Human error, technology and the oil & gas sector

It was a rapid, harrowing and unforeseen accident on Piper Alpha in 1988 that led the UK Offshore Oil & Gas industry to look more closely at human error and its potential for disaster on platforms. Dräger Marine & Offshore General Manager, Phil Saxton, reflects on the importance of safer operations to mitigate human errors and mistakes.

Since production began in the North Sea, the offshore industry has recognised the importance of human factors in safety, as well as the vulnerability of its workers to human error. In fact, it remains one of the biggest challenges facing the sector, according to 48% of industry professionals surveyed by Oil & Gas IQ.

The industry needs to be sure of the highest integrity, but that goes beyond asset integrity. Human integrity also needs to be considered as there will almost always be a human element. Technical near misses can be learned from because they can be analysed, but it’s not as easy to learn from those that are behavioural.

Accountability for safety and integrity are things that can’t be contracted out and when there is a squeeze on costs, one thing that should never suffer is training.

While new technology has been invented to make our lives easier, it can in fact put lives at risk without the correct corporate culture, knowledge or training. After all, working at high speed, in a hazardous environment which is subject to rapid change isn’t easy and workers can be distracted by alarms and any number of other factors offshore – in other words, subject to error.

Although we can’t eliminate human factors from the equation completely, more can be done to understand and control the issues that affect error. In terms of maintenance, identifying tasks most at risk from human error need
to be a part of every company’s safety management plan to avoid rising operational costs and also prevent a potential catastrophe.

**Positive safety culture**

Major accidents and oil spills such as Deepwater Horizon and Piper Alpha have put human factors in the spotlight of policy-makers, operators, oil and gas companies and employees.

We believe a positive safety culture is one where the importance of safety and confidence in preventative measures are experienced at all levels of an organisation. This includes leadership, a good line management system, and the involvement of all employees.

Without a positive safety culture in place, it can result in corner-cutting, poor safety monitoring and lack of awareness of safety issues. For example, a technician failing to replace nuts and bolts under time pressure can have catastrophic consequences.

Employers should consider training in the following areas to maximise the safety and productivity of their workforce: hazardous gases present onsite; calibration and maintenance; limitations of gas detection equipment and sensor technology; plus hands-on operation and instrument review.

A gas detection system, for example, is only as effective as the people who are responsible for using it. Routine tasks such as calibration are vitally important to ensure the accuracy of a gas detector’s reading and thus the ability of the detector to provide an alarm at the correct concentration level. Calibration can also help by determining the condition of the sensor on the gas detector.

**Importance of training**

As it is inevitable that errors will be made, improving management systems, providing extra training, changing working conditions and adapting the organisational culture all need to be looked at to slash the risk of such devastating incidents in the future.
At Dräger, we have 100 oil and gas people across our locations in the North Sea, who are committed to working alongside our industry partners to pioneer trusted safety solutions for the future. For us, the experience and skills afforded through training can save lives.

Failures in decision-making and reasoning can have severe implications for complex systems such offshore rigs, and for tasks such as maintenance and planning. The focus of error management is placed on reducing the chance of these errors occurring and minimising the impact of those that do occur.

At Dräger, we are committed to working with our industry partners across the North Sea, providing technical training courses for workers in operation, maintenance and the proper use of equipment to ensure they know exactly how to use tools and then seek feedback from our customers to find out how and what can be done to make things better for the future. This not only gives the workforce greater protection, but also peace of mind and ultimately protects companies.

Factors such as training and competence assurance, management of fatigue-induced errors and control of workload can eliminate some errors, but those caused by human limitations are best reduced by looking at safety culture and system design. A good system should not allow people to make mistakes easily.

**Changing behaviour**

Opportunities for human error are existent in every task performed by anyone working within the oil and gas industry – it is inevitable, but also manageable. Identifying the root cause of the error is vital in order to reduce accidents and minimise the consequences of those that occur. It is best achieved by learning from errors, rather than by attributing blame.

In order to fully maximise the use of gas detection systems and the safety they provide, it is necessary for businesses to ensure that they are used by a team which has received the necessary training and education.
Dräger believes in keeping every employee safe so workers must have tools to best adapt to their specific situations. The X-dock is designed to maximise user protection and convenience. It enables workers to carry out asset management work, with maximum confidence in their safety equipment.

X-docks are already supplied to platforms across different North Sea locations, from the UK to Norway, Netherlands and Denmark, as well as worldwide, wherever supply is required.

Dräger’s support team can also carry out training courses for portable gas detection users both on and offshore as well as OPITO approved on-line training courses.

It’s important to us that a customer has innovative solutions to protect their workforce and the public, but we’re not just product-focused. We believe in feeding information from our customers back into our design solutions. That way, we not only reduce the chance of future accidents, but by studying human error, it gives us a very important tool for preventing disaster.

Top tips for employers
It’s important to identify all hazards and risks in the workplace:

- **Training** – train people so that they understand the risks and what to do about them. A lack of training can cause an essential element of control to be lost.
- **Competence** – ensure staff involved with risk control tasks have the appropriate competencies for those tasks. Failure to do these things leads to mistakes.
- **Priorities, attention and conflict resolution** – get workers involved and communicate with them about their job and equipment design so that demand-capacity mismatches can be fixed.
- **Assurance** – ensure standards and procedures get used. Sometimes, the organisation fails to update its own knowledge base.
At Dräger, we have an holistic approach to safety and are perfectly positioned to service oil and gas customers, with sales in more than 40 countries including the UK, Norway, Denmark, Germany and the Netherlands.

To find out more about Dräger Marine & Offshore, visit stand 3E100 in Hall 3 at Offshore Europe or www.draeger.com/borntosave

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