



Case Story: Oil Rig Emergency Alarming

Managing and distributing multiple alarms to TETRA radios with indoor positioning

Since 1962, Denmark's leading oil and gas supplier have been conducting exploration activities all over the world, from Norway to Qatar.

They pride themselves on their problem-solving capabilities, overcoming obstacles such as the North Sea and expanding to cover many areas of the world today. This fully owned subsidiary is part of a group employing 89,000 people worldwide. Of the 4,300 in oil & gas, over one quarter work offshore.

Due to the nature of their business and hostile environment, offshore oil rigs can often present challenging situations. Surrounded by sea and miles from anything, a simple mistake could lead to devastating results.

It is therefore critical to minimize that risk as much as possible, opening up lines of communication between employees, management and security. This company realised the importance of protecting employees, and searched for the most appropriate solution.

Requirement:

- Manage and monitor all alarms and dispatch to specific departments
- Locate employees on the oil rig
- Protect lone workers and ensure radio and alarm system up-time
- Reduce the number of devices carried by staff

Working with the security management team, ZONITH deployed an alarm handling solution capable of tracking employees over Bluetooth and delivering/receiving alarms to/from TETRA radios.



Solution Features

- ▶ Increases staff safety across the entire oil rig
- ▶ Allows alarm handling and indoor positioning from one radio device
- ▶ Lone worker feature sends alive check messages at regular intervals to ensure employee safety
- ▶ Enables a variety of alarms from various vendors to be managed and distributed on one platform
- ▶ Enables all alarms to be logged for post incident reporting
- ▶ Allows specific alarms to be sent to the appropriate department

In short

Needs

This oil company needed a solution that could not only integrate existing alarm systems, but manage and dispatch these alarms to appropriate personnel. They needed to track staff on-board the rig and know their whereabouts should an emergency situation arise.

Solution

ZONITH Alarm Control System (ACS) manages any alarm communicated via the NMEA-0183 protocol (incl. fire detection and system communications) and distributes that alarm to appropriate staff on their TETRA radios. The Indoor Positioning System allows all 'always discoverable' Bluetooth devices to be tracked, giving complete transparency of staff in an emergency situation. Furthermore, the Zonith Lone Worker feature sends 'alive check' messages at pre-defined intervals, ensuring employees are safe in volatile situations.

Benefits

- ▶ Reduces emergency reaction times
- ▶ Increases staff safety and confidence
- ▶ Allows all alarms to integrate to one platform
- ▶ Escalates alarms if left unattended
- ▶ Staff only need to carry one handset to do it all



The Solution

Monitor and dispatch multiple alarms to specific areas:

The ZONITH Alarm Control System (ACS) is a single software platform that listens to and monitors various alarm types (fire alarms, system communications, etc) and dispatches these alarms to TETRA radios via text. The alarms are analyzed and sent to the appropriate department displayed on a pop-up touch screen. If an alarm is not accepted, it will be escalated. Alarms are filtered based on criticality, where critical alarms are sent immediately, and less critical alarms may be stalled and sent in working hours.

Indoor Positioning System (IPS):

Bluetooth beacons were deployed throughout this rig to provide indoor positioning accuracy of staff carrying Bluetooth enabled devices. Each device can be recognized and given a name, showing not only a device in a specific location, but the identity of the staff member holding that device. This gives management and security complete visibility of employees if an emergency situation arises.

Centralised Lone Worker (CLW) and Alive Check:

ZONITH's CLW solution uses the Bluetooth IPS to recognise geo-fenced 'safe zones' and 'dangerous zones'. When an employee enters a 'dangerous zone', alive check messages are sent to the handset (at pre-defined intervals). The employee must respond to each message and if they don't, an alarm will automatically be raised to security with the position of the employee. When they enter back into the virtual 'safe zone', CLW will automatically turn-off. On top of this, Zonith's alive check module continuously pings the network and ACS, raising an alarm if either goes down.

Integrate all functionality to one handset:

By using TETRA radio communications, all previous systems (analogue radios, pagers, DECT and fixed line phones) can be transformed to a single digital radio. Staff no longer need to wear a 'batman belt' full of devices that only perform one duty each. The TETRA radio can raise and receive alarms, as well as perform two-way communication via voice and text.



Diagram explaining how Zonith integrate and dispatch existing alarms through the Alarm Control System