

# Valve Installation and Minimum Rupture Detection Standards

Gas Pipeline Advisory Committee

RIN: 2137-AF06

Docket: PHMSA - 2013 – 0255

July 22, 2020



# Brief History of Valve Rule

- **March 23, 1994 incident** in Edison Township, NJ - 2.5 hours elapsed prior to gas flow isolation.
- **NTSB recommendations** following Edison Township incident resulted in valve provisions of IM regulations.
- **July 25, 2010 accident in Marshall, MI** continued for 18 hours prior to confirming rupture and initiating mitigation actions.



# Brief History of Valve Rule

- **September 9, 2010, incident** at San Bruno, CA, kills 8 people, injures many, causes several more to be evacuated, destroys 38 homes, and damages another 70 homes. System isolation was not achieved until 95 minutes following rupture.
- **PHMSA issues Gas ANPRM** on August 25, 2011, seeking public comment on 15 topics (122 questions). PHMSA received 103 comments. Specific to valves, the ANPRM included 1 topic (8 questions).



# Brief History of Valve Rule

- **NTSB issues several recommendations** to several entities, including PHMSA, CPUC, PG&E, AGA, and INGAA, following the San Bruno incident through its investigation report adopted on August 30, 2011.
- **Pipeline Safety Act of 2011** was issued on January 3, 2012; includes several mandates related to gas pipeline regulation, many of which correlate to San Bruno investigation findings. Specific to valves, the Act included sections 4 and 8.



# Brief History of Valve Rule

- **PHMSA sponsors** leak detection workshop on March 27-28, 2012.
- **NTSB issues several recommendations** to various entities, including PHMSA, API, PRCI, International Association of Fire Chiefs, and the National Emergency Number Association, following the Marshall incident through its investigation report adopted on July 10, 2012.
- **PHMSA sponsors** Government and Industry Pipeline Research and Development (R&D) Forum including a leak detection technology session on July 18-19, 2012.



# Brief History of Valve Rule

- **PHMSA issues Advisory Bulletin** on October 11, 2012 to remind operators to notify the Public Safety Access Point (PSAP) or community 9-1-1 in pipeline emergencies.
- **PHMSA commissioned** Valve Study (ORNL/TM-2012/411) by Oak Ridge National Laboratory, published October 31, 2012.
- **PHMSA commissioned** Leak Detection Study (DTPH56-11-D-000001) by Kiefner & Associates, published December 10, 2012.



# Brief History of Valve Rule

- **United States Government Accountability Office issues Report to Congressional Committees** on January 23, 2013 regarding data and guidance needs for emergency response. GAO-13-168 included two recommendations pertaining to valves and emergency response.
- **PHMSA issues Valve NPRM** on February 6, 2020.



# Congressional Mandates (2011 PSA)

- **§ 4** –require by regulation the use of ASVs or RCVs, or equivalent technology, where it is economically, technically, and operationally feasible, on hazardous liquid and natural gas transmission pipeline facilities.
- **§ 8** –establish technically, operationally, and economically feasible standards for the capability of leak detection systems to detect leaks on hazardous liquid pipelines.





# NTSB Recommendations Relating to Valve Rule

- **P-11-9** – Require operators of natural gas transmission and distribution pipelines and hazardous liquid pipelines to ensure that their control room operators immediately and directly notify the 911 emergency call center(s) for the communities and jurisdictions in which those pipelines are located when a possible rupture of any pipeline is indicated.



# NTSB Recommendations Relating to Valve Rule

- **P-11-10** –Require that all operators of natural gas transmission and distribution pipelines equip their supervisory control and data acquisition systems with tools to assist in recognizing and pinpointing the location of leaks, including line breaks; such tools could include a real-time leak detection system and appropriately spaced flow and pressure transmitters along covered transmission lines.



# NTSB Recommendations Relating to Valve Rule

- **P-11-11** – Amend Title 49 Code of Federal Regulations 192.935(c) to directly require that automatic shutoff valves or remote-control valves in high consequence areas and in class 3 and 4 locations be installed and spaced at intervals that consider the factors listed in that regulation.



# GAO Recommendations Relating to Valve Rule

- **GAO-13-168** – To improve operators' incident response times, improve the reliability of incident response data and use these data to evaluate whether to implement a performance-based framework for incident response times.



# High Level Summary of Valve Rule

**PHMSA proposed rule changes in the following areas for gas transmission pipelines:**

1. Define “rupture” for use in leak detection and mitigation requirements
2. Include public safety answering point (9-1-1 emergency call center) in emergency response and liaison efforts
3. Establish timeframes for rupture identification (10 min.) and response (as soon as practical not to exceed 40 min.)
4. Strengthen incident investigation requirements



# High Level Summary of Valve Rule

**PHMSA proposed rule changes in the following areas for gas transmission pipelines:**

5. Require installation of Rupture Mitigation valves for newly constructed or 2+ mile replacement pipelines greater than 6-inch diameter
6. Define spacing requirements for Rupture Mitigation valves
7. Specify Rupture Mitigation valve shutoff capability and methods
8. Require Rupture Mitigation valve operational monitoring



# High Level Summary of Valve Rule

**PHMSA proposed rule changes in the following areas for gas transmission pipelines:**

9. Require Rupture Mitigation valve maintenance and verification
10. Establish and validate 40-minute response time through drills
11. Strengthen IM requirements to include Rupture Mitigation valve provisions in ASV/RCV annual risk analysis



# NPRM Comment Summary

- PHMSA issued NPRM on February 6, 2020.
- Comment period ended April 6, 2020.
- PHMSA received approx. 25 comments.
  - Major entities include:
    - National Transportation Safety Board (NTSB)
    - Pipeline Safety Trust (PST)
    - National Association of Pipeline Safety Representatives (NAPSR)
    - Clean Air Council
    - Industry Trade Associations (INGAA, API, AGA, APGA, AOPL, others)
    - Operators (Magellan, TC Energy, Northern Natural Gas)
    - Equipment manufacturers (valve actuation and process monitoring industries)





# NPRM Comment Summary

- A. Scope, Applicability, and Preliminary Regulatory Impact Assessment (PRIA) and Cost Estimate**
- B. Rupture Definition**
- C. Rupture Identification Timeframe**
- D. Rupture Valve Closure Timeframe**
- E. Rupture Mitigation Valves**
- F. Valve Spacing**
- G. Valve Location**
- H. Valve Status Monitoring**
- I. Class Location Changes**
- J. Maintenance**
- K. Failure Investigations**
- L. Communications with 9-1-1**

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# Comments Posted to Docket



# Scope and Applicability

## Public Comments:

- NTSB reminds PHMSA that recommendation **P-11-11 addresses valves for both new construction and existing pipelines.**
- PST and the Clean Air Council also ask that PHMSA consider application to existing pipelines based on NTSB Recommendation and Statute.

