

Nigeria Annual International Conference & Exhibition (NAICE 2015)

Natural Gas Development and Exploitation
in an Emerging Economy – Strategies,
Infrastructure and Policy Framework

Victoria Island, Lagos, Nigeria
4-6 August 2015

Volume 1 of 3

ISBN: 978-1-5108-1185-0

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© (2015) 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: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

Impact of Structural Discontinuities on Fluid Flow and Production Behaviour: Case Study of the Yowi Field, Offshore Niger Delta, Nigeria	1
<i>Prince S. Momta, Minapuye I. Odigi</i>	
Drilling Deeper to Access More Hydrocarbon Potentials in the Yowi Oilfield, Offshore Niger Delta, Nigeria	16
<i>Prince S. Momta, Minapuye I. Odigi</i>	
Estimation of Net Pay in Unconventional Gas Reservoirs	32
<i>Paul Fekete, Adewale Dosunmu, Richard Ekpdekumo, Daniel Ayala, Ediri Bovwe, Sitamai Ajiduah</i>	
Evaluation of the Cuttings Carrying Capacity of a Formulated Synthetic-Based Drilling Mud	49
<i>Anietie N. Okon, Okorie E. Agwu, Francis D. Udoh</i>	
A Review of Nigerian Bentonitic Clays as Drilling Mud	59
<i>Okorie E. Agwu, Anietie N. Okon, Francis D. Udoh</i>	
Cost Benefit Analysis of Vegetable Oils Used As Alternatives to Diesel in the Formulation of Oil-Based Drilling Muds	77
<i>Okorie E. Agwu, Isemin A. Isemin, Moses G. Akpabio</i>	
Analyzing Lateral and Torsional Vibrations Models and their Effect on Drilling Efficiency Using PDC Bits in Directional and Multilateral Wells	96
<i>David E. Odesa, Dosunmu Adewale</i>	
The Effect of Wellbore Stability in Naturally Fractured Reservoirs	114
<i>Paul Fekete, Lopez A. Bruno, Samuel Odagme, Adewale Sanusi, Ediri Bowe</i>	
The Synergy Effect of Microwave Heat and Demulsifier in Resolving Water-in-Oil Emulsions	129
<i>Aliyu Adebayor Sulaimon, Etimbuk Bassey Umoh, Bamikole Joshua Adeyemi</i>	
Local Content Policy and Entrepreneurship: Implications for Small and Medium Scale Industries in the Nigerian Oil and Gas Sector	144
<i>Francis D. Udoh, Offiong I. Akpanika, Anietie N. Okon</i>	
The Nigerian Natural Gas Industry: Critical Policies and Legal Issues	153
<i>Nkiruka Chidia Maduekwe</i>	
Gas-Oil Gravity Drainage and Reinfiltration in Naturally Fractured Reservoirs	175
<i>Francis D. Udoh, Anselem I. Igbafe, Anietie N. Okon</i>	
Alternative Approach to Multi-Rate Testing	188
<i>P. P. Obeahon, O. Daodu, A. Sedgwick, O. Okereke</i>	
Deep Offshore Petroleum Resource Developments in Nigeria: Challenges, Constraints and Outlook	202
<i>Adeyemi J. Akinlawon, Omowumi O. Iledare</i>	
Computation Of Dimensionless Pressure in a Vertical Well Using Gauss-Chebyshev Quadrature, Gauss-Kronrod Quadrature and Runge-Kutta Fourth Order	216
<i>J. Oloro, E. Okoh</i>	
Optimization of Wax Deposition in Sub-Cooled Pipeline Using Response Surface Methodology	232
<i>Olusiji A. Adeyanju, Layioye O. Oyekunle</i>	
Modeling and Simulation of Wellbore Hydraulics In Underbalanced Drilling	245
<i>Y. B. Adeboye, L. O. Oyekunle</i>	
Integrated Reservoir Modeling and Uncertainty Assessment of a Reservoir Complex in the Niger Delta	261
<i>Chinedu Anyanwu, Daniel Afekhume, Collins Onobrakpeya, Adenike Sonde, Omagbemi Kakayor</i>	
Modeling Petrophysical Property Variations in Reservoir Sand Bodies Using Artificial Neural Network and Object Based Techniques	289
<i>Augustine Uhunoma Osarogiagbon, Chima Cyril Udeze, Imonitie Jude Imorame</i>	
Mechanistic Models for Predicting Sand Production: A Case Study of Niger Delta Wells	304
<i>Dickson O. Udebhulu, David O. Ogbe</i>	
A Proposed Simplified Technique for Accurate Measurement and Calculation of Flared Gas Volume for Nigerian Oil Fields	324
<i>Umeh Ebuka, Abonyi Chukwunonso, Nwanna Nnaemeka, Ipeka Princewill</i>	
Effectiveness of Simulations on Well Control During HPHT Well Drilling	338
<i>I. M. Auwalu, I. Z. Zahra, M. B. Adamu, A. L. Usman, A. D. I Sulaiman</i>	
Determination of Pressure Drop in a Natural Folwing Gas Well using Nodal Analysis	349
<i>J. A. Dala, O. O. Agbaka, O. A. Olafuyi, E. S. Adewole</i>	
A New Method for Permeability Stress-sensitivity Quantification and Stimulation Efficiency Evaluation	360
<i>Xiangji Dou, Xinwei Liao, Xiangnan He, Tianyi Zhao, Zhiming Chen, Weiyan Ren, Rui Zhang</i>	
Analysis on Traditional Reserve Estimation Methods in Stress-sensitive Gas Reservoir: Error Analysis and Modification	373
<i>Xiangji Dou, Xinwei Liao, Xiaoliang Zhao, Tianyi Zhao, Zhiming Chen, Weiyan Ren, Rui Zhang</i>	
A New Method to Determine and Forecast Deliverability Equation for Fractured Horizontal Well in Tight Gas Reservoir	383
<i>Xiangji Dou, Xinwei Liao, Huawei Zhao, Tianyi Zhao, Zhiming Chen, Weiyan Ren, Rui Zhang</i>	
Fracture Optimization for Multi-stage Fractured Horizontal Well with Time & Stress-Sensitive Parameters	393
<i>Xiangji Dou, Xinwei Liao, Tengfei Hou, Tianyi Zhao, Zhiming Chen, Weiyan Ren, Rui Zhang</i>	

