ForeSite® Sense Reservoir Monitoring Eliminates Failures in 7 HPHT, Deepwater Wells, Provides 6 Years' Reliable Service and Counting

Objectives

- Install sensors in seven high-pressure, high-temperature (HPHT) wells within Gudrun Field and comply with its strict operating requirements for all in-well components.
- Enable reliable, long-term monitoring within HPHT wells sustaining temperatures and pressures up to 275°F (135°C) and 11,313 psi (78 MPa).

Our Approach

- After a thorough pre-job analysis, a Weatherford team recommended ForeSite Sense reservoir-monitoring solutions. This included ForeSite Sense optical pressure and temperature (P/T) sensors, which deliver realtime reservoir data and tolerate temperatures in excess of 446°F (230°C) and pressures in excess of 20,000 psi (137.9 MPa). The optical sensors eliminated the in-well electrical components, which are susceptible to failure over time in HPHT conditions.
- The Weatherford team ran the sensors downhole on the ForeSite Sense optical cable, which was clamped to the 5-1/2-in. tubing. The sensors were set at depths between 13,451 and 18,701 ft (4,100 and 5,700 m) measured depth (MD) across all seven wells.
- The team equipped all surface wellheads with ATEX-approved and API 16FB-qualified optical outlets—tested to 15,000 psi (103.4 MPa)— which transmit data from the optical in-well fiber to the surface cable. The surface cable then transmits data to the ForeSite Sense data-acquisition unit for analysis.

Value to Customer

- Since installation in 2014–2015, the ForeSite Sense reservoir-monitoring system has enabled the operator to monitor reservoir pressure and temperature continuously in real-time. This consistent stream of data helps optimize production and maintain well integrity over the life of each well.
- The optical sensors have been fully operational in the harsh, HPHT conditions with zero failures to date.



Part of the ForeSite Sense reservoir-monitoring solution, ForeSite Sense optical sensors have provided continuous monitoring of all reservoir conditions in seven HPHT North-Sea wells with zero failures to date.

LOCATION North Sea

FIELD Gudrun

WELL TYPE Offshore, oil and condensate producer

NUMBER OF WELLS

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

MAXMIMUM 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

ForeSite Sense reservoir monitoring ForeSite Sense optical sensors ForeSite Sense optical cable ForeSite Sense data-acquisition unit



© 2016-2020 Weatherford. All rights reserved. 12397.01

Weatherford products and services are subject to the Company's standard terms and conditions, available on request or at weatherford.com. For more information contact an authorized Weatherford representative. Unless noted otherwise, trademarks and service marks herein are the property of Weatherford and may be registered in the United States and/or other countries. Weatherford products named herein may be protected by one or more U.S. and/or foreign patents. Specifications are subject to change without notice. Weatherford sells its products and services in accordance with the terms and conditions set forth in the applicable contract tetweem with evaluation of the contract servers in accordance between the services in accordance with the terms and conditions set forth in the applicable contract tetweem the lenim.

weatherford.com