

SPE International Conference on Oilfield Chemistry 2019

Galveston, Texas, USA
8 - 9 April 2019

Volume 1 of 2

ISBN: 978-1-5108-8600-1

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© (2019) by Society of Petroleum Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2019)

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

VOLUME 1

DAY 1

SESSION 1: DRILLING, CEMENTING, COMPLETION FLUIDS AND ADDITIVES I

SURFACTANT-INHIBITED BARIUM SULPHATE NANOPARTICLES FOR USE IN DRILLING OR COMPLETION FLUIDS	1
<i>J.M. Whyte</i>	
C-S-H-PCE NANOFOILS: A NEW GENERATION OF ACCELERATORS FOR OIL WELL CEMENT	23
<i>J. Plank, T. Echt</i>	
ENGINEERED VESICLES FOR THE CONTROLLED RELEASE OF CHEMICAL ADDITIVES AND APPLICATION FOR ENHANCED OIL WELL CEMENT INTEGRITY	38
<i>E.Q. Contreras, K.D. Johnson, D. Rasner, C.J. Thaemlitz</i>	
COVALENTLY-LINKED ORGANIC FUNCTIONALITIES ON NANO-PLATELETS AS A VISCOSIFIER FOR OIL-BASED MUDS	47
<i>H.A. Patel, A. Santra, C.J. Thaemlitz</i>	
RELATIONSHIP BETWEEN THE 2-ACRYLAMIDO-2-METHYLPROPANE SULFONIC ACID-NNDMA COPOLYMER PROPERTIES AND FLUID LOSS AND MIXABILITY IN CEMENTING FLUIDS	57
<i>W. Pearl, S. Lewis, J. Singh</i>	
WATER-BASED DRILL-IN FLUID OPTIMIZATION USING POLYELECTROLYTE COMPLEX NANOPARTICLES AS A FLUID LOSS ADDITIVE	66
<i>L. Whatley, R. Barati, Z. Kessler, J.S. Tsau</i>	

SESSION 2: SEPARATION AND ASSET INTEGRITY

PDEA-BASED AMPHIPHILIC POLYMER ENABLES PH-RESPONSIVE EMULSIONS FOR A RAPID DEMULSIFICATION	88
<i>Q. Hou, X. Zheng, D. Guo, Y. Zhu, H. Yang, X. Xu, Y. Wang, G. Chen, G. Hu, J. Wang</i>	
A MORE EFFECTIVE SOLUTION TO TREAT PARAFFINIC CRUDE OIL WELLS	99
<i>T. Phan, M. Faust, V. Balsamo</i>	
RELATION BETWEEN CHEMICAL COMPOSITION OF A GREEN NANOFLUID AND ITS FOAM FILM STABILIZATION FOR ROBUST FOAM INJECTION EOR	108
<i>B. Wei, Y. Wang, S. Chen, R. Mao, J. Ning, W. Wang</i>	
HIGH-EFFICIENCY CORROSION INHIBITOR FOR ACIDIZING: SYNTHESIS, CHARACTERIZATION AND ANTI-CORROSION PERFORMANCE OF NOVEL INDOLIZINE DERIVATIVE	118
<i>Y. Wang, Z. Yang, R. Wang, W. Chen, M. Ding, F. Zhan, B. Hou</i>	
ROLES OF THE HYDROPHOBIC TAIL GROUPS ON THE PROPERTIES OF CO₂-SWITCHABLE SURFACTANTS	131
<i>Q. Hou, Q. Wu, Y. Xu, X. Zheng, Y. Zhao, Y. Wang, D. Guo, X. Xu</i>	
MODELING/FORECASTING RESERVOIR SOURING IN A FIELD RAJASTHAN, INDIA WITH AN EXTREMELY LOW INDIGENOUS VOLATILE FATTY ACID VFA CONCENTRATION	137
<i>E. Burger, P.S. Venkat, S. Mittal</i>	

SESSION 3: NEW OR FRONTIER CHEMICAL TECHNOLOGIES I

ENHANCING SCALE INHIBITOR SQUEEZE RETENTION IN HT/HP & HIGH WATER RATE WELLS - LABORATORY TO FIELD CASE STUDY	154
<i>L. Sutherland, M. Jordan</i>	

