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# Protecting Gas Facilities from Vehicles & Other Damage

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# Discussion

## Natural Gas & Propane Facilities

- Federal Regulations
- State Rules & Regional Differences
- Photographic Examples
  - The Good
  - The Bad
  - The Interesting

# Federal Regulations

## §192.353 Customer Meters and Regulators: Location.

- (a) Each meter and service regulator, whether inside or outside a building, must be installed in a readily accessible location *and be protected from corrosion and other damage, including, if installed outside a building, vehicular damage that may be anticipated.* However, the upstream regulator in a series may be buried.

# Federal Regulations

## §192.355 Customer Meters and Regulators: Protection from Damage.

(b) Service regulator vents and relief vents. Service regulator vents and relief vents must terminate outdoors, and the outdoor terminal must:

(3) *Be protected from damage caused by submergence in areas where flooding may occur.*

# Federal Regulations

## Part 192, Subpart P – Gas Distribution Integrity Management

§192.1007(b) & §192.1015(b)(2) *Identify Threats*

Among the threats that must be considered by both sections is "*Other Outside Force Damage*".

# Federal Regulations

## §192.11 Petroleum Gas Systems.

Incorporates ANSI/NFPA 58 "Liquefied Petroleum Gas Code" (2004)

# NFPA 58 (2004)

§6.6.1 Installation of Containers, General Requirements.

§6.6.1.2 *LP-Gas containers or systems of which they are a part shall be protected from damage from vehicles.*

# NFPA 58 (2004)

## §6.6.6 Installation of Underground and Mounded Containers.

§6.6.6.1(C) *Protection shall be provided for the fitting housing, housing cover, tank connections, and piping against vehicular damage.*

§6.6.6.1(D) *Where containers are installed underground within 10 ft (3 m) of where vehicular traffic can be expected, protection against vehicular damage shall be provided for the fitting housing, housing cover, tank connections, and piping.*



# NFPA 58 (2004)

§6.8.3 Installation of Metallic Pipe, Tubing, and Fittings.

§6.8.3.10 *Aboveground piping shall be supported and protected against physical damage by vehicles.*

# NFPA 58 (2004)

## §6.15.5 Installation of Meters.

§6.15.5.3 *Vapor meters shall be installed so as to minimize the possibility of physical damage.*

# State Rules

## In Addition to Part 192

State	Natural Gas	Propane
Connecticut	No	No
Massachusetts	No	No
Maine	Ch. 420 §§5.B.2.&3.	Ch. 421 §§5.B.1.&2.a.
New Hampshire	No	No
Rhode Island	No	No
Vermont	No	No

# Maine

## Rule Chapter 420 (Natural Gas)

- §5.B.2. Gas meters, regulators, and aboveground pipeline facilities located in areas subject to vehicular damage shall be provided adequate protective barriers on each side exposed to vehicular traffic. Operators that have above-ground piping and appurtenances at commercial and industrial premises shall consider the potential for damage to the gas facilities from equipment used in the operation and maintenance of that facility and provide adequate protection.
- §5.B.3. Regulators, meters, and other equipment installed in the piping system shall be protected from the forces anticipated as a result of accumulated snow or falling snow and/or ice.

# Maine

## Rule Chapter 421 (Propane)

- §5.B.1. Gas meters, aboveground tanks, domes of underground tanks, and distribution system facilities located adjacent to a roadway, street, alley, driveway, easement or otherwise susceptible to damage from motor vehicles shall be provided protective barriers on each side exposed to vehicular traffic.
  
- §5.B.2.a. Regulators, meters, and other equipment installed in the piping system shall be protected from the forces anticipated as a result of accumulated snow or falling snow and/or ice.

What do all rules and regulations,  
pertaining to facility protection,  
have in common?

They Are Subjective.

- To interpretation by individuals;
- State by State interpretations & expectations; and
- Regional interpretations & expectations.

