# TABLE OF CONTENTS

## SESSION 1: SUCKER ROD PUMPS I

**EVALUATING TAILPIPE SYSTEMS DESIGNED TO OPTIMIZE ARTIFICIAL LIFT PERFORMANCE IN HORIZONTAL WELLS**

C. Humphreys, B. Vangolen, A. Allison, D. Yin, C. Yicon

**QUANTITATIVE ANALYSIS OF THE PACKER-STYLE GAS SEPARATOR THROUGH LABORATORY AND FIELD TRIALS**

L. Thompson, A. Monk, Don-Nan, G. Oddie

**SOLVING GAS INTERFERENCE ISSUES WITH SUCKER ROD PUMPS IN THE PERMIAN BASIN**

A. Allison, C. Leal, M. Boland

## SESSION 2: ELECTRIC SUBMERSIBLE PUMPS I

**ENERGY MANAGEMENT APPLIED TO ELECTRIC SUBMERSIBLE PUMPING ESP**

E. Martinez, A. Caicedo, L. Paredes, M. Guevara, E. Alvarez

**EFFICIENCY STUDY IN VIZCACHERAS FIELD AND IMPLEMENTATION OF PMM MOTORS TO INCREASE PRODUCTION CAPABILITY**

A. Tiofiolo, J. Dotta, R. Teves

**PERMANENT MAGNET MOTORS/POWDER METALLURGY PUMP STAGES: INCREASING PROFIT MARGINS, RESERVES, AND ECONOMIC LIMITS THROUGH EFFICIENT ESP DESIGN**

J. Lucas, C. Donham, T. Wrobel

## SESSION 3: GAS LIFT: APPLICATION IN UNCONVENTIONAL WELLS

**CHAMBER GAS LIFT IN HORIZONTALS**

C. Hardegree, B. Gerrard, S. Wildman, K. McKenzie

**LIFE-OF-WELL GAS LIFT INSTALLATIONS FOR UNCONVENTIONAL RESOURCES**

B. Latif, K. McKenzie, W. Rodgers, G. Stephenson, S. Wildman

**END OF TUBING AND PACKER PLACEMENT EFFECTS ON GAS LIFT OPERATIONS IN TOE DOWN GAS WELLS**

J. Nair, E. Pereyra, C. Sarica

## SESSION 21: KNOWLEDGE SHARING EPOSTER I

**SRP EQUIPMENT CUSTOMIZATION CREATING VALUE BY INCREASING RUN LIFE IN A LOW OIL PRICE ENVIRONMENT**

M. Hoy, B. Kometer, P. Bunßner, G. Puscalau, S. Eder

**DOWNHOLE PLUNGER SPEED STUDY IN SUCKER ROD HIGH GOR AND HIGH FRICTION WELLS**

E. Ferrigno, D. Khouri, G. Moreno

**EFFICACY OF SURFACTANTS IN RICH GAS SHALE WELLS**

Y. Alzhanov, H. Karami, E. Pereyra, J. Gamboa

**SURFACTANT BATCH TREATMENT EFFICIENCY AS AN ARTIFICIAL LIFT METHOD FOR HORIZONTAL GAS WELLS**

C. Gcali, E. Pereyra, C. Sarica

## SESSION 22: KNOWLEDGE SHARING EPOSTER II

**GAS LIFT ANNULUS PRESSURE**

K. Decker, R. Sutton
IMPACT OF GAS LIFT DESIGN IN UNCONVENTIONAL WELLS - A DELAWARE BASIN OPERATOR'S PERSPECTIVE 225
S. Kannan, M. Boyer, J. Dufresne, L. Gonzalez
SUCCESSFUL APPLICATION OF AN INNOVATIVE GEOMETRY OF PROGRESSING CAVITY PUMP IN APPLICATION WITH HIGH SAND AND GAS CONTENT. COLOMBIAN SUCCESSFUL CASE IN LA CIRA INFANTAS 240
L. Labrador, P. Sales, L. Valderrama, J. Molina, J. Ferrer
SYSTEM RUN LIFE IMPROVEMENT FOR ROD DRIVEN PCP IN HIGH DEVIATION WELL 253
S. Khadav, S. Agarwal, P. Kumar, N. Pandey, A. Parasher, S. Kumar, V. Agarwal, S. Tiwari

SESSION 4: GAS DELIQUIFICATION

A SIMPLE CRITICAL GAS VELOCITY EQUATION AS DIRECT FUNCTIONS OF DIAMETER AND INCLINATION FOR HORIZONTAL WELL LIQUID LOADING PREDICTION: THEORY AND EXTENSIVE FIELD VALIDATION 270
A. Nagoo, P. Kulkarni, C. Arnold, M. Dunham, J. Sosa, P. Oyewole
UNCONVENTIONAL LIFT FOR UNCONVENTIONAL WELLS 295
W. Jackson
NOVEL APPROACH IN DIGITAL DIAGNOSTIC FOR PLUNGER LIFT IN UNCONVENTIONAL WELLS AT VACA MUERTA 299
J. Barros, J. Claramunt, E. Ferrigno

SESSION 5: PROGRESSING CAVITY PUMPS

ONE COMPANY'S EXPERIENCE USING METAL TO METAL PCPS AS THE PRIMARY ARTIFICIAL LIFT METHOD IN A SAGD OPERATION 312
O. Becerra, J. Sheldon
IDENTIFYING ANALOGUE FIELDS IN PCP APPLICATIONS USING CLASSIFICATION TREES 326
J. Sheldon, F. Alhanati, P. Skoczylas
INCREASED RUN LIFE IN PROGRESSIVE CAVITY PUMPS FROM CHARACTERIZATION OF HIGH NITRILE ELASTOMERS IN THE ORINOCO OIL BELT 333
M. Han, E. Guerra, S. Rangel, I. Gamez, A. Delgado