IDENTIFICATION OF NOVEL CHEMICALS FOR IRON SULFIDE SCALE CONTROL AND UNDERSTANDING OF SCALE CONTROLLING MECHANISM	164
<i>S. Ko, X. Wang, A.T. Kan, M.B. Tomson</i>	
EFFECT OF PH ON DISSOLUTION OF IRON SULFIDE SCALES USING THPS	175
<i>M. Ahmed, A. Onawole, I. Hussien, M. Saad, M. Mahmoud, H. Nimir</i>	
INVESTIGATION INTO THE SYNERGISTIC INTERACTION OF A RANGE OF GENERIC SCALE INHIBITORS FOR IMPROVED SULPHATE SCALE CONTROL IN NORTH SEA TOPSIDE PROCESSES	184
<i>M. Jordan, E. Temple, A. Sham, H. Williams, C. McCallum</i>	
A NEW APPROACH TO TESTING SCALE INHIBITORS IN MILD SCALING BRINES – ARE DYNAMIC SCALE LOOP TESTS NEEDED?	201
<i>M. Barber, S. Heath</i>	
AQUEOUS ALTERNATIVE SYSTEM TO STRAIGHT AND EMULSIFIED HCL ACIDS FOR CARBONATE ACIDIZING	215
<i>A. Al Moajil, S. Calisakan, A. Al-Salem, I. Al-Yami</i>	

SESSION 4: DRILLING, CEMENTING, COMPLETION FLUIDS AND ADDITIVES II

AN INNOVATIVE RHEOLOGY MODIFIER WHICH PROVIDES DUAL FUNCTION: ACHIEVES NON-DAMAGING CLAY FREE SYSTEM FOR RESERVOIR DRILLING AND FLAT RHEOLOGY FOR DEEP WATER DRILLING	230
<i>V. Gupta, S. Indulkar, M. Asrani, A. Patel, S. Ramane, A. Sarase, S. Thakur, A.K. Singh</i>	
EFFECT OF FLUID LOSS POLYMERS ARCHITECTURE ON CEMENT SLURRY RHEOLOGY: IMPACT OF ADSORPTION AND MICROSTRUCTURE	246
<i>A. Cadix, V. Molinie, J. Wilson</i>	
EVALUATION OF A GLUTARALDEHYDE/THNM COMBINATION FOR MICROBIAL CONTROL IN FOUR CONVENTIONAL OILFIELDS	266
<i>M. Paschoalino, J. Raymond, E. Sianawati, V. Silva</i>	
EXPERIMENTAL STUDY ON THE SYNTHESIS AND INTERFACIAL PROPERTIES OF OLIGOMERIC SILICONE SURFACTANT	279
<i>Z. Jie, X. Xu, L. Wang, I. Li, D. Zhang, Z. Zhao, S. Wang</i>	
SILICA AND GRAPHENE OXIDE NANOPARTICLE FORMULATION TO IMPROVE THERMAL STABILITY AND INHIBITION CAPABILITIES OF WATER-BASED DRILLING FLUID APPLIED TO WOODFORD SHALE	294
<i>J. Aramendiz, A. Imqam</i>	
A NEW CLASS OF PERMANENT CLAY STABILIZERS	317
<i>A.I. Assem, H.A. Nasr-El-Din, T.L. Harper</i>	

