

Finding Petroleum

Lifting a platform in a single lift

Are Decommissioning Security Agreements doing their job

Aligning government, operator and supplier

Using oil platforms for CO₂ storage

Event Report, Decommissioning - the D word – a problem or a big opportunity? June 7 2016, London

Special report

Decommissioning - the D word – a problem or a big opportunity?

The Geological Society, London,
June 7 2016



Event sponsored by:

 Petromall

North Sea decommissioning – is there a business opportunity?

Finding Petroleum, together with oil and gas consultancy Petromall, held a half day forum in London on June 7 2016, looking at the potential business opportunity for North Sea oil and gas decommissioning – and how the business might develop.

Topics covered included new vessel designs which can lift an offshore platform in a single lift; causes for disputes with partners and how to avoid them; and how the decommissioning market might develop, driven by low oil prices, high costs and perhaps political concerns.

Also financing and tax planning, planning and cost estimating the decommissioning job, the supply chain's view, and the legalities.

The conference also looked at the challenge of aligning the interests of government, operators and suppliers - and how platforms could find a new lease of life handling CO2 for subsurface injection.

The conference was co-chaired by Greg Coleman and Graham Scotton, both of Petromall.

Mr Coleman is a former Senior BP Executive, who held roles including head of investor relations, head of Group HSE. He was executive assistant to John Browne at the time of the BP-Amoco merger.

Mr Scotton is a former Chief Operating Officer of Dana Petroleum, based in Aberdeen, and general manager for BP Angola, among other roles.

Introducing the conference, Mr Coleman noted that much of the platforms and equipment in the North Sea is getting very old, perhaps badly corroded, and needs to be handled with special care.

When it comes to decommissioning, a big problem is high costs and uncertainty over the costs. It would be good if the industry's suppliers could find ways to reduce the costs. "Our record as an industry [on cost prediction] is pretty pathetic. Costs are generally a lot greater than we start out thinking they are going to be," he said.

Environmental regulations for decommissioning are onerous, he said. In particular taking apart concrete foundations for platforms is a very difficult task.

Decommissioning typically takes about eight years from when you start to plan for decommissioning to when you remove the last piece of equipment and get approval that the work is finished, he said. Many companies would benefit from starting their decommissioning planning earlier.

"You do need to know what it's going to cost, how long it's going to take, where you're going to get the money from, do you need to be raising additional capital," he said. Perhaps companies should think about decommissioning when they buy the asset in the first place.

Under current UK law, if oil and gas assets are sold to another company, the selling oil company can still be held responsible for decommissioning, if the current or any subsequent owners are unable to do it, Mr Coleman said.

Also under UK law, operators can claim back decommissioning costs against past profits, and corporation tax which was paid on those profits. So if it was paying corporation tax at 50 per cent, that means the government ends up effectively paying for half the decommissioning costs.

At the time of the conference (June 2016), the amount the government was paying back for tax rebates was more than the oil and gas industry was paying in tax, so the industry was a net negative for the government.

This compares to £5bn to £10bn the government was receiving every year a few years ago, Mr Coleman said.

Decommissioning "should be cheaper, it requires collaboration which this industry is not very good at, it requires new technology and young people, enthusiastic. [That way] my taxes and your taxes aren't going to be going up unexpectedly."

In his introductory remarks, Graham Scotton from Petromall pointed out that decommissioning and abandonment - shutting something down - is very much not in the DNA of the oil industry. Oil and gas companies prefer exploring, drilling and building, he said.

In order to make sure decommissioning costs are covered, companies selling an offshore asset currently require the buyers to make provision for paying future decommissioning costs, known as a 'Decommissioning Security Agreement'.

This is discouraging some companies from making investments in the North Sea. "It is now stymying the whole commercial dynamic of UK North Sea," Mr Scotton said.

Less investment in the North Sea means that less oil will ultimately be recovered, and the Oil and Gas Authority's aim of 'Maximising Economic Recovery' will not be achieved, he said.

The Wood Report, released in 2014, had a big emphasis on co-operation, collaboration and moving the North Sea forward, but there isn't much talk about that now. "The oil price collapsed, there was a massive problem on everyone's hands," Mr Scotton said.

Today in the North Sea, "every asset is allegedly for sale. Everybody wants out."

For smaller oil and gas companies, "the whole thing is about cashflows," he said.

Companies meet their Security Agreement obligations either by putting money aside, or providing a guarantee from a parent company, or a bank letter of credit. Either way, the money comes out of their current balance sheets.

A further headache with Decommissioning Security Agreements is that decommissioning costs are continually re-assessed, due to changing cost estimates and changing expectations of how much the oilfield can earn in its remaining life.

In one example, a large oil major changed its estimate of the total cost of abandoning a North Sea field from \$400m to \$700m, Mr Scotton said. This meant that all the smaller partners in the field had to increase in the amount of money they had to set aside.

This special edition of Finding Petroleum is an event report from our forum in London on June 7, 2016, "Decommissioning - the D word – a problem or a big opportunity?"

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Event website

<http://www.findingpetroleum.com/event/3f60d.aspx>

Report written by Karl Jeffery,
editor of Digital Energy Journal
jeffery@d-e-j.com
Tel 44 208 150 5292

Sales manager

Richard McIntyre
rmcintyre@d-e-j.com
Tel 44 208 150 5291
Greg Coleman and Graham Scotton
of Petromall

Layout by Laura Jones, Very Vermilion Ltd
Cover art by Alexandra McKenzie

Finding Petroleum

www.findingpetroleum.com
Future Energy Publishing,
39-41 North Road,
London, N7 9DP, UK
www.fuenp.com

The engineering calculation was made in Houston, and the partners did not have any way of knowing if it was right or wrong.

The increase had an impact on the smaller partner company's cashflows and capital spending plans, leading to reduced investment in the North Sea.

There are also doubts about whether the UK government decommissioning tax relief will continue. "The British government is not particularly minded to be providing for abandonment of installations, it has got everything else to pay for and deficit to get down," Mr Scotton said.

Once the UK government position is more clear,

"financing can be unlocked which can lead to proper planning.

Petromall is planning 4 further 'closed door' workshops in Autumn 2016 on decommissioning themes, including tax, cost estimating, project management, and late life assets.

Finding Petroleum

The North Sea needs new heavy lift vessels

Currently there are not enough heavy lift vessels in the world to do the work the North Sea requires over the next few decades – and the existing vessels can't lift the platforms in one go. Time for a new vessel design, says Mark McAllister from The Decommissioning Company



There are currently only four large heavy lift vessels in the world capable of taking a North Sea platform apart, all over 30 years old, said Mark McAllister, Chairman of The Decommissioning Company, and a former CEO and Founder of Fairfield Energy, who spent 20 years building independent oil companies for the North Sea.

None of them are capable of lifting large platforms in one piece. For example, there was no vessel which was capable of lifting Fairfield Energy's Dunlin platform in one lift, it needed to be broken up offshore first.

Because the heavy lift vessels are so old, using one to decommission an old offshore platform "is like "one old man trying to help another old man over a wall," he joked.

