

SPE Latin American and Caribbean Petroleum Engineering Conference 2020

Online
27 – 31 July 2020

Volume 1 of 4

ISBN: 978-1-7138-1573-0

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© (2020) by Society of Petroleum Engineers
All rights reserved.

Printed with permission by Curran Associates, Inc. (2020)

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: RESERVOIR DATA MANAGEMENT & INTERPRETATION I

NON-INTRUSIVE PARAMETRIC MODEL ORDER REDUCTION WITH ERROR CORRECTION MODELING FOR CHANGING WELL LOCATIONS USING A MACHINE LEARNING FRAMEWORK.....	1
<i>H. Zalavadia, E. Gildin</i>	
A MULTISCALE DATA-DRIVEN FORECASTING FRAMEWORK FOR OPTIMUM FIELD DEVELOPMENT PLANNING	31
<i>A. Salehi, G. Hetz, S. Esmailzadeh, F. Olalotiti, D. Castineira</i>	
NMR DATA PROCESSING USING GAMMA FUNCTIONS FOR THE EVALUATION OF HEAVY OIL RESERVOIR IN THE PEREGRINO FIELD	63
<i>K. Klein, J. Barbosa, J.P. Salazar, J. Borri, R. Arro</i>	

SESSION 2: HEAVY OIL RESERVOIRS I

IMPROVING CSS PERFORMANCE WITH PREFORMED FOAM: TECA - COCORNA FIELD CASE.....	79
<i>R. Perez, H. Rodriguez, C. Barbosa, E. Manrique, L. Garcia, G. Rendon</i>	
EVALUATION OF THE PERFORMANCE OF THERMAL EOR PROCESSES IN FRACTURED SHALE OIL FORMATIONS	93
<i>P. Sarkar, G.J. Moridis, T.A. Blasingame</i>	
ENHANCING THE RECOVERY OF AN EXTRA HEAVY OIL RESERVOIR BY USING LOW SALINITY POLYMER FLOODING	136
<i>E. Hernandez, E. Valero, I. Rodriguez, E. Guerra, J. Espinoza, R. Briceno, A. Veliz</i>	

SESSION 3: PETROLEUM BUSINESS DEVELOPMENT CASE STUDIES I

UNLOCKING OILFIELD DEVELOPMENT USING BLOCKCHAIN	158
<i>F. Vera</i>	
A THOROUGH REVIEW AND LATEST ADVANCES IN SHALE RESERVOIRS: SEISMIC TO SURVEILLANCE.....	168
<i>C. Temizel, C.H. Canbaz, I.M. Gok, S. Roshankhah, Y. Palabiyik, M. Deniz-Parker, F.B. Hosgor, M.H. Ozyurtkan, F. Aksahan, E. Gormez</i>	
MINIMUM ECONOMIC FIELD SIZE AND PROBABILITY OF SUCCESS OF CONVENTIONAL HYDROCARBON DISCOVERIES, IN THE LIGHT OF THE NEW OPEN URUGUAY ROUND FRAMEWORK	231
<i>S. Ferro, P. Rodriguez, J. Tomasini, P. Gristo, N. Blanquez, B. Conti, C. Romeu, J. Marmisolle</i>	

SESSION 101: KNOWLEDGE SHARING EPOSTER I

EOER SCREENING AND EARLY PRODUCTION FORECASTING IN HEAVY OIL FIELDS: A MACHINE LEARNING APPROACH.....	252
<i>E.A.M. Velez, F.R. Consuegra, C.A.B. Arias</i>	
COMBINING MACHINE LEARNING WITH TRADITIONAL RESERVOIR PHYSICS FOR PREDICTIVE MODELING AND OPTIMIZATION OF A LARGE MATURE WATERFLOOD PROJECT IN THE GULF OF SAN JORGE BASIN IN ARGENTINA	265
<i>C. Calad, F. Gutierrez, P. Pastor, P. Sarma</i>	
BAYESIAN DECONVOLUTION OF RATE PRESSURE DATA USING REGULARIZING PRIORS	274
<i>A. Ravikumar, J. Lee</i>	

DAY 2

SESSION 4: RESERVOIR DATA MANAGEMENT & INTERPRETATION II

DATA-DRIVEN END-TO-END PRODUCTION PREDICTION OF OIL RESERVOIRS BY ENKF-ENHANCED RECURRENT NEURAL NETWORKS.....	284
<i>A. Bao, E. Gildin, J. Huang, E.J.R. Coutinho</i>	
INCORPORATING DYNAMIC PRODUCTION LOGGING DATA TO THE PERMEABILITY ESTIMATION WORKFLOW USING MACHINE LEARNING	305
<i>C. Guimaraes, L. Schirmer, G. Schardong, A. Barreto Jr., H. Lopes</i>	
REVIEW OF CURRENT STATUS OF RESERVES ESTIMATION STANDARDIZATION IN LATIN AMERICA; A THIRD-PARTY AUDITOR OPINION	321
<i>R. Espinoza, Y. Siciliano, E. Escobar, M. Romero</i>	

SESSION 5: HEAVY OIL RESERVOIRS II

PRACTICAL ASPECTS OF FOAM-ASSISTED SAGD.....	340
<i>E. Delamaide, G. Batot, S.V. Ayache</i>	
NEW ALTERNATIVE TO OPTIMIZE CYCLIC STEAM INJECTION: FIELD PILOT.....	356
<i>C.A.B. Acevedo, F.C.Y. Garzon, E.L. Guarnizo, D. Higuera</i>	
SURFACE FACILITIES DEVELOPMENT FOR STEAM FLUE GAS INJECTION IN A COLOMBIAN HEAVY OIL RESERVOIR	372
<i>J.H.P. Cordoba, E.D.G. Sanchez, J.J.M. Vertel, S.F.M. Navarro</i>	

SESSION 6: PETROLEUM BUSINESS DEVELOPMENT CASE STUDIES II

BUILDING A PRODUCTION ANALYSIS TOOL FOR ANALOG FIELD ANALYSIS BRAZIL AND MEXICO.....	390
<i>J.M. Pederson, S.E. Losoha, D.C. Boyarko</i>	
EFFECT OF OIL PRODUCTION ON THE PRICE OF OIL.....	398
<i>R.F. Aguilera, R. Aguilera</i>	

