclination Wellbores at Shallow Depths in Deep Water Wells	449
<i>S. Mitchell, D. Reagins</i>	
First Deepwater MPD Operation in the Gulf of Mexico: Challenges and Lessons Learned	460
<i>N. Samuel, H. Santos, S. Valluri</i>	
Solidification of Synthetic-Based Drilling Mud Using Geopolymers	474
<i>X. Liu, K. Aughenbaugh, S. Nair, M. Shuck, E. Oort</i>	
Drilling Through Salt Formations: A Drilling Fluids Review.....	487
<i>A. Amer, H. Dearing, R. Jones, M. Sergiacomo</i>	
Novel Fiber Optics Lateral Connector Tool for Subsea Intelligent Casing Applications: Results and Relevance for Design	497
<i>H. Stalford, V. Arambulo</i>	
The Development and Qualification of a Novel Proppant System to Enhance Performance of High Rate Soft Sand Water Injection Wells With Cased Hole Sand Control Completions.....	508
<i>K. Whealy, R. Rickman, K. McClelland, T. Decker, R. Murillo, J. Candella, T. Roper, D. Johnson</i>	
Advanced Distributed Fiber Optic Sensors for Monitoring Poor Zonal Isolation with Hydrocarbon Migration in Cemented Annuli.....	523
<i>Q. Wu, S. Nair, M. Shuck, E. Oort, A. Guzik, K. Kishida</i>	
Effective Enhancement of Wellbore Stability in Shales with New Families of Nanoparticles	539
<i>C. Gao, S. Miska, M. Yu, E. Ozbayoglu, N. Takach</i>	
Automated Fluid Rheology and ECD Management	551
<i>A. Vajargah, G. Sullivan, E. Oort</i>	
Physical and Mechanical Properties of Field-Generated Foam Cements: Implications for Cement Property Prediction and Modeling	569
<i>C. Gieger, J. Fazio, R. Spaulding, B. Kutchko, G. Debruijn</i>	
Physical Measurement of Downhole Temperature Identifies Variance Between Mathematical Simulations.....	588
<i>G. Mendonca, T. Stair, J. Fiorotti, G. Gabarra, A. Cosentino, H. Rogers</i>	
Gravel Packing Fluid for HP/HT Environment	605
<i>C. Prakash, M. Rama, S. Garaje</i>	
Cementing Solutions for Salt- and CO₂-Laden Presalt Zones	617
<i>C. Simao, M. Folsta, G. Campos, K. Yerubandi, S. Patil, S. Jandhyala, A. Deshpande, M. Paiva, K. Ravi</i>	
A Look at Processes Impacting Foamed Cements	628
<i>B. Kutchko, D. Crandall, R. Spaulding, M. Gill, J. Moore, C. Gieger, I. Haljasmaa, G. Benge, J. Maxson</i>	
Mixing of Cement Slurries During Cement Plug Setting	643
<i>S. Durmaz, H. Karbasforoushan, E. Ozbayoglu, S. Miska, M. Yu, N. Takach, P. Aranha</i>	

Cross-Discipline Integration Results in More Representative Completion Evaluations - Case Histories	667
<i>J. Ayoub</i>	
Mitigating Salt and Sub-Salt Drilling Challenges Using Hybrid Bit Technology in Deepwater, Gulf of Mexico	677
<i>A. Chowdhury, R. Callais, M. Rothe, M. Anderson, G. Bathgate, B. Koons</i>	
Relating Cement Additive Performance to Mix Water Composition for Deep Water and Salt Zone Applications	690
<i>B. Reddy, E. Contreras, P. Boul</i>	
Kinetic Energy Recovery System Reduces Fuel Consumption	710
<i>O. Oye</i>	
Free the Fish Safer, Easier and Faster with Even Harder Jar Hits	730
<i>S. Murphy, E. Hall, R. Gee, J. Nicklas, J. Shipe, L. Skyles</i>	
In-situ Tensile Strength Testing: Awareness of Variations with Testing Environment	741
<i>L. Li, M. Kellum, A. Doan</i>	
A Comparative Assessment of Barite SAG Evaluation Methods	748
<i>W. Zeng, M. Bouguetta</i>	
Integrated Efforts to Understand and Solve Challenges in 26-in Salt Drilling, Gulf of Mexico	765
<i>J. Shi, B. Durairajan, R. Harmer, W. Chen, F. Verano, Y. Arevalo, C. Douglas, T. Turner, D. Trahan, J. Touchet, Y. Shen, A. Zaheer, F. Pereda, K. Robichaux, D. Cisneros</i>	
Deepwater Well Control: Integrated Simulation for Risk Management	783
<i>F. Golding, J. Spath, B. Newhouse</i>	
Placing Cement Plugs up to 6,500 ft in Length through the Use of Sacrificial Pipe in Deepwater Environments	799
<i>J. Santiapichi, A. Febbraro, A. Fuller, M. Dooply, A. Elhancha, B. Martell, R. Rabei</i>	
Understanding Cementing Dynamics in Deepwater Dual Gradient Drilling Operations	812
<i>M. Dooply, G. Debruyn, N. Flamant, A. Elhancha, S. Rahman, M. Duan, B. Koons</i>	
Real-Time Health Monitoring of Top Drives for Offshore Operations Using Physics Based Models and New Sensor Technology	831
<i>P. Pournazari, D. Adams, P. Ashok, E. Oort, K. Holliday</i>	
Invert Emulsion Fluid for Alpha Beta Gravel Packing - Laboratory Development and Successful Yard Test	850
<i>B. Panamarathupalayam, D. Khvostichenko, A. Phatak, J. Zhang, S. Green, B. Gadiyar, B. Lecerft, C. Allogo</i>	
Author Index	