MDL
INGENIOUS INSTINCT

theMARITIMES

Issue Seventeen | Summer 2022

Think Different

Royal recognition

In April, it was announced that we had been honoured with a Queen's Award for Enterprise in International Trade.

This amazing news recognised our continued commercial success, demonstrating a substantial international year- on-year growth over six years.

Our exports have grown by 192% in those six years and if that's not outstanding, I don't know what is.

Today, we have a strong organisation, whose name – through our people and our equipment – is reaching all corners of the world.

We are proud to be one of the businesses forging ahead, exporting British engineering excellence to more markets and regions - you will find examples in this issue of the MariTimes.

Our mission is to be the global leader in the delivery of alternative engineering solutions, which are inspired by creativity, driven by people and add value by solving challenges faced by our clients.

Often, this creative thinking leads to innovative applications of tools readily available on the market - such as the marriage of a Heavy Lift Vessel and a spread of portable equipment to perform a mooring campaign - our cover story.

The benefits of such approach extend beyond budget preservation and into minimising environmental impacts associated with offshore transits - a key driver for an operator in Angola to choose our locally-available equipment (page 12)

Meanwhile in Brazil, we assisted a forward-thinking operator with a lean but targeted approach to their first tie-back mission in the Santos Basin (pages 6-7).

Such projects are made possible thanks to the sum of the parts of the MDL offering: our market-leading fleet of equipment, empowered by top-notch talent across design and engineering, project management and operations.

It is this winning combination that allows us to deliver on our mission, taking an individual - ingenious - approach to each client and challenge, wherever they are in the world.

Derek Smith, Founder & CEO with HRH Prince of Wales

A new way to moor

MDL teamed up with Jumbo Maritime to assemble a market alternative for mooring installations - reducing a campaign to a single offshore trip...

This alternative approach has already been proven on multiple mooring projects on both sides of the Atlantic, with the most recent one in Gulf of Mexico's deep waters.

This latest campaign moored a new Floating Production Unit (FPU) at depths of 1,200m (4000ft). The operation was performed using an MDL mooring spread mobilised on-board Jumbo's Heavy Load Carrier, the Fairplayer.

The MDL spread consisted of a Generation 1 Reel Drive System and level winder for precise transpooling of mooring line ropes from a total of 24 transport reels onto a purpose-built, heavy-duty deployment reel, as well as a Generation 2 Reel Drive System for the overside installation of the product.

The polyester rope transport reels were mobilised on deck in two parallel bays, allowing for 15 reels to be handled on the top deck, with the remaining reels deployed from the middle deck.

MDL Generation 2 RDS with the bespoke heavy duty deployment reel

The specialist 8.6m OD installation reel was designed by MDL's in-house engineering team and features a spoked section to separate the polyester rope and mooring chain.

The reel had a dual function; firstly allowing the transpooling of the product from the storage reels under back tension, and secondly for deployment of the lines overboard.

MDL Generation 2 RDS's 150Tem of torque enables handling ofloads of up to 75Te, revving in both directions.

A further bespoke feature designed and manufactured by MDL was a skid frame to allow the HPU to skid with the Generation 1 RDS down the tracks.

This project was the first joint installation by MDL and Jumbo in the Gulf of Mexico, but follows other mooring scopes in the Mediterranean and offshore Brazil in 2020-21.

To date, MDL equipment has installed over 145km of polyester rope, as well as torpedo anchor pennants, SSWR and steel wire rope, across three continents.

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: 1rev/min

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

Installing spiral wire rope offshore India

A different MDL spread carried out transpooling and installation of mooring wire rope off the coast of India.

Consisting of a TTS-4/140 Series Tensioner, an Adjustable Radius Controller, a reel drive system and an overboarding chute, the spread was mobilised onboard a locally available construction support vessel (CSV).

Over 6.4km of the 149mm OD sheathed Spiral Strand Wire Rope (SSWR) was transpooled at the mobilisation port in Singapore from storage reels onto five transportation reels. The SSWR was then deployed to moor in an FPSO in 310-500m water depths.

This was the first time an MDL tensioner was used for the installation of a wire rope off a CSV, allowing the project team to maintain consistent line tension and squeeze on the product while benefitting from MDL's Failsafe Grip technology preventing unexpected loss of product.

Eliminating the risk associated with hose or other grip-related failure, this unique system removes the single point failure risk associated with other standard tensioners on the market.