EARLY ENGAGEMENT COLLABORATION TO EVALUATE BUSINESS OPPORTUNITIES IN CRUDE TRADING INDUSTRY	413
<i>A.T. Montiel, C.A.R. Lopez</i>	

SESSION 7: EOR/IOR/MATURE FIELDS I

UNIFIED OIL AND WATER FRACTIONAL-FLOW FUNCTIONS: IMPROVING WATERFLOOD PERFORMANCE ANALYTICAL MODELING TECHNIQUES.....	431
<i>E. Tillero, J.L. Mogollon</i>	

DESCRIBING THE FLOW BEHAVIOR OF SMART WATER IN MICROMODELS WITH WETTABILITY MODIFIED PORE STRUCTURES	464
<i>M. Tahir, R.E. Hincapie, C. Gaol, S. Safken, L. Ganzer</i>	

NEW INTEGRATED CAPILLARY PRESSURE AND INITIAL WATER SATURATION MODELING.....	487
<i>Y. Liao</i>	

SESSION 8: POLYMER INJECTION I

CHARACTERIZATION OF THE RAYOSO FORMATION: THE IMPORTANCE OF THE 3D MODELING IN DECISION-MAKING FOR A POLYMER INJECTION PROJECT.....	503
<i>I.J. Weisman, R.E. Lehu, S. Gandi, G. Tennerini, A.A. Scotti</i>	

HYBRID NANOMATERIALS FOR ENHANCED OIL RECOVERY: NEW ALTERNATIVES FOR POLYMER THERMAL DEGRADATION	516
<i>M.C. Ruiz-Canas, E. Manrique, A. Romero, H. Quintero</i>	

THE WATER SHUT OFF TECHNIQUE EXTENDS THE PRODUCTIVE LIFE CYCLE OF THE CRETACEOUS U SANDSTONE: THE IRO FIELD CASE IN ECUADOR	525
<i>L.R. Bailon, N.H. Orellana, S. Villegas, E. Martinez, S. Roman, J. Espin, A. Gaibor, T. Tamayo</i>	

SESSION 9: ARTIFICIAL INTELLIGENCE APPLICATIONS FOR THE OIL & GAS INDUSTRY I

EOB SCREENING METHODS ASSISTED BY DIGITAL ROCK ANALYSIS: A STEP FORWARD	537
<i>E. Manrique, C. Delgadillo, G. Maya, J. Gelvis</i>	

INTEGRATED DIGITAL SOLUTION FOR ENHANCED OIL RECOVERY THROUGH OPTIMIZATION OF INJECTION AND PRODUCTION NETWORKS	548
<i>J.L. Mogollon, M. Franco, M. Querales</i>	

USING MACHINE LEARNING FOR BUILDING MULTIVARIATE IPR MODELS FROM HIGH FREQUENCY STREAMING DATA	570
<i>M.A.D.P. Fiorillo</i>	

SESSION 10: EOR/IOR/MATURE FIELDS II

IMPROVING OIL RECOVERY IN THE MATURE LA CIRA INFANTAS OILFIELD USING MULTIPHASE FLOW SIMULATION.....	590
<i>C.C. Yao, W.F. Blanco, A.J. Alvarez</i>	

PRESSURE BEHAVIOR DURING INJECTIVITY TESTS - A COMPOSITE RESERVOIR APPROACH.....	600
<i>J.L.F.B. Neto, R.V. Bela, S. Pesco, A. Barreto Jr.</i>	

WORKFLOW FOR OPTIMIZATION OF WATERFLOOD PERFORMANCE: FIELD EXAMPLE FROM EL FURRIAL FIELD - EAST VENEZUELA BASIN	618
<i>I.P. Amaro, N.C.Y. Chelhod, M. Laprea-Bigott</i>	

VOLUME 2

SESSION 11: CASE STUDIES I

INNOVATIVE TECHNOLOGIES DRIVE BENCHMARK PERFORMANCE DRILLING CHALLENGING CAIPIPENDI BLOCK IN BOLIVIA	637
<i>M. Bertarelli, R. Duran, J.P. Tocantis, D. Mendoza, R. Bijai, P. Trunk, C. Villegas, A. Ramos</i>	

CONDUCTOR BATCH DRILLING RIG TIME OPTIMIZATION BY CEMENTING WITH LOW-DENSITY LOW-TEMPERATURE FAST SETTING CEMENT	650
<i>C.H. Tay, J. Salazar, D. Main, H. Plack, A. Rublevskiy, J. Reid</i>	

REVIVING A MATURE FIELD IN ECUADOR BY RETHINKING ENERGY SUSTAINABILITY AND RESERVOIR MANAGEMENT	663
<i>R. Astudillo, N. Orellana, S. Lozada, J. Anazco, L. Bailon, J. Espin, J. Freire, A. Gaibor, E. Martinez, E. Munoz, C. Padilla, S. Roman, T. Tamayo, S. Villegas</i>	

SESSION 12: ARTIFICIAL LIFT I (ESP,GL) I

PRODUCTION OPTIMIZATION OF DEEP COMMINGLED MULTIZONE WELLS WITH HIGH GAS CONTENT USING ESP AND DIGITAL SOLUTIONS.....	678
<i>R. Teves, R. Oyarzun, H. Perez, M. Russo, J.C. Pires, M. Tejerina, V. Devinenti, D.H. Munoz</i>	

ELECTRIC SUBMERSIBLE PUMP TROUBLESHOOTING GUIDE, AN EFFECTIVE WAY TO IMPROVE SYSTEM PERFORMANCE AND REDUCE AVOIDABLE SYSTEM FAILURES	693
<i>W. Nunez, J. Del Pino, S. Gomez, D. Rosales, J. Puentes, H. Rivera</i>	

INDIRECT MEASUREMENT OF THE MOTOR INTERNAL TEMPERATURE FOR AN INVERTED ESP USED FOR WATER INJECTION.....	711
<i>J.C. Pires, M. Russo, C. Gonzalez, R. Jimenez, S. Vega, M. Lagos</i>	

SESSION 102: KNOWLEDGE SHARING EPOSTER II

STATIC-FRACTAL ANALYSIS IN PETROPHYSICAL MODEL, FIELD M CASE OF SUCCESS IN CASED HOLE COMPLETIONS	724
<i>L. Castellanos</i>	

