

# Valve Installation and Minimum Rupture Detection Standards

Pipeline Safety - Final Rule  
Part 192 Amendment 130



# Summary of Main Provisions

- Applies to most hazardous liquid and natural gas transmission (GT) and Type A gas gathering pipelines that are 6 inches or greater in diameter.
- §192.179 Pipelines that are newly constructed or “entirely replaced” (after April 10, 2023) must be equipped with “rupture-mitigation valves” or alternative equivalent technology.



# Summary of Main Provisions

- If an operator observes or is notified of a release of gas that may be representative of a “notification of potential rupture,” the operator must, as soon as practicable but **within 30 minutes**:
  - identify the rupture,
  - fully close any rupture-mitigation valves necessary to mitigate the rupture, i.e., mainline valves, cross-over valves, and laterals.
- Rule creates new valve spacing requirements for GT pipelines.



# Summary of Other Provisions

- Develop written procedures to identify and confirm whether a “notification of potential rupture” is a rupture.
- Maintenance and drill requirements for manual valves or equivalent technology to ensure the valve can close within 30 minutes after identifying a rupture.
- Operator investigation following a rupture with any lessons learned implemented throughout the pipeline system.
- Include 9-1-1 notification requirements (direct notification of appropriate public safety answering point).

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# MAJOR PROVISIONS

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U.S. Department of Transportation  
Pipeline and Hazardous Materials  
Safety Administration

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# Definitions

## §§192.3 & 192.635 – GT

### ▪ **Notification of Potential Rupture**

- Means the notification to, or observation by, an operator of indicia identified in §192.635 of a potential unintentional **or** uncontrolled release of a large volume of gas from a pipeline.

### ▪ **Rupture Mitigation Valve (RMV)**

- Means an automatic shut-off valve (ASV) or a remote-control valve (RCV) that a pipeline operator uses to minimize the volume of gas released from the pipeline and to mitigate the consequences of a rupture.



# Definitions

## §§192.3, 192.179 & 192.634 – GT



- **Entirely Replaced Onshore Gas Transmission Pipeline Segment**
  - “...means where 2 or more miles of pipe, in the aggregate, have been replaced within any 5 contiguous miles of pipeline within any 24-month period.”



# Gathering Lines Applicability §192.9

- Applies to Type A gas gathering pipelines
  - have risk profiles similar to transmission pipelines
- Does not apply to Type B OR Type C gas gathering pipelines

Type	Feature	Area	Additional safety buffer
<b>A</b>	—Metallic and the MAOP produces a hoop stress of 20 percent or more of SMYS	Class 2, 3, or 4 location ( see § <a href="#">192.5</a> )	None.
	—If the stress level is unknown, an operator must determine the stress level according to the applicable provisions in subpart C of this part		
	—Non-metallic and the MAOP is more than 125 psig (862 kPa)		





# RMV Installation §192.179

- To meet valve spacing requirements, after April 10, 2023, operators must install RMVs, on
  - newly constructed onshore GT transmission,
  - ***entirely replaced transmission pipeline segments***
  - 6 inches and greater in diameter
- Does not apply to GT/GG lines in Class 1 – 2 locations w/Potential Impact Radius (PIR) of  $\leq 150$  feet



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# RMV Installation §192.179



- Applies to onshore GT **entirely replaced segment** if it involves the addition, replacement, or removal of a valve
- On replacements, operators do not need to meet current spacing for GT if valve spacing doesn't exceed
  - 4 miles in Class 4 locations
  - 7.5 miles in Class 3 locations, and
  - 10 miles in Class 1 – 2

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# RMV Installation §192.179



- An operator may request an extension of the installation compliance deadline requirements
- Installing alternative equivalent technology requires notification to PHMSA and must include
  - site-specific technical and safety evaluation demonstrating that technology provides an equivalent level of safety to an RMV



# Class Location Changes § 192.610

- To meet the MAOP **for a new class location** an operator:
  - Replaces **2 or more** miles of pipe, then must:
    - meet the valve spacing requirements and
    - install a remote mitigation valve (RMV) within 24 months of the replacement
  - Replaces **less than 2** miles of pipe, then must:
    - Meet the valve spacing requirements, **OR**
    - install a remote mitigation valve (RMV), or use an existing one, so that the segment is between 2 RMVs



