



Transition to better

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Calculated moves

As the energy industry is transforming into a new reality, the offshore sector has to reinvent itself to ensure it continues to add value to its stakeholders. In other words: it needs to be able to do more with (most likely) the same resources.

There's no room for staying in the comfort of "this is how it's always been done" - smart thinking is key for ensuring longevity of our businesses.

This issue of *the MariTimes* is packed with ideas for alternative approaches to traditional flex lay and retrieval operations - using our innovative equipment portfolio, in-house technical expertise and creative PM&E talent.

In 22 years in the marine business, we have developed a wealth of knowledge and a market-leading rental fleet, which allow us to personalise each and every spread for the challenge at hand.

This has been the case on transpooling projects, which have been the flavour of the last 24 months, using different combinations of our reel drive systems and 2-track tensioners. The transpoiled products vary from SURF to polyester mooring lines - our high-capacity reels also come in handy for deployment.

The most notable additions to our fleet are the Horizontal Lay Systems, which allow efficient installation or removal of jewellery during product handling, while benefitting from the

ultimate safety inherent in MDL's tensioner range. We now have 3 of these compact packages available, which can be integrated with handling aids most suitable to your product and scope.

In our Asset Maintenance & Engineering (AME) business focused on topsides work, we have been applying our manufacturing expertise to safely extend the working life of ageing mechanical handling equipment. Our AME division is the driving force for more "desktop planning" before sending personnel offshore to ensure our time on the client's site is nothing short of adding value.

All of the above solutions have enabled our customers to carry out their operations more efficiently, at shorter timescales, using readily available vessels and reducing the amount of sea transits or port calls. That means reducing the impacts of offshore operations on the environment - and that's exactly what we're all striving for.



**ANDREW
BLAQUIERE**
Managing
Director

Converting a survey ship to cable layer

An MDL spread performed a shallow-water cable installation in the Dutch North Sea with Allseas.

The spread consisting of an MDL 6-tonne flex-lay tensioner and a modular reel drive system, was used for deploying of a 126mm JDR umbilical in 35m water depth offshore the Netherlands.

The MDL TTS-2/35 Series Tensioner is a side-loading 2-track system for SURF, cable and wire rope handling. Like the rest of the MDL TTS tensioner fleet, it features the Failsafe Grip System, ensuring maintained hold of the product even in case of critical failure or power loss on the vessel.

The tensioner can handle products up to 550mm diameter and accepts the line by lifting of the top track, allowing up to 600mm opening. This keeps the equipment compact, as there is no additional space required for track pivoting to receive the product, as is the case with top-loading tensioners.

Besides cable lay, the system has been previously deployed for wire rope inspection, as well as transpooling of coiled tubing, as part of solutions engineered by MDL's in-house PM&E team.



MDL TTS-2/35
Series Tensioner

Ernst-Jan Poot, Allseas Project Manager, commented:

“For the MV Oceanic conversion from a survey to an umbilical installation vessel, Allseas could not be better helped than with the people from MDL, making the installation of the P11 Unity umbilical for Dana Petroleum Netherlands a great success.”

Dave Gardiner, MDL VP Global, said:

“This has been our first project with Allseas and we’re pleased to conclude it with such positive feedback.

“This scope allowed us to demonstrate the benefits of our smaller tensioners for application in shallower waters when handling smaller-diameter products, such as cables. The compact design does not compromise on safety, ensuring controlled constant tension to protect the product, whether it’s cable, rope, MEG line or SURF.

“This makes our systems ideal also for onshore deployment, particularly for manufacturers of flexibles to transpool long lengths of product from production facilities onto storage or installation reels.



“I look forward to supporting Allseas on more projects in the future, and to assisting other clients with efficient handling of their flexible products with our extensive equipment fleet and in-house engineering expertise.”

Turnkey Transpooling

Thanks to years of transpooling experience and complete handling spreads in our fleet, MDL has the know-how and the PM&E expertise in-house to optimise product handling on land: to preserve it, prepare it for deployment or dispose of it.

