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WELLHEAD AND CONDUCTOR INTEGRITY ASSURED WITH CLAXTON SOLUTION.

Claxton clamp solution relieves conductor stress and assures vital integrity.

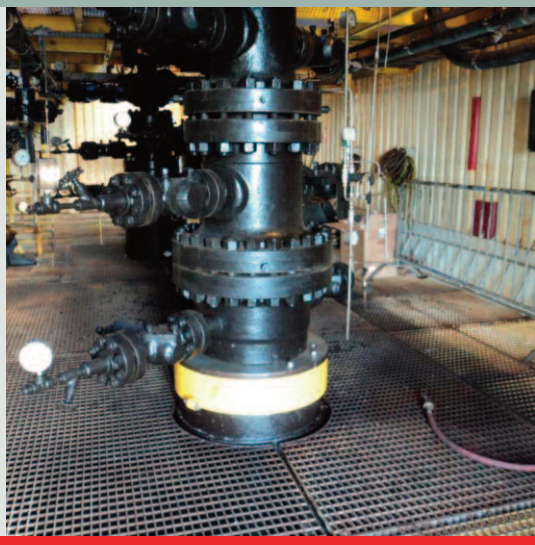
THE PROBLEM

Claxton's vast experience of wellhead system design, installation and maintenance has proved invaluable in helping one of the North Sea's leading operators to manage the integrity of a selection of older platform wells whose construction left something to be desired by today's standards.

Claxton project manager Jay Miller explained: "We were asked by one of our regular clients to look at several wells where the wellhead was connected to the surface casing, which is normal practice, but received no support from the surrounding conductor. During its installation, the conductor had, essentially, been cut too short. Gaps between the base of the wellheads and the tops of the conductors varied from a few centimetres up to 2m.

This became an issue when inspection within the annulus between the conductor and the surface casing revealed, not surprisingly after 30 years, significant casing corrosion. In some cases, this meant that plans to modify the wells by adding extra casing strings had to be shelved in case the additional load led to surface casing failures.

"Nobody is sure whether, at the time of construction, support from the conductors for the wellheads was deemed unnecessary or the conductors were simply cut without sufficient calculation or care. Whatever the reason, in several instances, the wellhead is not landed on the conductor, so the entire weight of the wellhead, its associated tree structure and the internal well casings is being borne by the surface casing."



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THE SOLUTION

After examining the wells, Miller concluded that some sort of bracing between the conductor and the wellhead was necessary to transfer some of the load onto the conductor. What he and his team came up with was a circular clamp that bolts around the top of the conductor and is designed to fit just beneath the wellhead. Shim plates take up any remaining gap.

The casing and conductor arrangement on each of the affected wells is slightly different, so Claxton has carried out a detailed survey of each wellhead and made careful measurements before fabricating a suitable clamp. Miller has used a 3D engineering drawing application to build a model of each wellhead, its casings and the intended clamp, and then verified the solution by calculation. He said, "Setting up each assembly for a physical load test is impractical, so we have checked each clamp using a calculation method in which we assumed the clamp will experience one and a half times the load specified by our client. Consequently, the designs have been on the heavy-duty side."

Installing these clamps has generally involved first cold cutting the conductor to provide a level load-bearing surface. Then the clamp was simply bolted up before the shim plates were added to reduce the gap between the clamp and the wellhead to less than 2 mm. Occasionally, it has been necessary to machine a load shoulder into the base of the wellhead. Caxton has made clamps with holes in them to provide access to the casing conductor annulus for inspection tools or drilled holes in the conductors for the same purpose.

THE RESULT

Claxton has installed four wellhead clamps on two platforms in the Dutch sector of the southern North Sea and a fifth on a platform in the UK sector. All of the projects are covered by a five-year overarching contract with the client to provide clamp design and installation and hole-drilling services.

"We are very used to this kind of work at Claxton and are ideally qualified for it," said Miller. "It takes understanding, offshore engineering experience, teamwork and great ingenuity to come up with a solution that is technically sound and can be easily and quickly implemented in the field."

The support clamps all take roughly the same form, though they differ slightly according to the arrangement of the wellhead, surface casing and conductor. Whatever the exact design, the clamp extends the conductor so it finishes right up under the wellhead and hence bears some of its weight.

