

The background of the slide is a composite image. On the left, there are classical stone columns. On the right, there is a close-up of a gas stove burner with a blue flame. A solid green horizontal bar is at the top, and a solid dark blue horizontal bar is at the bottom.

Study on Propane Gas Pipeline Facilities

NPGA

Transportation Research Board
Washington, DC

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Presentation Outline

- *Propane Industry Overview*
- *Regulatory Compliance*
 - *Focus on Pipelines*
- *Jurisdictional Propane Pipeline System Specifics*
- *Perspectives on Regulation*

Propane Industry Overview

- **NPGA is national trade organization**
 - Broad membership base – primarily retail propane marketers in all 50 states
 - Applications include residential, commercial, agricultural, industrial and engine fuel
 - Approximately 8.5 billion total gallons of propane sold to end user in 2015*
 - Safety is the industry's highest priority

* API Report – Sales of Natural Gas Liquids and Liquefied Refinery Gases (2015)

Overview – Propane Systems Configurations

- **Serves a single customer where a tank(s) stores fuel on customer's premises and fuel is delivered via piping to the customer's home/building.**
 - Most common and is non-jurisdictional system
- **System serves multiple customers from a single source of supply**
 - Fuel is delivered to a central supply source that would then serve customers through metered or non-metered service lines.
 - Supply source is commonly located on private property
 - Can be jurisdictional system or non-jurisdictional

Propane Industry Overview

- **Benefits of a Single Source System**
 - For customers, they pay for the fuel as they use it rather than paying cost for a full tank upfront.
 - For propane marketers, multiple customers can be served on a single transfer of fuel to the fuel tank, which saves time and increases delivery efficiency
 - Provides inherent advantages from both a safety and operational standpoint

Propane Industry Overview

- **Benefits of a Single Source System**
 - Safety and Operational
 - Filling a single, large storage tank reduces the number of liquid transfer operations needed compared to filling a higher quantity of smaller storage tanks
 - In emergency, fire service can focus on one supply source rather than multiple containers that are often located directly against the back of a building
 - Ongoing maintenance of the storage tank is easier due to its central location

Regulatory Compliance

- **Federal Level**
- **State Level**
- **Focus on Pipelines**

Regulatory Compliance

Federal Level

- **Department of Transportation (49 CFR)**
 - PHMSA
 - Pipelines (Parts 191, 192)
 - Hazmat Transport (Parts 171-180)
 - FMCSA
 - Drivers – CDLs (Part 383), HOS (Part 395)
 - Vehicles, Company (Parts 390-397)
- **DHS, DOE, EPA, OSHA, etc.**

Regulatory Compliance

State Level

- **Variety of Authorities Having Jurisdiction (AHJs)**
 - LP-Gas Boards
 - State Fire Marshals
 - State Pipeline Safety Offices
- **Regulation thru adoption of NFPA 58, LP-Gas Code**

Regulatory Compliance

State Level

- **NFPA 58, LP-Gas Code**
 - ‘Bible’ of propane industry
 - Addresses all aspects of propane systems
 - Piping, equipment, valves, operations, maintenance, safety, etc.
 - Adopted directly or indirectly in every state
 - ICC incorporates NFPA 58 by substance and/or reference

Regulatory Compliance

Focus on Pipelines

- **PHMSA establishes a broad set of requirements under umbrella of “pipeline safety”**
 - Groups small propane systems (as few as 2 customers) w/much larger natural gas systems, which serve tens of thousands
 - Scale of system sizes are vastly different
 - Total gas sold or delivered to end users in 2015 in ft.³ (*Source: EIA*)
 - Propane (309 billion ft.³) vs. Natural Gas (25 trillion ft.³)
 - Represents 1.3 % of the total natural gas delivered to consumers
 - Propane delivered through JS is only a fraction of total propane delivered overall

Regulatory Compliance

Focus on Pipelines

- **PHMSA establishes a broad set of requirements under umbrella of “pipeline safety”**
 - Propane systems fundamentally different from natural gas systems
 - Propane pipeline operators not regulated same as NG
 - NG systems operated by regulated utilities that include cost and expense of compliance in rates
 - Propane marketers operate in a competitive marketplace

Regulatory Compliance

Focus on Pipelines

- **Other operational differences from NG systems**
 - Typically have a finite amount of fuel in propane system
 - Source: stationary tank installed relatively short distance from end user
 - System pressures comparatively much lower
 - Piping length typically measured in feet instead of miles
 - Typically runs under or perpendicular to road vs. length of road
 - Vastly fewer customers and connections
 - Survey of NPGA members showed that 75% of jurisdictional systems serve 50 customers or less

