

CanePT™ Optical P/T Gauges Operate Continuously in 7 HPHT, Deepwater Wells With Zero Failures To Date

Objectives

- Install in-well sensors in seven high-pressure, high-temperature (HPHT) wells in the Gudrun Field. Because of HPHT conditions, operators in the Gudrun Field mandate strict operating requirements for all in-well components.
- Enable long-term monitoring of reservoir pressure and temperature without sustaining damage to the sensors.

Our Approach

- Weatherford recommended the CanePT optical pressure and temperature (P/T) gauge, part of the OmniWell® permanent reservoir monitoring system, because of its tolerance for temperatures in excess of 446°F (230°C) and pressures in excess of 20,000 psi (137.9 MPa). Using more durable optical gauges eliminates in-well electrical components that are susceptible to failure over time in HPHT conditions. Additionally, Weatherford selected the CanePT optical P/T gauge because it can deliver reservoir data continuously and in real time.
- Weatherford ran the sensors downhole on the nLINK™ optical fiber, which was clamped to the 5 1/2-in. tubing.
- Across all seven wells, the sensors set at depths between 13,451 and 18,701 ft (4,100 and 5,700 m) measured depth (MD). In each well, maximum temperature at the setting depth was approximately 275°F (135°C) and maximum pressure was approximately 11,313 psi (78 MPa).
- The team equipped all surface wellheads with ATEX-approved and API 16FB-qualified optical outlets—tested to 15,000 psi (103.4 MPa)—that transmit data from the optical in-well fiber to the surface cable. Then the surface cable transmits data to the nFORM™ data-acquisition unit for analysis.

Value to Client

- Since the installation in 2014–2015, the OmniWell system has enabled the client to monitor reservoir pressure and temperature continuously and in real time. This consistent stream of data will help to optimize production and to maintain well integrity over the life of each well.
- The CanePT sensors have been operating in harsh, HPHT conditions with zero failures to date. This demonstrates the reliability of the OmniWell system and gives the client confidence that the sensors will continue to operate as planned for the long term.



Part of the OmniWell reservoir monitoring system, the reliable CanePT optical P/T gauge has monitored reservoir conditions in seven HPHT North Sea wells continuously and in real time with zero failures to date.

CLIENT
Statoil

LOCATION
North Sea

FIELD
Gudrun

WELL TYPE
Offshore, oil and condensate, producer

NUMBER OF WELLS
7

TUBING AND CASING SIZES
5-1/2 in., 9-5/8 in.

MAXIMUM TEMPERATURE
275°F (135°C)

MAXIMUM PRESSURE
11,313 psi (78 MPa)

SETTING DEPTH
13,451 to 18,701 ft (4,100 to 5,700 m) MD

PRODUCTS/SERVICES
OmniWell subsea permanent reservoir monitoring system with the CanePT optical P/T gauge



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