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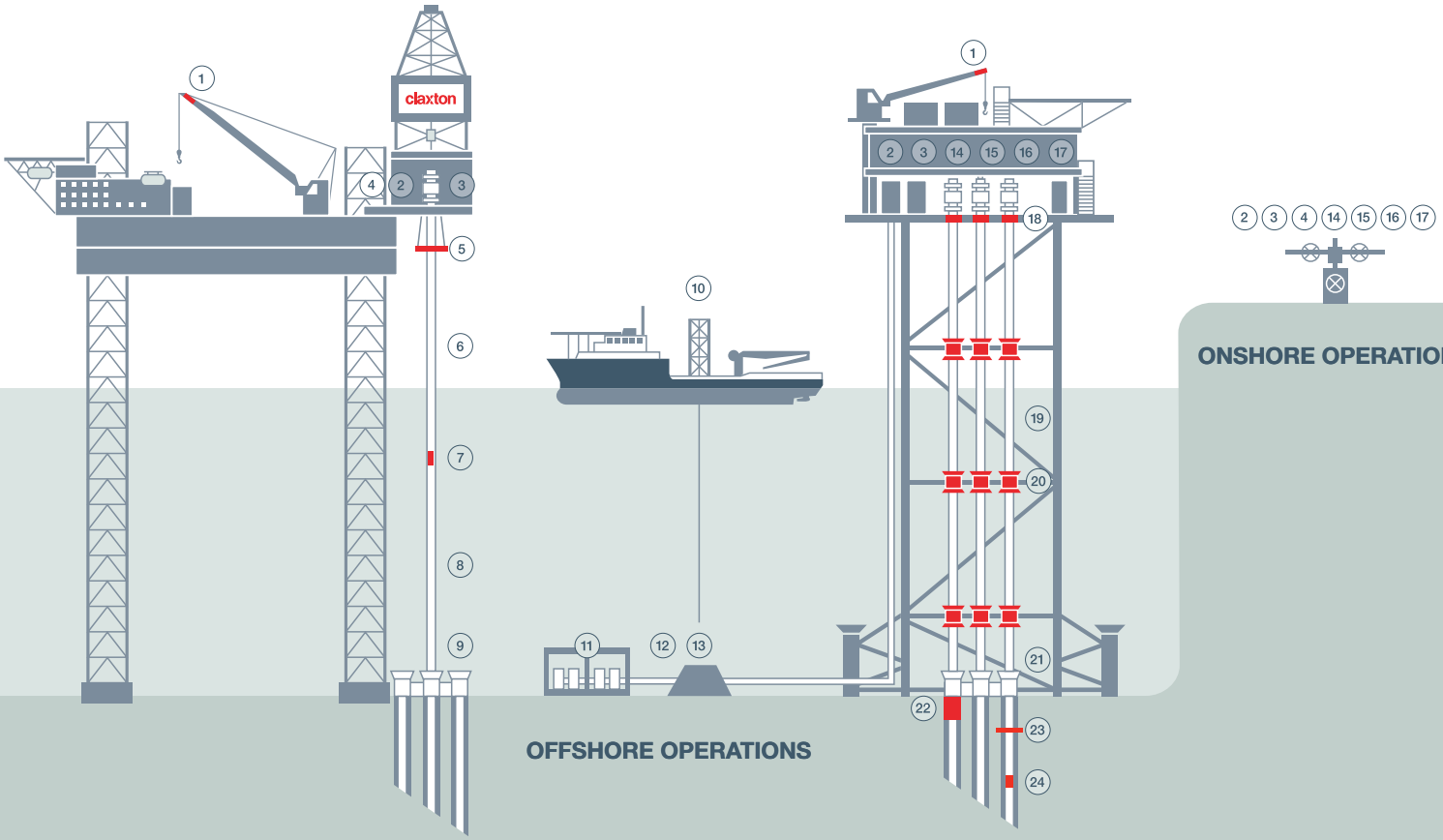
MAKE IT HAPPEN.

Trust Claxton to make your project happen.

CLAXTON CAPABILITIES



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