



Case Study

The world's longest microwave radio hop to an offshore rig

Ceragon builds a 123 km link to Talisman's Yme oil field in the Norwegian North Sea

Overview

Talisman Energy is one of Canada's largest petroleum companies with its main operating areas in North America, Norway and Southeast Asia, and a worldwide presence. In Norway, the company's principal operating areas are the southern and mid-North Sea areas comprising ten fields.

One of these North Sea oil fields, Yme, is located in the Egersund Basin, 100 km off the coast of Norway. Oil production commenced in February 1996 and continued until 2001 when the field was abandoned. Talisman took over the field in 2009 and began a project of re-development expecting to recover 60 million barrels of crude over the next ten years.

The Challenge

In addition to re-developing the wells and oil storage tanks, Talisman had to build a high-capacity communication link to connect the rig to the mainland over the waters of the North Sea. This necessitated a 100 Mbps link to provide platform control and operation onshore thereby reducing the need for offshore personnel.

As the equipment was to be installed in a hazardous and potentially explosive environment, it had to be compliant with the European Union's ATEX directive and also had to ensure a maximum degree of operational safety. In addition, the Yme platform, a jack-up rig subject to erratic movement under the heavy storms of the North Sea, could not employ an off-the-shelf product, but required a technologically advanced, custom solution to maintain continuous link availability.

The Solution

Ceragon (formerly Nera Networks) has been a key supplier of communication equipment to the Norwegian offshore industry since the 1970s garnering experience and expertise in delivering solutions of this type. Using its advanced PointLink system and Evolution Series technology, Ceragon delivered a high-capacity radio link unaffected by fading, harsh weather conditions and rig movements. Ceragon's microwave technology provides the main link while a satellite connection provides a low-capacity backup. When installed, the link to the Yme site became the world's longest over-water link to an offshore installation, providing capacity up to 128Mbps.

Ceragon provided Talisman with a turnkey solution including field surveys, performance calculations, frequency planning, installation and commissioning services resulting in the successful deployment of a reliable, high-capacity, over-water link. Complying with very stringent safety requirements imposed by the hazardous offshore environment, Ceragon's solution maintains a continuous, robust and dependable connection from the Bjerkreim station on the mainland with the offshore rig at Yme.

Implementation

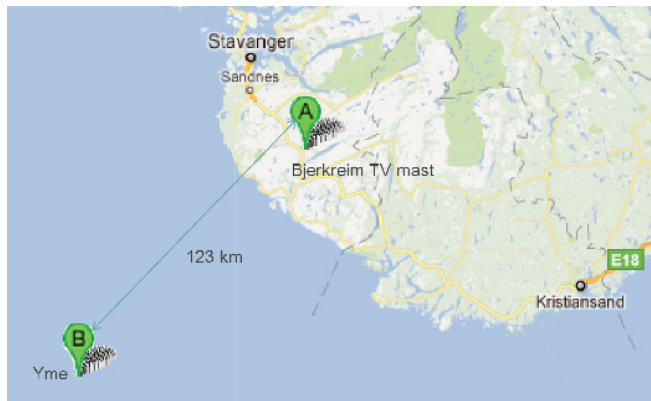
Microwave systems are not naturally suitable for building communication links to moving stations. Moreover, ATEX certification for use in potentially explosive areas added another difficult layer of complexity. Ceragon provided its field-proven solution for use in offshore environments: a PointLink microwave radio system along with its advanced Evolution Long Haul technology.

PointLink is an ATEX Zone 1-certified microwave radio system developed for use on moving vessels where the antenna is stabilized in one or two axes—azimuth or azimuth/elevation. The system features a GPS gyro with motion sensors for position, heading and motion detection ensuring unparalleled pointing accuracy and guaranteeing continuous link availability.

To overcome diffraction loss and reduced line-of-sight, Ceragon implemented a quadruple space diversity technology which acts as double space diversity for both hardware and propagation. This technology is field-proven to be the best method for protection against propagation disturbances like flat and selective fading, two of the most problematic issues when transmitting microwave signals over a sea surface.

Project highlights include:

- Link distance of 123 km over-water path
- Four-carrier system: 4 x 32 Mbps totaling 128 Mbps
- ATEX EExP Zone 1 PointLink equipment (2.0m)
- Quadruple Space Diversity split into two branching units (unique design)



PointLink MK 2.0m/6.6ft
Dual Axis
Microwave radio link system
for offshore communication

About Talisman Energy Inc.

Talisman Energy Inc. is a global, diversified, upstream oil and gas company, headquartered in Canada. Talisman's three main operating areas are North America, the North Sea and Southeast Asia. The Company also has a portfolio of international exploration opportunities. Talisman is committed to conducting business safely in a socially and environmentally responsible manner, and is included in the Dow Jones Sustainability (North America) Index. Talisman is listed on the Toronto and New York Stock Exchanges under the symbol TLM.

About Ceragon

Ceragon Networks Ltd. (NASDAQ: CRNT) is the premier wireless backhaul specialist. Ceragon's high-capacity wireless backhaul solutions enable cellular operators and other wireless service providers to deliver 2G/3G and LTE/4G voice and data services that enable smart-phone applications such as Internet browsing, music and video. With unmatched technology and cost innovation, Ceragon's advanced point-to-point microwave systems allow wireless service providers to evolve their networks from circuit-switched and hybrid concepts to all-IP networks. Ceragon solutions are designed to support all wireless access technologies delivering more capacity over longer distances under any given deployment scenario. Ceragon's solutions are deployed by more than 230 service providers of all sizes and hundreds of private networks in more than 130 countries. Visit Ceragon at www.ceragon.com.

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