ENSURING ZONAL ISOLATION IN CEMENTING JOBS OF GAS WELL	735
<i>E. Jimenez, E. Vasquez, N. Velasquez, L. Vega</i>	

SESSION 103: KNOWLEDGE SHARING EPOSTER III

HEAVY OIL IN ECUADOR: PUNGARAYACU FIELD, NEW INSIGHTS AND PREDICTIONS FOR DEVELOPMENT STRATEGY	747
<i>C.A.M. Saverio, G.J.M. Diaz, D.G.P. Serrano</i>	

DOWNHOLE ELECTRICAL HEATING DYNAMIC MODEL ASSESSMENT IN FAJA EXTRAHEAVY OIL RESERVOIR APPLICATION	769
<i>R. Velasquez, V. Lara, A. Korabelnikov, T. Manapov</i>	

MATHEMATICAL CORRELATIONS OF OLEFIN AND METHANE MIXTURES TO BE APPLIED TO SYNTHETIC DRILLING FLUID DURING WELL CONTROL OPERATIONS	790
<i>D.C. Marques, P.R. Ribeiro, O.L.A. Santos</i>	

SESSION 104: KNOWLEDGE SHARING EPOSTER IV

INTEGRATING PETROPHYSICS AND PRODUCTION PERFORMANCE TO DETERMINE VARIABLE INITIAL WATER SALINITY CONDITIONS IMPACTING WATER SATURATION CALCULATIONS	808
<i>J. Oedietram, S. Maatschappij, E. Acosta</i>	

A METHODOLOGY TO USE OF RCX STRADDLE PACKER MICROFRAC FOR THE DETERMINATION OF MINIMUM HORIZONTAL STRESS IN VACA MUERTA FORMATION	833
<i>C. Ferlaza, V. Merchan, C. Teran, M. Paris, C. Rabe, J. Baratcabal</i>	

CASE STUDY: IMPLEMENTING CONTINUOUS CIRCULATION AND MANAGED PRESSURE DRILLING TECHNIQUES TO DRILL IN THE CHALLENGING PERLA GAS FIELD IN OFFSHORE VENEZUELA.....	847
<i>J.J. Arellano, J.E.P. Huerta, R. Johnson, I. Poletzky, B. Kumar</i>	

SESSION 105: KNOWLEDGE SHARING EPOSTER V

CONDENSATE REVAPORIZATION USING A COREFLOODING TEST, A DYNAMIC APPROACH TO EVALUATE LIQUID RECOVERY IN A GAS CONDENSATE RESERVOIR, CASE STUDY CAMISEA REGION.....	857
<i>J.M.D. Vargas, F. Pairoys</i>	

DAY 3

**SESSION 13: ARTIFICIAL INTELLIGENCE APPLICATIONS FOR THE OIL & GAS
INDUSTRY II**

DATA AS A STRATEGIC ASSET: IMPROVING RESULTS THROUGH A SYSTEMATIC DATA GOVERNANCE FRAMEWORK.....	869
<i>E. Huff, J. Lee</i>	

MACHINE LEARNING MODELS TO AUTOMATICALLY VALIDATE PETROLEUM PRODUCTION TESTS.....	893
<i>M.C.M.D.A. Duque, G.S. Chaves, D.D.O. Monteiro, L.V. Medani, V.J.M.F. Filho</i>	

DESIGN OF A COMPUTATIONAL TOOL IN PYTHON FOR THE CALCULATION OF THE OPTIMAL POTENTIAL IN THE HUYAPARI FIELD - PETROPIAR.....	908
<i>R. Acosta</i>	

SESSION 14: CASE STUDIES II

OPTIMIZATION OF CASING DESIGN FOR WELLS DRILLED IN LLANOS REGION IN COLOMBIA. A TECHNICAL ANALYSIS OF THE PROBLEMATIC AND THE ADOPTED SOLUTIONS.....	928
<i>C. Romero, J. Alvarez</i>	
REAL TIME MEASUREMENT OF RESISTIVITY AT THE BIT ALLOWS OPTIMAL CASING POINT IN JSO SANDS	939
<i>N. Cruz, M. Luna, C. Reyes</i>	
APPLIED LEARNINGS IN RESERVOIR SIMULATION OF UNCONVENTIONAL PLAYS	949
<i>R. Altman, R. Tineo, A. Viswanathan, N. Gurmen</i>	

SESSION 15: ARTIFICIAL LIFT I (ESP, GL) II

IMPLEMENTATION OF EXTENDED RANGE PUMP AS A SOLUTION FOR LOW-INPUT WELLS. SUCCESS STORY IN LLANOS NORTE	971
<i>W. Nunez, J. Del Pino, D. Garzon, D. Pinto, C. Gonzalez, J. Pinilla, A. Gomez</i>	
A GAS LIFT INNOVATIVE COMPLETION DESIGN FOR EXTENDED PERFORATED-INTERVAL GAS WELLS. A 5 YEAR AND 25 WELLS SUCCESSFUL EXPERIENCE IN A MATURE GAS FIELD, AGUA DEL CAJÓN FIELD, NEUQUÉN BASIN, ARGENTINA.....	979
<i>S.A. Bodini, G.D.G. Montero, N. Telleria</i>	
RESERVOIR SURVEILLANCE THROUGH FALL OFF TEST IN A MATURE FIELD WITH WATERFLOODING	988
<i>C. Tello, X. Guerrero, G. Mora, J. Becerra, T. Taborda, C. Escarraga, M. Parra</i>	

SESSION 16: POLYMER INJECTION II

EVALUATION OF WELL PERFORMANCE USING DATA FROM FIBER OPTICS SENSORS, IN WELLS OF THE PILOT POLYMER FLOODING TEST. ORINOCO BASIN, VENEZUELA	997
<i>A. Ramirez, E. Vasquez, L. Quevedo, I. Ulacio, G. Rojas, O. Rodriguez, H. Gamez</i>	
COMBINING DATA ANALYSIS AND SIMULATION TO DESIGN THE LARGEST POLYMER INJECTION PILOT IN ARGENTINA	1017
<i>D.G. Perez, M.D. Cocco, G.A. Pedersen, D. Volzone, E. Fuzul, J.P. Ursule, J.L. Massafarro</i>	
NOVEL ANALYTICAL APPROACH FOR POLYMER INJECTIVITY TESTS IN LOS PERALES FIELD, ARGENTINA	1030
<i>M.D. Cocco, D. Volzone, E. Fuzul, R. Katz, D.G. Perez</i>	