## PHMSA Response:

- Application to existing valves is prevented by statute (**49 U.S.C. 60104(b)) prohibiting retroactive design and construction regulations.**
- PHMSA proposed to apply the requirements to new and entirely replaced pipelines (2 miles) based on risk as mandated by 49 U.S.C. 60102(n).



# Scope and Applicability

## Public Comments:

- Clarify applicability of Rupture Mitigation valve requirements to gas distribution lines.

## PHMSA Response:

- Rupture Mitigation valve requirements in § 192.179 and § 192.634 specifically apply to gas transmission lines and not distribution lines.
- As will be clarified later, the only new (amended) requirements in this rule that would apply to distribution systems are contacting 9-1-1 call centers [§ 192.615(a)(2), & (a)(8) and (a)(6), as applicable] and post-incident lessons learned [§ 192.617(a) & (b)].



# Scope and Applicability

## Public Comments:

- NTSB and PST commented that leak detection (P-11-10) is not addressed and requirements for installing rupture-mitigation valves exclude most existing systems, including distribution lines. NTSB and PST commented that requirements for installing rupture-mitigation valves exclude most existing systems, including existing transmission and distribution lines.
- *[P-11-10] Require that all operators of **natural gas transmission and distribution pipelines** equip their supervisory control and data acquisition systems with tools to assist in recognizing and **pinpointing the location of leaks**, including line breaks; such tools could include a real-time leak detection system and appropriately spaced flow and pressure transmitters along covered transmission lines.*
- Clean Air Council advocated for requiring rupture detection devices.
- Fiber Optic Sensing Association (FOSA) encouraged PHMSA to pursue additional leak detection studies and consider enhancements to leak detection requirements.
- American Forest & Paper Association requested sensor and rupture detection improvements.

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# Scope and Applicability

## PHMSA Response:

- By requiring pressure monitoring upstream and downstream of rupture-mitigation valves, ruptures can be better detected and isolated. **However, mandatory installation of remote rupture detection sensing technology is outside the scope of the NPRM.**
- The pressure monitoring equipment required by this rule can also be integrated into a future leak detection system PHMSA will continue to advance leak detection technology through its R&D program with a view toward future rulemaking.
- For distribution pipelines, PHMSA will review existing leakage survey requirements in § 192.723 to strengthen leak survey requirements (e.g, more frequent surveys and account for advancement in technology) and repair criteria.
- For gas transmission pipelines, section 192.706 already requires leak surveys twice per year for Class 3 locations and quarterly for Class 4 locations.
- PHMSA will review this matter to identify any code sections for gas leakage monitoring that should be strengthened.

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# Scope and Applicability

## Public Comments:

- Clean Air Council asks that PHMSA expand the definition of HCA to include environmental and historical site factors.

## PHMSA Response:

- Change to HCA definition is outside the scope of the NPRM.



# PRIA & Cost Estimate

## Public Comments:

- Industry organizations commented:
  - Reconcile current PRIA with prior studies and clarify differences.
  - Consider maintenance costs for operator cost basis in addition to initial installation costs.
  - Consider costs of new valves in class change projects as a result of insufficient valve spacing.
  - Revise the PRIA to account for recent energy industry hardships as a result of COVID-19.
  - Clarify if the PRIA includes all costs including for gas gathering lines (in conjunction with clarifying applicability).
  - A private citizen provided support of the PRIA as demonstrating reasonable costs.

(cont.)





# PRIA & Cost Estimate

## Public Comments:

- The Clean Air Council requests cost analysis comparison to actual rupture costs (regulatory, legal, environmental, repair, etc.) as part of the PRIA feasibility assessment.
- A private citizen requested that additional factors pertaining to staffing in lieu of automation be considered in the PRIA, particularly with regard to extended full-scale manual operations in emergency (force majeure) situations.
- Consider additional consequences of gas supply as outages affect power generation and industrial customers.

## PHMSA Response:

- PHMSA will consider these comments in the RIA for the final rule. PHMSA's goal is to assure that the RIA addresses all the costs and benefits associated with each rulemaking and appreciates each commenter's input.



# PHMSA Construction Inspections 2018 – early 2020

Facility	Miles	RCVs	ASVs	EFRDs	MOV	Total Valves
Gas Transmission	2,431	200 (86%)	23 (10%)	N/A	9 (4%)	232
Hazardous Liquid	6,674	544 (53%)	136 (13%)	67 (6%)	287 (28%)	1,034

- RCV=Remote Control Valve
- ASV=Automatic Shutoff Valve
- EFRD=Emergency Flow Restricting Device  
(see § 195.450, typically an RCV on new construction)
- MOV=Manually Operated Valve



# Valve Installation in New and Replaced Gas Pipelines $\geq 6$ inches: 2015-2019

Class Location	Miles $\geq 6$ inches	All Valves Installed
Class 1	1,696	128
Class 2	309	31
Class 3	285	54
Class 4	6	2
Total	2,296	215

- 2,296 new and replaced miles w/diameter  $\geq 6$  inches (out of 2,495 total)
- 215 valves installed per year
  - 161 valves already RCVs (75%)
  - 54 valves need modification for rule compliance



# New and Replaced Gas Pipelines $\geq 6$ inches and $\geq 30$ percent SMYS: 2015-2019

Class Location	Miles $\geq 6$ inches	All Valves Installed
Class 1	1,435	108
Class 2	261	27
Class 3	241	46
Class 4	5	2
Total	1,942	183

- 1,942 new and replaced miles w/diameter  $\geq 6$  inches and  $\geq 30$  percent SMYS (out of 2,495 total)
- 183 valves installed per year
  - 137 valves already RCVs (75%)
  - 46 valves need modification for rule compliance



# Valve Automation: Estimated Unit Cost (2019)

Diameter Range (Inches)	Manual to RCV/ASV	Automating actuator to RCV/ASV
6.625-12.75	\$84,000	\$56,000
16-24	\$102,000	\$56,000
30-36	\$119,000	\$56,000

- **Manual to RCV/ASV:** Costs to install powered actuator and remote/automatic operation equipment
- **Automating actuator to RCV/ASV:** Costs to enable remote/automatic operation of existing powered actuator
- Excludes costs for the valve and valve extension itself
- Cost will vary depending on location



# OPS Accident Investigation Division Investigations

Operator took over an hour to shut in the rupture in 8 out of 12 investigations between Dec. 2017 and Aug. 2019.

