



## SETTING THE STANDARD

Our Noble Denton marine services have been setting the industry standard for more than 50 years. Much of the industry follows our guidelines, standards and rules, and we have contributed significantly to developing global best practice in marine operations. But, with the oil and gas sector working on more complex projects in increasingly challenging environments, we believe

that the benchmark can always be higher.

Every year, we invest five per cent of our revenue back into research and development to keep us at the forefront of our customers' challenges. That results in more robust standards and, when you combine those with the deep technical expertise we bring to the complete asset lifecycle, you get true risk reduction.

DNV GL is the technical advisor to the oil and gas industry. From project initiation to decommissioning, we enhance safety, increase reliability and manage risks in projects and operations.

Our 4,000 oil and gas experts offer local access to global best practice in every hydrocarbon-producing country. Driven by a curiosity for technical progress, we provide a neutral ground for collaboration; creating competence, sharing knowledge and setting industry standards.

Our independent advice enables companies to make the right choices. Together with our customers, we drive the industry forward towards a safe and sustainable future.

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## OIL & GAS

# NOBLE DENTON MARINE SERVICES

Dynamic Positioning



# SUPPORTING SAFE VESSEL POSITIONING

Dynamic positioning (DP) has become the standard means of position-keeping for vessels and rigs operating offshore. The relatively gradual adoption of the technology in the 1980s and '90s has been boosted by the oil and gas industry's more recent entry into increasingly deepwater and harsher environments, where no other position-keeping methods are viable.

The need for safe positioning is vital to prevent injury, asset damage and environmental pollution. DP is the only realistic option to ensure safe and reliable operations.

Our Noble Denton marine services provide DP expertise to oil companies, drilling vessel owners, shipowners, shipyards and other DP stakeholders across the world. We work to international, national, class, International Marine Contractors Association and Marine Technology Society standards and guidance, as well as to our internal technical guidance. We perform independent, third-party and objective technical reviews and analyses of DP and other complex marine systems.

We have become the trusted partner to some of the world's most technically demanding companies and continue to provide them with global DP technical support of a consistently high standard. We are one of the industry leaders in developing and adopting innovative analytical processes to ensure the fault tolerance of DP systems.

Our DP operations services also support customers to achieve incident-free DP operations, while

enhancing the safety and performance of projects. We are widely recognised as a leading advisor in the application of DP operating processes, such as critical activity mode (CAM), task appropriate mode (TAM) and activity specific operating guidelines (ASOG). We also provide DP vessel owners with fleetwide DP assurance services and oil companies with the development of comprehensive DP assurance processes to protect their offshore assets.

## A local presence with a global reach

With a presence in all major offshore oil and gas locations, our Noble Denton marine services provide vessel owners, customers and charterers with the skills and expertise to ensure the safety of DP drillships, semi-submersibles and all types of DP vessel in the execution of offshore DP operations.

Our global DP network comprising a 60-strong team of DP specialists is strategically located across the globe in the Asia Pacific region, the Middle East, UK, Norway, Poland and North and South Americas.

## OUR SERVICES IN DETAIL:

- DP design review: Working with vessel owners and designers on their DP concepts to meet regulatory compliance and customer expectations.
- Redundancy analysis: Completing desktop studies to establish and verify the worst-case failure of the DP system.
- FMEA services during the engineering phase, following which we make on-site visits to verify construction against design.
- Failure mode and effects analysis and FMEA proving trials: Failing on-board equipment by simulating faults to demonstrate that a DP system is fault tolerant.
- FMEA and failure mode, effects and criticality analysis (FMECAs) on heavy lift or deepwater crane vessels, floatel gangways, saturation and air-dive systems, ballast systems, pipe-lay systems, shuttle tanker bow-loading systems and drilling-related equipment.
- Review and drafting of DP operations manuals, procedures and DPO proficiency development.
- Annual DP trials according to IMCA and MTS guidelines.
- DP incident and equipment failure investigations.
- Annual diving equipment system inspection guidance note audits (DESIGN) on diving systems to the IMCA standard.
- Pipe-lay systems analysis including J-lay and S-lay systems for steel pipes, as well as umbilicals, power and fibre optic cable laying and carousel storage systems.
- Developing CAM, TAM, ASOG and WSOG for DP MODUs and other vessel types, using a risk-based approach.
- DP charter suitability studies, including regulatory guidance.
- DP capability and thruster sizing studies.
- Common marine inspection document (CMID).
- Offshore vessel inspection database (OVID) for DP vessels.
- DP function/mobilisation trials.
- Third party witness of DP trials.
- DP competency assurance.