SESSION 17: DIRECTIONAL DRILLING I

LIMITED ACCESS RANGING SOLUTION – MITIGATION OF SIGNIFICANT ANTI-COLLISION ISSUES.....	1041
<i>S. Hinke, G. Hooff</i>	
CONNECTING WELLS IN ENVIRONMENTALLY SENSITIVE AREAS USING MAGNETIC RANGING-WHILE-DRILLING TECHNOLOGY FOR ENHANCED HYDROCARBON RECOVERY	1056
<i>J.P. Lips, G. Rassadkin, J. Dorey</i>	

UNEXPECTED LOW-RESISTIVITY PAY ZONE WHILE DRILLING A HORIZONTAL WELL: A CASE STUDY FROM THE ORIENTE BASIN IN ECUADOR	1063
<i>R. Ameneiro, L. Chiluiza, G. Espinel, M.S. Guerrero, D. Ramirez</i>	

SESSION 18: UNCONVENTIONAL AND HO I

IMPACTS OF NATURAL FRACTURES ON NON-PLANAR HYDRAULIC FRACTURE PROPAGATION IN STORAGE-VISCOUS AND STORAGE-TOUGHNESS DOMINATED REGIMES	1076
<i>J.A.R. Cordero, C.M. Sanchez, R. Quevedo, D. Roehl</i>	

WELL PERFORMANCE ANALYSIS OF VACA MUERTA UNCONVENTIONAL OIL WELLS USING CLASSIC INTEGRATED PRODUCTION MODELLING TOOLS TO IDENTIFY OPTIMIZATION OPPORTUNITIES	1088
<i>F. Rabasedas, T. Trosolino, F.F. Biscay, J.J.F. Juarez</i>	

A METHODOLOGY TO IDENTIFY THE ROOT-CAUSE AND CONDITIONS OF SAND PRODUCTION, BY INTEGRATING PRODUCTION, RESERVOIR AND COMPLETION VARIABLES. APPLIED TO A COLOMBIAN FIELD	1097
<i>A.P.C. Torrado, D.A.V. Silva, H.D.M. Hernandez, Y.A.Q. Pena</i>	

SESSION 19: SHALES I

EVALUATION OF THE EFFECTIVENESS OF CONTINUOUS GAS DISPLACEMENT FOR EOR IN HYDRAULICALLY FRACTURED SHALE RESERVOIRS	1110
<i>G. Mordis, M. Reagan</i>	

OPTIMIZATION OF RECOVERY BY HUFF AND PUFF GAS INJECTION IN SHALE OIL RESERVOIRS USING THE CLIMBING SWARM DERIVATIVE FREE ALGORITHM	1140
<i>B.K. Olusola, D. Orozco, R. Aguilera</i>	

INTELLIGENT AND AUTOMATED WORKFLOW FOR IDENTIFICATION OF BEHIND PIPE RECOMPLETIONS AND NEW INFILL LOCATIONS OPPORTUNITIES FOR AN ONSHORE MIDDLE EAST FIELD	1163
<i>R. Kansao, W. Benhallam, A. Aronovitz, M. Ravuri, A. Maqui, V. Suicmez, D. Castineira, H. Darabi</i>	

SESSION 20: RESERVOIR REGIONAL PLAY ASSESSMENT AND CASE STUDIES I

A SYSTEMATIC VOLCANIC INTRUSIVE CHARACTERIZATION MODEL FOR EXPLORATION AND PRODUCTION OF VACA MUERTA FORMATION	1185
<i>S. Utge, M. D'Angiola, F. Dominguez, D. Garcia, R. Ruiz, J. Rodriguez, G. Perez</i>	

USE OF FOAMS EOR IN PIEDEMONTE FIELDS - A SUCCESSFUL MECHANISM TO IMPROVE GAS SWEEP EFFICIENCY IN LOW POROSITY AND NATURALLY FRACTURED RESERVOIRS	1197
<i>A. Ocampo, A. Restrepo, J. Clavijo, H. Cifuentes, J.M. Mejia</i>	

SESSION 21: DIRECTIONAL DRILLING II

APPLICATION OF TORQUE AND DRAG MODELS TO PREVENT REAL-TIME OPERATIONAL PROBLEMS	1207
<i>F.R.G. da Silva, M.D.S. Cruz, C.N. Donatti, O.P.M. de Mello, A.L. Martins, J.G. Percy, C.M.D.A. Panisset</i>	
FAILURE REDUCTION AND TIME OPTIMIZATION ON CASING ROTATION OPERATIONS IN DIRECTIONAL WELLS OF MATURE FIELDS IN ECUADORIAN JUNGLE	1221
<i>S. Hernandez, C. Giol, R. Rodriguez, J.R.J. Rodriguez</i>	
REDEFINING TECHNICAL LIMIT – MANAGED PRESSURE DIRECTIONAL DRILLING SOLUTION IN MEXICO ZAAP FIELD.....	1236
<i>J.L.L. Infante, H.H.V. Marin, J.A.F. Mendez, A. Ngan, J. Acosta, E. Garcia</i>	

SESSION 22: UNCONVENTIONAL AND HO II

SUBSEA SYSTEMS INNOVATIONS AND THE USE OF STATE OF ART SUBSEA TECHNOLOGIES HELP THE FLOW ASSURANCE OF HEAVY OIL PRODUCTION IN ULTRA-DEEP WATERS	1254
<i>C.A. Pedroso, G. Rosa, P. Borges, K. Nunes</i>	
WATER FLOWBACK RTA ANALYSIS TO ESTIMATE FRACTURE GEOMETRY AND RANK THE SHALE QUALITY	1273
<i>A.F. Ibrahim, A. Assem, M. Ibrahim, C. Pieprzica</i>	

VOLUME 3

SUCCESSFUL STRATEGY FOR WATERFLOODING PROJECT IMPLEMENTATION IN AN EXTRA HEAVY OIL FIELD.....	1286
<i>L. Nino, F. Bonilla, L. Gil, W. Henao, J. Reina, E. Jimenez, P. Vivas</i>	

