

Offshore Technology Conference 2003

(OTC 03)

**Houston, Texas, USA
5-8 May 2003**

Volume 1 of 3

ISBN: 978-1-61567-970-6

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© (2003) by the Offshore Technology Conference
All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact the Offshore Technology Conference
at the address below.

Offshore Technology Conference
222 Palisades Creek Drive
Richardson, Texas, USA 75080-2040

Phone: (972) 952-9494
Fax: (972) 952-9435

service@otcnet.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

VOLUME 1

OTC 15049 The Importance of Brazilian Deepwater Activities to the Oil Industry Technological Development.....	1
<i>G. Estrella</i>	
OTC 15050 Challenges Facing Contractors in the Brazil Offshore Market.....	8
<i>F.J. Bobb</i>	
OTC 15051 Brazilian Petroleum Exploration and Production: From Monopoly to Free Market.....	14
<i>J.C. de Luca</i>	
OTC 15052 Brazil's Evolving Deepwater Risk Reward Profile.....	19
<i>S.P. Thurston, T.R. Bard</i>	
OTC 15054 Creating a Sustainable E&P Business in Brazil.....	25
<i>John Haney, Michiel Kool</i>	
OTC 15055 Offshore Brazil: Viewpoint of a Large U.S.-Based Independent.....	28
<i>A.L. Fawthrop</i>	
OTC 15056 Technology Commercialization: Trends and Strategies for Funding E&P Technology	33
<i>A.J. Schroeder Jr., Arthur Warga</i>	
OTC 15058 Offshore Applications of Underbalanced Drilling Technology—Well Control Considerations When Applied to Overbalanced Drilling.....	45
<i>D.M. Hannegan</i>	
OTC 15059 Calculating a “Rule of Thumb”—Unloading a Well	50
<i>Robert Watson, Reuben Graham</i>	
OTC 15060 Is a Zero AFE Possible With Underbalanced Drilling?	58
<i>G.H. Chitty</i>	
OTC 15061 Bottomhole Pressure Measurements: Indispensable Tool for Optimizing Underbalanced Drilling Operations.....	65
<i>C. Pérez-Téllez, A. Uribe-López, A. Miller, R.G. Banda-Morato</i>	
OTC 15062 Micro-Flux Control: The Next Generation in Drilling Process for Ultra-Deepwater.....	75
<i>Helio Santos, Christian Leuchtenberg, Sara Shayegi</i>	
OTC 15063 Optimized Data Acquisition Systems for UBD Applications in Remote Locations Onshore and Offshore.....	85
<i>Saad Saeed, Christopher Niedz</i>	
OTC 15064 FPSO Fatigue Assessment: Feedback From In-Service Inspections	99
<i>M.G. Hoogeland, C.G.J.M. van der Nat, M.L. Kaminsky</i>	
OTC 15065 A Multi-Disciplinary Design Approach for a Deepwater Field Development Solution	106
<i>Leen Poldervaart, Bram Van Cann, Olivier de Bonnafos</i>	
OTC 15066 Fatigue Analysis of Kizomba ‘A’ FPSO Using Direct Calculation Based on FMS	120
<i>M.H. Oh, W.S. Sim, H.S. Shin</i>	
OTC 15068 Experience Based Data for FPSO’s Structural Design.....	126
<i>Ge Wang, Robert Spong</i>	
OTC 15069 The VLT: A Single-Point Mooring for 100+ Risers.....	133
<i>Charles Garnero, Caspar Heyl, L.T. Boatman, Jerry McCollum</i>	
OTC 15070 The Impact of Compressed Natural Gas Shipping Upon Offshore Gas Development	145
<i>Charles White, Phil Grossweiler, J.K. Ha, Shigeru Naokawa, Scott McClure</i>	
OTC 15072 Requirements, Constraints, and Advantages of Fiber-Optic Sensor Arrays for Permanent Offshore Applications.....	154
<i>M.H. Houston</i>	
OTC 15073 Comprehensive Reservoir Characterization “From Inside and Out” Using High-Fidelity Coupling Techniques and Point Receivers	162
<i>Bjarte Fageraas, Phil Behn, Jon Tessman, Marty Williams</i>	
OTC 15074 High-Resolution, Deep-Tow Seismic Systems for Geotechnical/Geohazard Studies in Deep Water	171
<i>J.F. Gettrust, W.T. Wood</i>	
OTC 15075 Instrumented Oil Field and Emerging Measurement Technologies	179
<i>D.H. Johnston, J.J. Shyeh, W.N. Barkhouse, J.V. Young</i>	
OTC 15076 Unveiling a New Deepwater Acoustic Receiver and Deepwater Acoustic Source.....	183
<i>S.E. Spychalski</i>	

OTC 15078 A 5-Phase Methodical Approach of Identifying, Selecting, Developing, Implementing, and Operating a Pressure Maintenance Scheme for an Offshore Field	188
<i>G.C. Thakur</i>	
OTC 15079 Improving the Profitability of Production Facilities in Mature Fields	196
<i>D.E. Johnson</i>	
OTC 15080 Exploration Risk Management	200
<i>James MacKay</i>	
OTC 15081 Environmental Management System.....	209
<i>Waqi Alam, Nasrin Begum, E.C. Donaldson, Riadh Hossain, Wali Alam</i>	
OTC 15082 Asset Management Through the Reservoir Life Cycle.....	213
<i>Abdus Satter</i>	
OTC 15083 Calibration Improves Uncertainty Estimation Through the Reservoir Life Cycle.....	221
<i>D.A. McVay, W.J. Lee</i>	
OTC 15084 Management and Coordination of Complex Operations	228
<i>Jagannath Ghole</i>	
OTC 15085 Design of Well Completion and Intervention Systems for Deployment From Dynamically Positioned Vessels	246
<i>David Harrold, B.J. Saucier</i>	
OTC 15086 Saipem 10000—Deepwater Salvage Operation.....	256
<i>R. Cesaroni, P.A. Potter</i>	
OTC 15087 Advanced Remote Emergency Intervention.....	284
<i>Andrew Trent</i>	
OTC 15088 Subsea Worksite Visualization—A Step Change in Offshore Operations.....	289
<i>Calum MacKinnon, David Matthews</i>	
OTC 15089 Protective Deployment of Subsea Equipment	297
<i>E.B. Lallier, C.L. Ross, C.I. Davis</i>	
OTC 15090 Simplicity in Innovative Sand-Control Tool System Reduces Risk in Offshore Sand Control Operations.....	305
<i>Colby Ross</i>	
OTC 15091 Advances in Landing String Technology for Completion and Intervention Operations in Deep Water.....	320
<i>D.J. More</i>	
OTC 15093 Overview of the Canyon Express Project, Business Challenges and “Industry Firsts”	329
<i>Frederik Rijkens, Marcus Allen, Thomas Hassold</i>	
OTC 15094 Canyon Express: Design and Experience on High-Rate Deepwater Gas Producers Using Frac-Pack and Intelligent Well Completion System	338
<i>J. Piedras, G.P. Stimatz, V.B. Jackson Nielsen, G.M. Watson</i>	
OTC 15095 Canyon Express—Qualifying for the Deepest Development	352
<i>S.G. Nelson, H.C. Wells, George Huntoon</i>	
OTC 15096 Canyon Express Flowline System: Design and Installation	370
<i>T.B. de Réals, Hervé Lomenech, A.C. Nogueira, J.P. Stearns, Luigi Ferroni</i>	
OTC 15097 Canyon Express Commissioning and Start-Up Experience.....	380
<i>Simon Hare, Richard Case</i>	
OTC 15098 Canyon Express Subsea Multiphase Flow Metering System: Principles and Experience.....	391
<i>B.K. Wallace, Ravi Gudimetla, S.G. Nelson, T.A. Hassold</i>	
OTC 15099 Canyon Express Deepwater Umbilical and Control System: Design and Installation	399
<i>T.W. Ellisor, P.J. Martyniak, J.V.C. Wilson</i>	
OTC 15100 Technical Feasibility of Tubing Risers	411
<i>G.Z. Gu, Rod Myers, Robert Sokoll, Joe Jin, Kevin Huang</i>	
OTC 15101 Design of Steel Risers in Ultradepwater—The Influence of Recent Code Requirements on Wall Thickness Design for 10,000 ft Water Depth.....	419
<i>W.K. Kavanagh, Jane Lou, Paul Hays</i>	
OTC 15102 DeepStar 10,000-ft Water Depth DDCV Study.....	429
<i>S.U. Bhat, W.L. Greiner, Dave Barton</i>	
OTC 15103 Fundamentals of Buoyancy Can Riser Tensioning Systems: Performance Characterization and Redundancy Philosophy Development.....	438
<i>Metin Karayaka</i>	
OTC 15104 Fatigue Life Improvement of Steel Catenary Risers Due to Self-Trenching at the Touchdown Point.....	448
<i>C.G. Langner</i>	

