

When 'Good Faith' isn't good enough...

Due Diligence for Fire Safety requires more than good intentions.

On the 1st February 2016 the HSE released new guidelines regarding sentencing for Health & Safety breaches responding to; '**concern that previous fines for serious and fatal corporate health and safety offences were too low in relation to the harm caused.**' Included in the guidelines rated as 'High' culpability it states; '**failing to put in place measures that are recognised standards in the industry,**'

In the growing offshore wind industry, offshore assets change hands more than might be realised and when, for example an Offshore Substation is handed over 'in good faith,' it is assumed that the Fire Safety Systems installed are correct and to the appropriate safety standards. However, in my experience as a Fire Safety Engineer, it has been recognised that existing systems are falling short of the accepted standards (BS / EN / SOLAS/ DNV).

Real Life Examples of Problems Found:

During my years as a Fire Safety Engineer, I have been assisting Offshore Transmission Operators (OFTOs) manage their Fire Safety. Throughout this time I have collated a non-specific list of examples, of situations I have encountered offshore, that I feel are of significant interest.

Non-compliant Fire Alarm System

During a recent visit to an Offshore Substation Platform I observed that a Programmable Logic Control (PLC) system was being used in place of a fire alarm panel. Standard fire alarm control panels go through rigorous testing in order to comply with BS5839 / EN54, so while the field devices may be compliant, the fire detection / fault detection / etc. is not.

I'll explain, for example:

- Each Smoke Detector was fitted to an Analogue Input (as opposed to Conventional Zones or Addressable Loops)
- Sounder circuits were not monitored. (A sounder could have been removed or a cable cut with no fault indications)

This panel had many more issues which should have been spotted and corrected in specification.

Field Device Selection

Appropriate and correct field detection devices are required for dependable and fault free fire detection systems. For instance, in one case I observed an offshore platform's external manual alarm call points were not robust enough for the offshore environment, having been manufactured with ABS plastic IP67 (at 23^o C and 50% relative humidity). Experience has demonstrated that extreme sea conditions and sun damage to the MAC's have allowed the ingress of water causing faults.

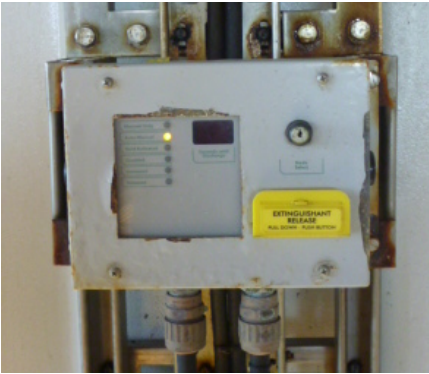


Passive / Active Fire Protection

Fire safety is more than the Fire Alarm. In simple terms it is divided into Passive and Active Fire Systems. **Passive Fire Systems** included fire walls, fire doors, provision of the means of escape etc.

Active Fire Systems are Fire Alarms, Fire Suppression Systems, Emergency Lights, etc. The design of the fire safety is as a whole to protect life and the asset.

Understanding the standards and how they apply to specific situations is why the Fire Safety Order requires that the Fire Safety or Risk Assessment be carried out by a competent person with sufficient training and experience or knowledge be appointed.



In addition, Fire Suppression Gas Release Status Units made of pressed mild steel, exposed to the sea conditions have been seen to deteriorate. Even when these units are made of stainless steel they continue to use ABS plastic components which perish with the harsh conditions.

Incorrect Detection Devices being fitted

External Flame Detectors required in the design specification where Infrared Flame Detectors. However, the Flame Detectors installed were Ultra Violet / Infrared Flame Detectors, which often go into fault because of the sunlight reflected from the sea (see extract from installation manual below)

6. A constant UV source detected by the unit will cause the FL3110 unit to go into FAULT after 9-10 minutes of exposure. Source must be removed or detector repositioned. (UV detectors can pick-up arc welding up to 2-3 miles away).
7. Users should be aware that any UV detector may be triggered by other sources of EMI, for instance X-rays, sunlight, reflected sunlight, Gamma rays, lightning, arc welding, industrial lighting, fluorescent lighting, etc., and due regard should be paid to the possible presence of such radiation.

Lack of certification / documentation

An Offshore Substation Platform had a water mist system fitted with no documentation to demonstrate that the dispersal heads are made of the appropriate material. As the system was relatively new (offshore for less than 2 years) the heads had already begun to significantly corrode, which would alter spray pattern and effectiveness.



I could use many more examples of incomplete passive fire protection, poorly fitted fire doors, poorly fitted control panels, etc.

The point is, unless the Project Manager knows what to look for they are in danger of ***'failing to put in place measures that are recognised standards in the industry.'***

We don't know what we don't know....

A mentor hijacked Socrates when he said to me, ***'We don't know what we don't know, but a smart man knows who to ask.'*** A Third Party Certified Fire Safety Engineer can provide the competence required by HSE and Fire Safety Legislation. Experience in Offshore is also essential to understand the complexity of the situation.

How can we address and prevent these issues.

An ounce of prevention is worth a pound of cure.

- **Specification** – some systems can be over specified, for instance placing detectors in places that are not required and cannot be tested. Save time, money and effort by getting a Fire Safety Engineer to advise
- **Good Procurement** - The procurement process can often choose the least expensive quote, but may not actually be cost effective in the long term. The process is more than buying the hardware when procuring a fire safety system. The company behind the hardware should have technical expertise in the relevant Fire Safety Codes and Legislation.
- **Handover Survey** – in the construction yard. By providing a comprehensive survey and design review prior to leaving the yard, the Offshore Substation Platform's fire safety systems should operate as designed and to appropriate regulations. Thus, future Fire Safety Management can be cost effectively managed.
- **Fire Risk Survey / Assessment** – Document what Fire Safety Systems are in place and how they are being managed.

Moving Forward

Many people have an impression of Fire Safety as a negative. Hopefully, none of us will ever have a negative experience of fire. Nevertheless, the legislation requires action. A positive way forward is to accept Fire Safety is part of the furniture. It can be managed without being costly. The key for responsible persons to managing fire safety well is to finding the right people and companies who are competent to support them with systems, surveys and services.

Responsible persons have been convicted in the UK, fined and jailed, for not managing fire safety adequately. Hoping everything is alright is not enough! Each of us needs to KNOW that the Fire Safety is suitable and sufficient. It is a legal responsibility and the duty of care for every operator.

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