The Study of CO₂ Flooding and Sequestration in Tight Gas Reservoir: Different Completion Measures	407
<i>Xiangji Dou, Xinwei Liao, Huan Wang, Tianyi Zhao, Zhiming Cheng, Weiyan Ren, Rui Zhang</i>	
Software for Reservoir Performance Prediction	418
<i>Okotie Sylvester, M. O. Onyekonwu</i>	
Applying Gyro While Drilling Technology to Enhance Tophole Drilling: Niger Delta Experience	434
<i>Alaekwe Ewelike Okwu</i>	
Work Flow for Reservoir Study and Challenges	448
<i>Okotie Sylvester, Stanley Buduka, Ikporo Bibobra</i>	
Coupled 3-D Temperature, Viscosity and Pressure to Investigate the Effect of Heating on Pressure Decline in a Closed Reservoir with High Viscosity	457
<i>Elizabeth Akonobe Appiah, A. O. Igbokoyi, Omololu Akinojo</i>	
Real-Time Production Optimization Experience in an Offshore Gaslifted Field	476
<i>Umanah Ofonmbuk, Michaels Ifechukwu, Oladepo David Adebowale</i>	
Experimental Model for the Determination of Hydration Potential of Niger-Delta Shales for Drilling Mud Design	491
<i>C. Eme, A. Dosunmu, C. Anyanwu, E. E. Okoro, E. Ekaide</i>	
Integration of Subsea Processing Technologies to Low Energy Deepwater Brownfield	N/A
<i>Chinedu Ogwus</i>	
Decline Curve Analysis using Combined Linear and Nonlinear Regression	504
<i>Austin K. Ukwu, Mike O. Onyekonwu, Sunday S. Ikiensikimama</i>	
Effect of Grain Size on Porosity Revisited	521
<i>Naomi A. Ogolo, Olorunmbé G. Akinboro, Joseph E. Inam, Felix E. Akpokere, Mike O. Onyekonwu</i>	
Performance Evaluation of Guar Gum as a Carrier Fluid for Hydraulic Fracturing	535
<i>B. Ihejirika, A. Dosunmu, C. Eme</i>	
Gas Well Test Interpretation: Niger Delta Field Experience	546
<i>P. P. Obeahon, O. Daodu, A. Sedgwick</i>	
Prevention of Shale Instability by Optimizing Drilling Fluid Performance	560
<i>R. Mkpokkana, A. Dosunmu, C. Eme</i>	
Formulation of Local Alkaline- Surfactant-Polymer (ASP) For Enhanced Oil Recovery In Niger Delta: A Review	569
<i>C. U. Uzoho, M. Onyekonwu, O. Akaranta</i>	
The Effect of Water-based Mud on Borehole Stability of Deeper Formations in Field X	585
<i>Ayodele Akinfolarin</i>	
Mud Cap Drilling in a Highly Fractured HPHT Carbonate Formation: A Case Study in an Iranian Offshore Field Persian Gulf	598
<i>Mansoor Zoveidavianpoor, Vahid Farahani</i>	
Empirical Wellhead Pressure-Production Rate Correlations for Niger Delta Oil Wells	611
<i>Anietie N. Okon, Francis D. Udoh, Dulu Appah</i>	
Gas Flaring: Proposed Gas Hydrate Solution as a Feasible Option for the Niger Delta	628
<i>Naomi A. Ogolo, Mike O. Onyekonwu</i>	
Performance of Foreign and Local Agents for Enhanced Oil Recovery of Nigerian Crude	639
<i>Naomi A. Ogolo, Shadrach O. Ogiriki, Victor I. D. Onyiri, Therisa C. Nwosu, Mike O. Onyekonwu</i>	
Sand Consolidation Operations, Challenges and Remedy	654
<i>S. A. Marfo, D. Appah, O. F. Joel, G. Ofori-Sarpong</i>	
Improving the Reliability of Surface Production Facilities in the Oil and Gas Industry Through Better Data Quality	666
<i>Ataga Ehi, Isioma Asiodu-Otughwor</i>	