OTC 15105 Effects of Fully Coupled and Quasi-Static Semi-Submersible Vessel Motions on Steel Catenary Riser's Wave Loading Fatigue	459
<i>W. Ye, J. Shanks, J. Fang</i>	
OTC 15106 Vortex-Induced Vibrations of Steel Catenary Risers and Steel Offloading Lines Due to Platform Heave Motions	467
<i>S.-H.M. Chang, Mike Isherwood</i>	
OTC 15107 Cost-Effective Design and Development of Hub Platforms	473
<i>S.S. Huff, Bart Heijermans</i>	
OTC 15108 The Commercial Development of Hub Platforms and the Value to E&P Producers	479
<i>Bart Heijermans, Drew Cozby</i>	
OTC 15110 Enchilada: From Border Town to Cowtown	489
<i>C.D. Smith, D.A. Pilney</i>	
OTC 15111 Auger—An Asset in Transition	497
<i>V.A. Brock</i>	
OTC 15112 Topsides Lessons Learned from Subsea Tie-Back Projects	501
<i>Richard Livingston, David Tong, Eric Wensel, Michael Whitworth</i>	
OTC 15113 Gulf of Mexico Deepwater Platform Decommissioning	509
<i>E.R. Velazquez, R.C. Byrd</i>	
OTC 15114 Geo-Hazard Detection with Chimney Cubes	519
<i>David Connolly, Fred Aminzadeh</i>	
OTC 15115 Geohazard Detection in Deepwater Clastics Basins Using a Seismic Technique Guided by Geology and Rock Physics Model: Methodology and Examples	524
<i>N.C. Dutta</i>	
OTC 15116 Shallow Water Flow Assessment From An Inverted Seismic Cube	529
<i>P.K. Trabant, Taylor Lepley</i>	
OTC 15117 Multicomponent Seismic Data Registration for Subsurface Characterization in the Shallow Gulf of Mexico	534
<i>Sergey Fomel, M.M. Backus, M.V. DeAngelo, P.E. Murray, B.A. Hardage</i>	
OTC 15118 Interpreting Multicomponent Seismic Data in the Gulf of Mexico for Shallow Sedimentary Properties: Methodology and Case History	538
<i>P.E. Murray, M.V. DeAngelo, B.A. Hardage, M.M. Backus, R.J. Graebner, Sergey Fomel</i>	
OTC 15119 Reactive Transport Modeling of Geohazards Associated With CO₂ Injection for EOR and Geologic Sequestration	543
<i>J.W. Johnson, J.J. Nitao, J.P. Morris, S.C. Blair</i>	
OTC 15120 Seismic Interpretation and Classification of Mud Volcanoes of the South Caspian Basin, Offshore Azerbaijan	552
<i>M.Z. Yusifov, P.D. Rabinowitz</i>	
OTC 15123 Variable Gas Solubility Effect of the Gas Hydrate System and Its Influence on Optimization of Gas Recovery	559
<i>Michael Max, Sarah Holman</i>	
OTC 15124 Operation Overview of the 2002 Mallik Gas Hydrate Production Research Well Program at the Mackenzie Delta in the Canadian Arctic	563
<i>Hideaki Takahashi, Tetsuo Yonezawa, Ed Fercho</i>	
OTC 15125 Real-Time Estimation of Resistivity Anisotropy Using Array Lateral and Induction Logs	573
<i>M.A. Frenkel, I.M. Geldmacher</i>	
OTC 15126 A Deep-Resistivity Logging-While-Drilling Device for Proactive Geosteering	579
<i>J. Seydoux, J. Tabanou, L. Ortenzi, J.M. Denichou, Y. De Laet, D. Omeragic, M. Iversen, M. Fejerskov</i>	
OTC 15128 Case History of a Successful Selective Horizontal Openhole Gravel Pack With Zonal Isolation in Deepwater Field	589
<i>F.A. Machado</i>	
OTC 15129 Revitalizing a Mature Sand-Prone Field by Installing Enhanced Gravel-Pack Completions—A Case Study	601
<i>M.Z.B. Noor, K.B. Selamat, A.B. Kasim, Sharifudin Salahudin</i>	
OTC 15130 New Multiple Path Gravel-Pack Screen System Provides Improved Installation and Operational Performance	613
<i>Ron McGregor, Harvey Fitzpatrick, Robert Crow, David Hejl</i>	
OTC 15131 Production Issues Influencing the Choice of Completion Type in Horizontal Wells With Sanding Problems	624
<i>Colin Jones, John Cameron, Oladelle Owoeye, Thijs Baaijens</i>	
OTC 15132 Concerns and Solutions for Interfacing Fracturing and Sand Control Completion Strategies into Multilateral Technology	634
<i>Travis Cavender, T.O. Roane, H.L. Restarick</i>	