Date	Location	Time to Close Mainline Valves (hours:minutes)	Total Shut-in Time from Time of Rupture (incl. time to ID rupture, isolate crossovers & laterals, etc.) (hours:minutes)
12/05/2017	Dixon, IL	0:31	1:09 (38 minutes to isolate crossover)
1/31/2018	Batesville, OH	0:34	0:34
6/07/2018	Moundville, OH	0:43	1:04 (21 minutes to ID the rupture)
6/15/2018	Hesston, KS	0:02	1:38 (1:36 to isolate crossover)
8/08/2018	Buffalo, OK	1:09	1:09
11/17/2018	Woodruff, UT	1:21	1:21
12/15/2018	Dixon Springs, TN	0:38	
1/21/2019	Caldwell, OH	0:34	0:34
3/03/2019	Mexico, MO	1:02	1:02
5/02/2019	Hot Springs, AR	2:30	2:41
8/01/2019	Danville, KY	0:54	0:56 (2 minutes to ID rupture)
8/21/2019	Artesia, NM	1:20	1:26

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- **Specific Public comments are addressed as follows:**
  - Rupture Mitigation
    - Definition of Rupture
    - 10-minute rupture identification
    - 40-minute valve closure timeframe (rupture isolation)
  - Rupture Mitigation Valves
    - Valve technology
    - Valve spacing
    - Valve location
    - Valve status monitoring
  - Class Location requirements
  - Maintenance Requirements
  - Failure Investigations
  - Communications with 9-1-1



# Rupture Mitigation

§§ 192.3, 192.615(a)(6), 192.620, 192.634(c) and (e), & 192.935(c)(1)

- **ISSUES:**

- Section 4 of the Pipeline Safety Act of 2011 requires regulatory action to require ASVs or RCVs for new and entirely replaced hazardous liquid and natural gas transmission lines if deemed economically, technically, and operationally feasible .
- NTSB recommendation P-11-11 and GAO-13-168 call for improved rupture response times.
- NTSB Recommendation P-11-11 calls for regulations that directly require automatic or remote-control shutoff valves to protect class 3 and 4 areas and HCAs spaced at intervals that consider risk factors.

- **BASIS:** Excessive rupture isolation time (95 min.) experienced in the 2010 PG&E incident in San Bruno, CA.





# Rupture Mitigation

§§ 192.3, 192.615(a)(6), 192.620, 192.634(c) and (e), & 192.935(c)(1)

- **PHMSA PROPOSED to:**
  - Define ‘rupture.’
  - Establish requirements for identifying ruptures within 10 minutes of occurrence.
  - Operating and monitoring Rupture Mitigation valves for newly constructed and entirely replaced gas pipelines.
  - Close Rupture Mitigation valves as soon as practicable but no more than 40 minutes after rupture identification.
  - PHMSA solicited comments on the appropriateness of the 40-minute standard.
  - PHMSA also solicited comments on the need to also revise the rupture response standard for ‘alternative MAOP’ pipelines at § 192.620 as part of this rulemaking.



# Rupture Definition

## § 192.3

### Rupture Definition – Public Comments:

- Do not define ‘rupture’ using quantitative release criteria (i.e., 10 % pressure drop in 15 min.) that are impractical and do not account for differences in system operation and monitoring capabilities.
- Consider allowing operators to establish specific rupture notification criteria suitable for the specific aspects of each pipeline rather than establishing universal criteria.
- Clarify and distinguish between the meanings of the terms ‘rupture identification’ and ‘notification of potential rupture.’
- Rupture definition in § 192.3 should be limited to transmission pipelines.
- Align definition of rupture with incident report definition.
- Adjust definition of rupture to account for technically infeasible detection sensitivities.



# Rupture Definition

## § 192.3

### PHMSA Response:

- The intent of the definition is to provide a **standard for operators to consistently and promptly initiate rupture mitigation measures and notify emergency responders.**
- The proposed rule already allows operators to adopt a standard that differs from a 10% pressure drop in 15 minutes by documenting a higher flow rate change or higher pressure-change threshold for rupture identification to account for pipeline-specific parameters.
- Operators may implement this change **without** advance notification to PHMSA. PHMSA will consider committee recommendations for editing the definition as shown on the next slide.
- PHMSA will consider the comments to clarify terminology and improve understanding and readability of the final rule.
- PHMSA will adjust incident reporting forms to align with the final rule.

(cont.)



# Rupture Definition § 192.3

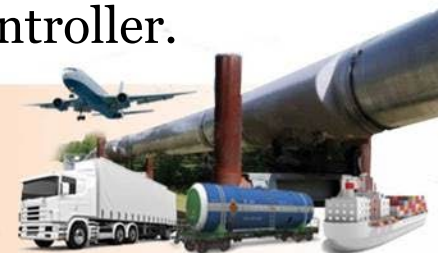
## **PHMSA Response: (suggested definition for Committee consideration)**

*Notification of Potential Rupture* means any of the following events that involve an unintentional and uncontrolled release of a large volume of gas from a transmission pipeline:

- (1) A release of gas observed or reported to the operator by its field personnel, nearby pipeline or utility personnel, the public, local responders, or public authorities, and that may be representative of an unintentional and uncontrolled release event meeting paragraphs (2) or (3) of this definition is observed or reported to the operator;
- (2) The operator observes an unanticipated or unplanned pressure loss outside of the pipeline' normal operating parameters, as defined in the operator's procedures. If the operator establishes a threshold that is greater than a 10 percent pressure loss, occurring within a time interval of 15 minutes or less, the operator must document the need for a higher pressure-change threshold due to pipeline flow dynamics caused by fluctuations in gas demand; or
- (3) The operator observes an unexplained flow rate change, pressure change, instrumentation indication, or equipment function that may be representative of an event meeting paragraph (2) of this definition.

