



MEETING CONDUCTOR INTEGRITY CHALLENGES IN THE MIDDLE EAST.

How Claxton's conductor expertise is assuring conductor integrity in the United Arab Emirates and beyond.

The planned lifetime for a production asset is an important consideration at the start of field development and becomes increasingly important as the field moves into maturity. This is increasingly the case in the Middle East, where the first oil well was drilled in early 1900's and the industry has seen intensive activity since the 1960's.

Oil and gas operators need to ensure that production facilities can continue to operate for as long as they are required and that any potential risks to human health, safety or the environment are minimised. Asset and conductor integrity management is a key tool for delivering and maintaining safety in offshore operations.

GLOBAL EXPERIENCE WITH AGED CONDUCTOR OPERATIONS.

Claxton Engineering has helped companies around the world find fast-track solutions to their integrity issues, as Nick Marriott, Region Manager Middle East, Claxton explains, "For new offshore facilities, operators generally apply integrity systems from the outset and the process runs throughout design, construction and operation of the facilities. However, many of the world's oil and gas installations have long

operational histories and the issue of asset integrity and the practice of managing it are often considered only after years of service, usually at a time when the installation is approaching the end of its original design life.

"Offshore operators are now looking for more effective ways to assess the condition of offshore assets and working to develop effective methods for managing them. Where a problem is identified as part of the asset integrity management process, operators will seek a rapid response that will deal with the issue, and that is when they turn to specialist service companies like us."

As a result Claxton is seeing increased demand for its conductor integrity, repair and recovery services as the trend for operators to extend the life of assets continues. As reservoir life continues to expand thanks to increasingly effective production techniques, more and more assets are working beyond their design life. This trend means operators in the UAE and Arabian Gulf are regularly in need of assistance to deal with corrosion-damaged conductors – as the project overleaf demonstrates.

Ageing assets: In the Arabian Gulf nearly 3,000 well conductors are between 20 and 60 years old – presenting a major challenge to operators looking to maximise the life of their assets.



FAILED CONDUCTOR LEADS TO FAST-TRACK RESPONSE.

In the Middle East, Claxton has recently helped a leading offshore operator address some issues of asset integrity that arose as a result of corrosion, as Marriott explains. “The slot recovery operation we recently conducted in the Gulf was prompted by corroded conductors and inner casings. This problem is common in established oil and gas fields where there have been cases of crossflow between the annuli and conductor failure, and in this case the conductor was badly corroded so the operator carried out an inspection program.

Operators are diligent in their awareness of issues affecting conductors that are operating outside of their original design life, however there are occasions where corrosion can be worse than initially suspected.

This, as explained by Marriott, was exactly case, “In this instance the operator had been working to quantify the scale of the problem and find a sound technical solution. However, during a



periodic inspection trip it emerged that one of the conductors had failed and this represented a threat to the integrity of the well.

Failed conductor: Claxton has extensive experience in working with aged conductors and offers a number of solutions to either repair or recover them safely.

