



National Fire Protection Association

1 Batterymarch Park, Quincy, MA 02169-7471
Phone: 617-770-3000 • Fax: 617-770-0700 • www.nfpa.org

MEMORANDUM

To: The Technical Committee on Liquefied Natural Gas

From: Jeanne Moreau

Date: October 28, 2010

Subject: Supplemental Ballot on **NFPA 59A** Report on Proposals (F11)

Attached is a supplemental ballot on NFPA 59A. The attached proposal was initially submitted as a Temporary Interim Amendment (TIA) request that would apply to the next (2012) edition of NFPA 59A. It represents an issue that was raised in the field after the committee ROP ballot was released. Processing a TIA on the next edition under such conditions is acceptable under the NFPA Regulations Governing Committee Projects. However, because NFPA 59A has not yet reached the deadline for ROP ballot returns, NFPA Staff, after consulting with the chair, requested permission from the submitters to process the revision as a supplemental ballot to insure that the subject and content are fully vetted by the committee under the normal document revision process.

The attached ballot reflects the proposal, technical substantiation, and emergency substantiation as submitted in the TIA request. In the absence of committee input, NFPA Staff and the TC Chair assigned a committee action of “Accept”.

If you disagree with processing the revision as a proposal, please abstain from voting and state this as your reason for abstaining. If you object only to the content of the proposal, please vote negative and indicate technical reasons in your ballot comment. As a reminder, there are two thresholds for meeting the majority requirement on NFPA proposal ballots: 1. 2/3 of the ballots returned must be affirmative, minus the not-returned and abstention votes; 2. a simple majority of all committee members must vote affirmatively. If the ballot fails because there are a large number of abstentions related to the method of processing, we will withdraw the ballot and proceed with the TIA as originally requested.

Please do not vote negatively because of editorial errors. However, please bring such errors to my attention for correction.

Please return your ballot as soon as possible, but no later than **Monday, November 8, 2010**. Your cooperation in meeting this deadline is appreciated. If you wish to fax your ballot, please fax to **(617) 984-7110** or you may e-mail jmoreau@nfpa.org

Note: Please remember that the return of ballots and attendance at Committee Meetings are required for all Principal and Alternate members in accordance with the Regulations Governing Committee Projects.

Attachments: Proposal

59A-52a Log #172
(5.8)

Final Action: Accept

Submitter: Nicholas A. Legatos, Preload Incorporated

Recommendation: Revise text to read as follows:

5.8 Concrete Design and Materials.

5.8.1 Concrete used for construction of LNG containers shall be in accordance with Section 7.5.

5.8.2 Concrete structures that are normally or periodically in contact with LNG, including the foundations of cryogenic containers, shall be designed to withstand the design load, applicable environmental loadings, and anticipated temperature effects.

5.8.2.1 The design of the structures shall be in accordance with the provisions of 7.5.1.

5.8.2.2 The materials and construction shall be in accordance with the provisions of 7.5.2.

5.8.3 Structural concrete for pipe supports shall comply with Section 9.5.

5.8.4 Other Concrete Structures.

5.8.4.1 All other concrete structures shall be investigated for the effects of potential contact with LNG.

5.8.4.2 If failure of these structures would create a hazardous condition or worsen an existing emergency condition by exposure to LNG, the structures shall be protected to minimize the effects of such exposure, or they shall comply with 5.8.2.1 or 5.8.2.2.

5.8.5* Nonstructural concrete for incidental nonstructural uses, such as slope protection and impounding area paving and other nonstructural slabs-on-grade, shall conform to ACI 304R, *Guide for Measuring, Mixing, Transportation and Placing of Concrete*.

~~A.5.8.5 Slope Protection and impounding area paving are examples of incidental nonstructural concrete use. Examples of nonstructural slabs-on-grade (or slabs-on-ground) are slabs used for slope protection, impounding area paving, concrete aprons under piping and transfer areas, light truck and vehicle loading-unloading platforms, base slabs for outdoor mechanical or electrical equipment, base slabs for shop-built metal containers other than LNG containers, non-load transmitting ground floor slabs for enclosed mechanical/electrical rooms, non-load transmitting ground floor slabs for control rooms and office buildings, concrete-paved parking areas, garage floors, ground floor of storage buildings for light equipment and supplies, sidewalks, and pavements.~~

5.8.6 Minimum Reinforcement

5.8.6.1 Reinforcement for concrete structures designed for LNG-containment or cold vapor containment, other than those in 5.8.1 and 5.8.2; or for concrete structures covered in 5.8.3 and 5.8.4 shall be a minimum of 0.5 percent of the cross-sectional area of concrete for crack control in accordance with Appendix G of ACI 350, *Code Requirements for Environmental Engineering Concrete Structures*.

5.8.6.2 Minimum reinforcement for concrete for incidental nonstructural uses covered in 5.8.5 shall be in accordance with the shrinkage and temperature reinforcement provisions of ACI 318. *Building Code Requirements for Structural Concrete*.

Substantiation: The Technical Committee on LP Gases has, over many cycles, attempted to make the sections of the code dealing with concrete fully comprehensive, all-inclusive and easily understood. Those well-meaning attempts have had the unintended consequences of creating a maze of requirements and regulations that makes even the most routine attempt at compliance turn into an arduous but ultimately a dead ended effort. A case in point is the question of which concrete structures require the minimum reinforcement specified in Section 5.8.6. As currently written, there are several possible interpretations of Section 5.8 and that leaves room for potential disagreement between the designer/builder and the regulatory officials.

There are a number of LNG facilities either being considered, under construction or being modified and the potential for disagreement could easily lead to unresolved disagreements as well as considerable delays and unnecessary expense. This TIA, if accepted, should provide immediate clarification and permit those projects to move forward in a timely manner.

Committee Meeting Action: Accept