

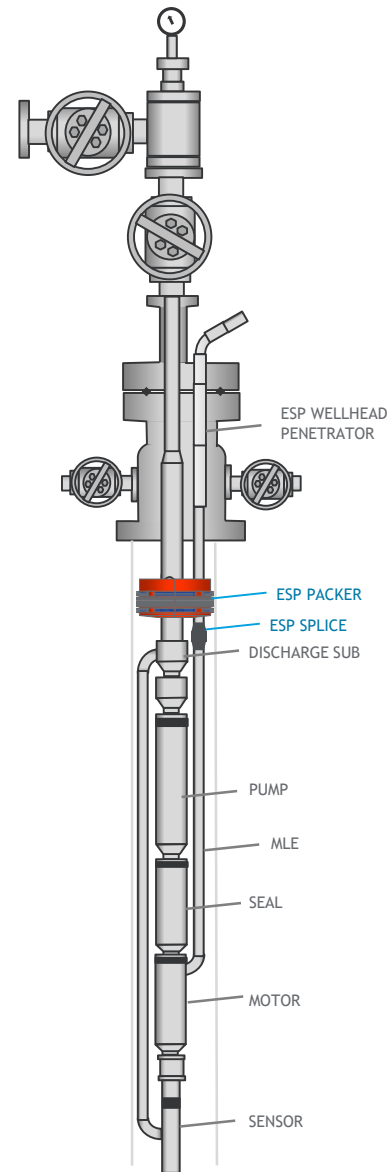


What No MLE Splice Below the Packer?