Regulatory Compliance

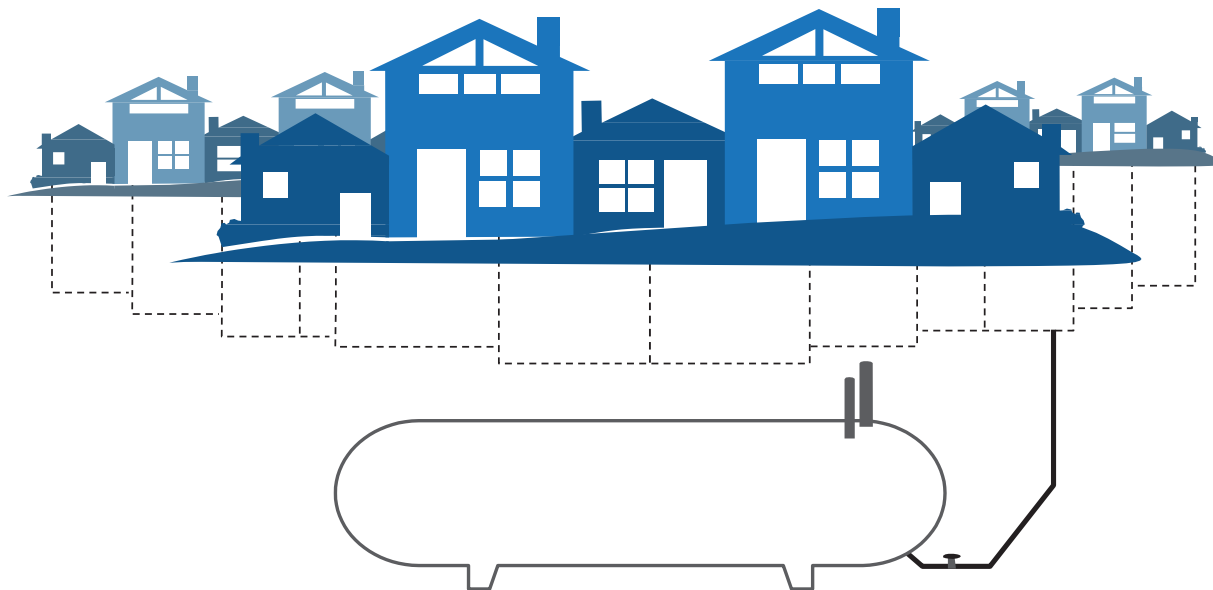
Focus on Pipelines

- **System designs generally less complex**
- **Single source system increases overall safety of installation w/a central location for storage container**
 - No need for multiple containers
 - Piping system can be monitored and secured more effectively
- **Marketers often choose to break up existing systems into smaller components**
 - Often design new systems to be non-jurisdictional