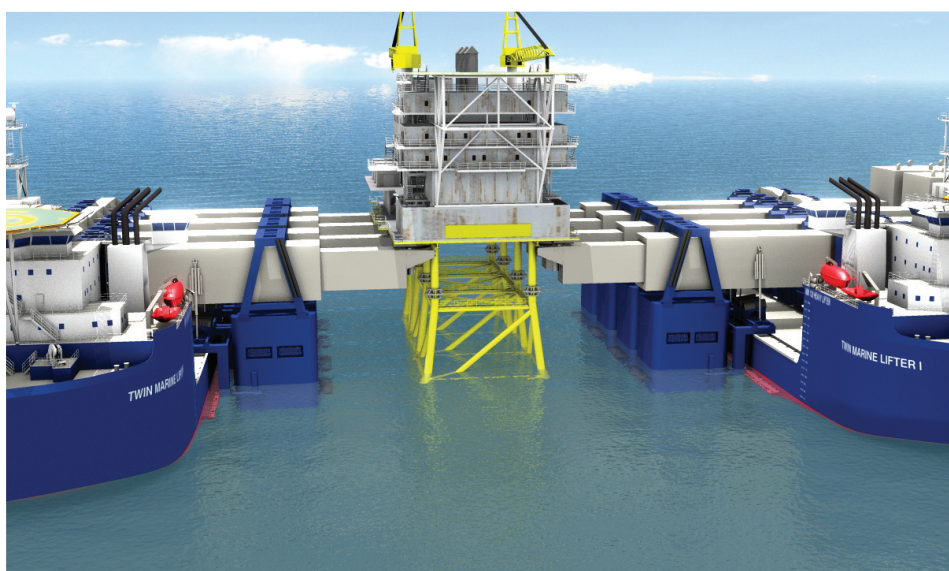
Altogether, decommissioning an average central North Sea topsides and jacket (platform legs) will take 150 days of barge time, he said. This means a barge can't remove more than one offshore platform during a summer season.

The NW Hutton platform, decommissioned in 2008, needed over 40 crane lifts just to remove the jacket. Each lift was "tiny little bits of the jacket coming out," he said. It reminds Mr McAllister of the games on a fairground "where you do the wheel and see how many sweets you can get out," he said.

Mr McAllister calculates that there are 23 operators in North West Europe, with platforms of over 5,000 tonnes to lift, which are too big to be lifted in a single lift by a crane barge. It adds up to 3million tonnes of platform which need removing in North Sea and cannot be lifted in a single lift. With current vessels, it will take about 150 years of barge time.

Statoil has 600,000 tonnes of this, followed by BP with 300,000 tonnes, and Repsol Sinopec with a little under 300,000 tonnes.

With are only 4 vessels available, "every one of these operators is assuming they can get the crane barge they want, on the day they



The Twin Marine Lifter vessel

want, and at the price they want," he said.

Clearly the North Sea will need some more heavy lift vessels, ideally which can lift a platform in one lift. This is Mr McAllister's business venture.

Fairfield Energy

Mr McAllister was involved in creating Fairfield Energy in 2005, which acquired the Dunlin field from Shell. Fairfield accepted the decommissioning liability of the field from Shell as part of the transaction.

From 2005 onwards, the decommissioning estimates kept going up, so more and more money had to be set aside for it. It felt like "running up a down escalator," he said.

The company had an IPO in 2010, and re-assessed the Dunlin decommissioning costs around the same time. Its estimate increased by £75m. To suddenly find your costs have increased by £75m mid IPO "is not a sensible place to be," he said.

Ultimately, Fairfield "took on more decommissioning liability related to the enterprise value of the company than anyone else in the North Sea," he said.

After leaving Fairfield in 2011, Mr McAllister thought it might be a good idea to use his decommissioning expertise to set up specialist businesses in decommissioning.

Twin Marine Lifter

Today, Mr McAllister's company "The Decommissioning Company" has exclusive rights to market the Twin Marine Lifter vessel, which will lift an entire platform in one piece.

The vessel can be hired years in advance for a fixed price including insurance. So an oil company can know in 2016 exactly what the topsides and jackets part of the decommissioning work will cost in 2026.

Understanding how the technology works might be better understood by watching the videos on the Twin Marine Heavy Lift website (www.tmhl.no) (see the "topside removal animation" in the 'multi-media gallery').

To explain briefly, two large vessels (200m x 40m wide come to opposite sides of the platform and raise the topsides, with lifting arms on both vessels.

The platform would have been previously prepared, adding loading points (for the vessel to connect to),

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perhaps strengthening steel under the topsides to ensure it does not collapse when held at opposite sides.

The vessels' lifting arms use buoyancy tanks to lift upwards. They can be raised by pumping seawater out of them.

There are water tanks on opposite sides of the vessel, and water is pumped from the tank on one side to the other, lifting the tank on one side and the other tank becomes heavier as a counter weight.

The system does not need any active heave compensation system (to reduce the impact on waves, keeping the load steady as the waves move the vessel). This is a "massive advantage over competitors", Mr McAllister said.

The vessels are dynamically positioned, so they can stay on the same spot despite movements of the current. They are designed to fit around just about any offshore platform, he said.

All vessels are identical size, and have their own propulsion system (maximum speed of 14 knots).

Once lifted, the topsides can be placed onto a third vessel for transport to shore, where the topsides can be removed for recycling.

The draft (required water depth) is shallow enough for the vessel to be accepted in "most yards up and down the coast of Scotland".

The vessel is owned and operated by Norway-based marine heavy lift contractor Twin Marine Heavylift AS and China's Shandong Shipping Corporation of Qingdao, and is built with Chinese funding.

The Twin Marine Lifter system is designed to lift 34,000 tonnes, but should "probably get closer to 40,000 tonnes".

The vessel technology has been tank trialled in Norway and can work all through a North Sea summer season. It can take out almost all North Sea topsides in a single lift, and every jacket in no more than 2 lifts.

The company will be operated as a UK company, and pay UK corporation tax, which is important considering that much of the vessel's costs will indirectly be paid by the UK government (as decommissioning tax relief to the platform owner).

It is being offered to offshore operators under a fixed price contract to remove a platform. It starts work at the point where all hydrocarbons are removed and wells are plugged and abandoned, and finishes at the point where onshore yards can start taking the platform apart and recycling it.

Insurance

The vessels can be hired for a fixed price for the entire job, including insurance, arranged through Munich Re.

Insurance companies have been very keen to get involved in decommissioning, because they would like some more mechanical risk on their books, to balance all the natural risk they currently have on their books (such risks from flooding), Mr McAllister said.

Insurance companies are also happier covering mechanical risks if they are done in a single lift. The risks of complex multiple lifts offshore are hard to judge, and the risk of breaking the platform down onshore is less than the risk of doing it offshore.

The insurance company has been involved in the entire process, including the selection of the yard to build the vessel.

The insurance covers the risk that the vessel is not able to do its designed task at all and needs to be sent back to the shipyard for modification. It also covers the risk of changes to regulation increasing decommissioning costs.

Going further, it would be helpful if an insurance company was able to cover the risk of a partner in a joint venture arrangement going bust and being unable to pay for decommissioning costs, over covering the risk of cost over-runs, rather than this money being set aside by the partners as 'dead capital', he said.