OTC 15133 Application of Decision Analysis to a Deepwater Well Integrity Assessment	650
<i>P.D. Patillo, M.L. Payne, T.R. Webb, J.H. Sharadin</i>	
OTC 15134 The Use of Surface Controlled Hydraulic Interval Control Valves for the Management of Water Production in the Saih Rawl Field, Sultanate of Oman	657
<i>Maurice Boyle, Jeremy Earl, Shaikhan Al-Khadori</i>	
OTC 15136 Barracuda and Caratinga Integrated Deepwater Site Investigation, Offshore Brazil	661
<i>R. Argiolas, M.M.C. Rosas</i>	
OTC 15137 Geotechnical Design of the Barracuda and Caratinga Suction Anchors	672
<i>M. Hesar</i>	
OTC 15138 P43/P48 Global Motion and Stability Analysis: A Compromise Combination to Define the FPSO Operational Behavior	681
<i>R.B. Portella, Victor Kameyama, Chris Wibner, John Malone</i>	
OTC 15139 Specifying and Testing Polyester Mooring Rope for the Barracuda and Caratinga FPSO Deepwater Mooring Systems	687
<i>Chris Wibner, Thomas Versavel, Isaia Masetti</i>	
OTC 15140 Integrated Riser and Mooring Design for the P-43 and P-48 FPSOs.....	695
<i>B. Seymour, H. Zhang, C. Wibner</i>	
OTC 15141 Riser Dynamic Analysis Challenges for Petrobras Barracuda Caratinga Project	704
<i>H. Zhang, J. Hamilton, K. Haverty, M. Mourelle</i>	
OTC 15142 HCLS: A Simple and Affordable Heave Compensated Landing System	715
<i>Mitch Guinn, Denby Morrison</i>	
OTC 15143 First Deepwater Pipe-In-Pipe Electrical Integrity Method Using a Subsea Time Domain Reflectometer	730
<i>D.M. March, D.J. Liney, R.J. Wylde</i>	
OTC 15144 Production and Inspection Issues for Steel Catenary Riser Welds	743
<i>Frans Kopp, Gary Perkins, Garth Prentice, Donald Stevens</i>	
OTC 15145 Robust Technology Implementation Process Applied to a First Deepwater Electrical Heating Ready System.....	757
<i>D.M. March, R.M. Bass, D.K. Phillips</i>	
OTC 15146 Development and Utilization of An All Subsea, ROV Based, Flowline Precommissioning System.....	781
<i>Georg Engelmann, Mike Dupre, Stephen Sauer</i>	
OTC 15147 Progression of Ultradeep Subsea Deployment Systems.....	786
<i>Christian Cermelli, Denby Morrison, H.C. San Martin, Mitch Guinn</i>	
OTC 15148 The Use of Expandable Tubular Technology to Enhance Reservoir Management and Maintain Integrity	797
<i>Gareth Innes, Joe Craig, Scott Lavan</i>	
OTC 15149 Development and Field Testing of Solid Expandable Corrosion Resistant Cased-Hole Liners to Boost Gas Production in Corrosive Environments	803
<i>Gertjan Siemers, Thompson Ukomah, Robert Mack, Greg Noel, John Donald</i>	
OTC 15150 Productivity, Water Breakthrough and Ultimate Recovery in Horizontal Wells With a Range of Completion Types	809
<i>Colin Jones, John Cameron, Eric Mackay</i>	
OTC 15151 Expandable Cased-Hole Liner Remediates Prolific Gas Well and Minimizes Loss of Production	818
<i>Bill Buckler, Nick Steinsberger, Kevin Waddell, Rune Gusevik, Edwin Zwald</i>	
OTC 15152 Overcoming Well Control Challenges With Solid Expandable Tubular Technology	824
<i>Michael Patin, Doug Keel, Craig Johnson, Virgil Newton</i>	
OTC 15153 Water Production Reduced Using Solid Expandable Tubular Technology to “Clad” in Fractured Carbonate Formation.....	829
<i>Roger van Noort, Majid Shandoozi, Mike Jones</i>	
OTC 15154 The Use of Expandable Sand Screens (ESS) to Control Sand in Unconsolidated Multizone Completions in the Baram and Alab Fields Offshore Malaysia—A Case Study	838
<i>M.R. Kabir, Foo Kok Wai, A.R. Ali, Norjusni Omar, P.M. Moran</i>	
OTC 15155 Digital Energy; From Reservoir to Cash Register—the Convergence of the Oilfield & IT	851
<i>A.J. Schroeder Jr., David Archer</i>	

