

The future of North Sea platforms, says **Bruce McMichael**, presents many very particular challenges which should be faced now rather than later



Cleaning up after years of profitable drilling and production operations in the UK's sector of the North Sea is forecast to cost oil companies around €50bn spread over the next 20 years. Work has already started scrapping and recycling obsolete infrastructure although high oil prices, new technology and more effective maintenance programmes have allowed the platforms to remain functional for years after their original, planned life.

Globally, the most active region for decommissioning is the Gulf of Mexico, where around 1,000 structures have already been removed. However, there is little in common with the working in generally benign waters of depths of around 40 or 50 metres and seas approaching four times as deep, in the hugely challenging waters of the northern North Sea.

The range of structures in the North Sea also presents a challenge, with engineers tackling small steel lattice structures found in the southern region to the huge concrete and steel affairs made for the more northerly waters, and between subsea systems and floating production, storage and offloading installations (FPSOs).

For oil and gas operators, decommissioning is not central to the business but is a responsibility. Their efforts are focussed on exploration, production, refining and marketing. This offers contracting companies an opportunity to work collaboratively to solve the decommissioning challenge.

Steps to decommissioning

The process leading to decommissioning across the world is complex, not least because of varying legal regimes. In the UK sector there is a carry-back liability, which means removal and environmental liability costs can be shared back along the chain of users, owners and licence holders, from the time of the original installation until its decommissioning. In the Norwegian sector, where part of the old Ekofisk field is being removed, there is a slightly different legal regime. In the Dutch sector, it is the last licence holder for the block who is responsible, according to Jan Kromhout Dutch law firm AKD Prinsen Van Wijmen.

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THE BIG NORTH SEA CLEAN UP



“INDUSTRY HAS CALLED UPON THE UK GOVERNMENT TO CREATE THE RIGHT LEGISLATIVE ENVIRONMENT”

Gunther Newcombe, Head of Decommissioning, BP Exploration Operating Company delivers one of the keynote addresses at the SNS Decommissioning Conference 2009 COURTESY OIL & GAS UK

In UK waters, the work is carried out in accordance with the ‘Decommissioning of Offshore Oil and Gas Installations and Pipelines’ section of the Petroleum Act 1998. The more recent update was published in January 2010.

At present, where a structure cannot merely be floated away, the best solution is normally to cut the structure into smaller more manageable sections, lift them onto barges and bring them back to shore for re-use, recycling or disposal. Often this is a dangerous, lengthy, costly and weather-sensitive procedure.

There are four stages involved in a decommissioning project, says UK Oil & Gas:

- the available options for decommissioning are developed, assessed and selected, balancing environmental factors, cost, technical feasibility, health and safety, and public acceptability factors;
- the operator applies to the government to finish production having proved the reservoir is no longer viable. The government will then grant a “cessation of production” (COP) permit. At this stage the wells will be securely plugged deep below the surface;
- the operator gains government approval to proceed with its recommended decommissioning option and offshore operations begin to

remove all or parts of the structure to shore;

- sections are removed to shore and then re-used, recycled or disposed of.

Operator and contractor relationships

Currently, oil and gas companies are seeking to develop strategic alignments with contracting companies to create technical and engineering solutions, workable contracts and ways to minimise costs. There is a window of opportunity of about five years to create a cost-effective framework to manage the future needs of decommissioning. Oil & Gas UK has developed a Decommissioning Steering Group, and is encouraging discussion between operators and the contracting community.

The industry has called upon the UK government to create the right legislative environment to enable decommissioning to make economic sense. Key to this is creating a library of simplified processes and documentation, with special attention on formulating a decommissioning programme, environmental impact assessments and waste disposal.

Agreement has yet to be made reached about to what extent time and cost savings can be achieved through economies of scale – whether savings from a regional or

field approach can be scaled up from a single platform application.

Speaking at a Decommissioning Conference held in Newcastle UK last year Gunther Newcombe, BP North Sea decommissioning head, said some of the costs savings that are key to creating a successful decommissioning plan include instigating a thorough clean-up of the platform before it is abandoned to the demolition crews, track down old pile driving records to help identify areas that need cleaning, and perhaps use a 3D survey to help pinpoint redundant, sub-seafloor structures.

Another option for consideration is that topsides are re-used. Alternative use of facilities include wind turbine locations, re-sale or re-use as happened to much of Royal Dutch Shell’s Brent Spar. The controversial decommissioning of Brent Spar in the mid-1990s raised the industry’s, government and general public’s awareness of the environmental and financial issues surrounding the decommissioning sector.

