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Re-use and
decommissioning

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Offshore Holland is a magazine with the objective to promote the interests and export opportunities of the Dutch supply- and service companies in the upstream oil and gas industry. Moreover technological developments will be highlighted in order to contribute to a positive representation and positioning of the Netherlands as innovative and ingenious partner country.

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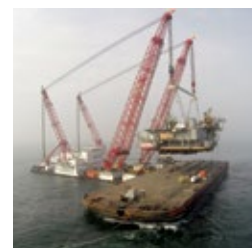


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‘Cooperation is the key to success’

As the Dutch Ambassador to the United Kingdom, I am delighted to welcome all visitors and Dutch exhibitors to Aberdeen for the Offshore Europe 2017 Conference and Exhibition.



Simon J.H. Smits, Ambassador of the Kingdom of the Netherlands to the United Kingdom.

Trade relations between the United Kingdom and the Netherlands have existed for many centuries. Our like-minded mentality, the proximity of our countries and our shared values are an excellent basis for co-operation and for business to thrive.

Thanks to our natural resources and the many opportunities in international trade and seafaring the North Sea has given us over the ages, our countries have long been successful trading nations on the global stage, each with an illustrious track record in many fields of expertise.

The collaboration between the United Kingdom and the Netherlands is built on a long tradition and history of partnerships. Today, economic ties between our countries are stronger than ever and bilateral business is booming.

When it comes to the energy sector, it is clear that our society is going through a period of transition in order to address the challenges related to sustainability and energy security issues. And even though alternative energy sources will become increasingly important in the long term, the role of the oil and gas sector will remain significant for the foreseeable future.

As your neighbours across the North Sea, we are well-positioned to address the huge potential of the decommissioning market.

As frontrunners in the development and operations of North Sea assets since the 1950s, our reputation as early adapters of new technologies will serve us well in the rapidly growing decommissioning market.

But despite this promising outlook, the sector is still facing tough times. So it is more important than ever that our countries work together to deal with the changes in the current market.

With our focus on innovative research and our collaborative approach to knowledge-sharing, I am confident that together we can promote innovation in technology and strengthen the international competitiveness of the energy sector on both sides of the North Sea.

Wishing you all a very successful and pleasant OE2017,

Simon J.H. Smits
Ambassador of the Kingdom of the Netherlands to the United Kingdom.

IRO Exhibitions and Export programme 2017 - 2018

Date	Activity	City/Country
2017		
10-11 October	Offshore Energy Exhibition & Conference	Amsterdam, The Netherlands
24-26 October	OTC Brazil	Rio de Janeiro, Brazil
13-16 November	ADIPEC	Abu Dhabi, UAE
28-30 November	Wind Europe	Amsterdam, The Netherlands
2018		
30 April - 3 May	OTC Houston	Houston, USA
27-30 August	ONS Stavanger	Stavanger, Norway



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‘When one door closes, another opens...’



The energy transition is in full swing. The major challenge for the Dutch in the coming period is to maintain and reinforce our position in the Top 5 of global suppliers in the offshore energy industry, with a full integration of offshore renewables and a solid strategy to address new challenges such as the decommissioning market. In this respect, collaboration amongst industry stakeholders is vital.

Shaping the Energy Transition has been top priority on the agenda. The sustaining low oil prices as well as depletion of conventional resources in our traditional home market, the North Sea, resulted in a diversification in portfolios of many of our member companies; an absolute must to

address the transition and to be less vulnerable to the volatility of oil prices. In the past few years, an increasing number of IRO members have delivered impressive project results in the Offshore Wind market and have contributed to the installation of offshore wind parks.

Many promising developments are yet to come.

Industry collaboration

An important step to search for sustainable and innovative synergies between conventional and renewable markets is the North Sea Energy

‘The Dutch offshore industry has built up an impressive track record in the upstream oil and gas sector.’

Challenge, a collaboration between offshore oil and gas operators, offshore wind industry and NGO’s to support and expedite the energy transition. As a result of this challenge the North Sea Energy Program was launched in May 2017. This initiative is aimed at a smooth transition from traditional energy sources to stable, sustainable and cost-efficient energy sources thereby preventing significant public sector costs and innovating towards a more sustainable future by creating synergy between the existing oil and gas infrastructure in the North Sea and tomorrow’s renewable energy sources.

Decommissioning

With the North Sea in our front yard where many assets are nearing their end-of-life, the decommissioning market is one with great potential for the Dutch supply chain. Some ground-breaking, unprecedented projects executed by Allseas’ vessel ‘Pioneering Spirit’ in 2016 and 2017 have set a new mark in the decommissioning market. It is important to be on top of market developments and to swiftly act on opportunities as they arise.

The Dutch offshore industry has built up an impressive track record in the upstream oil and gas sector. Decommissioning activities fit in very well within the core business of these IRO members. All the necessary elements to serve this market are available within the Dutch supply chain, varying from engineering, equipment supply and contracting.

Master Plan

On the 30 November 2016 EBN presented the so-called Masterplan Decommissioning and Re-use to Sandor Gaastra, Director-General of the Ministry of Economic Affairs. The Masterplan is an initiative of EBN in cooperation with NOGEPa and IRO.

The plan has been created with the vision to ensure a safe, efficient and effective decommissioning of Dutch offshore infrastructure and describes how the Dutch oil and gas offshore infrastructure can be removed and possibly re-used in a safe, efficient and effective way. An important ambition defined in this Masterplan is to create an inclusive, coordinated,

and professionally governed organisation to facilitate and co-ordinate the Dutch decommissioning agenda.

On an international level IRO maintains strong ties and supports joint activities with Decom North Sea in Aberdeen and with the East of England Energy Group in Great Yarmouth to increase business opportunities for North Sea decommissioning.

Motto

It is obvious that, with the transition in progress, the Dutch supply chain is quickly adapting to new market conditions. Whilst our IRO members will keep focusing on cost-efficiency, sustainability and innovation in conventional oil and gas developments on a global scale, the energy transition presents us with vast opportunities to maintain our position as a frontrunner in the global energy industry. The motto ‘When one door closes, another opens’ is certainly true for the North Sea region and our IRO members. Together, we look forward to a challenging and positive future ahead.

Strong relationship between Scotland and the Netherlands



Scotland has long been recognised as a major oil and gas hub – a gateway to the North Sea and Atlantic Ocean. The depth, breadth and strength of skills, experience and expertise that the industry in Scotland showcases are renowned throughout the world.

Our role in the global oil and gas industry is characterised by constant evolution and development. From pioneering offshore exploration in the North Sea to transporting that expertise into the development of innovative new technologies, Scotland has constructed a unique platform from which it can continue to enhance its offering.

