

Progressive Cavity Pump Operations and Maintenance Training Course

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Overview

Progressive Cavity Pump Operations and Maintenance Training Course is a one-week intermediate course for production, artificial lift, well operations, maintenance, and field-service professionals who leave with a PCP Operations and Reliability Plan. Participants examine progressive cavity pump artificial lift, rotor-stator geometry, elastomer compatibility, PCP installation and commissioning, production surveillance, and PCP failure analysis. The course links well conditions, equipment limits, operating evidence, and maintenance decisions to run-life improvement. Agile Leaders Training Center presents progressive cavity pump operations and maintenance.

Who Should Attend

- Functions responsible for artificial-lift selection, design review, and operating-envelope decisions
- Teams responsible for producing-well surveillance, exception handling, and optimization
- Functions responsible for PCP installation, commissioning, maintenance, and workover preparation
- Teams responsible for rotating-equipment reliability, failure analysis, and service quality
- Functions responsible for field diagnostics, production restoration, and run-life improvement

The course assumes participants interpret basic well-production and mechanical-equipment data at work, and it leaves out pump manufacturing design and proprietary software certification.

Departments and Industries

The course supports departments and industries that select, operate, maintain, or troubleshoot progressive cavity pump systems.

- Upstream production engineering and artificial-lift departments
- Well operations, completion, and workover functions
- Oilfield maintenance, reliability, and asset-integrity teams
- Industrial fluid-handling and process-equipment operations
- Artificial-lift service and technical-support organizations

Learning Objectives

By the end of this course, participants will be able to:

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- Analyze well and fluid conditions for PCP application selection
- Apply rotor-stator geometry and material-compatibility criteria
- Build PCP sizing, installation, and commissioning controls
- Use torque, speed, pressure, and production surveillance evidence
- Diagnose pumpoff, gas, solids, wear, swelling, and thermal failures
- Prioritize maintenance, workover, and run-life improvement actions

Course Agenda

Day 1: Establish PCP Application and System Fundamentals

- Artificial-Lift Candidate Well Screening Matrix
- Positive-Displacement Rotor-Stator Geometry Model
- PCP Cavity Displacement and Flow-Rate Calculation Method
- Well Fluid, Solids, Gas, and Temperature Constraint Register
- PCP System Architecture and Equipment Boundary Map

Day 2: Select Materials, Geometry, and Operating Envelope

- ISO 15136-1 PCP Equipment Requirement Review
- Elastomer Chemical and Thermal Compatibility Matrix
- Rotor Coating, Fit, Interference, and Wear Assessment
- Pump Geometry, Stage, Pressure, and Capacity Selection Sheet
- Drive-Head, Rod-String, Torque, and Friction Load Check

Day 3: Control Installation, Commissioning, and Operation

- Well Preparation and PCP Installation Readiness Checklist
- Rotor Landing, Stator Placement, and Spacing Verification
- Surface Drive, Guarding, Braking, and Torque-Limiter Inspection
- PCP Commissioning Baseline and Acceptance Record
- Speed, Torque, Backpressure, and Production Control Window

Day 4: Diagnose Performance Loss and Plan Reliability Work

- PCP Production Surveillance and Exception Dashboard
- Pumpoff, Gas Interference, and Incomplete-Fill Diagnostic Tree
- Solids, Abrasion, Elastomer Swelling, and Thermal Damage Map
- Rod, Drive, Coupling, and Downhole Failure Signature Matrix
- Maintenance, Pulling, Workover, and Root-Cause Action Plan

Day 5: Practice PCP Decisions and Optimization

- Suggested Exercise: Screen a Well for PCP Application Suitability
- Suggested Exercise: Select Geometry, Elastomer, and Operating Limits
- Suggested Exercise: Verify an Installation and Commissioning Record
- Suggested Exercise: Diagnose Surveillance Trends and Failure Evidence
- Capstone Exercise: Complete the PCP Operations and Reliability Plan

Practical Exercises

The course uses suggested activities to connect well data, equipment evidence, and field decisions.

- Suggested activity: screen a viscous, solids-bearing production case and document PCP selection constraints.
- Suggested activity: compare elastomer, rotor, geometry, pressure, speed, and torque options for a defined operating envelope.
- Suggested activity: interpret production, torque, speed, pressure, and temperature trends to isolate performance loss.
- Suggested activity: convert teardown and surveillance evidence into maintenance, workover, and verification actions.

FAQs

Who suits progressive cavity pump operations and maintenance training, and what does it assume?

Progressive cavity pump operations and maintenance training suits production, artificial-lift, well-operations, maintenance, reliability, and field-service functions. It assumes participants interpret basic well and equipment data and omits manufacturing design.

How does progressive cavity pump training differ from a general artificial-lift course?

Progressive cavity pump training concentrates on PCP geometry, materials, drives, rod strings, commissioning, surveillance, failure evidence, and run-life decisions. A general artificial-lift course compares several lift methods at a broader level.

How are elastomers selected for progressive cavity pump service?

Elastomers are selected by evaluating fluid chemistry, aromatics, gas exposure, temperature, solids, pressure, swelling risk, decompression behavior, and the required rotor-stator interference across the operating range.

What evidence supports progressive cavity pump troubleshooting?

Progressive cavity pump troubleshooting combines production rate, torque, speed, pressure, temperature, fluid level, vibration, shutdown history, pulled-equipment condition, and changes in well or fluid behavior.

How can PCP run life be improved?

PCP run life can be improved by matching geometry and materials to service conditions, controlling speed and torque, preventing pumpoff, monitoring exceptions, investigating recurring failure signatures, and verifying corrective actions.

Conclusion

Participants take back a PCP Operations and Reliability Plan linking application limits, material decisions, installation controls, surveillance rules, failure evidence, and workover actions. It changes isolated operating observations into a traceable decision path for production and maintenance teams. The plan supports consistent optimization, fault response, and post-action verification.

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