## Evening Technical Meeting:

# ADVANCEMENTS AND INNOVATIONS IN SUBSEA PIPELINE DESIGN, OPERATION & MAINTENANCE

Report on SUT Perth Branch Evening Technical Meeting
Wednesday 17th February 2021

*By Brett Phillips, Perth Branch Committee Member*

The February 2021 SUT technical evening at the Parmelia Hilton was opened by SUT Perth Branch Chairperson, Steve Duffield and chaired by SUT Committee Member, Brett Phillips.

The event was kindly sponsored by Woodside.

**Corrosion Resistant Alloy (CRA) Pipeline Repair. Learnings & outcomes from recent hyperbaric CRA welding trials** was presented by Sophie Yin (Project Engineer) from Woodside. Sophie's technical presentation covered the learnings and findings from two sets of hyperbaric CRA welding trials Woodside recently conducted with Subsea 7 to investigate this method of repair. Woodside operates over 100km's of CRA lined pipelines off Western Australia. The presentation covered both the successes and limitations experienced during the trials with several key lessons learnt presented. Test parameters were detailed including simulated water depth and details of the full mock up test facility. These included the subsea pipe spools for welding, subsea pipe lift frames and the Subsea 7 Seahorse hyperbaric welding habitat. Learnings outlined included practical limitations experienced by the welders during the trials through to the inert gas composition and "blown down" issues hampering weld quality.

**Actively Heated Flexible Pipe** was presented by Henri Morand of TechnipFMC, he is the Engineering Manager based in Perth. Henri's presentation covered two types of actively heated flexible flowlines from TechnipFMC. There was a brief background around the flow assurance issues associated with deepwater long distance tie-backs, ie. wax and hydrate build up, etc and the role actively heated flowlines can provide for flow assurance. The presentation covered ETH-HCRAWTM (Electrically Trace Heated - Heating Cables Replacing Armour Wires) which is a TechnipFMC proprietary solution to meet these demands. The presentation walked through the technology and demonstrated its application along with provided examples where it is in operation.

**LGS – VIV Suppression without the Drag** was presented by Christian Wiebe of Matrix Composites & Engineering based in Perth. Christian's presentation covered an alternative Vortex Induced Vibration suppression system called the Longitudinal Groove Suppression (LGS) System. Christian's presentation covered the history of the LGS concept from the Saguaro Cactus, which inspired AMOG to develop the LGS profiles. Empirical modelling data was shared of the system's effectiveness relative to both bare cylinders and other conventional VIV suppression systems. Through to the LGS systems applications in the subsea environment where it has been incorporated into drilling riser buoyancy and with a case study showing it being ROV retro-fitted to flowlines where the constraints were high currents, moving seabed and limited seabed clearance in a location where the flowlines were required to maintain lateral movement, thus eliminating other conventional approaches.

After each presentation the online Question & Answer programme SLIDO was utilised. This was hugely successful, gaining considerable audience involvement in both quantity and quality throughout the Q&A sessions. This was equally matched by each presenters extensive knowledge of their subjects and flawless ability to respond to the questions.

The presentations and whole evening were well received by a total of 112 registered 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. I would like to conclude by again thanking our ETM sponsor, Woodside, for their valuable financial support without which these evenings would not be possible.