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NFPA 326 Safe Entry of Underground Storage Tanks 1993 Edition

National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101

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Policy Adopted by NFPA Board of Directors on December 3, 1982

The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

Statement on NFPA Procedures

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NFPA 326

Standard Procedures for the

Safe Entry of Underground Storage Tanks

1993 Edition

This edition of NFPA 326, *Standard Procedures for the Safe Entry of Underground Storage Tanks*, was prepared by the Technical Committee on Tank Leakage and Repair Safeguards, released by the Correlating Committee on Flammable Liquids, and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 24-27, 1993, in Orlando, FL. It was issued by the Standards Council on July 23, 1993, with an effective date of August 20, 1993.

The 1993 edition of this document has been approved by the American National Standards Institute.

Origin and Development of NFPA 326

The text of this standard was originally intended as amendments to NFPA 327, *Standard Procedures for Cleaning or Safeguarding Small Tanks and Containers Without Entry*, and would have expanded the scope of NFPA 327 to those situations in which tank cleaning or repair required that personnel gain entry to the tank. Recognizing the likely conflict that would result, the Committee decided that a separate standard would be desirable. An initial draft of NFPA 326, based on the existing text of NFPA 327, was developed by a Task Group of the Committee in January of 1990. This draft was revised several times over the following two years, during which time appropriate changes were also made to the text of NFPA 327.

The text of this first edition of NFPA 326 was adopted in 1993.

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Committee Scope: To direct the activities of the Technical Committees assigned to it which have primary responsibility for the development and revision of NFPA codes, standards, recommended practices and manuals pertaining to the storage, transportation, handling, and use of flammable and combustible liquids.

Technical Committee on Tank Leakage and Repair Safeguards

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Robert P. Benedetti, NFPA Staff Liaison

This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

NOTE: Membership on a Committee shall not in and of itself constitute an endorsement of the Association or any document developed by the Committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents on the criteria for safeguarding against the fire and explosion hazards associated with cleaning and repair of tanks and containers that contained flammable or combustible liquids; safe entry into tanks and similar enclosures that contain or have contained flammable or combustible liquids; methods for detecting, controlling, and removing underground leakage; methods for controlling flammable and combustible liquids and gases found in manholes, sewers, vaults and similar underground structures.

Contents

NFPA 326

Standard Procedures for the

Safe Entry of Underground Storage Tanks

1993 Edition

NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates explanatory material on that paragraph in Appendix A.

Information on referenced publications can be found in Chapter 6 and Appendix B.

Chapter 1 General Provisions

1-1 Scope.

1-1.1 These standard procedures shall apply to the entry of underground storage tanks, operating at nominal atmospheric pressure, that have contained flammable or combustible liquids, and that might contain flammable or combustible vapors or residues.

1-1.2 These procedures shall not apply to aboveground tanks that are entered; underground tanks that have been removed from the ground; tank vehicles or tank cars; tanks, bunkers, or compartments on ships or barges; gas plant equipment or gas distribution systems for natural or manufactured gas; or compressed and liquefied gas cylinders. Procedures for making some of these vessels safe are covered separately in the following publications:

(a) AGA, *Purging Principles and Practices*

(b) ANSI Z117.1, *American National Standard Safety Requirements for Confined Spaces*

(c) API 1631, *Interior Lining of Underground Storage Tanks*

(d) API 2013, *Cleaning Mobile Tanks in Flammable or Combustible Liquid Service*

(e) API 2015, *Safe Entry and Cleaning of Petroleum Storage Tanks*

(f) NFPA 306, *Standard for the Control of Gas Hazards on Vessels*

(g) NLPA 631, *Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks*

(h) OSHA, *Code of Federal Regulations*, Title 29, Part 1910.146, "Permit-Required Confined Spaces."

1-1.3* These procedures shall not apply to tanks that are protected with an inert atmosphere. Providing and working in an inert atmosphere requires special safety procedures that shall not be covered by this standard. (*See API 2217A, Guidelines for Work in Inert Confined Spaces in the Petroleum Industry.*)

1-1.4 This standard shall not apply to the procedures that might be required to safely work on or repair an underground tank.

1-2 Purpose. The purpose of this standard is to provide procedures for the safe excavation, opening, entry, cleaning, and closure of an underground storage tank that contained flammable or combustible vapors, gases, liquids, or solids.

1-3 Definitions. For the purpose of this standard, the following terms shall have the meanings given below.

Bonding. The electrical interconnection (metallic bond wire or metal-to-metal contact) between two conductors that would otherwise be electrically isolated from each other.