Many of today's industry-standard drilling, platform, wellhead and safety innovations were invented, developed

and first applied in the North Sea. Scotland's oil and gas innovators set the pace when it came to working in dangerous and inhospitable conditions. They go further and deeper, establishing a track record in R&D that is recognised as one of the best in the world, while creating the infrastructure to take that work into a new era.

OGTC

The recently launched Oil and Gas Technology Centre (OGTC) will

become the global 'go to' centre for solving offshore mature basin, subsea and decommissioning challenges. Driven by industry, the OGTC will draw upon existing expertise residing within industry and academia. OGTC joins an already world-class R&D community in Scotland, developing and diversifying the future of the industry.

Wind

The Scottish supply chain's ability to develop new products and services,



The Netherlands is third highest for international sales from Scottish companies.

and to diversify into new markets, leads to exciting industry opportunities, including offshore wind. There are high levels of synergy between the offshore wind and oil and gas supply chains, particularly in the areas of project management, array cables, substations, foundations, installation support and operations & maintenance.

Three Scottish offshore wind farms with a combined value of £3 billion will begin construction in 2017, contributing to the £18 billion of UK offshore wind investment that is forecast between 2016 and 2020. The UK Government has committed to supporting a further 10GW of offshore wind projects between 2020 and 2030, subject to cost reduction. The world's first floating offshore wind farm, Hywind Scotland, begins construction in 2017. When entering new industries, new skills are required. Luckily the workforce in Scotland are made up of the best trained, most reliable and cost-competitive labour forces in the world.

Network

Scotland's oil and gas industry has spawned an education and training network that features a diverse but interlinked range of vocational

training facilities, education partnerships and specialist business services to the industry. These experienced education programs are working to link today's industry needs with tomorrow's talent, building on the generations of experience in onshore and offshore services.

Our industry boasts a subsea engineering cluster that is among the strongest in the world. With almost half of the world's subsea installations in the North Sea, Scotland is a global leader in the sector, and one which encompasses over 350 companies in Scotland and £7.5 billion worth of products and services.

Offshore Energy

For the second consecutive year there will be a Scottish pavilion at Offshore Energy, organised by Scottish Development International (SDI). With companies specialising in both the Oil & Gas and Renewables sectors, the pavilion will showcase the best of the Scottish Energy supply chain. In 2016 we experienced great success from attending Offshore Energy and hope to continue that this year, further strengthening the relationship that exists between Scotland and the Netherlands.

Dutch market

According to results in our recent Survey of International Activity in the Oil & Gas, the Netherlands is third highest for international sales from Scottish companies, an increase from eighth highest in 2014 and tenth highest in 2013. This significant growth clearly shows the growing interest of the Scottish oil and gas supply chain in the Dutch market, with many companies seeing notable opportunities going forward.

SDI

SDI is a partnership between the Scottish Government, Scottish Enterprise and Highlands and Islands Enterprise and helps overseas businesses tap into Scotland's key strengths in innovation, knowledge, high level skills and technology.

In addition to inward investment, SDI also supports Scottish companies to export, invest overseas and to promote Scotland as a great place to live and work.

If you wish to find out more about Scotland or SDI, please visit sdi.co.uk or contact investment@scotent.co.uk



Re-use and decommissioning of oil and gas infrastructure

The Netherlands has been a leader in the production of natural gas for the past half century. Oil and gas has traditionally been an important source of revenue, employment and innovation for the country. The latest 'Nationale Energie Verkenning' (NEV) report indicates that gas will continue to play a significant role in the Dutch energy mix for the next two decades. Beyond that, there remains a vast exploration potential on the Dutch Continental Shelf.

Looking forward, one of the sector's key challenges is the safe and efficient decommissioning of ageing oil and gas infrastructure. Given the maturity of many fields, both onshore and offshore, and current low commodity prices a vast increase in decommissioning activity is expected over the next two decades. In particular for the Southern North Sea, with relatively shallow water and great potential for renewable investments.

At the same time strong shifts in public sentiment and climate change concerns move the economy towards a renewable future, hence the contribution of the oil and gas industry to the energy mix declines over the next decades. This transition presents an opportunity to re-use existing infrastructure to complement renewable investments before eventual safe and efficient decommissioning.

Masterplan

Energie Beheer Nederland (EBN), a company that invests in the exploration, extraction and storage of oil and gas on behalf of the State, expects that the decommissioning of the infrastructure will take several decades. How long exactly, greatly depends on the number and size of new finds, trends in prices and the transition to renewable sources of energy. It is a shared responsibility of the O & G industry to decommission safely, environmentally responsibly and cost-effectively. At the same time, criteria for re-use and repurposing will be investigated in light of the energy transition. This is a joint effort, involving many stakeholders.

Therefore a 'Netherlands Masterplan for Decommissioning and Re-use' has been created with the vision to ensure a safe, efficient and effective Dutch decommissioning market continually reducing costs and minimizing residual footprint.

At the same time this vision will foster the emergence of a vibrant and competitive services sector able to export their capabilities to other decommissioning projects.

The Masterplan was developed jointly by EBN, NOGEP (representing the interests of businesses with licences to explore for or produce oil and gas in the Netherlands) and IRO (association of Dutch suppliers in the oil and gas industry and offshore renewable industry) and covers 10 topics to deliver on this target, across 3 blocks of work: the initial priorities, the mid-term objectives and the execution levers.

Initial priorities

The initial priorities are the topics that have been prioritised because they are pre-requisites for successful execution of other topics, important and lengthy topics that need to be set in motion early or practical opportunities to create early impact.

There are four initial priorities on which the Masterplan will build:

- Establish a National Platform that drives the Masterplan forward;
- Establish a National Decommissioning Database to create an integrated view of the work scope and timelines;
- Promote effective and efficient regulation in dialogue with regulators, to improve the clarity, efficiency and effectiveness;
- Establish mechanisms to share learnings, to achieve continuous improvement in cost and performance.

Mid-term objectives

The mid-term objectives aim to promote industry behaviours that could improve effectiveness and efficiency of the Netherlands decommissioning programme. These include:

- Foster effective industry collaboration to co-ordinate work scopes and

operations for most effective and efficient execution;

- Support quality, cost-effective standardisation to ensure high quality outcomes whilst avoiding unnecessary costs;
- Stimulate innovative decommissioning approaches and technologies to create world class decommissioning and re-use outcomes in the Netherlands;
- Build on international experiences to reflect the industry's best practices.