The Failsafe Grip System provides a directly mounted manifold and accumulator on each individual active grip cylinder, ensuring that the required grip force is maintained in the event of any unforeseen system failure or black out.

Also used on the project was MDL's Adjustable Radius Controller, which optimised the handling of the wire rope as it was deployed from the double-drum transportation reels, by hydraulically moving in and out to maintain the product in the firing line.

Prior to the project, MDL performed a pull test on a product sample at its Peterhead facility up to 45-tonne Working Load Limit (WLL), to prove the squeeze and pull capacity of the tensioner-based approach.

Chris Reid, Vice President-Sales at MDL said:

"Another fantastic project for MDL where our fresh approach to overcoming project challenges delivered a successful campaign.

"The application of MDL's lay spread, with our market-leading tensioner as the master item, delivered a safe and lean mooring solution, allowing for the wire rope to be installed in a single offshore trip, using a vessel of opportunity – that is, one that was readily available in the region.

"Our tensioner, with its unique Failsafe Grip System, gave the field operator the additional reassurance in taking this alternative approach.

Transpooling: the reel experts

Thanks to years of transpooling experience, 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.

CASE STUDY

Transpooling over 60km of 4.5" MEG lines from 28 Tenaris storage reels onto 7 installation reels for 2 Norwegian fields.

MDL carried out the complete project management and engineering, including:

- Schedules and daily reporting
- Transpooling, mobilisation and demobilisation procedures
- Straightening trials, straightener testing and verification report
- Reeling and packing verification
- Minimum back tension for spooling calculation
- Transpooling equipment provision/setup/layout
- Integration with client-contracted welding, NDT and field joint coating equipment and services
- Lift plans
- HAZID/HAZOP

"This scope followed our other mooring projects in the Gulf of Mexico and offshore Brazil, where a similarly innovative approach was taken: an RDS-based spread mobilised onboard a Heavy Load Carrier.

"This project allowed us to offer a package of support to the offshore contractor on top of the work we had already completed with them in the North Sea – demonstrating our commitment to assist our clients wherever they need us in the world and across multiple energy sectors. I look forward to strengthening this successful relationship on future projects."

TTS-4/140 Series Tensioner

Track contact length: 4.0m

Max line pull: 51Te at 0.09 CoF (4 track mode), 25.5Te at 0.09 CoF (2 track mode)

Max squeeze: 35.5Te/m/track

Product speed: Variable to 900m/hr (at 60Hz) - provided digitally

Max track opening: 800mm (without pads)

Accessing new frontiers with One Team approach

Increasing enquiries from Brazil show the country is looking to benefit from British engineering expertise in efficiently unlocking the full potential of its offshore reserves.

MDL Generation 3 Reel Drive System

MDL assisted Trident Energy with the relocation of two flowlines and the installation of an umbilical in the Marimba field in Campos Basin, offshore Brazil.

The production and gas lift flowlines were disconnected from an existing MA-1 tree, recovered to surface for the installation and testing of a vertical connection module, and then connected to the new MA-34 subsea tree. In addition, a new subsea control umbilical was installed to provide functionality to the tree.

MDL provided project engineering support together with the complete back-deck spread to perform the flex-lay operations.

Consisting of an MDL Generation 3 Reel Drive System, 2-track lay tensioner, hinged chute, A&R winch and a bespoke hang-off platform to facilitate the mid-line connections, the spread was mobilised on a Construction Support Vessel (CSV), the Normand Frontier.

MDL also provided design and engineering services to manufacture a grillage frame for the integrated hang- off platform locally in Brazil, which reduced the costs of logistics from UK and return.

This was Trident's frst Brazilian subsea campaign to enhance production from the Pampo field.

As a result, the MA-34 is now producing 4,400 barrels of oil per day.

Simon Lorelli, Group Subsea Manager at Trident Energy, said: "Trident Energy began this project in late 2020, and since then numerous challenges had to be overcome.

"The Brazilian offshore industry has been thriving for years, which leaves limited space for small projects to be executed.

"Therefore, one of the main challenges was securing an offshore installation contractor as well as sourcing a suitable installation vessel.

"These challenges led us to execute this project ourselves, managing each part singlehandedly, such as chartering a vessel with ROVs and survey services, setting up a laying spread onboard, hiring offshore crew and being our own offshore service contractor.

"This project is a first of its kind within our Brazilian operations and we are excited with all the opportunities that will be identified following this achievement."