Benefits of single lift

If you can take offshore platforms apart onshore, it means moving 80 per cent of your man-hours on shore, where risks are lower, with less helicopter flights and safer work. There's also less potential for cost overrun. It avoids the need to bring in offshore crew accommodation (a 'flotel') for crew to stay while the work is being done.

"We believe this is definitely the way to go," he said. "It helps to generate a whole new industry in deconstruction and recycling."

There is still offshore work involved preparing the platform for single lift, "but it's a tiny amount of work compared to deconstructing offshore," he said.

Spiralling costs

In 2005, the UK industry thought the cost of decommissioning everything would be £10bn. By 2011 this had risen to £30bn.

By 2014, Oil and Gas UK was only estimating decommissioning costs over 10 year periods, rather than the costs of decommissioning the entire North Sea. It found that companies planned to spend \$16.9bn over the period 2015 to 2025 on decommissioning, and during this time decommissioning only 23 per cent of North Sea platforms by weight.

This extrapolates to an estimate of total decommissioning costs of over £60bn.

So it has increased six fold in the last decade," he said. [It shows that] "We haven't got a clue what we're taking about."

The UK government has already guaranteed certain levels of tax relief when decommissioning happens, in order to make it easier to transfer assets from one owner to another, and stop oil companies wanting to get out of the UK business as soon as possible because they are worried about what decommissioning relief they will get, Mr McAllister said.

With companies paying corporation tax at around 50 per cent, around half of the £60bn decommissioning costs will be paid by the government.

To put this £60bn into perspective, consider that the UK's "austerity" campaign to cut costs was to save only £12bn, he said.

Aside from developing new technology like the Twin Marine Lifter, one way to reduce costs could be to bring more motivated engineers into decommissioning to try to reduce the costs. "Historically, the decommissioning part of the industry has been the cardigan and slippers part, given to the guy who is getting close to retirement," he said.

It would also be good to improve learning within the industry and maximising co-operation. "We're not very good at sharing with one another," he said.

It is possible oil companies will start to put more emphasis on decommissioning technology, as some of them realise they will be spending more money on decommissioning than anything else, he said. "Hopefully it will generate technological breakthroughs."

The costs of decommissioning relative to production revenues could also be improved by maximising recovery from the platform before closing it down. "We're spending hundreds of billions putting [infrastructure] in place, it's a shame not to get as much out of it as we can," he said.

It would be helpful if there was a way to reduce the amount of 'dead capital' which is currently signed up in decommissioning security, he said.

A super mature operator

One "radical" solution to reducing decommissioning costs is for companies to establish themselves as specialist owners of super-mature fields, primarily planning to do the decommissioning, not make money on selling reserves, Mr McAllister said.

This company would have in-house staff capable of managing well plugging and abandonment, and platform removal and disposal. All of the key decommissioning activities could be handled in-house.

The company would have the financial resources to provide decommissioning security (putting money aside to cover future decommissioning costs).

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Many oil companies would love to be able to hand their decommissioning responsibilities to another company which had the ability to do it, he said.

It is not the first time this has been done. As an example from the Gulf of Mexico, Wild Well Control purchased seven BP platforms which had been destroyed in the 2005 Hurricane Katrina. It had a contract to do recovery and remediation of the platforms, but also actually owned and operated the platforms during the process.

Another example is with Shell's Bullwinkle platform, which is bigger than any North Sea platform, and is fed by 29 wells, the deepest fixed leg platform on the Gulf of Mexico's outer shelf. Superior Energy took 100 per cent ownership of the platform in February 2010, and then sold 49 per cent to Dynamic Offshore Resources. Superior Energy will plug and abandon all 29 wells and remove the platform at the end of its life. Shell agreed to pay Superior a certain (undisclosed) amount to do this.

Mr McAllister is looking at the potential for his company to become one of these businesses.

"We're in discussion with a number of operators about taking late life ownership of their platforms," he said.

Retaining decommissioning liability

Mr McAllister said that from the perspective of a UK taxpayer, the rules do make sense, which say that a company selling an offshore asset may be liable for future decommissioning costs if the buyer can't pay.

At the time of the conference, a big news story was the UK retailer BHS, which was about to collapse with a big pension liability, having been sold from a large company to a small one about a year prior.

If a similar regulation had been in place for pensions, it would mean that the large company which sold BHS would retain liability for paying the pensions, after the small company collapsed, he said.

Instead, the liability for the BHS pensions is now passed onto the British government.

"For pension funds, if a similar thing was in place, maybe BHS wouldn't be in the place it is today," he said. So maybe it is not a bad thing actually, speaking as a taxpayer rather than as the oil industry."

Platforms as reefs

Mr McAllister was asked if he thought that the regulators might agree that old platforms could be left as reefs, rather than decommissioned. Currently some platforms have special permission or 'derogation' to do this, if they are particularly difficult to remove, such as with concrete bases.

"Most people believe that given the nature of the way seabed clearance is regulated, with the International Maritime Organisation, OSPAR, EU and UK regulation, I think rigs to reef has very little chance of success," he said.

"Future rounds of OSPAR will neither make things better nor make things worse."

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Decommissioning and the law

Decommissioning is a complex area legally as well as technically, commercially and economically, said Bob Palmer, Head of Oil and Gas with CMS Cameron McKenna LLP



Decommissioning law in the UK starts with the 1998 OSPAR Treaty, which says that when decommissioning offshore oil platforms, everything needs to be removed from the seabed completely, with just 1 or 2 exceptions for “particularly heavy platforms”, said Bob Palmer, Head of Oil and Gas with law firm CMS Cameron McKenna LLP.

He was speaking at the Finding Petroleum forum, “Decommissioning – the ‘D’ Word”, in London on June 7.

OSPAR covers Northern European countries. The name comes from the name of the ‘Oslo Convention’ and ‘Paris Convention’ which it was built from.

This treaty is the background to UK law, which says that oil and gas licence holders must comply with OSPAR.

“We have a very clear obligation for licensees to commit to remove platforms and pipelines,” Mr Palmer said.

This obligation can be transferred to any previous licence holders if the current licence holder is unable to fulfil this obligation. So even if you sell the licence, at any time in the future the government can make you pay for decommissioning. Mr Palmer explained that “if you’ve owned a licence and benefitted from it, you should ultimately be responsible for removing what’s there”.

Also, licences are granted with “joint and several liability,” which means that if there are multiple partners involved in a licence, “each one is 100 per cent liable for the obligations under that licence,” he said.

The joint venture partners form a “joint operating agreement” among themselves which divides this joint

liability, showing which percentages they take responsibility for.

There are Decommissioning Security Agreements, regulating how the co-venturers provide security for the future cost of decommissioning.

The parties make an estimate of the cost of decommissioning, split that up according to their percentages, and have to provide security for their share of the cost, usually as a letter of credit (i.e. a bank guarantee for the sum).

Agreeing and arranging all of this can take a long time. “That is one of the reasons why there has been so much congestion in the commercial side of the business,” Mr Palmer said.

Previously, the security was calculated on the basis that no tax relief would be available, due to concerns that the UK government might remove tax reliefs currently being offered, which effectively cover about half of the cost.