SESSION 23: SHALES II

CHEMICAL SELECTION AND SIMULATION FOR SP FLOODING IN PUESTO HERNANDEZ FIELD	1296
<i>D. Georgiades, A.A. Scotti, G. Villarroel, L. Martino, M. Thomann, S. Gandi</i>	
JOURNEY TO THE CENTER OF VACA MUERTA: UNCONVENTIONAL RESERVOIR EVALUATION YIELDS OPTIMUM RESULTS	1313
<i>F. Arbitbol, S. Casala, F. Arillo, T. Sifontes</i>	
ASSESSMENT OF OIL AND GAS RESOURCES IN THE VACA MUERTA SHALE, NEUQUÉN BASIN, ARGENTINA.....	1341
<i>J.C. Mayol, N. Moridis, D.A. McVay, W.J. Lee</i>	

SESSION 24: RESERVOIR REGIONAL PLAY ASSESSMENT AND CASE STUDIES II

DEVELOPMENT STRATEGIES IN THE SURESTE SALINA DEL ISTMO BASIN: SUSTAINABLE PRODUCTION REPLACEMENT OPTIONS.....	1373
<i>M. Zarea, K. Mohamed</i>	

AN INTEGRATED NEW EXPLOITATION STRATEGY IN BLOQUE 61, FROM MODELING TO FULL-FIELD IMPLEMENTATION..... 1386
S. Pineiros, M.A. Mendoza, G. Cevallos, E. Molina, A. Azancot, P. Bermeo

GEOCHEMICAL HETEROGENEITIES CHARACTERIZATION OF THE MUERTO FORMATION – LANCONES BASIN - PERU AS A SOURCE ROCK UNCONVENTIONAL RESERVOIR, A CONTRIBUTION FOR ITS DEVELOPMENT 1412
W.J.M. Paetan, J.A.R. Cruzado, B.G.A. Mendoza, A.A.A. Marcatoma, J.L.O. Rodriguez, R.W.C. Hidalgo, J.J.M. Rodriguez, J.W.P. Hurtado, J.L.F. Ruiz, L.D.F.E. Gorvenia

DAY 4

SESSION 25: ADVANCES IN O&G TECHNOLOGY AND PRODUCTION I

HIGH DENSITY POLYETHYLENE LINER: SUCCESSFUL ALTERNATIVE AGAINST CORROSION AND WEAR PROBLEMS IN PRODUCTION TUBING OF MATURE FIELDS IN COLOMBIA..... 1427
G.I.D. Poveda, M.M. Barragan, J.A.E. Lizarazo, J.M. Doval, P. Barragan

NEW TECHNOLOGY BASED ON SOLID SURFACTANT TO DEAL WITH LIQUID LOADING IN GAS WELLS OF A MATURE FIELD IN AN URBAN AREA 1436
V.L. Irazuzta, M.L. Schenkel, G.A. Candia, S.D. Aguero, M.J. Jouli, W. Perez, M. Bricco, O. Reinoso

NATURALLY FRACTURED RESERVOIRS AND THEIR LINK TO TIGHT AND SHALE PETROLEUM RESERVOIRS..... 1448
R. Aguilera

SESSION 26: DRILLING PLANNING AND OPTIMIZATION I

PREVENTING OPERATIONAL PROBLEMS AND SIGNIFICANT REDUCTION ON DRILLING DAYS UTILIZING PROACTIVE RISK ASSESSMENT STRATEGY 1522
M. Rangel, M. Reese, J. Almeida, J. Cornielis

SESSION 27: SUSTAINABILITY AND ENVIRONMENT EFFORTS IN LATIN AMERICA I

A SUBSEA CAPPING OPERATION IS NOT ROCKET SCIENCE... OR IS IT?..... 1531
A. Cuthbert

ESTABLISHING LIMITS FOR BRINE DISCHARGE DISPERSION IN OFFSHORE OPERATION 1547
P.H.A. Mota, M.M.R. Damasceno, A.D.S. Neto, J.M. Vedovoto, L. Marinho, C. Pamphili, U. Samsoni Jr., A. Waldmann, A.L. Martins

CARBON INTENSITY OF UNCONVENTIONAL AND LATIN AMERICAN OIL PLAYS..... 1558
N. Meehan, N. Jenvey, A. Datta, S.P. Uppati

SESSION 28: RESERVOIR MODELING AND DYNAMICS I

A NEW FRAMEWORK FOR COMPOSITIONAL SIMULATION USING REDUCED ORDER MODELING BASED ON POD-DEIM..... 1571
J.W. Lee, E. Gildin

A TWO-PHASE NON-LINEAR ONE-DIMENSIONAL FLOW MODEL FOR RESERVES ESTIMATION IN TIGHT OIL AND GAS CONDENSATE RESERVOIRS USING SCALING PRINCIPLES..... 1585
L.M.R. Maraggi, L.W. Lake, M.P. Walsh

QUANTIFICATION OF UNCERTAINTY IN MODEL BASED TYPE WELL CONSTRUCTION 1613
A. Ravikumar, J. Lee

SESSION 29: ADVANCES IN O&G TECHNOLOGY AND PRODUCTION II

SURVEILLANCE SYSTEM FOR DEHYDRATION AND DESALTING PROCESS OPTIMIZATION BY CHEMICAL MITIGATION FOR A MARINE TERMINAL IN MEXICO..... 1623
A.A.C. Meinhardt, H. Guan, L.F.L. Cisneros, M.A.P. De La Cruz, A. Lorenzana, C.H.G. Carvallo, S.I.R. Roque, H.E.R. Olarte, H.D.B. Perez

THE USE OF DRILLING WITH CASING TO SET A NEW STANDARD FOR DRILLING OPERATIONS IN ARGENTINA..... 1640
C.M. Espinosa, R.D. Watts, N. Rebaso, C.I. Lojk, C. Roldan, D. Codega, T. Castineiras

ENABLING WITSML STREAM ANALYTICS THROUGH OPEN SOURCE BIG DATA TECHNOLOGIES..... 1663
F. Pisauri, F. Escudero, P.E. Rodriguez

