



Evening Technical Meeting: Advancements in Riser Technology

Report on SUT Perth Branch Evening Technical Meeting
Wednesday 10th April 2019

By Stuart Higgins, Perth Branch Committee Member

The April 2019 SUT technical evening at the Parmelia Hilton was opened by SUT Perth Branch Chairman, Rex Hubbard and chaired by SUT Committee Member, Stuart Higgins.

The event was kindly sponsored by the evening's presenters; Baker Hughes (a GE Company), 2H Offshore and EOM Offshore.

Flexible Riser Life Extension with Innovative Methods: was delivered by Christian Wiebe, Principle Engineer with 2H, dealing with change, trust and control associated with the design, modelling and testing of flexible risers under corrosion and fatigue operating environment including water filled or flooded annuli. The presentation provided examples of operational changes which impact the "as designed" performance and the modelling and analysis techniques to assess those changes. When combined with dissection, testing techniques and monitoring techniques – integrity limits can be re-established and/or confirmed. To streamline the often time consuming and numerically intensive process of fatigue assessment of flexible risers; a neural network approach was also presented.

Advancements in Mooring Riser Technology – the Elastomeric Solution: Mark Masurra, GM of Bluezone Group, presented on behalf of David Aubrey, at short notice, and acknowledged he was not the subject matter expert but would table any questions on the presentation for David to respond in writing. Mark presented a new taut/semi taut elastomeric mooring line which is also capable of transmitting power and signals via integrated shielded conductors. The application of the mooring system was suited to not only watch circle and noise sensitive requirements but also where mooring line contact damage to the seabed had to be avoided. Mark provided multiple examples where elastomeric solutions have been implemented for a decade or more, providing compliance, power generation, and data transfer within a rugged mooring element standing up to tens of millions of cycles of stretch. These elastomeric solutions have been designed for oceanographic moorings, environmental observation systems, boat moorings, aquaculture/fisheries, offshore energy, and other marine applications.

MAPS Integrity Management and T-Insert for Flow Induced Vibration: the final presentation was provided by Jess Zlokich, Lead Engineer Flexible Systems at Baker Hughes (a GE Company), which initially focussed on the Company developed wire integrity monitoring tool (MAPS) which monitors the residual and applied wire stress to detect "stress displacements" indicating wire failure. The system can detect single wire failures in both inner and outer layers and can be deployed from the hang-off termination through the splash zone (i.e. the most likely point of failure).

Also presented was BHGE's newly developed T-shaped spiral insert into the flexible riser carcass layer, called "Flexinsert", which helps to prevent flow induced vibration prevalent in application of high velocity dry gas applications. Given the regions large rate gas developments this offers the potential to either reduce the riser diameter or increase the throughput for a given riser diameter. Although this vibration does not affect the integrity of the flexible pipe, it can cause failure of the rigid topside and subsea structures. For more specific details please refer to the pdf presentation.

After each presentation, there were questions from the floor and allowed each presenter to provide some detailed insights into their presentations. The presentations and whole evening were well received by the 103 attendees.

Thank you to the SUT members, new members and guests for their attendance during the evening, especially to the three presenters that volunteered their time to speak at the event and in particular to Mark Musarra who stepped in a very short notice to present on behalf of David Aubrey. David could not attend due to an unavoidable flight delay.

I would like to conclude by again thanking our ETM sponsors, Baker Hughes (a GE Company), 2H Offshore and EOM Offshore. Without key sponsorship and support these evenings would not be possible.