

# Physical Modelling of Barrow Island LNG Plant Materials Offload Facility

Client: Kellogg Joint Venture Gorgon (KJVG)

Year: 2006-2007 & 2008-2009

Project References: 05082, 08045, 08089



(Clockwise) Quasi-3D flume testing – 3 m wave flume; 2D flume testing – 1 m wave flume; 3D wave basin modelling

The Gorgon joint venture, consisting of Chevron Australia with other partners being ExxonMobil and Shell, propose to construct a liquefied natural gas (LNG) export facility on Barrow Island, WA. To allow construction of the LNG plant, a materials offload facility (MOF) is required to be constructed on the island, and will consist of several wharves and craft landing facilities, protected by various coastal structures.

The Water Research Laboratory was engaged by Kellogg Joint Venture Gorgon (KJVG) to undertake two and three dimensional physical modelling investigations of the perimeter revetment and other coastal structures associated with the project.

This physical modelling investigation was undertaken throughout 2006 and 2007 in WRL's 1 m wave flume, and wave basin facilities. Further modelling is currently being undertaken.

This investigation included initial two dimensional and quasi-three dimensional flume testing of preliminary structure designs, looking at revetment armour stability, wave runup and overtopping; from which results were used to optimise the design, prior to undertaking the wave basin modelling. The three dimensional wave basin modelling further investigated armour stability and overtopping, as well as considering wave penetration associated with the plan layout of the various structures.