Conforming HUD Acceptable Separation Distance to Industry Standards for Propane Tanks

Rule coverage and implementation

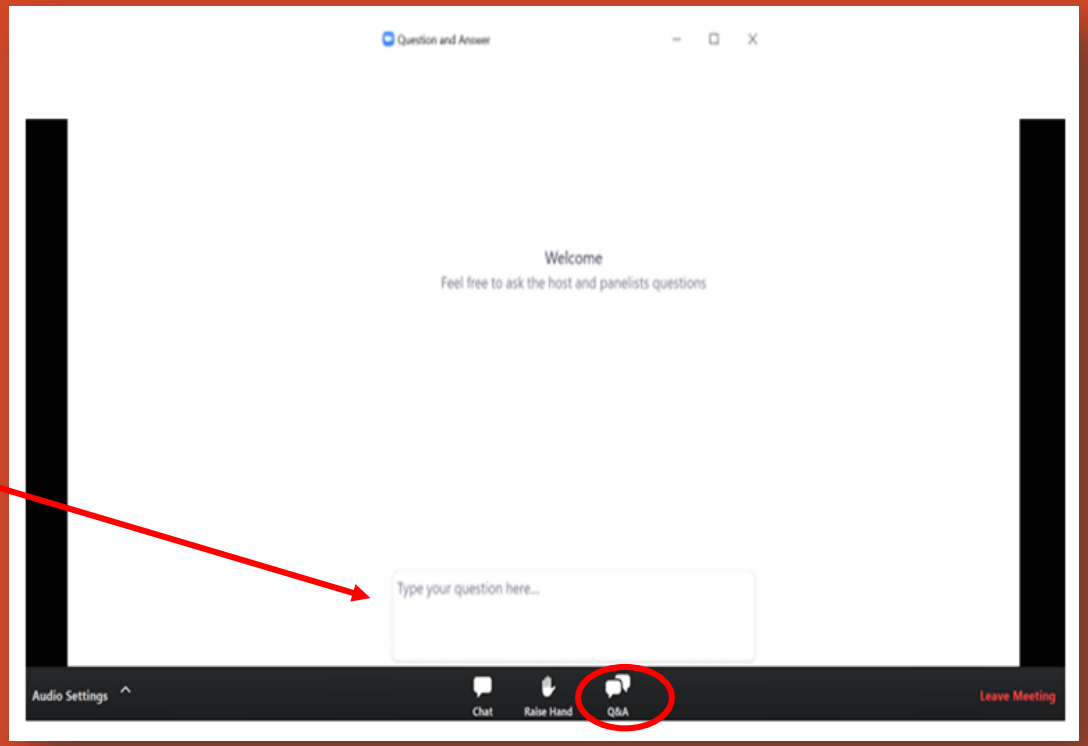
Dial in number: 1-929-205-6099 | Webinar ID: 514-296-827#

- **Introduction: Marcel Tchaou, Director, Environmental Planning Division , HUD Office of Environment & Energy**
- **Additional HUD OEE Presenters: Zach Carter, Nelson Rivera, Sean Joyner**
- **Consultant: Enterprise Community Partners**

Welcome

- **Registration**
  - **Dial in number: 1-929-205-6099 | Webinar ID: 514-296-827#**

- Thank you for joining us!
- The webinar will begin **promptly at 1pm EST**.
- All attendees will be muted.
- Please use the **Q&A panel** on the bottom of your screen to ask questions.
- For best audio quality, please listen to the webinar via phone line by using the dial-in number provided.



Presentation Outline

- HUD Acceptable Separation Distance
  - Knowledge Check 1
- Current Definition Of "Hazard" – 24 CFR 51.201
- Examples Of Hazardous Operations
- Current Applicability Exceptions/Limitations
- Limitations: Where The HUD Standards And Mitigation Do NOT Apply
- Requirements
- Acceptable Separation Distance Electronic Assessment Tool
  - Knowledge Check 2
- 24 CFR 51C – Purpose And Applicability
- "Hazards" Covered
- Liquified Petroleum Gas
- Compliant With NFPA 58 (2017)
- Code Finder
- Basis For The Exemption
- Industry Standard Separation Distances
- Environmental Review Record Documentation
  - Knowledge Checks 3, 4 & 5
- Questions

24 CFR 51C – Acceptable Separation Distance

Purpose: HUD regulations at 24 CFR Part 51, subpart C, establish safety standards for HUD-assisted activities in proximity to above ground storage tanks that handle liquids or gases of an explosive or fire-prone nature.