Execution levers

Finally the execution levers are those elements that ensure effective and transparent delivery, i.e.:

- Engage all relevant stakeholders to ensure maximum buy-in;
- Launch a tailored communications plan to ensure each stakeholder is approached most effectively.

Decommissioning landscape

Under the Dutch Mining Act, disused on- and offshore mining installations must be decommissioned and removed. For offshore installations a derogation for removal may be requested for steel substructures over 10,000 tons, concrete gravity-based installations, concrete floating installations and concrete anchor bases.

In addition, disused offshore pipelines are required to be cleaned; they may be securely decommissioned and left in situ, but the Dutch Minister of Economic Affairs may also order their removal. Under the most recent North Sea Policy Document, new offshore pipeline permits will include a requirement for the pipeline to be removed when no longer in use, unless it can be demonstrated through a social cost-benefit analysis that in-situ decommissioning is to be preferred.

The estimated decommissioning costs amount to some 7 billion in total for the Dutch upstream O & G industry.

The total offshore infrastructure in line for decommissioning comprise 156 platforms, over 3,000 km of pipelines and about 700 wells. The total amount of steel associated with these offshore platforms approaches some 400,000 tons. The platform topside weights range from 150 to 8,000 tons, with over 75% of the topsides weighing less than 2,000 tons. This means that significant low-weight lifting vessel capacity needs to be available for decommissioning.

Timing

The actual date of decommissioning depends on many factors, the chief ones being prices and operating costs, but cash flow is also important. Furthermore, the investment level for

new O & G projects such as new exploration and infill wells has a large impact on Cessation of Production (COP) dates. Historical performance indicates that on average, the interval between COP and physical removal is four years for the Dutch gas sector.

The low gas price has led to a sharp drop in the number of exploration and development activities and has brought several fields to the economic cut-off point. Despite the current low rates for drilling rigs and lifting vessels, there has been only a minor upturn in decommissioning yet, largely because of the cash flow constraints of operators and/or joint partners.

Actual versus provisions

The cost of well decommissioning particularly seems to be likely to be underestimated. A figure for the period 2011 -2016 shows that on

average, actual expenditure on well decommissioning has exceeded provisions by some 75%.

A concern regarding wells is that the documentation of older wells is often incomplete, not available in digital form, or sometimes not available at all due to transfer of ownership or relocation of offices.

Each year, EBN receives estimates of decommissioning costs from all its joint venture operators, but the approach and details of these estimates vary greatly between operators. To obtain more realistic cost estimates and actuals, a guideline for using a common breakdown structure would be required, like the one created by Oil and Gas UK. If such data would be incorporated in a decommissioning database, benchmarking would be possible allowing for more precise provision for future projects.



The goal of the National Platform is to serve as the umbrella organisation that proactively coordinates, facilitates and seeks dialogue.

Five-year forecast

EBN has budgeted for a total of EUR 133 million for decommissioning activities in 2017 in all its joint ventures. In total, 28 wells (9 on-shore, 19 offshore) and 3 platforms and associated pipelines are listed. For the five-year period beyond 2017, between EUR 0.8 billion and 1 billion is expected to be spent on decommissioning.

National Platform

The goal of the National Platform is to serve as the umbrella organisation that proactively coordinates, facilitates and seeks dialogue on this agenda. It is expected that the platform will be established by a group of stakeholders with a key interest in decommissioning and re-use, and that over time it will expand as many more join in.

On the short term it is to achieve the following:

- Detailed design for the National Platform, including agreement on funding, governance and membership;
- Tools and processes for running the National Platform agreed and finalised;
- Agreements covering legal aspects defined for establishing the National Platform.

National database

Another goal is to centrally capture general parameters of Dutch O & G infrastructure, in order to provide an accurate overview of this infrastructure. This would yield accurate insight into the number of wells and components of infrastructure, estimated and actual costs, as well as various other details of interest to operators, the service industry and other possible stakeholders. The database can help to identify potential opportunities for collaboration between operators and/or the service industry through joint



decommissioning campaigns. Another possible application lies in the identification of re-use opportunities for new field developments or repurposing opportunities such as CO₂ storage, power-to-gas, geothermal energy, and synergies with wind farms.

Regulation

The regulatory environment will fundamentally impact the efficiency and effectiveness of the Dutch decommissioning agenda. Regulation ranges from international treaties to national legislation. Most of these regulations were created at the end of the last century and do not always reflect the most recent practical experiences with decommissioning, technical innovation and other insights. As the industry is facing a huge decommissioning challenge over the coming decades, a robust, reliable and unequivocal set of rules is of essence. Therefore, as part of the masterplan, a regulatory joint industry working group (comprised of EBN and operators) has been created, with the goal of enabling the industry to work within a clear and consistent set of regulations, in line with technical best

practices and innovations, to support safe, effective and efficient world-class decommissioning and re-use. The approach is to identify topics for improvement, and to prioritise and engage stake-holders and regulators in a structured dialogue. The potential value and viability of the topics will be assessed and for each, the costs and benefits of alternatives will be considered. This analysis, along with stakeholders feedback, will result in a list of priority subjects.

Shared learnings

In the past few years, large international decommissioning projects have been able to secure significant cost savings of up to 40% by efficient transfer of experiences. It is more challenging to achieve such savings in the Netherlands, because large offshore structures with many wells are lacking to continuously improve on the execution of the work scope. Well abandonments have not developed into a core activity and often occur every few years under new management and contractor teams. As a result abandonment projects go through a new learning curve each time.



The solution for a more efficient way of executing decommissioning projects in the Netherlands lies first and foremost in creating a critical work volume in which the activities can be executed for a long and continuous period by specialised teams. Additionally, a platform is required in which learnings can be shared between peers and the supporting industry to ensure that smart solutions can be repeated and previous mistakes avoided. To accomplish this, a new level of cooperation and mutual trust has to be created between the various stakeholders and within the decommissioning platform. Workshops and conferences will be organised regularly to share experiences and a database will be created in which all relevant learnings are kept for future reference. The shared learnings working group is responsible for developing an environment in which the goals described above can be accomplished efficiently.

Future use of installations

Sustainable dismantling of the infrastructure on the Dutch continental shelf is key and all the possibilities for future use should be investigated. Naturally, the first choice should be to consider re-using the infrastructure for the application it was originally designed for (oil and gas) and this should be taken into account when designing the infrastructure. A second option would be to utilise the infrastructure for alternative purposes, such as power-to-gas, CO₂ storage and CAES. As a last option, the materials should be optimally recycled.

