

Tool Detection Alarm (TDA)

INDUSTRY

Oil & Gas

LOCATION

UK – Aberdeen

PROJECT

Tool Detection Alarm – wireline weak point safety system to protect downhole tools and infrastructure

THE CHALLENGE

The industry challenge was to reduce the potential risks and costs due to an incident associated with well intervention activities. The Tool Detection Alarm (TDA) is used to reduce the risk of accidental contact between borehole tool and wellhead equipment during winching.

The TDA can be used for a variety of well intervention operations to detect the borehole tool as it enters the pressure control equipment. The system alerts the winch operator to take action and prevent the tool string hitting the riser seal head, resulting in damaging the completion equipment and the potential loss of the tool string down the well. It provides an additional layer of protection that is independent to the winch system therefore reducing the probability of common mode failure. SST were tasked by a customer to design, manufacture and deliver a fully IECEx/ATEX compliant TDA which may be purchased outright.

The customer was long term hiring a similar non IECEx certified product their aim being to reduce their ongoing annual hire costs by purchasing a similar product. As this is a very niche area of the oil & gas industry, there is no other product on the market similar to the TDA which delivers a fully IECEx certified product.

Due to the working environment of the TDA, SST decided to ensure that the whole system including the control box and battery was fully ATEX and IECEx certified ensuring that it is intrinsically safe equipment for use in Zone 0 gas environments (IECEX BAS 14.0101X).

This certification is a significant enhancement to the other available products.

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In order to achieve the necessary certification it involved the external assessment of the product by Baseefa (notified body) and QA-QAN/QAR 60079-34 compliance – audited by Baseefa.

THE SOLUTION

The solution was to develop a tool that not only satisfied the customer requirement but also delivered enhanced benefits over the competitor alternative. SST developed the TDA with the ability to deliver the following commercial, safety and environmental benefits:

- ✓ Reduce the risk of potential damage to completion control equipment and sub-surface control flow equipment.
- ✓ Provide an extra layer of protection with reduction of the probability of common mode failure.
- ✓ Minimise costly replacement of damaged or lost tools due to an incident occurring.
- ✓ Reduce impact of lost production and downtime.
- ✓ Negate the potential requirement for environmental clean-up after an incident occurring.
- ✓ Prevent ‘Major Reportable Incidents’ occurring reducing the necessity for the compilation of reports to the HSE.

The SST product also has additional benefits over other similar existing products on the market.

- ✓ Satisfies enhanced safety certification IECEx/ATEX.
- ✓ Low power design maximises battery life – the operator is informed when the battery goes below 20%.
- ✓ The battery is not subject to Class 9 shipping restrictions unlike lithium cells used on other similar products. This means the TDA can be easily transported via helicopter.

THE OUTCOME

A commercially viable and fully certified Tool Detection Alarm system has now been developed. At the beginning of 2015, 10 units were shipped to the customer who initially commissioned the product. Constructive feedback has been given by the customer who is fully satisfied with the TDA’s price and performance. The product is now for purchase on the open market.

For more information on Severn Subsea Technologies call +44 (0)1209 312 000, email sales@severnst.com or visit www.severnst.com