RAPID RESPONSE

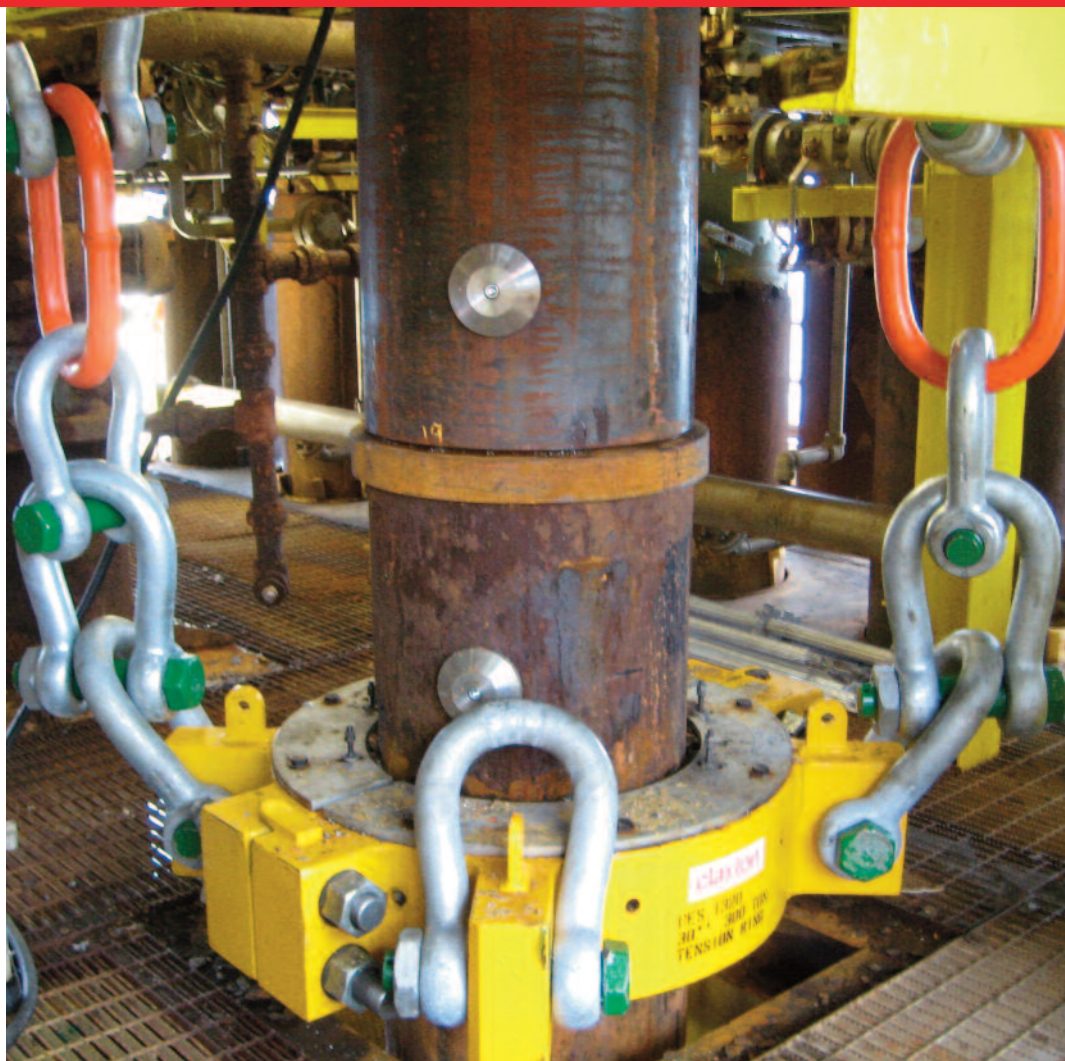
The operator required a fast-track response to deal with the issue and identified several other conductors that also required urgent attention. Claxton mobilised personnel and equipment in less than a month and started on a scope of work that would cover damaged conductors on three different wells, using diamond wire to cut above the seabed and then remove the damaged conductors.

ONGOING SUPPORT

The project was a success and prompted the operator to award Acteon sister company 2H Offshore a contract for analysis of the company's entire conductor assets with a view to developing a classification system for condition monitoring. Under this traffic light system, well components rated 'green' are expected to continue operating without issue for several years, those rated 'amber' require regular monitoring to assess the risks of identified issues and those rated 'red' require immediate remediation. According to Marriott, this is part of a larger drive within the industry to address the issue of aging assets. "Around the world, leading companies are focusing their efforts on assessing and tracking the condition of offshore equipment in order to better manage its life cycle."

SIGNIFICANT EXPERIENCE

Claxton has provided numerous solutions to operators managing aged conductor assets – including conductor repair, replacement and additional conductor guides, retrofit centralizers and slot recovery. In addition, Claxton's cutting and recovery tooling has been used on over 260 successful projects.



Nick Marriott closes with something of a rallying cry to operators in the Gulf, "The one thing I'd say to operators in the region is that there are a lot of ways we can help them assure ongoing conductor integrity cost-effectively. Very often we talk to operators who aren't sure of how to approach the challenges posed by aged infrastructure – challenges that are often both complex and numerous.