SESSION 30: DRILLING PLANNING AND OPTIMIZATION II

BENCHMARKING DRILLING PERFORMANCE OF PDC AND HYBRID BITS IN AN OFFSHORE INTERBEDDED ENVIRONMENT, BASED ON BIT DESIGN AND FEATURES 1672
R.A. Serrano, A.R. Chowdhury, W. Schoen, R. Samuel

PREMIER DEPLOYMENT OF A DRILLING AUTOMATION PLATFORM INTEGRATED WITH MANAGED PRESSURE DRILLING ON LATIN AMERICA DRILLING OPERATIONS 1686
N. Ronquillo, M. Smith

SESSION 31: SUSTAINABILITY AND ENVIRONMENT EFFORTS IN LATIN AMERICA II

IMPORTANCE OF THE HYGIENIC MEASURING OF LEVELS OF EXPOSURE TO BENZENE AND ITS DERIVATIVES IN PRODUCTION ACTIVITIES, FOCUSED ON PREVENTING OCCUPATIONAL DISEASES..... 1697
C.G. Real, O.C. Villalobos

A SUSTAINABLE FUTURE UNDER ENERGY INTENSITY SCENARIOS-PERU'S COMPLIANCE WITH COP24 IN AN ENERGY TRILEMMA ENVIRONMENT..... 1705
R.J.C. Bravo, E.J. Nieves, B.V. Ordonez, D.C. Espinoza

SESSION 32: RESERVOIR MODELING AND DYNAMICS II

INFLUENCE OF WETTABILITY AND FLOW RATE CHANGES IN THE MASS TRANSFER FOR SIMULATION OF FRACTURED RESERVOIRS 1721
S.A.R. Soler, L.F. Lamas, E.T. Koroishi, E. Ruidaz, O.V. Trevisan, R.V. de Almeida, F.P. Munerato, M. Gruenwalder

COUPLED FLOW-GEOMECHANICS SIMULATION OF FRACTURING-TO-PRODUCTION IN UNCONVENTIONAL RESERVOIRS	1746
<i>A.A. Rodriguez, J.E. Monteagudo, N.E. Nieto, A. Primera</i>	

A NEW INSIGHT INTO MODELING OF POLYMER FLOODING IN CARBONATE RESERVOIRS.....	1757
<i>E.W. Al-Shalabi</i>	

SESSION 33: RESERVOIR CHARACTERIZATION AND DESCRIPTION I

THE PARTIAL TRANSFORMATIONAL DECOMPOSITION METHOD PTDM FOR THE SOLUTION OF THE GAS FLOW PROBLEM IN A HYDRAULICALLY FRACTURED ULTRA-LOW PERMEABILITY RESERVOIR	1780
<i>N. Anantraksakul, G.J. Moridis, T.A. Blasingame</i>	

INCORPORATING BIOT POROELASTIC COEFFICIENT ON PICKETT PLOTS.....	1806
<i>B.K. Olusola, R. Aguilera, H.C. Ley</i>	

PRESSURE TRANSIENT ANALYSIS PTA DIAGNOSTICS AND SCREENING CRITERIA	1814
<i>R. Alcantara, J.M. Ham, J.E. Paredes, J.M. Petriz, G. Sanchez, M. Briones, G. Fuentes</i>	

SESSION 34: COMPLETIONS I

ENGINEERING APPROACH AND FIELD GUIDELINE TO OPTIMIZE SOLID PARTICULATE DIVERTERS DISPLACEMENT.....	1832
<i>M. Omer, O. Perez, F.E. Fragachan</i>	

SAND CONTROL OPTIMIZATION FOR RUBIALES FIELD: TRADE-OFF BETWEEN SAND CONTROL, FLOW PERFORMANCE AND MECHANICAL INTEGRITY	1841
<i>E.A.M. Cespedes, M. Roostaei, A.A. Uzcategui, M. Soroush, H. Izadi, S.A. Hosseini, B. Schroeder, M. Mahmoudi, D.M. Gomez, E. Mora, J. Alpire, J. Torres, V. Fattahpour</i>	

SESSION 35: DRILLING TECHNOLOGIES I

AN OPEN-SOURCE ENABLED DRILLING SIMULATION CONSORTIUM FOR ACADEMIC AND COMMERCIAL APPLICATIONS	1873
<i>E.Z. Losoya, E. Gildin, S.F. Noynaert, Z. Medina-Zetina, T. Crain, S. Stewart, J. Hicks</i>	

SIX YEARS OPERATING A REAL TIME DRILLING PROBLEM DETECTION SOFTWARE IN DEEPWATER ENVIRONMENTS: RESULTS AND CHALLENGES	1885
<i>F.R.G. da Silva, M.D.S. Cruz, B. Barduchi, E. Bellumat, M.V. dos Santos, V.B. de Matos, R.A. Gandelman, A.L. Martins</i>	

QUADRUPOLE PROCESSING TO ENHANCE SHEAR VELOCITY MEASUREMENTS IN SLOW FORMATIONS, FOR CHARACTERIZATION OF ROCK MECHANICAL BEHAVIOR.....	1903
<i>H. Arias, H. Gonzalez, D. Marquina, J. Puerta, L. Rodriguez, E. Sanchez, T. Kortam, H. Lara, R. Prado, G. Romero, A. Lopez</i>	

SESSION 36: ARTIFICIAL LIFT (RP) AND PRODUCTION OPTIMIZATION I

NONLINEAR REGRESSION ALGORITHM FOR UNCERTAINTY ANALYSIS IN PRODUCTION DATA MEASUREMENTS, ESTANCIA CHOLITA, SANTA CRUZ, ARGENTINA.....	1918
<i>M. Roddirguez, A.C. Huter, V. Berrios, C. Bitopoulus, G.A. Pitrelli</i>	

VOLUME 4

WATER SOURCE WELLS: CHALLENGES TO PRODUCE WATER. FIELD EXPERIENCES FROM A WATERFLOODING PROJECT.....	1928
<i>D. Vasconez, S. Farag, A. Meneses, O. Rodriguez, W. Pastrana</i>	
REDUCTION OF WELL INTERVENTION INDEX IN LOT – 8 OF PERUVIAN JUNGLE	1945
<i>J.C.H. Sotelo, C.C. Marzal, J.R.J. Rodriguez</i>	