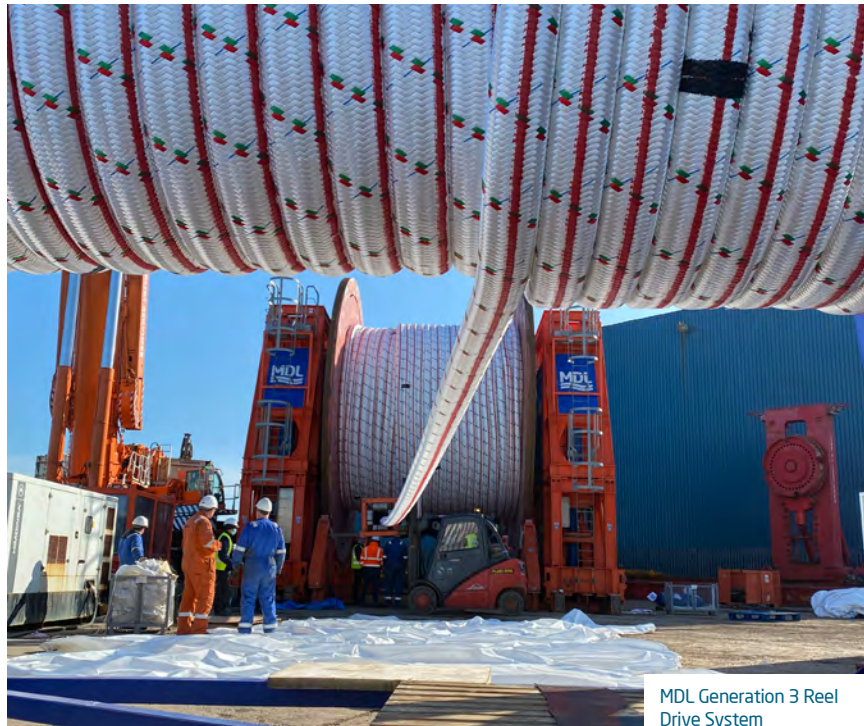
Here are some of our most recent projects.

Mooring lines for Brazilian FPSO

Product: Polyester mooring ropes
Solution: Generations 1 and 3 Reel Drive Systems, high capacity installation reels

The complete scope of work consisted of project engineering and onshore transpooling of 2x 2000m polyester ropes from two 5m storage reels onto two high-capacity MDL 8.6m installation reels. The operation was performed at MDL's quayside location in Peterhead.

MDL provided project engineering services throughout the operation, which included the development of a transpooling procedure, reel packing arrangement drawings, task



MDL Generation 3 Reel Drive System

plans, HAZID/HAZOP and provision of experienced MDL operators for onsite execution.

Following the transpooling, the MDL reels with the polyester product were mobilised onto a cargo vessel, ahead of shipping across the Atlantic for the mooring line replacement on the FPSO.

The installation reels were also specially selected for this follow-on scope and the expected back tension on deployment of the rope offshore. The MDL 8.6m high-capacity reinforced reels offer a tension capability of 30Te at the flange rim radius.

David Stott, MDL Project Engineer, said: "A key strength of One Team MDL is agility and we pride ourselves on the ability to respond quickly to client needs – this project was a perfect example. The enquiry came to us in April and we were mobilising the spread at the facility 6 weeks later. As we were finalising the reel packing arrangement in line with MDL's standard practices, it became apparent that specific rigging was required at short notice to suit the client's offshore installation loads. We were quickly able to establish the client's needs, contact our suppliers and deliver the required components to site without incurring a schedule delay."

GENERATION 1 RDS

- Max reel weight loaded:** 300Te
- Max reel dia c/w packers:** 9.2m
- Max torque capacity:** 80Te/m
- Max speed low torque:** 2rev/min
- Max speed high torque:** 1 rev/min

Flowlines for India

Product: 6" static flowlines
Solution: Generation 2 and 3 Reel Drive Systems, installation reels

This scope of work for an Indian Oil & Gas operator covered engineering support, on-site project management and the supply of equipment and services to carry out testing and transpooling of 6" static flowlines, stored in Port of Blyth, England.

