

In the spotlight – Case Study 1

OGA helps to accelerate the speed of commercial negotiations through enhanced use of standard agreements

Lead Operator: ConocoPhillips (Phase 1 and 2)

An initiative proposed at a Commercial Managers industry meeting in 2016 sought to accelerate the speed and conduct of commercial negotiations. A key area where it was recognised that negotiations could be speeded-up was through the more widespread use of standardised agreements. The first step was to understand how widely the OGUK standard agreements were being used in the UKCS and identify opportunities for improvement.

ConocoPhillips volunteered to lead the contract standardisation workgroup and convened a series of meetings with commercial and legal participants from a range of operators. It was agreed that the workgroup would develop an industry standard study agreement typically used when an operator proposes to tie in a new field to existing infrastructure and therefore needs to complete an evaluation of the possibility. It was felt that completing this new agreement template would have a positive effect on maximising economic recovery (MER) through an industry-wide adoption of this new standard agreement by reducing the upfront time to commission studies to develop new fields.

During phase 1 the study agreement was developed in three months and endorsed by the OGUK's Operators Legal Committee. The OGA was supportive of the group throughout the process, encouraging operators across the UK North Sea to join in the initiative. In addition, the OGA actively participated in the work group's meetings and conducted insightful surveys into the use of standard agreements and how this can be extended.

ConocoPhillips is also leading Phase 2 of the study group that will see the study agreement template being further developed with bolt-on terms to allow site works to be performed and/or requesting operator facility access to be granted as part of the study. The Lead Operator communicated the process and lessons learned from the success of Phase 1 and delivered the supplemental terms to OGUK for endorsement within the agreed project schedule. When endorsed, these terms will be implemented as a further enhancement to the standard agreement. Expected completion date is by the end of July 2017.

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In the spotlight – Case Study 3

Collaborative Well Plugging & Abandonment Drives Down Decommissioning Costs

Operators/Owners: Centrica, BP and ConocoPhillips

The UKCS decommissioning challenge is significant with over 250 subsea production systems and approximately 3,650 wells, all of which must be decommissioned. In accordance with the principles of MER UK, there is a need to significantly reduce decommissioning costs through increased efficiency, and more importantly, industry transformation.

This case study in the Southern North Sea (SNS) links directly to OGA's Decommissioning Strategy and is an example where three operators/owners have collaborated to minimise costs through knowledge share on their activities.

Significant opportunities existed for innovation, efficiency, and cost reduction relating to the plugging and abandonment of the KX well, which is owned by ConocoPhillips (50%) and BP (50%).

KX was shut-in back in 2009 and requires permanent abandonment. It sits within a subsea manifold, which houses Alison B3 well operated by Centrica who planned to plug and abandon it. Taking a regional approach to the activity, combined with effective knowledge sharing, opportunities were recognised and agreement was reached for Centrica to also plug and abandon KX.

Both wells contained synergies having originally been drilled back in 1995 by the same jack-up drilling rig. As a result, the completions, casing design, wellheads and trees were similar. Centrica was also the owner of bespoke tooling interface equipment for these wells.

Using one jack-up rig to plug and abandon wells on the manifold means that significant savings can be realised on the rig move, interface and Dive Support Vessel costs. There will also be efficiencies through batch operations across the well.

Centrica is recognised for best practice within the industry for having a strong track record on SNS subsea well plugging and abandonments. They have previously performed four subsea well plug and abandonments that required the same bespoke subsea tooling, which is a significant attribute to the proposed work-scope allowing learnings to be leveraged across multiple wells. As well as the rig work, Centrica also performed subsea operations on the manifold in support of the plugging and abandonment activities as part of their diving support campaign.

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In the spotlight – Case Study 4

Knowledge Sharing and Collaboration Improves Efficiency and Reduces Cost of Pipeline Cleaning

Parties Involved: ConocoPhillips, BP, Halliburton & Centrica

An incremental improvement delivering successful results has been implemented by operator ConocoPhillips and co-owner BP in the UK Southern North Sea (SNS) where they have effectively optimised pipeline flushing and cleaning procedures on 19 gas/methanol pipelines. This methodology has been developed by challenging existing industry approaches, which is considered one of the key successes in OGA's MER UK Strategy.

Over the past two years of pipeline cleaning operations in the SNS, a series of cleaning chemicals and gels have been specially developed with Halliburton Pipeline and Process Services. Injecting these into the pipelines has given a transformational solution to flushing and cleaning work-scopes. They have been successfully used to clean pipelines to displace the process fluids using seawater, whilst minimising the amount of over-flush of seawater (and volume of contaminated liquid to be disposed of) to reach the desired level of cleanliness.