VOLUME 2

Impact of Reversible Invert Emulsion Drilling Fluid Rheology on Productivity	674
<i>E. E. Okoro, A. Dosunmu, B. Oriji, S. Iyuke</i>	
Biological and Chemical Changes Associated with Exposure of Cyprinid Fishes to Some Oil Field Chemicals in the Niger-Benue River System, Nigeria	688
<i>A. O. Uche, F. D. Sikoki, R. S. Konya</i>	
Application of Uncertainty Management in a Brown Field using Reservoir Simulation: A Case Study of SPDC's Field Re-Development	697
<i>Eteobong Etokakpan, Bomo Keme, Chike Nwonodi, Daniel Amogu, Adedoyin Orekoya, Victor Longe, Taiwo Olubamise, Ikwan Ukauku, Ejiuwa Nworie</i>	
Evaluation of Cased-Hole Expandable Sand Screen (ESS) Application in Gas Wells	714
<i>Asmau Wali, Foster Uzoho, Jude Ekwealor</i>	
Solution By Elimination (SBE) Approach to Root-Cause-Analysis in Production Operations: SPDC Case Study	720
<i>Ibianka Sukubo, Vincent Nwabueze, Chidi Okoro, Leo Chiejina</i>	
The Effect of Reservoir Pressure on Well Completion/Performance Efficiency	737
<i>A. Joseph, J. A. Ajenka, S. O. Onyeizugbe</i>	
Safeguarding Pressure Integrity of Surface Well Control Equipment: A Review of Fastlock Drilling Adapter and Blow Out Preventer Connection Failure in High Pressure Well	750
<i>S. O. Awe, A. Erinle, A. Akinfolarin, T. Ibrahim, P. Obanya, V. Roes</i>	
Biosurfactant Production from Palm Oil Mill Effluent (POME) for Applications as Oil Field Chemical in Nigeria	758
<i>Neboh Hope, Abu Gideon</i>	