Retrievable ESP Packer Solves Reoccurring ESP Electrical Failure Issue

Presenter: J. J. Xiao, Saudi Aramco

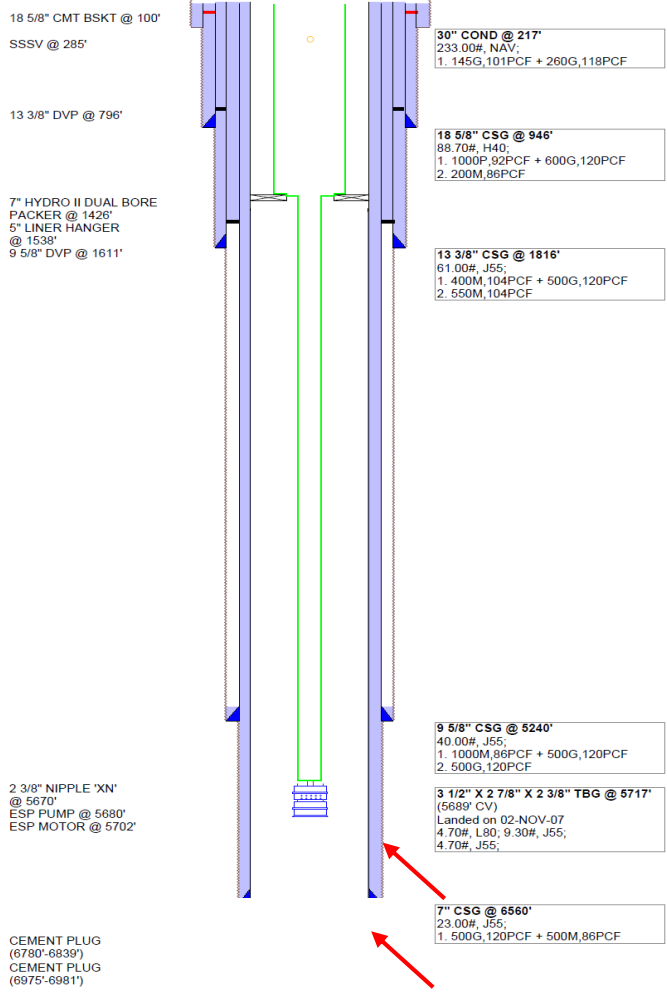
ESP Completion



Standard ESP Completion

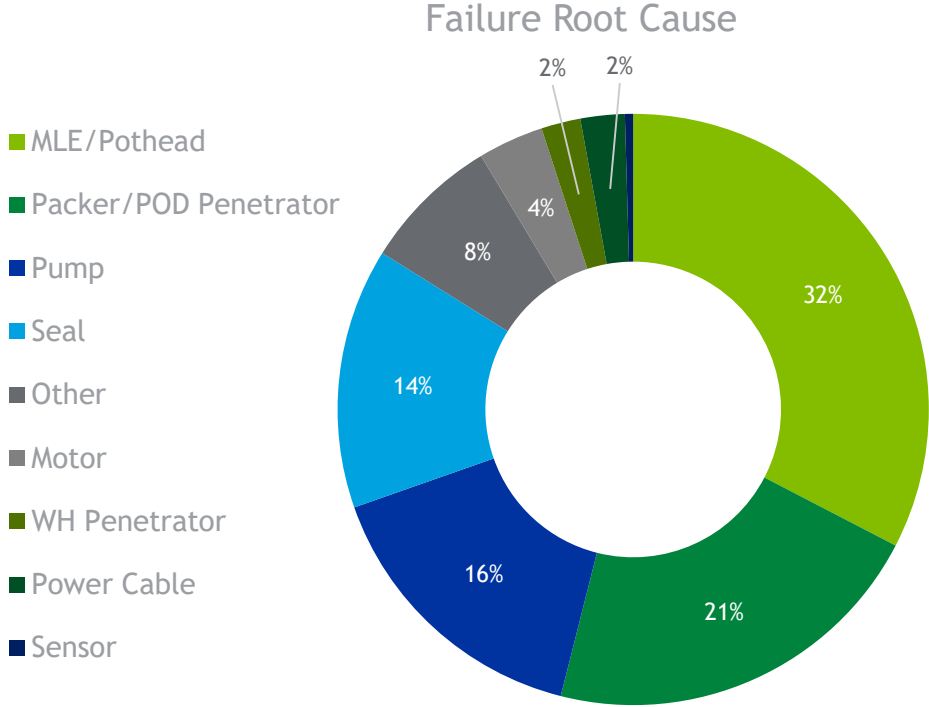
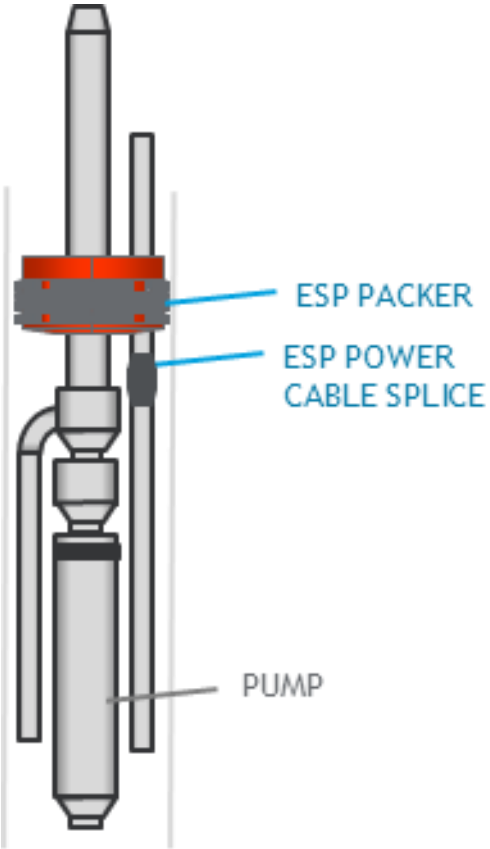
- ESP Wellhead Penetrator
- Discharge Sub
- Pump
- Protector
- MLE
- Motor
- Sensor
- ESP Packer
- ESP Splice