So far, 11 topsides have been re-used for other hydrocarbon field developments. An innovative option for re-use is the repurposing of a platform or pipeline. However, without the availability of power, a platform's usefulness is very limited. This could be overcome by electrifying the platform

by wind farms, as energy is available on these platforms even after gas production has ended. Moreover, the power interconnection enables the platform to act as an electrical entry point for electricity generated sustainably on the North Sea. Tidal and wave power generation could more easily be introduced if power-to-gas, CO₂ storage, CAES and aqua farming, also benefit from a power grid on the Dutch continental shelf. Therefore it is important to investigate ways of prolonging a platform's life by electrification.

As the number of future possibilities of re-using and repurposing electrified platforms in the North Sea is growing, it is to be expected that new ideas for system-integration and dealing with decommissioned platforms will emerge. The decommissioning project for the Dutch Continental Shelf has therefore stipulated re-use as one of the important topics to be further investigated.

Bluestream wins ONEgas subsea deal

Bluestream, based in Den Helder, the Netherlands, has secured a five year contract plus two-year extension with ONEgas, the combined business unit of Shell UK and the Nederlandse Aardolie Maatschappij (NAM) for the gas production on the Southern North Sea.



The contract is a so-called ROV Subsea Structural Inspection Services Contract and includes in total 69 of ONEgas's offshore platforms and subsea completions in the Southern North Sea, UK and Dutch sectors. Work commenced immediately, after signing the contract on May 24, 2017.

The contract covers subsea inspection services for which Bluestream teamed-up with Vroon Offshore Services in Den Helder as her maritime partner for supplying the offshore support vessel during the entire contract duration. For the 2017 campaign Bluestream is

using DP2 vessel VOS Sugar fitted with Bluestream's own inspection system and fully equipped Inspection Class Seaeye Tiger ROV and the Compact Work Class Seaeye Cougar XT ROV to perform the subsea structural inspections. Each yearly campaign will last around 45 days and will be executed by a team of 20 people, on shore as well as offshore.

"We are proud that ONEgas awarded Bluestream this subsea inspection contract for the ONEgas installations. This is the biggest contract in the Bluestream history and we, together

with our partner Vroon, look forward to cooperating closely with our client to make this project a success," says Adriaen Winckers, responsible for Business Development at Bluestream. He adds: "This major contract is testament to the professionalism of our organization. Over the last few years Bluestream has worked hard to optimize the operational excellence of his inspection department based on strong core values. And for this reason, it is an honor that ONEgas gives us the opportunity to demonstrate that we are a reliable partner, securing a safe and efficient operation."

New Aberdeen office and Singapore partner



UK Managing Director Mo Tafazzoly.

Vryhof is expanding its global footprint with its companies, Deep Sea Mooring (DSM) opening a new office in Aberdeen, and Vryhof Anchors appointing Singapore-based Franklin Offshore as its exclusive representative for selling Vryhof solutions in a number of Asia Pacific countries.

“In an industry that has seen considerable negativity over the past year, this is a real statement of intent by Vryhof on our ambitions to expand our products and services in new markets and meet increased demand,” said Wolfgang Wandl, CEO of Vryhof.

He continues: “With more rigs coming out of being stacked and into operation again and with the continued growth in offshore renewables, our new Aberdeen office and partnership with Franklin will ensure that we are ideally placed to grow our businesses worldwide and maintain our leadership in innovative and value-added mooring and anchoring solutions.”

DSM’s Aberdeen office, which is headed by UK Managing Director Mo Tafazzoly, has been established in response to growing demand for Vryhof products and solutions across the North Sea and will significantly boost the company’s European operations.

Mo has more than 16 years’ experience in naval architecture and ocean engineering in the marine, oil and gas industry with an enviable track record in providing technical support to projects and as a technical authority. For the past seven years, prior to joining Vryhof, Mo worked as the Group Engineering Manager of Rigmar Group where he was responsible for establishing and growing the Group’s technical department. Mo holds an MSc and BSc in Naval Architecture and is an active member of the UK’s Royal Institution of Naval Architects.

Franklin Offshore Group is a leading integrated provider of quality rigging and mooring equipment and services primarily to the offshore oil and gas industry. Under the terms of the agreement with Vryhof Anchors, Franklin will market and resell Vryhof’s anchoring and mooring equipment in Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Singapore, Thailand and Vietnam. Vryhof Anchors will provide engineering support to Franklin as and when required.

Damen finalises Keppel Verolme takeover

Damen Shiprepair & Conversion (DSC), a part of Damen Shipyards Group, announced at the end of June the acquisition of the Keppel Verolme shipyard from Keppel Offshore & Marine.



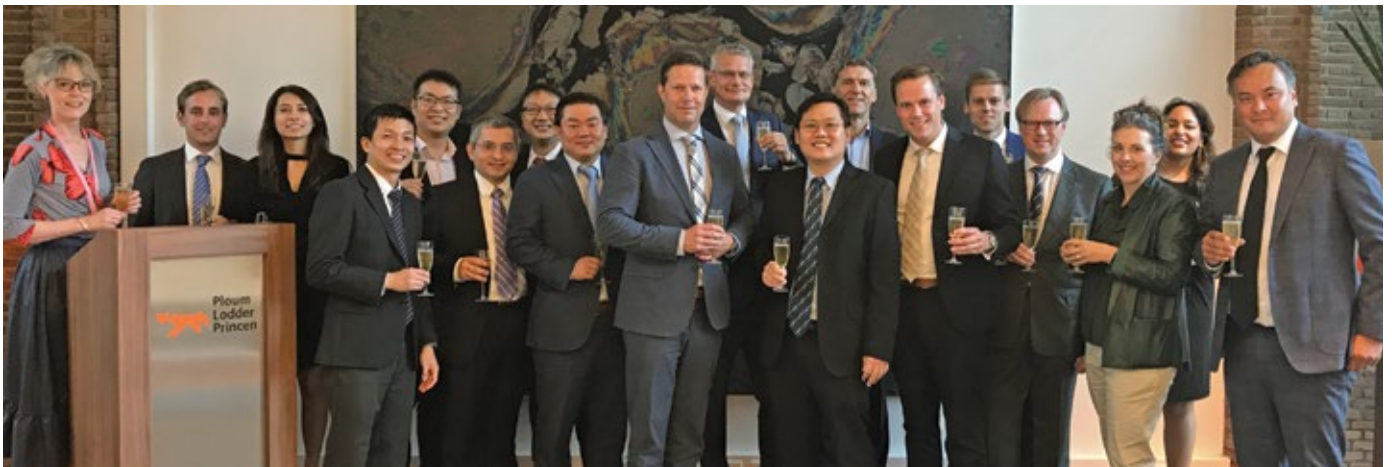
Durk-Jan Nederlof, Managing Director Damen Shiprepair & Conversion and Mr Ang Ting Yang, General Manager Corporate Development Keppel Offshore Marine.