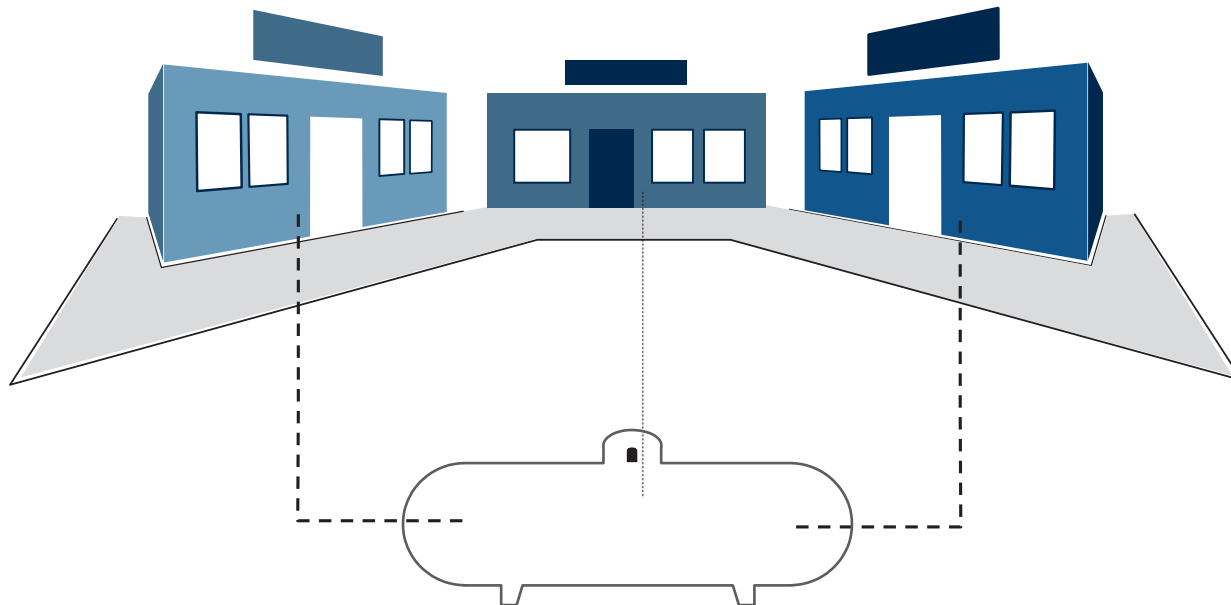
Jurisdictional Systems Specifics

- **Jurisdictional Systems Defined by “what they are not”**
 - 49 CFR 192.1(b)(5) – *This part does not apply to any pipeline system that transports petroleum gas (includes propane) to:*
 - *Fewer than 10 customers, if no portion of the system is located in a public place*
 - *A single customer if the system is located entirely on the customer’s premises (no matter if a portion of the system is located in a public place)*
 - 49 CFR Part 192.11(c)
 - *In the event of a conflict between this part and NFPA 58, NFPA 58 prevails*

Jurisdictional System Serving More Than 10 Customers



Jurisdictional System Serving Less Than 10 Customers But Crosses a Public Place



Jurisdictional Systems Specifics

Design and Construction

- **Vast majority of smaller jurisdictional propane systems are designed and built to NFPA 58 requirements by competent persons with extensive knowledge of propane**
 - Applies for both new systems and retrofits to existing
 - Very large systems may be ‘engineered’ systems
- **NFPA 58 provides design/installation requirements for propane containers**
 - Specifies safe distance requirements of tank to a building, bldg. opening, sources of ignition, etc. (not addressed in Part 192)

Jurisdictional System Specifics

Operation and Maintenance

- **O and M manuals typically developed in accordance with requirements established in Part 192**
 - Sought to include revisions in NFPA 58 in 2008, but PHMSA opposed and were ultimately removed from code.

Emergency Preparedness and Response

- **Emergency plans typically developed in accordance with requirements established in Part 192**

Jurisdictional System Specifics

Safety Assurance

- **Propane jurisdictional systems are designed in accordance with Part 192 and NFPA 58**
 - Code compliant systems, properly maintained, result in safe gas distribution systems
 - Well trained and qualified employees assure systems are designed and constructed to operate safely
 - NPGA TS&S Committee
- **Consumer awareness programs help educate customers to recognize potential hazards and minimize risk of incident.**

Perspectives on Regulations

- **Propane marketers very familiar with NFPA 58**
 - NFPA 58 prevails where there is conflict with Part 192
- **Challenges faced in the field**
- **Issues with Part 192 vs. NFPA 58**
- **Conflicts and/or additional requirements can be confusing/problematic**

Perspectives on Regulations

- **Challenges faced in the field**
 - Varying interpretations as to when jurisdiction starts/stops
 - At least one state uses pressure in the system
 - Amount of time spent on propane systems by inspectors
 - Major concern in New England states
 - Seems related to PHMSA grants for state PUCs
 - Requires enforcement time be split between propane and natural gas systems
 - Results in a greater expense to comply with recordkeeping and other requirements

Perspectives on Regulations

- **Issues with Part 192 vs. NFPA 58**
 - Varying editions of NFPA 58 adopted by states
 - Presents a challenge for marketers and inspectors
 - Retroactivity
 - Part 192 allows while NFPA 58 does not unless explicitly stated
 - Guidance Manual for Small LP-Gas Pipeline Operators
 - Even when used by operator, no uniform enforcement by states
 - Don't use latest edition of NFPA 58
 - Does not address installing tanks and/or safe separation distances

Perspectives on Regulations

Examples of Conflicts

- Terminology between NFPA 58 and Part 192 inconsistent

Part 192

Service regulator: device on a service line that controls the pressure of gas delivered from a higher pressure to the pressure provided to the customer

NFPA 58

Second stage regulator: a pressure regulator for LP-Gas vapor service designed to reduce the first-stage regulator outlet pressure to 14" w.c. or less

Perspectives on Regulations

Examples of Conflicts

- Terminology between NFPA 58 and Part 192 inconsistent

Part 192

Pipeline: all parts of those physical facilities through which gas moves in transportation, including pipe, valves and other appurtenances attached to the pipe, compressor units, metering stations, regulator stations, delivery station holders and fabricated assemblies.