*Note:* Notification occurs when a rupture, as defined in this section, is first observed by or reported to pipeline operating personnel or a controller.

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# 10-Min. Rupture Identification Timeframe

§§ 192.615(a)(6) & 192.935(c)(1)

## Timeframe - Public Comments:

- The decision to shut down a pipeline has serious implications and should not be rushed to meet a 10-minute threshold.
- Feasibility of a 10-minute deadline is dependent on location. For pipelines in remote areas, a 10-minute deadline could require operators to treat some operational events as ruptures.
- Remove the 10-minute rupture identification requirement while retaining the overall 40-minute shutoff timeframe.

## PHMSA Response:

- PHMSA believes a 10-min. timeframe for identifying ruptures is achievable using currently available technology.
- PHMSA is receptive to deleting the 10-minute standard based on proposed changes to the definition of Notification of Potential Rupture.



# 40-Min. Valve Closure Timeframe

§§ 192.634(c) and (e), & 192.620

## Timeframe – Public Comments:

- NTSB and PST expressed concern that a 40-minute timeframe may be too long for ASV and RCV and would not provide sufficient mitigation capability.
- PST further requests that PHMSA provide technical justification for the maximum shutdown time limit.
- PST commented that a 30-minute shutdown timeframe might also be reasonable and that some spill response plans for hazardous liquid lines claim that failures isolated within 15 minutes constitute an operator's worst-case discharge.
- Industry Associations commented that the 40-minute performance standard is not appropriate or practical for existing pipelines, especially in rural and remote locations and recommended that the 40-minute standard in 192.634(c), (e), and (f) be applied only to HCAs and Class 3 and 4 locations.



# 40-Min. Valve Closure Timeframe

§§ 192.634(c) and (e), & 192.620

## Timeframe – Public Comments:

- Extend the 40-minute shutoff period to 60 minutes.
- Remove 40-minute closure timeframe for manual valves.
- Require documentation of the response activities occurring within the 40-minute timeframe.
- Allow operators to specify maximum detection and shutoff timeframes individually for each pipeline within O&M procedures.
- Provide for “other technology” type notification for operators to establish valve closure timeframes longer than 40 minutes.



# 40-Min. Valve Closure Timeframe

§§ 192.634(c) and (e), & 192.620

## PHMSA Response:

- PHMSA believes that a 40-min. standard is achievable improvement (compared to the 95 min. performance at San Bruno).
- PHMSA also notes that the 40-min. standard was driven by time to close manual valves and believes that ASVs and RCVs should be closed in much less than 40 min. (30 min. or less).
- PHMSA would be supportive of changing the closure time standard to 30 minutes in conjunction with deleting the 10-minute rupture identification standard to incorporate the proposed definition of “Notification of Potential Rupture” from the Associations.
- PHMSA would be supportive of allowing manual valves, in non-HCA Class 1 locations only, to exceed the 30-minute closure time requirement if the operator submits a notification and demonstrates that installing an ASV or RCV is economically, technically, or operationally infeasible.
- PHMSA believes that the closure time standard should apply to Class 2 locations because those locations could have up to 45 houses in the class location unit (and a minimum of 10 houses).





# 40-Min. Valve Closure Timeframe

§§ 192.634(c) and (e), & 192.620

## Timeframe – Public Comments:

- With respect to § 192.620 (Alternative MAOP requirements), Associations and TC Energy support proposed changes to §§ 192.179(e) and 192.634 for new and replaced pipelines which would not require changes to § 192.620. They also assert that retaining the existing 60 minutes response standard is necessary for existing pipelines, but request that PHMSA add more explicit requirements to the Alternative MAOP regulation to specify the response activities that are required within the one-hour response standard.

## PHMSA Response:

- PHMSA does not plan to revise § 192.620 but notes that Alt. MAOP lines would be subject to § 192.179 and § 192.634, as applicable.



# 40-Min. Valve Closure Timeframe

§§ 192.634(c) and (e), & 192.620

## Timeframe – Public Comments:

- Allow operators in conjunction with emergency responders to decide to leave a Rupture Mitigation valve open (if needed for incident mitigation or for safety during emergency response).

## PHMSA Response:

- PHMSA believes that the need to isolate rupture locations is paramount and rupture mitigation valves should be closed as soon as practicable. Discussions with emergency responders during incidents could lead to unjustified delay in isolating ruptures.



# 40-Min. Valve Closure Timeframe

§§ 192.634(c) and (e), & 192.620

## Timeframe – Public Comments:

- Clarify “other mitigation actions” to be taken in the event of a rupture mitigation valve activation.

## PHMSA Response:

- PHMSA intended this to require that operators take whatever action is appropriate to mitigate the event (in addition to closing rupture mitigation valves). The specific actions needed would be dependent on each event and may include closure of valves on laterals and communication with receipt and delivery customers.



# Rupture Mitigation

§§ 192.3, 192.615(a)(6), 192.620, 192.634(c) and (e), & 192.935(c)(1)

**This concludes the PHMSA response to comments on Rupture Mitigation topics.**

**In light of comments received from the NPRM, PHMSA recommends the Committee consider:**

- Changing the definition of ‘rupture’ as recommended by PHMSA staff during this meeting and as presented in the slides.
- Eliminate the prescriptive 10-minute rupture identification requirement.
- **Requiring that valves be closed “as soon as practicable” within 30 minutes.**
- Allowing manual valves in non-HCA Class 1 locations only to exceed the 30-minute closure time requirement if the operator submits a notification and demonstrates that installing an ASV or RCV is economically, technically, or operationally infeasible.
- Revising applicable sections to eliminate duplication and improve readability.