CO₂ Capture & Utilization: Harnessing the CO₂ Content in Natural Gas for Environmental and Economic Gains	777
<i>Emmanuel O. Agiaye, Mohammed Othman</i>	
Thermodynamic Modelling for Mapping Wax Deposition Envelope for an Identified Niger Delta Oilfield	808
<i>N. N. Johnson-Achilike, G. A. Chukwu, J. Ajienska</i>	
Preliminary Investigation of Temperature and Pressure Measurement System for Down-hole Monitoring of Oil Wells Using FBG/EPFI Sensing Technique	815
<i>S. Udoh, J. Njuguna, R. Prabhu, B. Chirappuram, P. Radhakrishnan</i>	
Aquifer Matching with Material Balance Using Particle Swarm Optimization Algorithm – PSO	827
<i>D. G. Ottah, S. S. Ikiensikimama, S. A. Matemilola</i>	
Downhole Electrical Heating Techniques in the Orinoco Oil Belt, Are They Always Reliable? Appraisal Analysis to Petrocedeño’s Pilot Project	837
<i>Randy Alvarez</i>	
Evaluation of Oil Spill Dispersants with a Focus on their Toxicity and Biodegradability	847
<i>C. Nwaizuzu, O. F. Joel, F. D. Sikoki</i>	
Improved Sand Definition Through Core-Log Calibration	858
<i>James Anyaehie</i>	
Mitigation of Biogenic Sulphide Production by Sulphate Reducing Bacteria in Petroleum Reservoir Souring	862
<i>O. M. Immanuel, G. O. Abu, H. O. Stanley</i>	
Impact of ISO 14001 Certification in the Transformation of HSE Management in Oil and Gas Industry in Africa	882
<i>Adetoun Mustapha, Israel Ezenwaka, Amadi Amadi</i>	
A Review of Drill-Cuttings Treatment and Disposal Methods in Nigeria- The Gaps and Way Forward	890
<i>M. I. F. Mkpaoro, G. C. Okpokwasili, O. F. Joel</i>	
Improving Oil Recovery from a Matured Waterflood Reservoir by the Integration and History Matching of Available Pressures, Production and Fluid Saturation/Fluid-Contacts	899
<i>Olu Okpani, Anil Ambastha</i>	
Technical Data Tracking and Cataloguing Improves Asset Performance In Shell Nigeria	913
<i>Iheajemu Kingsley, Obomanu Arnold, Nnanna Erasmus, Jegede Yvonne</i>	
Reducing Reservoir Uncertainty through Systematic Data Integration and Analysis: Case Study of a Partially Appraised Gas Field	922
<i>Azubike Obi, Osiagwu Inaingo, Iyowu Olakunle, Ozoemene Uche, James Anyaehie, Esho Muyiwa</i>	
Managing Greenhouse Gases Emission Through Minimizing the Usage of Blanketing Gas on Storage Tanks – The Bonny Oil and Gas Terminal Case Study	929
<i>Ataga Ehi</i>	
Flow Potential of Thin Beds in DW Turbidite Reservoirs from Production Logs	938
<i>Olubunmi Arogun, Osazua J. Itua</i>	
Geomechanical Assessment of Fault Slip and Top Seal Integrity for a Deepwater Turbidite Field Development	948
<i>Olubunmi Arogun, Peter Fokker</i>	
Improving Value by Leveraging on Integrated Multi-discipline Data Review for a Partially Appraised Gas Field Development: The Zed Field Case Study	956
<i>Adenike Sonde, Uchechukwu Ozoemene, Udoka Nwabudike, Florence Ifeanyi-Onah, Okiemute Amuboh, Muiyiwa Esho</i>	
LPG Hydrate Formation and Prevention Using Ethanol and Methanol	964
<i>Odutola Toyin Olabisi, Ikiensikimama Sunday Sunday, Dulu Appah</i>	
Optimizing the Sourcing of Natural Gas from Intercalated Field for Accelerated and Sustainable Low-Cost Natural Gas Supply: A Case Study of the Niger Delta Gas Cluster	972
<i>O. U. J. Ogwo, G. U. Billy Agha</i>	
Resolving Anomalous Water Based Mud Rheology Challenges - Cause Investigation and Treatment	996
<i>Adeyemi Erinle, Alfred Enyekwe, Mirian Kosi Ufomaduh</i>	
Integrated Performance Based Gas Initially In-Place Estimates Update - An Aid To Optimum Natural Gas Field Development	1007
<i>Ukaku Ikvan, Thaddeus Ehighebolo, Tirthankar Bhattacharya, Debasis Das, Van Dongen, Gislain Madiba, Jegede Temitope, Ikpolo Ernest, Austin Anaevune, Sudipto Sarkar, Amit Fouzdar, Fola Sanwoolu, Jolomi Esimaje</i>	
Lean Methods Application to Frontend Petroleum Engineering Project	1027
<i>Osazua J. Itua, Gomathi Shamuganathan</i>	
Interference Test Pressures of A Reservoir with Vertical and Horizontal Wells	1036
<i>P. U. Giegbefumwen, E. S. Adewole</i>	
An Analytical Model of Foam Resistance Factor in Gas Foaming Flooding	1052
<i>Jiali Zang, Xiangfang Li, Zhiming Chen, Liang Huang, Yanzun Li, Yanick</i>	
Nigeria Gas To Power Value Chain Systems Economic Evaluation and Modeling	1064
<i>Emmanuel I. Onwuika, Omowumi Iledare</i>	
An Assessment of the Role of Supplier Prequalification Audit in the Implementation, Enforcement and Stabilization of Business Regulations on Nigerian Oil Services Companies	1080
<i>Tubosun Fagbe</i>	
Effective Hydrate Management During Gas Expansion	1086
<i>Odutola Toyin Olabisi, Ikiensikimama Sunday Sunday, Ajienska Atubokiki Joseph</i>	
Improving the CO₂ Fracturing Effect with Nanoparticles in Shale Gas Reservoir Simulation	1097
<i>Yanzun Li, Xiangfang Li, Jiali Zang, David Dicarlo</i>	
Material Balance Modeling and Performance Prediction of a Multi-tank Reservoir	1108
<i>Iroro Idogun, Olatunji Jeboda, Dawari Charles, Happiness Ufomadu</i>	