Combustible Gas Indicator. A device capable of detecting, measuring, and monitoring the concentration in the atmosphere of the gas or vapor for which the indicator is calibrated.

Flammable Gas. Any substance that exists in the gaseous state at normal atmospheric temperature and pressure and that is capable of being ignited and burned when mixed with the proper proportions of air, oxygen, or other oxidizer.

Hazardous Work. Any work that involves any source of ignition, including open flames, cutting and welding, sparking of electrical equipment, grinding, buffing, drilling, chipping, sawing, or other similar operations that might create hot metal sparks or surfaces from friction or impact.

Inert Gas. Any gas that is nonflammable, nonreactive, and noncontaminating for the use intended.

Inerting. A technique by which a combustible mixture is rendered nonignitible by the addition of an inert gas.

Liquid. Any material that has a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM D5, *Standard Test Method for Penetration of Bituminous Materials*. Where not otherwise identified, the term "liquid" shall mean both flammable and combustible liquids.

(a) *Combustible Liquid.* A liquid having a closed-cup flash point at or above 100°F (37.8°C). Combustible liquids shall be subdivided as follows:

1. Class II liquids shall include those liquids having closed-cup flash points at or above 100°F (37.8°C) and below 140°F (60°C).

2. Class IIIA liquids shall include those liquids having closed-cup flash points at or above 140°F (60°C) and below 200°F (93.4°C).

3. Class IIIB liquids shall include those liquids having flash points above 200°F (93.4°C).

(b) *Flammable Liquid.* A liquid having a closed-cup flash point below 100°F (37.8°C) and having a Reid vapor pressure not exceeding 40 psia (2068.8 mm Hg) at 100°F (37.8°C), as determined by ASTM D323, *Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)*. Flammable liquids shall be subdivided as follows:

1. Class IA liquids shall include those liquids having closed-cup flash points below 73°F (22.8°C) and boiling points below 100°F (37.8°C).

2. Class IB liquids shall include those liquids having closed-cup flash points below 73°F (22.8°C) and boiling points at or above 100°F (37.8°C).

3. Class IC liquids shall include those liquids having closed-cup flash points at or above 73°F (22.8°C).

Lower Flammable Limit. The minimum concentration of vapor in air at which propagation of a flame does not occur on contact with a source of ignition.

Oxygen Monitor. A device capable of detecting, measuring, and monitoring concentrations of oxygen in the atmosphere.

Purging. The process of displacing the flammable vapors from an enclosure or confined space.

Qualified Person. A person designated in writing as being capable, by education or specialized training, of performing specified tasks; of recognizing the potential hazards of those tasks; of recognizing any other unsafe conditions in a confined space; of specifying the necessary control and protective action to ensure worker safety; and who is knowledgeable of the procedures described in this standard.

Self-Contained Breathing Apparatus. A portable respiratory device designed to protect the wearer from an oxygen-deficient or other hazardous atmosphere. It supplies a respirable atmosphere that is either carried on, in, or generated by the apparatus and is independent of the ambient environment. It is equipped with a full-face mask and is approved by the U.S. Mine Safety and Health Administration and the National Institute for Occupational Safety and Health.

Standby Person. A person trained in emergency rescue procedures and who is assigned to remain on the outside of the confined space and to be in communication with those working inside.

Static Electricity. The electrification of materials through physical contact and separation and the various effects that result from the positive and negative charges so formed, particularly where they constitute a fire or explosion hazard.

Unstable (Reactive) Liquid. A liquid that, in the pure state or as commercially produced or transported, will vigorously polymerize, decompose, condense; or will become self-reactive under conditions of shock, pressure, or temperature.

Chapter 2 Basic Precautions

2-1 General. Work on tanks that have held liquids shall be performed only by personnel who understand the fire and explosion potential of the liquids and their residues. All personnel shall be sufficiently skilled to safely carry out the necessary operations. The characteristics of the previous contents of the tank shall be determined.

2-1.1 The contractor or the person or persons responsible for the tank entry procedure shall implement a confined space entry plan. (*See 3-6.*)

2-2 Ignition Concerns.

2-2.1 Prior to any work being performed, the site shall be safeguarded from all sources of ignition for a minimum distance of 25 ft (7.6 m) in all directions. Barricades and warning signs reading "FLAMMABLE — NO SMOKING" shall be provided and placed in accordance with the requirements of the authority having jurisdiction. The area shall then be tested for the presence of flammable or combustible gases, liquids, or vapors. The confirmed presence of flammable or combustible gases, liquids, or vapors shall require an extension of the 25-ft (7.6-m) minimum distance.