# Rupture Mitigation

§§ 192.3, 192.615(a)(6), 192.620, 192.634(c) and (e), & 192.935(c)(1)

## Public Comment



# Rupture Mitigation

§§ 192.3, 192.615(a)(6), 192.620, 192.634(c) and (e), & 192.935(c)(1)

## GPAC Discussion



# Rupture Mitigation

§§ 192.3, 192.615(a)(6), 192.620, 192.634(c) and (e), & 192.935(c)(1)

## Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to rupture mitigation, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Changing the definition of ‘rupture’ as recommended by PHMSA staff during this meeting and as presented in the slides.
- Eliminating the prescriptive 10-minute rupture identification.
- Requiring that valves be closed “as soon as practicable” within 30 minutes.
- Allowing manual valves in non-HCA Class 1 locations only to exceed the 30-minute closure time requirement if the operator submits a notification and demonstrates that installing an ASV or RCV is economically, technically, or operationally infeasible.
- Revising applicable sections to eliminate duplication and improve readability.

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# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

- **PHMSA PROPOSED to:**

- Require ASVs, RCVs, or equivalent technology on newly constructed or entirely replaced pipelines  $\geq 6$  inches in diameter.
- Specify requirements for valve shutoff capability and methods, monitoring and operation capabilities, and monitoring shutoff valve status.
- Provide a means for notifying PHMSA of the use of manual valves or “other technology.”
- Modify IM requirements to provide for the additional protection of HCA pipeline segments to assure the timely termination and mitigation of rupture events by complying with the design, operation, testing, maintenance and rupture mitigation requirements §§ 192.615(a)(6), 192.634, and 192.745.
- Implement new construction and replacement requirements 12 months following effective date.





# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## General – Public Comments:

- Reorganize valve requirements:
  - Consider section for new construction and section for pipe replacement.
  - Minimize cross-references and duplication between sections.
  - Clarify apparently conflicting requirements created by cross-references (e.g., cross references between §§ 192.179 and 192.634 create confusion on the applicability of requirements for Class 1 and 2 non-HCA locations).
  - Create scope statements in rule sections to simplify and clarify applicability.

## PHMSA Response:

- PHMSA will consider these comments to improve understanding and readability of the final rule.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## General – Public Comments:

- PHMSA Notifications
  - Streamline notification for consistency with § 192.18.
  - Clarify notification process and information required by PHMSA for “other technology” requests within § 192.179 for applicability.
  - PST requests that PHMSA clarify criteria or standards needed to justify “other technology” determinations and equivalent level of safety for notifications.
  - Clarify 90-day notification period with “no objection” assumption at 91 days.

## PHMSA Response:

- PHMSA will consider these comments to improve understanding and readability of the final rule. PHMSA will incorporate § 192.18 into the final rule where appropriate.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## General – Public Comments:

- Provide additional definition or further clarification for the terms “shutoff segment” and “rupture mitigation valve” and use them consistently throughout.
- One operator recommended consolidating terms associated with rupture mitigation valves and valve shutoff methods.

## PHMSA Response:

- PHMSA will consider these comments to improve understanding and readability of the final rule.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## General – Public Comments:

- Commenters requested that PHMSA exempt low stress pipelines (MAOP below 30% SMYS) based on this threshold being generally accepted indicator of when a pipeline will generally experience a rupture rather than a leak.

## PHMSA Response:

- Pipelines operating below 30% SMYS have ruptured in the past and is not a guarantee that the pipe cannot rupture.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## General – Public Comments:

- The Associations requested that PHMSA exempt pipelines with PIR <150 feet. Pipeline diameter alone is not an accurate indicator of the potential consequences of a pipeline rupture based on:
  - Many 6”, 8”, 10”, and even 12” pipelines operate at low pressures such that the impact of a pipeline rupture would be minimal. PIR reflects both pipeline size and operating pressure and is therefore a better measure of potential consequence than diameter alone.
  - The recently published MAOP reconfirmation rule used a PIR of ≤150 ft. to establish less stringent requirements for MAOP reconfirmation and pressure reductions.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## PHMSA Response:

- PHMSA notes that even though the MAOP reconfirmation rule has less stringent requirements for pipelines with PIR of  $\leq 150$  ft., those pipelines were not completely exempted.
- PHMSA believes that all applicable transmission pipelines, regardless of PIR, should have Rupture Mitigation Valves capable of promptly closing to isolate a rupture.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## General – Public Comments:

- Commenters requested a broad exception for Class 1 and 2 locations.

## PHMSA Response:

- PHMSA intended that the proposed rule apply to all new and entirely replaced pipelines in the specified locations and the exemptions requested by commenters would not support the goal of this rulemaking.
- PHMSA notes that § 192.634(a) & (b) would not apply to new and entirely replaced pipelines in Class 1 or 2 locations outside HCAs, but § 192.179 and § 192.610 would apply to all new and entirely replaced pipelines.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## General – Public Comments:

- Commenters requested that PHMSA consider whether it is appropriate to include gathering and, if so, whether it should apply to Type A, Type B, or both.
- Industry trade organizations commented that § 4 of the Act is limited to transmission pipelines only and gathering lines should be exempted.

## PHMSA Response:

- PHMSA intended that the proposed rule apply to Type A Gas Gathering pipelines, but not Type B. PHMSA will clarify the applicability to gas gathering lines in the final rule.





# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Replaced Segment – Public Comments:

- PHMSA should clarify that operators are not required to install new valves when replacing less than two (2) miles of pipe, with the exception of replacements covered by § 192.610.
- Clarify the term “entirely replaced.” Does a 2-mile replacement segment mean valves are required for the entire pipeline or just the 2-mile replaced segment?
- Clarify in § 192.179 that maintenance and integrity management replacements less than two (2) miles (not due to class change under § 192.610) do not require new or upgraded rupture mitigation valves.
- Multiple public commenters request to reduce length to include pipe replacement > 1-mile sections.

(cont.)



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Replaced Segment – Public Comments:

- PST requested that PHMSA reduce applicable pipe replacement length from 2 miles to 600 feet of pipe being replaced within 1,000 continuous feet.

