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Safety Reinforcement Monitoring System for Floating LNG Power Plant

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Abstract

As the vaporization gas (BOG: Boiled–off Gas) from the LNG storage tanks or the fuel tank is directly related to the fuel cost, it is a sensitive issue for ship owners. In this paper, the safety monitoring system of Floating LNG BOG Monitering systems(FLBM) is developed among floating LNG power plants, utilizing system devices that collect measurement data on site instruments or equipment. The FLBM is continuously issued by BOG by heat exchange with pipes or valves and other devices that come into direct contact with LNG at a bunker facility that refills LNG at very low temperature to a ship or floating facility. Since the generation of BOG varies depending on the liquid phase inside the storage tank when refueling from LNG storage tank to ship, the loss of BOG released into the atmosphere through the prediction of the Heat&Mass Balance due to changes in ambient air temperature and pressure shall be minimized. Since BOG recovery is required not only for economic aspects but also for environmental aspects and for the risk of explosion and fire, it consists of smart devices for explosion-proof site monitoring, integrated data analysis & evaluation and systems for securing asset safety by predicting and monitoring the risks that may occur during plant operation. The main functions of FLBM are (1) main process instrumentation data, ship behavior/ marine environment monitoring smart devices (2) integrated data analysis, evaluation and work safety monitoring system (3) which exchange working conditions (3), floating LNG power plant VR model for verification of monitoring system. FLBM support design improvement and systematic evaluation procedures. In addition, it will directly monitor accident and conservation scenarios such as gas leakage, fire and explosion by attaching on-site measurement or equipment, and analyze them quantitatively to increase reliability.

Key Words: East Sea, Coastal oceanographic observation, Cluster analysis, Sea surface temperature, Long-term variability Approval in Principle.