SESSION 37: RESERVOIR CHARACTERIZATION AND DESCRIPTION II

RTA ASSISTED HISTORY MATCHING WITH A COMBINED HYDRAULIC FRACTURING AND RESERVOIR SIMULATOR.....	1960
<i>G. Fowler, M. McClure, J. Allen</i>	
FLUID AND RESERVOIR CHARACTERIZATION FROM WIRELINE FORMATION TESTER: FIELD EXAMPLES FROM SANTOS BASIN RESERVOIR	1979
<i>A. Bertolini, J. Monteiro, R. Munoz, S. Colacelli</i>	
MACHINE LEARNING APPLIED TO SRV MODELING, FRACTURE CHARACTERIZATION, WELL INTERFERENCE AND PRODUCTION FORECASTING IN LOW PERMEABILITY RESERVOIRS	1990
<i>E. Urban-Rascon, R. Aguilera</i>	

SESSION 38: COMPLETIONS II

ECONOMICAL AND TECHNICAL SOLUTION FOR WATERFLOODING PROJECTS IN A MATURE FIELD: MODIFIED DUMP FLOODING WELL COMPLETION STRATEGY	2014
<i>A.M. Sterling, Y.L. Ruiz, A. Azancot, L. Charry, A. Correal, L. Fuentes, W. Pastrana, A. Silva, J.N. Garcia, N.D. Vasconez</i>	
REACHING BETTER ZONAL ISOLATION BY CONTINUOUS IMPROVEMENT: A CASE STUDY OF NORTHWESTERN ONSHORE, PERU	2026
<i>A. Pingo, V.H. Soriano, J. Villanueva, E. Jimenez, E. Vasquez, R. Ahmed</i>	

SESSION 39: DRILLING TECHNOLOGIES II

NEW METHOD FOR OVERBURDEN MODELING TO IMPROVE GEOPRESSURES CALCULATIONS	2037
<i>D. Velazquez-Cruz, G. Espinosa-Castaneda, A. Morquecho-Robles</i>	
RISK MITIGATION IN OVERPRESSURED WELLS THROUGH GEOMECHANICAL APPROACH.....	2049
<i>O. Carvajal, C. Sierra</i>	

DATA BOOSTED STUCK PIPE PREVENTION: INTEGRATING MACHINE LEARNING MODELS INTO THE MUD PLAN DESIGN WORKFLOW	2058
<i>C.A.B. Arias, A.T.L. Torrado, J.S.L. Carvajal</i>	

SESSION 40: ARTIFICIAL LIFT (RP) AND PRODUCTION OPTIMIZATION II

CORROSION-FATIGUE ASSESSMENT OF MARTENSITIC STAINLESS STEEL AND HIGH STRENGTH LOW ALLOY STEEL SUCKER ROD MATERIALS IN HARSH ENVIRONMENTS	2070
<i>R. Barreto, O. Martinez, A. Shakhmatov, J. Stachowiak, W. Howie, R. Badrak</i>	

IDENTIFICATION OF FLUID FLOW ZONES IN THE RESERVOIR AND BEHIND-CASING THROUGH THE SECOND DERIVATIVE OF THE FLOWING TEMPERATURE	2081
<i>J.W. Gonzalez, A. Linares, E. Meza, D. Chaparro, C. Monzon</i>	

FLUID SAMPLING, ANALYSIS AND ITS RELATION WITH MULTIPHASE FLOW METER MANAGEMENT FOR A GAS CONDENSATE FIELD IN THE PERUVIAN JUNGLE	2098
<i>R.Y.T. La Chira, G.C.S. Nolasco</i>	

SESSION 41: RESERVOIR MODELING AND DYNAMICS III

LEVERAGING PHYLOGENETIC TREES TO ASSESS VARIABILITY OF RESERVOIR MODELS	2107
<i>A. Soriano-Vargas, K. Rollmann, F.L.R. Almeida, A. Davolio, B. Hamann, D.J. Schiozer, A. Rocha</i>	

APPLICATION OF THE FAST MARCHING METHOD IN HETEROGENEOUS DUAL POROSITY RESERVOIRS	2118
<i>K. Nakajima, A. Datta-Gupta, M.J. King</i>	

SESSION 42: RESERVOIR CHARACTERIZATION AND DESCRIPTION III

TDM-BASED SEMI-ANALYTICAL SOLUTIONS OF THE 3D PROBLEM OF OIL PRODUCTION FROM SHALE RESERVOIRS	2139
<i>G.J. Moridis, N. Anantraksakul, T.A. Blasingame</i>	

MIGRATION OF LIQUID HYDROCARBONS IN ORGANIC-RICH RESERVOIRS BASED ON GEOCHEMICAL AND WELL LOG ANALYSIS EXPLAINED WITH THE USE OF NEW PRACTICAL MODEL.....	2178
<i>J. Piedrahita, R. Aguilera</i>	

LAPLACE DOMAIN PRESSURE BEHAVIOR SOLUTION FOR MULTILAYERED COMPOSITE RESERVOIRS	2188
<i>J.L.F.B. Neto, R.V. Bela, S. Pesco, A. Barreto Jr.</i>	

SESSION 43: WELL CONTROL AND WELL INTEGRITY I

FOAM CEMENT PROVEN AS EFFECTIVE SOLUTION FOR ZONAL ISOLATION IN DIFFICULT WELLBORES: A SUCCESS FIELD CASE IN COLOMBIAN MATURE FIELDS.....	2204
<i>J. Vela, H. Arias, E. Sanchez, J.R. Garzon</i>	

EXPERIMENTAL INVESTIGATION ON MASS TRANSFER KINETICS OF
HYDROCARBON GAS INFLUX FOR ENHANCED OFFSHORE WELL CONTROL 2215
D. Ojedeki, J. Nielsen, S. Perry, Y. Chen

ASSESSING WELL INTEGRITY DURING ITS LIFE CYCLE DUE TO PRIMARY
CEMENTING 2234
K. Miura, M.A. Jaculli, J.R.P. Mendes, C.R. da Mata, D. Colombo