DSC's acquisition of the yard follows an initial agreement made between the two parties in April of this year. From 1 July, the Keppel Verolme shipyard, including its 250 staff members, will continue operations under the Damen flag.

"We look forward to joining forces

with the Verolme yard and its people. The facilities and personnel are complementary to our existing organisation. This acquisition will enable us to serve our existing clients even better while opening up new opportunities," says Durk-Jan Nederlof, Managing Director of Damen Shiprepair & Conversion.

With three dry docks – the largest of which measures 405 x 90 metres – and almost 2km of quay capacity, the Verolme yard, located in Rotterdam's Botlek harbour, will significantly expand DSC's portfolio. DSC already operates eight repair and conversion yards in the Netherlands and another eight abroad.



Van Heck operates on an international level

Moving water any way you want it



The brand new diesel driven HK800 has been built on 20ft container size.

Van Heck operates on an international level in the field of water management and movement. With its diversity in pump units, Van Heck operates from dredging, salvage and offshore operations to sewer renovation and cool water applications. Every operation can be customized to meet the wishes of the client and the project's demands.

Van Heck's ballast equipment is specifically designed for load-outs and float-overs, and ideally suited for salvage operations. The completely autonomous ballast and deballast system can be entirely controlled from a central point and has a total capacity of over 40,000 tons per hour.

Van Heck's capabilities in this field:

Load-out: Supply a complete ballast system, including (ballast) engineering and operation, to load a construction from the shore onto a barge.

Float-over/mating: Supply a complete ballast system, including engineering and operation, to install a platform on the offshore location.

Jet trenching: Supply pumps to jet in cables on the ocean floor. For less complicated operations a mini ballast and/or manually controlled system can be supplied.

Sea Trophy

In 2012, Van Heck started to use its proven expertise in water pumps to develop a new, innovative system for 'green and easy oil recovery', the Sea Trophy. This oil pump enables fast oil recovery out of fuel or cargo tanks if a ship is in distress or when incorrect fuelling has taken place. The aim of the Sea Trophy is to provide the ship with the ability to recover the fuel or cargo tank's content in case of an emergency, when no other on-board equipment can help.

Global availability

In 2016, Van Heck has announced the global availability of the Sea Trophy. A number of Sea Trophy emergency response kits have been mobilised to strategic locations over the globe. These sets are suitable for FOR (Fast Oil Recovery) systems on board vessels as well as with the standalone

The HK800 will reach a flow rate of almost 10,000 m³/hour!

This comes down to draining an Olympic swimming pool within 15 minutes.

Milk Can solution, making tank access through holes as small as 200 mm diameter possible.

Each Sea Trophy emergency response kit consists of a complete set of tools and accessories, including the hydraulically driven Sea Trophy pump, capable of pumping oil with a flow of 70 m³/h.

Besides in the Netherlands, the emergency response kits will be available from bases in Miami, FL USA and Singapore. By distributing the kits globally, they can be on site very quickly. Every station has its own logistic services and can facilitate the mobilisation and operation of the Sea Trophy adequately.

Largest mobile pump set

After a complex development process, Van Heck's engineers succeeded in 2017 to build a mobile pump set with an even larger flow and volume. The brand new diesel driven HK800, like Van Heck's present pride, the HK700, has been built on 20ft container size.

Where the HK700 can pump around 7,000 m³/hour, the HK800 will reach a flow rate of almost 10,000 m³/hour! This comes down to draining an Olympic swimming pool within 15 minutes.

The HK800 is extremely suitable for dredging projects and calamities. If desired, this pump set can be supplied with sound reduction. The first HK800 has already been rented for a dredging project in Egypt.

Contingency plans

Van Heck has accumulated a broad insight into how to respond to diverse emergency situations. Key factors in emergency response are speed and a suitable solution. Van Heck's contingency plans provide an answer to both these factors.

Advantages of a contingency plan: *significant time gain in reacting to an emergency; no need for site visits; everyone involved is prepared and knows what actions must be taken; substantial cost reduction because a prepared emergency response is considerably less expensive than emergency response without a plan; limited damage due to prompt action; and professional and reassuring approach towards all parties.*

How it works

Flood prone locations as pumping stations or other key areas at risk are best known within your organisation. After an inspection of the location(s) the desired contingency is discussed. Van Heck proposes the best suited pumps for the location and the required pump capacity. Necessary site preparations and crane positions (and the type of cranes required) are also noted in the contingency plan. Van Heck provides preferably three versions for the pumping solution. This guarantees availability of equipment in case of an emergency. When the installation drawings are completed, packing lists are produced, stating all the necessary material (pumps, piping, bends, gaskets, bolts and nuts) with a loading plan showing the material divided over the required number of lorries.

Share the energy: Transformation through collaboration



Preparations for the tenth Offshore Energy Exhibition & Conference (OEEC) are underway and now is the time to join the largest European event covering the complete offshore energy mix. With oil & gas, offshore wind and marine energy all assembling at this event, which creates the ideal place to display your products and services to the world. Based on its track record, OEEC expects to attract over 12,000 offshore professionals representing around 100 nationalities and over 650 key players from the offshore industry exhibiting at the show.

Meet companies such as Jan de Nul, Voith, BASF Construction Solutions GmbH, Van Oord and Bureau Veritas on the exhibition floor.

Where you will also find country pavilions from Iran, Scotland,

Holland, Italy and India.

Part of the Offshore Energy Program are the eight Technical Sessions, held in breakfast or lunch format. The topics range from 'Global business opportunities', to '

Smart maintenance solutions for offshore installation' and 'Decommissioning'; In 2016 EBN presented their 'Netherlands Masterplan for decommissioning and re-use', developed in cooperation with NOGEPa and IRO.

In 2017, we will take stock of national plans for North Sea decommissioning and reuse and what that means for operators, the supply chain and North Sea stakeholders. The session will also present lessons learned from recent decommissioning projects. Another Technical Session 'Rise of the Renewables' shows the complete energy-mix represented during Offshore Energy.

Renewables are ever more present during Marine Energy Event (10 October), which will focus on the conditions of commercial success of marine energy and is organized together with Dutch Energy from Water Association (EWA) and Dutch Marine Energy Centre (DMEC), and Offshore WIND Conference (9 and 10 October). "There are ample opportunities in accelerating energy transition; we should think bigger and go faster," comments Pieter Van Oord, speaker Offshore WIND Conference. He will be joining speakers from among others Siemens Gamesa, European Space Agency, DONG, TNO Energy, European Committee of the Regions and Bladt Industries. The eighth annual Offshore WIND Conference will focus on the opportunities for the offshore wind sector over the next ten years and beyond.