An MDL spread was used for transpooling of over 4,200m of product from 2 storage reels onto 2 MDL 9.2m installation reels. In 2018, MDL Asset Maintenance & Engineering carried out pressure testing and preservation works on 4 reels of the product on location - 2 of which had already been installed.

MDL also provided engineering support for the transpooling, including the design of the site layout, a transpooling method statement, design of partitions on the installation reels and lifting drawings for the fully-loaded reels.

Paul Marshall, MDL Project Engineer, said: "This was a fast-tracked project, awarded to MDL on 23rd December and commencing during the festive period, with the mobilisations, testing, transpooling, reel load out and site demobilisation completed within 5 weeks – another example of our commitment to solving our clients' challenges against the backdrop of the pandemic.

"The installation reels and one of our reel drive systems were already stored in Blyth, which minimised mobilisation costs for the client; and thanks to our equipment being road-transportable, we efficiently transited the remaining equipment

from our Peterhead base.

"With cooperation with the client's team, we safely handled the complete logistics of the fully loaded reels, from transpooling to lifting onto the transport vessel."

Jumper replacement

Product: 6" flexible jumper
Solution: Generation 2 Reel Drive System, TTS-2/140 Series Tensioner, overboarding chute, deck deflectors

This two-phase project covered firstly transpooling of the flexible product, followed by installation offshore.

The first phase covered project engineering and onshore execution of transpooling of the flexible jumper from a storage reel onto the quayside using the Generation 2 RDS. This allowed end termination support frames to be installed to the client's 8.6m reel in accordance with MDL design drawings, under the instructions of MDL's team on site.

MDL provided project engineering services throughout the operation, which included development

of transpooling and packing procedures, storyboard drawings, task plans, provision of transpooling equipment, HAZID/HAZOP and provision of experienced MDL operators for onsite execution.



Additionally, the MDL Operations team assisted with the inspection and SIT of the product while spooled into its expected seabed configuration to verify orientation of the end termination. The quayside trials allowed for any lessons learned to be gathered, personnel training and verification of end termination orientation prior to the offshore scope.

The following spring MDL was commissioned to perform the replacement of the jumper in the Tordis field, using a complete MDL spread combined of the same RDS, a 2-track tensioner, an overboarding chute and deck deflectors.

Alexander Wilson, MDL BD Manager, said: "It is very satisfying to have customers return to you for subsequent projects – but even more so when you can assist these customers further with additional efficiencies.

"We pride ourselves on building the trust gained between the respective project teams and our commitment to understanding and delivering on our clients' expectations – to execute their campaigns as efficiently and safely as possible."



