

Society of Petroleum Engineers

**SPE/IADC INDIAN  
Drilling Technology  
Conference & Exhibition  
2006**

“Drilling in India: Challenges and Opportunities”

October 16 – 18, 2006  
Mumbai, India

**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: 978-1-60423-691-0**

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

Society of Petroleum Engineers

SPE/IADC INDIAN Drilling Technology Conference and Exhibition  
2006

**TABLE OF CONTENTS**

<b>The SURE Way to Underbalanced Drilling</b> .....	1
<i>H. Qutob, H. Ferreira</i>	
<b>Fiber-Optic Distributed-Temperature-Sensing Technology Used for Reservoir Monitoring in an Indonesia Steamflood</b> .....	9
<i>D.K. Nath, R. Sugianto, D. Finley</i>	
<b>Expandable Casing In India</b> .....	19
<i>Biplab Roy</i>	
<b>The First Horizontal Underbalanced Well Drilled in Libya: A Case Study</b> .....	22
<i>Husein A. Safar, Abdul-Hamid A. Majdoub, Sadek A. Azhary, Hani Qutob, James Chopty, Hassan Obeidat</i>	
<b>State of the Art in Coalbed Methane Drilling Fluids</b> .....	28
<i>Len V. Baltou, Brent K. Warren, Thanos A. Natras</i>	
<b>A Synergy of New Technologies Successfully Overcomes Openhole Horizontal Completion Problems in Malaysia</b> .....	37
<i>Kim King, Jan H. Terwoigt, Chen YeeChoy, Alfred Azer</i>	
<b>Ultralow Invasion Drilling Fluids: A Practical Route to Reduced Wellbore Instability, Reduced Mud Losses, Wellbore Strengthening, and Improved Well Productivity</b> .....	51
<i>P. Reid, H. Santos</i>	
<b>Evaluation of Acid Treatment Results for Water Injection Wells in Saudi Arabia</b> .....	63
<i>M.S. Al-Harbi, A.M. Al-Dhafaeri, Y.A. Al-Rufaie, S.K. Mohammed</i>	
<b>Lightweight Slurries—A Success Story of Application in Low-Fracture-Gradient and Depleted Fields for Improved Cementation</b> .....	66
<i>Debasish Dasgupta, Satinath Banerjee, Satya Prakash Garg, V.K. Jain</i>	
<b>Novel Cement Composition for Completion of Thermal Recovery (ISC) Wellbores</b> .....	73
<i>K.M. Suyan, D. Dasgupta, S.P. Garg, V.K. Jain</i>	
<b>Successful Deployment of a New Stimulation Chemical, Post-Horizontal-Openhole Gravel Pack in Wells Drilled With Both Water-Based and Oil-Based Drill-In Fluid</b> .....	79
<i>E. Davidson, D.N. McMillan, F. Martin, K. Morton, R. Lenz</i>	
<b>Wellbore Cleanup Best Practices: A North Sea Operator’s Experience</b> .....	91
<i>A.J.A. Fleming, R.R. Appleby</i>	
<b>Integrating Quantitative and Qualitative Rock Strength Data in Sanding Prediction Studies: An Application of the Schmidt Hammer Method</b> .....	99
<i>P.G. Taylor, R.R. Appleby</i>	
<b>Slimhole Drilling: An Economic and Effective Answer to the Development of Previously Known “Uneconomic Reserves”</b> .....	115
<i>Hasnain Ahmad Khan, Hafiz Lutf-ur-Rehman Sajid, Salman Zahid</i>	

<b>Evolution of Sand Control Completion Techniques in the South Tapti Field.....</b>	<b>122</b>
<i>J.D. Holmes, M.P. Tolan, C. Hale</i>	
<b>Enhancement of Leakoff-Tests Values in Plastic Clays by Mud Additives— A Case Study in Deepwater Wells in the Krishna Godavari Basin Offshore India .....</b>	<b>130</b>
<i>Raj K. Singh, Fred R. Holasek, S.C. Gulati, Vijay Ratan, B.A. Thyagaraju</i>	
<b>A Management Technique That Integrates And Glues Cost And Environmental Performance Targets In E&amp;P Drilling .....</b>	<b>139</b>
<i>J. E. Paulsen, B. Jensen, J. Pettersen, T. Svensen</i>	
<b>Beyond the Limits of Drilling and Completion—Expandables.....</b>	<b>146</b>
<i>Nick Mawford, David Stephenson, Pat York, Steve Rosenberg</i>	
<b>Laser Drilling Research and Application: An Update .....</b>	<b>160</b>
<i>Pankaj Sinha, Aabhaas Gour</i>	
<b>Frontier HP/HT Exploration Drilling in the Krishna Godavari Basin, India .....</b>	<b>165</b>
<i>Suresh Kumar, Theodore Klimentos, Sami Affes</i>	
<b>Innovative Advanced Technologies Overcome Directional Drilling Challenges of S and J Type Wells in N. America and Canada.....</b>	<b>176</b>
<i>Sandeep Janwadkar, David Fortenberry, Brett Dawkins, Mark Kramer, Steve Privott, Tom Rogers</i>	
<b>Polyol Drilling Fluid: A Novel Solution To Curb Recurring Drilling and Completion Problems in Mature Sobhasan Field, Mehsana Asset, ONGC, India .....</b>	<b>193</b>
<i>M.S. Raza Khan, V. Pratap, K.C. Sharma, B.S. Anilkumar, A.K. Gupta</i>	
<b>Ultradeepwater Cementing: Challenges and Solutions .....</b>	<b>199</b>
<i>P.K. Mishra</i>	
<b>Independent Real-Time Quality Control of Directional Survey Data—Adding Value and Improving Safety on the Norwegian Continental Shelf .....</b>	<b>204</b>
<i>Runar Kolseth Nyberg, Stein Tjelta Håvardstein</i>	
<b>Cementing Technology for Low Fracture Gradient and Controlling Loss Circulation .....</b>	<b>208</b>
<i>Kris Ravi, Mark Savery, B.R. Reddy, Don Whitfill</i>	
<b>Planning and Identifying Best Technologies for ERD Wells .....</b>	<b>217</b>
<i>Adit Gupta</i>	
<b>Nondamaging Drilling Fluid Enhances Borehole Quality and Productivity in Conventional Wells of Mehsana Asset, North Cambay Basin.....</b>	<b>223</b>
<i>N.G. Mandal, U.K. Jain, B.S. Anil Kumar, Ashok K. Gupta</i>	
<b>Vibration Analysis, Model Prediction, and Avoidance: A Case History.....</b>	<b>231</b>
<i>G. Robello Samuel, Gary Schottle, D.B. Gupta</i>	
<b>Bridging the Gap: Challenges in Deploying Leading Edge Geomechanics Technology to Reducing Well Construction Costs .....</b>	<b>238</b>
<i>Fersheed K. Mody</i>	
<b>IOR Strategies in Brownfields of Mehsana Asset, North Cambay Basin, India.....</b>	<b>246</b>
<i>V. Pratap, R.K. Sood, Binay Ram</i>	
<b>Water Shut Off: The Through-Tubing Inflatable Solution .....</b>	<b>257</b>
<i>Graeme M. Kelbie, Garry L. Garfield</i>	
<b>Determination of 20-in. Conductor Setting Depth in Deepwater Wells in the Krishna-Godavari Basin Offshore India.....</b>	<b>265</b>
<i>Fred R. Holasek, Raj K. Singh, Shashi Shanker</i>	

