

Trinidad and Tobago Energy Resources Conference (SPETT 2014)

Future Assets: Acquisition, Maintenance and Reliability

**Port-of-Spain, Trinidad
9-11 June 2014**

ISBN: 978-1-63266-813-4

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© (2014) by the Society of Petroleum Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2014)

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

SPE-169907-MS New Methodologies for Human Factors in Process Safety	1
<i>B.A. James</i>	
SPE-169910-MS Achieving Long Term Integrity: An Engineered Solution For Production Casings In Deepwater Environment	7
<i>V. Reveth, R. Giron Rojas, N. Gupta, E. Gonzaga</i>	
SPE-169911-MS A Fundamental Model for Predicting Oil Recovery Due to Low Salinity Water Injection in Carbonate Rocks	20
<i>E.W. Al-Shalabi, K. Sepehrnoori, G. Pope, K. Mohanty</i>	
SPE-169912-MS Lessons Learned from Production History Matching in Single Cell Numerical Models in an Integrated Asset Model.....	44
<i>C. Noguera</i>	
SPE-169913-MS Compartmentalization Study in a Mature Field Using 3-D PSDM Seismic, Well Logs and Reservoir Data.....	58
<i>P. Pena, P.S. Oviedo, A.E. Guerrero</i>	
SPE-169914-MS Geomechanics: a New Star in the Horizon to Change the Fortunes in E&P Projects.....	75
<i>M. Hegazy, M.R. Lakshmikantha</i>	
SPE-169915-MS An Integrated Approach Using Geomechanics and Advanced Rock Characterization Techniques to Optimize Reservoir Productivity and Stimulation Design	83
<i>M. Nguyen, T. Worku, W.P. Mitchell, M.R. Lakshmikantha, M. Hegazy</i>	
SPE-169916-MS The Approach of Multistage Hydrauljet Fracturing Applied to Horizontal Wells in Low-permeability Reservoir	90
<i>L. Yuxi, Z. Shanjun, L. Chengyu, L. Peng, Z. Weifeng, L. Liguo, Y. Shifa, J. Yanxue, K. Cuilong, X. Hong, W. Shuo, Z. Tingting, L. Xianlong, L. Yuebao, L. Peng, Y. Fahao</i>	
SPE-169917-MS Software Tool for the Study, Analysis and Evaluation of Enhanced Oil Recovery Processes.....	97
<i>C.L. Delgadillo-Aya, M.L. Trujillo-Portillo, J.M. Palma-Bustamante, E. Niz-Velasquez, C.L. Rodriguez, N.E. León-Martinez</i>	
SPE-169918-MS A Case Study of Integrated Asset Modeling to Support Reservoir Management Strategies for Four Dry Gas Fields Sharing Production Facilities	106
<i>O. Espinola, M. Rocha, N.C. Alvarez, J.R. Ramirez, A. Solis, J.D. Guzman-Arevalo</i>	
SPE-169919-MS Revolutionizing Carbon Capture and Storage by Reversible Hydration of Carbon Dioxide Catalyzed by Nickel Nanoparticle	123
<i>M. Tiwari, N. Raj</i>	
SPE-169922-MS Productivity Prediction of Coalbed Methane Considering the Permeability Changes in Coal.....	127
<i>H. Chen, M. Li, Y. Zhang, C. Liu, Y. Li</i>	
SPE-169923-MS Integrated Asset Modeling in Mature Offshore Fields: Challenges and Successes	139
<i>R. Nazarov, P. Zalama, M. Hernandez, C. Rivas</i>	
SPE-169924-MS Probabilistic Analysis by Applying Uncertainty Worflows: A Case Study of the Teak Field, East Coast Trinidad	157
<i>C.J. Segnini, M. Rashwan, M.J. Hernandez, J.A. Rojas, M.A. Infante</i>	
SPE-169926-MS Options for Monetising Deep Water Gas in Trinidad and Tobago.....	167
<i>N.A. Alleyne, V. Stoute</i>	
SPE-169927-MS A Comparison Between the Conventional Drilling Operations and Thermal Assisted Drilling in the Case of UBD	174
<i>A. Nakhaee, M. Bazargan, A. Koohian, M. Habibpour, S. Irawan, M. Shahvar</i>	
SPE-169928-MS Validation and Analysis of Past PVT Studies from a Complex and Mature Offshore Asset in Trinidad	181
<i>D.E. Bagoo, M.L. Ramnarine, C.J. Segnini Rodriguez, M. Hernandez</i>	
SPE-169929-MS From Screening to Drilling - Planning a Drilling Campaign in an Offshore Mature Field: A Case Study of TSP Field, East Coast Trinidad	198
<i>M.J. Hernandez, C.J. Segnini Rodriguez, J. Grimaldi, M. Fernandez, R. Vela, P. Martinez</i>	
SPE-169930-MS Resistivity Index Hysteresis for Carbonate Rocks Undergoing Carbon Dioxide-EOR.....	208
<i>A.R. Adebayo, H.Y. Al-Yousef, M.A. Mahmoud</i>	
SPE-169931-MS Adaptability Study on Plugging Thief Zones with Asphalt Particle in Polymer Flooding Offshore Field	220
<i>K. Xiao, H. Jiang, Q. Wang, H. Wang, D. Zhao</i>	