Entrenching Process Safety Culture in The Face of Shifting Demography – A Key to Sustaining Goal Zero Performance in Well Operations	1120
<i>Judith O. Egbeocha, Onyinye G. Reginald-Ugwuadu, Ekpemu Oluchi, Richard C. Ebisike, Philip Obanya</i>	
Wellbore Strengthening through Squeeze Cementing: A Case Study	1128
<i>Benyeogor Ogochukwu</i>	
Developing a Framework for Maximizing Marginal Oil and Gas Field Economics	1138
<i>Oyebimpe Adeogun</i>	
Petroleum Source Rock Potential of Upper Benue Trough, Nigeria: Implication for Hydrocarbon Exploration	1156
<i>Jamiudeen Kayode Raji, Olabisi J. Adebowale Ademola</i>	
Laboratory Investigation of the Effects of Monovalent and Divalent Salts on Gum Arabic Solutions	1166
<i>D. O. Onaiwu, O. A. Olafuyi, J. Ogbonna</i>	
Strategic Management of Health Safety and Environment Risks in Down-Trodden Oil Dependence Economy	1175
<i>Tubosun Fagbe</i>	
An Investment Matrix Model for Marginal Field Operators in Nigeria	1183
<i>Utomako Ashore, Oduwa Onaiwu, Olalekan Olafuyi, Rasak Sunmonu</i>	
Take or Pay Obligation in Long Term Gas Contract: Risk Mitigation Options for Off-taker	1199
<i>Ovunda Green, Omowumi Iledare</i>	
Overcoming Limitations of Empirical Steady State Models using Multi Rate Testing, MRT	1206
<i>Michaels Ifechukwu, Oladejo David Adebowale</i>	
A P/Z Plot for Estimating Original Gas in Place in a Geo-Pressured Gas Reservoir by the Use of a Modified Material Balance Equation	1224
<i>I. O. Obielum, P. U. Giegbefumwen, P. O. Ogbeide</i>	
A Simple Aggregate Parameter for Comparing Waterflood Reservoirs	1239
<i>Gerard Tetegan, Kazeem A. Lawal, Fidelis Tendo</i>	
Steam-Alternating-CO₂ for Heavy-Oil Recovery	1253
<i>Kazeem A. Lawal, Fidelis Tendo</i>	
Reservoir Permeability Evolution in Sand Producing Wells	1266
<i>Opeyemi Ibukun, Juan Tovar, Niklas Heinemann, Frances Chalmers, Belkhir Mokdad, Kia Katooz</i>	
Application of Interconnected Fibre-Network to Improve Sand-Control In Water Injectors: Preliminary Insights from Field Data	1277
<i>Kazeem A. Lawal, Joshua Okosun, Idris Olatunji, Paulinus Okonkwo, Ipalibo Horsfall, Ademola Adenuga, Oluseye Ogunsina, Abraham Ekebafé, Edith Mbanefo, Fidelis Tendo, Sophie Pokima, Saeed Bapoo</i>	
Benefit of Data Integration (Biostratigraphic Data) in Field Development -B4 Gas Reservoir Case Study	1300
<i>Andrew Ogbuli, Omagbemi Kakayor, Alia Bahry, Yaqub Adepoju, Chukwunweike Awa, Olalekan Balogun</i>	
The Analysis of String Stability Affected by Earthquake in The Shallow of Deep-water Drilling	1309
<i>Y. Zhou, H. Fan, S. Deng, W. Shen, W. Li</i>	
An Investigation of the Effects of High Temperature and High Pressure (HTHP) on the Stability of Wellbore Casing using Finite Element (FE) Method	1315
<i>S. O. Ohenzuwa, A. O. Olafuyi, E. Nwankwo, K. O. Bello</i>	
Displacement Calculation of Dynamic Killing Drilling in Deepwater	1324
<i>W. Ren, H. Fan, S. Deng, C. Cui, Q. Peng, X. Liu, X. Dou</i>	
A Comparative Study of the Mechanism ASP Flooding for Light Oil Recovery in Strongly Water Wet Cores Using Sodium Hydroxide, Lauryl Sulphate and Gum Arabic	1334
<i>Kharma Rieborue, Taiwo Oluwaseun, Olafuyi Olalekan</i>	
A Review of Produced Water Management Processes: A Case Study of Brown Field Oil in Niger Delta	1343
<i>O. Ofili, T. Temisanren, O. Olafuyi</i>	