# **Natural Gas Facility Photos**



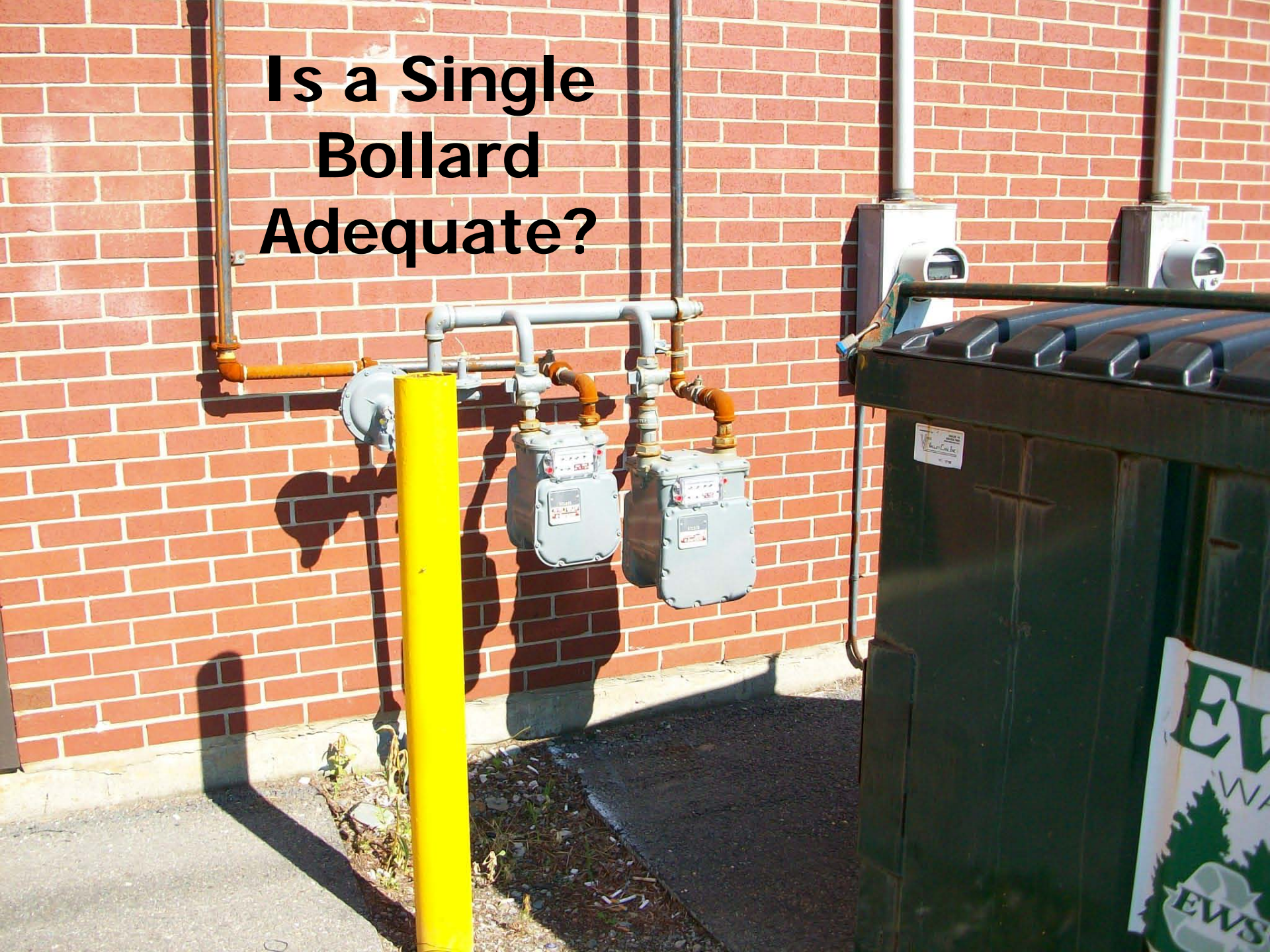


KEN  
**CAPRON**  
STATE REPRESENTATIVE

Is the Fence Adequate for Vehicle Protection?



**Is a Single  
Bollard  
Adequate?**




















A photograph of a house's exterior with a snow-covered walkway and utility equipment. The house has light-colored horizontal siding and a window with brown shutters. A walkway leads to a set of utility equipment, including a water meter and several valves, which are partially obscured by a large pile of snow. The scene is brightly lit, suggesting a sunny day.

**What Looks OK in the  
Summer;**

**May Not Be in the  
Winter.**





**Should This  
Installation Have  
Vehicle Protection?**



# Aftermath of a Car Hitting a Meter Muskegon, Michigan 9/26/11







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35°26'40.10" N 97°36'03.68" W elev 1220 ft

Eye alt 1228 ft

# Propane Facility Photos



# Are Diagonal Lines Adequate for Protection From Vehicles?







**Bollards Good for  
Vehicles Straight On.**

?

10/12/2011



**Underground Tank Dome?**

**Trash Receptacle?**

**Or Both?**





**Yes, It's a Multipurpose Facility.**

**Number: 1075**



**What Are the Bollards For?**





RELIEF VALVE  
ISO 9000  
**CAUTION**  
DO NOT MOVE  
CM ENGINEERING  
85UK

DO NOT TOUCH THIS VALVE  
OR THE SURROUNDING AREA  
WHILE THE ENGINE IS RUNNING



Is the Fence Adequate Protection?