SESSION 5: GEOCHEMISTRY

IMPACT OF TEMPERATURE ON FLUID-ROCK INTERACTIONS DURING CO2 INJECTION IN DEPLETED LIMESTONE AQUIFERS: LABORATORY AND MODELLING STUDIES	328
<i>F.J. Azuddin, I. Davis, M. Singleton, S. Geiger, E. Mackay, D. Silva</i>	
BUILDING A FUNDAMENTAL UNDERSTANDING OF SCALE INHIBITOR RETENTION IN CARBONATE FORMATIONS	346
<i>K. Jarrahan, K. Sorbie, M. Singleton, L. Boak, A. Graham</i>	
WATER CHEMISTRY APPLICATION IN RESERVOIR MANAGEMENT AND PRODUCTION	363
<i>W. Wei, W. Wang, S. Clinch</i>	
TIME LAPSE PRODUCTION ALLOCATION USING OIL FINGERPRINTING FOR PRODUCTION OPTIMIZATION IN DEEPWATER GULF MEXICO	373
<i>L. Xing, S. Teerman, F. Descant</i>	
CHARACTERIZATION OF TYPE AND MATURITY OF ORGANIC MATTER IN SOURCE ROCK BY IN-SITU ELECTRICAL HEATING AND TEMPERATURE TRANSIENT ANALYSIS	381
<i>K.J. Lee</i>	
MAGNESIUM DEPLETION AND IMPACT ON PRODUCED BRINE COMPOSITIONS IN A WATERFLOODED RESERVOIR	407
<i>O. Ishkov, E. Mackay, M. Jordan, S. Blair</i>	

SESSION 6: NEW OR FRONTIER CHEMICAL TECHNOLOGIES II

H₂S SCAVENGER DEVELOPMENT DURING THE OIL AND GAS INDUSTRY SEARCH FOR AN MEA TRIAZINE REPLACEMENT IN HYDROGEN SULFIDE MITIGATION AND ENHANCED MONITORING TECHNIQUES EMPLOYED DURING THEIR EVALUATION.....	436
<i>G. Taylor, M. Smith-Gonzalez, J. Wylde, A.P. Oliveira</i>	
DIFFERENTIATION AND QUANTIFICATION OF CORROSIVE AMINES THROUGH SIMPLE CHEMICAL PROCESS	450
<i>S. Murugesan, R. Suresh, V. Khabashesku, Q. Darugar</i>	
KINETICS AND THERMODYNAMICS OF IRON SULFIDE, PRECIPITATION, DEPOSITION AND CONTROL	461
<i>X. Wang, S. Ko, Y. Liu, A.Y.T. Lu, Y. Zhao, K. Harouaka, G. Deng, S. Paudyal, C. Dai, A.T. Kan, M.B. Tomson</i>	
A UNIFIED EXPERIMENTAL METHOD AND MODEL FOR PREDICTING SCALE INHIBITION.....	476
<i>C. Dai, Z. Dai, F. Zhang, Y. Zhao, G. Deng, K. Harouaka, X. Wang, Y.T. Lu, S. Paudyal, S. Ko, S. Gao, A.T. Kan, M. Tomson</i>	
EVALUATION OF SILICA MATRIX ION EFFECTS ON BARITE SCALE INHIBITORS	493
<i>Y. Zhao, H.D.M. Sriyathne, K. Harouaka, S. Paudyal, S. Ko, C. Dai, A.Y.T. Lu, G. Deng, X. Wang, A.T. Kan, M. Tomson</i>	
A HIGH TEMPERATURE AND SALT RESISTANCE SUPRAMOLECULAR THICKENING SYSTEM.....	505
<i>Y. Ma, L. Ma, J. Guo, J. Lai, H. Zhou, J. Li</i>	

SESSION 13: KNOWLEDGE SHARING EPOSTER I

QUANTIFYING VOLUME EXPANSION OF GAS-GENERATING MATERIALS IN CEMENT SLURRIES	516
<i>I. Partch, J. Ferrell, D. Morrison, E. Salinas, S. Franks</i>	
INNOVATIVE ACIDIZING SOLUTIONS FOR SEVERELY DAMAGED CLAY-RICH SANDSTONE RESERVOIR WITH GRAVEL PACK COMPLETIONS IN OFFSHORE MYANMAR.....	526
<i>D.K. Kim, Y. Bai, H. Liu</i>	

SESSION 14: KNOWLEDGE SHARING EPOSTER II

INTERNAL VISCOELASTIC SURFACTANT BREAKERS FROM IN-SITU OLIGOMERIZATION	551
<i>C. Daeffler, D. Perroni, S. Makarychev-Mikhailov, A. Mirakyan</i>	
A NOVEL BIOCHEMICAL-BASED PARAFFIN WAX REMOVAL PROGRAM PROVIDING REVENUE GENERATION AND ASSET ENHANCEMENT	560
<i>K. Raney, K. Alibek, M. Shumway, K. Karathur, T. Stanislav, G. West, M. Jacobs</i>	