SPE-169932-MS Reducing Latent Failure and Securing Productivity in High Risk Systems using High Reliability Theory (HRT).....	231
<i>J. Wattie</i>	
SPE-169933-MS Evaluating the Effects of CO₂ Injection in Faulted Oil Reservoirs.....	245
<i>A. Augustus, D. Alexander</i>	
SPE-169934-MS Asset Integrity Management - Natural Gas Slug Catcher Facility	252
<i>D. Williams, A. Boodoosingh</i>	
SPE-169935-MS Feasibility Study on the Implementation of CO₂-EOR Coupled with Sequestration in Trinidad via Reservoir Simulation.....	258
<i>J. Narinesingh, D.V. Boodal, D. Alexander</i>	
SPE-169936-MS Successful Single-Stage Cementing in a Weak Formation: A Case History in Spain.....	271
<i>A. Bottiglieri, A. Brandl, R.S. Martin, R. Nieto Prieto</i>	
SPE-169937-MS Microwave Dielectric Properties of Heavy Oil and Heating of Reservoirs	289
<i>R.C. Callarotti, E. Páez</i>	
SPE-169938-MS The Analysis and Interpretation of Parameters on Well Performance of Low Permeability Water-Producing Reservoirs: A Case Study of Daniudi Gas Field.....	299
<i>Y. Li, X. Li, J. Shi, H. Wang, L. Wu, D. Xu, S. Teng</i>	
SPE-169939-MS A Nano-Pore Scale Gas Flow Model for Shale Gas Reservoir.....	307
<i>Y. Li, X. Li, J. Shi, H. Wang, L. Wu, D. Xu, S. Teng</i>	
SPE-169940-MS Investigation of Significance of Critical Components in Optimization of WAG Injection Processes under Uncertainty	318
<i>C. Temizel, S. Purwar, A. Agrawal, A. Abdullayev, K. Urrutia, A.J. Chacon Garcia</i>	
SPE-169941-MS Reintroduction of Carbon Dioxide Supply from Central to South Trinidad via Pipeline - Perspectives and Possibilities for Using Present System.....	344
<i>S.A. Butcher, J. Isaac, C. Frontin-De Peaza</i>	
SPE-169942-MS Using Polymer Alternating Gas to Maximize CO₂ Flooding Performance	356
<i>W. Li, D.S. Schechter</i>	
SPE-169944-MS Application of an Integrated Methodology for Pre-Filtering of EOR Technologies	372
<i>T. Nnang-Avomo, M.F. Leon-Carrera, E. Escobar-Alvarez, N. Rodriguez Morillas, A. Mancera-Gonzalez, J. Guitian-Lopez</i>	
SPE-169945-MS A Model for Extending the Heptanes plus Fraction for Trinidad Gas Condensates.....	393
<i>R. Mayrhoof, R. Hosein</i>	
SPE-169946-MS Can Indigenous Bacteria Be Utilized for Increasing Oil Recovery from Trinidad Oil Reservoirs?.....	405
<i>N. Rambaran, S. Maharaj, R. Hosein</i>	
SPE-169947-MS Determination of Bubble-Point and Dew-Point Pressure without a Visual Cell.....	412
<i>R. Hosein, R. Mayrhoof, W.D. McCain Jr.</i>	
SPE-169948-MS A Structured Mobility-Based Methodology for Quantification of Net Pay Cut-off in Petroleum Reservoirs	428
<i>H. Saboorian-Jooybari</i>	
SPE-169951-MS A Methodology for Screening and Ranking of Reservoirs for Light Oil Air Injection Implementation	451
<i>E. Niz-Velasquez, M.L. Trujillo Portillo, C. Delgadillo, J. Padilla</i>	
SPE-169953-MS Hydrocarbon Potential of the Upper Cretaceous Oil Shale in Quseir-Safaga District, Egypt.....	464
<i>M.R. Shaker, S.E. Shalaby, T.I. Elkewidy, M.G. Hassan, M. Said, T. Elazhary</i>	
SPE-169954-MS Application of SAGD in Heavy Oil Complex Fractured Reservoir	476
<i>A. Zare, A. Fattahi, M. Joshi</i>	
SPE-169955-MS Evaluating History Matching and Reservoir Uncertainties Reports for Solvent Co-Injection in SAGD Performance: A Systematic Review	486
<i>A. Zare</i>	
SPE-169956-MS Dynamic Permeability Model of Coal Seam and Analysis of Various Influence Factors	494
<i>Y. Wang, J. Xu, W. He, R. Jiang, S. Wang, S. Li</i>	
SPE-169957-MS Numerical Simulation of Shale Gas Development Based on Complex Fracture Network Growth	503
<i>D. Ye, C. Yin, Y. Li, S. Wang, G. Qin, H. Chen</i>	
SPE-169958-MS Chemical Deliquification of Unconventional Gas Wells	514
<i>K. Francis-Lacroix, D. Seetaram</i>	
SPE-169959-MS Efficient Proppant Flowback Prevention Strategy Allows Production of a Multi Fractured Offshore Horizontal Well Equipped with ESP and Screenless Completion	520
<i>F. Martocchia, S. Baretti, L. Farina, G. Rizza, F. Okassa, A.D. Dirya, T.G. Haaland</i>	

