

#### **INTELLIGENT MPD**

# **DRILL WITHOUT DEFEAT**

Based on five decades of leadership in managed pressure drilling, Victus™ intelligent MPD gives you the confidence to beat your drilling challenges.

For every well you drill, you have every reason to use MPD. The proven gains make it difficult to justify drilling without it. By precisely maintaining bottomhole pressure, Victus MPD helps you to achieve all your drilling objectives with unmatched safety and cost savings.

It integrates rig equipment for machine-to-machine communication, real-time analysis of downhole conditions, and rapid automated responses from a central location. Whether you deploy Victus in deep water, shallow water, or land, you can drill without defeat.

#### SAVED OVER \$18 MILLION DEEPWATER US

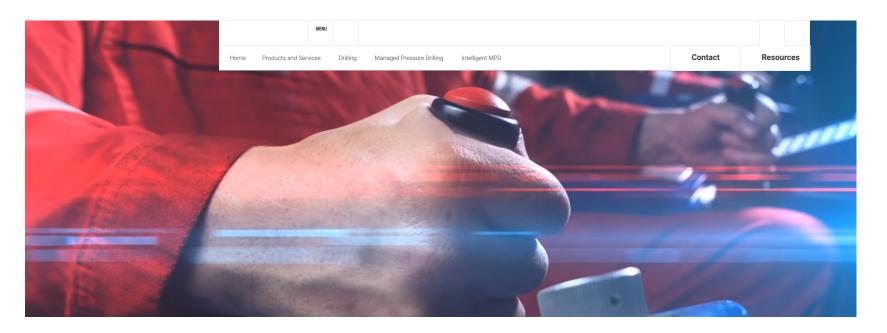






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**Exhibit B** 

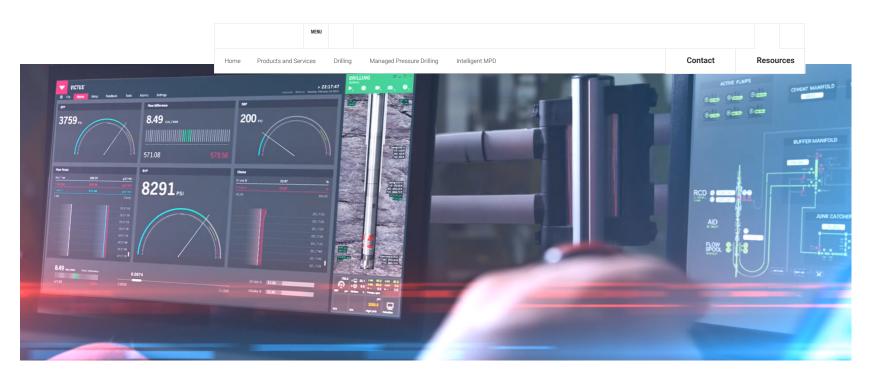


# **VICTORY** OVER YOUR CHALLENGES

Victus intelligent MPD features a proven system that detects, controls, and circulates out influxes. The system uses a time-tested algorithmic model calibrated with decades of data in thousands of wells for worldwide operators. As a result, you can eliminate drilling hazards and use your blowout preventer only when necessary.

Alongside these safety benefits, Victus enables you to reduce well construction costs. Faster rates of penetration (ROP), reduced drilling fluid expenses, fewer rig days, and optimized well architecture add up to significant cost savings.





## **INTELLIGENT CONTROL SYSTEM**

As the brains behind the MPD operation, our intelligent control system provides fast, precise pressure control in dynamic well conditions. Using an advanced hydraulics model, the system precisely estimates bottomhole pressure and determines the required amount of backpressure to apply from the surface within seconds.