SESSION 15: KNOWLEDGE SHARING EPOSTER III

ENHANCED OIL RECOVERY USING A POTENTIAL NANOFLUID BASED ON THE HALLOYSITE NANOTUBE/SILICA NANOCOMPOSITES.....	576
<i>T. Zhao, Y. Chen, W. Pu, B. Wei, Y. He, Y. Zhang</i>	
PERMANENT REMOVAL OF CONDENSATE BANKING IN TIGHT GAS RESERVOIRS USING THERMOCHEMICALS.....	587
<i>A. Hassan, M. Mahmoud, A. Al-Majed, A. Al-Nakhli, M. BaTaweel, S. Elkhatany</i>	

SESSION 16: KNOWLEDGE SHARING EPOSTER IV

DEVELOPMENT AND SCREENING OF ADDITIVES FOR BIODIESEL BASED DRILLING FLUIDS: PRINCIPLES, STRATEGIES AND EXPERIENCE.....	598
<i>W. Li, J. Liu, X. Zhao, J. Jiang, H. Peng, M. Zhang, T. He, G. Liu, P. Shen</i>	
CARBONIC ACID RESISTANCE OF HYDROXYAPATITE BASED CEMENT	626
<i>A. Srivastava, R. Ahmed, S. Shah</i>	

SESSION 17: KNOWLEDGE SHARING EPOSTER V

INSIGHT OF NEW ECO-FRIENDLY ACIDIZING CORROSION INHIBITOR: STRUCTURE AND INHIBITION OF THE INDOLIZINE DERIVATIVES	644
<i>Z. Yang, Y. Wang, R. Wang, W. Chen, M. Ding, F. Zhan, B. Hou</i>	
MULTIFUNCTIONAL CHEMICAL FOR SIMULTANEOUS DISSOLUTION OF IRON SULFIDE, CORROSION INHIBITION, AND SCALE INHIBITION	655
<i>P. Rodgers, B. Lundy, S. Ramachandran, J. Ott, D. Poelker, D. Lee, C. Stevens, C. Bounds, M. Sullivan</i>	

SESSION 18: KNOWLEDGE SHARING EPOSTER VI

EFFECT OF CALCIUM CARBONATE ON BARITE SOLUBILITY USING A CHELATING AGENT AND CONVERTER	676
<i>K. Abdelgawad, M. Mahmoud, S. Elkatatny, S. Patil</i>	

VOLUME 2

APPLICATION OF ADVANCED FLUORESCENCE DETECTION TECHNOLOGY TO IMPROVE SCALE MANAGEMENT IN BOTH CONVENTIONAL AND SUB-SEA FIELDS	686
<i>S. Heath, S. Toivonen, V. Vuori, S. Puupponen</i>	

DAY 2

SESSION 7: FLOW ASSURANCE I

AMPHIPHILIC WAX INHIBITOR FOR TACKLING CRUDE OIL WAX DEPOSIT CHALLENGES	699
<i>Z. Xiu, P.E. Dufils, J. Zhou, A. Cadix, K. Hatchman, T. Decoster, P. Ferlin</i>	
SIMULATION STUDY OF SCALE MANAGEMENT DURING HYDRAULIC FRACTURING IN UNCONVENTIONAL RESERVOIRS	708
<i>A. Abouie, A. Sanaei, K. Sepehrnoori</i>	
SCALE PREDICTION AND MINERAL SOLUBILITY UNDER HPHT CONDITIONS	730
<i>D. Nichols, N. Goodwin, G. Graham, D. Frigo</i>	
A NOVEL PHOSPHONATE SCALE INHIBITOR FOR SCALE CONTROL IN ULTRA HIGH TEMPERATURE ENVIRONMENTS	743
<i>H. Lu, B. McCabe, J. Brooks, S. Heath, S. Stevens</i>	
IMPACT OF INORGANIC SALTS AND MINERALS ON ASPHALTENE STABILITY AND INHIBITOR PERFORMANCE	755
<i>A. Punase, J.D.S. De Aguiar, A. Mahmoudkhani</i>	
THE EFFECT OF MOLECULAR COMPOSITION ON THE ELECTRO-DEPOSITION OF ASPHALTENE	766
<i>S. Xia, K. Kostarelos</i>	