GENERATION 2 RDS

Max reel weight loaded: 480Te

Max reel dia c/w packers: 14m

Max torque capacity: 150Te/m

Max speed low torque: 1.2rev/min

Max speed high torque: 0.6rev/min

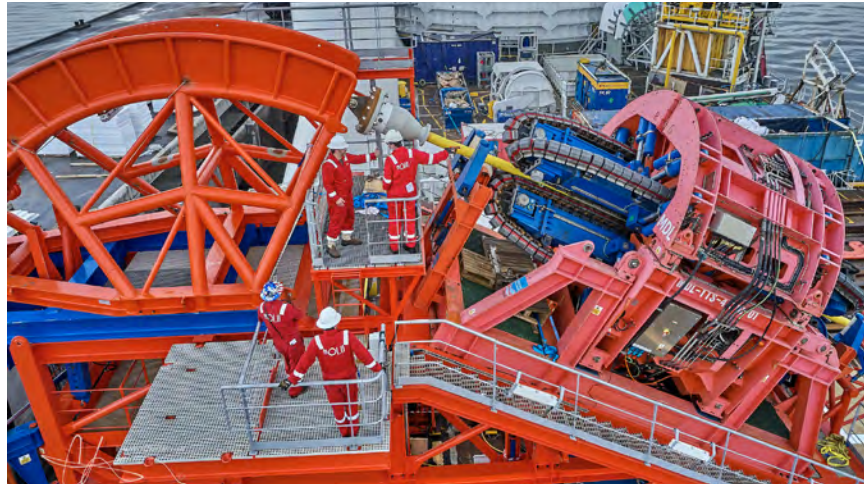
The thinking inside the box: MDL HLS

These are some of the most challenging times the offshore industry has found itself in - and times like this call for dynamic, focused solutions that make a difference, ensuring that SURF projects can be executed at the lowest possible cost.

One such solution is the MDL Horizontal Lay System: going further than any HLS has gone before, we have pushed the envelope to safely handle 100-tonne lay and recovery tension - while keeping the solution in a compact, integrated package.

With three systems available from our rental fleet and an array of modular ancillary options, we can devise the ideal solution for your deployment or retrieval challenge.

The solution is proven on SURF and mooring lines installation and decommissioning operations: from North Sea and West Africa to most recently in South East Asia - here's how it went.



Power cables installation offshore China

The client was tasked with installing a range of umbilicals in the Lihua field, South China Sea. The challenge was two-fold: firstly, handling a product that was unique in its composition and therefore requiring a longer track contact length; secondly, installation of buoyancy modules onto the product off a vessel of opportunity not equipped in a VLS...

For this job MDL supplied its portable and compact Horizontal Lay System, together with its unique TTS-4/310 Series Tensioner - a powerful system with 5m track contact length and Failsafe Grip technology. The tensioner had been mobilised with steel pads for safe and controlled handling of the umbilical.

Prior to the mission in Asia Pacific, the vessel had travelled to the Gulf of Mexico to transpool the product onto the on-board carousel. At this time, an MDL Superintendent operated the tensioner to carry out squeeze tests on a product sample.

As each project has different requirements, project-specific equipment can be integrated within the HLS prior to mobilisation, such as tugger winches and other wire rope aids.

For this project, the MDL HLS included pivoting davit arms for efficient and safe handling of buoyancy modules; a retractable work platform for ease of passing of midline connections; and a retractable hang-off clamp. The clamp was complete with an adaptor hang-off plate, easily mountable in two half-moon sections, to further facilitate safe jewellery handling.

To protect the integrity of the product during deployment, a tulip was integrated into the HLS work platform. The hang-off plate and the tulip were both engineered and manufactured by MDL's in-house team for the project. The integration of these time-saving

features into the HLS structure result in a system allowing safe vertical deployment of the product, while keeping the footprint of the solution compact and mobilisation requirements and operator numbers to a minimum.

Andrew Blaquiere, MDL Managing Director, said: "Our flex-lay expertise and innovative technology truly came to the fore in this project – a first of its kind for MDL in China.

"The HLS provided the client with a compact yet versatile solution for

vertical product deployment on a vessel not equipped in a VLS. We also ensured that the tensioner was mobilised with steel pads for the operation, based on our knowledge and prior experience of handling this specific product.

"Our PM&E expertise, technical skillset and proven track record in pipelay allow us to minimise client interfaces and streamline costs by delivering complete support packages, from project planning through execution, to follow-on campaigns.

"I look forward to supporting more project teams with our complete skillset, helping optimise budgets and schedules on projects globally."



