

INTEGRATED OPTIMIZATION OF ESP PUMPS IN UNCONVENTIONAL WELLS

HOW TO INCREASE OIL PRODUCTION WITH THE SAME WELL COUNT

LEARNINGS OUTCOME

This Course presents improved practices of ESP Operation as described in the instructor's SPE papers SPE-164785, SPE-81541, SPE 185571, SPE 181161, SPE 175864, SPE 175876, and IPTC-12601 that supports advanced training of staff from E & P. on satisfactory completion of this course, the participant will be able to:

- Reduce ESP failures and therefore workover interventions
- Reduce ESP Trips and Oil deferment and Sustain oil production peak by the smooth operation of ESP
- Enhance root cause failure analysis based on teardown+ simulation of operating conditions
- Enable restart of tripped ESP wells due to other than ground-fault reasons to prevent calling the rig
- Cost-effective and robust well monitoring in remote sites Implement state of the art in ESP design, operation, monitoring troubleshooting, and optimization
- Prevent accidents and incidents related to ESP Operation
- Prepare contract strategy, the scope of work, technical specifications, bidding list, and evaluation matrix for tendering of ESP performance-oriented contracts for the provision of products & services on lease/purchase.
- In addition, participants will work in groups to come up with a specific improvement proposal applicable to their own fields.

OBJECTIVES

- Understand the optimized application of ESP Pumps in Unconventional Oil Shale Fields to size on the existing opportunities and overcome the current limitations.
- Understand State of the art monitoring and troubleshooting practices to reduce trips/failures to apply in their fields.
- Use digital dashboards to prevent trips/failures and increase oil production of the ESP wells.
- Identify root cause failure reasons to implement corrective measures to reduce ESP failures and production deferment. Contribute to introducing a digital shift in their companies with in-class exercises of field cases using software-based tools.
- Reduce/eliminate HSE hazards related to ESP activities.
- Present and work with a methodology that can be utilized in the fields of the participants
- Support the ESP User to effectively track the ESP operating conditions prior to pump failure.

WHO SHOULD ATTEND

Artificial lift - ESP engineers, Petroleum, Production, Operations, and Reservoir Engineers, Field Automation Engineers, HSE staff, contracting engineers, Managers, decision-makers, Government Officials, and others involved, in charge, or interested in optimizing the ESP design and operation to reduce ESP pump failures, trips, well interventions, OPEX Cost, oil deferment and safe ESP operation as well as to achieve substantial cost savings applying advanced tendering techniques for the Provision of ESP Equipment and Services.

TOPICS

- Artificial Lift Selection for Unconventional Wells - When to use ESPs
- The ESP System - The Downhole and Surface Components
- The ESP Life-Cycle Concept applied to Unconventional Shale Oil Fields
- Data Gathering, Validation & ESP Pump Design
- The ESP Down Hole Equipment Selection and Production Completion
- Provision of ESP Equipment and Services
- Installation and Commissioning
- ESP - Operation for the given Well, Fluid and Reservoir Conditions
- Automation, Online Data Transmission, Data Analytics & Remote Operation
- ESP - Preventive Monitoring - Early detection of Abnormal Conditions
- ESP - Troubleshooting of tripped wells - Restarting ESP wells to prevent rig call out
- ESP Optimization to increase Oil production
- Achieving multimillion savings by Goal Alignment of all the parties and use of Advanced Rendering Techniques
- Type of ESP Failures and Root Cause Analysis - RCA
- ESP Key Perform Indicators - Measuring Success
- HSE Aspects of ESP Pump Operation - The Preventive-Proactive Approach to remove Hazards in ESP Installation / Operation
- Field Cases - Work in groups: Completion of Specific Improvement Proposal

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ABOUT THE INSTRUCTOR



Samuel Armacanqui Ph.D.

Dr. Armacanqui has more than 25 years of corporate experience, working globally with E&P companies such as Shell, Conoco, PDVSA, and Dea Oil & Gas and major Service Companies such as Schlumberger, Camco-Reda. He participated in the Development of shale oil leases in the USA as well as in the operation of multiple tight oil fields in the Americas and around the world. He has been the senior ESP application engineer of a global ERP supplier and has worked as the ESP team leader of a global operator overseeing a team in charge of 900 ESPs. Dr. Armacanqui has also pioneered the development and operation of an Unconventional Reservoir of ExtraHeavy Oil Project in the Orinoco Belt field in San Diego, Venezuela (120,000 bopd) where he was the product specialist in charge. Other assignments include technical manager of Reda Pumps, Venezuela, head of artificial lift for PDO-Oman, development manager for DEA Egypt and COO of WOGI, USA.

DATES AND PRICE

COST: US\$ 995

Online Course
November 14 - 18 (5 day course)
6 to 9 p.m. (3 hrs per day)

ABOUT THE INSTRUCTOR

Dr. Armacanqui has a Ph.D. in Reservoir Engineering from Freiberg Mining Academy and a Post-Doctorate in Projects & Business Management from Clausthal University. He is an international lecturer on topics of production optimization, ESPs, PCP, BPsGL, sustainable oil field development, the effective introduction of innovations/new technology, well testing, operational excellence, EOR, process enhancement, advanced rendering techniques, and oil field management in the scenario of low oil prices for heavy and shale oil fields. He has initiated/participated in the development & pilot field test of multiple innovations - the world's first prototypes. He is a regular author of SPE papers and gives advanced training to senior staff, managers, and executives, and was proposed as SPE distinguished lecturer in 2016. He has been a Member of the Technical Committees of SPE and AAPG Conferences, lately for AAPG GTW in China.

