This abstract will be presented during LNG2023 conference on 10-13 July in Vancouver, Canada among many other innovative projects, ideas and outlooks. LNG2023 will provide a unique platform for the global LNG industry and key stakeholders to discuss, debate, and showcase the latest industry developments and opportunities.



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CASE STUDY OF STRUCTURAL REDUNDANCY ANALYSIS FOR OPTIMIZING CRYOGENIC SPILL PROTECTION

In LNG industry, Cryogenic Spill Protection (CSP) insulation on structural steel is widely applied to reduce the risk of escalation against cryogenic spill hazard, especially for offshore installation. However, CSP requires not only initial material and application cost, but also requires periodical maintenance and causes additional risk of CUI. Therefore, the optimization of CSP is expected in many situations. The structural redundancy analysis has been applied to optimize the Passive Fire Protection (PFP) against jet fire in offshore project. However, the analysis has not been applied against cryogenic spill in LNG project. Thus, case study of redundancy analysis against cryogenic spill was conducted by developing the analysis methodology for fire accident. The developed analysis is conducted using STAAD.Pro which is widely used to simulate the linear analysis of structural calculation. This analysis starts from the identification of cryogenic spill scenario. Next, the structural members exposed to the cryogenic spill are removed from the analysis model, provided all exposed members are failed. By evaluating the utilization ratio under the specific load combination in accordance with API RP 2FB, structure members which are necessary for structure integrity and require CSP can be identified per each cryogenic spill accident. The redundancy analysis is conducted for several type and directions of cryogenic spill to evaluate the effectiveness of the analysis in LNG facility.

To view the full conference agenda, visit https://www.lng2023.org/lng-programme-overview