Application



Example - Lined Well

Problem



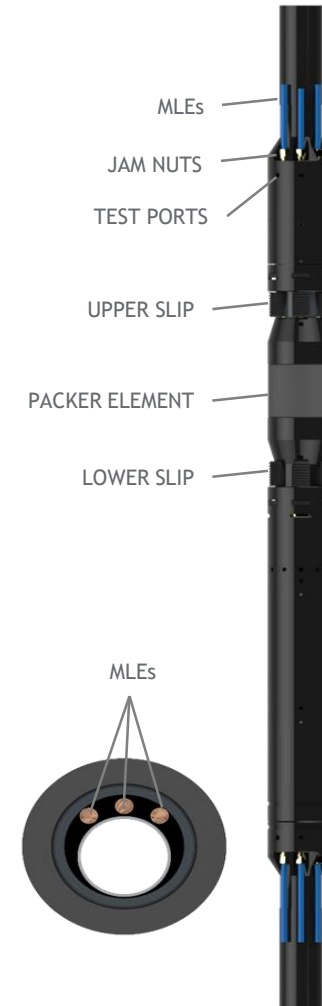
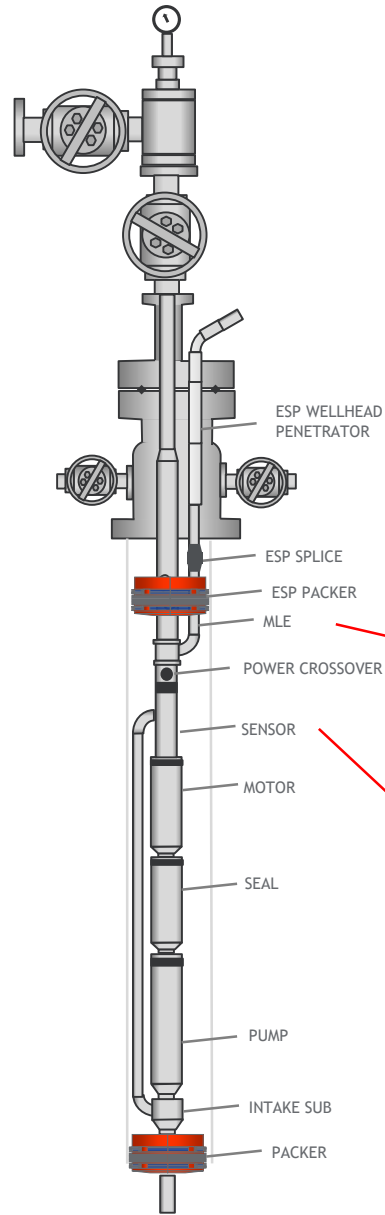
Examples - Failed MLE's