VOLUME 2

OTC 15156 Challenges of Siting Facilities Along the Sigsbee Escarpment in the Southern Green Canyon Area of the Gulf of Mexico: Framework for Integrated Studies	862
<i>Philippe Jeanjean, Andrew Hill, Stephen Taylor</i>	
OTC 15157 Geological and Shallow Salt Tectonic Setting of the Mad Dog and Atlantis Fields: Relationship Between Salt, Faults, and Seafloor Geomorphology	874
<i>D.L. Orange, M.M. Angell, J.R. Brand, Jim Thomson, Tim Buddin, Mark Williams, William Hart, W.J. Berger III</i>	
OTC 15158 Geotechnical Properties of the Sigsbee Escarpment From Deep Soil Borings	890
<i>Z.A. Al-Khafaji, A.G. Young, W. DeGroff, G.D. Humphrey</i>	
OTC 15159 Sedimentation in the Vicinity of the Sigsbee Escarpment During the Last 25,000 Years	916
<i>Niall Slaney, William Bryant, D.A. Bean, A.G. Young, Stefan Gartner</i>	
OTC 15160 Deterministic Slope Stability Analyses of the Sigsbee Escarpment	931
<i>Fritz Nowacki, Egil Solhjell, Farrokh Nadin, Eric Liedtke, K.H. Andersen, Lars Andresen</i>	
OTC 15161 Relationship Between Near Seafloor Seismic Amplitude, Impedance, and Soil Shear Strength Properties and Use in Prediction of Shallow Seated Slope Failure	943
<i>J.R. Brand, D.L. Lanier, W.J. Berger III, V.R. Kasch, A.G. Young</i>	
OTC 15162 Analysis of Past and Future Debris Flows and Turbidity Currents Generated by Slope Failures Along the Sigsbee Escarpment in the Deep Gulf of Mexico	960
<i>A.W. Niedoroda, C.W. Reed, Lyle Hatchett, Alan Young, Dan Lanier, Vernon Kasch, Philippe Jeanjean, Dan Orange, William Bryant</i>	
OTC 15163 Monitoring of Offshore Pipes	967
<i>E. Binet, P. Tuset, S. Mjoen</i>	
OTC 15164 Carbon Fiber Composite Tendons for Deepwater Tension Leg Platforms	973
<i>C. Sparks, I. Zivanovic, J. Luyckx, W. Hudson</i>	
OTC 15165 Economic Benefits of Subsea Pipeline Rehabilitation Using Spoolable Fiber-Reinforced High Pressure Line-Pipe	978
<i>Stephen Nolet, Michael Feechan</i>	
OTC 15166 Tethraflex—New Generation Zero Permeation Hose for Umbilicals	985
<i>C. Domison, A. Dutton</i>	
OTC 15167 Improvement of Bonded Flexible Pipes According to New API Standard 17K	990
<i>Sándor Antal, Tibor Nagy, András Boros</i>	
OTC 15168 Guidelines for Compression Modeling in Flexible Risers for Deepwater Applications	998
<i>D. McCann, F. Smith, P. O'Brien</i>	
OTC 15169 State-of-the-Art Analytical Tools Improve Optimization of Unbonded Flexible Pipes for Deepwater Environments	1013
<i>Y. Zhang, B. Chen, L. Qiu, T. Hill, M. Case</i>	
OTC 15170 Multiphase Ejector to Boost Production: First Application in the Gulf of Mexico	1023
<i>P. Andreussi, S. Sodini, V. Faluomi, P. Ciandri, A. Ansiati, F. Paone, C. Battaia, G. De Ghetto</i>	
OTC 15171 Subsea Process Design Guideline for Reliability	1031
<i>L.T. Sunde</i>	
OTC 15172 Experience in Operating World's First Subsea Separation and Water Injection Station at Troll Oil Field in the North Sea	1041
<i>Terje Horn, William Bakke, Gunnar Eriksen</i>	
OTC 15174 Multiphase Flow Metering—Operational Experience on Subsea Production Manifolds	1048
<i>C. Kuchpil, E.F. Caetano, C.B. Costa e Silva, J.A. Pinheiro, E.L. Labanca</i>	
OTC 15175 Innovative Technology for Ultradeepwater Gravity-Based Separators	1057
<i>Jarle Michaelsen</i>	
OTC 15176 Future Intervention Options for Remote Subsea Facilities	1062
<i>Harold Reeves, Mark Siegmund, Ila Dawson, Graham Openshaw</i>	
OTC 15177 Well Intervention Using Rigless Techniques	1069
<i>Sandeep Khurana, Brad DeWalt, Colin Headworth</i>	
OTC 15178 Multi-Service Vessel Well Intervention With New SILS	1082
<i>Clyde Hewlett, Bill Clegg, Don Thorne, Peg Newman</i>	
OTC 15179 Riserless Coiled-Tubing Well Intervention	1092
<i>Svein Håheim, Christopher Hoen, Birger Heigre, Edgar Heim, Øystein Windsland</i>	
OTC 15180 Subsea Well Intervention Operations From a Dedicated Vessel—Cost and Performance Analysis	1102
<i>C.A. Johnston</i>	
OTC 15181 Challenges Associated With HPHT Intervention Equipment	1110
<i>H.B. Skeels, Dane Broussard, Michael Byrd</i>	

OTC 15182 New Well Intervention Technology That Will Enable Increase in Recovery Rate	1118
<i>H.J. Lindland, Olav Inderberg, Colin Headworth, Arnfim Braut</i>	
OTC 15183 An Innovative Workover Riser System for 3000 m Water Depth.....	1127
<i>J.R.F. Moreira, M.F.D. Oliveira, M. Branca, F.J. Mateus</i>	
OTC 15184 Flow Assurance in Deepwater Flowlines and Pipelines—Challenges Met, Challenges Remaining	1139
<i>F.K. Wasden</i>	
OTC 15185 Flow Assurance: A Challenging Path to Well Completions and Productivity	1142
<i>N.B. Joshi, Moin Muhammad, Jefferson Creek, Jim McFadden</i>	
OTC 15186 Impacts of Transient Analysis on Kuito Production Operations	1147
<i>S. Song, K. Peoples</i>	
OTC 15188 Active Heating For Flow Assurance Control in Deepwater Flowlines.....	1156
<i>K.A. Esaklul, Gee Fung, Gary Harrison, Ron Perego</i>	
OTC 15189 Operational Experience by Applying Direct Electrical Heating for Hydrate Prevention.....	1164
<i>Olav Urdahl, A.H. Børnes, K.J. Kinnari, Ragnhild Holme</i>	
OTC 15190 New Flow Assurance Solutions to Work Out Hydrate and Paraffin Blockage Problems in Deep Waters.....	1171
<i>L.C.C. Marques, C.A. Pedroso, L.C.A. Paixão</i>	
OTC 15191 Case History of a 5-Zone Multi-Drop Hydraulic Control Intelligent Offshore Completion in Brunei.....	1178
<i>O. Skilbrei, R. Chia, K. Schrader, D. Purkis</i>	
OTC 15192 The First Year's Achievements of the Intelligent Well Reliability Group.....	1185
<i>John Hother</i>	
OTC 15193 Optimizing Marginal Subsea Well Developments Through Application of Intelligent Completions.....	1190
<i>G. Lehle, D. Bilberry</i>	
OTC 15194 Deepwater BOP Control Systems—A Look at Reliability Issues	1196
<i>Earl Shanks, Andrew Dykes, Marc Quilici, John Pruitt</i>	
OTC 15196 Installation Case Studies of the Downhole Fiber-Optic Multiphase Flowmeter System	1206
<i>T.K. Kragas</i>	
OTC 15199 Bottom Currents, Deep Sea Furrows, Erosion Rates, and Dating Slope Failure-Induced Debris Flows Along the Sigsbee Escarpment in the Deep Gulf of Mexico	1217
<i>A.W. Niedoroda, C.W. Reed, Lyle Hatchett, Philippe Jeanjean, David Driver, J.-L. Briaud, William Bryant</i>	
OTC 15200 Indirect Methods of Dating Seafloor Activity: Geology, Regional Stratigraphic Markers, and Seafloor Current Processes.....	1223
<i>J.R. Brand, D.L. Lanier, M.M. Angell, K. Hanson, E. Lee, R.A. George</i>	
OTC 15201 Measurements and Modeling of the Shallow Pore Pressure Regime at the Sigsbee Escarpment: Successful Prediction of Overpressure and Ground-Truthing With Borehole Measurements	1239
<i>D.L. Orange, Demian Saffer, Philippe Jeanjean, Zaid Al-Khafaji, Greg Riley, Gary Humphrey</i>	
OTC 15203 Probabilistic Slope Stability Analyses of the Sigsbee Escarpment	1250
<i>Farrokh Nadim, Dejan Krunic, Philippe Jeanjean</i>	
OTC 15204 Age Dating of Past Slope Failures of the Sigsbee Escarpment Within Atlantis and Mad Dog Developments	1258
<i>A.G. Young, W.R. Bryant, N.C. Slowey, J.R. Brand, Stefan Gartner</i>	
OTC 15205 Wellbore Stability in the Deepwater Bijupira & Salema Fields, Offshore Brazil—A Probabilistic Approach	1282
<i>D.G. Ritter, B. Grollmund, S.L. Zoller, David Brecknock</i>	
OTC 15207 Controlled Flow-Drilling Induced by Gas Lift—An Economic Approach to the Improvement of Productivity in Offshore Scenarios	1295
<i>A.C. Vargas, Roberto Rodrigano</i>	
OTC 15208 Slenderwell Wellhead Benefits and Opportunities of Selected 13" Option	1301
<i>D.H. Theiss</i>	
OTC 15209 Downhole Deployment Valve Adds Opportunities to the Oil and Gas Industry	1306
<i>Brian Grayson</i>	
OTC 15210 A Novel Underbalanced-Perforating Gun Deployment System Using Production Packer Technology Successfully Completes Offshore Horizontal Well in a Single Trip	1312
<i>Martin Beveridge, Alex Bruce, Thomas Robb, Steve Herron</i>	
OTC 15211 Reducing the Cost of Deepwater Subsea Wells	1325
<i>Bill Taylor, David Theiss, Cameron Toalson, Dave Toalson, Roger Mowell</i>	
OTC 15212 Safety Performance of the Global E&P Industry 2001	1338
<i>Don Smith</i>	