2-2.2 The characteristics of the previously contained material shall be determined. Tanks shall not be worked on until information concerning the specific hazards of that material has been obtained and safe procedures have been established. All compartments of a multicompartment tank and the annular (interstitial) space of a secondary containment-type tank shall be considered when these procedures are established.

2-2.3 Tank contents shall be vented to a safe location. Before work is started on tanks that might be under pressure, the pressure shall be reduced to atmospheric pressure.

2-2.4 Two portable fire extinguishers, each having a rating not less than 80 B:C, shall be provided on the site in accordance with NFPA 10, *Standard for Portable Fire Extinguishers.*

2-2.5 A dependable method shall be available for notifying the fire department in the event of a fire or other emergency.

2-2.6 Adequate precautions shall be taken to prevent the accumulation and discharge of static electricity. (*See API 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents, and NFPA 77, Recommended Practice on Static Electricity.*)

2-2.7 Any electrical equipment used in the area described in Section 2-1 shall be suitable for Class I, Group D, Division 1 hazardous (classified) locations, as defined in NFPA 70, *National Electrical Code®.*

2-2.8 Any equipment capable of providing a source of ignition shall not be permitted within the vicinity of the tank until the tank and the area around the tank have been tested and found to be safe.

2-3 Safe Atmosphere. To ensure a safe atmosphere within the tank, tests for flammable vapors shall be made with an appropriate combustible gas detector as follows:

(a) Immediately before entry or re-entry, and

(b) Immediately before beginning alterations or repairs, and

(c) Immediately before and during any welding, cutting, or heating operations, and

(d) Periodically during the course of the work.

All work shall be stopped immediately when the presence of flammable vapors exceeding 10 percent of the lower flammable limit is indicated. The source of the vapor release shall be located and removed.

Chapter 3 Tank Entry

3-1 Excavation. If excavation is necessary to gain access to the top of the tank, the access pit shall be at least 4 ft × 4 ft (0.6 m × 0.6 m). Personnel shall be familiar with all applicable procedures such as those established by the U.S. Occupational Safety and Health Administration in 29 CFR 1926, Subpart P, "Excavations."

3-2 Preparation for Opening the Tank.

3-2.1 Before any work on the exterior surface of the tank begins, the tank shall be isolated. If the tank on which work

is to be performed is equipped with a manifold vent, fill line, or siphon assembly, necessary measures shall be taken to isolate that tank from all other tanks. All product and vapor recovery piping shall be disconnected and blanked off. The vent for the tank being entered shall be isolated from vents of other tanks that might still be in service. A separate temporary vent for the tank being entered shall be provided, if necessary.

3-2.2 All electrical circuits supplying power to submerged pumps or other equipment connected to the tank shall be disconnected and locked out.

3-2.3 As much product, water, and sediment as possible shall be removed using explosion-proof or air-driven pumps. Pump motors and suction hoses shall be bonded to the tank to prevent static electricity ignition hazards. (*See API 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents, and NFPA 77, Recommended Practice on Static Electricity.*) A small quantity of water shall be permitted to be pumped into the tank through the tank gauge stick access line to float any remaining product from a low spot so that it can be pumped from the tank.

3-3 Displacement with Air.

3-3.1 The tank shall be thoroughly purged with air to remove flammable vapors. The concentration of flammable vapors in a tank might go through the flammable range before a safe atmosphere is obtained. Precautions shall be taken to eliminate the possibility of static electric discharge during gas-freeing procedures. (*See API 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents, and NFPA 77, Recommended Practice on Static Electricity. See also, NFPA 69, Standard on Explosion Prevention Systems.*)

3-3.2 Where purging the tank with air, the air pressure in the tank shall not exceed 5 psig (34.5 kPa). To prevent excess air pressure, the vent line shall be checked to make certain it is free of blockages, obstructions, or traps.

3-3.3 Displacement of the tank atmosphere with air shall be accomplished by one of the following methods:

3-3.3.1 An eductor air mover, preferably driven by compressed air. The eductor shall be air-tight and attached to the fill connection. Where using this method on tanks with fill (drop) tubes, the tube shall remain in place to ensure that vapors are drawn from the bottom of the tank. An extension shall be used to discharge vapors a minimum of 12 ft (3.7 m) above grade and away from any areas that might contain sources of ignition. The eductor shall be properly bonded to prevent the generation of static electric charges.

