

Case History: Enhanced Oil Recovery

Challenge

Declining
Production

Solution

**AssurEOR
STIM[®]**
Biosurfactants

155 Days Post-Treatment Highlights



>115%
increase in
oil production



4,500
incremental bbl
of oil produced



< 4
month treatment
cost recovery



>1.5x
return on
investment (ROI)

...plus an **~25%** increase in gas production



Permian Basin

Multi-well pad, with only 1
well treated (unconventional)

Background

A Permian basin operator looking for a cost-effective way to boost production from their unconventional wells turned to Locus Bio-Energy Solutions (Locus BE) and its biosurfactant technologies for enhanced oil recovery.

Locus BE's novel biosurfactants have a proven track record of stimulating production in mature unconventional wells. But to compete with alternative stimulation methods in today's capital-constrained environment, the biosurfactant treatment had to deliver a rapid (3-6 month) payback period and sustained incremental production gains for up to one year.

Treatment

Locus BE's AssurEOR STIM[®] is a non-toxic biosurfactant treatment proven to boost production in declining wells in a broad range of reservoirs. It is engineered to enhance and sustain incremental oil production at a fraction of the dosage rate of traditional surfactants—thus delivering payback and high ROI. In addition, AssurEOR STIM is the first class of environmentally friendly and carbon-neutral biosurfactants to outperform synthetic surfactants—while delivering significant environmental, social, and corporate governance (ESG) advantages.

Process

Technical experts at Locus BE's state-of-the-art Innovation Center in Houston developed a cost-effective AssurEOR STIM treatment plan by thoroughly evaluating the operator's:

- ✔ Field production fluids
- ✔ Production history
- ✔ Well configurations
- ✔ Reservoir parameters

Based on this comprehensive evaluation, the Locus BE team anticipated the AssurEOR STIM treatment to deliver a minimum 35% production increase over the well's natural decline rate.

This expected performance boost is attributed to the multifunctionality of the AssurEOR STIM biosurfactants—specifically, their ability to decrease interfacial tension, lower capillary pressures in tight pores, alter rock wettability, and minimize oil viscosity—all of which help mitigate near-wellbore damage while reducing residual oil saturation in the reservoir.

Following a detailed review of the proposed plan—which included AssurEOR STIM's recommended dosage and application details in the field—the operator and Locus BE team were fully aligned on the biosurfactant technology's technical advantages and financial benefits. The companies moved forward on a one-well pilot in a multi-well lease facility, and the operator committed to a detailed treatment monitoring and performance tracking plan over an extended period.

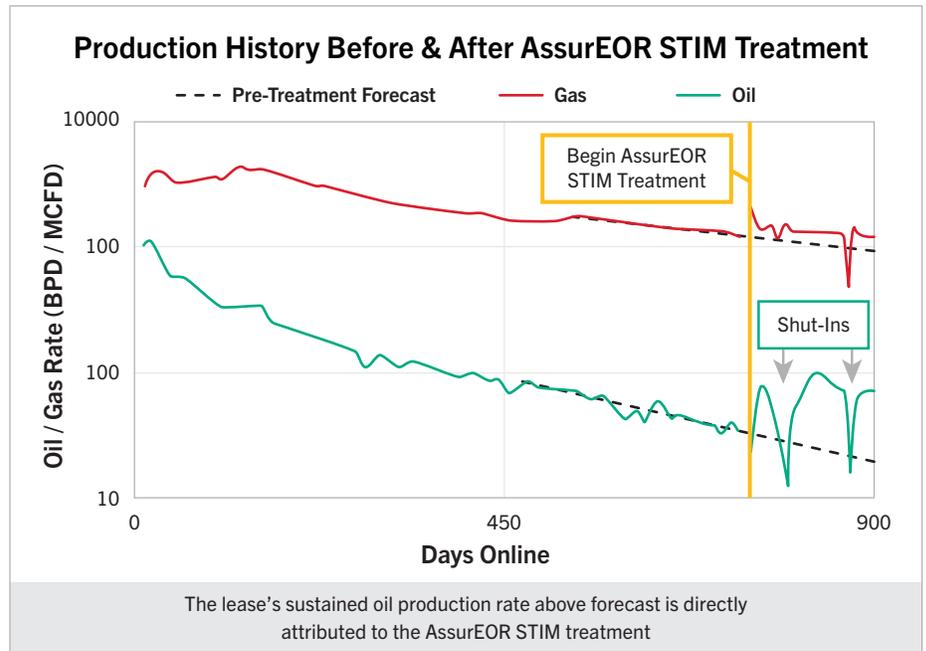
Results

Immediate:

- Immediately following treatment, flowback included large quantities of paraffin and high initial water rates. This suggests that, as anticipated, AssurEOR STIM cleaned up near-wellbore damage and opened up new portions of the fracture network for production.
- After the initial flowback period, the paraffin content dropped, the water rate returned to normal and the oil cut improved.
- The crude oil composition was significantly different after treatment—further supporting AssurEOR STIM's ability to access new reservoir fluids.

Ongoing:

- Production volumes for the entire lease increased significantly, even though AssurEOR STIM was only applied to one well.
- Within six weeks of treatment, the oil production of the entire lease had improved.
- After five months, production increased by over 115% in the treated well, resulting in over 4,500 incremental barrels of oil produced compared to the natural decline forecast of an untreated well.
- The 25 bpd baseline increased to an average of approximately 55 bpd after just a single treatment.
- Treatment costs were recovered within less than four months.
- The operator achieved a greater than 1.5x return on investment (ROI) with the AssurEOR STIM treatment.



The operator concluded that the sustained oil production rate above forecast was directly attributed to AssurEOR STIM's ability to water-wet the reservoir and reduce residual oil saturation.

Next Steps

Based on this initial success, the operator began treating the remaining wells on the pad. Treatments will continue to be optimized for total volume and formulation efficacy.

Summary

The AssurEOR STIM treatment significantly exceeded anticipated results and successfully:

1

More than doubled production in the test well

2

Improved overall production of the entire lease

3

Remediated the well and cleaned up near wellbore damage

4

Improved ESG metrics in the field with a non-toxic, carbon neutral solution

Want to learn how Locus BE can customize your treatment program for maximum production performance, minimal HSE impact and lower operating costs?

Contact Us Today.

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