SESSION 6: SUCKER ROD PUMPS II

ROD-GUIDE PLACEMENT BASED ON HIGH-RESOLUTION TORTUOSITY ANALYSIS OF PRODUCTION TUBING 362
O. Jegbefume, J. Bang, A. Ledroz, R. Shoup, R. Vincent, J. Earley
VISUALIZING ROD DESIGN AND ANALYSIS THROUGH THE WAVE EQUATION 374
W. Phillips
ENABLING AUTONOMOUS WELL OPTIMIZATION VIA USING IOT-ENABLED DEVICES AND MACHINE LEARNING IN BAKKEN HORIZONTAL WELLS 392
J. Freeman, P. Kulkarni, R. Benoît, J. Filipi, B. Arnst

SESSION 7: ELECTRIC SUBMERSIBLE PUMPS II

CENTRIFUGAL PUMP HEAD PREDICTION USING AFFINITY LAWS MODIFIED FOR VISCOSITY 405
A MECHANISTIC MODEL TO PREDICT FLOW PATTERN TRANSITIONS IN ELECTRICAL SUBMERSIBLE PUMP UNDER GASSY FLOW CONDITION 415
J. Zhu, J. Zhang, H. Zhu, H. Zhang
A FIRST PRINCIPLES MODEL FOR VIRTUALLY SENSING OPERATIONAL PARAMETERS IN AN ESP WELL 442
E. Aceros, A. Verde
SESSION 23: KNOWLEDGE SHARING EPOSTER III

CHALLENGING SAND PRODUCER WELL HANDLING WITH PCP IN EASTERN DESERT, EGYPT ................................................................. 457
K. Alsawi, M. Hegazy, K. Elhady, M. Sayed

MATERIAL OVERVIEW FOR ELECTRIC SUBMERSIBLE PUMPS: PART I – METALLIC AND
CERAMIC MATERIALS ............................................................................. 468
J. Xiao, R. Lastra, B. Roth, W. Lee

PRODUCTION OPTIMIZATION FOR PROGRESSIVE CAVITY PUMPS BY
INTERCONNECTING A STEADY-STATE FLOW SIMULATOR AND A BLACK OIL
RESERVOIR MODEL THROUGH INTEGRATED ASSET MANAGEMENT SOFTWARE ........................................ 481
M. Ali, K. Patron, V. Salinas, S. Cui

SESSION 24: KNOWLEDGE SHARING EPOSTER IV

WELLBORE MODELING AND RESERVOIR CHARACTERIZATION FOR THE APPLICATION
OF ARTIFICIAL LIFT IN DEEP HORIZONTAL WELLS IN THE UNCONVENTIONAL
RESERVOIRS .......................................................................................... 493
P. Pankaj, K. Patron, H. Lu

CULTURAL CHANGE IN ALS REAL TIME OPERATION AND OPTIMIZATION IN VACA
MUERTA THROUGH CWE ........................................................................ 514

SESSION 8: INTERMITTENT GAS LIFT AND GAS-ASSISTED PLUNGER LIFT

MODELING TRANSIENT INFLOW PERFORMANCE RELATIONSHIP IN ARTIFICIAL-LIFT
SYSTEMS ....................................................................................................... 530
Z. Xiang, C. Kabir

PLUNGER-ASSISTED GAS LIFT AND GAS-ASSISTED PLUNGER LIFT ........................................... 546
M. Burns

INNOVATIVE WELL DESIGNS FOR HGOR: EXTENDING GAS PRODUCTION WITH
COMMON GAS WELL DELIQUIFICATION TECHNIQUES ......................................................... 551
J. Goldney, B. Mohando, G. Cometto, M. Ballarini, R. Mazzola

SESSION 9: DESIGNING ARTIFICIAL LIFT FOR THE LIFE OF THE WELL

INNOVATIVE DOWNHOLE DESIGN FOR OPTIMIZING ALS INSTALLATION AT SHALE OIL
WELLS ........................................................................................................ 581
I. Cuneo, J. Ardito, G. Rivero

REDUCING ARTIFICIAL LIFT SURFACE CONVERSION COSTS IN A UNCONVENTIONAL
OIL FIELD ..................................................................................................... 594
C. Weiss, T. McGee, K. McAdam

GETTING WELLS BACK TO PRODUCTION USING AN INNOVATIVE ARTIFICIAL LIFT
SYSTEM FOR RECOVERING INACTIVE WELLS ...................................................... 603

SESSION 10: ARTIFICIAL LIFT OPTIMIZATION

TUNING VSDS IN ESP WELLS TO OPTIMIZE OIL PRODUCTION—CASE STUDIES ........................................... 611
L. Camilleri, H. Gong, N. Al-Maqsseed, A. Al-Jazzaf

PLUNGER FALL VELOCITY STUDIES IN VERTICAL WELLS ....................................................... 633
R. Acosta, E. Poreya, C. Sarica

USE OF RUN-LIFE MEASURES IN ESTIMATING ARTIFICIAL LIFT SYSTEM RELIABILITY ........................................ 664
P. Skoczylas, F. Alhanati, J. Sheldon, F. Trevisan

Author Index