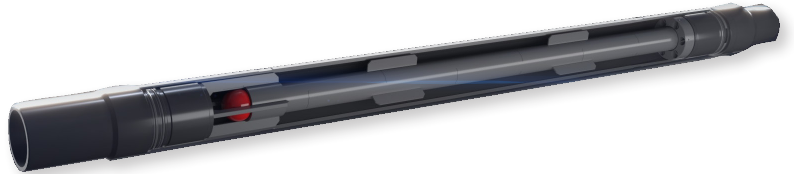


CASE STUDY

Eliminating Sand Fallback in the Permian Basin

SandGuard™



▶ HIDDEN RISK BENEATH THE SURFACE

Electrical Submersible Pumps (ESPs) typically operate more than 8,000 feet below the surface, where conditions are harsh and failure is costly.

One of the most persistent threats? **Sand in the production stream.**

While desanders and mitigation technologies help, they often fall short, especially during **restart events**, when risk is at its highest.

What happens during sand fallback?

When an ESP shuts down (due to power fluctuations, gas slugging, or safety triggers), solids suspended in the fluid column don't disappear. They **settle**.

- Sand accumulates in the tubing above the ESP.
- Multiple joints fill with solids.
- The pump is effectively buried.

When restarted, the system must push through that load, creating a **“hard start”** or worse, a **catastrophic failure**:

- Broken shafts | Electrical overloads
- Reduced efficiency | Shortened run-life

▶ BUSINESS IMPACT

For a major Permian Basin operator, sand fallback was not just a technical issue, it was a **performance and cost problem**:

- Frequent ESP failures
- High non-productive time (NPT)
- Increased workovers
- Significant deferred production

Each failure event carried a substantial financial impact:

- **Workover cost:** ~\$165,000
- **Deferred production loss:** ~\$135,000
- **Total impact per failure:** ~\$300,000

▶ TARGETED INTERVENTION

Multilift Solutions introduced **SandGuard**, designed to directly address sand fallback at its source.

Rather than attempting to manage sand throughout the system, the SandGuard solution:

- » Prevents damaging accumulation at the pump
- » Stabilizes restart conditions
- » Reduces stress on ESP components

Failures Eliminated
+ Increased Uptime

UP TO 18X RUN LIFE

Multilift Solutions partnered with a major Permian Basin operator to directly address **sand fallback**—one of the leading causes of ESP failure and inefficiency.

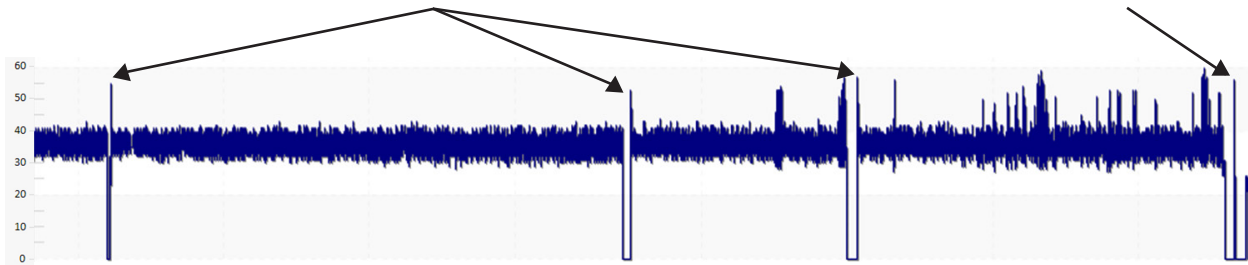
Since implementing **SandGuard**, multiple ESP systems have achieved up to **800% increases in run-life**, **eliminating recurring failures** and **delivering measurable cost savings in the millions.**

ULTIMATE GOAL: Increase ESP Run-Life & Reduce Sand Fallback Failures

BEFORE SANDGUARD

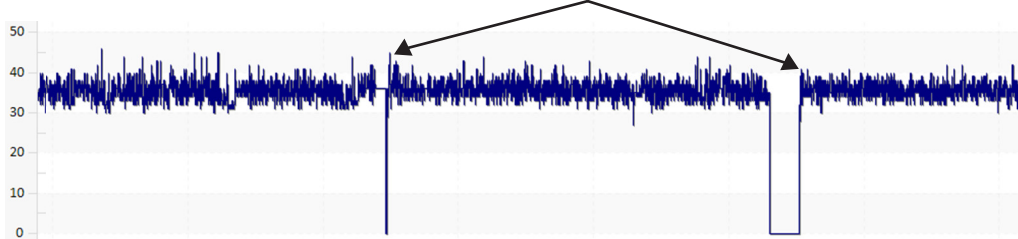
Hard starts - jumped to 55-60 amps on start on 3 restarts.

Hard start leading to failure - broken shaft.



AFTER SANDGUARD

Two starts with amps staying in standard operating range (40 & 45 max amps during restart).



▶ LEAD MEASURES DRIVING CHANGE

Instead of lagging indicators like failure rates alone, the focus shifted to controllable performance behaviors:

- Maintaining **controlled restart at amperage levels**
- Reducing **hard-start events**
- Minimizing **sand loading at pump intake**

ESP SANDGUARD RUN DAYS FIELD RESULTS

Well	BEFORE	AFTER	% Improvement
#1	41	346	+744%
#2	54	712	+1,219%
#3	128	637	+398%
#4	29	559	+1,828%

ECONOMIC IMPACT: \$300K loss avoided per failure event

▶ TRACKING AND SUSTAINING GAINS

The operator tracked progress through simple, visible metrics that created a clear, data-driven view of success, reinforcing adoption and consistency:

- ✓ ESP run life (days)
- ✓ Restart amperage behavior
- ✓ Failure frequency
- ✓ Workover avoidance
- ✓ Regular review of ESP performance data
- ✓ Alignment between field operations & engineering
- ✓ Focus on maintaining conditions that prevent fallback

▶ A PROVEN PATH TO RELIABILITY

By focusing on a critical constraint—**sand fallback during restart**—this operator achieved measurable improvements in both reliability and cost performance.

SandGuard enabled:

- » Longer-lasting ESPs
- » Reduced operational risk
- » Fewer failures
- » Tangible financial returns

RESULT: A practical, repeatable solution delivering **millions in value** while improving system stability and uptime.

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