MDL Horizontal Lay System



MDL HLS-100

Lay spread type: Portable Horizontal Lay System

Nominal line pull: 75Te

Nominal product range: 50 - 650mm

Max hang-off tension: 80Te

Outboard chute radius: 4.5m



MDL HLS-200

Lay spread type: Portable Horizontal Lay System

Nominal line pull: 60Te

Nominal product range: 50 - 600mm

Max hang-off tension: 60Te

Outboard chute radius: 4.2m



MDL HLS-300

Lay spread type: Portable Horizontal Lay System

Nominal line pull: 100Te

Nominal product range: 50 - 650mm

Max hang-off tension: 100Te

Outboard chute radius: 5.2m

Your trusted partner in pipelay, equipment life extension and decommissioning

Mechanical Handling,
Hydraulic and Electrical
Systems overhaul +

+ Crane Maintenance
& Integrity

Caisson/Conductor
Decommissioning +

Cold stacking and
long-term storage +

Product
transpooling +

+ Expert technicians and
offshore operators

Vessel integration solutions

(engineering services, offshore procedures, task plans and operational storyboards)



SURF, cable and mooring installation or retrieval



Complete Project Management & Engineering



Tailored equipment design and delivery



Market-leading rental pipelay fleet



Onshore facility upgrades



Equipment and product testing



MDL spread retrieves FPSO flexibles

MDL has completed a SURF decommissioning project in the UKCS for Helix Robotics Solutions.



The work scope covered the retrieval of 7 cables, umbilicals, flowlines and jumpers connected to an FPSO in the UK North Sea, using an MDL equipment spread operated by the company's expert technicians.

The MDL spread comprised of a Second-generation Reel Drive System, TTS-4/140 Series Tensioner and deck deflectors onboard the Skandi Acergy. The spread was used for spooling of the product under tension onto two installation reels, also supplied by MDL.

Paul Marshall, MDL Project Engineer, said: "The challenges on this project revolved around the age and fragility of the products, moving schedules, as well as Covid-related personnel restrictions.

"We worked closely with the client to optimise the execution of the on-board operations, including change to tensioner squeeze settings and pads changeouts to suit the different products.

"Our offshore personnel supported the client's team with their

knowledge and expertise in flexible product handling and management of change, reinforcing safe and efficient execution for a successful completion of this project."

MDL pipe lay and retrieval equipment spreads are fully customisable to individual project requirements and vessel back decks, supported by MDL in-house Project Management & Engineering team for optimised equipment selection, deck plans and sea-fastening designs.



MDL TTS-2/140 Series Tensioner

Steel pipe decom with DOF

DOF Subsea has completed the recovery of rigid pipeline as part of a decommissioning project in the UK North Sea using an MDL back-deck spread.

The 4" rigid pipe was retrieved from water depths of c. 115m using an MDL 2-track tensioner on board the Skandi Skansen.

MDL also provided a dedicated angled grillage for efficient sea-fastening during mobilisation and demobilisation and to aid in the height requirements for the shear cutter used to cut lengths of pipe.

In total 12km of product was retrieved, including Water Injection, Gas Lift and Production Pipelines. Once on deck, the product was cut into 13m sections for efficient disposal onshore.

The TTS-2/140 Series Tensioner met the operational requirements for a 20-tonne line pull, alongside a pivoting top track to enable product positioning.

The system's top track can be hinged open/closed to facilitate the loading or unloading of the product without compromising deck space, thanks to its compact footprint.

Additionally, the Failsafe Grip System, inherent in all MDL tensioners, ensures the unit maintains constant grip on the product, even in the case of critical failure or power loss.

MDL also provided optional entry and exit rollers for this scope to further facilitate efficient handling of the product into the firing line for cutting on board.

David Stott, MDL Project Engineer, said: "Understandably, retrieval of redundant infrastructure is a cost-driven operation, but it still needs to be carried out safely and professionally to minimise environmental hazards.

"Our tensioner fleet sets the rental market standard for pipe lay and retrieval safety, and our 25Te 2-track tensioner offered efficiencies that helped the client execute this scope ahead of schedule.

"This latest project adds to the tensioner's varied track record which – among many flex-lay scopes – also includes replacement of rigid pipeline in an environmentally-protected area in the US West Coast and installation of a 25mm fibre optic cable offshore Mexico – all demonstrating that this is a safe and convenient solution for oil and gas and renewable scopes alike."

