

# Technology based location awareness

Here, Doug Woodbridge, Head of Group Sales and Marketing at S3 ID considers how personnel safety is being improved across both on-shore and off-shore Oil & Gas facilities through the application of technology.

"The advantage of using technology based mustering and location systems is that they can produce accurate real time reports without having to manually inputting data. In an emergency that can make all the difference. Take for instance an emergency evacuation where conditions are far from ideal and even if only one individual is inaccurately recorded using a manual system it can put the safety of rescue teams in jeopardy. It is therefore little surprise that many companies are investing in technology based alternatives.

Within the Oil & Gas sector, knowing where your personnel are during an emergency is essential for their survival. Even in the best planned procedures, paper based systems, which do work, are prone to errors in real emergencies – simply by the fact that people in stressful conditions make mistakes.

Along with the fact that routine emergency preparedness drills are time consuming and therefore, by their nature expensive, the industry has responded by developing technology based mustering and location solutions, which can allow these drills to be completed more efficiently. There are many examples where companies are leading the field in personnel safety after making this investment.

## Statoil case study

Over the years we have been developing our eMustering™ systems to overcome the limitations of manual paper based systems. This has been in response to the many companies that have adopted a 'No injury / zero harm' policy. We recently worked with Statoil on improving their emergency evacuation procedure as the company was seeking a better way to register personnel in an evacuation situation, and keep their emergency preparedness management team fully updated about the evacuation status in real time. It was realised, following careful evaluation of the conventional 'paper' based systems, that whilst they worked, there was room for improvement.

As always, Statoil's overriding concern was safety of their personnel. Whilst musters could be achieved within Norwegian legislation using conventional techniques which required an account for all personnel within 20 minutes, this could be challenging in a crisis. Statoil has a 'No injury / zero harm' target, and therefore felt that there could be ways of improving this. In a recent discussion document Svein Thorsen, Principal Engineer of Statoil explained: "This requires that we are among the absolute front runners on safety, both on technical aspects and safe operations. We continually strive to create a safe workplace for our employees and contract personnel, thus avoiding accidents and occupational illnesses. Besides a continuous focus on safety awareness, we ensure high technical standards and inherent safety in the design and operation of all our plants and installations".



Statoil wanted to improve the behavior of people in a crisis situation and remove so far as possible the human variable and risk of 'human error' from mustering. As part of the discussion document Svein Thorsen added that: "In the event of a crisis we wanted to ensure that safety was not compromised through failing to properly account for personnel, so that the search for those truly missing could take place faster and at the same time prevent the risk of unnecessarily sending rescue teams into a danger zone to find those incorrectly marked as missing through human error. An electronic PRS is not subject to human error under stress, which means you can rely on the data and counts you get in real time".

Manual 'paper' based mustering techniques can also be time consuming to administer and generate post-muster reports. A PRS was also seen to provide benefits in this area, with a full history being stored and reports automatically generated at the touch of a button. A further perceived benefit of the PRS project was that it could significantly reduce time - and hence costs - associated with getting production up and running again following an 'emergency muster' which would mandatorily require all personnel to be fully accounted for before production could resume.

Svein Thorsen of Statoil concluded: "We chose S3 ID as it could provide the best technology in mustering combined with proven experience and track record. We were therefore confident in their ability to provide us with a solution to meet our exacting requirements."