NFPA 58

Piping Systems: pipe, tubing, hose and flexible rubber or metallic hose connectors with valves and fittings made into complete systems for conveying LP-Gas from one point to another in either the liquid or vapor state at various pressures.

Perspectives on Regulations

Examples of Conflicts

- Terminology between NFPA 58 and Part 192 inconsistent

Part 192

Pipeline Facility: new and existing pipelines, rights-of-way, and any equipment, facility or building used in the transportation of gas or in the treatment of gas during the course of transportation.

NFPA 58

LP-Gas Systems: an assembly consisting of one or more containers with a means for conveying LP-Gas from a container to dispensing or consuming devices that incorporates components that control the quantity, flow, pressure and physical state (liquid or vapor) of the LP-Gas.

Perspectives on Regulations

Examples of Conflicts

- Terminology between NFPA 58 and Part 192 inconsistent

Part 192

Maximum Allowable Operating Pressure: means the maximum pressure at which a pipeline or segment of a pipeline may be operated under this part.

NFPA 58

Maximum Allowable Working Pressure: means the maximum pressure at which a pressure vessel is to operate as described by the ASME Boiler and Pressure Vessel Code.

Perspectives on Regulations

Examples of Conflicts

- **Pipe Design**
 - NFPA 58 more stringent for PE piping – limited to 30 psig vs 100 psig for Part 192
 - Safety issue: Limit to 30 psig is to prevent propane vapor from liquefying w/in plastic pipe to avoid liquid entering downstream regulators

Perspectives on Regulations

Examples of Conflicts

- **Testing Piping Systems**
 - Part 192 says testing medium must be non-flammable.
 - Has been standard practice for years to test for leaks following assembly using propane as the testing medium at normal operating pressure
- **Test pressure for plastic pipe**
 - Part 192 requires test pressure at 50 psig, which is 20 psig higher than allowed for plastic pipe in NFPA 58.
 - Mainly problematic for existing systems that were already tested under NFPA 58

Perspectives on Regulations

- **Consideration should be given to modifying regulations for jurisdictional systems**
 - Purpose would be to improve and more clearly define compliance requirements without compromising safety
 - PHMSA has previously modified regulations related to public awareness and DIMP for propane systems

Perspectives on Regulations

Option 1

- Create a new Subpart in Part 192 for LPG pipeline systems
- Modify threshold for what constitutes a jurisdictional system
 - *Based on number of customers*

OR

Option 2

- Create a new Subpart in Part 192 for LPG pipeline systems
- Modify threshold for what constitutes a jurisdictional system
 - *Based on aggregate storage capacity*
- Redefine ‘public place’
- Establish where point of jurisdiction ends for a service line

Perspectives on Regulations

Option 1

- **Create a new Subpart in Part 192 for LPG pipeline systems (based on applicable NFPA 58 requirements)**
 - Would simplify regulations for operators AND inspectors and facilitate easier compliance
- **Increase threshold to 100 customers or meters**
 - 100 chosen as it aligns with current threshold above which annual reports are required.
 - Would expect that systems less than 100 should still be required to comply with a one-call system as required by the state.

Perspectives on Regulations

Option 2

- **Create a new Subpart in Part 192 for LPG pipeline systems (based on applicable NFPA 58 requirements)**
 - Would simplify regulations for operators AND inspectors and facilitate easier compliance
- **Base threshold on aggregate storage capacity**
 - Any single source of supply > 4000 gals w.c. would be considered jurisdictional
 - Current requirements would then remain as is for jurisdiction, i.e. 10 or more customers or more than 1 customer when system is in a public place
 - Note: System size would be limited at < 4000 gals

Perspectives on Regulations

Option 2 (continued)

- **Redefine ‘public place’**
 - Would reduce need for interpretations
- **Establish where point of jurisdiction ends for a service line**
 - Avoids interpretations based on pressure or other possibilities

Perspectives on Regulations

- **Net effect of current requirements are that propane marketers design systems to stay beneath threshold**
 - Results in more storage onsite w/multiple containers
 - Results in more liquid transfers
 - Lowest to highest relative exposure is
 - Storage; then transportation; then liquid transfers
 - The greater the # of containers onsite, the higher the # of liquid transfers that occur and the greater the relative exposure

Thank you!

Questions?