Advanced hydraulics model precisely determines real-time bottomhole pressure by taking into account the effects of fluid and formation temperature, fluid compressibility, and wellbore cuttings

Smart control algorithms react fast to downhole conditions by sending automated commands to MPD equipment in less than a second

**PLC system** easily integrates anywhere on the rig to provide a reliable infrastructure and cybersecurity

**Simplified user interface** helps you stay focused on critical parameters and sends alerts on unexpected events

**Condition-based monitoring** tracks MPD equipment performance and enables proactive maintenance

**Reliable automated reporting**, as daily summaries or post-job analyses, further optimizes drilling performance

Remote control via a single user interface enables robotic riser installation, complete AID shut-off, RCD latching and unlatching, and flow routing

**Data consistency** spans from well planning to real-time operations and post-job reporting

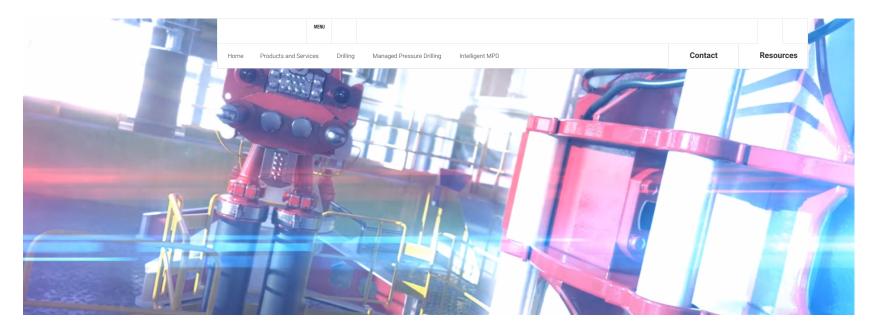












# **AUTOMATED** MPD RISER SYSTEM

The heart of our intelligent MPD system is the automated MPD riser for offshore and deepwater applications. Its integrated, compact, and smart design reduces installation to less than 20 minutes, which results in more than 80% faster rig up and down time. Our expedient process in no way compromises the time saved during MPD operations.



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**Smart rotating control device (RCD) technology** enables predictive maintenance and early leak detection

fiber-ontic cables for fast and reliable data transmission



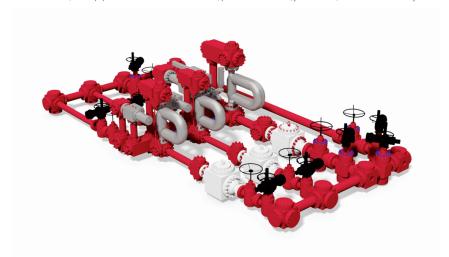






#### **TOPSIDE** EQUIPMENT

After decades of building and operating topside equipment, we developed a best-in-class design that fits any rigfloor footprint and offers customization to well, rig, and operator needs. In addition to our state-of-the-art MPD manifold, this equipment includes a buffer manifold, pressure relief valve, junk catcher, and fluid extraction system.



**MPD manifold** is completely customizable depending on operational and customer needs

**Manifold** can control up to four chokes for increased redundancy to enable continued drilling

**Choke swapping** can be remotely performed in the event of plugging using the intelligent control system

**Coriolis flowmeter** can be installed upstream\* of the choke to facilitate critical flow measurement with higher gas content in returning mud

**Each upstream choke leg** can be equipped with its own flowmeter for continued operation

**Electric or hydraulic valves\*\*** can be remotely operated from the intelligent control system

**Design improvements** maximize operational performance by reducing frictional pressure loss in the entire system

**Junk catcher** can be integrated with the MPD manifold to reduce the footprint and manual handling

**Fluid extraction system** continuously extracts mud samples for gas composition analysis and reservoir characterization without interrupting operations

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\*Coriolis flowmeter can also be installed downstream of the choke, depending on customer requirements and drilling necessity.

\*\*Manual valves are also an option. The unique placement of the valves in the manifold depends on the application and requirements from customers and governing agencies.



## **KNOWLEDGE** THAT EMPOWERS

Our highly technical specialists are key to every successful MPD operation. Working with you, they deliver a highquality end-to-end solution, which spans R&D, manufacturing, installation and commissioning, MPD operations, and customer service. And of course, safety is a priority at all times.

Centuries of cumulative knowledge in equipment design

Turnkey installation and commissioning with PMP® certified specialists and ABS and DNV compliance experts

**Exceptional consulting engineers** for operators and drilling contractors, from well planning to drilling optimization

**Supportive customer service** to maintain equipment for optimal performance well after well

Hands-on training and development for new MPD engineers

**Operational excellence systems** in place to monitor and track job performance and share knowledge







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				Last Name:			
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