

## Enviro-Syn<sup>®</sup> HCR-7000<sup>®</sup> Treatment Addresses Pump Scaling Increasing Daily Oil Production by 270% and 783%

Southern Alberta, Canada

An E&P company operating in Southern Alberta observed a significant production drop-off on two of their wells. Scaling in the pump was suspected to be the issue. Timing of the project was tight due to rig availability, but analysis of the scale was important in order to recommend the right solution for the scaling issue.

### SOLUTION

Scale samples from both wells were expedited from the field to the Fluid laboratory where solubility testing was performed against a variety of Fluid's scale dissolver portfolio including Enviro-Syn<sup>®</sup> HCR-7000<sup>®</sup> Modified Acid™. The results showed that Enviro-Syn HCR-7000 yielded significantly better solubility on the scale samples and therefore was chosen as the treatment for this application.

Enviro-Syn HCR-7000 provides a safe, effective alternative to conventional strong mineral acids, such as hydrochloric acid (HCl) to greatly reduce hazardous effects, such as fuming and corrosive effects on skin and metals, through unique control of reaction rates while providing many technical and operational benefits.

### Enviro-Syn HCR-7000 Modified Acid Technology

- Outstanding HSE profile
  - Non-corrosive to skin
  - Low fuming
  - Biodegradable
- Ultra-low metal corrosion
- Compatible with typical elastomers
- Methodical, controlled spend rate
- Minimal to no exothermic reaction when mixed with water
- Higher spent pH than strong acids
- Minimal reprecipitation of scale as pH rises

### RESULTS

Enviro-Syn HCR-7000 was deployed via coiled tubing to the affected zones to treat and stimulate the well. Once all perforations had been treated, the coiled tubing was brought to surface and the product was allowed to soak for 24 hours before the well was flowed back.

Production was compared 90-day pre- and post-treatment (Table 1). Well A and B saw an uptick of 270% and 783% in produced oil per day, respectively, for a 4.9-fold total oil production increase between the two wells. This resulted in a less than 3-month payback on the total AFE cost based on the 10 m<sup>3</sup>/day (64 bbl/day) increase in production at \$66/bbl.

Table 1. 90-day average well production pre- and post-treatment.

	Well A 90-Day Average			Well B 90-Day Average		
	Pre-Treatment	Post-Treatment	Delta	Pre-Treatment	Post-Treatment	Delta
Gross Produced Fluid (m <sup>3</sup> /day)	81.9	108.4	+26.5 (+32.4%)	9.8	58.2	+48.4 (+494%)
Gross Produced Oil (m <sup>3</sup> /day)	2.0	7.4	+5.4 (+270%)	0.6	5.3	+4.7 (+783%)
Gross Produced Gas (e <sup>3</sup> m <sup>3</sup> /day)	0.2	0.4	+0.2 (+100%)	0.1	0.1	0 (0%)

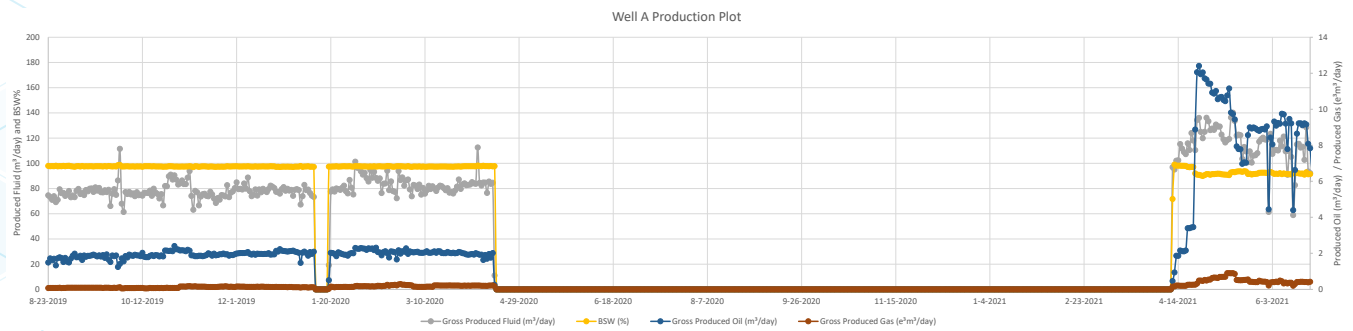


Figure 1. Production plot for Well A pre- and post-treatment with Enviro-Syn HCR-7000.

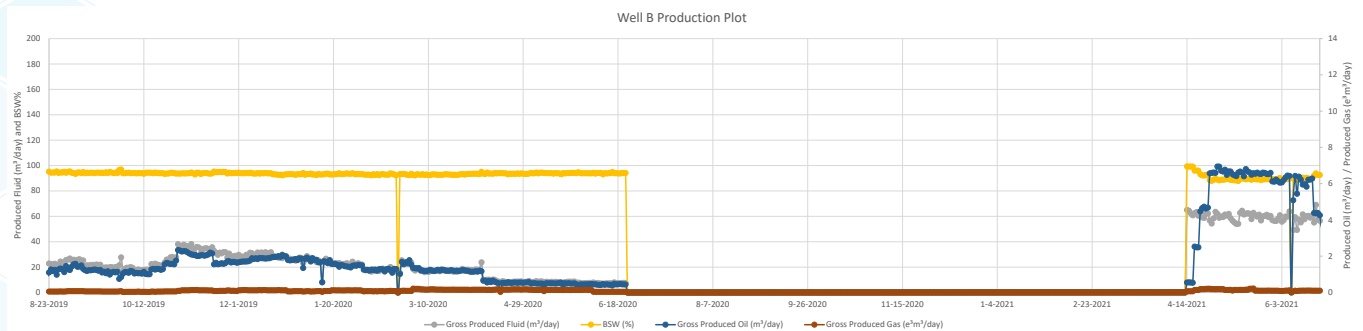


Figure 2. Production plot for Well B pre- and post-treatment with Enviro-Syn HCR-7000.