A few years ago, the UK government started agreeing “decommissioning relief deeds”, which are promises that the tax reliefs currently available will still be in place come decommissioning even if the laws have changed. Mr Palmer stated that these have made selling oilfields much easier.

“We can look to the future with the current tax position in mind. We don’t have to worry because of these decom relief deeds about the tax rules being changed.”

“That’s made a huge difference, because it has put certainty into the business, which is crucial.”

“Before that had happened, the problems with liability stopped companies doing trades of assets. It slowed down incoming parties, nimble, quick thinking companies who wanted to take over late life fields and run them more efficiently.”

Tax

The tax rules around how you can claim back past taxes paid against current decommissioning costs are very complex. “At the moment, tax practitioners are [still] getting their heads around how this actually works, how the reliefs are retained, and how the various rebates can be ensured,” Mr Palmer said.

There are two types of tax, corporation tax, which is paid as a company, and petroleum revenue tax (PRT), which is charged based on a licence or asset.

To claim tax relief from corporation tax, your company must have had sufficient profit to have paid the tax in the past. “You need basically a company with licences and a tax history in the UKCS.”

For PRT, it is a little less clear, he said. A company which has paid PRT is entitled to claim it back, but the rebate is only paid to the company which paid it in the first place. There is uncertainty how this would work if the platform has been sold.

“If you bought your asset from somebody else, you need to make sure in that contract that there’s sufficient language that allows you to claim from that original company,” he said. “If there’s a history of transfers from one licensee to another, that becomes more complicated.”

A specialist “decommissioning” company

There is talk in the industry about the idea of companies setting themselves up as specialist “decommissioners,” taking ownership of a group of late life assets.

“I suspect that will happen, there will be a big player, or two or three, maybe one of the big foreign nationals, who is going to come in and acquire late life licences and make a business out of decommissioning,” Mr Palmer explained.

These companies would need to have funds available which are greater than the costs of decommissioning the assets.

Doing this may be very hard for a company with just one licence, with a large sum of money needing to be taken out of use. But where a company has a number of licences, it might be able to balance income from one field against decommissioning costs on another, he said.

“There is likely to be a new industry, and inevitably there are going to be unknowns,” he predicted. However, there is an opportunity for enterprising companies to participate in a new phase of the industry, where experience gained will transfer globally.



The decommissioning story so far

The oil and gas industry does not have much experience with decommissioning so far, said Decommissioning Consultant Christopher Lloyd – but it might be helpful to take a look at it

The North Sea oil and gas industry does not have a great deal of experience with decommissioning topsides and jackets, compared to what is to come, said consultant Christopher Lloyd.



About half of all the North Sea decommissioning plans ever submitted have been submitted after 2010.

In contrast, the industry for plugging and abandoning wells is mature, because oil companies do this very often, and have in-house expertise and framework agreements with suppliers, he said.

According to current decommissioning cost estimates, just under half of the expenditure goes on well plugging and abandonment.

Bear in mind that companies which actually do decommissioning work – contractors of all sizes – do not necessarily have an incentive to develop ways to reduce the cost, he said. Their business model is to bid for a job, at a price they can afford, he said. “They don’t have people continuously working to reduce the cost. It falls to the operators to push them.”

Frigg

One major decommissioning project already completed is TOTAL’s Frigg field, which involved both UK and Norway, since the platform crossed UK and Norwegian waters.

The decommissioning plan was first approved in 2003, and finally completed in 2010.

“It was very slow,” he said. “A lot of these modules had to be removed pieces at a time. They were never designed to be removed.”

“When they put the modules on [the platform], the first thing they did was cut all the lifting lugs off, because they got in the way. Nobody thought they might be needed again in 25 years time.”

There was a great deal of pipework and cable which had been added over the course of the platform’s lifetime.

The support frame for the platform was made from concrete, which did not have much structural integrity.

If it was going to be lifted in a single lift system, there would need to be reinforcement to the frame, to make sure it would not collapse when lifted from the sides.

The most significant piece of equipment was the Saipem 7000 heavy lift vessel, he said. There are a limited number of these vessels available, they are expensive, slow to move, and the market for them will get tighter in the next few years, he said.

The equipment modules on the platform could not be lifted off, because they had very little structural integrity, so the most efficient way to do it was with industrial diggers (JCBs) actually working on the platform, breaking stuff up and putting it into baskets.

This is dangerous work. An additional hazard is that if anything is dropped overboard, under environmental regulations, it needs to be retrieved.

TOTAL originally predicted that it would cost £260m (in 2002 money), and the cost by 2010 ultimately was £458.5m, which works out as a 70 per cent cost increase taking inflation into account.

At the point the physical work was started, the budget had been increased to £400m.

TOTAL arranged a special allowance through OSPAR to be able to leave the concrete base structures in place after decommissioning. “They have to be lit and monitored ad infinitum, or until they fall down,” he said.

Total claimed that 95 per cent of the platform by weight was recycled, including all of the steel, and wood from inside accommodation, being recycled by chipping it. The concrete can be used for building landfill. “It is all called recycling [although] not everyone would agree it is truly reusing it,” he said.

Brent

Another field which has seen decommissioning planning is Shell’s Brent. Shell started planning for decommissioning in 2005. So far nothing “of any significance” has been removed, al-

though some contracts have been awarded for removing and disposing of topsides, he said.

Brent looks similar to Frigg, with three concrete based structures and one steel jacket. “They’re going to be looking for exemptions [to OSPAR] for the concrete structures,” he said.

Vessels

We are likely to see many new designs of removal vessels coming onto the market, including the Pioneer Spirit operated by Allseas, which should be operational in 2017, and the Twin Marine Heavylift system (presented by Mark McAllister at the conference).

“They absolutely change the way that this can be done,” he said.

If topsides can be removed in one lift, there is much less technical, financial and safety risk. “This gives us a much better future for decommissioning,” he said.

Heavy lift operator Heerema has a heavy lift vessel about to start construction, to be available around 2020, with cranes able to lift 10,000 tonnes. “This is giving the industry more and more options,” he said.

If the oil price goes up a great deal in the next few years, then these vessels might find better business in construction projects, rather than decommissioning, he said.

Crew accommodation

Companies need to work out how to house the crew while decommissioning takes place.

The standard way to do it is with a ‘Flotel’ accommodation vessel, with rooms for 200-300 people. These can be as expensive to hire as drilling rigs, he said, and there are only about 25 of them available in the world. Some of them are quite old, designed for a time when it was common for two people to share a room.

However, if you just need 50-75 personnel, you might be able to use a subsea intervention vessel. There is a flooded market for these, all ordered in the 2014 oil boom. “They make fine accommodation platforms, say 50 to 100 people,” he said.

Some of these vessels have different arrangements with the gangways, which gives you flexibility in where the vessel is positioned.

Xodus – aligning government, operator and supplier

The way to reduce the costs of decommissioning is to find better ways to align the interests of government, operator and supplier, said Pete Tipler, decommissioning lead with Xodus Group

The three groups involved in decommissioning have slightly different interests, said Pete Tipler, decommissioning lead with Xodus Group.