Latest additions to our rental fleet

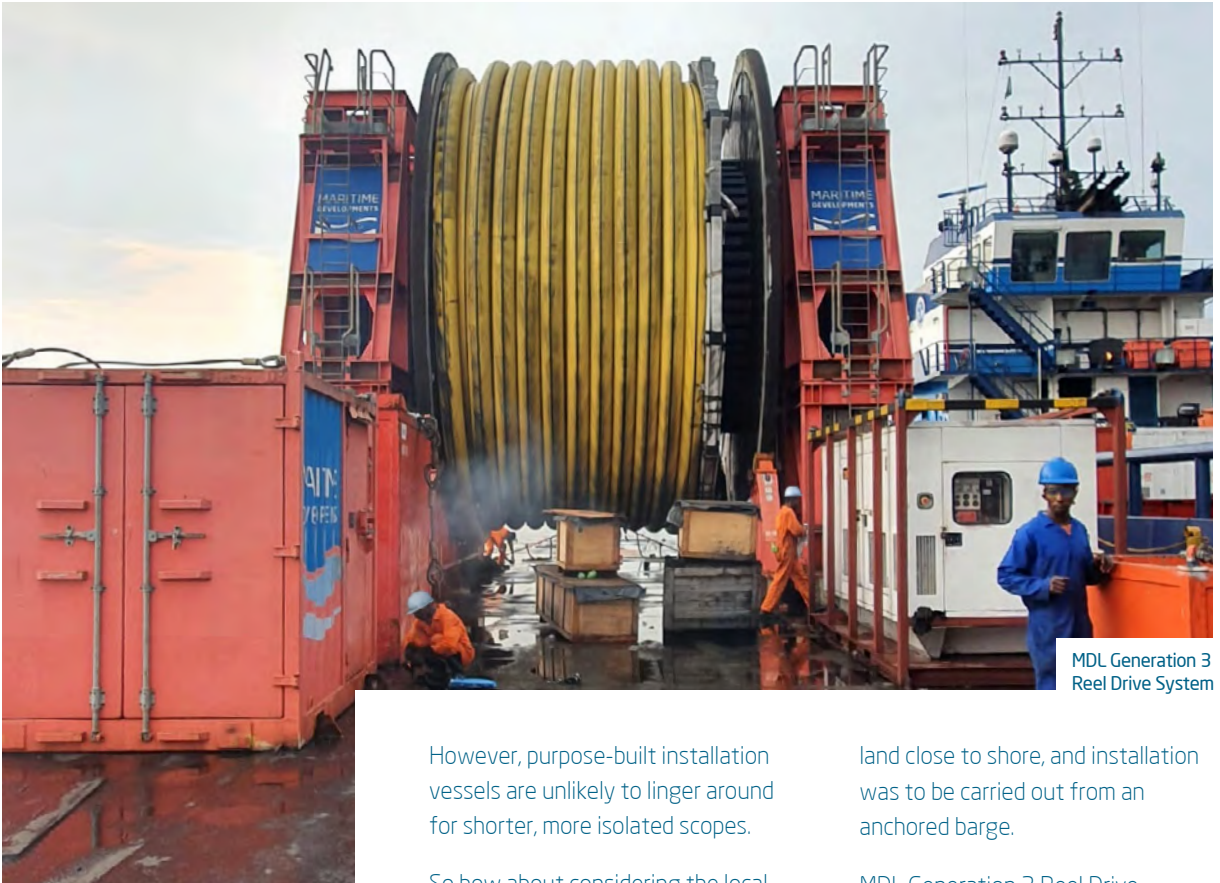


Adjustable Deflector



10Te Winch

More details at maritimedevelopments.com



MDL Generation 3 Reel Drive System

Enabling West Africa

While many West African SURF projects tend to mobilise from Europe, there is still a requirement for equipment to be local – with obvious benefits from a commercial perspective.

However, purpose-built installation vessels are unlikely to linger around for shorter, more isolated scopes.

