

CASE STUDY

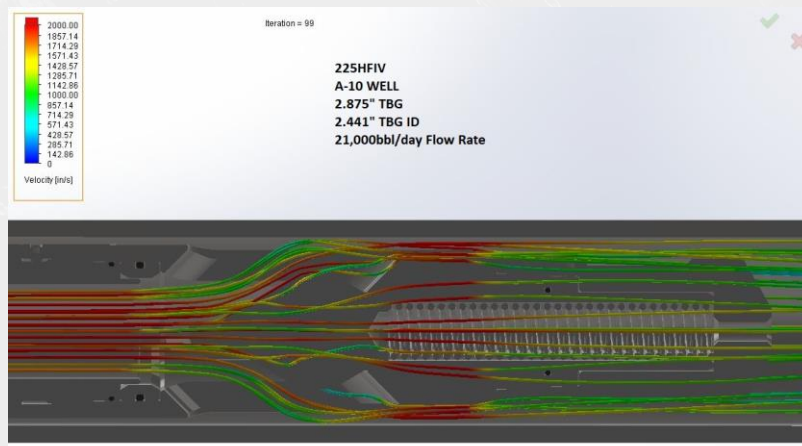
DTI work with Operator to reduce tubing erosion in high flow rate Injector Wells.

PROJECT

A leading international operating company was experiencing premature erosion failure of tubing in numerous injector wells. The operator was injecting at very high rate through poppet style injector valves hung off locks and the flow rate and abrasives in the fluid were causing instances where the tubing was being eroded through.

RESULTS

The client asked DTI to review their challenge and propose a solution. DTI carried out a Computational Fluid Dynamics (CFD) analysis on their wells around the injection valves. Maximum injected flow rates varied from 43,000 bbl/day in 7" completions through to 21,000 bbl/day in 2 7/8" completions giving fluid velocities of up to 168 ft/s.



The CFD analysis carried out by DTI was able to identify areas where changes in flow path resulted in higher fluid velocities and areas of turbulence which not only increase erosion also create a higher pressure drop.

Using this analysis DTI were able to modify the design of the injection valves to suit the specific well architecture.

These design changes resulted in substantial reduction in maximum flow velocity and pressure drop across the tool, by as much as 50%.

FEATURES & BENEFITS

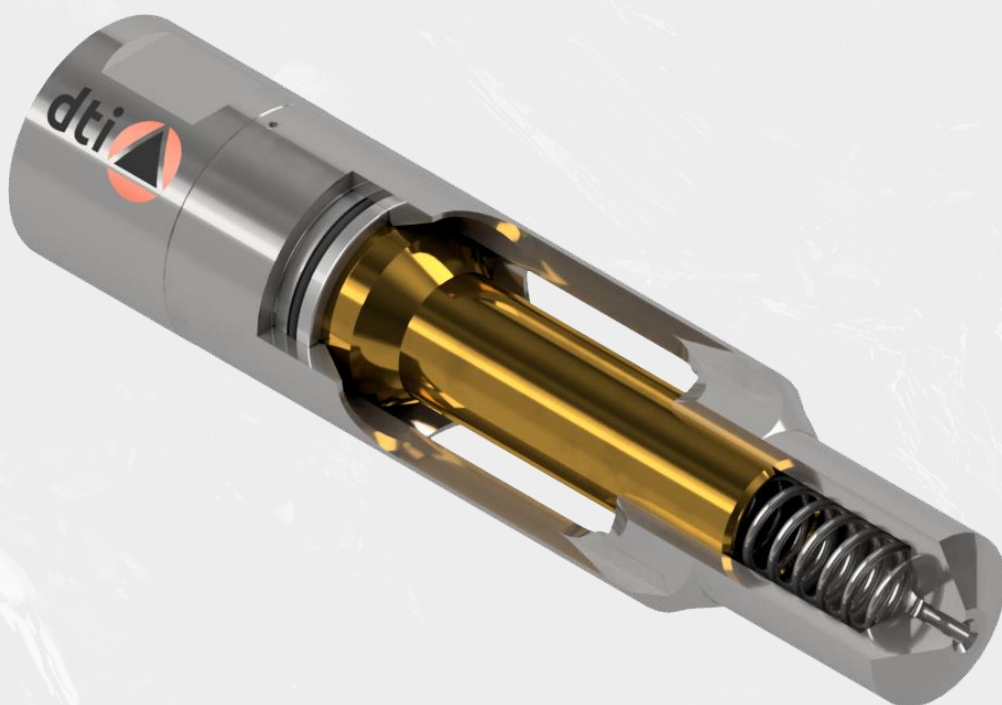
DTI's High Flow Poppet Style Injection Valve is run below a Lock Mandrel or a DTI Bridge Plug to enable fluids to be injected into the well at high flow rates whilst providing a secure well barrier to pressure from below the valve.

A large flow area minimizes the pressure drop across the Injection valve. In addition, abrasion and erosion resistance coatings on internal components greatly increase reliability and service intervals.

DTI HFIV Injection Valves are field tested in demanding applications with significant solids content in the injected fluid and has reduced cost for the operator.

Features & Benefits

- Large flow area minimises pressure drop across the valve.
- High strength material coatings and innovative design reduce flow erosion.
- Increased service intervals reduce operator cost.
- Can be run below Lock Mandrels or the DTI Bridge Plug.



KEY FIGURES & STATS

- Reduction in maximum fluid velocity by up to 50%
- Reduction in pressure drop.
- Increased life of well.
- Increased pumping efficiency.