

Case Study



PetroGel pig maps internal pipeline geography and provides target area for remediation treatment

SITUATION ANALYSIS

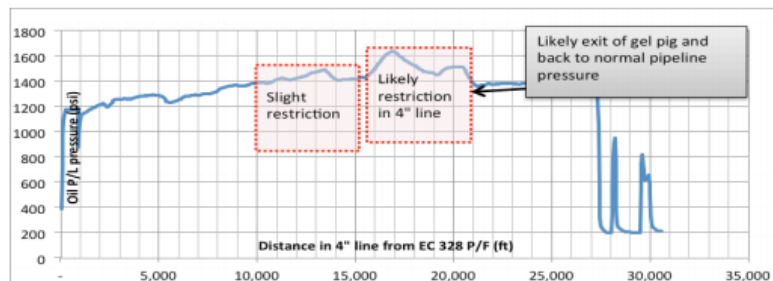
As a result of paraffin deposition, a GoM operator experienced increased differential pressures in a bulk crude sales pipeline. Historical line maintenance followed normal production chemical treatment. Once pipeline differential pressures reached an alarming level, it was proven that conventional chemical treatment recommendations failed to protect the pipeline or mitigate the ongoing issue. In addition to increasing differential pipeline pressure, depositional shearing became a valid concern and threat to total pipeline plug off.

OBJECTIVE

Identify the deposit composition, develop the custom remediation chemistry, locate the obstruction(s), and place the appropriate remediation chemicals in order to alleviate the accumulation of deposits.

SOLUTION

PIC conducted lab testing on the oil and deposit material. Solvent solubility testing provided custom solvent selection and treatment design parameters. To locate the deposition areas of concern, PIC launched a PetroGel surveillance pig in order to model wax deposition severity and critical restriction points. Once identification of the targeted restriction area was confirmed, a solvent pill was deployed to the restricted region and allowed to soak for 2-4 hours. The wax-saturated solvent was then displaced further down the pipeline with fresh solvent by utilizing lease crude as the drive media. Utilizing rate and pressure monitoring for improvements, this process repeated until the solvent system contacted the deposition problem areas.



TREATMENT PROCEDURE

1. PetroGel pill launched and monitored with data acquisition system to locate restricted area.
2. Wax restricted region identified.
3. Launched a chemical pill train of PetroGel and ColdSolve containing a nanosurfactant penetrant.
4. The ColdSolve was allowed to penetrate, disperse and dissolve the deposit in the targeted area.
5. Repeat steps 2 through 4 as needed.

RESULTS

- Decreased the differential pressure by 50%.
- Doubled flow volume at 300 psi below pretreatment pressures.
- Reduced wear and tear on production pipeline pumps.
- Reduced Volume of Solvent utilized.
- Alleviated the concern of total pipeline plug off.
- Alleviated the need for expensive intervention methods such as Coil Tubing.