3-3.3.2 A diffused airblower. Fill (drop) tubes shall be removed to enhance diffusion of air into the tank. The air shall be supplied from a compressor that has been checked to ensure delivery of clean air that is free of volatile vapors. The air pressure in the tank shall not exceed 5 psig (34.5 kPa). The air-diffusing pipe shall be properly bonded to prevent the generation of static electric charges.

3-3.4 Where access must be gained to a tank that is located indoors or in a confined area, such as under a building, ventilation shall be sufficient to prevent the accumulation of flammable vapors.

3-4 Testing for Flammable Vapors.

3-4.1 During tank excavation, tank opening, and tank entry, tests shall be conducted to determine the concentration of flammable vapors in the excavated area and in the tank. Vapor concentrations shall not exceed 10 percent of the lower flammable limit. Tests shall be made with a combustible gas indicator that has been properly calibrated using hexane in air and thoroughly checked and maintained in accordance with the manufacturer's instructions.

3-4.2 Persons responsible for testing shall be trained in the use of the instrument, interpretations of its readings, and its limitations.

3-4.3 Where purging is being performed by an eductor air mover, the eductor shall create a vacuum that draws air through at least one tank opening and discharges through another opening. Testing for flammable vapors shall be conducted with a combustible gas indicator with its probe inserted into the probe hole provided in the side of the eductor. Testing for flammable vapor concentrations shall be performed with the eductor on and tightly secured to the tank's fill tube. Readings of 10 percent or less of the lower flammable limit shall be obtained before the tank shall be considered safe for opening.

3-4.4 Where purging is being performed by an air blower, the blower shall force air into the tank through at least one tank opening and discharge through the vent line opening. Testing for flammable vapor concentrations shall be performed with a combustible gas indicator whose probe is placed in the tank's vent line. When readings of 10 percent or less of the lower flammable limit are obtained, the air blower shall be shut off. Readings shall be taken at the bottom, middle, and upper portions of the tank. The instrument shall be purged with fresh air after each reading. If readings in the tank are taken through the fill line, the fill tube shall be removed. The air blower shall be immediately turned on after the last test in the tank, and the tank's vent line shall be tested thereafter. Readings of 10 percent or less of the lower flammable limit shall be obtained in the bottom, middle, and upper portion of the tank and in the vent line before the tank shall be considered safe for opening.

3-5 Opening the Tank.

3-5.1 Purging, displacement with air, and testing shall continue while personnel are working on or in the tank. Personnel shall never enter a tank without first testing for adequate ventilation. Ventilation shall be continuous while personnel are in the tank. No cutting torch or other flame-producing equipment shall be used for cutting into a tank.

3-5.2 Steel Tanks. If a manway exists, the bolts and lid shall be removed. If no manway exists, an opening having a minimum dimension of either 18 in. × 18 in. (46 cm × 46 cm) or 24 in. (61 cm) in diameter shall be cut in the top of the tank. The section to be removed shall be marked with chalk, and a hole shall be drilled with an air-driven drill at one corner of the section using lubricated cutting oil to reduce friction, heat, and possible sparks. After the hole is drilled, the tank vapors shall again be tested by

inserting the meter probe at least 24 in. (61 cm) into the drilled hole to verify that the vapor concentration in the tank does not exceed 10 percent of the lower flammable limit before cutting the access opening.

3-5.3 Fiberglass Tanks. If no manway exists, an opening having a minimum dimension of 18 in. × 18 in. (46 cm × 46 cm) and maximum dimension of 24 in. × 24 in. (61 cm × 61 cm) shall be cut through the end cap. The first cut shall be made at least 5 in. (14.5 cm) and no more than 12 in. (30.5 cm) from any rib. The opening shall be bevel cut to prevent it from falling through when it is replaced.

3-5.4 The tank shall be cut using an air-driven saber saw or snipper, using lubricated cutting oil to reduce friction and heat and to prevent possible sparks. Prior to the final cut, the plate shall be supported to prevent its falling into the tank.

3-6 Tank Entry.

3-6.1 Pre-entry Procedures. Before entering tanks, personnel, including the standby person specified in 3-6.3, shall be familiar with the applicable procedures described in API 2015, *Safe Entry and Cleaning of Petroleum Storage Tanks*; API 2217, *Guidelines for Confined Space Work in the Petroleum Industry*; ANSI Z117.1, *American National Standard Safety Requirements for Confined Spaces*; NIOSH *Criteria for a Recommended Standard for Working in Confined Spaces*; and the OSHA *Code of Federal Regulations*, Title 29, Part 1910.126, "Permit-Required Confined Spaces," whichever are applicable.