So how about considering the local tonnage: platform support vessel, small construction vessels, anchor handlers or even barges? With those back decks and MDL's equipment – strategically located in the region – local installation contractors across West Africa can deliver subsea tiebacks, tie-ins or flexible line replacement without the costly mobilisation of a specialist vessel. Here's some food for thought from two recent projects.

Terminal pipeline replacement in Nigeria

An engineering client in Nigeria was commissioned by an Operator to carry out replacement of a flowline to their offshore terminal. The pipeline lay corridor was on marshy

land close to shore, and installation was to be carried out from an anchored barge.

MDL Generation 3 Reel Drive System is the most adaptable system to convert a barge – with its challenging back-deck characteristics – into a lay solution, thanks to its easy to mobilise, Integrated Track and Cradle System, eliminating the requirement for a grillage. MDL had committed one of these systems to West Africa, which meant it was readily available in the region to undertake the task.

The company's engineering team assisted the client with sea-fastening design of the RDS. For further peace of mind, MDL had also provided an experienced Offshore Team Lead to oversee the mobilisation, operation and demobilisation of the equipment in Nigeria.

Despite COVID restrictions and delays, followed by a last-minute barge change, the MDL RDS was safely mobilised on board and executed the pipeline deployment to the Operator's requirement. The unique Integrated Track and Cradle System helped reduce the idle time on the project as it was used for quick and safe sea-fastening of the single product reel - eliminating the need for fixing to deck.

Supporting Ghana LNG development

On this project, the Generation 3 RDS - operated by the company's expert offshore personnel - was used to deploy a 13" gas lift riser from an 11.4m reel, mobilised on the back of an Anchor Handler Vessel.

The tie-in connected the beach with a Liquefied Natural Gas (LNG) facility, located 12km off the coast of Tema, in the Greater Accra Region in the Eastern part of Ghana.

The terminal - first of its kind in sub-Saharan Africa - is expected to help Ghana meet its growing domestic energy demand and reduce the country's dependency on foreign imports.

Michael Blease-Shepley, MDL VP Africa, said: "I am extremely pleased to see our technology deployed on back-to-back projects,



supporting important developments in West Africa's power generation. It is a great feeling to know that we can contribute with our specialist services towards the region's pursuit of energy self-sufficiency.



"It's no surprise that with the ongoing pandemic this project faced numerous challenges: constantly changing personnel logistics requirements and the limited availability of materials and consumables - including a last-minute vessel change. We were able to overcome these efficiently, thanks to close co-operation with our client and our expert team on the ground who could assist with their extensive flex-lay knowledge and years of global experience.

"As we continue to develop our presence in this region, I look forward to supporting further milestone developments that will help West Africa's energy sector grow from strength to strength."



GENERATION 3 RDS

Max reel weight loaded: 420Te

Max reel dia c/w packers: 14m

Max torque capacity: 75Te/m

Max speed low torque: 1.2rev/min

Max speed high torque: 0.1rev/min



MDL HPU operating the Clevis Tensioning Units

MDL AME – Your turnkey maintenance package

Over the past 24 months, MDL Asset Maintenance & Engineering (AME) has built an extensive track record focusing heavily on efficient onshore planning prior to successful execution on location.

Using MDL in-house skillset, the division provides complete Project Management and Engineering; maintenance and integrity services on cranes; overhauling and manufacturing services on mechanical handling equipment; as well as maintenance and development of hydraulic systems, electrical systems and instrumentation.

The AME division has already delivered numerous maintenance improvements on platforms and FPSOs, including 'desktop' engineering studies, on-board overhauls and fault finding. What customers have valued the most is the open communications, quick responses and expertise that 'makes their problems go away' - such as these recently executed scopes.

Swivel module handling frame

A North Sea operator required a new solution for handling both existing and replacement swivel modules, as the default transportation solution using a packing crate within a container was too heavy for the FPSO's crane to handle.

