Technical Insights

Innopipe used for natural gas satellite flowline water removal

Existing well and gathering system infrastructure poses several operational challenges, including liquid loading on gas wells, curtailing production. High-capacity upstream liquids removal increases gas production, reduces line back pressure and removes liquids upstream of processing facilities.

A producer needed to optimize natural gas and condensate production in a mature field. The goal was to increase production by installing plunger lifts combined with inline water separation in the gathering system upstream of centralized facilities. A quick install, cost effective, low pressure drop solution was required.

The challenges

The operator had several challenges including:

1. The operator required time-sensitive delivery of gas processing liquid removal solutions
2. High gas and liquid volumes, if approached using conventional separation techniques, would require large, costly separation equipment with very long lead times
3. Retain pigging capability
4. A manway was required on the collection vessel to facilitate contaminant removal
5. Six hours of retention time capacity on the collection vessel was needed to mesh with onsite atmospheric storage handling capacity
6. Remote locations incur high transport costs, so size and weight are important

The solution

Innopipe addressed the problems by:

- Providing a smaller, lower cost, shorter lead time, smaller footprint option
- Using Innopipe's inline separation efficiency for liquid removal and enhanced gas flows
- An above-ground installation built to common pressure vessel and pipeline codes
- Using Innopipe's piggable, multi-stage separation system with accommodation for expected erratic liquid slugging designed with a generous pressure envelope around the 10" line
- Taking care of the gas so the bottom collection vessel can be dedicated to three phase separation of quieted liquids, reducing size and improving separation quality

Other liquid recovery applications Innopipe can provide

- **Protect compressors** from liquid carryover and/or remove lube oil lost downstream of screw compressors.
- **Recover liquids on any high gas flow/low** liquid process with minimal pressure loss.
- **Protect centralized gathering facilities** from slugging, black powder, process tower carry-overs, and compressor lube oil contamination
- **Plant protection from slugs**, with inlet separator relief