

Fact Sheet #H1

Hazardous Operations – FR-6054-F-02 Conforming the Acceptable Separation Distance (ASD) Standards for Residential Propane Tanks to Industry Standards

Authority: 24 CFR Part 51 Subpart C

Synopsis: HUD has revised the regulation to exempt liquefied petroleum gas or propane (LPG/propane) containers up to 1,000 gallons that comply with industry standard, National Fire Protection Association (NFPA) Code 58 (Liquefied Petroleum Gas Code) (2017).

HUD regulations at 24 CFR Part 51 Subpart C cover the “Siting of HUD-Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature.” These regulations require that HUD-assisted development, construction, rehabilitation/modernization¹ or conversion activities either be sited beyond an “acceptable separation distance” (ASD) from such hazardous operations or employ specified mitigation measures.

Liquefied Petroleum Gas including propane (LPG/propane) is among the fuels originally identified as potentially hazardous under 24 CFR 51C. LPG/propane fuel is also widely used for cooking and heating in residential applications, particularly in rural areas. Tanks used in LPG/propane applications have been demonstrated to be durable, and in most states are regulated by well-developed industry standards published by the National Fire Protection Association (NFPA) Code 58. The NFPA setback requirements in these safety standards differ from those in 24 CFR 51C. The process of compliance with disparate safety standards, specifically the requirement for additional setback areas or mitigation measures such as barrier walls due to the HUD standard, adds significant cost to routine residential development associated with LPG/propane storage without a perceptible increase in safety.

Therefore, HUD has revised the regulation to exempt from coverage above-ground storage tanks with a water gallon capacity of 1,000 gallons or less that are used to store LPG/propane if the storage tank complies with the 2017 edition of NFPA Code 58 (Liquefied Petroleum Gas Code). In addition, the definition of hazard has also been revised to codify longstanding HUD interpretation excluding below ground hazards from coverage under 24 CFR 51C.

How this rule changes HUD Hazardous Operations evaluation of LPG tanks:

- Aboveground LPG/propane tanks with a water capacity up to 1,000 gallons that are in compliance with NFPA Code 58 (2017) are excluded from the definition of “hazard,” and thereby from coverage under the rule.
- All below ground storage containers are also excluded from coverage.

¹ Modernization and rehabilitation activities that do not change the number of people using or occupying the property are excluded from the definition of “HUD-assisted project” under 24 CFR 51.201, and therefore do not require compliance with 24 CFR 51C.

Fact Sheet #H1

Questions and Answers

What led to this change in HUD policy?

HUD recognized the widespread use of LPG/propane in residential applications, particularly in rural areas. This use is generally regulated by established fire safety practices and industry standards that have been developed to ensure LPG/propane tank safety. These standards include requirements for tank design and inspection as well as setback distances. However, these distances are different from the HUD-required ASD. HUD's requirement for significantly further separation, mitigation, or rejection of the proposed project results in barriers and increased costs to HUD programs and beneficiaries.

The industry standard safety code for LPG/propane, NFPA Code 58, is regularly updated through a consensus process involving industry and regulatory professionals, based on current safety data. By contrast, HUD's acceptable separation distances have not been updated since their establishment in 1984. Based on the safety of industry standard-compliant LPG/propane tanks, HUD found that siting HUD-assisted developments at a code-compliant setback distance, rather than the greater distance normally required by 24 CFR 51C, would not result in a perceptible increase in risk to site occupants. Therefore, HUD sought to conform its ASD requirements to industry standards for residential LPG/propane tanks.

Why was the 1,000-gallon threshold selected?

HUD's focus in this revision was the effectiveness and efficiency of environmental review process for LPG/propane tanks commonly used in residential applications. Residential LPG/propane tanks are generally 1,000 gallons or less. The greatest volume of residential LPG/propane use is for heating, and therefore location, economics and climate are the primary factors that influence residential tank size. In warmer climates, homes that rely on LPG/propane may use as little as 200 gallons per year. In the coldest U.S. climate zones, however, homes may consume over 1,800 gallons per year. This range of consumption, combined with the desire to avoid the need for frequent refueling during price fluctuations, results in residential use of propane tanks up to 1,000 gallons in size.

How did HUD determine this change will not result in a perceptible increase in risk to HUD-assisted residential development?

The reliability of LPG/propane tanks has increased significantly over the past thirty years and studies suggest that the evolution of industry safety practices has reduced the probability of propane tank failure.² Studies and experiments conducted by the propane industry demonstrate the durability of LPG/propane tanks. For instance, an experiment conducted by the Department of Defense and the Energy Research and Development Administration found that LPG tanks sustained little damage from a simulated nuclear blast.³

² See Ahrens, M. (2018), Ahrens, M. (2018), Flynn, J. (2010), and Hall, J.R. (2014).

³ S. Glasstone and P.J. Dolan, 1977. The Effects of Nuclear Weapons. Prepared and published by the US Department of Defense and the Energy Research and Development Administration.

Fact Sheet #H1

LPG/propane tank design standards are developed by the American Society of Mechanical Engineers (ASME) and US Department of Transportation. ASME sets specific rules to ensure the safety of propane tanks. NFPA 58 and the National Board Inspection Code (NBIC) outline specific safety requirements that tank manufacturers must comply with and that are enforced at state and local levels.

Do industry standards for LPG tanks of 1,000 gallons or less include separation distances?

Yes, under NFPA 58 (2017) tanks between 125 and 500 gallons require a setback of 10 feet from buildings or property lines, while tanks between 501 and 1,000 gallons have a setback of 25 feet. These distances are sufficient to prevent tank impacts from nearby structure fires.