Safety standards are based on projected thermal radiation (heat) and blast overpressure (explosive force) that could affect HUD-assisted buildings or occupants of those buildings or properties.

Thermal Radiation:

- Buildings - 10,000 BTU/Ft.sq Hr
- People – 450 BTU/Ft. sq Hr.

Blast Overpressure:

- Buildings - 0.5 PSI

24 CFR 51C – Acceptable Separation Distance

Applicability: The regulation applies to "HUD-assisted projects" within proximity to "hazards." Both terms are defined in the regulation at 24 CFR 51.201.

Definition of "HUD-assisted project" – the *development, construction, rehabilitation, modernization or conversion with HUD subsidy, grant assistance, loan, loan guarantee, or mortgage insurance, of any project which is intended for residential, institutional, recreational, commercial or industrial use*. For purposes of this subpart the terms "rehabilitation" and "modernization" refer only to such repairs and renovation of a building or buildings as will result in an increased number of people being exposed to hazardous operations by increasing residential densities, converting the type of use of a building to habitation, or making a vacant building habitable.

- Through this definition the regulation applies to almost all HUD-assisted activities involving new construction or conversion of use.

- The regulation applies to other activities, like rehabilitation, only when they would increase the number of people exposed to a hazard.

Knowledge Check 1

Question: Is rehabilitation of an occupied single-family home that does not increase the number of people exposed to a hazard covered by the regulation?

Answer: No, this project would be excluded because it does not meet the definition of "HUD-assisted project.

Current definition of "hazard" – 24 CFR 51.201

Hazard means any stationary container which stores, handles or processes explosive or flammable substances. The term "hazard" does not include pipelines for the transmission of hazardous substances, if such pipelines are located underground or comply with applicable Federal, State and local safety standards. Also excepted are:

(1) Containers with a capacity of 100 gallons or less when they contain common liquid industrial fuels, such as gasoline, fuel oil, kerosene and crude oil since they generally would pose no danger in terms of thermal radiation of blast overpressure to a project; and

(2) Facilities which are shielded from a proposed HUD-assisted project by the topography, because these topographic features effectively provide a mitigating measure already in place.

Examples of Hazardous Operations

Bulk fuel storage and distribution facility

Petrochemical plant

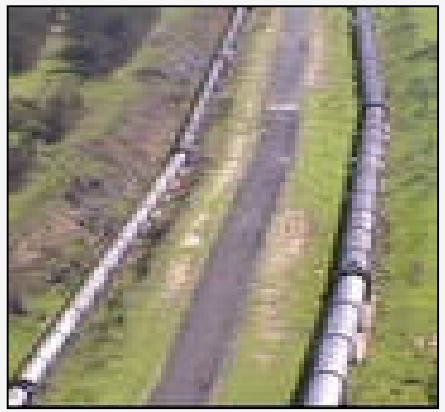
Propane gas storage and distribution point

Current applicability exceptions/limitations

24 CFR Part 51 Subpart C and this guidance do **NOT** apply to the following:

- High pressure natural gas transmission pipelines or liquid petroleum pipelines
- Natural gas holders with floating tops
- Mobile tanks en route
- Underground storage tanks
- Stationary aboveground containers of 100 gallons or less capacity

