



INTERIM CHEMICAL ACCIDENT PREVENTION ADVISORY

Design of LPG Installations at Natural Gas Processing Plants

The U.S. Environmental Protection Agency (EPA) is concerned that some natural gas processing plants that store and process liquefied petroleum gas (LPG) may not be designed in accordance with applicable industry standards and codes. When undertaking compliance monitoring activities at such natural gas processing plants, EPA considers whether facilities are designed in accordance with recognized and generally accepted good engineering practices, including applicable standards and codes, in determining compliance with the requirements of the risk management provisions of section 112(r) of the Clean Air Act, 42 U.S.C. § 7412(r), and the Chemical Accident Prevention Provisions of 40 C.F.R. part 68. This interim advisory is being issued to raise industry awareness of codes and standards that may be applicable at such facilities. EPA may issue a final national advisory on this subject after receiving additional stakeholder feedback.

EPA inspectors have conducted inspections at a number of newly constructed natural gas processing plants. EPA inspectors have been advised and have verified that some plants have been constructed in accordance with National Fire Protection Association 58, Liquefied Petroleum Gas Code (NFPA 58). While compliance with NFPA 58 is consistent with good engineering practices, we note that NFPA 58 does not apply to natural gas processing plants and advises that additional, more specific industry standards than NFPA 58 would apply. See NFPA 58, section 1.3.2 (2) ("This code shall not apply to natural gas processing plants, refineries, and petrochemical plants."); see *also* NFPA 58, LP-Gas Handbook, at section 1.3.2 (design and operational features for natural gas processing plants are more restrictive). Other codes and standards may also need to be followed in order to achieve the level of protectiveness recognized in the industry as good engineering practice.

In particular, one widely recognized standard for the design of LPG installations at natural gas processing plants is American Petroleum Institute 2510, Design and Construction of Liquefied Petroleum Gas (LPG) Installations (API 2510) and its companion document API 2510A, Fire Protection Considerations for the Design and Operation of LPG Storage Facilities (API 2510A). Section 1 of API 2510 (7th and 8th Editions) states: "This standard covers the design, construction, and location of liquefied petroleum gas (LPG) installations at marine and pipeline terminals, natural gas processing plants, refineries, petrochemical plants, or tank farms. This standard covers storage vessels, loading and unloading systems, piping, or and related equipment." Earlier editions of API 2510 similarly define the scope of the document to include natural gas processing plants. API 2510 requires wider spacing of LPG tanks from loading racks and other tanks than does NFPA 58; API 2510 also requires adequate spacing of equipment at natural gas processing plants not addressed in NFPA 58.

Other standards or guidance documents that may be applicable to LPG installations, natural gas processing plants, wells and associated equipment include but are not limited to:

- API Standards: 6A, 12R1, 12F, 12J, 12K, 12GDU, 51R, 54, 74, 75L, 76, 500, 505, 510, 521, 570, 576, 650, 618, 653, 752, 753, 2000, 2003, 2510, 2510A, HF1, HF2, HF3
- NFPA Standards: 15, 30, 70, 497
- American Society of Mechanical Engineers: A13.1, B31.3, B31.4, B31.8
- International Fire Code and Mechanical Code
- International Organization for Standardization: 13631
- Steel Tank Institute: SP001-00

Implementing the correct industry standards is important to ensure adequate protection from accidental releases to the air. The API 2510 and 2510A standards, which are directly applicable to LPG installations at natural gas processing plants, contain different, more protective design criteria than the NFPA 58 standard for several parameters, including the distances between LPG tanks and other equipment and the spacing between adjacent LPG tanks. In addition, NFPA 30 and API 2000 require sufficient venting, under normal and emergency conditions, for atmospheric aboveground storage tanks storing flammable liquids (such as condensate) to prevent tank over-pressurizations from fire exposure at the applicable facilities including those processing natural gas. Storage tanks containing flammable liquids may also require secondary containment in accordance with NFPA 30, and possibly the Spill Prevention, Control and Countermeasure (SPCC) regulations at 40 C.F.R. part 112 and state or local regulations.

When designing natural gas processing plants, owners and operators of these plants should be cognizant of API 2510 and other applicable and widely recognized industrial codes and standards. The codes and standards discussed in this advisory are sources for establishing the level of design engineering protectiveness that is recognized and generally accepted in the industry. Such recognized good engineering practices also should be considered at bulk plants or distributors that also are natural gas processing plants; industry standards not referenced in state regulations may nevertheless be applicable to the design and maintenance of a safe facility.

EPA is accepting comments on this interim advisory until July 31, 2014. To submit comments or questions, please send an email to: LPG.interim.advisory@epa.gov.