



Case Study

Over-water offshore link to a rotating vessel BP Skarv FPSO

Ceragon builds a long distance, high capacity microwave link to a moving vessel in the North Sea

Overview

BP is one of the world's largest energy companies active in every area of the oil and gas industry including exploration and production, refining, distribution and marketing, petrochemicals, power generation and trading. BP has been operating in Norway since 1920 with four fields on the Norwegian continental shelf and has two large project developments, Skarv and a new center for the Valhall field. The Skarv field is a floating production unit, the largest ongoing field development in offshore Norway.

The Skarv field uses a turret-moored floating production, storage and offloading (FPSO) unit, a floating vessel for the processing of hydrocarbons and for the storage of oil. The Skarv FPSO, deployed offshore Mid-Norway, is the largest and most advanced FPSO deployed in the Norwegian Sea. The complete development scheme ties in five sub-sea templates and the FPSO also has the capacity to include several smaller nearby wells in the future. The FPSO has a length of 292m, breadth of 50m and is 29m deep. It can accommodate 100 people in single cabins. The turret-mooring system allows the FPSO to rotate 360° and operate safely in the North Sea's demanding weather conditions.

The Challenge

The project involved building high-capacity communication links from the Skarv FPSO to two oil installations: Heidrun (with further connection to the mainland) and Polar Pioneer. BP required a link of at least 155 Mbps between Skarv and Heidrun and a 100 Mbps link between Skarv and Polar Pioneer. These high-speed connections would allow the company to provide control and operations onshore thereby reducing the need for offshore personnel. As the Skarv FPSO is a rotating vessel, a technologically advanced microwave system was required 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 high-capacity radio links unaffected by fading, harsh weather conditions or oil-rig movements.

Ceragon provided BP with a full, turnkey solution delivering the following links:

- Skarv FPSO - Heidrun platform, 45 km over-water link, 155 Mbps (backup link)
- Skarv FPSO - Polar Pioneer oil rig, 12 km over-water link, 100 Mbps (main link)

Implementation

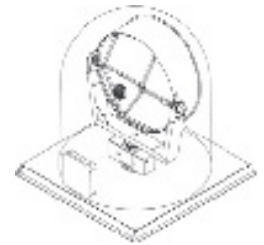
- Ordinary microwave systems are not naturally suitable for building communication links to moving stations, especially vessels with 360° rotation. Moreover, the equipment must have high anti-corrosion protection to ensure uninterrupted operation under the harsh weather conditions of the North Sea. Ceragon provided its field-proven solution for use in offshore environments: a PointLink microwave radio system in conjunction with its advanced Evolution Long Haul technology.
- PointLink is a 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 the highest possible link availability.
- To overcome diffraction loss and reduced line-of-sight, Ceragon implemented a quadruple space diversity technology which acts as a 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.

Skarv FPSO - Heidrun platform

- 45 km over-water link, 155 Mbps (backup link)
- 1+1 system, hitless protection switching
- PointLink Dual Axis, quadruple space diversity
- Evolution SDH radio

Skarv FPSO - Polar Pioneer oil rig

- 12 km over-water link, 100 Mbps (main link)
- Split-mount 1+ 0 system
- PointLink Dual Axis
- Evolution radio



PointLink MKII 2.9m/9.5 ft Dome



PointLink MK 2.0m/6.6ft
Dual Axis

Microwave radio link system
for offshore communication

About BP

BP is one of the world's largest energy companies active in every area of the oil and gas industry including exploration and production, refining, distribution and marketing, petrochemicals, power generation and trading. It also has major renewable energy activities in biofuels, hydrogen, solar and wind power. In Norway, BP has been operating since 1920 with four fields on the Norwegian continental shelf and two large project developments, Skarv and a new field center for the Valhall field. For more information, visit www.bp.com

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.

Join the Discussion: 