Andrew Blaquiere, Managing Director at MDL said: "What a fantastic project to be involved with, allowing MDL to add value to the client at different stages of the operation, with our in-house design and manufacture capability, portable, safe and super-efficient equipment and vast flex-lay experience.

"Working directly with Trident on this mission has allowed us to pass all that value directly to them, as well as give the market an insight into how projects can be performed differently, when schedules are tight and access to purpose-built solutions is limited – and deliver a successful mission with a range of benefits along the way.

"We are thankful to Trident for selecting MDL to be their trusted partner on this maiden project, and to allow us to showcase the added value of MDL across the entire project life cycle.

"The consistent collaboration by multiple contractors throughout the project was a testament to the desire from all parties to have a successful mission.

"We have seen an uptick in enquiries from Brazil which is a great sign that the country is looking to benefit from British engineering expertise in efficiently unlocking the full potential of their offshore reserves.

"We look forward to working with more success-driven project managers in this region and elsewhere globally, jointly identifying solutions to their project and business challenges."

TTS-2/140 Series Tensioner

Track contact length: 3.35m

Max line pull: 25.2Te at 0.09 CoF

Max squeeze: 41.8Te/m/track

Product speed: 0 - 1,200m/hr (installation/at 60Hz supply), 0 - 1,000m/hr (recovery/at 60Hz supply)

Max track opening: Unlimited

Your trusted partner in pipelay, equipment life extension and decommissioning


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

Convenient conversions for cables

MDL cable-lay spread has completed a deepwater installation in the UK North Sea with Subsea 7.

The JDR umbilical was installed using an MDL Generation 1 Reel Drive System integrated with the client's own 2-track tensioner, together with MDL's hinged 2.8m overboarding chute.

The spread was mobilised on a diving vessel optimised for operations in the North Sea - the Seven Kestrel.

Prior to the offshore scope, MDL conducted a pull test at its facility with the umbilical sample using the Subsea 7 tensioner. Additionally, MDL Engineering designed and manufactured hub adaptors for the MDL RDS to engage with the 6m OD installation reel.

In advance of the project, MDL project managed and executed transpooling of the JDR umbilical from storage onto the installation reel at its Peterhead facility, using its TTS-2/35 Series Tensioner.

The 6-tonne line pull 2-track system is a side-loading tensioner proven on 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.

Chris Reid, VP Sales, said: "Another successful lay project delivered to Subsea 7 – and this one in particular demonstrated the benefits of our two companies working together on the back deck.

MDL Generation 1 RDS mobilised with the cable reel

"While MDL offers complete lay spreads, we can also integrate with our clients' own equipment when such an approach results in project efficiencies, such as reduced sea-fastening requirements.

"Our in-house testing capability and back-deck expertise makes sure such integration is safe and uncompromising.

"Also the fact that we had carried out the pre-project transpooling gave the end client the confidence of MDL's understanding of the product for that extra peace of mind when it came to offshore deployment.

"I am looking forward to working closer with Subsea 7 and other clients on maximising project opportunities through a flexible application of our mutual assets: equipment and technical expertise – not just in oil and gas."

MDL TTS-2/35 Series Tensioner transpooling the 83mm cable

Your vessel - your lay opportunity

We have the right tools in the toolbox to help you convert your back deck into a cable lay solution.

Chris Reid VP Sales

From 6Te - 25Te 2-track tensioners, to small reel drives, spoolers, deck deflectors, overboarding chutes and ancillaries, combined with the support of our in-house engineering expertise - MDL can tailor a spread and layout to your precise needs.

The benefits of using our modern technology are abundant.

You gain improved handling capability with adjustable grip and precise squeeze on the cable, automated through modern PLC software; as well as safety improvements thanks to features mitigating loss of the product in critical situations.

Integrated and compact design results in quick mob/demob and reduced footprint - allowing you to choose a smaller back deck, or perform more scopes during a single offshore campaign.

MDL Generation 3 RDS mobilised in Angola

Looking at local

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.

TCP and flexible installation

The MDL Generation 3 Reel Drive System was deployed on a multi-product installation offshore Angola.

The lay scope consisted of 8 reels in total of Strohm and NOV products – 10" production jumper and 7" water injection jumper – varying in size from 9.2m to 11.4m diameter.

The installation was performed using MDL's Generation 3 RDS, shipped to Angola from its storage location in Ghana. Provision of the system locally enabled reduction of carbon footprint on the mission, otherwise associated with transiting equipment from Europe - a key driver for all stakeholders on this project.

