

## CASE STUDY

**ClearWELL**  
Oilfield Solutions  
Continuous Scale Control

### CLEARWELL DELIVERS OVER \$7MM PER ANNUM IN ADDITIONAL PRODUCTION

**LOCATION:** Duvernay Shale, Alberta, Canada

**APPLICATION:** Unconventional Oil, Artificial Lift

**DEPTH:** 2,400m



#### BEFORE CLEARWELL

Severe matrix scaling was impacting the performance of Electric Submersible Pumps (ESPs) on a field of over fifteen wells in Alberta, Canada. The scaling was also causing an increase in precipitation of wax from the oil. This in turn increased fluid viscosities and therefore the rate of pump failure.

Direct treatment included well intervention to replace the failing ESPs every two months plus monthly or bi-monthly chemical wax batching. This could have resulted in an annual field-wide chemical scale intervention spend of almost \$1MM, with pump failure bringing total costs to around \$5MM/yr.

Further significant costs to the operator were in lost production from progressive scaling and the downtime to perform the interventions.

#### AFTER CLEARWELL

To determine the effectiveness of ClearWELL as a solution to the flow assurance challenges in-field, an initial four ClearWELL units were installed.

The technology was deployed to mitigate the ESP failures that required frequent intervention and replacement and caused substantial production losses.

Following only sixty days, clear benefits were evident. ESP failure was reduced and there was a significant improvement in flow characteristics, with continuous scale deposition control and assured production.

Having demonstrated their value, further ClearWELL units were then added to provide continuous field-wide flow assurance for the operator. Deploying ClearWELL generated an operational saving of >25%. Additional savings from preventing ESP failure are a significant multiple of that and the client is no longer losing associated production. ClearWELL is delivering savings, efficiency and significant value equivalent to \$500k per annum.

#### QUICK FACTS

- 15+ wells
- Scale types:  $\text{CaCO}_3$ ,  $\text{BaSO}_4$  and  $\text{SrSO}_4$
- ESPs replaced every 2-4 months
- Monthly or bi-monthly chemical washes
- Significant non productive time for remediation work
- ClearWELL delivers immediate operational saving of 25%
- Approximately \$1MM per well, per annum in additional production

#### THE PROCESS

- A ClearWELL unit is connected to the surface portion of the production equipment. The installation takes less than 24 hours and no production downtime is required.
- The unit transmits a pulsed radio frequency signal down into the wellbore and along flowlines and equipment. This causes inert scale particles to form within the fluid which are carried out of the well instead of adhering to surfaces.
- ClearWELL personnel perform regular non-intrusive equipment checks, usually on a quarterly basis and can deliver satellite monitoring services to ensure optimum performance.
- ClearWELL systems are low power consumption and supplied as a certified Class 1, Zone 1 Model. The AC signal system is corrosion event neutral.

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