To minimise costs associated with POB, MDL performed a "desktop" review and concept development to understand the client's requirements, prepare an execution plan and story boards.

Next, MDL in-house team designed and engineered a bespoke mechanical handling device, as well as additional units: a handling frame for storage of existing swivel once removed and a crane hook block cradle interface. This was followed by complete in-house manufacture of all units.

MDL also delivered a complete work pack and job cards for the swivel stack project, which included deck layouts, logistics storyboards and offshore planning, structural assessment of deck loadings and swivel module cleaning support frame.

MDL's fit-for-purpose solution, delivered on time and to budget, allowed the client to perform the swivel replacement ahead of schedule.



Commissioning of the swivel module handling frame

CTU control system

An offshore contractor required a Clevis Tensioning Unit (CTU) for their FSO offshore Cameroon. MDL was engaged to provide the hydraulic control system for the CTU, due to the company's expertise in hydraulic tensioners.

Following a "desktop" review, MDL design engineered the system, integrating into an ex-rental HPU, refurbished for this scope. MDL manufactured and integrated all the control system components and pipework, followed by performing pressure testing and flushing. We then carried out function testing of the CTU offsite, using the MDL HPU.

This was a fast-track project, with the hydraulic control system being designed and manufactured within a six-week timescale. Following the onshore works, an MDL Offshore Supervisor supported the integration of the CTU on the FSO and operated the HPU offshore Cameroon.

Platform crane hoists replacement

This scope covered the change out of main, boom and auxiliary hoist winches on a North Sea platform's only crane. The AME team was familiar with the crane, as it had carried out the replacement of the boom hoist winch in the summer of 2020.

MDL AME took care of the complete Project Management & Engineering which included storyboard development, hoist and wire rope change-out procedures, lift plans, offshore implementation work packs, commissioning and load testing.



One of the hoists replaced on the North Sea platform

The replacement of the hoist winches was executed using a temporary crane; while the replacement of the wire rope on the boom hoist winch was carried out under tension using a spooler positioned on the platform's helideck. MDL also supplied the tooling, rigging and load testing equipment following the replacements.

All the operations were completed on board the platform by MDL's expert technicians to minimise any production downtime.

Prior to the offshore execution, MDL onshore asset team took delivery of the new hoist winches and spare parts to carry out interface and dimensional survey of the components to de-risk the offshore scope of work.

Shaun Cooper, MDL BD Manager for AME, said: "We speak of 'happy

returns' when our teams execute a project on an asset they had previously worked on - and it is indeed a win-win situation for everyone involved.

"There are multiple benefits to the client, particularly in the way of optimising schedules, minimising POB and maximising the project budget.

"Since we had previously carried out the inspection on the platform and reported with our recommendations, we had the data in place allowing us to hit the ground running to efficiently execute the scope.

"Of course, for us it is also a great recognition to return to a client's asset to help progress their follow-on maintenance and improvement programmes - a sign of their trust and testament to the high standard of service delivered by One Team MDL."



For a tailored solution to your equipment life extension challenge, speak to Shaun Cooper and James Farquhar - BD Managers AME



Shaun Cooper



James Farquhar



Organised by Clan Cancer Support in partnership with Wild in Art, the charitable initiative set out to bring some light to cancer sufferers across the north east of Scotland.

The campaign saw local artists design 50 individual 2.5 metre tall lighthouses which were then displayed around the region's coastline and islands.

For over 36 years, the charity has supported anyone affected by cancer, providing emotional and practical help to ensure their wellbeing was taken care of at all states of the cancer journey.

At the end of the trail all of the lighthouses were auctioned off, raising a whopping £324,200 for the charity... and our "Bonnie" has found a new rightful home by the Peterhead Lifeboat Museum.

Helping to Light the North with Clan

My Bonnie lies o'er the ocean... specifically, in Peterhead Bay!

MDL has been the proud sponsor of this special lighthouse sculpture - dedicated to the life-saving work of the RNLI - as part of the Light the North trail.



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