Why is the measurement of tanks specified as “water volume”?

Due to volumetric expansion of propane based on temperature, the industry standard is to fill tanks with a volume of LPG equivalent to 80% of the water volume of the tank. A 1,000 gals tank is filled with 800 gals of propane.

How do I determine whether this exception applies to my environmental review?

Acceptable separation distance requirements under 24 CFR 51C apply when there is an aboveground storage tank with a volume greater than 100 gallons containing flammable or explosive liquids or gases within the recommended search distance (one mile) from the proposed HUD-assisted project site.

The exception discussed in this fact sheet applies specifically to LPG/propane tanks 1,000 gallons or less in water volume, that would otherwise require compliance under 24 CFR 51C, where the tank is operated within a state or local jurisdiction that has adopted NFPA 58 (2017), or in other jurisdictions when the environmental review documents that a qualified person has determined that the individual tank(s) in question comply with NFPA 58 (2017).⁴

How do individual states or local jurisdictions adopt NFPA Code 58 (2017)? How can one identify if a state has adopted NFPA Code 58 (2017)?

The standard may be adopted through revision of state codes and standards, action by the state LPG-oversight board or entity, or through action by local government. Sources may be identified through the NFPA website at

<https://codefinder.nfpa.org/?country=United%20States%20of%20America&nfpanumber=58>.

Adoption should be verified with the adopting jurisdiction.

What is the difference between NFPA Code 58 (2017) and previous editions?

⁴ HUD has created an optional sample memo that can be used to document this determination, view the [Sample Memo: Documentation of Compliance with NFPA 58 \(2017\)](#).

Fact Sheet #H1

Among other changes, the 2017 version of the code adds documentation requirements for the addition and verification of an odorant prior to delivery. Older editions of NFPA 58 require odorant, but do not contain the documentation standards of the 2017 version.

What documentation do I need in the environmental review record to demonstrate compliance?

If the HUD-assisted project involves development, construction, rehabilitation, modernization or conversion, or other activities listed in the definition of “HUD-assisted project” at 24 CFR 51.201, and if the proposed site is within the recommended search distance of one mile from an aboveground storage tank of more than 100 gallons that is used to hold LPG/propane, the environmental review record should contain:

1. Documentation that the tank is 1,000 gallons or less in volume and citation to the state or local code adopting NFPA 58 in a version no earlier than the 2017 version; or
2. Documentation that the tank is 1,000 gallons or less in volume and documentation that a qualified person has determined that the individual tank complies with NFPA 58 (2017), using HUD’s sample “[Documentation of Compliance with NFPA 58 \(2017\)](#)” memo or other similar ERR documentation; or
3. Standard documentation of 24 CFR 51C acceptable separation distance compliance for gas containers not excluded from the definition of hazard, which includes a calculation of the required separation distance using the ASD calculator at <https://www.hudexchange.info/programs/environmental-review/explosive-and-flammable-facilities/>, with documentation that the proposed site is beyond the calculated ASD, or a description of required mitigation measures.

How should this exception be addressed in HEROS?

HUD has updated the Explosive and Flammable Hazards screen in HEROS based on this rule.

Additional Frequently Asked Questions:

Q: When a fire department states that an aboveground storage tank meets safety compliance standards, are mitigation measures required?

A: If the fire department certifies that the tanks meet the requirements of code NFPA 58 (2017) edition, the tank is exempted from 24 CFR 51C. A locality would be most likely to be able to provide such certification when it has adopted NFPA 58 (2017) as a state or local code requirement for which it has oversight authority and for this reason HUD documentation requirements above reference state/local code.

Q: If my project is located in a state or locality that has not adopted NFPA 58 (2017), are any alternative compliance methods available to document that an LPG/propane tank is exempt from 24 CFR 51C?

A: Acceptable documentation may include certification from a tank/LPG distributor,

Fact Sheet #H1

qualified engineer, or fire protection professional that a specific tank, although located in a state or locality that has not adopted the current standard, nevertheless meets the requirements of NFPA 58 (2017). Certification as to all requirements, including setback requirements, is necessary.

Q: What is the interaction between this exception and the exception for tanks providing individual supply to single family FHA-insured properties?

A: The exceptions are independent. A propane tank supplying a single family FHA-insured property is exempt apart from NFPA 58 (2017) applicability.

Q: What if there are multiple propane tanks that add up to more than 1,000 gallons?

A: Under 24 CFR 51C generally, tanks are evaluated on an individual basis. (For liquid fuel tanks that share a single diked area, the diked area dimensions are evaluated.) Therefore, if each propane tank meets the requirements for the exception under NFPA 58 (2017), the tanks are exempted whether or not in the aggregate all tanks in proximity to the project could total greater than 1,000 gallons, if they were combined.

Q: In states that have adopted NFPA 58 (2017), is any additional documentation such as record of tank inspection, required?

A: In this scenario documentation of the exemption includes citation to the state provision adopting NFPA 58 (2017), documentation of tank volume, and documentation of tank contents as LPG/propane.

Q: Where a locality (city or county) and the state within which it is located have adopted different version of NFPA 58, which would apply for a project within the locality boundaries?

A: If the state has adopted a current version but the locality has not, applicability of the exemption would depend on the relationship between the specific state and local codes at issue. If NFPA 58 (2017) has been incorporated into a code that applies to the tank at issue, then the exception applies.

For assistance with further questions related to this policy, please contact the Regional or Field Environmental Officer where the project is located. Contact information is available at <https://www.hudexchange.info/programs/environmental-review/hud-environmental-staff-contacts/#region-i-regional-and-field-environmental-officers>.