

## EXXONMOBIL JANSZ-IO FIELD DEVELOPMENT

### ARTP E-Series Compensated Tension Lift Frame

**ICON Engineering Pty Ltd (ICON) was contracted to supply an ARTP E-Series compensated tension lift frame for use on the Deepwater Frontier Drillship while conducting work on the Jansz-io field.**

The ICON ARTP Tension Frames are a range of coiled tubing lift frames with integrated passive heave compensation systems specifically designed to mitigate risks associated with accidental lock of a rig's primary drill string compensator during subsea well completions, well testing, well interventions and other "locked-to-bottom" operations from floating rigs.

#### **Risk: Accidental Lock-up of the Rig's Drill String Compensator**

The Jansz-io development project included drilling and completing ten new production wells, and an intervention on one existing well. The work was performed from the Transocean Deepwater Frontier drillship in ~1200 metres water depth.

Project risk assessments during the planning phase concluded that accidental lock-up of the rig's drill string compensator (active heave drawworks) was a serious risk with the potential consequence of a major accident event.

ICON's ARTP E-Series compensated tension lift frame was selected as the most effective means of mitigating this risk as low as reasonably practicable.

#### **Scope: Design of Risk Mitigation Solutions**

The scope commenced with extensive locked-to-bottom risk assessments and conceptual design of risk mitigation solutions, which followed on to full detailed design, manufacture, function testing and extended cyclic testing of the ARTP E Series.

The ICON ARTP E-Series is a fully stand-alone system consisting of the main compensated tension lift frame, 3 winches on the frame (12t, 5t and man rider), dolly guides, main APV skid, air compressor, charging APV skid, HPU, drill floor control panel and electrical conditioning monitoring and alarm system.



This project was notable for its fast tracked logistics support. 100t of equipment needed to be mobilised from Europe to Perth in a 48 hour window, which required the charter of a Boeing 747 freighter.

The equipment build included extensive onshore testing and qualification with three primary phases: horizontal function testing; vertical heave simulation (operational) testing; and interface testing with third party equipment.

The vertical heave simulation testing was performed using ICON's purpose built dynamic test tower, and was conducted for the purpose of proving system reliability and to verify computer-based design simulation models against real life system performance.

The extensive test program included loading the frame with 70 tonne weight and cycling it under simulated heave conditions for 305 hours equating to 60,056 cycles and 367km cylinder travel distance.

Click here to view video footage of the onshore testing and qualification program:

[www.youtube.com/watch?v=s93jSrZBCSO](http://www.youtube.com/watch?v=s93jSrZBCSO)



**Extensive onshore testing of the ARTP E-Series proved system reliability and verified computer based design simulations with physical performance**