# Class Location Changes § 192.610

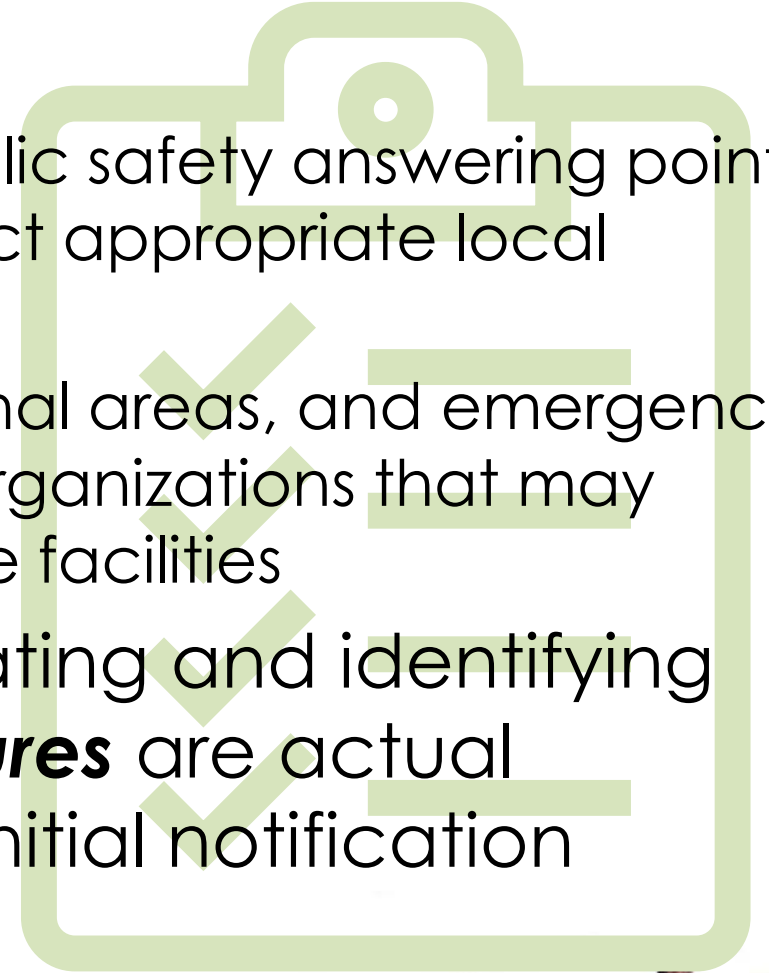


These requirements do not apply to pipeline replacements of <1,000 feet within a contiguous mile in 24 months.