Limitations: Where the HUD Standards and Mitigation do NOT apply



1. High Pressure Pipelines

2. Underground Storage Tanks

3. Mobile tanks en route

4. Double wall tank Interstitial space for ASD calculation

5. Natural gas holders With Floating Tops

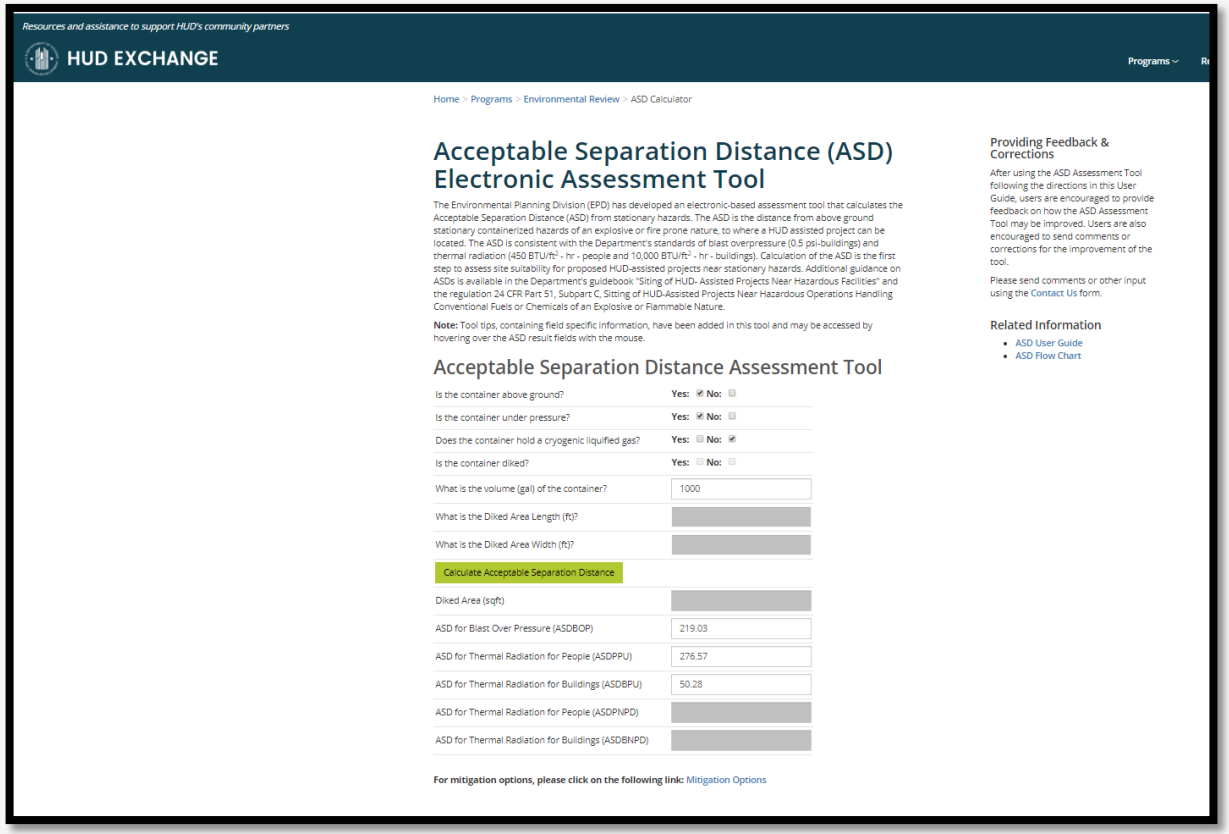
Requirements

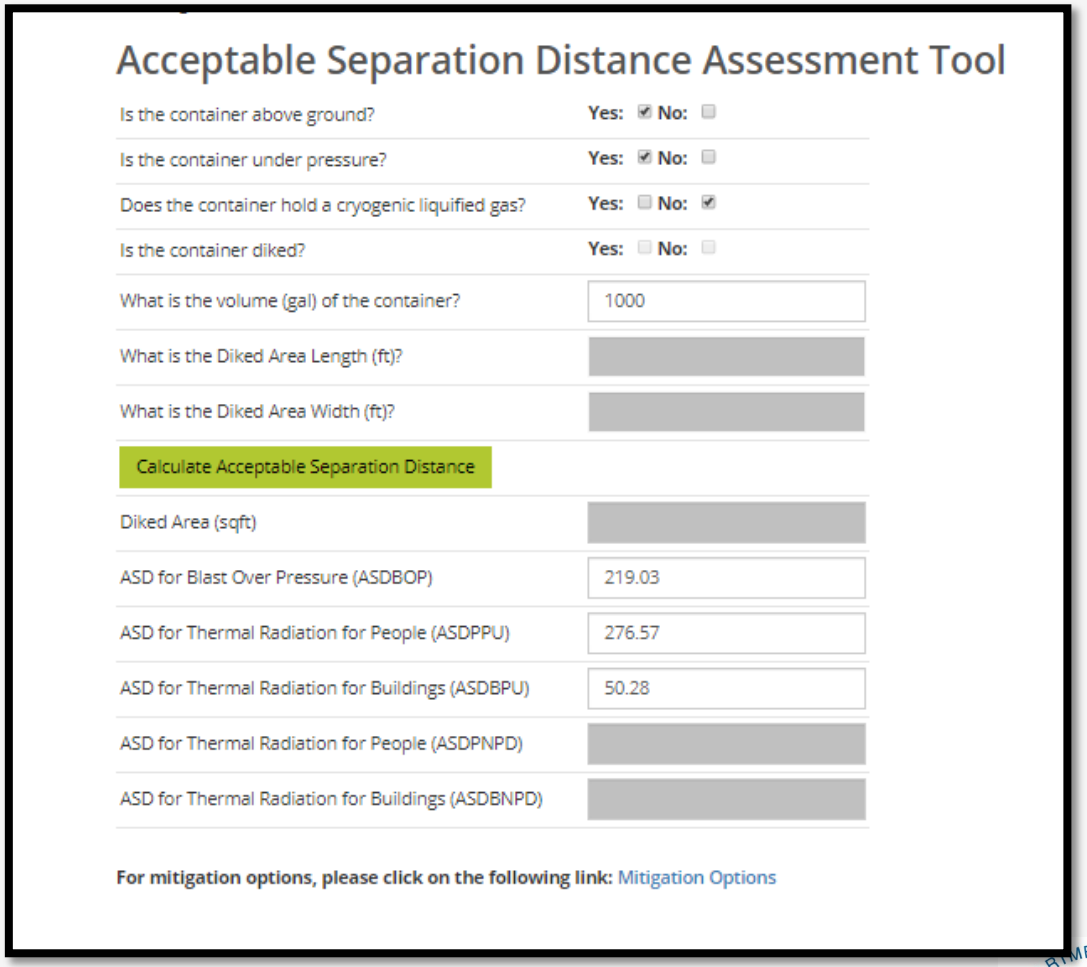
For activities that meet the definition of HUD-assisted project, and are in proximity to a facility that meets the definition of hazard, what does the environmental review have to document?