## PHMSA Response:

- PHMSA's intent was to not require addition of valves for small maintenance replacements such as road crossings.
- PHMSA will consider the comments to improve understanding and readability of the final rule with respect to replacement length 2 miles or more.
- PHMSA notes that planning multiple replacement segments in less than two-mile increments in order to circumvent this requirement does not meet the intention of the proposed rule. PHMSA would be receptive to adopting regulatory language to clarify that the rule would apply to **multiple replacements that, in the aggregate, exceed 2 miles within 5 contiguous miles.**



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Valve Technology Comments:

- Modify § 192.634(b) to allow the use of additional technologies and practices.
- Expand list of approved technology to include:
  - Manual valves (normally closed/locked) at crossovers
  - Check valves on the downstream end of shutoff segment
  - Check valves at laterals
  - Locally actuated automatic shutoff valves

## PHMSA Response:

- A valve on **crossover piping that is locked and tagged closed** in accordance with operating procedures **would qualify as a rupture mitigation valve**. PHMSA will revise the final rule accordingly.
- For other types of valves, such as check valves on laterals, PHMSA has already included a mechanism for other technology notifications and will consider each of these on a case-by-case basis.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Valve Technology – Public Comments:

- NTSB requests additional restrictions on the use of manual valves, including PHMSA notification with technical, safety, and feasibility evaluation.
- PST requests to clarify what criteria would be needed to justify use of manual valves based on economically, technically, or operationally infeasible, with emphasis on economically infeasible.

## PHMSA Response:

- PHMSA will consider factors such as closure time, reliability, adequate access to communications and power, terrain, population density, etc. when reviewing notifications from operators using a manual valve.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Integrity Management – Public Comments:

- §192.935(c)(1) & (2) should be deleted since they restate the same requirements from 192.634 and are duplicative.
- §192.935(c)(3) should be deleted because the requirement is already partially addressed by investigations required by §192.617.
- Simplify by using Rupture Mitigation valve terminology rather than ASV and RCV.
- Simplify by requiring that ASVs and RCVs must meet applicable section of Part 192 for Rupture Mitigation valves instead of repeating the requirements.

## PHMSA Response:

- PHMSA will take these comments into consideration to improve understanding and readability of the final rule.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Implementation Period – Public Comments:

- Change implementation period for new construction to 24 months (from 12 months).
- Change the timeframe to activate Rupture Mitigation valves, after completion of construction, from 7 days to 14 days; some commenters asked that this requirement be completely deleted.

## PHMSA Response:

- PHMSA notes that the effective date of the rule would be 6 months after being published and believes that **a 12-month implementation period after the effective date is adequate.**
- PHMSA believes prompt activation of rupture mitigation valves is essential to pipeline safety but that **14 days for activating rupture mitigation valves would be sufficient.**



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

**This concludes the PHMSA response to comments on general topics related to Rupture Mitigation Valves.**

**In light of comments received from the NPRM, PHMSA recommends the Committee consider:**

- Incorporating reporting requirements of § 192.18 into the final rule.
- Specifying that the **proposed rule would not apply to Type B gas gathering pipelines.**
- Revising the final rule to designate a valve on crossover piping that is locked and tagged closed in accordance with operating procedures as a rupture mitigation valve.
- Revising the final rule to address applicability to multiple replacements that, in the aggregate, **exceed 2 miles within 5 contiguous miles.**
- Adding specificity on standards for PHMSA review of ‘other technology’ and manual valve notifications.
- Changing the timeframe to activate Rupture Mitigation valves, after completion of construction, from 7 days to 14 days.



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Public Comment





# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## GPAC Discussion



# Rupture Mitigation Valves

§§ 192.179(e), 192.634(a), (b), (e), & (h), & 192.935(c)

## Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to rupture mitigation valves, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Incorporating reporting requirements of § 192.18 into the final rule.
- Specifying that the proposed rule would not apply to Type B gas gathering pipelines.
- Revising the final rule to designate a valve on crossover piping that is locked and tagged closed in accordance with operating procedures as a rupture mitigation valve.
- Revising the final rule to address applicability to multiple replacements that, in the aggregate, exceed 2 miles within 5 contiguous miles.
- Adding specificity on standards for PHMSA review of ‘other technology’ and manual valve notifications.
- Changing the timeframe to activate Rupture Mitigation valves, after completion of construction, from 7 days to 14 days.

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# Valve Spacing and Location

§§ 192.179(e), 192.634(b) & 192.935(c)

- **PHMSA PROPOSED to:**
  - Require ASVs, RCVs, or equivalent technology on newly constructed or entirely replaced pipelines  $\geq 6$  inches in diameter at specified intervals (**see table on next slide**).
  - Modify IM requirements to specify that rupture mitigation valves installed to protect HCAs must meet the design, operation, testing, maintenance and rupture mitigation requirements §§ 192.615(a)(6), 192.634, and 192.745.



# Rupture Mitigation Valve Spacing

## §§ 192.179(e), 192.634(b) & 192.935(c)

Rupture Mitigation Valve §192.634	
	The distance between Rupture Mitigation valves for each shutoff segment must not exceed:
Class 4	8 miles
Class 3	15 miles
Class 2	20 miles for HCA only
Class 1	20 miles for HCA only
HCAs	HCAs must meet the most restrictive spacing for any class HCA on the shutoff segment



# Valve Spacing

§§ 192.179(e), 192.634(b) & 192.935(c)

## Valve Spacing – Public Comments:

- NTSB requests that PHMSA justify the technical basis for valve spacing intervals.
- PST expressed concern for 15- and 20-mile spacing as too far, especially for large diameter pipelines.
- PST requests clarification that new valve spacing requirements would be equal to or more stringent than currently required valves.

## PHMSA Response:

- PHMSA believes the NPRM spacing is appropriate. Experience gained from “one class bump” regulation for MAOP determination due to a class location change (§ 192.611) supports the proposed approach.



# Valve Spacing

§§ 192.179(e), 192.634(b) & 192.935(c)

## Valve Spacing – Public Comments:

- Consolidate valve spacing requirements into a single part.
- Clarify that if replacements for § 192.634(b) applies, that § 192.179 valve spacing does not apply.

## PHMSA Response:

- PHMSA will consider the comments and Committee recommendations to improve readability of the final rule.



# Valve Spacing

§§ 192.179(e), 192.634(b) & 192.935(c)

## Valve Spacing – Public Comments:

- With respect to Rupture Mitigation valves on laterals, clarify if the 5% volume contribution for determining placement of valves on laterals is based on flow rate or total volume.

## PHMSA Response:

- PHMSA confirms total volume was intended, not volumetric flow rate.



# Valve Spacing

§§ 192.179(e), 192.634(b) & 192.935(c)

## Valve Spacing – Public Comments:

- Revise § 192.179 to clarify that Class 1 and Class 2 locations outside of HCAs do not require Rupture Mitigation valves unless the replacement project involves a valve (i.e., “opportunistic” approach).

