Communications enhance safety for offshore workers

The customer

ConocoPhillips is the world's largest independent exploration and production company, based on proved reserves and production of liquids and natural gas. ConocoPhillips explores for, develops, and produces crude oil and natural gas globally, with commitment to safety, operating excellence and environmental stewardship guiding operations in 30 countries.

One of these is Norway, where the company runs the Ekofisk and Eldfisk oilfields in the North Sea, part of the Greater Ekofisk Area situated some 300km south west of Stavanger. Ekofisk was Norway's first oil and gas producing field and is also one of the largest on the Norwegian continental shelf. Production started in 1971,and Ekofisk remains one of the most important oil fields in the North Sea.

The need

The Greater Ekofisk Area was developed in stages, and has been upgraded and modernised several times. As part of the latest upgade, ConocoPhillips looked to replace its legacy communications network which was in use over the entire offshore installation, and used old-fashioned UHF analogue radio technology, with few functionalities.

Safety is of paramount important in the oil and gas extraction industry, and robust, reliable communications are the backbone of the safety processes and procedures. The new communications system is required to deliver enhanced safety for the ConocoPhillips workers on the offshore platforms, as well as increased functionality, and greater efficiencies.

The solution

The upgrade programme is being managed by Semco Maritime, a project engineering company that works with the global energy sector. Semco Maritime identified that the prime technology candidate to provide communications for the 21st century is TETRA. After a competitive tender, the contract to install the new TETRA system was awarded to Zenitel, a leading solution provider serving markets that require secure, critical communication. The choice of Zenitel was based on its recommendation of using industry-leading TetraNode infrastructure from Rohill B.V., and for its extensive experience in offshore installations.

Based in The Netherlands, Rohill designs and develops hardware and software radio communications products for mission critical environments. Rohill is also highly regarded for working closely with professional system integrators and value adding resellers to provide the extra mile in assuring quality services required by mission-critical users.

Rohill's TetraNode is considered much more flexible than other systems because of Rohill's flexible approach – its engineers will strive to meet all customer requirements. An example of this for the Greater Ekofisk Area project was Rohill's development of an interface to ensure the new TETRA system was integrated into the ConocoPhillips multi-operator control panel that connects several of the company's communications systems.

Seven TetraNode sites have been installed on the Ekofisk and Eldfisk complex: six offshore and one in the control centre in Tananger. The system is built to accommodate 1200 users, and each site is capable of handling traffic from the other six sites independently, providing full redundancy. Offshore platforms present unique challenges for communications systems, and with safety requirements paramount, ConocoPhillips cannot afford to have a communications system that might fail.

The challenges

The project had both onshore and offshore deployments. Planning took two years, beginning in January 2011, and was key to the success of the project. The importance of communications to the safety of the workers meant that the old system had to remain working while the new network was installed, and while the users, maintenance crews and telecoms engineers were trained on the TETRA system and radios.

Proof points

The TetraNode system delivers significant improvements. These include:

- Greater audio clarity from the new digital radios, and increased functionality including one-touch 'emergency' buttons for instant alerts
- The individual platforms are now fully interconnected using robust, reliable and fully integrated links including LAN, fibre optics and OTA repeaters
- The onshore base in Tananger, headquarters of ConocoPhillips in Norway, is connected to offshore platforms to monitor communications and perform remote service on the offshore installations
- Fewer offshore visits needed by service technicians
- The TetraNode system enables ConocoPhillips to connect with the emergency services if required during any incidents
- The TetraNode system is integrated with ConocoPhillips' PAGA system – Public Announcement and General Alarms – enabling alerts to be sent direct to every TETRA radio

Specific components of the network

The TETRA system installed for ConocoPhillips sites consists of a number of Main and Redundant TetraNode base sites installed on several platforms in the Ekofisk and Eldfisk complex in the Greater Ekofisk Area. The systems are connected either via fibre optic cables or by over the air repeater systems to provide a very high degree of redundancy.

Each individual platform is equipped with a Distribution Antenna System ensuring full coverage throughout the structure.

About Rohill

Rohill, The Netherlands is a communications technology company dedicated to the development of professional mobile communications systems for mission-critical applications within the global market. Over the last 35 years Rohill has gained a strong reputation in supplying leading-edge hardware and software radio communications products to mission critical environments. Its expertise and organisation enable Rohill to offer a wide range of customer-specific solutions based on the next-generation TetraNode solution.

Rohill, The Netherlands works closely with professional system integrators and value adding resellers providing the extra mile in assuring quality services required by the mission-critical users.

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