Community Square:

Deep dive into digitalization

Digitalization is one of the key topics at Community Square. Launched in 2016, Community Square returns with crisp 'ON AIR' talk shows, which will be livestreamed on OffshoreEnergyToday.com. New this year is the addition of an exciting program of free to attend Knowledge Café Meetings. Community square will be hosted by Maarten Bouwhuis who is a frequently requested presenter, moderator and discussion leader distinguished by his enthusiast and engaged approach, substantive focus



and timely sense of humor. The fact that digitalization is a key topic is not a wonder, because digitalization is necessary. At company level. At industry level. At the level of the global economy.

That is why OEEC 2017 features a program designed to show how a solid digitalization strategy can maximize benefits and minimize risks for you and your company. Offshore Energy and DNV GL, the technical advisor to the oil and gas industry, have teamed up to offer you a deep dive into digitalization at Community Square in the morning of Wednesday 11 October.

Harnessing data, data management and creating value from data will be part of the program. However, the challenges of digitalization are non-technical and these will be explored and discussed as well: how to get people, work processes and culture to catch up with technological possibilities?

Start-up zone

The year 2017 marks Offshore Energy's tenth anniversary and this special occasion is perfect for introducing a new component to the exhibition floor; the Startup Zone. Start-ups are looking for opportunities to bring their project or ideas to the attention of the market, however, exhibiting is often a bridge to far regarding the costs it entails. Offshore Energy offers early stage start-ups with good technical ideas that make the offshore energy sector economical, safer, more efficient and more sustainable a place on the exhibition floor. From an idea that needs to be validated to almost market ready ideas ready for a pilot, investor or launching customer. Offshore Energy can offer these innovative entrepreneurs a platform.

Share the energy:

Inspirational networking

In the afterhours of the first exhibition day, exhibitors and visitors are invited to enjoy dinner and drinks, music and



entertainment in a relaxing environment during the Official Networking Event of Offshore Energy hosted by iPS. The offshore energy market is moving and 'energy transition' is the key element. For the Official Networking Event we will honor this as for our ten-year anniversary, the Networking Event will be held at a new location, for the first time since its existence. The event will be held at B-Building, a venue that builds bridges between startups, creatives, and corporates and brings them together.

Make a match!

A special international matchmaking event will be organized Offshore Energy, headed by the Enterprise Europe Network (EEN). This B2B event offers business contacts to industry, science and technology professionals the opportunity to meet, discuss and network. Companies looking for cooperation, new customers, new partners or collaborative alliances

within the oil, gas and renewable energy fields can attend the event. Organizer and Liaison Officer Energy at EEN, Kees Mokveld, comments: "This type of matchmaking is a quick and efficient way to meet companies, clients and partners. After creating a profile companies can be found and connected easily, as interesting matches can be made based on service and product. It is a way of connecting that I can highly recommend."

Celebratory edition

2017 will mark the tenth time that Offshore Energy has been held. A milestone that will pass during the road up to Offshore Energy as well as during the event this year. OEEC has experienced growth over the past year, as well as diversification, something that connects it to this year's theme. This year's theme is 'Transformation through collaboration' that will focus on the transformation happening both in oil, gas and in renewables because of a lower for

longer price environment. Both the lower price of oil and gas and the lower price per kWh for offshore wind power present challenges for the industry – albeit for very different reasons – and are leading to intensified collaboration. Add to this the industry's efforts in making the energy transition happen and you have a very topical mix of themes which will feature prominently in the conference program, but can also be experienced on the exhibition floor where exhibitors will offer their own solutions for tomorrow's energy mix.

Register your visit, book your stand or your delegate tickets via the website www.offshore-energy.biz.

There you can also find more in-depth information on the event and conference, a long with sponsor opportunities.

Green Pin introduces the Power Sling Shackle

Customers save up to 20% on wire rope costs

Green Pin introduces the Green Pin Power Sling® Shackle. The Green Pin Power Sling® Shackle lets customers save up to 20% on synthetic- and wire rope costs thanks to its revolutionary design (patent pending).



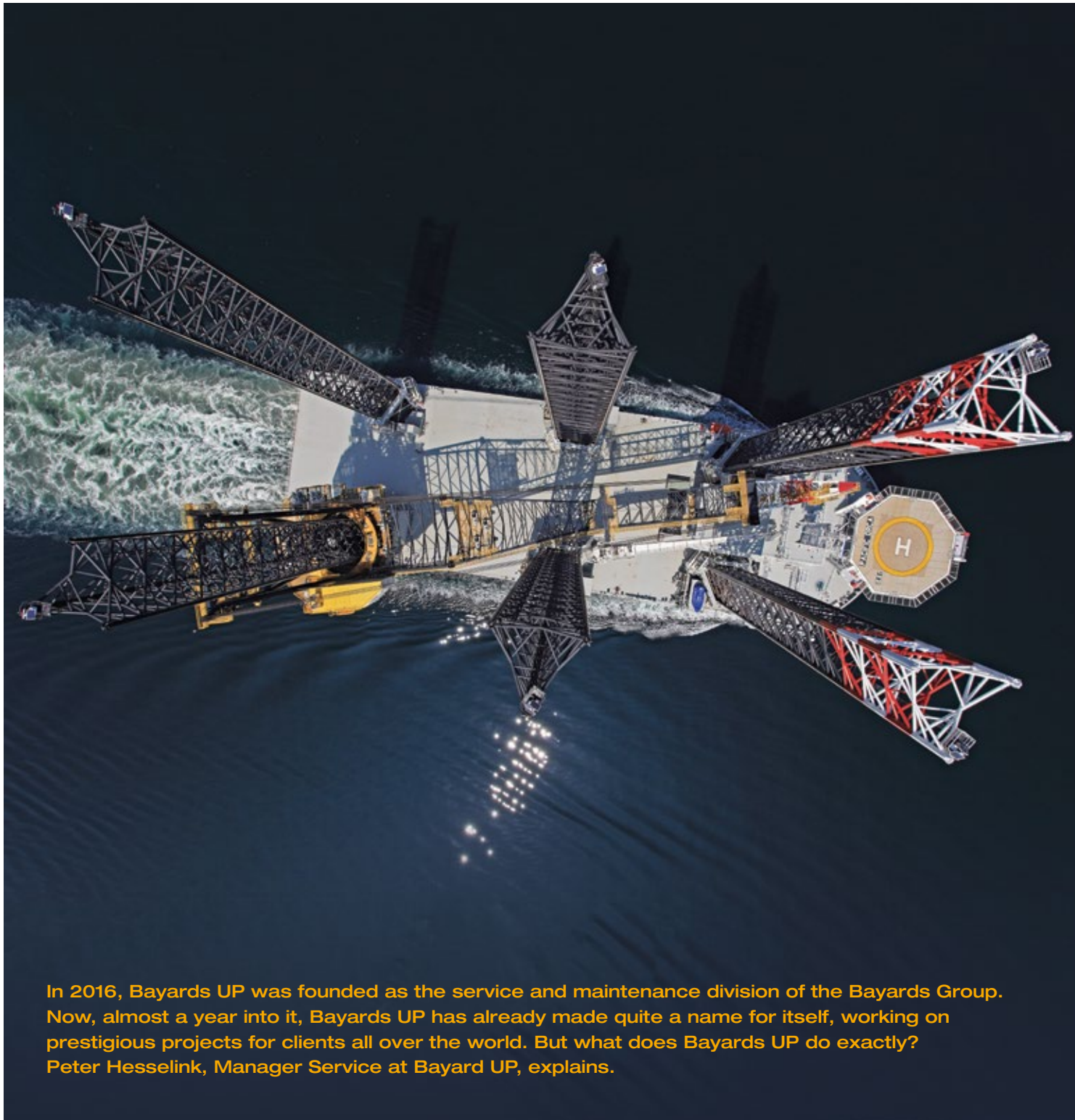
It has an optimal D/d ratio and the widest crown (+10%) in the industry. About the latest Green Pin Innovation, Vice President of Sales & Procurement Evert van Beuzekom said: “The transport and installation industry continues to be focused on cost effectiveness, while obviously not wanting to make any compromises on quality and safety. The ability of the Green Pin Power Sling Shackle to save customers up to 20% on synthetic- and wire rope costs is thus very timely and gives them a real competitive advantage.”