- **Separation:** Using a calculation based on the volume of the tank, the environmental review determines an "acceptable separation distance" at which HUD-assisted buildings and areas where people may congregate are set back from the hazard; **or**

- **Mitigation:** Where land is not available to accommodate the required separation distance, the environmental review can document mitigation that protects the HUD-assisted property from the hazard. Viable mitigation options are specified in HUD guidance, and must be verified by a licensed engineer, and may include use of a natural/existing barrier, construction of a barrier, removal or burial of the hazard, etc.

Acceptable Separation Distance Electronic Assessment Tool





Knowledge Check 2

Question: Who is required to verify the adequacy of mitigation measures for hazards within an unacceptable separation distance of the HUD-assisted project?

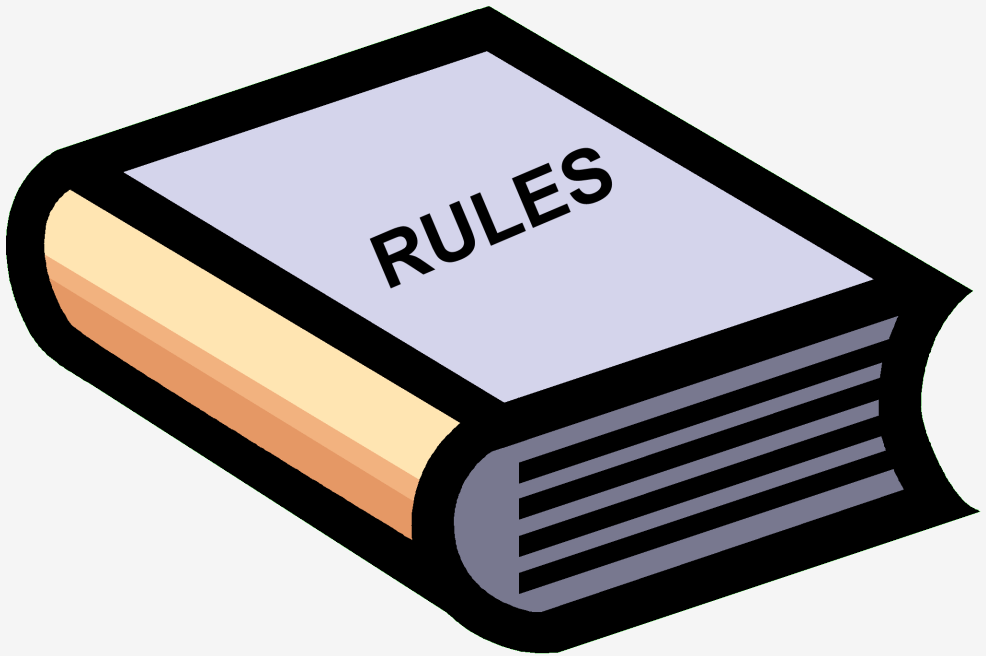
Answer: A licensed engineer

24 CFR 51C – Purpose and Applicability

HUD's final rule – "Conforming the Acceptable Separation Distance (ASD) Standards for Residential Propane Tanks to Industry Standards," 85 FR 4225, Jan. 24, 2020, effective Feb. 24, 2020…

