

## **Evaluating Risks of LNG Spills over Water**

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Over the past several years, Liquefied Natural Gas (LNG) is increasingly being considered as a solution for clean energy needs. Concerns over the safety and security of LNG during transportation and storage have resulted in numerous studies of the hazards of LNG releases, and a few studies that address risk. Among the most important scenarios are accidents or attacks that release LNG over water. Incidents during water transport by large tankers, as well as new concepts for floating off-shore terminals to reduce concerns of siting land-based facilities, require improved methods for evaluating the risk of LNG spills over water. An approach for evaluating this risk, as well as the methods for assessing the hazards due to the release of LNG over will be discussed. The primary hazards that will be discussed include very large releases resulting in dispersion of unignited LNG, and releases accompanied by ignition sources that burn LNG as a pool fire. These hazards are presently evaluated using various models. Available data for model development and validation, and the strengths and weaknesses of modeling approaches for different applications, including an initial evaluation of advanced Computational Fluid Dynamics (CFD) approaches, will be presented.

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