TechnipFMC



# Case study

## A remote approach to flow calibration witness testing

## In brief:
## A remote approach to flow calibration witness testing

### Challenge

TechnipFMC and its partners were unable to participate in an on-site witness test because of lockdown measures during the COVID-19 pandemic

### Solution

A remotely assisted flow calibration witness test for all participants by receiving a live visual and audio feed directly from the flow lab.

### Result

A collaborative pilot of an online witness test that came to fruition in less than seven days, allowing us to keep our promise to our customer

# Building trust and collaboration with our clients and partners in challenging times

### The COVID-19 pandemic has created unprecedented conditions in our industry, challenging TechnipFMC and its partners to collaborate in innovate ways

TechnipFMC and its customers were preparing a flow calibration witness test for a 4” MPU™ Series gas ultrasonic flowmeter intended to operate on a FPSO in the Knarr Field in the Norwegian North Sea. As an industry standard, witness tests require the customer travel to a flow lab to witness the flow calibration in person to view the live operation of the meter, the assembly of the metering run and other data in a transparent way.

### The team

**Shell:** Knarr Field operator (witness)

**Altera:** Owner of flow meter and FPSO as the “Lease and operating” company on the Knarr field on behalf of Shell (witness)

**FORCE Technology –** Flow calibration facility

**TechnipFMC –** Meter supplier and flow measurement specialists

### In demanding situations, a critical need exists to innovate and drive new ways of thinking to ensure customer success

At TechnipFMC, employee safety is paramount. We also want to make sure our customers can continue their operations in a safe and responsible way. To accomplish both goals in this challenging environment, we developed a plan of collaboration and innovation to ensure our customer’s success.

Our team proposed a remotely assisted flow calibration witness test for all participants. The plan would allow our witnesses, Shell and Altera Infrastructure, to participate in the witness test online by viewing the live operation of the meter via the MPU™ user interface and receiving a live visual and audio feed directly from the FORCE Technology flow lab.

After informing the Norwegian Petroleum Directorate (NPD), all parties agreed to the proposal, and TechnipFMC and FORCE Technology began to collaborate on technical preparations. The team at our production plant in Ellerbek, Germany, shipped the meter and a set of HMT RealWear glasses to FORCE Technology in Denmark. The Ellerbek Aftermarket team and the specialists at FORCE Technology immediately began working together to install the software and achieve connectivity. By utilizing a headset from RealWear and Librestream On-Sight collaboration software TechnipFMC can offer remote SME (Subject Matter Expert) support.

### In times of unpredictability, we must challenge existing practices to push the industry forward

During the online witness test, the parties were connected remotely via video conference. All were given a real-time view of the live operation of the meter via the MPU™ user Interface as well as a live feed of the installation at the test lab courtesy of a combination of Librestream On-Sight collaboration software and HMT RealWear glasses, a hands-free headset operated by voice commands.

The result: A successful, collaborative pilot of an online witness test that came to fruition in less than seven days, allowing us to keep our promise to our customer. TechnipFMC will improve and expand this pilot experience in order to deliver the same level of exceptional service that customers would receive in person.

### The benefits were many:

- Cost and time savings
- Faster turnaround
- Access to real-time data
- Direct link to experts
- Complete transparency
- Digital innovations
- Access to recordings for historical records
- Full documentation and certificates

# The timeline

**Wednesday, March 11:**
Denmark declares lockdown of country due to COVID-19

**Thursday, March 12:**
FORCE Technology advises TechnipFMC they can no longer allow in-person witness testing or onsite support in the flow lab due to government regulations. TechnipFMC responds by proposing an innovative remote approach to witness testing to avoid operational delays to our customer. FORCE Technology agrees.

Meanwhile, TechnipFMC contacts customer Altera Infrastructure to propose the remote operation to deliver full results on time as promised. Altera agrees to collaborate remotely and obtains approval from end customer Shell and informs the Norwegian Petroleum Directorate NPD.

**Friday, March 13:**
TechnipFMC Aftermarket Team and FORCE Technology begin collaborating on the technical aspects of the remote flow calibration witness test.

**Monday, March 16:**
The 4” MPU™ Series gas ultrasonic flowmeter and HMT RealWear glasses are packed and shipped from the TechnipFMC production plant in Ellerbek, Germany, to FORCE Technology in Denmark.

**Tuesday, March 17:**
TechnipFMC Aftermarket Team and FORCE Technology work together to develop connectivity for the remote operation.

**Wednesday, March 18:**
Remote operations are ready and all parties agree to proceed with the flow calibration witness test.

**Thursday, March 19:**
The remote flow calibration is performed on the day originally scheduled and witnessed by colleagues from TechnipFMC, Altera Infrastructure and Shell. The collaborative operation is a complete success and our promise to our client is fulfilled.



# About the team

## About Shell

Active in Norway for more than 100 years, A/S Norske Shell is an active operator and partner on the Norwegian Continental Shelf.

Operated assets are Ormen Lange and Knarr, Technical service provider for Nyhamna processing facility at Aukra. Troll is A/Norske Shell’s biggest non-operated asset.

In addition, Shell is actively seeking opportunities in more and cleaner energy solutions, and is an active partner in new energies and CCS-projects in Norway.

## About FORCE Technology

FORCE Technology provides calibration of gas flow meters with natural gas and air as medium at facilities located in Vejen, Denmark.

The facilities include the world's largest closed loop for high-pressure calibration of gas meters, an air calibration loop and a MEGA loop under construction.

The facility is working at primary level, and generating traceability by developing the European natural gas cubic meter (EuReGa).

## About Altera Infrastructure

Altera Infrastructure is a leading global energy infrastructure services group primarily focused on the ownership and operation of critical infrastructure assets in offshore oil regions of the North Sea, Brazil and the East Coast of Canada.

Altera Infrastructure has over 2000 employees, consolidated assets of approximately $5 billion, comprised of more than 50 offshore assets, including FPSOs, shuttle tankers, towing vessels and a unit for maintenance and safety. Remote witnessing of the gas meter calibration is fully in line with the Altera digitalization strategy and the company effort to remotely work with our operations and vendors globally.

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