The Treasury department of government is looking to increase income and reduce cost.

Operators want to do decommissioning with minimum risk, minimum cost, and find a way to secure a profitable business future.

The supply chain is fundamentally looking to maximise returns from its services and equipment.

If a decommissioning project should be successful, all of the three stakeholder groups must end up with a good result.

Conversely, small misalignments can lead to very bad business outcomes. As an example, Xodus has seen two of its clients in the wave technology sector go out of business recently. They went out of business because of misalignments between the availability of grid infrastructure, and their need to make returns from their investment – not because of failures in their technology.

“None of it was coming together at the same time, every stakeholder was looking for something a bit different,” he said.

Mr Tipler thinks the decommissioning industry should take the story of the crocodile and the

plover bird cleaning its teeth as an example of how different companies, big and small, can work together for mutual advantage.

The ecosystem of decommissioning probably needs to be thought of very differently to the traditional oil and gas industry. “It isn't just [a business] with different players, it needs to be one which functions completely differently,” he said.

The business winners in decommissioning “will be those who can construct a fundamentally different ecosystem,” he said.

As an example, consider that traditional oil and gas procurement methods, around obtaining and comparing competitive quotes, may not deliver the best outcome for decommissioning.

Many people in the industry are talking about spiralling decommissioning cost estimates. But not many people are looking at what kind of decommissioning industry would be most effective overall, he said.

“Right now there's a who shouts louder approach, everyone saying we've got the answer, saying ‘it's going to be our technology, our stage gate process,’ something like that.”

Xodus Group

Xodus Group is an engineering consultancy founded in 2005, and has been involved in about

100 decommissioning projects so far.

Its work includes helping license holders, both operating and non-operating, to understand their decommissioning obligations, and then helps companies put together a ‘stage gate’ decision making process.

It helps companies bring together their various competences, including engineering, design, regulation and reputation management.

It is working on decommissioning both subsea and topsides infrastructure.

It helps companies put together their ‘Asset Retirement Obligation’ estimates (estimates of the costs of retiring assets).

The company offers advisory services separate to its engineering services. This includes helping companies develop a ‘holistic’ way of looking at technical, regulatory and financial requirements of decommissioning.

Xodus is trying to help companies develop new contractual models which can deliver value to suppliers, operators and the government.

“If we cannot find a way of encouraging a system of fair returns across stakeholders, there will be no investment, no solving the problem, no solving the cumulative decommissioning expenditure graph,” he said.

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Avoiding disputes in decommissioning

With so much uncertainties involved in decommissioning, there is a great deal of potential for dispute. Lawyers Ben Holland and Michael Davar of Squire Patton Boggs gave some tips about how to avoid them.

Common areas for dispute in decommissioning include incorrectly issued Section 29 notices (where parties other than the current operator are asked to pay for decommissioning); disputes over the amount of decommissioning security; and disputes with contractors during the decommissioning project itself, said Michael Davar, Associate with Squire Patton Boggs.

“Each of which raises their own subcategory of potential disputes.”

Mr Davar together with Ben Holland, partner at Squire Patton Boggs, specialise in multi-jurisdiction large scale commercial disputes in the oil and gas industry, particularly decommissioning disputes.

They were both speaking at the Finding Petroleum forum in London on June 7, “Decommissioning – the ‘D’ Word”.

Decommissioning security

Decommissioning security is a sum of money all of the joint venture partners in an offshore project are asked to set aside to cover the cost of decommissioning.

The oil price collapse is now being factored into these discussions.

When the market was buoyant, companies were understandably motivated not to put capital aside to pay for decommissioning, when there were many other more beneficial ways to use capital, Mr Davar said.

Now, companies are paying more attention to whether enough security funds have been set aside.

There are disputes about how the amount should be calculated, and how to account for a decreased production revenue or closer cessation date (due to the reduced oil price).

Under UK law, a wide range of participants connected with a certain installation can find themselves liable for decommissioning costs.

The decommissioning security agreements were developed to deal with this overlapping liability, giving parties confidence that their partners would be able to deliver when the time came to pay.

The objective is to make sure that there are enough funds under trust to cover the costs of decommissioning, after cessation of production. A contribution to the funds is made every

year, rather than paid as a lump sum.

These funds are usually provided as a ‘letter of credit’ from a bank, where a bank agrees it will make the funds available – but this takes money from the oil companies’ available funds.

Under UK law, when former participants, which tend to be bigger companies, sell an asset to a new participant, which tend to be smaller companies, the former participant remains liable for decommissioning costs if the new participant is unable to pay them, even though it has sold the asset. By ensuring that the smaller company has put sufficient decommissioning funds in trust, this liability is a smaller concern.

It is important that companies have a clear understanding of their current decommissioning liability, which typically reflects the actual interest they currently have in various licenses.

Despite a great deal of effort, it will remain to be seen how effectively the system works. “Whether this objective of mutual protection had actually been achieved is very much in question,” he said.

Typically, a project will have a first tier of participants, the companies which are currently operating the asset under a joint operating agreement, and are providing the cash for decommissioning security. This group would put together the decommissioning plan and cost schedule.

The second tier of participants are people who previously owned the asset and could be called upon to pay under Section 29 of the Petroleum Act.

This group would not be expected to place security into trust. They have a right to block changes to the decommissioning security agreement, often accompanied by the right to access to reservoir information, and the right to call on an expert if they disagree with the analysis or calculation agreed by the first tier participants.

The third tier of participants are further companies who could find themselves liable, including a parent company of one of the other companies, or a bank which has agreed to provide the security.

Finally the government’s Secretary of State could be involved in the agreement for surveillance and enforcement reasons, if there was concern that those liable to pay for decommissioning were unable to do so.

Decommissioning plans

Under UK legislation a decommissioning plan, including a cost budget and a date of submission of production, is submitted by the operator every year, typically with a deadline of June 30th. After this, a certain time is allocated to making objections.

Each company must then pay more money into the pot. The required payment is calculated as the estimated cost of decommissioning multiplied by a risk factor, minus the expected production receipts from the field, and minus security already provided.

Many companies prepared their plans when oil cost between \$100 and \$140. But the reduced oil price means that many fields may no longer be viable, or viable for a shorter length of time. This means that the expected future revenue of the installation is lower, and the amount which must be kept aside for decommissioning higher.

Bear in mind that according to an Oil and Gas UK 2016 survey, almost half of UKCS oil fields are operating at a loss at the current prices (around \$50 at the time of the conference). Many fields with a positive cash flow will not be generating enough margins to make investments.

A further factor is the increase in expected costs of decommissioning work, from £10bn in 2010 to £60bn in 2016, as an estimate for the costs of decommissioning the entire North Sea.

All of these factors make the situation worse for operators – increased estimated costs, closer cessation of production date, and less funds being available.

Companies are now taking more care to scrutinise the level of decommissioning security in place, and how the amount of security is calculated.

Maximising economic recovery

The UK’s Oil and Gas Authority (OGA) adds a further layer of uncertainty, with its requirement under the ‘Maximising Economic Recovery of UK Petroleum’ plans (“MER UK”) that companies must ensure that the maximum value is obtained from the North Sea, looking on a regional basis, not for individual platforms, even if it means that operators of individual platforms end up worse off.