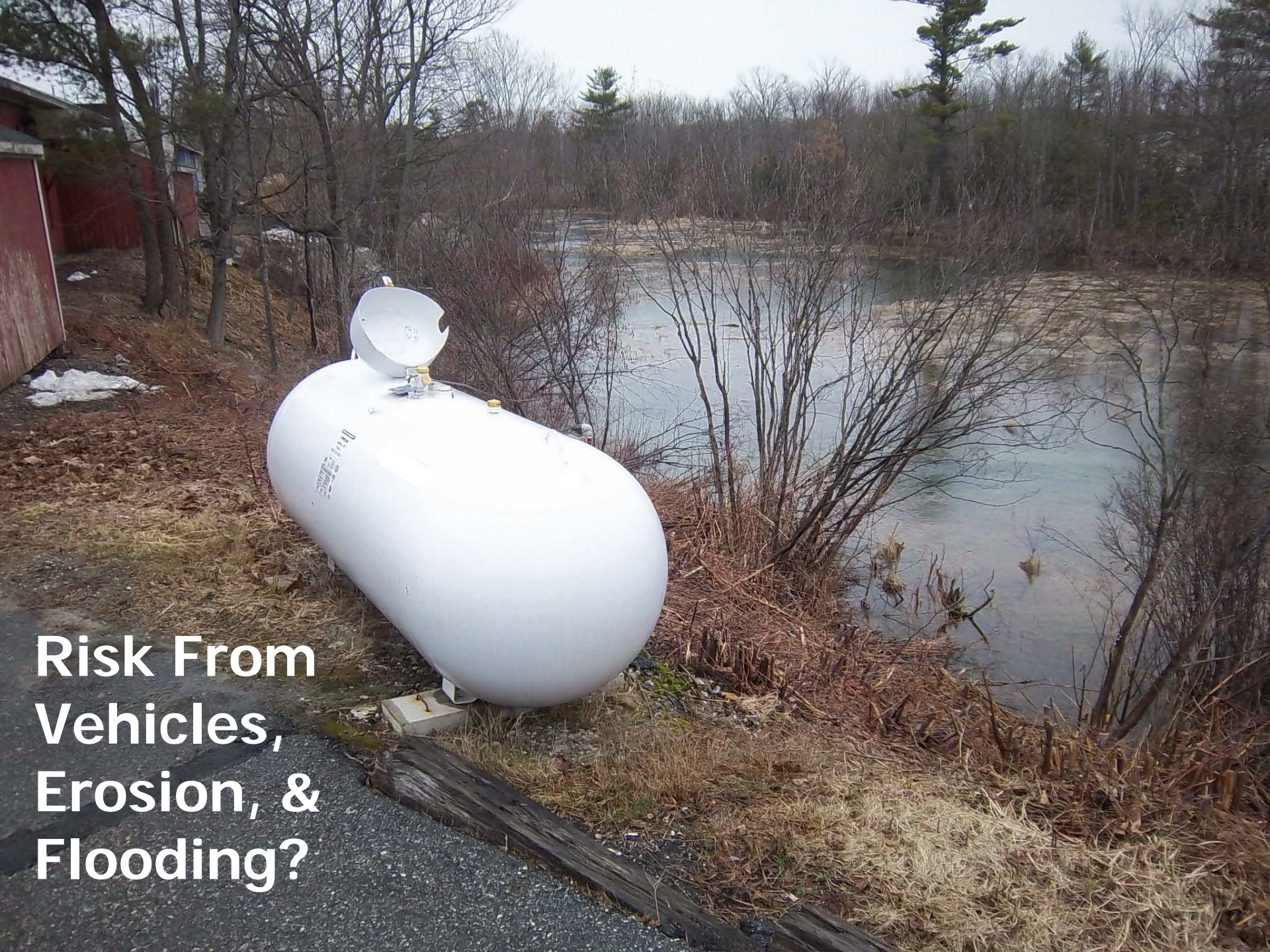


**We Don't Think So.**

**But the Risers Are Well Protected.**







**Risk From  
Vehicles,  
Erosion, &  
Flooding?**



# Excellent Guardrail for Vehicle Protection.







**Looking From the Other Side, This is Why it Was Used.**





**Water Valves Protected.**

**Mounting a  
Meter High  
Isn't Always  
Without Risk.**





Separation  
From  
Building







← Meters

**Ice Damage to  
Facilities  
Averted.**



07/13/2011





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♿

Perkins Hall

**The New Standard for Tank Protection?**



A large, smooth, white sphere sits on a square concrete base. The base is surrounded by dark grey gravel and some dry, brownish vegetation. In the background, there are trees with autumn-colored leaves, a utility pole with power lines, and a railroad crossing sign. The sky is overcast with grey clouds.

**THE END**



**Thank You!**