SESSION 8: PRODUCTION ENHANCEMENT – RESERVOIR RECOVERY

PRODUCTION CHEMISTRY ISSUES AND SOLUTIONS ASSOCIATED WITH CHEMICAL EOR	775
<i>G.M. Graham, D.M. Frigo</i>	
GUERBET ALKOXY BETAINE SURFACTANT FOR SURFACTANT-POLYMER FLOODING IN HIGH TEMPERATURE, HIGH SALINITY RESERVOIRS	798
<i>H. Cai, Q. Wang, W. Luo, H. Wang, X. Zhou, J. Li, Y. Zheng</i>	
BARIUM SULPHATE SCALING AND CONTROL DURING POLYMER, SURFACTANT AND SURFACTANT-POLYMER FLOODING	808
<i>M.M. Al Kalbani, M.M. Jordan, E.J. Mackay, K.S. Sorbie, L. Nghiem</i>	
A SUMMARY OF ANALYTICAL METHODS TO SIMULATE CHEMICAL TREATMENTS IN ICD COMPLETED WELLS	832
<i>A. Kaur, R. Stalker, G.M. Graham, M. Frigo</i>	

TUNING IONIC LIQUIDS FOR SIMULTANEOUS DILUTION AND DEMULSIFICATION OF WATER-IN-BITUMEN EMULSIONS AT AMBIENT TEMPERATURE	841
<i>E. Abdelfatah, Y. Chen, P. Berton, R.D. Rogers, S. Bryant</i>	
EFFECT OF SCALING AND CORROSION INHIBITORS ON THE STATIC ADSORPTION OF AN ANIONIC SURFACTANT ON A CARBONATE ROCK	858
<i>M.E. Gutierrez, S.J. Gaona, F.E. Calvete, J.A. Botett, J.V. Ferrari</i>	

SESSION 9: WATER MANAGEMENT: CHEMICAL TREATMENT AND ADDITIVES

INSIGHTS INTO EFFECTIVE MICROBIAL CONTROL THROUGH A COMPREHENSIVE MICROBIOLOGICAL AUDIT OF HYDRAULIC FRACTURING OPERATIONS.....	874
<i>J. Moore, E. Massie-Schuh, K. Wunch, K. Manna, R. Daly, M. Wilkins, K. Wrighton</i>	
CROSS-LINKED POLYMERIC CONTROLLED RELEASE PARTICLES FOR INORGANIC SCALE INHIBITION	889
<i>P. Ferm, J. Germer, K. Heidemann, S. Holt, A. Robertson, J. Sanders, K. Rodrigues, J. Thomaidis, N. Wolf, L. Zhang</i>	
DEVELOPMENT OF A BARIUM SULPHATE SCALE INHIBITOR FOR CHALK SOLID LOADED CONDITIONS	903
<i>E. Temple, M. Jordan, H. Williams, S. Kjelstrup, M. Kilbarda, K. Johansen</i>	
METHODOLOGY TO EVALUATE THE PERFORMANCE AND STABILITY OF HYDROGEN SULPHIDE SCAVENGERS.....	923
<i>A. Rafferty, C. Stewart-Liddon, C. Simpson, P. Hammonds, G.M. Graham, P. Maskell</i>	
EFFECT OF NETWORK PARAMETERS OF PREFORMED PARTICLE GEL ON STRUCTURAL STRENGTH FOR WATER MANAGEMENT	945
<i>M.B. Salehi, A.M. Moghadam, K. Jarrahan</i>	
CAN THE VISCOELASTICITY OF HPAM POLYMER SOLUTION MAKE THE POLYMER FLOODING COMPETE WITH GEL TREATMENT TO IMPROVE SWEEP EFFICIENCY? A COMPARISON WITH DIFFERENT POLYMER GEL SYSTEMS.....	962
<i>T.K. Khamees, R.E. Flori</i>	

