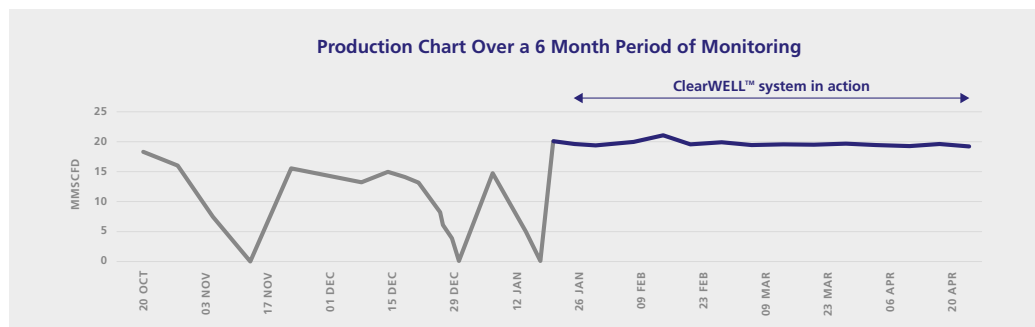


# CASE STUDY

**ClearWELL**  
Oilfield Solutions  
Continuous Scale Control

## CONTINUOUS PRODUCTION REINSTATED AFTER SCALE STOPPED FLOW EVERY 3 WEEKS

**LOCATION:** Pakistan  
**APPLICATION:** Onshore Gas Well  
**DEPTH:** 3,755m (12,320ft)



### BEFORE CLEARWELL

A gas well in Pakistan capable of producing 20 MMSCFD (Million Standard Cubic Feet Per Day) was suffering from severe and rapid carbonate scale deposition on downhole equipment and tubulars. The well was so badly affected that it regularly stopped producing within four weeks as scale blocked the tubing. The operator had been carrying out acid wash interventions every month for approximately twelve months costing >\$500k per annum and was losing >15% of gas production through restriction and downtime.

### AFTER CLEARWELL

The installation of ClearWELL™ technology – shown at the six month point in the graph above – stopped scale deposition and provided 100% flow assurance. Three months after installation the ClearWELL™ unit was offline due to a monsoon and the well scaled rapidly. The well was then acidized and ClearWELL™ re-fitted to provide long term protection with more than two years without any loss of production due to scaling. ClearWELL is currently protecting three wells in Pakistan assuring production, delivering value and reducing intervention.

### QUICK FACTS

- 20 MMSCFD gas well in Pakistan
- Severe carbonate scaling stopped production every 2-4 weeks
- Annual intervention costs to keep the well producing exceeded \$500,000
- ClearWELL™ technology provided continuous scale free production
- Production gain was equivalent to 3 MMSCFD – a new well
- ClearWELL™ technology saved 20 intervention operations, reducing risk and chemical consumption and assuring production



### THE PROCESS

- The ClearWELL unit is connected to production equipment at the surface wellhead – no intervention required, no loss of production.
- The unit transmits a pulsed radio frequency signal down into the wellbore or along flowlines and equipment. The pulsed signal delivers energy to the scaling ions, controlling precipitation, keeping the liquid below saturation and minimising scale growth on production equipment.
- ClearWELL use satellite monitoring to ensure optimum unit performance. Where required personnel perform regular non-intrusive equipment checks.
- ClearWELL systems are low power consumption and supplied as a certified Class 1, Zone 1. The AC signal system is corrosion neutral, no reported gauge signal interference.

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