Solution

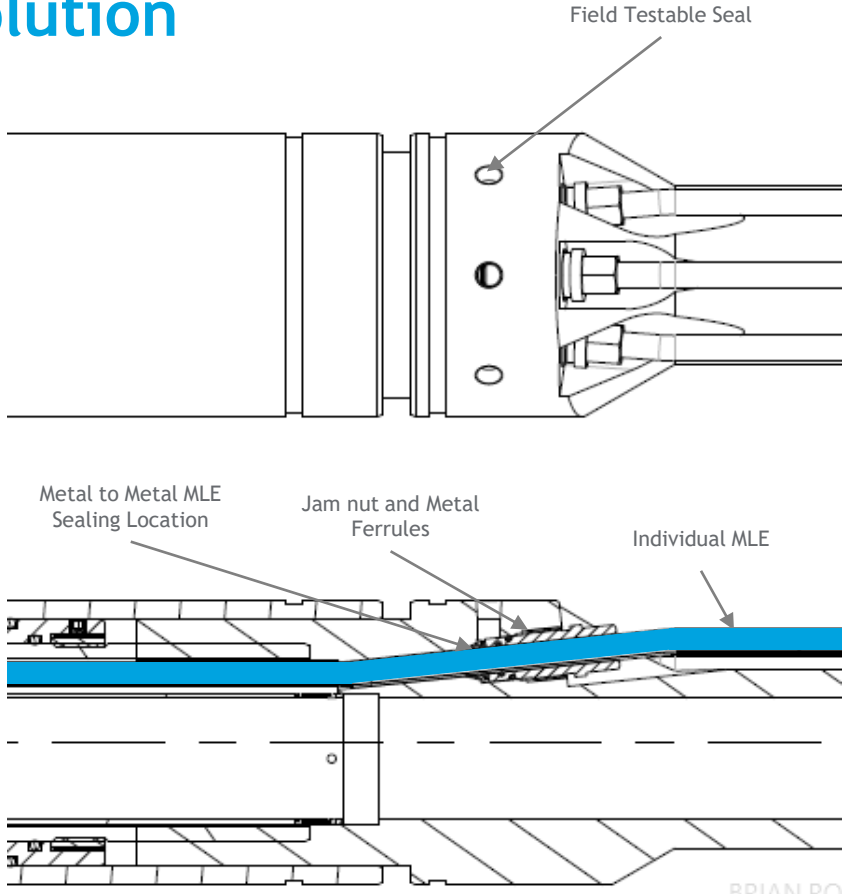
Inverted ESP Completion

- ESP Wellhead Penetrator
- ESP Splice
- ESP Packer
- MLE
- Power Crossover
- Sensor
- Motor
- Protector
- Pump
- Intake Sub
- Packer

