



Tentative Interim Amendment

# NFPA<sup>®</sup> 59A

## Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG) 2013 Edition

**Reference:** Table 15.6.1 and Table 15.8.4.1

### TIA 13-1

(SC 13-3-7/TIA Log #1090)

Pursuant to Section 5 of the NFPA *Regulations Governing the Development of NFPA Standards*, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 59A, *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)*, 2013 edition. The TIA was processed by the Technical Committee on Liquefied Natural Gas, and was issued by the Standards Council on March 7, 2013, with an effective date of March 27, 2013.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards-making procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a public input of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards-making process.

1. *Modify the format of Table 15.6.1 and add descriptive units for probability of failure of piping as follows:*

**Table 15.6.1 Example Component Failure Database**

Component	Annual Probability of Failure
<b>Atmospheric Cryogenic Tanks</b>	
(1) Instantaneous failure of primary container and outer shell, release of entire contents (single containment tank)	5E-07
(2) Instantaneous failure of primary container and outer shell, release of entire contents (double containment tank)	1.25E-08
(3) Instantaneous failure of primary and secondary container, release of entire contents (full containment tank)	1E-08
<b>Pressurized Storage</b> (Containers) — instantaneous release of entire contents	5E-07
<b>Pressure relief valves</b> — outflow at the maximum rate	2E-05
<b>Process equipment</b>	
(1) Pumps — catastrophic failure	1E-04
(2) Compressors with gasket — catastrophic failure	1E-04
(3) Heat exchanger — instantaneous release of entire contents from plate heat exchanger	5E-05
<b>Transfer equipment</b> — rupture of loading/unloading arm	3E-08
<b>Piping — aboveground</b>	
	<b>Annual probability of failure per meter</b>
(1) Rupture for nominal diameter <75 mm	1E-06
(2) Rupture for 75 mm < nominal diameter < 150 mm	3E-07
(3) Rupture for nominal diameter > 150 mm	1E-07

2. Correct units in Table 15.8.4.1 as follows:

**Table 15.8.4.1 Radiant Heat Flux and Thermal Dosage Outside the Plant Boundary**

<b>Maximum Heat Flux Level (kW/m<sup>2</sup>)</b>	<b>Maximum Modified Dosage Unit ([kW/m<sup>2</sup>]<sup>4/3</sup>s)</b>	<b>Consequences</b>
5.0	500	At least 10 persons would suffer 2nd degree skin burns on at least 10% of their bodies within 30 seconds of exposure to the fire.
5.0	300	At least one person inside the building would suffer 2nd degree skin burns on at least 10% of the body within 30 seconds of exposure to the fire.
32	N/A	Loss of strength of structural steel exposed to the fire to an extent that its primary load-bearing capacity is reduced significantly over the duration of LNG fire being analyzed.

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(Note: For further information on NFPA Codes and Standards, please see <http://www.nfpa.org/docinfolist>)

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