USE CASE

Managing slugs at the source: A fast-track fix for a lower-pressure HDPE gas line

This case study focuses on a US operator's low-pressure HDPE gas line which had constant liquid buildup at low spots. These liquids form slugs and put backpressure on these low-pressure wells. Large conventional separators were too costly, and the customer needed a solution in under two months. Innopipe designed a steel piggable unit that fits into the existing HDPE line and is installed underground. It removes liquids before they can collect into slugs, and it was delivered on schedule.

Quick Facts

Industry	Gas processing
Location	Western US
Challenge	Liquids continued to be collected at low spots in a low-pressure HDPE line, creating slugs and backpressure that cut gas flow from the well

Solution	Several piggable Innopipe inline separators were designed to fit into the HDPE line and installed underground (100 psi service)
Timeline	Designed, built and delivered in less than 2 months
Results	Liquids were removed inline before they could build into slugs, with negligible pressure drop and no requirement to use large separator vessels.

Challenge

Low-pressure HDPE lines often carry gas from shallow wells or coal bed methane fields, which produce water and condensate. To save money, operators often leave the liquids in the line instead of removing them at the well site.

This customer's line had constant liquid buildup. Liquid settled at low spots and eventually surged downstream in slugs. The buildup also put backpressure on the wells, reducing gas flow through the pipeline.

The standard fix was large equipment such as conventional separators, filters or coalescers. These are costly, less effective and more expensive to maintain. The solution also had to:

- Avoid adding pressure drop to a low-pressure system, where every psi counts
- Work with plastic (HDPE) pipe
- Be built and delivered in less than two months

Operators needed effective separation without giving up pressure.

The Solution

Innopipe manages slugs by removing liquid along the line, before it can collect at low spots. In flowing gas, liquid travels as a film along the pipe wall. Engineered slots let it exit through the wall of the Innopipe into a collection vessel, while gas keeps flowing with negligible pressure drop and pigs still pass through.

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It was quickly determined that designing and welding an all-HDPE version would take too long. Instead, the team used steel pipe and fittings it already had on hand.

Innopipe is designed and built to pipeline code or pressure vessel code. That flexibility, combined with the in-house design, kept the project within the customer's tight schedule.

Results

The Innopipe solution delivered measurable benefits, including:

- **Slugs managed at the source**: liquids were removed inline before they can build up at low spots and surge downstream
- **Less backpressure on wells:** clearing the line removed the liquid restriction that was reducing gas flow
- **Negligible pressure drop:** gas flowed through essentially unrestricted, which is critical in a low-pressure system
- **Pigging capacity preserved**: the piggable design fit the existing line, so normal pigging continues.
- **No large vessels**: the operator avoided costly conventional separators, filters and coalescers, and the higher maintenance that comes with them
- **Delivered on schedule**: the units were designed, built and delivered in less than two months

Key Outcome

Innopipe removed liquid before it could become a slug, without adding a pressure drop or using large vessels. When a low-pressure line needed a fast fix for constant liquid buildup, Innopipe delivered a custom piggable solution in under two months.