

Case Study

Major European Transmission System Operator Rolls Out LineVu



SECTOR:

Gas Transmission

MEDIUM:

Natural Gas

CUSTOMER:

Withheld



A Transmission System Operator (TSO) responsible for a European National Transmission System (NTS) has, over the past five years, deployed LineVu systems on both temporary and permanent bases at key gas hubs and custody transfer points to better understand the presence of liquid carryover in its incoming gas supply.

The results were clear: hydrocarbon dewpoint (HCDP) does not respond to liquid events, so it is not fit for purpose. Based on these findings, they have standardised the use of LineVu systems across its transmission network, making it an essential tool for monitoring gas quality, protecting compressors and infrastructure, improving compliance with regulations and ensuring supplier accountability.

THE CHALLENGE

They found that, on occasion, liquids were entering their network without tripping alarms. This breaches supply agreements and results in high operational costs, due to higher pressure drop, increased pigging and servicing of compressors and instrumentation. Measurements for both moisture and hydrocarbons, conducted in accordance with BS EN ISO 10715:2022 for gas sampling, were performed with frequent calibrations, but indicated that the gas was dry. The company was looking to improve its compliance with both the Gas Safety (Management) Regulations (GSMR) and ASME B31.8S for the Management of System Integrity of Gas Pipelines.

THE SOLUTION

After 3 years of testing, they are now deploying LineVu high-resolution process cameras at all their custody transfer points. Certified for hazardous areas (ATEX Zone 1 and Class 1 Div 1), the cameras deliver continuous, real-time footage of the gas stream, both locally for control room operators and via the online dashboard, allowing managers and remote engineers to see mist flow and liquid flows at the bottom of the pipe that conventional analysers miss. Smart alarms were developed that alert operators when abnormal conditions appear, enabling swift, targeted interventions.

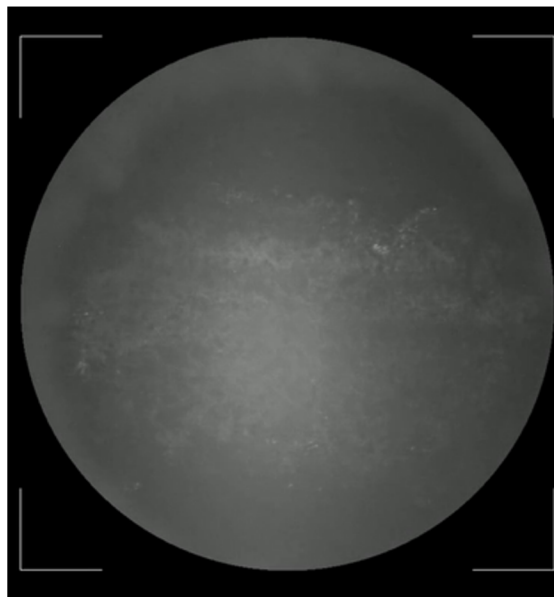
MORE INFORMATION

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LineVu mounted on a pipeline and the view from the camera showing the pipe floor with dry gas

IMPROVEMENTS

It has become clear that, during the onset and throughout liquid events, HCDP does not shift from a low to a high dewpoint; surprisingly, it remains unchanged. This raises the question of why?

Process Vision has investigated this phenomenon with installations worldwide and concluded that the gas flow and liquid are not necessarily in equilibrium when gas is flowing in a pipeline. The evidence shows that HCDP alone is not a sufficiently reliable method of assessing gas dryness. Although it has been used for many years, it can mislead process engineers into believing the gas is dry when it is not. With indisputable video evidence, operators can make better decisions to maintain a dry transmission system from inlet to outlet.

With this improved understanding, the TSO expects significant safety improvements from this approach. In the short term, reductions in pigging frequency, compression costs, and erosion and corrosion of valves and regulators are anticipated. Further cost reductions are expected in the long term with fewer compressor trips, reduced servicing requirements, and extended asset life.

By adding LineVu to its suite of gas analysers at custody transfer points, the TSO has closed a critical blind spot and gained a far clearer understanding of pipeline conditions.

BUSINESS CASE

The use of these automated liquid detection systems helps the TSO ensure that the gas entering the NTS is free from liquid contaminants, and forms part of the Safety & Compliance innovation strategy objective.

With each contamination event estimated at least £50,000 there is a rapid ROI. There are also benefits for suppliers to the NTS. Even a small liquid volume fraction (0.1%) can boost NGL revenue by over £4m annually. For TSOs, catching liquids early prevents compressor trips (often around £450,000 each), reduces pigging costs (up to £26,000/mile), and extends compressor dry-gas seal life from around 1 year to 3+.

LineVu offers a low barrier to adoption and a high return on investment—turning invisible risks into visible opportunities. The TSO has standardised the use of LineVu systems across the National Transmission Network. This ensures consistent monitoring, transparent supplier accountability, and proactive protection of downstream assets.