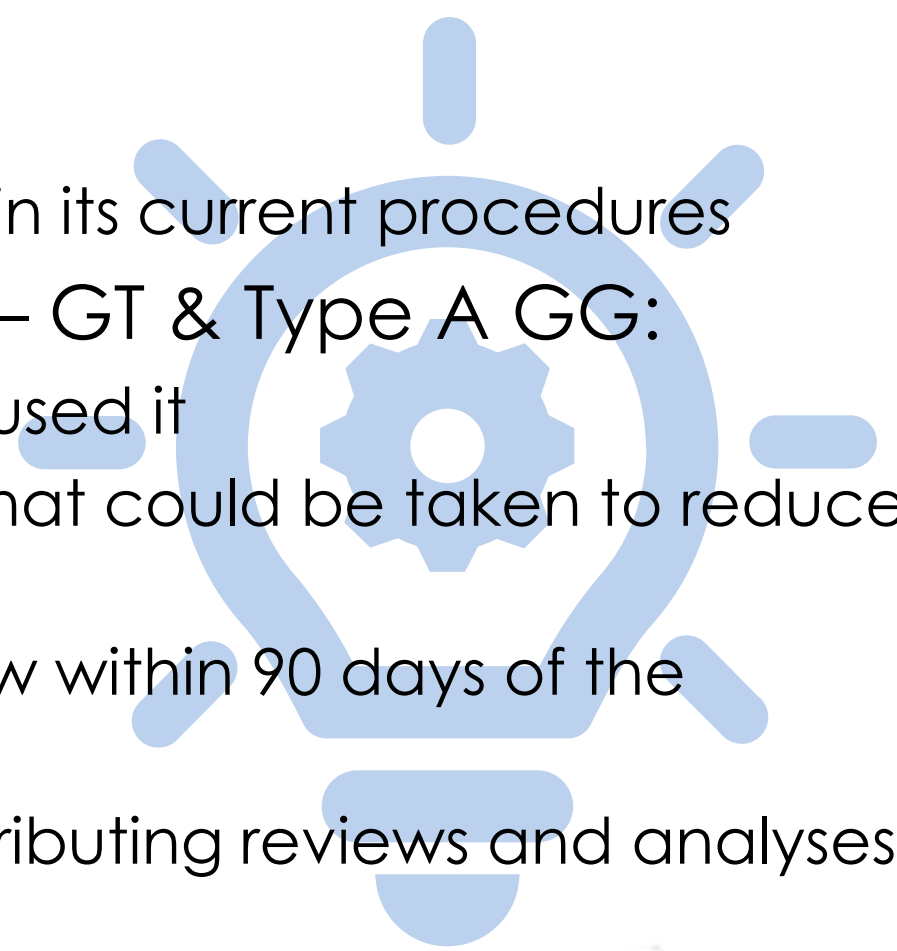
# Emergency Plans §192.615

- 9-1-1 notification requirements
  - Liaison with and contact appropriate public safety answering point if available – if not, liaison with and contact appropriate local emergency coordinating agencies
  - Learn responsibilities, resources, jurisdictional areas, and emergency contact numbers for those government organizations that may respond to emergencies involving pipeline facilities
- Develop **written procedures** for evaluating and identifying whether **notifications of potential ruptures** are actual ruptures as soon as practicable after initial notification



# Investigation of Failures and Incidents §192.617

- Post-failure and incident – All:
  - Develop and implement lessons learned in its current procedures
- Following an event involving an RMV – GT & Type A GG:
  - analyze all the factors that may have caused it
  - Identify potential operational measures that could be taken to reduce or limit future release volumes
  - Complete summaries of post-event review within 90 days of the incident
  - Keep final post-event summary and contributing reviews and analyses for the life of the pipeline



# RMV HCA & Class 3 & Class 4 Requirements §192.634

- RMV installation/use requirement applies to **all** replacement projects in HCAs and Class 3 and Class 4 locations, whether a valve is involved or not
  - Does not apply to Class 1 – 2 locations w/PIR of 150 ft. or less
- Establishes “shut-off segments”
- distance between valves in “shut-off segments” cannot exceed 8 miles in Class 4, 15 miles in Class 3, and 20 miles in Class 1 or 2





# RMV Operational Capabilities §192.636



- After a rupture is identified, RMVs must be fully closed as soon as practicable, but within **30 minutes**
- For GT, operators may request to leave RMVs open following “notification of a potential rupture” if
  - It is established in the operator’s procedures
  - PHMSA was notified in advance, and
  - it has been **coordinated with** the appropriate local emergency responders **before the incident**



# RMV Operational Capabilities §192.636

- RMVs must be monitored or controlled by remote or on-site personnel
  - Automatic Shut-off Valves status doesn't need to be monitored remotely if the operator can monitor pressure or flow rate within each pipeline segment located between RMVs on the line to identify and locate a rupture
- Sets modeling requirements for ASVs **based on flow volumes, pressures, other operating conditions, and any laterals or connected pipelines.**
- In non-HCA and Class 1 locations, where using manual valves was approved, the operator may request an exemption from the 30-minute closing requirement.



# Valve Maintenance §192.745

- Conduct a point-to-point verification between SCADA and the installed valves, sensors, and communications equipment
- Maintenance, inspection, and drill requirements to ensure that manually or locally operated valves (not RMVs) can meet the 30-minute closure standard
  - The drill must be validated and documented
  - If closure time cannot be met, operators have 12 months to achieve compliance
- Alternate shut-off measures must be in place within 7 days after a failed drill



# IM Valve Risk Analyses §§ 192.935

- Clarifies requirements for conducting **RMV evaluations** for HCAs as Preventive & Mitigative measures:
  - For GT must evaluate
    - How fast can the leak be identified, and the pipeline shut down?
    - the type of gas being transported,
    - operating pressure,
    - How much product can potentially release?
    - pipeline profile,
    - the potential for ignition,
    - and location of nearest response personnel



# IM Valve Risk Analyses §192.935

- Risk analyses and assessments performed under this section must be reviewed to identify operational difficulties that could affect rupture-mitigation processes and procedures
- Must be done annually, not to exceed 15 months, and within 3 months of an incident or SRC





# QUESTIONS





PHMSA Inspector Training & Qualification – Oklahoma City

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