Pipeline and Hazardous Materials Safety Administration

Office of Pipeline Safety

Pipeline Safety - Amendments to 49 CFR Parts 192 and 195

Valve Installation & Rupture Detection Standards – "Valve Rule"

April 26, 2022

Summary of Main Provisions

- Applies to most hazardous liquid (HL)/carbon dioxide and natural gas transmission (GT)/Type A gas gathering (GG) pipelines that are 6-inches or greater in diameter.
- Pipelines that are newly constructed or "entirely replaced" must be equipped with "rupture-mitigation valves" or alternative equivalent technology.
- If an operator observes or is notified of a release of gas or HL that may be representative of a "notification of potential rupture," as soon as practicable but within 30 minutes, the operator must:
  - Identify the rupture,
  - Fully close any rupture-mitigation valves necessary to mitigate the rupture: closure of mainline valves, cross-over valves, and laterals.
- Rule creates new valve spacing requirements for GT and HL pipelines.

Summary of Other Provisions

- Development of written procedures to identify and confirm whether a “notification of potential rupture” is a rupture.
- Maintenance and drill requirements for 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.
- Updated 9-1-1 notification requirements (direct notification of appropriate public safety answering point).

Major Provisions

Definitions

192.3 & 192.635 - GT 195.2 & 195.417 - HL

Notification of Potential Rupture

- Means the notification to, or observation by, an operator of indications identified in 192.635/195.417 of a potential unintentional or uncontrolled release of a large volume of gas or HL 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 or HL/carbon dioxide released from the pipeline and to mitigate the consequences of a rupture.

Entirely Replaced Onshore Gas Transmission / Hazardous Liquid or Carbon Dioxide 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 Line & Low Stress Applicability

192.9, 195.11, & 195.12

- Applies to Type A gas gathering pipelines.
  - Does not apply to Type B *or* Type C gas gathering pipelines.
- Applies to HL regulated rural gathering pipelines that span water crossings more than 100 ft. wide (195.260(e)).
- Applies to HL low-stress pipelines subject to 195.260(e).

RMV Installation

192.179 & 195.258

- Operators must install RMVs on newly constructed onshore GT and HL pipelines that are 6-inches and greater in diameter to meet existing valve spacing requirements.
- Does not apply to GT/GG lines in Class 1 – 2 locations with Potential Impact Radius (PIR) of $\leq$ 150 feet.
- Applies to onshore GT and HL pipeline replacement projects involving addition, replacement, or removal of valve.
- Operators do not need to meet current spacing for GT if valve spacing does not exceed 4 miles in Class 4 locations, 7 ½ miles in Class 3 locations, and 10 miles in Class 1 – 2.

HL Valve Location

195.260

- Updates HL regulations with maximum valve spacing requirements:
  - 15 miles for HCAs.
  - 20 miles for non-HCAs.
  - 7 ½ miles for pipelines carrying Highly Volatile Liquids (HVL)
    - 25% allowance for HVL pipelines.
- Operators must notify PHMSA and get a "no objection" if HL valve installation or valve spacing requirements are not necessary to achieve an equivalent level of safety and the operator plans to install alternative valve spacing or other safety measures.

Class Location Changes

192.610

- If replacing pipe to meet maximum allowable operating pressure (MAOP) for new GT pipeline class location, operators must either:
  - Meet valve spacing requirements, or
  - Install or use a remote mitigation valve (RMVs) so that the replaced segment is between two (2) RMVs and so that the distance between RMVs does not exceed 20 miles.
- Does not apply to replacements of less than 1,000 feet of pipe within one (1) contiguous mile.

Emergency Plans

192.615 & 195.402

- 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, 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 & 195.402

- Following an event involving an RMV:
  - Identify potential operational measures that could be taken to reduce or limit future release volumes.
  - Develop and implement lessons learned throughout suite of procedures.
  - Complete summaries of post-event review within 90 days of the incident.
  - Keep final post-event summary and contributing reviews and analyses for life of pipeline.

* Summary provisions not applicable to Gas Distribution pipelines and facilities.

RMV HCA & Class 3 & Class 4 Requirements

192.634 & 195.418

- GT valve spacing distance cannot exceed 8 miles in Class 4, 15 miles in Class 3, and 20 miles in Class 1 – 2, and for HL pipelines 15 miles for high consequence areas (HCAs) and 7 ½ miles for HVL pipelines.
- 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."

RMV Operational Capabilities

192.636 & 195.419

- Following "notification of potential rupture," RMVs must be closed as soon as practicable, but within 30 minutes.
  - Operators of non-HCA Class 1 pipelines and non-HCA HL pipelines can request exemption if they can demonstrate to PHMSA that an RMV would be infeasible.
- For GT, operators may request to leave RMVs open following "notification of potential rupture" provided PHMSA is notified and the action is coordinated with the appropriate local emergency responders prior to the incident or event.
- RMVs must be monitored or controlled by remote or on-site personnel.
  - ASVs do not need to monitor valve status remotely if the operator has the capability to 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 upon flow volumes, pressures, other operating conditions and any laterals or connected pipelines.

Valve Maintenance

192.745 & 195.420

- Maintenance, inspection, and drill requirements to ensure that RMVs can meet the 30-minute closure standard.
  - If closure time cannot be met, operators have 12 months to achieve compliance.
- Alternate shut-off measures in place within 7 days after a failed drill.

Integrity Management Valve Risk Analyses

192.935 & 195.452

- Clarifies requirements for conducting RMV evaluations for HCAs as Preventive & Mitigative Measures:
  - **For GT and HL**
    Timing of leak detection and pipe shutdown capabilities, the type of gas being transported, operating pressure, the rate of potential release, pipeline profile, the potential for ignition, and location of nearest response personnel.
  - **For HL only**
    The type of commodity carried, the rate of potential leakage, the volume that can be released, topography or pipeline profile, the potential for ignition, proximity to power sources, specific terrain within the HCA or between the pipeline segment and the HCA it could affect, and benefits expected by reducing the spill size.
- Risk analyses and assessments conducted under this section must be annually reviewed for items that could affect rupture-mitigation processes and procedures.

Questions?