SESSION 10: FLOW ASSURANCE II

NOVEL LASER-HYDROTHERMAL APPARATUS FOR NUCLEATION AND INHIBITION STUDY OF SCALE MINERALS AT TEMPERATURES UP TO 250° C	987
<i>G. Deng, A.T. Kan, F. Zhang, A.Y. Lu, M.B. Tomson</i>	
ASPHALTENES RISK ASSESSMENT AND MITIGATION – DESIGNING APPROPRIATE LABORATORY TEST PROTOCOLS.....	997
<i>A.R. Farrell, B. Martin, D.M. Frigo, G.M. Graham</i>	
ON-SITE FLUIDS AND SOLIDS CHARACTERIZATION WITH BENCHTOP XRF ANALYZER	1017
<i>J. Lu, D. Troups, B. Lamoureux, S. Williams, J. Williams</i>	
WHAT CAN WE LEARN FROM ANALYSIS OF FIELD ASPHALTENES DEPOSITS? ENHANCING PRODUCT DEVELOPMENT THROUGH KNOWLEDGE-BASED FIELD-TO-LAB-TO-FIELD APPROACH	1026
<i>J.I.D.S. De Aguiar, C.P.P. Mazzeo, R. Garan, A. Punase, S. Razavi, A. Mahmoudkhani</i>	
DISSOLUTION STUDY OF FIELD DEPOSITS FOR OILFIELD SCALE MITIGATION AND REMEDIATION.....	1040
<i>C. Yan, W. Wang, W. Wei</i>	
DEVELOPMENT OF SCALE SQUEEZE ENHANCEMENT TECHNOLOGY VIA APPLICATION OF METAL NANOPARTICLES COUPLED WITH POLYMER SCALE INHIBITORS	1048
<i>P. Guraieb, R. Tomson, I. Littlehales</i>	

SESSION 11: CHEMICAL ADDITIVES FOR UNCONVENTIONAL RESERVOIR PRODUCTION

FIRST OCCURRENCE OF A SHALE OIL WITH TRIMODAL CARBON CHAIN DISTRIBUTION AND PARAFFINS HIGHER THAN NONACONTANE C₉₀H₁₈₂: A REAL FAIL TEST FOR EXISTING CHEMISTRIES AND METHODS	1055
<i>R. Smith, A. Miller, A. Mahmoudkhani, W. Samaniego, E. Granda</i>	
DEVELOPMENT OF STRUCTURE-PROPERTY RELATIONSHIPS FOR STEAM FOAM ADDITIVES FOR HEAVY OIL RECOVERY.....	1069
<i>T. Nguyen, A. Raj, R. Rommerskirchen, J. Fernandez</i>	

DEVELOPMENT OF A NOVEL IRON SULFIDE SCALE INHIBITOR FOR ONSHORE US APPLICATION	1084
<i>N. Bhandari, M. Bhandari, I. Littlehales, J. Fidoe</i>	
PERFORMANCE COMPARISON OF NOVEL CHEMICAL AGENTS IN IMPROVING OIL RECOVERY FROM TIGHT SANDS THROUGH SPONTANEOUS IMBIBITION	1096
<i>H. Huang, T. Babadagli, X. Chen, H. Li</i>	
STATIC ADSORPTION OF SURFACTANTS ON BAKKEN ROCK SURFACES IN HIGH TEMPERATURE, HIGH SALINITY CONDITIONS	1109
<i>X. Zhong, H. Pu, Y. Zhou, J.X. Zhao</i>	
TAILORING ALKOXYLATION OF FLOWBACK AID SURFACTANTS FOR MAXIMUM EFFICIENCY	1119
<i>F.C. De Rezende, R.B. Rabelo, L. Kinouti, C.G. Ewbank, O.C.C. Poltronieri</i>	