Additionally, MDL engineering had delivered sea-fastening design for the RDS to mobilise it on board the Normand Energy – optimised thanks to the MDL Integrated Track & Cradle System.

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: 0.6rev/min

The cradles are supplied with boltable inserts to accommodate various diameter reels, as was the case on this project - eliminating the requirement to weld the reel cradles to the deck for multiple reels.

Michael Blease-Shepley, MDL VP Sales, said: "I'm pleased to see this project successfully completed and the RDS delivering on its expected efficiencies in handling multiple reels of different diameter.

"The compact footprint and highly integrated design make it an extremely efficient enabler for smaller, independent scopes, using locally-available tonnage – helping bring fields online without the headache of bringing in a specialised lay vessel.

"As was the case on this project, our engineering team is on hand to assist with the necessary deck layout and sea-fastening design for further efficiencies and peace of mind."

The MDL Generation 3 RDS comes with a grillage and integrated cradle system which eliminates the requirement for welding down cradles or cutting off the sea-fastening during the demobilisation - significantly reducing time and therefore costs on multi-reel projects.

Continued field development with DOF

We also recently assisted DOF Subsea with SURF work packages in Angola.

The MDL spread consists of a Generation 2 Reel Drive System, 4-track 85Te pipelay tensioner and an overboarding chute.

The spread was mobilised onboard the offshore construction vessel Skandi Seven to perform SURF installation scopes of work.

This project followed previous SURF installation campaigns over the last 18 months when the same vessel and spread combination was used.

Thomas Hamre, Project Portfolio Manager at DOF, said: "We are happy with the efficient execution for this lay campaign, which completed on time with no incidents or accidents.

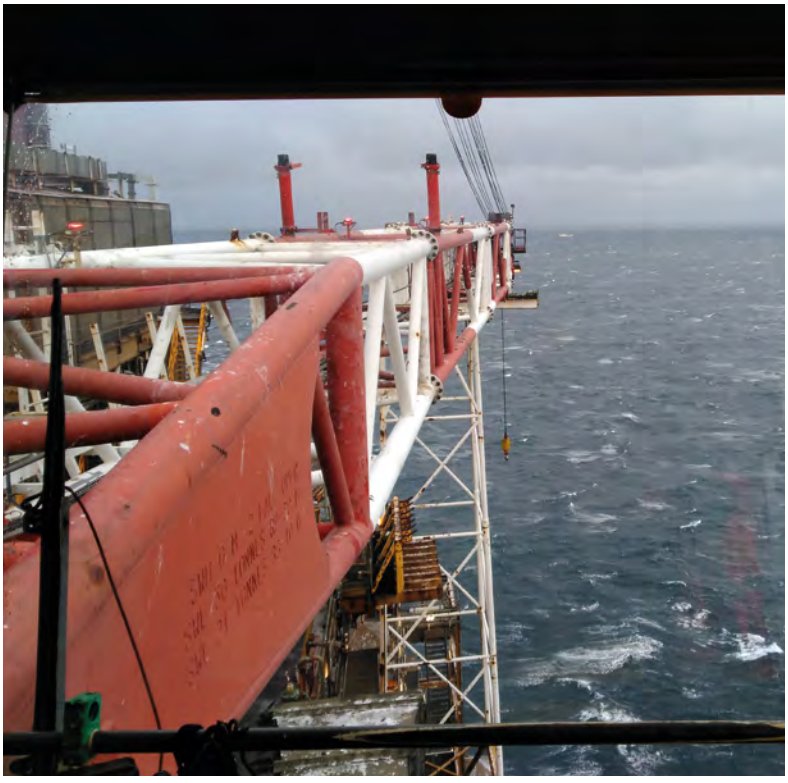
"Our end client congratulated the entire crew for the good synergies and problem-solving mindset created onboard the vessel."

Michael said: "We're extremely pleased to have been able to support DOF Subsea and their FSV Contract from the Skandi vessel offshore Angola.

"These campaigns have been optimised through the deployment of familiar assets, where project engineering could tap into existing deck plans, sea-fastening designs and installation methodology, and field service teams were well experienced in working with one another.

"MDL is all about adding value, without compromises. A partnership-like approach – as demonstrated in the execution of these campaigns – allows us to have open and honest conversations with our clients to identify how further we can optimise operations and maximise returns for their businesses as a result."