VOLUME 3

Finite Element Analysis of Induced Stresses on Injection Wells using Plane Stress and Strain Elements	1355
<i>U. B. Ikponmwosa, E. Nwankwo, K. O. Bello, A. O. Olafuyi</i>	
Alkaline-Surface-Polymer Flooding for Heavy Oil from Strongly Water Wet Cores Using Sodium Hydroxide, Lauryl Sulphate, Shell Enordet 0242, Gum Arabic and Xanthan Gum	1363
<i>Ujuanbi Solomon, Taiwo Oluwaseun, Olafuyi Olalekan</i>	
Surfactant-Polymer Flooding Schemes (A Comparative Analysis)	1373
<i>Uwari Felix, Taiwo Oluwaseun Ayodele, Olafuyi Olalekan</i>	
Use of Water Injection Surveillance as an Effective Reservoir Management Tool	1381
<i>Sunmonu Rasak Mayowa, Shokoya Yewande, Okwudiafor Paul, Jabar Sheriff</i>	
Field Application of a Real-Time Integration of 3D⁺ Geo-Mechanical Model to Optimize Mud Weight Across Weak Bedding Plane	1406
<i>Babagbemi S. Adetoye, Adewale Dosunmu, Oriji A. Boniface</i>	
5-Hydroxytryptophan: A Novel Eco-Friendly Corrosion and Oilfield Microbial Inhibitor	1422
<i>E. B. Ituen, O. Akaranta, O. A. James</i>	
Substantiation of Reservoir Lateral Hydraulic Connectivity Based on Integrated Subsurface and Production Test Result - Niger Delta Field Experience	1432
<i>Yaqub Adepoju, James Anyaehie, Andrew Ogbuli, Olalekan Balogun, Chukwunweike Awa, Miguel Mora-Glukstad, Omagbemi Kakayor</i>	
Ranking of C6+ Composition Split Schemes of Pipeline Gas for Hydrocarbon Dewpoint Determination	1439
<i>Livinus Anieftok</i>	

