

HISTORY

An International Energy company with operations in an aging, highly sour, Canadian gas field has scaling issues in their producing wells that require periodic interventions. Sour pipelines utilize iron sulfide (FeS) scale build-up to assist in the control of sour gas corrosion and the integrity of the pipeline. Due to pipeline specs, their only economical means of wellbore scale removal had been mechanical. This involved critical sour operations with a coiled tubing unit and BHA (motor/bit). The operation is both high risk and extremely expensive.

PROPOSAL

Enviro-Syn® HCR-3000 acid was selected as a viable option to chemically remove the scale with the ability to flow back in line. Enviro-Syn® HCR-3000 is a halogen free acid which allows it to react with the Calcium Carbonate (CaCO₃) scale in the wellbore then can be flowed back as a spent fluid not affecting the protective iron sulfide scale layer in the pipeline. It was proposed that Fluids Non-Regulated Enviro-Syn® HCR-3000 be deployed down the tubing with a pressure pumping unit and allowed to soak overnight. The spent fluid would then be flowed back up the tubing and down the pipeline to the facility with no concern of a reaction with the protective layer of FeS scale.

OPERATIONS

Initial laboratory testing was performed to confirm spent HCR-3000 did not react with FeS. After testing was verified and pipeline approval was granted, product was mobilized to location. A pressure pumping unit deployed 3m³ of concentrated product down the tubing and it was allowed to soak overnight. The well was then flowed back in line to the facility.

RESULTS

The well now has stable flow and pressure, not seen in 3 years. Production increased from 42 e³m³/d to 140 e³m³/d (gross) and is currently choked at surface. There were no issues or disruptions reported from the facility post flowback of all spent acid. The operator is extremely pleased with the results due to the major reduction in cost, removal of high risks operations and significant production increase.

VALUE

Reduced HSE Exposure:

- Eliminating mechanical intervention and replace it with chemically engineered solutions.
- Removing personnel and equipment from the operation greatly reduced the risk of mechanical or operational failures.
- Flowing inline via production pipeline to facility removes the need to handle sour flow back fluids.

Reduced Costs

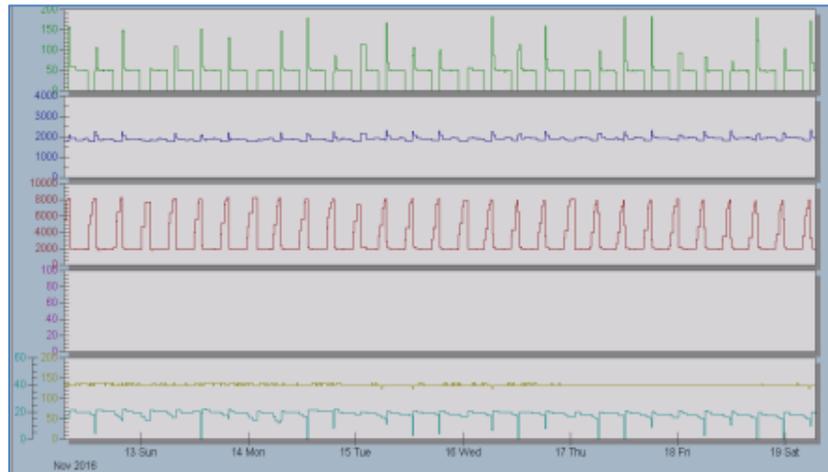
- Overall operation costs were reduced in excess of **“hundreds of thousands of dollars”** per treatment.

Increased Production

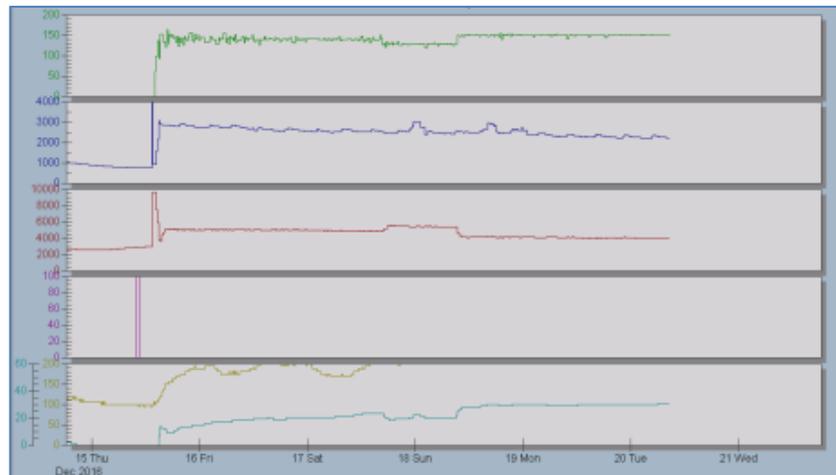
- Aging sour gas field optimization is now viable with quick payouts.



PRODUCTION CHARTS



Pre-Treatment Production



Post-Treatment Production

