

Verza360® Enables Increased Profitability in the Off Sale of Oil from an Eagle Ford SWD

Challenge

Off-Spec Oil Bottlenecks Oil Movement and Operation

A Midstream trader operating in South Texas received off-spec oil from an Eagle Ford saltwater disposal (SWD) system containing 4,500 ppm of iron for processing to <50 ppm iron per customer requirements. The trader was achieving marginal performance using incumbent chemistries, heat, and centrifugation. Plus, the incumbent chemical program was highly corrosive, resulting in pump failures within 24 hours of replacement. The trader needed a more effective and safe solution to meet spec, debottleneck off-spec crude oil inventory, and recover the highest value for the oil.

Solution

Verza360® XG05 for Iron-in-Oil Removal

Solugen's iron control and surfactant chemistries were proposed for iron-in-oil removal after field testing. A 90:10 ratio of Verza360® XG05 (Verza) and a cationic surfactant was recommended for trial. Verza is a proprietary carbon-negative, partially neutralized, and biodegradable organic acid (Verza360® XG) blend that is effective at controlling iron-containing scales. Verza360® XG itself is effective at enhancing chelation properties of other carboxylic acids, enabling the chelation power to be more effectual for systems containing iron.

Trial

Applying Verza Treatment to Off-Spec Oil

Prior to treatment, the raw crude oil containing 4,500 ppm iron was pre-conditioned through a high-speed centrifuge to remove bulk sediment and water. This method reduced the iron in oil content to 2,390 ppm. 3,600 ppm of Verza and 400 ppm of surfactant were co-injected into the discharge line to treat approximately 1,000 bbl of off-spec crude oil at 170°F into a 1,000 bbl tank. The tank was circulated for 24 hours then allowed to settle at 100-120°F for 36 hours prior to sampling the top oil to measure iron content post-treatment..



Results and Conclusion

Verza Treatment Enhances Iron-in-Oil Removal and Improves Profitability

4,000 ppm of the Verza-based treatment plus heat and gravitational settling was applied in the field, enabling a 99% reduction of iron in oil (2,390 ppm to 32 ppm) within 24 hours (Figure 1).

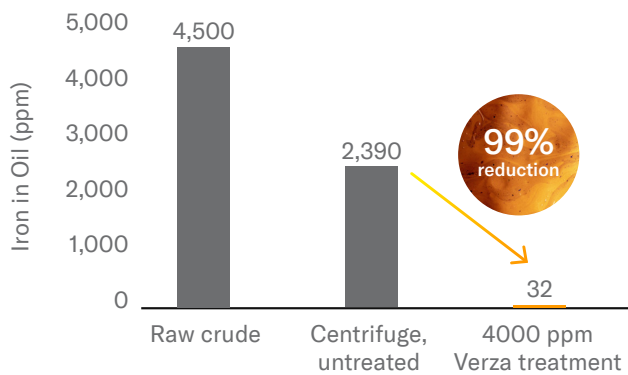


Figure 1
Iron in Oil Concentration Post-Treatment with Verza and Heat



As a result, the trader was able to:

- Meet <50 ppm iron-in-oil spec for sale.
- De-bottleneck stacked inventory of off-spec crude and de-risk curtailment of incoming oil loads (10K-20K bbl/day).
- Minimize crude blending to meet spec.
- Eliminate pump failures, corrosive chemical use, and hazards to operator.
- Improve environmental footprint.

Overall, considering the incumbent program in place, Verza enabled an estimated increase of \$160K in profitability from the sell of Verza-treated oil.

To learn more, visit solugen.com/oilandgas or email us at energysolutions@solugen.com.

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