OTC 15213 Oil and Gas Industrial Safety—Multilateral International Cooperation	1344
<i>V.A. Tarasenko</i>	
OTC 15214 Creating a New Offshore Petroleum Safety Regulator	1346
<i>Peter Wilkinson</i>	
OTC 15215 Crew Habitability on Offshore Installations	1357
<i>D.B. McCafferty, K.P. McSweeney, C.C. Baker</i>	
OTC 15216 Evacuation Performance	1363
<i>António Simoes Ré, Dean Pelley, Brian Veitch</i>	
OTC 15217 Delivering Behavioural Change	1372
<i>D. Jenkins</i>	
OTC 15218 BPTT Bombax Pipeline System: World-Class HSE Management.....	1380
<i>M.G. Byrne, D.P. Johnson, E.C. Graham, K.L. Smith</i>	
OTC 15219 Campos Basin—25 Years of Production and its Contribution to the Oil Industry	1386
<i>C.T. da Costa Fraga, F.A. Borges, C. Bellot, R. Beltrão, M.I. Assayag</i>	
OTC 15220 Campos Basin: Reservoir Characterization and Management—Historical Overview and Future Challenges.....	1406
<i>C.H.L. Bruhn, J.A.T. Gomes, Cesar Del Lucchese Jr., P.R.S. Johann</i>	
OTC 15221 Campos Basin: Lessons Learned and Critical Issues To Be Overcome in Drilling and Completion Operations	1420
<i>R. Juiniti, J. Salies, A. Polillo</i>	
OTC 15222 Management of Flow Assurance Constraints	1430
<i>C.B. Cardoso, I.N. Alves, G.S. Ribeiro</i>	
OTC 15223 Campos Basin—Subsea Equipment: Evolution and Next Steps.....	1439
<i>L.P. Ribeiro, C.A.S. Paulo, E.A. Neto</i>	
OTC 15224 From Early Production Systems to the Development of Ultra-deepwater Fields—Experience and Critical Issues of Floating Production Units.....	1449
<i>C.F. Mastrangelo, P.J. Barusco, J.M. Formigli, Ronaldo Dias</i>	
OTC 15225 Campos Basin: Challenges Still To Overcome.....	1463
<i>Kazuoshi Minami, A.S. Almeida, M.A.C. Diniz, C.L. Palagi, M.I. Assayag</i>	
OTC 15226 The Use of Intelligent and Integrated Systems to Reduce Risks, Improve Quality, and Minimize Effects of Serious Incidents Within the Offshore Industry	1469
<i>R.B. Gillett</i>	
OTC 15227 Key Cryogenic Components for Dynamic Marine LNG Transfer at Sea: Development and Tests Completed	1478
<i>Bernard Dupont, Phillip Cox, J.-C. Garrigues</i>	
OTC 15228 Last Developments in Rapid Phase Transition Knowledge and Modeling Techniques.....	1489
<i>D. Nédéla, V. Sauter, J. Goanvic, R. Ohba</i>	
OTC 15229 Innovative Architectures for LNG Transfer at Sea Studied	1496
<i>Bertrand Lanquetin, P.-L. Lanteri-Minet, Bernard Dupont</i>	
OTC 15230 Modification of LNG Carriers for Regasification.....	1511
<i>W.S. Wayne, K.G. Powell</i>	
OTC 15231 Membrane Technology for Offshore LNG	1518
<i>Frédéric Deybach</i>	
OTC 15232 Improvements to Ultra-deepwater Controls Reliability Through State-of-the-Art Analytical Techniques	1524
<i>J.E. Miller, Edward Stidston</i>	
OTC 15233 Overcoming Deep and Ultra Deep Water Drilling Challenges	1533
<i>L.A.S. Rocha, P. Junqueira, J.L. Roque</i>	
OTC 15234 A Collection of Innovative Answers To Solve the Main Problematics Encountered When Drilling Deepwater Prospects	1545
<i>P.A. Charlez, A. Simondin</i>	
OTC 15235 The Management of Long, Suspended Strings of Tubulars From Floating Drilling Vessels	1561
<i>Riddle Stedum</i>	
OTC 15236 Deepwater Dynamically Positioned Drillships—How Shallow Can They Go?	1569
<i>Bill Ambrose, Chip Keener, Dan Farr</i>	
OTC 15239 Suction Caisson Foundation Design for Vortex-Induced Vibration Loading	1575
<i>Zaid Al-Khafaji, J.M.E. Audibert, M.K. Hossain, J.S. Templeton III, E.C. Clukey, P.R. de Jong</i>	
OTC 15242 Model Test Experience on Vortex Induced Motions of Truss Spars.....	1585
<i>Radboud van Dijk, Allan Magee, Steve Perryman, Joe Gebara</i>	
OTC 15243 Mooring Design For Directional Spar Hull VIV.....	1592
<i>Allan Magee, Anil Sablok, Joe Gebara</i>	