SPE-169960-MS The Impact of Laminated Rock on Hydraulic Fracture Propagation in Unconventional Resources	532
<i>B.V. Cherian, S.M. Higgins, G.A. Bordakov, A. Yunuskhajayev, Z. Al-jalal, D. Mata, J.D. Jeffers</i>	
SPE-169961-MS Comparison of the Impact of Dip and Vertical Transmissibility on Oil Recovery and Carbon Storage Using Water Over Gas Injection in the Forest Reserve Field, Trinidad	542
<i>S.C. Jones, L.E. Sobers</i>	
SPE-169962-MS Systems Approach to Fluid Sampling for Real Time Testing without Sticking	553
<i>F. Galvan-Sanchez, A. Hinkle, H. Solomon</i>	
SPE-169966-MS The Performance Characteristics of Waterdrive Gas Reservoirs off the South-East Coast of Trinidad.....	562
<i>C. Welsh</i>	
SPE-169967-MS The Study of CO₂ Flooding of Horizontal Well with SRV in Tight Oil Reservoir.....	592
<i>H. Wang, X. Liao, X. Zhao, H. Ye, X. Dou, D. Zhao, N. Lu, Q. Zhang</i>	
SPE-169968-MS The Performance Evaluation of Old Well after SRV in Ordos Basin Tight Oil Reservoir	601
<i>H. Wang, X. Liao, H. Ye, X. Zhao, C. Liao, X. Chen, D. Li, Y. Li</i>	
SPE-169969-MS Multiclient 3D Seismic Surveys in Trinidad and Tobago - Towards a Policy	611
<i>W. De Landro-Clarke, P. Bradshaw-Niles</i>	
SPE-169970-MS Systematic Human Error Reduction and Prediction Approach while Drilling	617
<i>A. Munsi, M. Imtiaz, S. Dei, D. Nayan</i>	
SPE-169975-MS Identification of Natural Gas Hydrates in Blocks 25a, 25b, 26 and 27 Offshore Trinidad Using Available Well Log Data.....	628
<i>M.M. Smith, L.E. Sobers</i>	
SPE-169976-MS Applications of Advance Downhole Fluid Analysis and Interval Pressure Transient Test for Improving Oil Reservoir Characterization: A Case Study from the East Cost of Trinidad	638
<i>S. Paul, R. Tapia, J.A. Arias-Correa</i>	
SPE-169977-MS Reservoir Evaluation Using Interval Pressure Transient Test in Appraisal Gas Wells, Offshore Trinidad and Tobago	652
<i>D. Bardal, M.S. Trim, R. Tapia, J.A. Arias-Correa, S.M. Baptista-Parra</i>	
SPE-169978-MS Case Study for Reducing Tubing Failures in Suriname's Tambaredjo Field	667
<i>D. Nurmoahmed, H. Chin A Lien, S. Kisoensingh</i>	