<b>Case History of One-Trip Monobore Completion System—2 Years of Cement-Through Monobore Completions in the Gulf of Thailand</b> .....	273
<i>Walt Chapman</i>	
<b>Surface BOP—Recent Experience and Future Opportunities</b> .....	279
<i>John Kozicz</i>	
<b>Re-engineering of Mumbai High</b> .....	290
<i>N.K. Mitra</i>	
<b>Paraffin Deposition Problems of Mumbai High</b> .....	300
<i>A. Nagar, V.K. Mangla, S.P. Singh, J. Kachari</i>	
<b>Evaluating Inter-/Intrazonal Isolation</b> .....	304
<i>Anil Kumar Tiwari, Pitchai Rajasekaran, R.P. Katare</i>	
<b>Solid Expandable Tubulars Provide Substantial Value to Existing Wells</b> .....	309
<i>Mark Rivenbark</i>	
<b>Drilling Performance and Environmental Compliance—Resolution of Both With a Unique Water-Based Fluid</b> .....	316
<i>Steven Young, Gamal Ramses</i>	
<b>Drilling Waste Management: Improvements to the Dewatering Process Through Chemical Optimisation—Results of a Pilot Test</b> .....	327
<i>M. Kalhor Mohammadi, F. Almassi, J.H.B. Sampaio, K. Tahmasbi</i>	
<b>Successful Application of Exploration Lessons Learnt To Deliver Stretch HT/HP Well Delivery Objectives (Krishna Godavari Basin, India)</b> .....	331
<i>Suresh Kumar, Sami Affes</i>	
<b>Drilling Fluid Additives and Engineering to Improve Formation Integrity</b> .....	337
<i>M.C. Goud, Givi Joseph</i>	
<b>Assuring CRI Placement Longevity: The Role of Optimum Slurry Placement</b> .....	343
<i>J.C. Chavez, G. Gibbons, P. McCurdy</i>	
<b>HP/HT Cement System Design—East Coast Case History</b> .....	351
<i>Syed Haidher, Samir Kale, Sami Affes, Suresh Kumar Nair</i>	
<b>Drilling Offshore HT/HP Wells in Environmentally Sensitive Area Using Water-Based Mud</b> .....	356
<i>Harshit Desai, Sami Affes, Mizan Rahman, Gregg Williams</i>	
<b>Dual Purpose Reversible Reservoir Drill-In Fluid Provides the Perfect Solution for Drilling and Completion Efficiency of a Reservoir</b> .....	362
<i>Syed Ali, Mark Luyster, Arvind Patel</i>	
<b>Benchmarking the Cycle Speed of an AC-SCR Drilling Rig With Special Reference to Upper Assam Operation</b> .....	375
<i>G. Gogoi, A. Hussain</i>	
<b>Reservoir Knowledge and Drilling—Benefits Comparison for Underbalanced and Managed Pressure Drilling Operations</b> .....	378
<i>Doug Finley, Sara Shayegi, Joe Ansah, Isabel Gil</i>	
<b>Quantification of Overbalance-Induced Invasive Damage and the Estimation of Equivalent Skin Effect on Production</b> .....	391
<i>John Ramalho, Zhan Wu, Ravi N. Vaidya, P.V. Suryanarayana</i>	
<b>Adoption of RSS Speeds up Extended Reach Drilling in Mumbai High</b> .....	399
<i>A.T.Kali, A.K.Mishra, S.C.Sinha, N.J.Gupta</i>	

**New Wells and New Challenges: Selecting the Most Appropriate Drilling and Drilling Fluid Practices** ..... 404  
*K. Krishna Pratap, B.A. ThyagaRaju, A.T. Kali*

**Author Index**