ACHIEVEMENTS

- Won several multimillion ESP Equipment Supply Contracts as Technical Manager of a global ESP Service Company (Venezuela 1994-96).
- 40% oil output increased Low Cost/ Barrel on mature GM-4 field -San Tome, by optimizing ESP, Sucker Rod Pumps and Gas Lift Wells, Simulation and Optimization of Integrated Production System and use of Rig Less Intervention Techniques, Venezuela 1997 for PDVSA.
- Saving of \$150 million through the Reduction of Well Interventions due to ESP Equipment Failures and premature failures as well as a significant reduction of Oil Deferment by reducing ESP pump trips, 2001/05, for PDO (Shell Oman).
- Saving \$130 million by means of the use of Advanced Tendering Techniques and improved ESP Design, 2006/2007 for PDO (Shell Oman).
- Proposed as an SPE Distinguished Lecturer.

CONTACT

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AGENDA

DAY 1: THE IPS SYSTEM / ESP LIFE CYCLE / ESP COMPONENTS

6 - 6:30 p.m.	The Integrated Production System and the Three Components
6:30 - 7 p.m.	The ESP Life Cycle Concept applied to Unconventional Shale Oil Fields
7 - 7:30 p.m.	Artificial Lift Selection for Unconventional Wells 15 MIN BREAK
7:45 - 8 p.m.	Use of ESPs in Unconventional Fields - When and How to Use Them
8 - 9 p.m.	The ESP System - How it Works - The Down hole and Surface Components

DAY 2: THE ESP SIZING / EQUIPMENT COMPLETION / INSTALLATION

6 - 6:30 p.m.	Data Gathering & Validation for ESP Pump Design
6:30 - 7 p.m.	The ESP Design - Sizing of the Down Hole and Surface Equipment
7 - 7:30 p.m.	The ESP Well Production Completion - The Down Hole Equipment Selection 15 MIN BREAK
7:45 - 8 p.m.	ESP Completion Components to handle Gas, Solids, Low Rates, Paraffin, Corrosion, etc.
8 - 9 p.m.	ESP Installation and Commissioning - Right Rotation determination

DAY 3: THE ESP OPERATION / MONITORING & TROUBLESHOOTING

6 - 6:30 p.m.	ESP - Operation and settings for the given Well, Fluid and Reservoir Conditions
6:30 - 7 p.m.	Well Attendance and Online Data Transmission & Remote Operation
7 - 7:30 p.m.	ESP-Proactive Monitoring, Parameter trending - Early detection of Abnormal Conditions 15 MIN BREAK
7:45 - 8 p.m.	Type of ESP Trips and possible Causes - gas, sand, paraffin, power quality, etc
8 - 9 p.m.	ESP - Troubleshooting of tripped wells - Restarting ESP wells to prevent rig call-out - Real Case Examples

DAY 4: OPTIMIZATION / REDESIGN / OIL DEFERMENT REDUCTION

6 - 6:30 p.m.	ESP Optimization to increase Oil Production, Reduce Failures and Deferment
6:30 - 6:45 p.m. p.m.	Improvements in Well Construction/Completion and Chemical Treatment to enhance the ESP Pump Operation
6:45 p.m. - 7 p.m.	Slow start-up Procedures for smooth production ramp-up and slowed production decline
7 - 7:30 p.m.	Incorporating Findings of the Tear Down RCA- Analysis to the Equipment Design and Equipment Selection 15 MIN BREAK
7:45 - 8 p.m.	The Size of the Prize - Well and Field Oil Deferment Types and Specific Reasons
8 - 8:30 p.m.	How to reduce Unscheduled Oil Deferment - Fast Response to Trips
8:30 - 9 p.m.	Reducing Unscheduled Oil Deferment - Real Case Examples / Cases of the Course Participants

DAY 5: KPIS / FAILURE REDUCTION / RCA / SCM - ACHIEVING MULTIMILLION DOLLAR SAVINGS / HSE

6 - 6:20 p.m.	ESP Key Performance Indicators - Measuring Success & Finding Gaps
6:20 - 6:40 p.m. p.m.	Type of ESP Failures - Installation, Commissioning, Operational, Manufacturing, Material, Design, Aging and Well Conditions related
6:40 p.m. - 7 p.m.	ESP Equipment Tear Down Dismantle and Root Cause Analysis and Guaranty Aspects
7 - 7:30 p.m.	Reducing ESP Failures and extending Run Live - Real Case Examples 15 MIN BREAK
7:45 - 8 p.m.	SCM - Provision of ESP Equipment and Services - Purchase/Lease/Repair Options
8 - 8:30 p.m.	Achieving multimillion savings by Goal Alignment of all the parties and use of Advanced Tendering Techniques and Performance Contracts
8:50 - 9 p.m.	The HSE Aspects of ESP Pump Operation - The Preventive-Proactive Approach to remove safety Hazards and Accidents in ESP Installation / Operation.
9 p.m.	END OF THE COURSE