SPE-169979-MS Downstream Refining and Petrochemicals Challenges - Future Configuration	682
<i>S.D. Mohite</i>	
SPE-169980-MS LNG Imports - A Strategic Choice for GCC Region.....	703
<i>S.D. Mohite</i>	
SPE-169981-MS A New Wave of Illumination -ISS OBC Acquisition in the Columbus Basin.....	721
<i>T. Rampersad, A. Cegna, C. Steiner, J. Kommedal</i>	
SPE-169983-MS Success Story: Reuse Application of Phosphate-Based Completion Fluid at Exploration and Exploitation Wells in Indonesia	726
<i>N.B. Sangka, S. Hidayat, H. Budiman</i>	
SPE-169984-MS Optimized Shale Resource Development: Balance between Technology and Economic Considerations.....	734
<i>U. Ahmed</i>	
SPE-169985-MS The Critical Role of Hsse Management and its Impact on Productivity and Corporate Social Responsibility's (CSR's) Mandate and Influence on Trinidad & Tobago's Energy Sector	773
<i>B.A. David, M.N. Manswell</i>	
SPE-169986-MS Unconventional Forecasting Method for Brown Field on Primary Depletion - An Example of Naturally Fractured Reservoir	781
<i>N. Maricic, E. Zuluaga, S. Somasundaran, A. Manzoor, A. Saeedi</i>	
SPE-169987-MS HSE Philosophy and Design Considerations of a Purpose Built Waste Processing Facility	792
<i>M. Kabanov, D. Bruce, L.M. Mich</i>	
SPE-169988-MS Analyzing Edge Water Drive Laws of Offshore Heavy Oil Reservoir with Physical Experiment and Numerical Simulation	800
<i>Q. Feng, S. Li, Y. Su, Y. Liu, X. Han</i>	
SPE-169989-MS Reserves Evaluation of Dry Gas Reservoirs through Flowing Pressure Material Balance Method	808
<i>J.D. Guzman, J.A. Arevalo, O. Espinola</i>	
SPE-169990-MS Dynamic Integration of DTS Data for Hydraulically Fractured Reservoir Characterization with the Ensemble Kalman Filter	822
<i>M. Tarrahi, E. Gildin, J. Moreno, S. Gonzales</i>	

SPE-169993-MS Trinidad and Tobago: Diving into the Deep but at What Cost?	836
<i>A.W. Nickie</i>	
SPE-169994-MS Integrated Thermodynamic Reservoir Modeling through Efficient Design of Experiments for Optimal Field Development through Steamflooding Processes.....	846
<i>W.J. Al-Mudhafer</i>	
Author Index	