## PHMSA Response:

- The Rupture Mitigation valving requirements in Class 1 and 2 locations were intended to only apply to new construction and those replacement projects, two miles or greater in length, involving a valve (as the commenter stated an “opportunistic” approach.) This is unlike the requirements affecting Class 3 and 4 locations and HCA’s which require upstream and downstream automated valves for new construction and two-plus-mile replacements, regardless of whether the project involves a valve installation.
- Therefore, PHMSA agrees with the commenter and will clarify in the final rule that Class 1 and Class 2 locations outside of HCAs do not require Rupture Mitigation valves unless the replacement project involves a valve (i.e., “opportunistic” approach).





# Valve Spacing

§§ 192.179(e), 192.634(b) & 192.935(c)

## Valve Spacing - Public Comments:

- Clarify cross-references in §§ 192.179 and 192.634 to clarify applicability for Class 1 and Class 2 pipelines.

## PHMSA Response:

- §192.634(b) is not intended to apply to Class 1 and Class 2 pipelines outside HCAs. PHMSA will consider the comments to clarify requirements for Class 1 and 2 locations outside of HCAs and improve readability of the final rule and specify that spacing requirements in § 192.634 apply to replacement projects covered by § 192.179.



# Valve Location

§§ 192.179(e), 192.634(b) & 192.935(c)

## Valve Location Comments:

- Explicitly state in § 192.634(b) that the shutoff segment must contain the new or replaced Class 3, 4, or HCA segment.
- Clarify that no downstream Rupture Mitigation valve is required at the termination of a pipeline.

## PHMSA Response:

- PHMSA intends that the shutoff segment contains the entire new or replaced Class 3, 4, or HCA segment and will clarify in the final rule.
- Rupture Mitigation valves would not be required at the downstream termination if it is within the required spacing distance of the upstream Rupture Mitigation valve and PHMSA will clarify in the final rule.



# Valve Location

§§ 192.179(e), 192.634(b) & 192.935(c)

## Valve Location - Public Comments:

- Clarify that operational block valves are permitted within a shutoff segment.
- Clarify that the Rupture Mitigation valve need not be the nearest valve to the shutoff segment.

## PHMSA Response:

- PHMSA intended that operational block valves be permitted within a shutoff segment and Rupture Mitigation valves need not be the nearest valve to the shutoff segment. PHMSA will consider these comments to improve readability of the final rule.



# Valve Status Monitoring

## § 192.634(f) & (g)

- **PHMSA PROPOSED to:**
  - Require monitoring or control of Rupture Mitigation valves by remote or onsite personnel, including valve status, upstream and downstream pressure, and flow rates during normal, abnormal, and emergency operations.
  - Monitor valve status during a rupture event.



# Valve Status Monitoring

## § 192.634(f) & (g)

### Valve Status Monitoring – Public Comments:

- Clarify remote monitoring of ASV status is not required.
- Where valve status is not available, allow either pressure OR flow monitoring in lieu of valve status.
- Clarify if remote flow/pressure monitoring is required for manual Rupture Mitigation valves following closure.
- Remove the requirement for continuous monitoring at the site of a manual Rupture Mitigation valve for best use of operator personnel.

### PHMSA Response:

- PHMSA believes that the ability to monitor ASV and RCV valve position, upstream pressure, and downstream pressure is important for effective identification of ruptures and incident mitigation. In the case of manual valves, the ability to monitor upstream and downstream pressures and flow rates is equally important. **Similar to manual valves, ASV status need not be monitored if the operator can monitor pressures OR flows to be able to identify and locate a rupture.** PHMSA will clarify this in the final rule.



# Valve Spacing, Location, Status Monitoring

## §§ 192.179(e), 192.634(b), (f), (g) & 192.935(c)

- **This concludes the PHMSA response to comments on general topics related to Rupture Mitigation Valve Spacing, Location, and Status Monitoring.**
- **In light of comments received from the NPRM, PHMSA recommends the Committee consider:**
- Revising the rule to clarify that replacement projects in Class 1 and Class 2 locations outside of HCAs do not require rupture mitigation valves unless the replacement project involves a valve (i.e., “opportunistic” approach).
- Specifying that §192.634(b) does not apply to Class 1 and Class 2 pipelines outside HCAs and that spacing requirements in § 192.634 apply to replacement projects covered by § 192.179.
- Specifying in § 192.634(b) that the shutoff segment must contain the new or replaced Class 3, 4, or HCA segment. (cont.)



# Valve Spacing, Location, Status Monitoring

§§ 192.179(e), 192.634(b), (f), (g) & 192.935(c)

- **This concludes the PHMSA response to comments on general topics related to Rupture Mitigation Valve Spacing, Location, and Status Monitoring.**
- **In light of comments received from the NPRM, PHMSA recommends the Committee consider:**
- Specifying that rupture mitigation valves would not be required at the downstream termination of the pipeline.
- Specifying that operational block valves be permitted within a shutoff segment and rupture mitigation valves need not be the nearest valve to the shutoff segment.
- Specifying that ASV status need not be monitored if the operator can monitor pressures OR flows to be able to identify and locate a rupture (similar to manual valves).



# Valve Spacing, Location, Status Monitoring

## §§ 192.179(e), 192.634(b), (f), (g) & 192.935(c)

# Public Comment





# Valve Spacing, Location, Status Monitoring

## §§ 192.179(e), 192.634(b), (f), (g) & 192.935(c)

# GPAC Discussion



# Valve Spacing, Location, Status Monitoring

## §§ 192.179(e), 192.634(b), (f), (g) & 192.935(c)

### Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to valve spacing, location, and status monitoring, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Revising the rule to clarify that replacement projects in Class 1 and Class 2 locations outside of HCAs do not require rupture mitigation valves unless the replacement project involves a valve (i.e., “opportunistic” approach).
- Specifying that §192.634(b) does not apply to Class 1 and Class 2 pipelines outside HCAs and that spacing requirements in § 192.634 apply to replacement projects covered by § 192.179.
- Specifying in § 192.634(b) that the shutoff segment must contain the new or replaced Class 3, 4, or HCA segment.

(cont.)



