Use of risk analysis for LNG facility siting in the US
Changes in NFPA 59A and in future Regulations
A road map and required actions

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Abstract

Current US Federal Regulations in 49 CFR, part 193 and the NFPA 59A Standards are very prescriptive and inflexible in allowing alternative safety mitigation considerations for LNG facility siting without applying for a special permit. The types and sizes of accidental releases to be evaluated are prescribed and no deviation is allowed. Without considering a spectrum of events, their likelihood of occurrence and the resultant consequences, it is impossible to design proper mitigation actions or emergency response procedures. The benefit of knowing and preparing for a properly evaluated “most likely event” scenario is the resultant proper application of economics and personnel resources of the emergency responders.

Recently, the NFPA LNG Standards Committee approved the inclusion in its 2008 edition of the Standard an alternative, Risk-based, standard to evaluate the safety of land-based LNG facilities. The US Department of Transportation (DOT) already uses risk based “Pipeline Integrity Management” procedures to ensure public safety from accidental gas releases from interstate pipelines. The National Association of Regulatory Utility Commissioners (NARUC), in a recent meeting, approved a resolution calling the US DOT to “initiate steps to evaluate and develop alternatives and risk based regulations as replacements for or supplement to its existing LNG facility siting regulations.”

This paper discusses the risk evaluation approach used in the NFPA 59A and possible other methods of performing a LNG facility (including offshore) risk assessment. Also discussed are the parameters that society has to agree to establish an ‘acceptable’ level of risk. The paper indicates the process used in other countries, particularly in Europe. The results from the application of risk analysis to a specific case are presented. A comparison of these (risk-based) results with those obtained from the application of the requirements in NFPA 59A (or 49 CFR, part 193) is indicated. Recommendations are provided for future actions.