3-6.2 Immediately prior to entry or re-entry of a tank, the atmosphere shall be tested and monitored as follows:

3-6.2.1 The oxygen content inside the tank shall be monitored with a properly calibrated oxygen analyzer.

3-6.2.2 The concentration of flammable vapors shall not exceed 10 percent of the lower flammable limit and shall be monitored with a properly calibrated combustible gas indicator.

3-6.2.3 Any other hazards that have been identified for the material(s) previously stored shall be appropriately monitored.

3-6.3 Personnel entering a tank shall be equipped with positive-pressure air-supplied equipment with full-face enclosure and a safety harness connected to a safety line tied off and held by a standby person outside the tank.

3-6.4 Protective clothing that is impervious to the stored product shall be required. Protective clothing shall cover the arms, legs, torso, and head. Clothing that becomes saturated with the stored product shall be removed immediately.

3-6.5 Post-entry Procedures. Tests shall be performed continuously in the tank to ascertain that the tank vapors are 10 percent or less of the lower flammable limit and that oxygen levels are maintained at a minimum level of 19.5 percent. If the tank is perforated, product or vapors that have leaked into the soil might re-enter the tank through the perforation. If this condition exists, additional precautions might be necessary.

3-6.6 The vent line shall remain clear and unobstructed to allow continuous ventilation. All other lines and openings shall be plugged or capped off to ensure that no liquids or vapors can enter the tank.

3-7 Sludge Removal. Sludge accumulation on the bottom of the tank shall be removed and placed in approved containers. Removal of sludge shall include removing all visible moisture and liquids with the use of an absorbent material and broom sweeping. During and after sludge removal, ventilation shall be continued to remove any vapors that might be generated.

Chapter 4 Precautions Prior to Hazardous Work

4-1 Tanks shall be cleaned thoroughly to ensure that there are no flammable materials present and that there are no substances such as greases, tars, or other materials that when subjected to heat might produce flammable vapors. Any of the following shall be permitted to be used:

(a) Sandblasting

(b) Low-pressure water (triple rinse)

(c) High-pressure waterblasting [25,000 to 40,000 psi (172,250 to 275,600 kPa)]

(d) High-pressure steam

(e) Special cleaning agents (solvents, degreasers, or emulsifiers).

CAUTION: Steam cleaning, use of special cleaning agents, or high-pressure waterblasting might result in the generation of static electric charges. See Section 4.7.2 of API 2015, *Safe Entry and Cleaning of Petroleum Storage Tanks*, for appropriate safeguards.

Chapter 5 Closing the Tank Access Opening

5-1 If an access opening has been cut into the tank, the opening shall be sealed, either temporarily or permanently, depending on the disposition of the tank. (*See API 1631, Interior Lining of Underground Storage Tanks, and NLPA 631, Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks.*)

Chapter 6 Referenced Publications

6-1 The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

6-1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 10, *Standard for Portable Fire Extinguishers*, 1990 edition.

NFPA 70, *National Electrical Code*, 1993 edition.

6-1.2 Other Publications.

6-1.2.1 ANSI Publication. American National Standards Institute, 1430 Broadway, New York, NY 10018.

ANSI Z117.1-1989, *American National Standard Safety Requirements for Confined Spaces.*

6-1.2.2 API Publications. American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005.

API 2015-1991, *Safe Entry and Cleaning of Petroleum Storage Tanks.*

API 2217-1984, *Guidelines for Confined Space Work in the Petroleum Industry.*

6-1.2.3 ASTM Publications. American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D5-1986, *Standard Test Method for Penetration of Bituminous Materials.*

ASTM D323-1990, *Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method).*

6-1.2.4 U.S. Government Publications. U.S. Government Printing Office, Superintendent of Documents, Washington, DC 20402.

NIOSH *Criteria for a Recommended Standard for Working in Confined Spaces.*

OSHA, *Code of Federal Regulations*, Title 29, Part 1910.146, "Permit-Required Confined Spaces."

OSHA, *Code of Federal Regulations*, Title 29, Part 1926, Subpart P, "Excavations."

Appendix A Explanatory Material

This Appendix is not a part of the requirements of this NFPA document, but is included for information purposes only.

A-1-1.3 Situations might occur in which it is not possible to achieve or maintain a safe atmosphere within a tank, as described in this standard. In such situations, it may be necessary to provide an inert atmosphere inside the tank, usually by using nitrogen or carbon dioxide.