…changes this framework as follows:

- Excludes certain liquefied petroleum gas (LPG) containers of 1,000 gallons or less from the definition of "hazard"
- Codifies current HUD practice of exempting below-ground containers from coverage



"Hazards" covered

Previous 24 CFR 51.201:

Hazard – - means any stationary container which stores, handles or processes hazardous substances of an explosive or fire prone nature. The term "hazard" does not include pipelines for the transmission of hazardous substances, if such pipelines are located underground or comply with applicable Federal, State and local safety standards. Also excepted are:

1) Containers with a capacity of 100 gallons or less when they contain common liquid industrial fuels, such as gasoline, fuel oil, kerosene and crude oil since they generally would pose no danger in terms of thermal radiation of blast overpressure to a project; and

2) Facilities which are shielded from a proposed HUD-assisted project by the topography, because these topographic features effectively provide a mitigating measure already in place.

Revised 51.201:

Hazard – means any stationary container which stores, handles, or processes hazardous substances of an explosive or fire prone nature. The term "hazard" does not include:

1) Pipelines for the transmission of hazardous substances, if such pipelines are located underground, or comply with applicable Federal, State and local safety standards;
2) Containers with a capacity of 100 gallons or less when they contain common liquid industrial fuels, such as gasoline, fuel oil, kerosene and crude oil, since they generally would pose no danger in terms of thermal radiation or blast overpressure to a project;
3) Facilities that are shielded from a proposed HUD-assisted project by the topography, because these topographic features effectively provide a mitigating measure already in place;
4) All underground containers; and
5) Containers used to hold liquefied petroleum gas with a volumetric capacity not to exceed 1,000 gallons water capacity, if they comply with the National Fire Protection Association (NFPA) Code 58 (Liquefied Petroleum Gas Code) (2017) … [incorporated by reference].

New = yellow highlights

Revised 51.201:

The term "hazard" does not include:

…

4) All underground containers; and

5) Containers used to hold liquefied petroleum gas with a volumetric capacity not to exceed 1,000 gallons water capacity, if they comply with the National Fire Protection Association (NFPA) Code 58 (Liquefied Petroleum Gas Code) (2017)…

Liquified Petroleum Gas

- Most common form of liquified petroleum gas (LPG) is propane, and the terms are often used interchangeably
- However, some LPG also contains butane, so the exclusion references LPG rather than “propane”