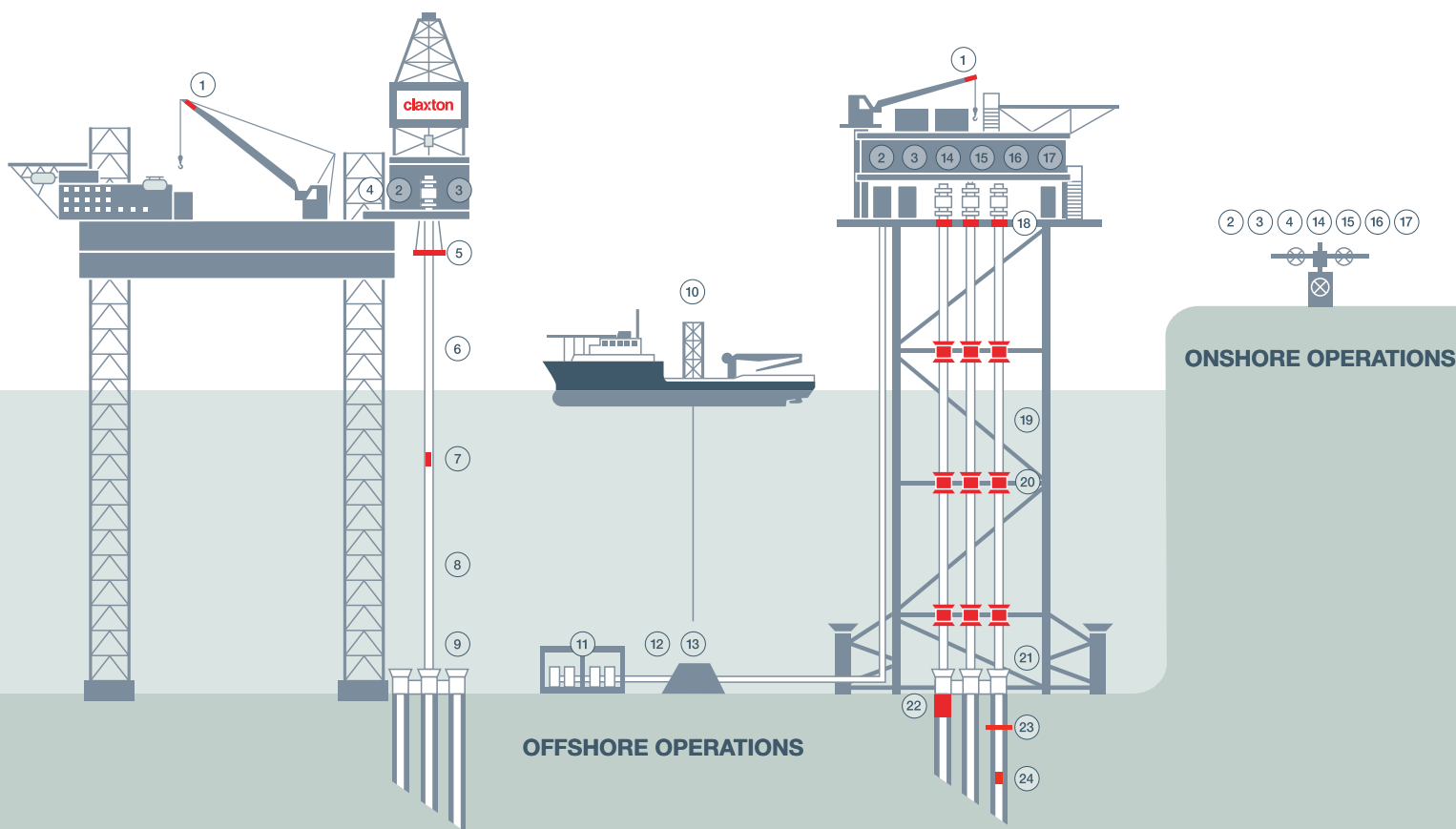
"We have the proven experience, personnel and equipment to take a lot of the pain of dealing with conductor integrity operations away."

A Claxton tension ring securing a conductor during a recent slot recovery operation.

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