On top of its cost saving benefits, the Power Sling offers unparalleled safety and ease of handling. Each shackle has been individually

proof load tested to twice the working load limit, more than any other competing product. Long-term performance is guaranteed by extensive fatigue testing (over 40.000 cycles). Material characteristics have been thoroughly examined, both internally and in the shackle's surface, by MPI-tests, ultrasonic inspection and X-ray tests. Furthermore, the Power Sling offers great handling thanks to the lower body weight, multiple handling points and RFID-chips in both shackle body and pin.

The Green Pin Power Sling is available in a range from WLL 125T to 1250T. The Power Sling can be supplied with a variety of certificates.

‘The only way is UP’



In 2016, Bayards UP was founded as the service and maintenance division of the Bayards Group. Now, almost a year into it, Bayards UP has already made quite a name for itself, working on prestigious projects for clients all over the world. But what does Bayards UP do exactly? Peter Hesselink, Manager Service at Bayard UP, explains.

“For helideck owners, what matters most is to have their platforms operable in the safest condition at all times. Offshore operations take place in the most remote areas, turning helidecks into routine ‘workhorses’, facilitating people getting to and from their offshore workplaces. This has inevitably brought its operational support activities into sharper focus. To guarantee the operability of a helideck year-round, regular check-ups by specialists are imperative,” Peter says .

Specialists

Bayards Aluminium Constructions - part of the Bayards Group - has been designing, engineering, manufacturing and installing helicopter landing platforms for over 55 years.

So it’s safe to say Bayards knows helidecks. Peter: “So when we noticed an increasing number of questions from the industry regarding service and maintenance options for helidecks, we knew we were in the right position to start offering this service. Bayards UP was founded based on the increasing need of our clients. In the past, whenever our clients had a question on maintenance or spare parts, our skillful project managers used to handle all requests. Because of our growing portfolio and ever complex projects, we wanted to be of an even better service to our clients. This is why we carefully assembled a team of helideck specialists, to solely focus on perfecting this particular service for our clients. And thus Bayards UP was born.”

Services

As mentioned before, Bayards has been supplying aluminium helidecks for years. Since aluminium is seawater resistant and thus maintenance free, these structures are perfect for the harsh operating environment. However, a helideck is a very complex structure containing over 300.000 components, some of which need to be replaced periodically such as the lighting systems, marking and safety netting. And of course there’s the ever-changing rules and regulations, so it is important to keep a helideck up-to-date in order to keep it operable at all times. For helideck owners, this can be quite the hassle, so Bayards UP is here to help. The company offers helideck related services from inspections, (recurrent) maintenance and upgrades to spare parts.

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Joint venture awarded Nord Stream 2 rock placement LOI

Boskalis has been awarded a Lol (Letter of Intent) in joint venture with Van Oord for rock placement services for the Nord Stream 2 project. The award was made by the project developer Nord Stream 2 AG and is a part of the construction of the planned twin 1,200 kilometer gas pipelines running through the Baltic Sea, connecting Russia to Europe. The contract value is approximately EUR 250 million, with a 50% share for Boskalis. Contract details are expected to be finalized in the next few weeks.



Subsea rock installation vessel Bravenes.



Fallpipe vessel 'Rockpiper'.

Rock needs to be installed at specific locations along the pipeline route to level the seabed and to protect the pipelines. The contract scope includes the sourcing of rock from quarries in the Baltic region. The project will be executed in a 50/50 partnership and multiple specialized fallpipe vessels will be deployed in the period 2018-2019.

In the period 2010-2012 Boskalis and Van Oord were also contracted for the rock placement scope for the first Nord Stream project. Van Oord also successfully installed the pipeline landfalls near Vyborg in Russia.

Total E&P Nederland will operate ‘Bibby WaveMaster 1’

Bibby Marine Services is delighted to announce that it has signed a contract with Total E&P Nederland to charter the Damen designed and built Bibby WaveMaster 1 – a Service Operations Vessel (SOV) with walk to work capabilities. Total E&P Nederland will charter the vessel from April to October 2018, with options to extend up to 3 years.

Stephen Blaikie, CEO Bibby Marine Services, said: “Total E&P Nederland made a conscious decision to explore and utilise the innovation and efficiencies developed for the offshore wind market and use them in the oil & gas market. The comfort, logistics flows and ‘access certainty’ of Bibby WaveMaster 1 were key influencers in their decision. A team from Total E&P Nederland inspected the vessel at the shipyard and were impressed by the quality

and features in addition to the well thought out workflows.”