1,000 gallons or less

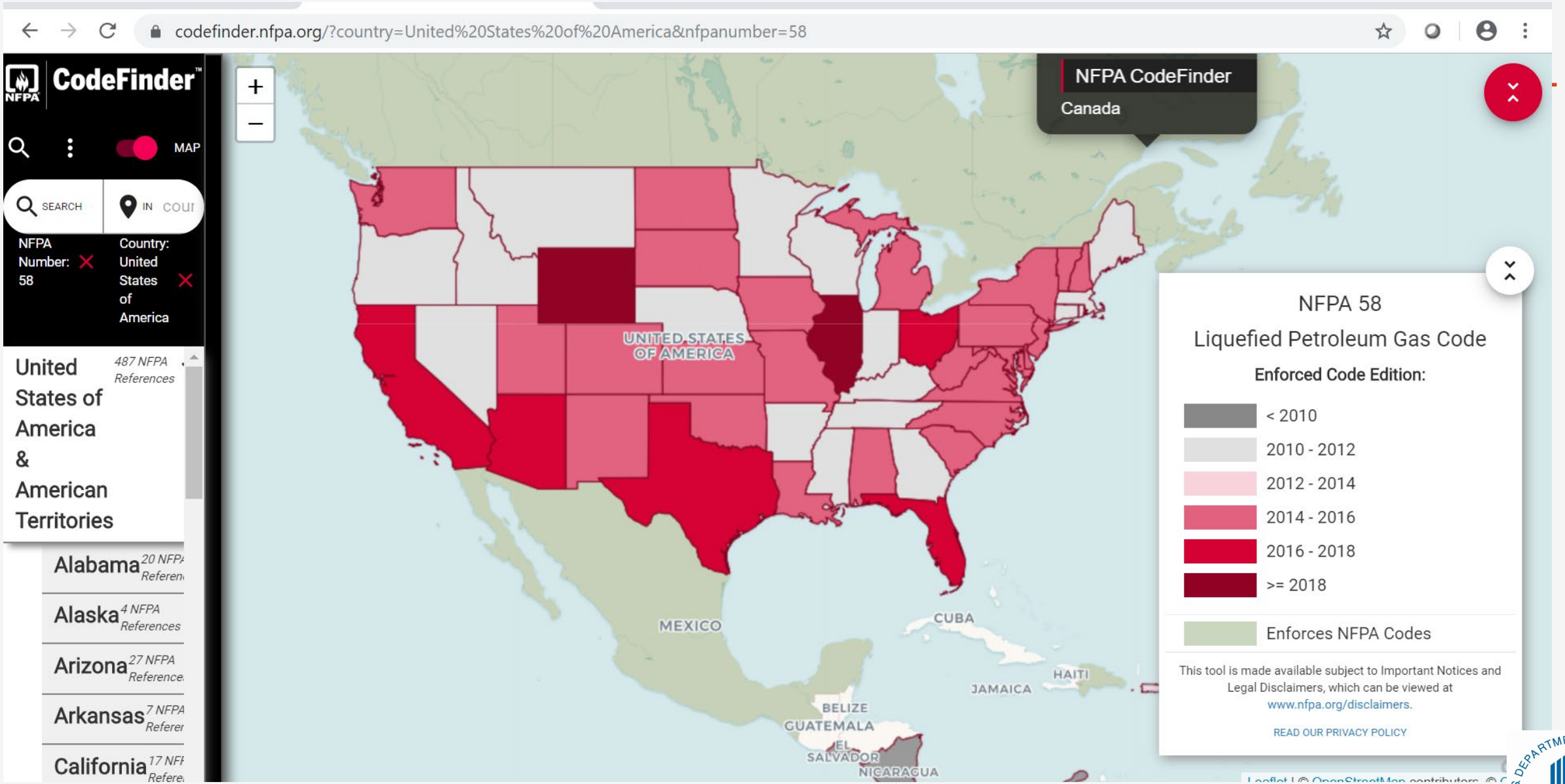
Capacity of the container is measured in water volume, because the actual volume of liquefied petroleum that can be stored in a pressurized container is approximately 80% of water volume, and fluctuates with ambient temperature.

Compliant with NFPA 58 (2017)

The National Fire Protection Association is a non-profit organization that conducts research and develops standards and codes related to fire safety.

NFPA Code 58 addresses Liquefied Petroleum Gas. The 2017 version was incorporated by reference into the updated regulation, and HUD interprets 2017 later versions of the code to qualify for the exception.

A guide to locality consensus adoption of NFPA Code 58 by version year is available at: https://codefinder.nfpa.org/?country=United%20States%20of%20America&nfpanumber=58.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NFPA 58
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Basis for the exemption

HUD separation distance requirements for propane have been more stringent, and more costly, than industry standards, but are not demonstrated to be more protective.

- According to NFPA accident statistics, LP-gas is responsible for a small fraction of home fires in the United States

- Among fires related to LP-gas, data suggests that propane tanks are not the fire source in most cases (the most common source is the kitchen or cooking area) (Flynn 2010 and Hall 2014)

- Propane tanks are extremely durable: in a joint study conducted by the Departments of Energy and Defense, propane tanks received only minimal damage after exposure to a simulated nuclear blast. (The Effects of Nuclear Weapons, Glasstone and Dolan 1977)

Industry standard separation distances

NFPA 58 (2017) includes the following setback (separation) requirements from buildings or property lines:

- Tanks 125-500 gallons – **10 ft**
- Tanks 500-1,000 gallons – **25 ft**

NFPA setback requirements are based on:

- Potential hazard of LP-gas
- Size and type of equipment used to contain it
- Possibility of leaks (which can ignite)
- Need for fuel in buildings

Note: NFPA 58 setbacks are not based on a worst-case scenario in which the LP-gas container fails catastrophically but as a minimum safe distance for radiant heat exposure to the containers and from the containers.