BP’s Newcombe also warned that special attention must be paid to creating fair and balance contract conditions. He said that current contracts are generally modified EPIC (engineering, procurement, installation and commissioning) or T&I (transportation and installation) contracts.

As one industry executive says: “Handling and disposal of hazardous material can never be on a lump sum basis.”

Another key issue that has yet to be fully resolved is that, as BP’s Newcombe said: “risk associated with the platform remains with the operator and cannot be transferred to a contractor. It is the operator’s concession so he is and remains responsible for the field and infrastructure.”

Specialist lawyers are also calling to attention the issue of what constitutes waste and to have a specially designed insurance package to cover the abandonment process. Writing in Lloyd’s List, Jan Kromhout of Dutch law firm AKD Prinsen Van Wijmen, said: “The operator and licence holder will try to contract a decommissioning firm to do the work, and

However, this is likely to sustain jobs rather than create new ones, says UK Oil & Gas.

Decommissioning is a different market from installation and contractors may have to re-establish their credentials as demand builds and new technologies become available. There are also differing factors that need to be taken into account, including project management; financing, risk-management and, of course, contractual arrangements.

Decommissioning is a complex and work-intensive task. It requires a diverse range of contractors to be engaged in the process, from designers and project management; to operating heavy-lifting and marine transport; drilling and wells; subsea; dismantling and, finally, disposal.

However, while operators may welcome

remove all subsea installations for re-use, recycling or disposal and selectively recover pipelines and umbilicals.

Another contract recently awarded comes from Silverstone Energy and its Partner MCX Exploration (UK) Ltd for the decommissioning of the Tristan North West field located in Block 49/29b of the UK Southern North Sea to UK-based Subsea engineering and project management company, CSL.

The contract involves subsea intervention and abandonment of two wells, one live and one suspended, and the decommissioning of the associated subsea infrastructure. Preliminary engineering work will begin immediately, with offshore execution scheduled to take place during 2010.

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So far the demolitions attempted have been done under modified offshore installation contracts. That doesn’t work – there are many tricky issues that installation does not even consider.

“For example, when the contractor cuts off a lump of structure and lifts it out of the sea, it could be considered to be no longer a piece of a structure but waste – at which point waste disposal regulations kick in. And the stuff has to come ashore, which means import regulations apply.

“The decommissioning process will include the degasification of facilities, the removal of oil and making wells safe by permanent plugging and abandonment,” wrote Kromhout.

Decommissioning contracts

There has been much speculation in recent years about whether decommissioning will create lucrative new opportunities for the supply chain, with associated jobs. As the UKCS matures, technical, project and operational support for developments will increasingly turn from construction and commissioning to decommissioning.

deferral of decommissioning expenditure and continued production, the changes in predicted timings of decommissioning works creates difficulties in establishing an effective marketplace for decommissioning services. Contractors are restrained in preparing the necessary technical support and workforce, forever changing plans. A part of the way forward is for the industry to become more open about its plans, so that the supply chain can prepare and respond more effectively.

Fields for decommissioning

Several fields in the UK sector are currently being prepared for decommissioning. BP has submitted a programme for its Don Field to the UK government for approval. The Don subsea facilities to be taken out of service include five production wells; two water injection wells; a subsea manifold, infield flowlines and a production pipeline.

Elsewhere, UK-listed Premier Energy is planning to decommission its Shelley Field, a small oilfield in Block 22/02b, approximately 192km from the north-east coast of Scotland and 32km from the UK/Norway median line. The plan is to

CSL will work with Helix Well Ops (UK) Ltd to provide well intervention, abandonment engineering and diving services using the Helix-operated Seawell mono-hull well intervention vessel with UK-based specialists BMT Cordah providing environmental management services.

Further north in the Shetland Islands, Decom Offshore UK and Lerwick Port Authority have agreed to develop a deepwater quay facility at Lerwick as a decommissioning centre for major northern North Sea structures. While in Scotland, DSM Demolition Group is reported as saying that the Nigg Yard, located in the Cromarty Firth in North Scotland, could be refurbished and used for decommissioning work.

Thus, while decommissioning North Sea structures is a work in progress with deadlines for large-scale work being pushed back, the delay is providing the industry with the opportunity to structure an efficient legal and fiscal regime and develop effective working relationships that will smooth the way to large-scale decommissioning of some of the UK’s iconic industrial structures. **ep**