OTC 15244 The Cell Spar and Vortex Induced Vibrations	1600
<i>L.D. Finn, J.V. Maher, H. Gupta</i>	
OTC 15245 The Impact of Vortex-Induced Motions on Mooring System Design for Spar-Based	
Installations	1606
<i>Ken Huang, Xiaohong Chen, C.-T. Kwan</i>	
OTC 15247 Identification of SWF Sands by Elastic Inversion of Conventional 3D Seismic Data.....	1621
<i>Shaoming Lu, G.A. McMechan, Alfred Liaw</i>	
OTC 15248 The Vp/Vs Inversion Procedure: A Methodology for Shallow Water Flow (SWF)	
Prediction From Seismic Analysis of Multicomponent Data.....	1631
<i>Carlos Moreno, John Castagna, Alan Huffman, Allen Bertagne</i>	
OTC 15249 Mitigating the Shallow Water Flow Risk at Mississippi Canyon 849: A Team Approach.....	1642
<i>Robert Bruce, James McKeown, Tim Sargent, Randal Garrett</i>	
OTC 15250 Geopressure Evaluation From Seismic Data and its Application for Exploratory Wells in	
Mexico.....	1649
<i>J. Mancilla-Castillo, E. Mendez-Hernández, J. Santana-Fernández</i>	
OTC 15251 Re-Examination of Offset Field-Data Calibration for the Purpose of Abnormal Pressure	
Prediction	1660
<i>J.O. Aremu, S.O. Osisanya</i>	
OTC 15252 Role and Contribution of Pressure Regime Evaluation in Well Planning and Formation	
Evaluation Process, Zeit Bay Field, Gulf of Suez, Egypt.....	1669
<i>S.M. Selim, Bassem El-Sayed Badawy, K.M. Abdullah, M.A. Khorshid</i>	
OTC 15253 Cool-Down Temperature Overshoot Phenomenon in Subsea Flowline and Riser Systems	1675
<i>Y.D. Chin</i>	
OTC 15254 Anticipating Asphaltene Problems Offshore—A Practical Approach	1686
<i>J.X. Wang, J.S. Buckley, N.A. Burke, J.L. Creek</i>	
OTC 15255 Hydrate Control and Remediation Best Practices in Deepwater Oil Developments.....	1696
<i>Steven Cochran</i>	
OTC 15256 Blowdown Feasibility for Downhill Flowlines.....	1710
<i>L.A. Dykhno, S.S. Jayawardena, W. Schoppa</i>	
OTC 15257 Hydrate Plug Dissociation by Method of Depressurization	1718
<i>P. Bollavaram, E.D. Sloan Jr.</i>	

VOLUME 3

OTC 15258 Flow Remediation Solutions for Pipelines.....	1728
<i>Laurence Abney, Mark Kalman, John Hoogerhuis, Colin Headworth</i>	
OTC 15259 A Contraflow Tetherless Mechanical Pipeline Crawler	1742
<i>Susan D'Arcy, Bill Newman, George Broze</i>	
OTC 15262 Deepwater Soil Properties and Their Impact on the Geotechnical Program	1750
<i>G.W. Quirós, R.L. Little</i>	
OTC 15263 Soil Reconsolidation Following the Installation of Suction Caissons	1761
<i>R.E. Olson, A.F. Rauch, A.M. Luke, D.R. Maniar, J.L. Tassoulas, E.C. Mecham</i>	
OTC 15264 A New Technology for Increasing the Load-Carrying Capacities of Offshore Foundations	
in Soft Clays	1770
<i>S. Micic, K.Y. Lo, J.Q. Shang</i>	
OTC 15265 Industry Trends for Design of Anchoring Systems of Deepwater Offshore Structures	1783
<i>Ayman Eltaher, Yatendra Rajapaksa, K.-T. Chang</i>	
OTC 15266 Spatial Variability of the Marine Soil in the Gulf of Mexico	1793
<i>Y.P. Valdez-Llamas, G. Auvinet, J. NuÑez</i>	
OTC 15269 The Case for Confidently Siting Facilities Along the Sigsbee Escarpment in the Southern	
Green Canyon Area of the Gulf of Mexico: Summary and Conclusions From Integrated Studies	1799
<i>Philippe Jeanjean, Andrew Hill, James Thomson</i>	
OTC 15270 Bombax Pipeline Project Overview	1809
<i>G.P. Adams, G.D. Grass, J.A. Gilmore</i>	
OTC 15271 The BP Bombax Pipeline Project—Design for Construction	1814
<i>Brett Champagne, Derek Smith, Jerry Grass</i>	
OTC 15272 Bombax 48-in. Pipeline Installation	1822
<i>O.W.A. Weustink</i>	
OTC 15273 The Bombax Pipeline Project—Installation and Positioning of Large Manifold, Spool	
Supports, and Spool Pieces	1830
<i>John Sokol, Mark Steffy</i>	

OTC 15274 Bombax Pipeline Project: Anti-Corrosion and Concrete Weight Coating of Large Diameter Subsea Pipelines	1837
<i>J.P. La Fontaine, Derek Smith, Gary Deason, Gary Adams</i>	
OTC 15275 Design Challenges of a 48-in. Pipeline Subsea Manifold.....	1843
<i>Roy Robinson, Jerry Grass</i>	
OTC 15276 Large Diameter Flanged Connection Make-Up with Zero Reworks	1850
<i>J.W. Aaron III, W.L. Johnson</i>	
OTC 15278 Thermal Flow Properties of Heavy Oils	1858
<i>I. Henaut, J.-F. Argillier, C. Pierre, M. Moan</i>	
OTC 15279 Deepwater Well Testing for Heavy- and Low-Pour-Point Oils—Issues, Options, Successful Methodology: Case Histories.....	1864
<i>Curtis Wendler, Cedar Mansilla</i>	
OTC 15281 Technical Challenges for Offshore Heavy Oil Field Developments.....	1873
<i>C.D. Wehunt, N.E. Burke, S.G. Noonan, T.R. Bard</i>	
OTC 15282 Can Heavy Oil and Deep Water Be Mixed?.....	1886
<i>John Haney</i>	
OTC 15283 Offshore Heavy Oil in Campos Basin: The Petrobras Experience.....	1889
<i>A.C. Capelo Pinto, C.C.M. Branco, J.S. de Matos, P.M. Vieira, S. da Silva Guedes, C. Pedroso Jr., A.C. Decnop Coelho, M.M. Ceciliano</i>	
OTC 15284 The Effect of Staggered Buoyancy Modules on Flow-Induced Vibration of Marine Risers	1901
<i>J.K. Vandiver, W.W. Peoples</i>	
OTC 15285 Performance Characteristics of Short Fairings	1912
<i>D.W. Allen</i>	
OTC 15286 Running Fairings for Deepwater Drilling in the Gulf of Mexico—A Cost-Benefit Approach to Deciding the Faired Length	1921
<i>E.R. Balch, W.K. Kavanagh, P.E. Griffin, L.E. Chouinard, C. Cooper, H.M. Thompson</i>	
OTC 15287 A Novel Method: MSV/ROV Installation of VIV Suppression on Existing TLP's.....	1928
<i>R.D. Ramsey, D. Vuyk</i>	
OTC 15288 EXPRO-CFD: An Overview of European Research in CFD-Based Fluid Loading and Fluid Structure Interaction.....	1938
<i>Paul Gallagher, Peter Woodburn</i>	
OTC 15289 Analysis of TLP VIV Responses to Eddy Currents	1947
<i>Steve Leverette, Oriol Rijken, William Dooley, Hugh Thompson</i>	
OTC 15290 Emerging Trends in Pressure Prediction	1955
<i>M.W. Alberty, M.R. McLean</i>	
OTC 15291 Burial History Modeling and Pressure Prediction in Deep Water Offshore Trinidad	1962
<i>T.G. Fitts, M. Cheng, M. Quinn</i>	
OTC 15292 Calibrated Predrill Pore Pressure Prediction From 3D Seismic for the Cocuite Field, Veracruz Basin.....	1973
<i>P.J. Hooyman, C.M. Sayers, Alberto Malinverno, Nikolay Smirnov, Giuseppe Fiume, Antonio Prince, J.C. de Leon Mojarrero, M.T. Romero, O.M. Gonzalez</i>	
OTC 15293 Analysis of Overpressure on the Gulf of Mexico Shelf.....	1979
<i>Keith Katahara</i>	
OTC 15295 Drillability Assessment in Deepwater Exploration.....	1989
<i>M.L. Albertin, Stephan Petmecky, Charley Jay, Pinky Vinson</i>	
OTC 15297 CNG Transportation Utilizing Composite Pressure Vessels.....	1995
<i>Steven Campbell</i>	
OTC 15298 The Changing Regulatory Scheme Applicable to Offshore LNG Terminals	1999
<i>W.H. Daughdrill, C.A. Karpowicz, T.W. Grove, R. Gallagher</i>	
OTC 15299 Technical Issues Associated With the Integration of LNG Production and Storage Facilities Using Floating Concrete Sub Structures	2003
<i>Brian Raine, Al Kaplan, Gordon Jackson</i>	
OTC 15300 Maximizing LNG Supply Chain Efficiency With Simulation Modeling.....	2015
<i>Gary Pattison</i>	
OTC 15301 Offshore Transfer, Re-Gasification and Salt Dome Storage of LNG	2024
<i>J. de Baan, M.H. Krekel, R. Leeuwenburgh, M.M. McCall</i>	
OTC 15302 Offshore Concrete Structures for LNG Facilities—New Developments.....	2038
<i>A.K. Haug, Rolf Eie, Knut Sandvik, Aker Kvaerner, Eiji Aoki</i>	
OTC 15303 Gas FPSO—How Soon To Reality?	2045
<i>Jan Wagner, Stan Cone</i>	

