

Floating LNG Conceptual Design

LNG Floating Storage and Regasification Unit

Customer: Confidential

Services Provided

- Permitting Documentation

Benefits to Customer

- Feasibility Assessment, notably in terms of safety and plant cost
- Assurance on the robustness of the regasification design and the proposed equipment

Background

Costain was awarded a contract for the conceptual design of the topsides and utility systems for a 1500 MMSCFD floating LNG receiving and regasification terminal. The design was carried out in support of the client's application to the permitting authorities.

Project Description

The objectives of the conceptual design were:

- To provide adequate engineering definition of the regasification plant that is specific to the floating storage and regasification unit (FSRU) and the site conditions
- Evaluate and select the best LNG vaporisation technology, taking into consideration a number of aspects, including any restrictions imposed by local authorities, and the particular challenges of an offshore location such as vessel motion
- Address the key environmental and safety issues
- To provide a budget cost estimate for the regasification plant
- Deliverables included P&ID's, design and operating philosophies, safety and environmental assessments and plant layout.
- The study identified the need to evaluate the effect of vessel movement on the proposed submerged combustion vaporisers and Heriot Watt University, under the supervision of Costain, was tasked with constructing a test model to quantify performance under a range of vessel motions.
- This work, along with other engineering evaluations assessed the mechanical robustness and performance of the vaporisers, identified the modifications needed to ensure good performance, assessed the gas venting rate under shutdown conditions and provided recommendations for the next phase of engineering.