SESSION 12: PRODUCTION ENHANCEMENT - STIMULATION

MICROSTRUCTURAL AND FLOWBACK ANALYSIS METHODOLOGY IN MATRIX ACIDIZED CARBONATE OIL RESERVOIRS	1132
<i>A. Al Moajil, B. Al Dakkan, H. Al-Badairy, S. Shen</i>	
THREE-PHASE CARBONATE ACIDIZING: QUANTIFICATION AND ANALYSIS OF EVOLVED CO₂ IN THE PRESENCE OF OIL AND WATER	1145
<i>H.T. Kumar, S. Muhemmed, H.A. Nasr-El-Din</i>	
ACID AND SCALE INHIBITOR SQUEEZE TREATMENTS ON TWO SUBSEA GAS CONDENSATE WELLS: DESIGN OF SUBSEA CONNECTION, TREATMENT, WELLS START-UP AND RESULTS OF THE OPERATION	1173
<i>S. Hatscher, M. Kiselnikov</i>	
NOVEL NON-AROMATIC NON-IONIC SURFACTANTS TO TARGET DEEP CARBONATE STIMULATION	1187
<i>K. Sokhanvarian, C. Stanciu, J.M. Fernandez, A. Ibrahim, H.A. Nasr-El-Din</i>	
A NEW UP-SCALED WORMHOLE MODEL GROUNDED ON EXPERIMENTAL RESULTS AND IN 2-SCALE CONTINUUM SIMULATIONS	1203
<i>M.P. Schwalbert, A.D. Hill, D. Zhu</i>	
EXPERIMENTAL INVESTIGATION OF PARTICULATE POLYLACTIC ACID DIVERSION IN MATRIX ACIDIZING	1233
<i>R.M. Shirley, A.D. Hill</i>	

SESSION 19: KNOWLEDGE SHARING EPOSTER VII

OUT WITH THE OLD: DEVELOPING A NEW TEST METHODOLOGY FOR PARAFFIN WAX DISPERSION AND INHIBITION TESTING	1255
<i>A. Miller, R. Smith, B. Dufresne, A. Mahmoudkhani</i>	
THE IMPACT OF H₂S ON CARBONATE SCALING RISK. A FIELD CASE STUDY	1268
<i>G. Ness, K. Sorbie, N. Lugo, C. Kelly</i>	

SESSION 20: KNOWLEDGE SHARING EPOSTER VIII

ROLE OF SURFACTANT STRUCTURES ON SURFACTANT-ROCK ADSORPTION IN VARIOUS ROCK TYPES	1288
<i>D. Wilson, L. Poindexter, T. Nguyen</i>	

SESSION 21: KNOWLEDGE SHARING EPOSTER IX

EFFECT OF CORROSION-INHIBITOR CHEMISTRY ON THE VISCOSITY AND CORROSION RATE OF VES-BASED ACIDS	1301
<i>A. Hanafy, H. Nasr-El-Din, A. Rabie, J. Zhou</i>	
AN OUNCE OF PREVENTION IS WORTH A POUND OF BIOFILM MITIGATION	1319
<i>O. Arends, B. Seymour, B. Benko, M. Elshahed, L. Yakoweshen, S. Ganguly-Mink</i>	

SESSION 22: KNOWLEDGE SHARING EPOSTER X

A PLACEMENT CASE STUDY FOR A WELL IN THE NORTH SEA FIELD 1327
A. Kaur, R. Stalker, G. Graham

STRATEGIES FOR SQUEEZING CO-MINGLED WELLS IN THE SAME FLOW LINE IN SUB-SEA AND DEEPWATER ENVIRONMENTS - GUIDELINES FOR SCALE INHIBITOR SELECTION AND EFFECTIVE TREATMENT STRATEGIES AND DESIGN 1338
S. Heath, N. Gjosund, D. Dugue

SESSION 23: KNOWLEDGE SHARING EPOSTER XI

THE DEVELOPMENT AND FIELD TEST OF HIGH EFFICIENT FOAM UNLOADING AGENT BASED ON GEMINI SURFACTANT AND NANOMATERIALS 1355
J. Wu, W. Jia, R. Zhang, X. Cen, H. Wang, J. Niu

REDUCING BACKPRESSURE AND ENHANCING THROUGHPUT OF SALTWATER DISPOSAL WELLS WITH CHLORINE DIOXIDE AND COMPLEX NANO FLUIDS: OPTIMIZATION AND CASE STUDIES 1364
R. Pagel, T. Tindall, T. Pursley, T. Sweeney, Z. Li, T. Lathrop, B. Sullivan, G. Simpson

Author Index