National Engineering Laboratory

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Wet Gas Flow Measurement Test Facility

Introduction

Applications of wet-gas metering have increased in recent years, particularly in allocation, monitoring of production, and in the move towards fiscal metering for newly developed marginal and large gas fields. TÜV SÜD National Engineering Laboratory's Wet Gas Flow Measurement Test Facility is designed to simulate gas flows with small quantities of liquids present, such as those found in gas/condensate and very high GOR fields.

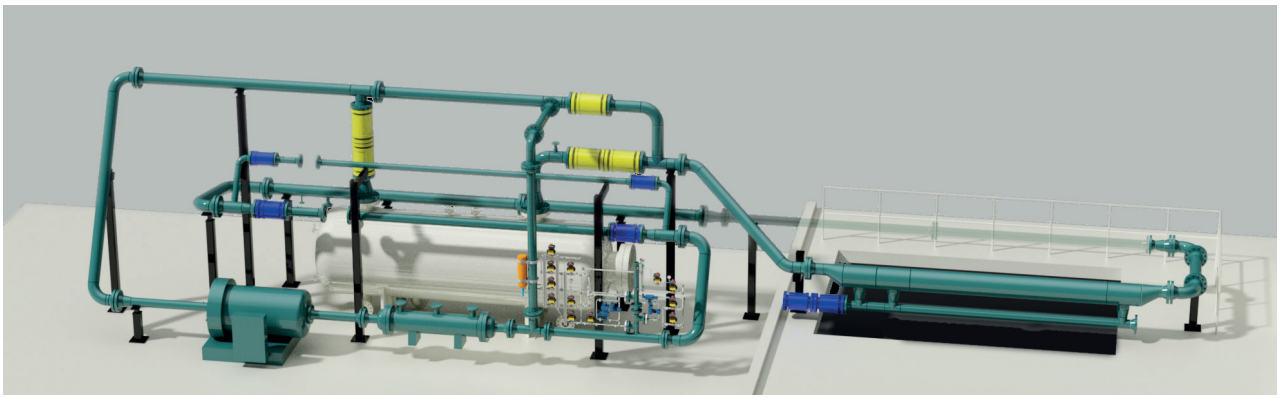
The wet-gas flow measurement facility has been fundamental in developing knowledge and capability that has allowed industry to produce and measure natural gas along with its associated liquid hydrocarbon content from marginal reserves in remote and inhospitable environments.

The Facility

The facility is built around a high pressure gas/liquid/liquid separator, which stores the working fluids. Each phase is pumped and metered separately prior to mixing. The test section can be configured flexibly to suit the equipment under test. The facility is completely enclosed alongside our primary flow testing facilities, providing a comfortable and safe working environment. Traceable to national measurement standards, the facility provides equipment vendors and operators access to an independent laboratory for development, calibration and validation purposes.

Testing Services

- Detailed wet gas meter evaluation
- Wet gas meter FATs
- High GVF multiphase meter evaluations
- Wet gas Venturi characterisation
- Two-and three-phase effects on dry gas meters
- Compact separator performance evaluation
- Wet gas sampling system testing
- Liquid detection monitor testing
- UKAS accredited testing laboratory (No 0432)



Wet Gas Flow Measurement Test Facility Specification

Fluids / Flow Rates	
Gas (Nitrogen)	20 – 2000 m^3 per hour
Liquid (Kerosene)	0.2 - 90 m^3 per hour
Liquid (water)	0.2 - 90 m^3 per hour
Uncertainty	Gas flow ± 0.3 to ± 0.35% Liquid flow ± 0.2 to ± 0.5%
Operation Conditions	
Line Pressure	10 to 63 bar gauge (913 psi)
Line temperature	20 ± 0.3°C
Line sizes	2" to 12" (typical range)
Horizontal line length	12m
Reference Instrumentation	
Gas	4" and 6" ultrasonic meters
Liquid (kerosene)	½", 1 ½" and 3" Coriolis meters
Liquid (water)	½", 1 ½" and 3" Coriolis meters
Test Section Instrumentation	
Temperature, pressure, DP	Density measurement
High-speed DP/pressure	Viscosity measurement
Subsea visualisation camera	Temperature bath for PRT calibrations
Gamma densitometer	

Why Choose TÜV SÜD National Engineering Laboratory?

TÜV SÜD National Engineering Laboratory is a world class provider of technical consulting, research, measurement, and testing services to clients across many industries including oil & gas, water, power & energy, and government.

TÜV SÜD National Engineering Laboratory is the UK's National Measurement Institute responsible for the management of the UK National Standard for Flow Measurement.

Related Services

TÜV SÜD National Engineering Laboratory provide the following related services:

- Flow meter selection
- Uncertainty analysis
- Auditing
- Allocation
- CFD

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