Optimization of Hole Cleaning using Dynamic Real-time Cuttings Monitoring Tools	1449
<i>Adewale Dosunmu, Cosmas Orun, Chimaroke Anyanwu, Evelyn Ekeinde</i>	
Saturation Height Modelling in a Partially Appraised Gas Field using Analogue Field Core Data: An Optimisation Case Study of ZAN Field in the Niger Delta	1458
<i>Iyowu Olakunle, Anijekwu Chinedu, Nwabudike Udoka, Esho Muyiwa</i>	
Detection of Water Encroachment into a Marginal Field Oil Reservoir for Ultimate Recovery	1468
<i>Anthony Oso Bisong</i>	
Utilizing Early Time Boundary-Dominated Flow Data to Make an Initial Estimate of Gas-in-Place: An Aid to Computing Material Balance Pseudotime	1481
<i>L. O. Damoah, S. Mohammed, G. S. Enty</i>	
Formulation of Demulsifiers from Locally Sourced Raw Materials for Treatment of a Typical Nigerian Crude Oil Emulsion	1496
<i>A. D. I. Sulaiman, S. Abdulsalam, A. O. Francis</i>	
Slug Flow and its Mitigation Techniques in the Oil and Gas Industry	1513
<i>B. T Enilari, F. Kara</i>	
A Model to Determine the Effect of Pore Pressure and Fracture Gradient on Stuck Pipe Management	1532
<i>Orijji A. Boniface, N. M. Marcus</i>	
Multiple Zones Completion Using a Proactive Algorithm for a Liquid Rich Deep-water Gas Well	1541
<i>Y. Nasir, M. B. Adamu, A. M. Auwalu, A. D. I. Sulaiman</i>	
Emulsion Treatment in the Oil Industry: A Case Study of Oredo Field Crude Oil Emulsion	1551
<i>Augustina Ovuema, Sylvester Okotie</i>	
Hydrocarbon Resource Development Decision Analysis for Gas Reservoir with 10ft Oil Rim: Niger Delta Case Study	1562
<i>Olalekan Balogun, Yaqub Adepoju, Andrew Ogbuli, Awa Chukwunweike</i>	
Subsidence Prediction using Analytical Approach	1572
<i>Amit Awasthi, Omolara Williams</i>	
IPSM Plays Key Role in Maximising Oil Production and Minimising Gas Flare in the Re-opening of A Swamp Field in Niger Delta	1580
<i>O. Femi Obakhena, Erasmus Nnanna, Miebaka Wakama, Nwoke Linus</i>	
An Integrated Multi-Disciplinary Approach to Predict Fluid Contacts in a Partially Appraised Field - A Case Study of Yoko Field in Niger Delta	1588
<i>Orekoya Adedoyin, Etokakpan Eteobong, Ahmed Suleiman, Prahlad Basak, Jude Ekwealor, Nworie Ejiuwa, Ugboaja Remmy, Kakayor George, Kachi Onyeagoro</i>	
Micro-storage State and Adsorption Behavior of Shale Gas	1598
<i>Tianyi Zhao, Xiangfang Li, Huawei Zhao, Xiangji Dou</i>	
Deploying Continuous Improvement Methodologies To Improve Efficiency: A Way of Responding To Emerging Industry Challenges	1607
<i>Adetoun Mustapha, Nnaemeka Umeh, Akeem Adepoju</i>	
The Seamless Startup of the Ofon Phase 2 Project: A Demonstration of Strong Commitment to Eliminating Continuous Gas Flaring in Nigeria	1612
<i>Yeghenee Kue, Emmanuel Hyst, Philippe Darque, Lamin Sabally, Abel Odemudia</i>	
Drilling Through a Fault in the Niger Delta Sedimentary Basin - Integrating a Geo-steering Application with Borehole Imaging	1629
<i>Chidi Ndokwu, Victor Okowi, Nico Foekema, Jerome Caudroit, Leigh Jefford, Joseph Otevw, Xiaodong Fang, Maaji Idris</i>	
Effective Monitoring of Green House Gas Emission – A Laboratory Approach	1644
<i>Uche Ibemere, Bella Mmata, Mike Onyekonwu</i>	
Design of a Coordinates Aware Remote Module for Effective Oil and Gas Pipeline Monitoring Using GPRS, GPS and Google Maps on Android Devices	1657
<i>Ocheja Patrick Ileanwa, Ezeanyagu Obianuju Ngozi, Udeh Paschal Chigozie, Abu Abu Eyo</i>	
A New Solution Methodology to the Material Balance Equation, for Saturated Reservoirs	1669
<i>Olatunde O. Mosobalaje, Charles Y. Onuh, Ifeanyi Seteyeobot</i>	
Experimental Investigation of A Niger Delta Hydrocarbon Field For Reservoir Souring Tendency	1681
<i>Bella Mmata, Olorunfemi Owolabi, Imo Ukut, Mike Onyekonwu</i>	
The Role of Natural Gas in Nigeria Power Generation: Empirical Analysis of Challenges, Constraints and Opportunities	1688
<i>Alpheus O. Igbokoyi, Abuja Nigeria, Omowumi Iledare</i>	
Case Study: Planning and Execution of a Subsea HPHT Well in the Niger-Delta	1701
<i>Chike Nwagu</i>	
Optimality Test of Marginal Field Development Financing Arrangements in Nigeria	1715
<i>Chibueze Ekeh, Ayodele Asekomeh</i>	
Economics of Heat Loss Material Design in Transportation of Stranded Gases as Hydrates	1754
<i>Adewale Dosunmu, Nse-Obong Udoh, Evelyn Ekeinde, Chimaroke Anyanwu, Emeka Okoro</i>	
Fluid Contact Movement Monitoring in Gas Reservoirs using Pressure Transient Data: Obigbo North Field Example	1763
<i>Magnus Nnadi, Rotimi Osho, Emelle Chima</i>	
HSE Training Evaluation and Effectiveness of Sustaining HSE Culture	1774
<i>A. J. Bada, A. S. Adegboye</i>	
Real Time Borehole Stability Monitoring and Pre-drill Model Calibration using LWD Sonic - A Case Highlight	1787
<i>Sophia Weaver, Xiaohui Xiao, Rob Vines</i>	