OTC 15304 Petroleum Systems of Deepwater Scotian Basin, Eastern Canada: Challenges for Finding oil vs. Gas Provinces	2053
<i>P.K. Mukhopadhyay, D.E. Brown, A.G. Kidston, T.D. Bowman, Jeff Faber, P.J. Harvey</i>	
OTC 15306 Deepwater Pipeline Spanning and Rectification: Lessons Learned	2064
<i>T.A. Johnson</i>	
OTC 15307 Selecting the Field Development Concept for Ormen Lange	2076
<i>Fredrik Gustavsson, Remi Eriksen, Gunnar Brekke, Anne Kraggerud</i>	
OTC 15308 Egyptian Deepwater Development, a Case Study	2088
<i>Metwaly Toubar, Mohammed Baydoun, Hesham Bahaa, Morten Iversen</i>	
OTC 15310 King Flowlines—Thermal Expansion Design and Implementation	2097
<i>G.E. Harrison, M.S. Brunner, D.A.S. Bruton</i>	
OTC 15311 New Build Generic Large FPSO	2108
<i>A. Le Cottet, M. Selhorst</i>	
OTC 15313 Development of Load-Out Methodology for On-Ground-Build FSO	2118
<i>Y.T. Yang, H.G. Cho, K.Y. Yoon, S.S. Ha, H.S. Kang</i>	
OTC 15314 A Solution For FPSO Module Integration	2123
<i>P.A. Thomas, S. Malek, N. Tcherniguin, V. Bestel</i>	
OTC 15315 An Innovative “No Hot Work” Approach to Hull Repair on In-Service FPSOs Using Sandwich Plate System Overlay	2129
<i>S.J. Kennedy, James Bond, Dale Braun, P.G. Noble, J.D. Forsyth</i>	
OTC 15316 Consideration of Collision and Contact Damage Risks in FPSO Structural Designs	2136
<i>Ge Wang, Dajiu Jiang, Yung Shin</i>	
OTC 15317 Operational Safety Analysis of FPSO—Shuttle Tanker Collision Risk Reveals Areas of Improvement	2145
<i>J.E. Vinnem, P. Hokstad, T. Dammen, H. Saele, H. Chen, S. Haver, O. Kieran, H. Kleppsto, J.J. Thomas, L.I. Toennessen</i>	
OTC 15318 Quantifying Risks of Well Intervention, Oil Deferment, and Loss of Reserves in Complex Smart Wells	2153
<i>John Hother, Hans van Dongen, Steve Braithwaite</i>	
OTC 15319 Wireless Transfer Successfully Transmits Bottomhole Data During Drill-Stem Testing in a Multi-Well Program Offshore Gabon	2162
<i>Michael Dunkel, Paul Leonard, Don Carpenter, Chris Murray</i>	
OTC 15320 Commercialization of Fiber-Optic Sensors for Reservoir Monitoring	2170
<i>F.X. Bostick III</i>	
OTC 15322 HPHT Well Control: An Integrated Approach	2181
<i>Rolv Rommetveit, K.K. Fjelde, Bjørne Aas, N.F. Day, Eric Low, D.H. Schwartz</i>	
OTC 15323 The Development and Application of HT/HP Fiber-Optic Connectors for Use on Subsea Intelligent Wells	2191
<i>Perry Wright, Stewart Barlow, Anton Brees</i>	
OTC 15324 Advanced Acoustic Telemetry System Provides Real-Time Data Acquisition That Increases Efficiency in Well Testing Operations	2199
<i>George Harper, Edgar Almanza, Arild Fosså, Doug Finley, Gerry Strang</i>	
OTC 15326 How Water Depth Affects Extended Reach Drilling	2215
<i>L.A.S. Rocha, Klaus Soffried</i>	
OTC 15327 Next Generation Drill Pipe for Extended Reach, Deepwater, and Ultradeep Drilling	2234
<i>M.J. Jellison, M.L. Payne, J.S. Shepard, R.B. Chandler</i>	
OTC 15328 Seabed-Located Drilling Rig—ITF Pioneer Project	2244
<i>L.J. Ayling, J.W. Jenner, J.M. Neffgen</i>	
OTC 15330 1500-hp AC Drive Motor Design for Oilfield Drilling Operations	2252
<i>Oasim Al'Akayshee, Kevin Williams</i>	
OTC 15333 J-Lay Installations Lessons Learned	2256
<i>M. Cavicchi, K. Ardanavis</i>	
OTC 15334 Osprey Pipelines—Cook Inlet, Alaska	2267
<i>R.T. Gilchrist, R.C. Visser, G.E. Carlson</i>	
OTC 15336 Installation of Deepwater Pipelines With Sled Assemblies Using the New J-Lay System of the DCV Balder	2277
<i>Dick Wolbers, Rob Hovinga</i>	
OTC 15338 Devil's Tower Export Lines: 160 Miles of 18" OD Reeled Rigid Pipe	2289
<i>Philippe Menier</i>	
OTC 15339 Streamlined RCM Process for Drilling Equipment	2297
<i>C.J. Armitage</i>	