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“Operators and license holders seeking to decommission their economically unviable assets may meet barriers in doing so,” Mr Davar said.

It is possible that decommissioning one piece of infrastructure can lead to other fields around it becoming unviable or losing access to pipelines. “This is known as a decom domino effect on neighbouring installations and tie-ins.”

If a participant wishes to decommission contrary to the OGA’s guidance, they may face a challenge, which may not be in the long term interests of the company, he said.

Has enough been paid in?

Because of past overestimates in how much revenue the platform will be able to generate over its life, there is the risk of an under provision of decommissioning security, he said.

This means that after a recalculation in the amount of funds required, the first tier participants are having to invest further cash, via disposals or extra leverage (borrowing).

Not all first tier participants have the same access to funds, and they may be motivated to disagree on how the amount is calculated, particularly companies who have borrowed money secured against their reserves and may be unwilling to pay more into trust.

Second tier participants are looking to protect themselves, making sure the decommissioning costs are covered. “They have begun to scrutinise the calculations. Where they are able to, they are seeking higher levels of security,” he said.

This means that the first tier participants are having to provide more and more cash, at a time of falling revenues and increasing costs.

Deciding on the amount

The main reason for disputes is on the actual amount paid in annually by way of decommissioning security under decommissioning security agreements, said Ben Holland, partner with Squire Patton Boggs.

“It is necessary for the operator of the field to come up with a hard figure, each year, which is assessed and re-assessed, to ensure the right amount is put aside. There are so many variables it is very difficult for anyone to ensure that the correct figure is there. It is an absolute headache.”

Sometimes, companies are considering a challenge to the operator’s calculations “to see whether certain assumptions could be ‘flexed down’ to provide a better outcome,” he said.

Net cost

Factors in the calculation of net cost include when decommissioning will occur, what alternative economic use might be found for fields, how the amount was previously calculated.

Decommissioning plans put together in an era of a high oil price might include plans which are not viable now, for example they might have assumed a longer field life due to Enhanced Oil Recovery, only viable at higher oil prices. Unwinding assumptions such as these leads to further disputes.

Another topic which needs to be considered is how the decommissioning will actually be done. “Every installation has its own peculiar features”, he said.

A major factor is whether elements of the platform could be left in place (as a ‘derogation’ under OSPAR). Many people believe derogations are likely to be less available in future, he said.

However, some people believe that from a purely environmental point of view, it could be better to leave more of the platform offshore, because work to decommission platforms can involve many CO2 emissions, he said.

Another factor is the government’s undertaking to hold decommissioning costs in a steady tax relief state. Until October 2013, decommissioning security had been paid on the basis that the government could vary tax relief. But then, the government agreed to guarantee tax relief on decommissioning costs.

As tax relief is now factored into the estimate of decommissioning costs, the annual capital contributions immediately became lower. This means that the calculation includes “much less of a buffer”, he said, if the costs turns out to be higher than predicted.

When resolving disagreements on net costs, it is always better in any legal process to be able to support your position with solid evidence, he said.

For example, many companies will have made a decommissioning cost calculation around the expectation of being able to access one of the currently five heavy lift vessels available.

“It would be easy for anybody wishing to challenge the assumptions to say, look, how can you [be sure] that [vessel] would be available at the time you estimate it would be available, at the cost you estimate it would be available?”

“If one can prove that everybody else in the industry is likely to be trying to use the same

vessel at the same time, it is impossible to use that estimate.”

If the process becomes contentious, “arguments like that have a considerable weight.”

Net value

The other side of the decommissioning cost calculation is the net value which the platform will generate for the rest of its life.

This involves a prediction for the oil price. Most decommissioning security agreements include a section on what this should be based on.

It also involves an estimation of reserves. There is usually a spectrum of estimates, rather than a fixed figure.

It also involves an estimate of other income, such as from tie-ins, both current and future.

Expert determination

Any disputes are usually resolved using ‘expert determination’, ie someone is chosen to make a binding decision.

Expert determinations can work out very well with a dispute about a narrow issue, such as how much was loaded onto a vessel. But a dispute about decommissioning security will be harder to resolve with one expert, because there are so many interlocking issues, Mr Holland said.

There might be one expert appointed (either an individual or a firm), who would need to factor in the opinions of other experts with expertise on topics such as reservoir engineering, process engineering, drilling, subsea contractor costs, heavy lift barge costs, other disposal costs,

All of their inputs would need to be submitted on time, otherwise the lead expert could not make a final decision.

There will likely be competing experts appointed by the parties in the dispute, providing different views on all disciplines, and the lead expert would need to resolve who was right. “There’s an enormous opportunity for mischief making, with late submissions, new data, [for example people saying] ‘can I make an extra submission about this \$5 oil price change because it changes everything’. How do you control this uncontrollable process?”

Expert determination is new in a decommissioning context, but it is accepted practise in the construction industry, he said.

Lawyers may well be seen as obvious experts, as they can contribute their experience manag-

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ing a formal legal procedure, maintaining a fair process, keeping to timetables and chivvying people along, and writing up a clear decision on the outcome, he said.

The process of appointing the expert is usually to say, either everyone will be unanimous about the choice, or the participants will make three suggestions and then score them all, and give the work to the person with the highest score.

Resolving a dispute through expert determination is much faster than using courts, Mr Holland said. "I'm a passionate supporter of the process."

The rules don't require that the expert actually is an expert, it can be anyone which the parties agree on. The expert also does not need to be independent, he or she could be a company employee. "That would be completely impossible in court, [for example] a judge was being paid by one of the parties," he said.

The parties can agree on any procedural process they want. It is very hard for a party to claim that the process is invalid.

The expert does not necessarily have to select between options provided by the parties, she can come up with a completely different answer.

An expert would normally be asked to give a preliminary view in 30 days, then parties have 10 days to submit any complaints, then the expert has a further 30 days to make a binding decisions. "That is an intensively compressed timescale," he said.

Mr Holland was asked if this process had ever been invoked in a decommissioning dispute. "The process is confidential, you have to rely on hearsay, I'm not sure there have been many, there might have been some," he replied. "I think they will

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Using Oil and Gas platforms and wells for CO2 storage

Some Offshore oil and gas platforms and wells could find further value through being used for CO2 storage in a future carbon capture and storage industry, said Belinda Perriman

As an alternative to decommissioning, oil and gas companies could store CO2 in geological formations, rather than millions of tonnes of CO2 being emitted each year to the atmosphere, said Belinda Perriman, Commercialisation Manager for Tees Valley Unlimited and a former senior commercial advisor, CCS and oil & gas with Shell.

She offered the following challenge: Instead of talking about MER standing only for ‘maximising economic recovery’, perhaps we can incorporate ‘maximising emissions reduction’; we could call it MER2.

Peterhead

The UK government has previously been very enthusiastic about geological CO2 storage deep below the North Sea. After the UK government held a cabinet meeting in Aberdeen in February 2014, it was good to see David Cameron, the then UK Energy Secretary Nick Davey, along with Deputy Prime Minister Nick Clegg, all lined up at the signing of the contract between Shell and DECC, in which both Shell and DECC partly paid for the now completed FEED (Front End Engineering Design) of Shell’s Peterhead carbon capture and storage project, she said.

