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COURSE BROCHURE

ESP Run-Life Failure Analysis and Dismantle Inspection Training Course

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Registered in the United Kingdom and Saudi Arabia

ESP Run-Life Failure Analysis and Dismantle Inspection Training Course

ESP Run-Life Failure Analysis and Dismantle Inspection is a 1-week training course for production, artificial lift and well engineers and ESP technicians, who build an ESP failure analysis report for a pulled unit. Short run life drives workover spend, deferred barrels and rig demand, so organisations need failure causes proven rather than assumed. Jupiter Prime Training delivers ESP run-life failure analysis for field and repair-shop specialists.

Why ESP Run-Life Failure Analysis Matters Now

Three forces shape ESP run-life failure analysis today: ageing reservoirs with rising water cut, gas and sand; the spread of downhole gauges and variable speed drives that record far more surface and sensor history than crews once had; and vendors, operators and workover contractors who each hold part of the failure evidence. An operator that traces a burnt motor to its true cause stops repeating the same pull. The course rests on root cause failure analysis RCFA practice and on the shared vocabulary of EN 13306 maintenance terminology.

Who Gains Most from ESP Run-Life Failure Analysis

- Engineers who select pump, motor, seal and cable strings and size them for each well
- Production engineers who watch amperage, intake pressure and motor temperature trends
- Artificial lift specialists who own run-life targets and failure records for a field
- Technicians who witness pulls, teardowns and component grading on the bench
- Well intervention engineers who plan workovers and replacement string designs

An asset team that sends its production engineer, lift specialist and repair-shop technician together gains most.

ESP Run-Life Failure Analysis Capabilities

Participants read a failed string as evidence, from amp chart to bench teardown.

- Interpret amp charts, intake pressure and motor temperature history before a pull — workover timing
- Specify a dismantle inspection scope for pump, gas separator, seal section, motor and cable — repair-shop teams
- Grade wear, scale, erosion and electrical damage against a failure nomenclature — the failure database
- Test competing root cause hypotheses against sizing, installation and operating records — the asset owner
- Calculate run life and mean time between failures for a field population — lift strategy
- Communicate corrective actions on string design and operating limits — vendors and well planners

Key ESP Run-Life Failure Analysis Terms

- Run life — the time an ESP string operates from start-up to failure or pull
- Dismantle inspection — the controlled teardown of a pulled string to record the condition of every component
- Amp chart — a record of motor current over time whose pattern reveals gas locking, pump-off or overload
- Seal section — the protector between pump and motor that equalises pressure and keeps well fluid out of the motor
- Downthrust wear — wear on impeller and diffuser faces when the pump runs left of its recommended operating range
- Failure nomenclature — a standard set of codes for failed item, failure descriptor and failure cause used across a field

ESP Run-Life Failure Analysis Day by Day

Day 1: String Components and Failure Modes

- Pump, Intake, Gas Separator and Motor Roles — Where Failures Typically Begin
- Seal Section and Cable Construction — Weak Points Under Heat and Gas
- Pump Curve and Operating Range — Downthrust and Upthrust Exposure
- Run-Life and MTBF Calculations — Comparing Fields and Vendor Populations
- Failure Nomenclature and Coding — Consistent Records Across Wells

Day 2: Sizing, Installation and Start-Up Evidence

- Sizing Data Audit — Was the String Matched to Inflow
- Gas Handling and Free Gas Fraction — Separator or Handler Choice
- Installation and Splice Records — Workmanship as a Failure Cause
- Commissioning and Start-Up Logs — Early-Life Failure Screening
- Variable Speed Drive Settings Review — Frequency and Protection Limits

Day 3: Surface and Downhole Data Diagnosis

- Amp Chart Pattern Reading — Gas Lock, Pump-Off and Overload Signatures
- Intake Pressure and Motor Temperature Trends — Inflow and Cooling Problems
- Insulation Resistance and Phase Balance Tests — Cable and Motor Health
- Vibration and Leakage Current Signals — Mechanical Versus Electrical Faults
- Pull Decision Matrix — Restart, Resize or Replace the String

Day 4: Dismantle Inspection and Root Cause

- Teardown Protocol and Witnessing — Preserving Evidence Before Cleaning
- Stage, Bearing and Shaft Grading — Wear, Erosion and Scale Findings
- Seal Chamber and Motor Oil Examination — Fluid Entry Pathways
- Cable and Penetrator Inspection — Decompression and Burn Damage
- Fault Tree and Five Whys Analysis — Separating Cause From Symptom

Day 5: Practising the ESP Failure Analysis Report

- Combining Surface Trends With Teardown Findings — One Evidence Timeline
- Corrective Actions on Design and Operation — Owners and Deadlines
- Failure Database Entry and Trend Review — Field Run-Life Targets
- Vendor and Operator Review Meeting — Agreeing the Root Cause
- ESP Failure Analysis Report — Completed for a Pulled String

Applying ESP Run-Life Failure Analysis After the Course

- Lead a witnessed dismantle inspection of the next pulled string using the teardown protocol and grading sheet
- Recode the last year of field failures with one failure nomenclature and recalculate run life by well group

ESP Run-Life Failure Analysis Questions FAQ

What is ESP run-life failure analysis and why does it matter now?

It is the practice of proving why an electric submersible pump string failed, using surface data and teardown evidence. It matters now because harsher well conditions and costly workovers make every repeated failure expensive.

Which roles gain most from ESP run-life failure analysis?

Production engineers, artificial lift specialists, well intervention engineers and ESP repair-shop technicians gain most. Field and repair-shop colleagues attending together link operating history with physical evidence.

How does ESP run-life failure analysis differ from a general ESP design course?

It starts where design and operation courses stop: after a string has failed. Instead of selecting and sizing a new system, you investigate a pulled one, grade its components and test root cause hypotheses.

What do you bring back from ESP run-life failure analysis training?

You bring back a completed failure report for a pulled string, a teardown grading method and run-life calculations for your own field.

ESP Run-Life Failure Analysis: The Way Forward

The ESP failure analysis report is the first tool a participant uses after returning, and its first decision is whether the next string in that well keeps the same design or changes pump, seal or operating limits. After its first use, the grading criteria and failure codes deserve a second look against new findings.