OTC 15340 Reliability Analysis of a Wellhead Platform in Al Shaheen Block 5 Project	2301
<i>Junhong Kim, Joonho Min, Kwangpil Chang, Kihoo Moon, Sejoong Lee, Donghun Lee, Kiil Nam, Daejun Chang</i>	
OTC 15341 Risk-Based Total System Review of Integrated Active Heave Hoisting System.....	2308
<i>Wael Abouamin, Gerry Lansdell, Knut Haga</i>	
OTC 15343 Reliability Management of Deepwater Subsea Field Developments	2313
<i>Håvard Brandt</i>	
OTC 15353 Field Trials Scheduled for New Compact Dehydration Technology	2320
<i>G.W. Sams, H.G. Wallace</i>	
OTC 15354 New Physical Solvent Treating Configurations for Offshore High Pressure CO₂ Removal	2324
<i>J. Mak, D. Wierenga, D. Nielsen, C. Graham</i>	
OTC 15356 Optimizing a Large-Vessel Separator Design for FPSO Operation in Bohai Bay	2332
<i>K.D. Durham, G.W. Sams</i>	
OTC 15357 RST's Mission to Mars—The First Commercial Application of Rotary Separator Turbine Technology	2341
<i>K.C. Oxley, J.R. Bennett, L.O. Fremin, J.D. Taylor, G.D. Ross</i>	
OTC 15358 Dynamic Simulation of a Gas Compression System for Relief and Controlled Blowdown Cases	2350
<i>Kihoo Moon, Donghun Lee, Kwangpil Chang, Joonho Min, Junhong Kim, Sejoong Lee, Kiil Nam, Daejun Chang</i>	
OTC 15360 Fiber-Optic Leak Detection.....	2356
<i>Ian Walker, Dennis Carr</i>	
OTC 15361 Application of Wet Gas Metering in the Gulf of Mexico.....	2367
<i>P. Andreussi, P. Ciandri, A. Ansiati, S. Boschi, F. Paone</i>	
OTC 15362 Integrated Instrumentation System Strategy for Deepwater Asset Management	2376
<i>D.A. Ogwude</i>	
OTC 15363 Software That Enables Flow Metering of Well Rates With Long Tiebacks and With Limited or Inaccurate Instrumentation.....	2381
<i>Hallgeir Melbø, S.A. Morud, Bjørn Bringedal, Robert van der Geest, Kjetil Stenersen</i>	
OTC 15364 The Development of a Cable Termination System for Deep Water Applications	2388
<i>John Theobald, Howard Painter, Stewart Barlow</i>	
OTC 15366 Subsea Electrical Power Generation for Localized Subsea Applications	2394
<i>Michael Stavropoulos, Barry Sheppard, Mark Dixon, Daniel Jackson</i>	
OTC 15367 Installation of the Horn Mountain Spar Using the Enhanced DCV Balder	2402
<i>Cees Dijkhuizen, Ton Coppens, Peter van der Graaf</i>	
OTC 15368 Installation of Metallic Tube Umbilicals in 3,000 Meters Water.....	2415
<i>C. Dieumegard, P. Fellows</i>	
OTC 15369 Otter: The World's Longest Subsea Tie-Back With Dual ESP	2423
<i>Mark Horn, Frederic Coudeville, Eugene Bespalov, Howard Butcher</i>	
OTC 15371 Subsea Tree Installation, Lessons Learned on a West Africa Development.....	2435
<i>Robert Voss, Tony Moore</i>	
OTC 15373 Deepwater Installation Techniques for Pipe-In-Pipe Systems Incorporating Plastic Strains	2447
<i>Mark Dixon, Dan Jackson, Abed El-Chayeb</i>	
OTC 15376 Suction Anchors: Some Critical Aspects for Their Design and Installation in Clayey Soils	2453
<i>Hédi Dendani</i>	
OTC 15377 Comparative Risk Analysis of Two FPSO Mooring Configurations	2460
<i>John Stiff, Jose Ferrari, Albert Ku, Robert Spong</i>	
OTC 15378 Closely-Moored Floating Bodies in a Production and Offloading Facility—Requirement for and Application of a Coupled Analysis Capability	2472
<i>A.D. Connaire, D.W. Lang, C.D. Galvin</i>	
OTC 15379 Prediction of the Long-Term Behavior of Synthetic Mooring Lines.....	2486
<i>Peter Davies, Emmanuel Chailleux, Anthony Bunsell, Francois Grosjean, Michel Francois</i>	
OTC 15381 L-Riser: Steel Dynamic Riser for Severe Vessel Motions	2495
<i>J.E. Borgen, Einar Kjelland-Fosterud, T.J. Larsen</i>	
OTC 15383 Design Guideline for Riser Collision	2505
<i>A.J. Kalleklev, K.J. Mørk, Nils Sødahl, M.K. Nygård, A.M. Horn</i>	
OTC 15385 Horn Mountain Spar Risers—Evaluation of Tension and Installation Requirements for Deepwater Dry Tree Risers.....	2515
<i>E.J. O'Sullivan, R.B. Shilling, A.D. Connaire, F.W.A. Smith</i>	
OTC 15386 Verification of an Analysis Methodology for Riser Interference.....	2527
<i>K.F. Lambrakos, Rupak Ghosh, Thanos Moros</i>	
OTC 15390 Imaging the Hydrate Stability Zone Using a Vertical Array: First Results	2533
<i>T.M. McGee, E.J. Geresi, A.S. Gossett</i>	

OTC 15391 Mid-Infrared Spectroscopic Sensors for In-Situ Monitoring of Methane Dissolved in Seawater	2538
<i>Frank Vogt, Neil Pennington, Boris Mizaikoff</i>	
OTC 15393 Enhancement of Gas Hydrate Formation in Gulf of Mexico Sediments.....	2545
<i>R.E. Rogers, J.L. Dearman, H.H. Roberts</i>	
OTC 15395 The Use of Scatter Diagrams in the Selection of Design Current Profiles for a Riser Experiencing Vortex-Induced Vibration	2552
<i>J.M. Donnelly, J.K. Vandiver</i>	
OTC 15396 18-3/4-in. Fullbore Wellhead Systems	2561
<i>Marc Minassian</i>	
OTC 15400 Cryogenic Flexible for Offshore LNG Transfer	2573
<i>P.J.C. Cox, J.-M. Gerez, J.-P. Biaggi</i>	
OTC 15402 Probabilistic Fault Displacement Hazard Assessment for Flowlines and Export Pipelines, Mad Dog and Atlantis Field Developments, Deep Water Gulf of Mexico.....	2579
<i>M.M. Angell, K. Hanson, F.H. Swan, R. Youngs, H. Abramson</i>	
Author Index	