The project planned to use Shell’s Goldeneye platform and wells in the North Sea, which were scheduled to be abandoned, to instead geologically store CO2 in the depleted Goldeneye natural gas reservoir, deep below the North Sea. The direction of flow in the pipeline would be reversed; instead of natural gas flowing from Goldeneye, there would be CO2 flowing to the Goldeneye platform and wells, via a spur line from Peterhead.

The CO2 would be stored deep below the North Sea in the Goldeneye depleted gas reservoir, that overlays the Captain Aquifer, where there is enough space for 100 years of storage of the UK’s total emissions (British Geological Society).

The CO2 would initially be collected from a gas powered generation plant at Peterhead Power Station, but the vision was to build a CO2 network, also taking CO2 from heavy industry (Energy Intensive Industries).

The Goldeneye gas field is no longer operating but the platform and wells are in good condition.

“The options are still to decommission or use it for CO2 storage,” she said.

CO2 storage projects would use existing North Sea skills and assets. CO2 can be captured from power stations and from Energy Intensive Industries based at areas such as Teesside.

Goldeneye wasn’t the only possible option as a site for CO2 storage in the North Sea, “But it was well studied, and had very high permeability,” she said. The Endeavour store which would be used by the White Rose project, the second CCS project which was planned at the Drax Power Station site in Yorkshire, is also well understood.

A recently released study by the UK Energy Technologies Institute looked at five geological stores, and could have picked from many more, demonstrating the vast potential to store CO2 in the rocks under the North Sea.

The Peterhead and White Rose projects would have stored three million tons of CO2 a year, equivalent to the emissions from 750,000 cars.

The plans for Peterhead and White Rose projects came to a close in December 2015, when the government abruptly decided to withdraw all of the remaining £900 m funding from its CCS Commercialisation Programme. This funding ‘competition’ had been running since 2012, and could have stimulated two carbon capture and storage projects, and the beginning of a national CO2 network to decarbonize power, industry and transport.

Benefits of CCS

Studies by many different organisations, at Global, European and UK level show that meeting emissions targets costs less than half with CCS than without CCS, Ms Perriman said.

To put it another way, if the North Sea platforms are decommissioned rather than used for CCS, Britain could have to pay twice as much to meet its 2050 CO2 emissions target.

The UK subsurface stores are very well understood, because of all the work in the oil and gas

industry, spending decades characterising them, with seismic surveys, data from well logs and decades of production and pressure data.

With big scale projects, it is possible to remove many millions of tonnes from the UK’s annual carbon emissions, she said. The oil and gas industry is used to large scale projects.

The most well used method to separate CO2 from the gas stream is amine separation, which is also well understood.

So far, none of the UKS CCS projects have started construction, which Ms Perriman attributes mainly to a shortage of “policy direction,” she said.

Globally, about \$20bn has been spent on carbon capture, compared to nearly \$2tn on clean energy as a whole, she said.

Ultimately, other existing pipelines could be used for CO2 transport. It could be possible to connect the East Coast industrial heartlands of Teesside, Humber and Grangemouth in Scotland, all together in a CO2 pipeline network.

Ms Perriman is currently Commercialisation Manager for Teesside Collective, a project to dramatically reduce CO2 emissions from the energy intensive industries based on Teesside and to attract new industries to the area, with a base project that transports and stores 5 million tonnes of CO2 a year.

A great deal of work has already been done on planning carbon capture projects in the UK, there are a number of valuable assets ready to be used and it would be good to make use of them, she said.

The Peterhead project could be described as ‘point to point’ with a single CO2 source and a single CO2 store. But there is a stronger value for money case if you have a carbon capture network which collects CO2 from a number of industrial and power emissions sources, and perhaps two stores.

This CO2 network could also include plants which generate hydrogen from North Sea gas production, reforming the gas to form hydrogen and CO2, and sending the CO2 directly into the storage network. This would produce low carbon

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hydrogen which could in turn be used to fuel cars and heat our homes.

In the North Sea, the CO₂ could also be used to improve oil and gas production (enhanced oil recovery), something already widely used in North America. It could be used for enhanced gas recovery (improving gas production).

The oil and gas industry has been seen as part of the CO₂ problem, producing fossil fuels. It could now be vital part of the solution, she said.

There is already some pure CO₂ being (marine) shipped from Teesside, and CO₂ being used for growing tomatoes in greenhouses. “So pure CO₂ is available, we could look at injecting in one of the geological stores,” she said.

There is a pipeline already in place from Grangemouth to the St. Fergus Gas processing Terminal, called the Feeder 10 Line, which could be used for CO₂. Comprehensive design work has been done on what modifications would be required as part of previous CCS projects.

There is a further carbon capture project being considered in Grangemouth by Captain Clean Energy / Summit Power which could be connected to the network.

The challenge is not technical, it is ultimately about funding, including incentivising investors after so many changes of heart in Energy policy in the UK.

However, the faster oil and gas infrastructure is decommissioned, the less likely it can be used for CO₂ storage, she said.

Government

The UK’s Oil and Gas Authority (OGA) has a remit to consider whether an asset might be appropriate for carbon capture, before it is decommissioned.

Government should work with oil and gas companies to incentivise reuse of assets with potential for CO₂ storage, before any decommissioning is agreed, she said.

But the fact that there is currently no carbon capture and storage policy in the UK currently makes that difficult, but could be made easier once the Government has announced its Energy Policy Update, due at the end of 2016, she said.

It would help if the government was able to take the low probability risk on any CO₂ leaks from storage, as it does with nuclear power, she said. The consequence of CO₂ leakage is of course being incomparably low compared to nuclear leakage.

If CO₂ leaks from a well it means that CO₂ will go into the atmosphere which would otherwise have been emitted to the atmosphere anyway, and the leak would need to be repaired, something well within the oil and gas industry’s competence.

However, there could be a cost to this, if the company responsible is required to pay for the carbon leaked by buying carbon permits. However no one can predict what the price of these carbon permits will be, so it is a risk that cannot be priced and this is unacceptable to a company and it will not be able to buy insurance for it. “It is appropriate that the government takes that risk,” she believed. “Then kick-starting CCS would be a lot easier.”

The White Rose project was also going to receive 300million Euros, however after the government pulled the funding that the project was going to bid for that European money is in limbo. It could be good if this money could be retained to open the way for one of the three remaining UK CCS Projects, including the opening of the first UK CO₂ store.

If the CO₂ Emissions Trading Scheme were far more robust, leading to an increase in the price of carbon emissions, then oil and gas companies might see building carbon capture schemes as a way to avoid these costs, or reduce uncertainty about them, she said. The leaders of 40 Oil and Gas Companies asked for a higher carbon price in order to provide the stimulus for action.

Conference chairman Greg Coleman, a former head of group HSE at BP, said “I’ve been working on CCS myself for many years; it’s a very frustrating topic. Governments are neither encouraging nor discouraging it, they are turning their heads the other way frankly.”

Finding Petroleum



Decommissioning - the D word – a problem or a big opportunity?