Documentation that:

- AST contains propane/LPG
- AST is less than 1,000 gallons in capacity
- Citation to state or local code adopting NFPA 58 (2017) or later

If LPG/propane tank cannot be documented to meet all exception criteria, the ASD for the tank must be calculated using the ASD calculator.

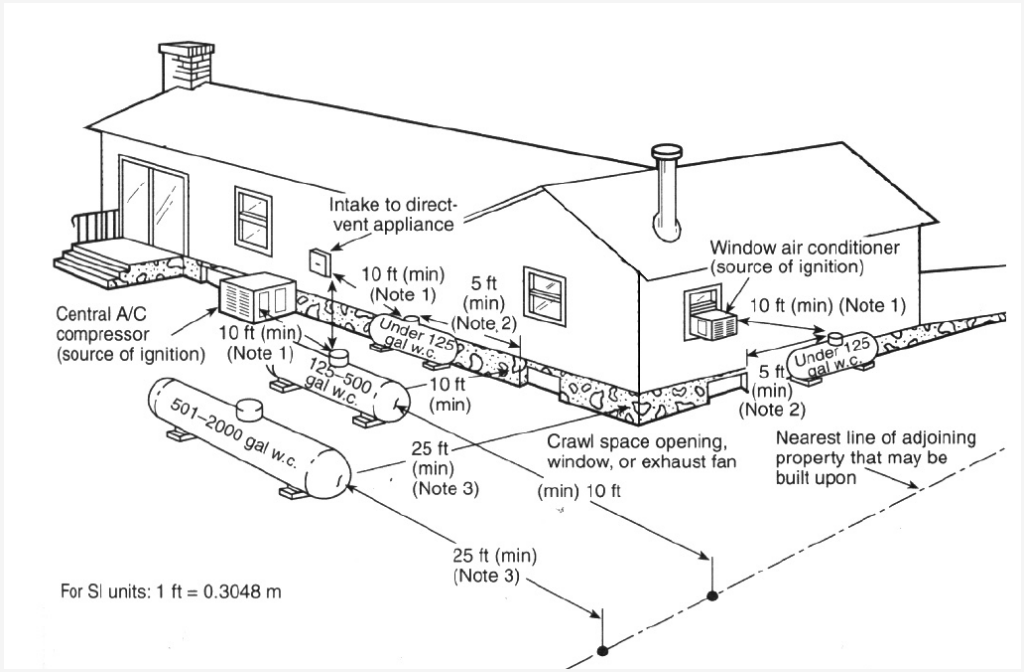
Knowledge Check 3

Question: Does NFPA 58 (2017) include any setback requirement for LPG tanks?

Answer:

- **Tanks between 125 and 500 gallons must be at least ten feet apart from important buildings or property lines.**
- **Tanks between 501 and 1,000 gallons must be at least twenty-five feet apart.**

These distances are sufficient to prevent structure fires from overheating the nearby tanks.



Knowledge Check 4

Question: Are other materials besides LPG/propane covered by the final rule?

Answer: The final rule does not modify coverage of materials other than LPG/propane.*

***Addition of an exception for underground tanks is a clarification of existing practice and interpretation of the existing regulation.**

Knowledge Check 5

Question: What is the distinction between "propane" and "liquefied petroleum gas (LPG)"? And which is covered by this exception?

Answer: The terms "propane" and "LPG" are often used interchangeably. Propane is the predominant form of LPG used in residential storage tank applications that are the subject of this rule. However, in some areas LPG may contain propane as well as some amount of butane. The same code and safety standards apply in these cases, so HUD uses the more general term, LPG, to clarify that these tanks are also covered.

Questions

Using the Q&A Panel

For more information:

HUD Exchange ASD website: https://www.hudexchange.info/programs/environmental-review/explosive-and-flammable-facilities/

HUD Office of Environment & Energy, Planning Division Contact Information: https://www.hudexchange.info/programs/environmental-review/hud-environmental-staff-contacts/#headquarters-environmental-staff

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Upcoming Webinars

- Floodplains Overview for all HUD programs (March 2020)
- Noise Training for FHA Partners (April 2020)
- HEROS Training for Multifamily FHA Partners (April 2020)
- Section 106 (May 2020)
- Section 106 Historic Preservation Training for FHA Partners (May 2020)
- Floodplain Training for FHA Partners (August 2020)