



POLYFLOW

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Sour Gas Injection Line in East Texas

Background:

The customer wanted to add gas injection lines to an existing gas field to enhance the water removal from the wells utilizing gas lift valves in the well. In order to achieve the lifting requirements 900PSI gas had to be moved to each well to provide 300-400MCF/day of gas for lifting. The gas was sour with approximately 5,000PPM of H₂S.

The customer wanted to tie in three wells with approximately 5,200ft of 2 3/8" Thermoflex that was Fortron lined for H₂S resistance and rated for 1500PSI operating pressure. 2 3/8" was selected for installation because one of the flow lines would also act a trunk line for the other two wells and the customer wanted to be consistent with pipe diameters. The trunk line could move up to 1,200MCF/day. Thermoflex was selected because of its ease of installation and its corrosion resistance.

Installation:

The pipe was laid out in a day and a half by pulling the pipe off the spools and dragging them through the right of way. The abrasion resistant jacket can withstand scratching and gouges without affecting the integrity of the pipe. This allows for the rapid installation of the pipe. See Figure 1.

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Figure 1: Layout of the Pipe in the Trench

The pipe exhibits very little coil set as a result of the Aramid fiber reinforcement wants to force the pipe straight. There was one marshy section where there was standing water and the area could flood. Because the pipe will float in water approximately 20 bags of concrete were placed over the pipe to keep the pipe from floating. See Figure2

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Figure 2: Concrete bags on top of the pipe

The end terminations were weld sty couplings to match up with 3" steel risers. After the welding, the couplings and the risers were coated to protect the raw weld bead. See Figure 3



Figure 3: Coating the Weld

The pipe was backfilled and hydro pressure tested to 2,150PSI and held overnight. The pressure testing procedure requires increasing pressure in steps of 500 PSI and holding the pressure at each step for 10-15 minutes. There was a 30 degree drop overnight at the temperature cooled and it picked up again the next day.

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Results:

The three gas lift lines are operating at 900 PSI flowing sour gas to the well. The rapid installation of two days was significantly faster than 5 days for steel. A cost comparison versus steel was not run for this project but another project just south of this location saw cost savings just over 50% versus steel.