SESSION 44: DRILLING AND COMPLETION FLUIDS I

ULTRA-HIGH DENSITY OIL-BASED DRILLING FLUIDS AND ITS APPLICATIONS IN
ULTRA-DEEP PETROLEUM SYSTEMS..... 2245
Q. Li, S. Li

SYNTHETIC BASE DRILLING FLUID APPLICATIONS UNDER EXTREME PRESSURE
AND TEMPERATURE CONDITIONS IN GULF OF MEXICO 2259
M. Hernandez, F. Quissak, M. Cordova, J. Torres

A NOVEL SOLID LUBRICANT USES THE PRINCIPLES OF TRIBOLOGY TO REDUCE THE
COEFFICIENT OF FRICTION COF IN OIL- BASED MUDS OBM FOR EXTENDED REACH
DRILLING APPLICATIONS 2269
M.A. Ramirez, R. Pritchard

SESSION 45: STIMULATION AND NOVEL TECHNOLOGIES I

WATER MANAGEMENT CHALLENGE TURNED INTO A FRIENDLY ENVIRONMENTAL
RESPONSE RESULTING FROM SUCCESSFUL STIMULATIONS WITH COILED TUBING
IN WATER INJECTION WELLS: CHICHIMENE FIELD CASE STUDY IN COLOMBIA 2295
A. Orozco, E. Delgado, C. Pacheco, W. Parra, E. Rodriguez, D. Casique, D. Parra

STIMULATION APPLICATIONS FOR CARBONATE RESERVOIRS: AN OVERVIEW OF
ACIDIZING TECHNOLOGIES AND METHODS USED IN PRE AND POST SALT
RESERVOIRS IN BRAZIL 2310
A. Jardim, A. Costa, A. Boldrini, F. Colbert, F. Garcia, R. Gachet

DOWNHOLE STEAM QUALITY AND FLOW RATE ESTIMATION IN SELECTIVE STEAM
WELL INJECTION COMPLETIONS..... 2327
H.A. Rodriguez-Prada, P. Delgado-Delgado

SESSION 46: RESERVOIR MODELING AND DYNAMICS IV

LOW SALINITY WATER INJECTION OPTIMIZATION IN THE NAMORADO FIELD USING
COMPOSITIONAL SIMULATION AND ARTIFICIAL INTELLIGENCE..... 2339
D.M. Sierra, A.A. Rojas, V.S. Araque

SOLVING THE CHALLENGES OF A COMPLEX INTEGRATED PRODUCTION SYSTEM IN
CAMISEA FIELD USING NOVEL MODELING TECHNIQUES 2353
V. Pathak, A. Mirzabozorg, P. Zuloaga, J.M.D. Vargas, B. Klix

ASSESSMENT OF THE POTENTIAL FOR GAS PRODUCTION FROM MARINE METHANE
HYDRATE RESERVOIRS BY NUMERICAL SIMULATION 2369
J. Tomasini, K. Stephen

SESSION 47: RESERVOIR CHARACTERIZATION AND DESCRIPTION IV

- A NEW APPROACH FOR GEOMECHANICAL EVALUATIONS WITH MODIFIED PICKETT PLOTS..... 2394
M. Malaieri, R. Matorian, R. Aguilera
- NEW GENERATION FORMATION TESTING ORA PLATFORM USED TO TEST AND SAMPLE TIGHT NATURALLY FRACTURED CARBONATE UNDER HPHT CONDITIONS 2415
R.G. Villegas, J.M. de Leon, V.J.N. Flores, F.X. Dubost, T. Pfeiffer, S. Edmundson, A. Partouche, M.L. Vizcaino, H.H. Espinosa
- ANGOSTURA PHASE 3 - REJUVENATING COMPLEX TURBIDITE FIELDS IN OFFSHORE TRINIDAD THROUGH A SUCCESSFUL SUBSEA TIEBACK PROJECT..... 2425
K. Narayanan, A. Herris, J. O'Sullivan, S. Patrick

SESSION 48: WELL CONTROL AND WELL INTEGRITY II

- CASING ROTATING CEMENT HEADS, A CUSTOM FIT SOLUTION TO IMPROVE ZONAL ISOLATION RESULTS IN COLOMBIA, A FIELD PROVEN CASE 2445
J. Vela, H. Arias, E. Sanchez
- ONE OF THE DEEPEST WELLS DRILLED IN BOLIVIA: HIGH PRESSURE AND TEMPERATURE IN MORE THAN 9 MONTHS OF DRILLING, NO CASING WEAR DETECTED 2453
R. Mertens, J. Garcia, M.A.B. Valcarcel, R.D. Camargo
- WELL CEMENTING IN AN ABNORMAL PRESSURE ZONE OF THE TALARA BASIN: OVERCOMING ENGINEERING CHALLENGES 2462
A. Pingo, C. Vera, V.H. Soriano, J. Villanueva, R. Ahmed, J.H. Poma, J.L. Paredes

SESSION 49: DRILLING AND COMPLETION FLUIDS II

- FIELD RESULTS OF A REAL TIME DRILLING FLUID MONITORING SYSTEM..... 2471
S. Magalhaes, L.A. Calcada, C. Scheid, E. Paraiso, G. Moraes, E. Valim, H. Almeida, A. Waldmann, A. Leibsohn, C.H.M. de Sa
- A NEW APPROACH TO DESIGN COMPLETION FLUIDS INCLUDING HYDRATE INHIBITION IN DEEP WATER..... 2485
J.C. Espinoza
- PROBABILISTIC ANALYSIS OF LOSS OF PRIMARY SAFETY BARRIER DURING DRILLING OPERATIONS 2496
U. Sansoni Jr., H. Silva, T. Gabardo, C. Negrao, A.G. Barbosa, D. Wohlers, A. Waldmann, D. Colombo, A.L. Martins

SESSION 50: STIMULATION AND NOVEL TECHNOLOGIES II

- FRACTURE FACE DAMAGE: DIAGNOSIS, MODELING, SOLUTIONS, AND STUDY CASES IN ECUADOR 2513
A. Izurieta, L. Sierra
- A REVIEW ON FLUIDS TECHNOLOGY FOR NEAR-WELLBORE REMEDIATION..... 2524
L. Qintero

RADIO-FREQUENCY APPLICATION FOR OIL MOBILITY IMPROVEMENT IN THE
HOLLIN FORMATION IN IP-15 WELL. PUNGARAYACU FIELD..... 2537
L. Llamuca, A. Bonilla, R. Marino

Author Index