Appendix B Referenced Publications

This Appendix is not a part of the requirements of this NFPA document, but is included for information purposes only.

B-1 The following documents or portions thereof are referenced within this standard for informational purposes only and thus are not considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

B-1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 69, *Standard on Explosion Prevention Systems*, 1992 edition.

NFPA 77, *Recommended Practice on Static Electricity*, 1993 edition.

NFPA 306, *Standard for the Control of Gas Hazards on Vessels*, 1993 edition.

NFPA 327, *Standard Procedures for Cleaning or Safeguarding Small Tanks and Containers Without Entry*, 1993 edition.

B-1.2 Other Publications.

B-1.2.1 AGA Publication. American Gas Association, 1515 Wilson Boulevard, Alexandria, VA 22209.

Purging Principles and Practices, 2nd edition.

B-1.2.2 API Publications. American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005.

API 1631-1992, *Interior Lining of Underground Storage Tanks.*

API 2003-1991, *Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents.*

API 2013-1991, *Cleaning Mobile Tanks in Flammable or Combustible Liquid Service.*

API 2217A-1987, *Guidelines for Work in Inert Confined Spaces in the Petroleum Industry.*

B-1.2.3 NLPA Publication. National Leak Prevention Association, 7685 Fields Ertel Road, Cincinnati, OH 45241.

NLPA 631-1991, *Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks.*

Index

SUBMITTING PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

Contact NFPA Standards Administration for final date for receipt of proposals on a specific document.

INSTRUCTIONS

Please use the forms which follow for submitting proposed amendments. Use a separate form for each proposal.

1. For each document on which you are proposing amendment indicate:
   (a) The number and title of the document
   (b) The specific section or paragraph.

2. Check the box indicating whether or not this proposal recommends new text, revised text, or to delete text.

3. In the space identified as "Proposal" include the wording you propose as new or revised text, or indicate if you wish to delete text.

4. In the space titled "Statement of Problem and Substantiation for Proposal" state the problem which will be resolved by your recommendation and give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If a statement is more than 200 words in length, the technical committee is authorized to abstract it for the Technical Committee Report.

5. Check the box indicating whether or not this proposal is original material, and if it is not, indicate source.

6. If supplementary material (photographs, diagrams, reports, etc.) is included, you may be required to submit sufficient copies for all members and alternates of the technical committee.

NOTE: The NFPA Regulations Governing Committee Projects in Paragraph 10-10 state: Each proposal shall be submitted to the Council Secretary and shall include:

(a) identification of the submitter and his affiliation (Committee, organization, company) where appropriate, and

(b) identification of the document, paragraph of the document to which the proposal is directed, and

(c) a statement of the problem and substantiation for the proposal, and

(d) proposed text of proposal, including the wording to be added, revised (and how revised), or deleted.

FORM FOR PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

Mail to: Secretary, Standards Council
National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02269-9101
Fax No. 617-770-3500

Note: All proposals must be received by 5:00 p.m. E.S.T./E.D.S.T. on the published proposal closing date.

If you need further information on the standards-making process, please contact the Standards Administration Department at 617-984-7249.

Date 9/18/93 **Name** John B. Smith **Tel. No.** 617-555-1212

Company _____

Street Address 9 Seattle St., Seattle, WA 02255

Please Indicate Organization Represented (if any) Fire Marshals Assn. of North America

1. a) Document Title National Fire Alarm Code **NFPA No. & Year** NFPA 72, 1993 ed.

b) Section/Paragraph 1-5.8.1 (Exception No. 1)

FOR OFFICE USE ONLY
Log # _____
Date Rec'd _____
Proposal #: _____

2. Proposal recommends: (Check one)
☐ **new text**
☐ **revised text**
☒ **deleted text.**

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted):
Delete exception.

4. Statement of Problem and Substantiation for Proposal:

A properly installed and maintained system should be free of ground faults. The occurrence of one or more ground faults should be required to cause a "trouble" signal because it indicates a condition that could contribute to future malfunction of the system. Ground fault protection has been widely available on these systems for years and its cost is negligible. Requiring it on all systems will promote better installations, maintenance and reliability.

5. ☒ **This Proposal is original material.**
☐ **This Proposal is not original material; its source (if known) is as follows:** _____

(Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought, or research and, to the best of his/her knowledge, is not copied from another source.)

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John B. Smith
Signature (Required)

PLEASE USE SEPARATE FORM FOR EACH PROPOSAL