MDL flex-lay spread featuring the TTS-4/310 Series Tensioner



MDL AME: your maintenance solution, engineered

MDL asset integrity division is building a solid reputation for overcoming lifting equipment challenges with "desktop" project planning and expert execution.

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's PM&E approach to each challenge has delivered numerous maintenance improvements on platforms and FPSOs. 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.

Cranes control system FMECA

Earlier this year, a North Sea contractor asked MDL to update the control system on their platform's two electro-hydraulic offshore mast cranes. This work would involve removing the outdated electrical controls and replacing them with a PLC-based control system.

As part of the crane control system upgrade, MDL conducted a Failure Mode Effects and Criticality Analysis (FMECA) on the components.

MDL Engineering recognised that many third-party FMECAs do not cover electronics, with the control system considered a "black box". This leaves the operators in the dark on how often PLC/control faults lead to the crane's outage or downtime.

By performing the FMECA at the early stages of the awarded scope, MDL was able to incorporate the findings into the control system design to enable continued but safe operation during a PLC fault.

The FMECA was used to identify, prioritise and eliminate potential failures from the design before the control system was received by the client.

The 3Te provisions crane

The maintenance routines were then built to incorporate the single point failures identified by the FMECA, and included within the Maintenance Schedule in the control system's Operations and Maintenance Manual.

Besides the control system upgrade, the complete scope also covered replacement of the operator cabs and main hydraulic pumps. These modifications will allow the cranes to operate safely with the integrated equipment for another 20 years.

Remote control system & valve block replacement

A vessel owner approached MDL to install a client-procured remote control system and replacement valve control block on a 3Te provisions crane on their Offshore Supply Vessel. The operation had to be carried out in the vessel's four-day docking window.

To meet the tight deadline, MDL performed as much of the engineering work onshore as possible, including a review of the procured equipment, familiarisation with the control system and a review of the crane manual to establish operating parameters.

Prior to on-board work commencing, MDL checked compatibility of the free-issued remote control system and valve block with existing components to identify any issues or clashes.

A function check on the crane was carried out to establish current operation.

Based on the work pack developed in-house, MDL hydraulic and electric technicians carried out the installation and commissioning of the remote control system and valve block on board the vessel.

Winch spooling gear servicing

The scope included set-up of the new control system, commissioning and function testing following the replacement.

Winch spooling gear servicing

A scroll gear bogie on a North Sea's FSU hawser winch was not running true due to corrosion.

In conjunction with the required remedial works, the client was also looking for a survey of the coating and corrosion condition for a fabric maintenance campaign, as well as additional surveys for validating further maintenance requirements with corresponding method statements.

An MDL senior project engineer and mechanical technician travelled to the asset to perform the inspection and carry out corrective works.

The additional survey covered a range of hydraulic elements, including: hydraulic ram survey for change out; brakes inspection; hose and pipework assessment and corrective maintenance on the control station.

Site specification of replacement components was made, along with photologs, method statements and site requirements for exchange. MDL replaced the bogie channel rail tracks and runners, returning the bogie to its normal operating condition.

As a result, the winch has been returned to service without impacting offloading schedule.

To complete the work package, MDL provided the client with detailed survey notes, together with a summary of recommendations for remedial works to maximise the service life of the system components.

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

Shaun Cooper

James Farquhar

Fizz, fashion and kilts support Charlie House

MDL has been showing its support for children's charity Charlie House this year.

The charity's mission is to improve the quality of life for babies, children and young people in the North East of Scotland who have life-limiting or life-threatening conditions, and to provide support to their families.

MDL was a proud sponsor of its seventh Fizz & Fashion afternoon that raised over £13,000 towards their work.

The event welcomed around 300 guests, in support of the charity's Big Build Appeal - an £8million initiative to build a dedicated support centre in Aberdeen.

And then two members of MDL One Team took a slightly more active approach as they tackled The Mighty Stride challenge.

They completed this 26-mile walk through rural Aberdeenshire, together with other 2,300 volunteers of all ages taking part in The Kiltwalk.

The charitable platform organises mass-participation events across Scotland, allowing volunteer walkers to raise funds for their chosen charity.

An individual or team's final collected sum is increased by 50% by The Hunter Foundation, sponsors of the initiative.

As a result, One Team MDL raised in total over £3,500 for Charlie House.

To learn more about the charity and how to contribute, visit their website at charliehouse.org.uk

MDL INGENIOUS INSTINCT

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