List of attendees Finding Petroleum: Decommissioning - the D word - a problem or a big opportunity? London, June 7 2016

Geoffrey Boyd, Field Development Consultant, Antium Frontfield	Alastair Reid, Consultant, IHS	Andreas Exarheas, Assistant Editor, Rigzone
Santosh Singh, Partner, Apta Consulting Ltd	Conor Doherty, Scout, IHS	Andrew Webb, Deputy General Manager, Robertson Limited
Henry Lang, Partner Oil and Gas, Arcadis	Grigorij Serscikov, Director, IHS Global	Brian Hepp, President, Rocky Mountain Limited
Michael Darke, Director, Asakir Energy	Alexander Edwards, Geopressure Team Lead, Ikon Science	James McEwen, Rothschild
Laura Iley, Aspectus PR	Stephen Jenkins, Snr VP, Ikon Science Ltd	Norrie Stanley, Consultant, RPS Energy
Iain Poole, Barnett Waddingham LLP	Astor Luft, Client Engagement Leader, Independent Project Analysis Ltd	Kay Salmon, Associate Director, RPS Energy
Torsten Glaeser, Global PSCM Category Lead - Land Acquisition & Data Processing, BP	Katya Petrochenkov, Independent Project Analysis Ltd	Michele Peduzzi, Santander
Jon Clark, Environment Director, Calash Ltd	Ben Dewhirst, Geologist, Independent Resources PLC	Dan Newton, Technical Sales - IM, Schlumberger Information Solutions
Bob Spence, Director, Capital Project Partners Ltd.	Mark Jones, Business Development Manager E&A, Intecsea	Alexander Chalke, Business Development Director, Simpson Booth
Edward Osterwald, Senior Partner, CEG Europe	Kirsten Oliver, Brownfield and Asset Management Lead, Intecsea	James Compston, SVP Business Development, SNC Lavalin
Christopher Lloyd, CL Consultancy	Sangeeta Jordan, Researcher, JOGMEC	Ben Holland, Partner, Squire Patton Boggs
Bob Palmer, partner, CMS Cameron McKenna	Chris Gumm, Business Development, Lagoni Engineering	Michael Davar, Associate, Squire Patton Boggs
Hugh Ebbutt, Associated Director, CRA Marakon	Alex Barrack, Relationship Management, Lloyds Bank	Halvard Green, Project Manager, Target Energy Solutions
Danielle Kent, Associate, Dentons	Veeraj Adatia, Analyst, Lloyds Banking Group	Belinda Perriman, Carbon Capture & Storage Consultant, Teesside Collective
Andrew Rodda, North Sea Data Analyst, Drillinginfo	Nina Gray, Managing Director, Major, Lindsey & Africa	Matt Tyrrell, Geologist, TGS
Chad Barnes, Upstream Analyst, Energy Industries Council	Michael Blakemore, Director, Michael J. Blakemore Ltd	Jonny Clarke, The Decommissioning Company
Martin Riddle, Technical Manager, Envoi	Joseph Woodward, MSc Petroleum Engineering Graduate	Mark McAllister, Chairman, The Decommissioning Company
Mark Holliday, Director, ERCEquipoise	Nicholas Newman, Energy Journalist, nicnewmanoxford.com	Brian McBeth, Managing Partner, The Oxford Consultancy Group
Andrew Hockey, Director, Fairfield Energy	Hussain Kubba, Norton Rose Fulbright LLP	Andy Cooper, Sales Director, ThyssenKrupp
Richard McIntyre, Sales Manager, Finding Petroleum	Anna Smirnova, Associate, Norton Rose Fulbright LLP	Katerina Gunningham, Principal Consultant, Wipro Technologies
Avinga Pallangyo, Conference Producer, Finding Petroleum	Helen Turnell, Principal Consultant, NR Global Consulting Ltd	Andrew Gilmore, Business Development Manager, Wood Group Mustang
Alexandra McKenzie, Artist, Finding Petroleum	Mike Dean, Director, Oil & Gas Development Estimating	Chris de Goey, Director, Xodus
Karl Jeffery, Editor, Finding Petroleum / Digital Energy Journal	Mark Robinson, Managing Director / Geoscientist, Oil and Gas Consultancy	Peter Tipler, Decommissioning Consultant / EIA Lead, Xodus Group
Mark Llamas, Managing Director A&D, FirstEnergy Capital	Piers Johnson, Managing Director, OPC	Jonathan Fuller, Director, Xodus Group
John Leggate, Managing Partner, Flamant Technologies	Debbie McIntosh, Senior Consultant, OTM Consulting	Steven Miller, Business Development Manager, Zenith Energy
Jerry Flaxman, Principal, FTL	Graham Scotton, Petromall Ltd.	Andrew Zolnai, Owner, zolnai.ca
Kim Noakes, Technical Consultant, g3baxi Partnership	Greg Coleman, MD, Petromall Ltd.	
Drew Powell, Global Director-Operations, Gaffney, Cline & Associates	John Lewis, Head of Corporate Services, Premier Oil	
Simon Berkeley, Principal, Halliburton	Krisztina Kovacs, Manager, PWC Deals Strategy - O&G, PWC	
John Corr, Manager - Consultancy, Hannon Westwood		

What did you enjoy most about the event?

Really interesting presentations from Mark McAllister, Christopher Lloyd, Peter Tipler and Belinda Perriman.

The lawyers and the questions.
(PetroMall)

Learned about a whole new topic.
Andrew Zolnai
(zolnai.ca)

The subject of decommissioning is a complex one to say the least, and I thought that in all cases the presenters gave succinct talks which were both informative and engaging.

Even on subjects outside of my usual comfort zone, such as Decommissioning Security Disputes (Ben Holland and Michael Davar) the presentations were of such quality that I felt I had a much better understanding of the problems facing the industry.

The people there.
Nicholas Newman
(nicnewmanoxford.com)

Learned about a whole new topic.
Andrew Zolnai
(zolnai.ca)

Good speakers. Surprisingly interesting and clear talks for a subject that I had thought would be rather dull.

Technical and commercial information regarding abandonment issues.
Santosh Singh
(Apta Consulting Ltd)

In general it was very good. Quality of presentations was above expectation, mainly after attending the Decom North Sea conference two weeks ago.

Presentations from Greg Coleman, Mark McAllister and Bob Palmer especially were excellent - very informative and new insights on subjects about which we were not well informed before.
Iain Poole (Barnett Waddingham)

A real eye opener to the future opportunities and life after North Sea oil and gas.
Mark Robinson
(Oil and Gas Consultancy)

Timely topic, excellent presenters covering most of the topics.

All in all, good topics, good presentation and lots of interest.

The opportunity to meet other professionals and discuss the items presented in the casual atmosphere usually results in follow-up discussions.

Keep it up.
Brian Hepp (Rocky Mountain Limited)

Great chairman. Mark McAllister as well as the Decommissioning Security Dispute presentation was very good and very useful.

Networking.
Piers Johnson (OPC)

Good location and venue. Agenda materials given on arrival very clear.
Christopher Lloyd (CL Consultancy)

Venue, turnout; learned things, particularly on the legal side.