

Case study: Haynesville shale, North America

CRONOX FILM PLUS corrosion inhibitor provided 99% protection and extended treatment by 50%

An operator in the Haynesville Shale requested a corrosion inhibitor for use in batch applications on newly drilled high producing gas wells. The customer KPI's required the selected product to provide excellent corrosion protection for a minimum of 45 days per treatment. Therefore, the Baker Hughes technical team conducted compatibility testing, product performance testing, and designed a field trial to evaluate CRONOX FILM PLUS™ T-1 corrosion inhibitor.

The customer agreed to trial the CRONOX FILM PLUS inhibitor on two newly drilled gas wells. The trial consisted of installing two downhole E.R. (electrical resistance) probes and eight downhole corrosion coupons in two different locations. The downhole equipment was installed a week prior to the treatment to gather the uninhibited corrosion rate. After seven days, the wells were treated with the CRONOX FILM PLUS chemical treatment. At day 60, the first probe was removed and data indicated an

uninhibited corrosion rate of 156 MPY. The inhibited corrosion rate was 3 MPY (98% protection) for the entire duration of the probe readings.

After collecting the data, the evaluation team decided to leave the second probe downhole for an additional 30 days (90 days total). After the 90 day period, the downhole probe was removed and the data indicated an uninhibited corrosion rate of 222 MPY. The inhibited corrosion rate was 2.54 MPY (99% protection) for 71 days. The eight corrosion coupons indicated an average corrosion rate of 1.5 MPY.

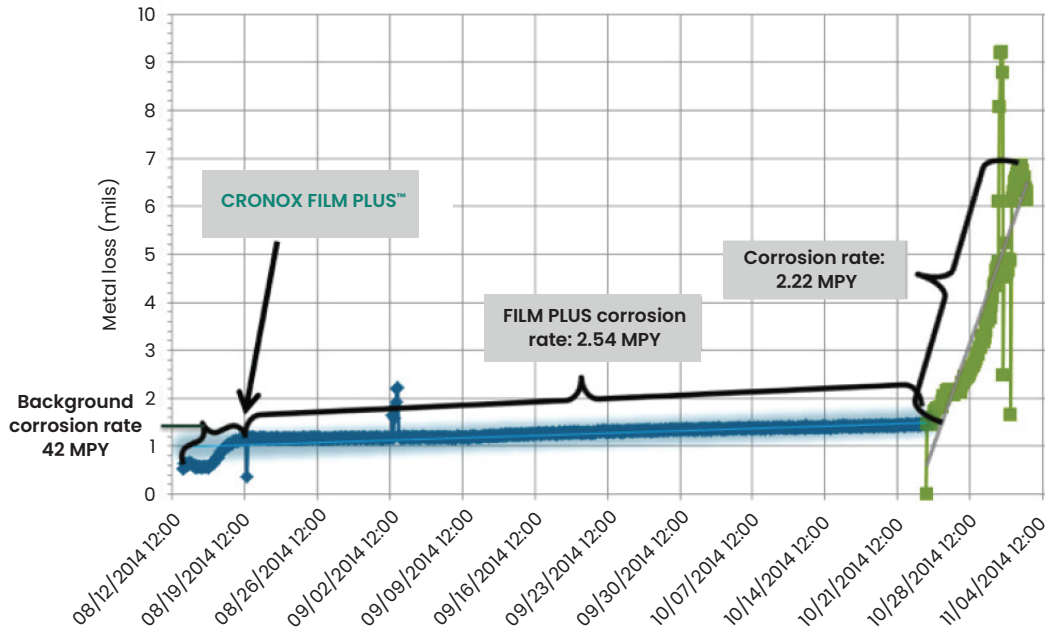
After the trial, the customer decided to utilize CRONOX FILM PLUS T-1 corrosion inhibitor and was able to extend their batch frequency from monthly to bimonthly. The customer was also able to cut deferred production by 50%. In January of 2015, the customer saved 41 MMSCF of natural gas which resulted in a cost savings of \$125,460 USD per month.

Challenges

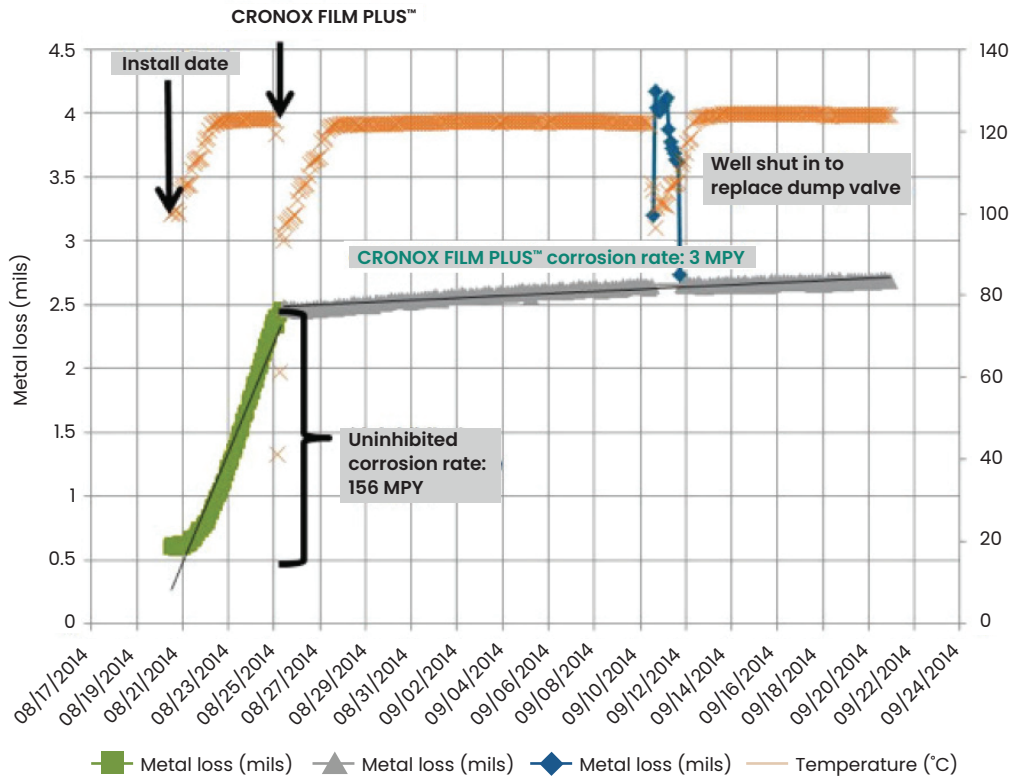
- Provide adequate corrosion protection
- Extend batch frequency to minimum of 45 days per treatment

Results

- Decreased corrosion rates from 222 MPY to 2.54 MPY (99% protection)
- Extended batch frequency – decreased deferred production by 50% (41 MMSCF per month)
- Customer saved \$125,460 USD per month due to decreased deferred production



Real-time downhole E.R. probe data.



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