Peter Robert, Director Business Development and Market Intelligence at Damen, said: “We congratulate Bibby Marine Service and Total E&P Nederland on the charter of the Bibby WaveMaster 1. In the development of this vessel – the first of its kind – Damen and Bibby have brought together substantial knowledge. This has resulted in some impressive

innovation and the versatility to apply it, safely and comfortably, across the whole spectrum of offshore energy industries. We wish both Bibby and Total E&P Nederland every success.”

Total E&P Nederland will use the Bibby WaveMaster 1 to replace jack ups and helicopters and to provide access to gas platforms in the southern North Sea. The vessel will provide accommodation for up to 90 pax including crew.



Signing the contract – (left to right) Huib Giesberts, Manager Logistics Department, Total E&P Nederland and Stephen Blaikie CEO Bibby Marine Services.

L13-FI in its place in the North Sea

Scaldis, based in Antwerp, has successfully installed the unmanned L13-FI gas platform in June this year with heavy lift vessel 'Rambiz'. The new platform, which generates energy through wind turbines and solar panels, is located approximately 60 kilometers northwest of the port of Den Helder. This NAM monotower can extract natural gas from three new wells in a clean and efficient way. This gas is then treated to the centrally located K14 platform, after which it is transported to Den Helder with pipelines.



First, Scaldis installed a mono pile (360 tons) consisting of a pillar (40.5 meters long) and a center piece of 50 meters long. The lifting, upending, positioning and driving of the monopile foundation was carried out using the flexible 960kgm Vibro Lifting Tool, produced by Cape Holland from Beilen. The verticality of the monopile was installed well within tolerance, without the use of a gripper frame or installation template. The vibro hammer drove the pile down to six meters before the target penetration, before an impact hammer completed the job.



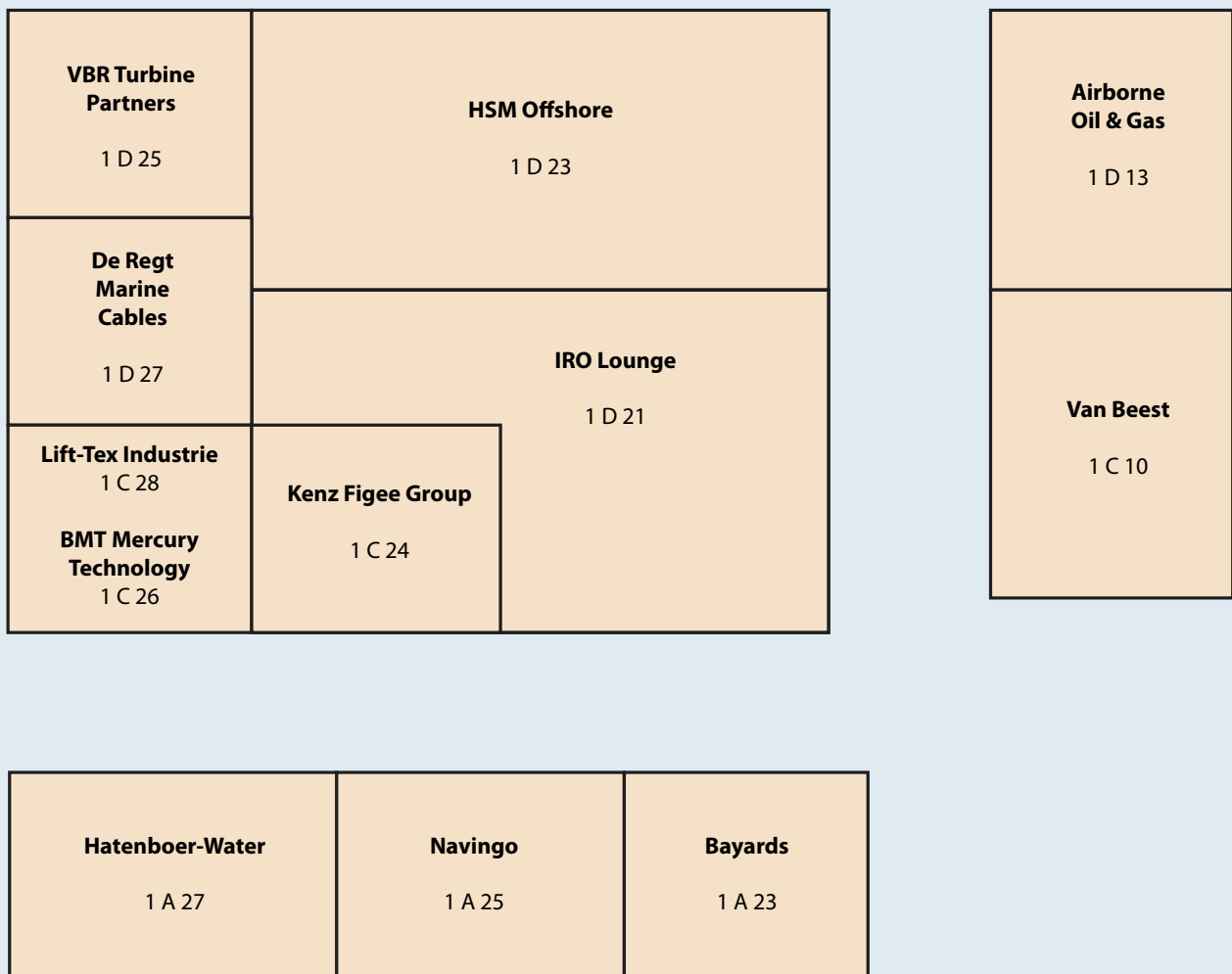
On Monday 15 May, the platform built at HSM was placed on top of the monopile. Three new wells are now being drilled and a new 7 kilometer pipeline to the K15 platform. From K15-FA, the gas is transported to the K14 complex via an existing pipeline. This K14 platform is the hub for gas treatment from various platforms before coming to the port of Den Helder.



First production of natural gas is expected in 2018.



Dutch Pavilion during Offshore Europe Aberdeen 2017



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IRO - The association of dutch suppliers in the oil and gas industry and offshore renewable industry

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Offshore Energy attracts a global audience of more than 11,500 offshore energy industry professionals. The three-day event, features an exhibition where over 650 companies will showcase their products and services.

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*Exhibition: 10 & 11 October
Conference: 9, 10 & 11 October*

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Van Heck is an internationally operating company with 50 years' experience in the field of water control and management. Van Heck's speciality is often called upon to manage floods. Van Heck's expertise includes providing tailor-made solutions for dredging, civil and industrial projects, government and water boards. Van Heck is also active in the offshore industry with ballast services for load-out and float-over operations.

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