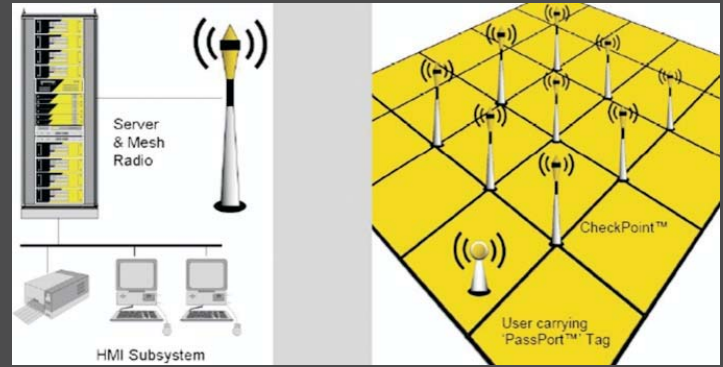
## Looking to the future

Business owners and managers often have to make tough decisions around justifying expenditure and cutting costs. Sometimes it can be difficult weighing up the conflicting pressures - on one hand they face criticism for spending money, on the other, they may even be accused of not spending enough - particularly when the decision involves the safety of others. It was against this background that we developed our CheckPoint™ range, which is an innovative new personnel location and tracking product that offers a significant advantage in that it is very low installation cost, being just a fraction of the cost of other technologies. That gives customers a cost effective and straightforward route of meeting all the conflicting criteria.

The system works by incorporating static CheckPoints™ and personnel carried ID tags called PassPorts™. As well as providing location awareness for personnel, the system can also be used for tracking assets. It utilizes low risk RFID technology proven in use over many years. The degree of location awareness is dependant on the number of CheckPoints™ deployed and the location strategy. On most plants the ability to know in which area (or zone) personnel are located is the overriding functional requirement.

The system has been designed to work almost anywhere, although it is particularly suitable for use in oil, gas, petrochemical, refining and other chemical industry applications. It is suitable for large area coverage such as may be required in refineries and gas terminals and will be ATEX certified accordingly for use in hazardous areas (Zone 1) and outdoor conditions (up to IP67).

When it comes to tracking personnel over even larger distances GPS is a commonly used system. Most people are familiar with GPS, which provides positional accuracy of around 1 metre, calculated by triangulation using a constellation of satellites and highly accurate timing. GPS location awareness systems offer the advantage of tracking workers outside of pre-assigned zones. Accordingly GPS could be used to



provide enhanced security of personnel on large sites or geographic areas. Consider pipeline workers in remote and troubled regions, where this option could offer peace of mind and a clear starting point for search and recovery, should the worst happen.

There is continual technological development in the area of GPS too. For example, we have recently introduced GPS+™, our second generation product and has been designed to meet the combined requirements of providing positive personnel location awareness at our active RFID gateway portals and also allow movements of personnel to be monitored over wide areas in real-time by our data centre systems and to be displayed on 2D site plans.

GPS location awareness can be used to optimise escape routes and manage a crisis or, in normal operation to direct the closest resource to deal with operational issues. Most systems on the market are able to achieve this efficiently although we developed GPS+ so that it also offers the benefits of positive RFID location for accurate POB/POS & Mustering. Designed to work alongside all our existing eLocator™ products, the GPS+™ tag is unique in combining both an active RFID tag, that is compatible with all our existing active RFID eLocator™ and eMuster™ solutions. It also has a specially designed GPS receiver and internal UHF transmitter which 'relays' the tag's location at regular intervals to a central eLocator™ data centre.

## Conclusion

Mustering and location technology has come a long way compared to paper based systems. Electronic location awareness provides enhanced levels of safety and security for personnel by removing the human risk element (as far as possible) and improving communication leading to an enhanced probability of surviving a disaster. Investing in such technology can also make commercial sense by controlling costs through reducing downtime and lost production resulting from drills or false alarms. It can also potentially mitigate the risk of litigation in a real incident through being seen to 'have done the right thing' and can enhance the 'brand value' of a business leading to enhanced shareholder value.

Clearly, the best time to plan how you would manage your business in crisis is when you're not in one. This is particularly important for the Oil & Gas and Energy industries which are always under public scrutiny. The risk of not being prepared to execute a well-planned, integrated response can directly impact on the bottom line of a business and result in damaging consequences to the reputation of the company involved and the industry as a whole. Conversely, well-managed pro-active planning and the appropriate use of location awareness and mustering technology can secure stakeholder confidence and protect your business's reputation."