Application of Computational Intelligence in Generating Synthetic Reservoir Rock Mechanical Parameters for Building Geo-Models	1797
<i>L. C. Akubue, A. Dosunmu, F. T. Beka</i>	
A Field Study of Surface Sampling in Well Testing. A New Approach	1817
<i>Orijji Aleruchi Boniface, Bala Zakka</i>	
Development of Cost Effective Surfactants From Local Materials for Enhanced Oil Recovery	1823
<i>A. T. Adeniyi, M. O. Onyekonwu, O. A. Olafuyi, L. O. Sonibare</i>	
Surfactants Selections Criteria for Enhanced Oil Recovery in High Temperature and High Salinity Environment	1832
<i>A. T. Adeniyi, M. O. Onyekonwu, O. A. Olafuyi, L. O. Sonibare</i>	
Full-Field History-Match of Stacked Reservoirs across Fault Blocks to Investigate Cross-Fault Block Communiation	1843
<i>Olatunji Jeboda, Anil Ambastha, Vincent Eme</i>	
Deployment of Remotely Operated Aerial Vehicles: Managing Asset Integrity in the 21st Century	1853
<i>Isioma Asiodu-Otughwor, Osemhen Akhibi, Uchenna Aja-Onu</i>	
Pore Pressure Prediction in Stacked Intercalation of Hydrostatic and Depleted Reservoirs	1863
<i>E. Agbor, D. Aguye</i>	
A Time Function Havlena and Odeh MBE Straight Line Equation	1880
<i>Stanley Buduka, Victor T. Bii, Sylvester Okotie</i>	
From Exploration to Development: The Value of Formation Pressure While Drilling Applications	1887
<i>Rita Esuru Okoroafor, Akanimoh Nkanga, Folasade Babatunde, Idang Danison, Timothy Akinnagbe</i>	
Impact of the National Content Act on Deep Water Offshore Development in Nigeria	1898
<i>J. C. Echendu, O. O. Iledare</i>	
Reduction of Uncertainty in Material Balance Derived Original Hydrocarbon in Place Estimate by the Inclusion of Fluid Contact History Matching	1912
<i>Okpani Olu, Shittu Hammed, Iroro Idogun, Ambastha Anil</i>	
Improved Data-Driven Models for Forecasting Production Performance with Uncertainty Analysis	1923
<i>O. Ladipo, David O. Ogbé</i>	
Petrophysical Properties of the Nigeria Tar Sand Revisited	1947
<i>I. Ohenhen, O. A. Olafuyi, S. S. Ikiensikimama</i>	
Low Salinity Water Injection for EOR	1956
<i>Premkumar Chandrashegaran</i>	
Theoretical Model for the Transportation of Stranded Gases as Hydrates	1977
<i>Adewale Dosunmu, Nse-Obong Udoh, Evelyn Ekeinde, Chimaroke Anyanwu, Emeka Okoro, A. Dosunmu</i>	
While-Drilling Productivity Evaluation of Horizontal Wells	1987
<i>Rita Esuru Okoroafor, Shahid Azizul Haq, Wentao Zhou, Jean-Michel Denichou</i>	
Abang Field: An Integrated Approach to Maximizing Volumes Growth	2005
<i>Chimereucheya N. Alim, Olayode Ajibola, Isonguyo Udoh</i>	
Assessment of Injection Pressure Margin in Deep Water Injection Well Design	2016
<i>Becky B. Poon, Ebimobowei K. Wodu, Abraham O. Ekebafe, Edgar Mba Ognane, Osazua J. Itua, George A. Otoh</i>	
Maximizing Recovery from Peripheral Waterflooding: Case History of Two Water Injectors	2022
<i>Phillip Adegboye, Olu Okpan</i>	
Author Index	