The gas pipelines that have been flushed and cleaned range in size from 10-inch infield lines with piggyback methanol lines and/or subsea umbilical control lines, to a main 28-inch export pipeline extending 138 kilometres. Their inventory was predominantly gas, but they also contained significant quantities of process fluids including condensate, methanol, produced water and quantities of solids from production wells.

The products are injected into the pipeline, separated by foam spacers (pigs) which segregate the cleaning solvents and ensure an efficient sweep of the fluids from the line. As the pig train moves towards the host facility, the displaced fluids are recovered, and injected down a well back into the gas reservoir. After the train is recovered, it takes very little over-displacement (5 - 10% of the line volume) to prove the line has been swept efficiently, and clean seawater has been received to the host facility leaving the line fully flooded.

ConocoPhillips is now collaborating with several operators who have producing facilities (satellite platforms and subsea manifolds) tied into the Lincolnshire Offshore Gas Gathering System (LOGGS) complex and the Murdoch central hubs to share this knowledge to flush, clean and flood third-party pipelines. The first combined operations project was recently completed successfully with Centrica employing a dive support vessel (DSV) to tie into its subsea Ann manifold and pipeline, before pigging and flushing the process fluids towards the LOGGS platform for injection down hole.

Combined Centrica and ConocoPhillips teams operated on the DSV and the LOGGS platforms on a 24-hour basis leveraging their expertise, efficiently managing interfaces and ensuring the task was completed safely and successfully within schedule. Approximately 4,500 bbl of fluids was received and disposed of at LOGGS and this successful result will have a great impact on the management of future third party pipeline cleaning operations.

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In the spotlight – Case Study 5

Oxy-arc underwater cutting – re-building industry skills and competence to optimise North Sea decommissioning capability

Parties Involved: ConocoPhillips (operator), BP (co-owner), Bibby Offshore & The Underwater Centre

One of OGA's priorities for 2017 and 2018 is to improve decommissioning efficiency. Whilst the development and deployment of new technology will play a key role in achieving the MER UK target of delivering at least a 35% cost reduction, it is also necessary to re-assess what tools we already have in place across the industry and identify safer and more efficient ways to use them.

One project looking at the risks of oxy-arc cutting within the decommissioning process led operator ConocoPhillips to work closely with diving contractor Bibby Offshore and The Underwater Centre in Fort William to initiate a training and assessment course to re-familiarise divers with oxy-arc cutting techniques and to re-build competence in using this equipment. This rigorous course was based on the IOGP Report 471 – Oxy-arc Underwater Cutting Recommended Practice; it also covers the requirements of the UK HSE Diving at Work Regulations 1997. The format developed is a 1-day classroom activity with test; 1-day dry practical training; 2-days of underwater training; and 1-day of underwater assessed cuts. A second course has also been developed for Diving Supervisors, Subsea Engineers and Company Representatives.

Offshore decommissioning operations frequently require underwater cutting of structures and equipment. Wherever practicable, diver-less techniques are used, including the use of unmanned submersibles or remote operated vehicles (ROVs). There are many cutting techniques available (saws, shears, water jet cutters, orbital pipe cutters, internal casing cutters) that can be successfully and remotely deployed from surface. However, there are still instances where deploying divers is the most effective and sometimes the only viable option for carrying out decommissioning tasks. Similarly, a wide range of mechanical cutting tools are available to the diver.

Underwater oxy-arc cutting or burning is historically one tool that has been used extensively in the diving industry. The system most commonly used in the UKCS is 'Broco', which is the process of cutting (generally ferrous) materials with a tool that combines oxygen and heat to oxidise or melt the parent material. Oxy-arc cutting has fallen out of use in the North Sea, largely due to the use of mechanical cutting techniques being available, which are safer, faster and more cost effective. However, when all mechanical cutting options have been exhausted, oxy-arc cutting remains a viable contingency.

Divers engaged in oxy-arc cutting need to be competent in the task to manage inherent risks. Competency is achieved through skills, training knowledge and experience. All divers and support personnel deployed on underwater decommissioning activities for ConocoPhillips in the Southern North Sea have now completed this programme and they are fully competent to deploy oxy-arc cutting as a final contingency option in a safe and controlled manner once all mechanical cutting alternatives have been exhausted. A Diving Inspector from the HSE UK has attended the course and although the HSE will not formally approve training, it was recognised that it has contributed in reducing diver risk during oxy-arc cutting to ALARP.

Decommissioning presents significant opportunities for innovation, cost reduction and development of UK skills and capability, and has the potential to deliver a competitive market advantage to the UK on the global decommissioning stage. This training is now available for other operators and diving companies and it has helped to safely re-establish an important skill in the North Sea decommissioning toolbox.

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