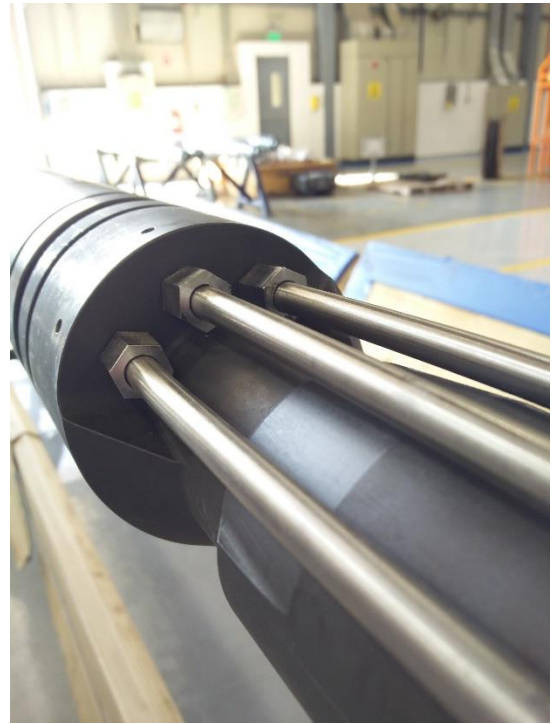


Hyd Set, Ret.
ESP Packer

Solution



Lower Feed-thru
Cross-section



MLE Made Up to Packer



Ferrules
Jam Nut

Recovered ESP Packer



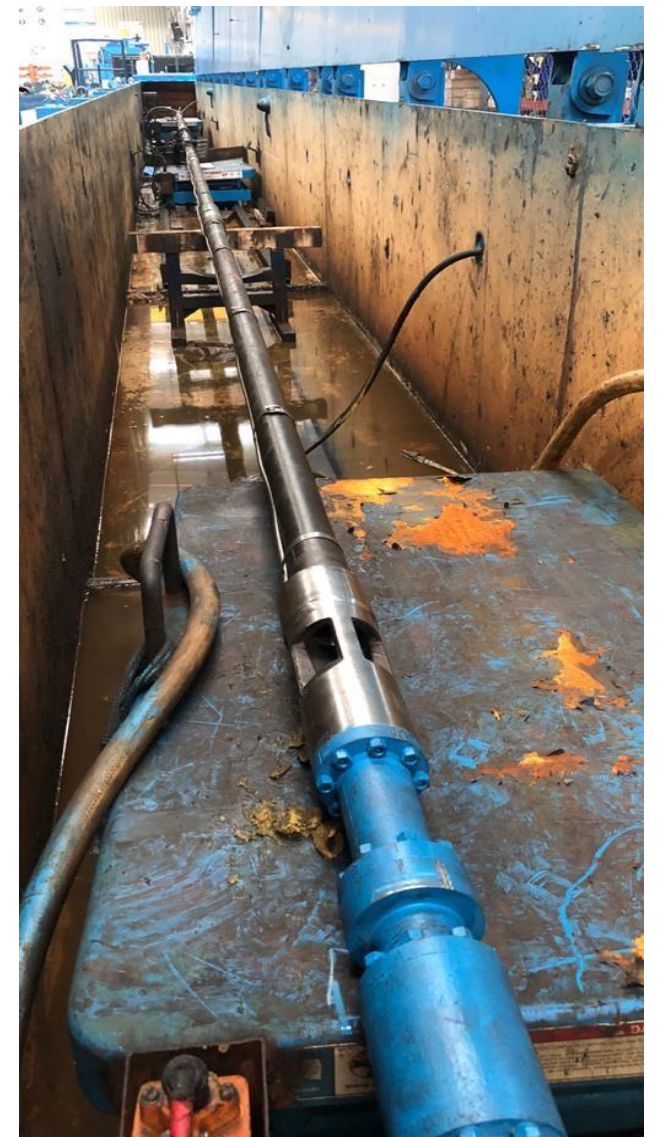
MLE's feedthrough packer



Packer top sub installation



Two subassemblies
splices above packer in back

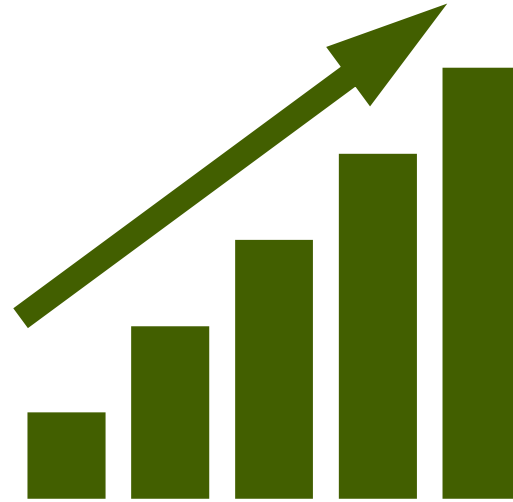


Complete subassembly in test bay

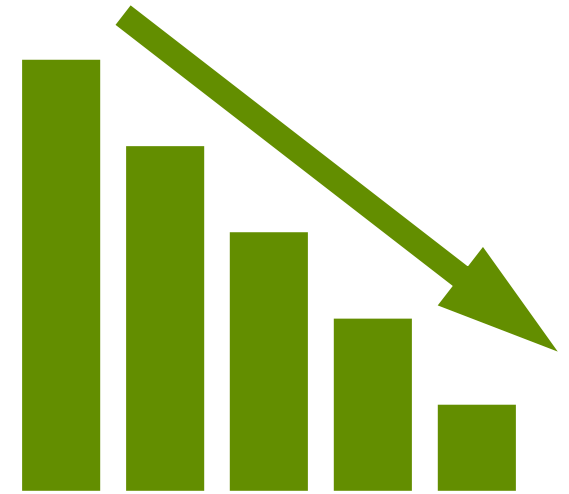
Benefits



Reliability



Quality and Workmanship



Rig Time

Results



Non-Spliced MLE below the Packer

- Three ESP Installations to Date
- Two Operating > 1 year
- One Failed due to ESP Mechanical Failure

Thank You

Questions??