

A. Fabrication of a Prototype Natural Gas Container Using New Steel and Welding Technology

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Pressurized LNG (PLNG) is an ExxonMobil patented technology that utilizes pressurized containment to reduce the overall costs of delivering the gas to market. The altered storage conditions allow the cargo to be contained at warmer temperatures while still remaining a liquid. As a result, only about one-half of the conventional LNG liquefaction facilities are required for PLNG. While the reduced facilities lead to significant savings, the PLNG ships and containment must be cost effective in order to realize overall project savings.

The key component of this new technology is the containment system. The PLNG pressure vessels are made of a newly developed high strength, low temperature (HSLT) steel along with a new welding technique and welding consumable. In order to confirm the design and fabrication methods for these PLNG containers, ExxonMobil fabricated and tested a 5m diameter by 18m tall PLNG prototype container using the HSLT steel and welding method. The fabrication was conducted at Kawasaki Heavy Industries, Harima Works. This presentation will describe the technology used for prototype container fabrication.