# Valve Spacing, Location, Status Monitoring

## §§ 192.179(e), 192.634(b), (f), (g) & 192.935(c)

### Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to valve spacing, location, and status monitoring, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Specifying that rupture mitigation valves would not be required at the downstream termination of the pipeline.
- Specifying that operational block valves be permitted within a shutoff segment and rupture mitigation valves need not be the nearest valve to the shutoff segment.
- Specifying that ASV status need not be monitored if the operator can monitor pressures OR flows to be able to identify and locate a rupture (similar to manual valves).



# Class Location Changes

## § 192.610

- **ISSUE:** Conforming changes needed to address the existing class location requirements when future class location changes that require pipe replacement.
- **BASIS:** Requirements for rupture mitigation valves are intended to apply to pipe replacement projects resulting from future class location changes.
- **PHMSA PROPOSED to:**
  - If class change after effective date results in pipe replacement, then valves meeting §§ 192.179 and 192.634 must be installed as part of the replacement project.
  - Install rupture mitigation valves within 24 months after the class location change.



# Class Location Changes

## § 192.610

### Class Location - Public Comments:

- Industry commented that proposed § 192.610 would shift resources towards a minimal amount of pipeline mileage and would inhibit higher-value, system-wide safety enhancements and recommended:
  - Allow operators to automate existing valves instead of installing new valves for pipe replacements between 2,000 ft and 2 miles (distance between valves not to exceed 20 miles, i.e., Class 1 spacing).
  - For pipe replacements  $\geq 2$  miles, valve spacing required by § 192.179 and § 192.634, as appropriate, would apply.
  - Exclude short pipe replacements less than 2,000 feet.



# Class Location Changes

## § 192.610

### PHMSA Response:

- Valve spacing proposed in § 192.634 would be applicable to class location changes under § 192.610.
- PHMSA intends to clarify exclusion for small pipeline replacements less than 1,000 ft. within one contiguous mile.
- For pipe replacements due to Class Location between 1,000 ft and 2 miles, PHMSA believes that operators should be allowed to automate existing valves with RCVs/ASVs and pressure sensors (with maximum spacing of 20 miles) consistent with the operational capability specified in § 192.634. PHMSA will modify the final rule accordingly.



# Class Location Changes

## § 192.610

**This concludes the PHMSA response to comments on general topics related to Class Location changes.**

**In light of comments received from the NPRM, PHMSA recommends the Committee consider:**

- Valve spacing proposed in § 192.634 would be applicable to class location changes under § 192.610.
- Excluding pipeline replacements less than 1,000 ft. within one contiguous mile.
- For pipe replacements due to Class Location between 1,000 ft and 2 miles, allowing operators to automate existing valves with RCVs/ASVs and pressure sensors (with maximum spacing of 20 miles) consistent with the operational capability specified in § 192.634.



# Class Location Changes

## § 192.610

# Public Comment





# Class Location Changes

## § 192.610

### GPAC Discussion



# Class Location Changes

§ 192.610

## Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to rupture mitigation valves for class location changes, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Valve spacing proposed in § 192.634 would be applicable to class location changes under § 192.610.
- Excluding pipeline replacements less than 1,000 ft. within one contiguous mile.
- For pipe replacements due to Class Location between 1,000 ft and 2 miles, allowing operators to automate existing valves with RCVs/ASVs and pressure sensors (with maximum spacing of 20 miles) consistent with the operational capability specified in § 192.634.

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# Maintenance Requirements

## § 192.745(c), (d), & (e)

- **ISSUE:** Rupture mitigation valve performance must be highly reliable to assure the safety goal of prompt rupture isolation.
- **BASIS:** Address issues identified in public workshop (March 2012) and R&D forum (July 2012) that impact rupture mitigation valve performance.



# Maintenance Requirements

§ 192.745(c), (d), & (e)

- **PHMSA PROPOSED to:**
  - Require point-to-point verification for RCV and ASV Rupture Mitigation valves.
  - Require drills to establish and test 40-minute maximum response time with subsequent lessons learned and remedial actions.
  - Repair and remediate inoperable valves within 6 months following a failed drill. Temporary alternate compliant valves designated within 7 days of a failed drill.



# Maintenance Requirements

## § 192.745(c), (d), & (e)

### Maintenance – Public Comments:

- Remove duplicative requirement in § 192.745(c) to conduct point-to-point testing (it is already required in the control room management requirements at § 192.631).

### PHMSA Response:

- PHMSA concurs that the point-to-point testing is addressed in the CRM regulations and will consider deleting this requirement [§ 192.745(c)] in the final rule.



# Maintenance Requirements

## § 192.745(c), (d), & (e)

### Maintenance – Public Comments:

- Operators request the following changes/clarifications regarding drills:
  - Clarify that ASV and RCV are excluded from annual drills.
  - Be more specific regarding random selection requirements.
  - Annual drills not required for every manual valve.

### PHMSA Response:

- PHMSA intended that annual drills apply to manually-operated valves (either by manual operation of a local actuator or mechanically closed by hand-wheel) and will clarify this in the final rule.
- Random selection methodology would be determined in operator procedures and subject to inspection.
- PHMSA confirms that annual drills would be required for one randomly selected manual valve in each of the operator's field work units (not every valve).



# Maintenance Requirements

## § 192.745(c), (d), & (e)

### Maintenance – Public Comments:

- Operators request the following changes/clarifications regarding drills:
  - Clarify that valves do not need to be fully closed during drills.
  - Tabletop drills may be used to satisfy response time drills.

### PHMSA Response:

- Regarding partial closure during drills, PHMSA would consider 25% valve closure as successful completion of the response time validation drill.
- PHMSA does not believe tabletop drills are adequate to verify response times for manually operated valves.



# Maintenance Requirements

## § 192.745(c), (d), & (e)

### Maintenance – Public Comments:

- Operators request the following changes/clarifications regarding maintenance/repair timeframes:
  - When a drill indicates that a rupture-mitigation valve does not meet the performance requirements, operators requested extension of timeframe revise response effort to achieve compliance from 6 to 12 months.
  - Multiple operators requested extension of timeframe to repair or replace inoperable valves from 6 to 12 months.
  - Multiple operators requested extension of the 7-day timeframe to identify appropriate alternative compliant valves (when response time cannot be validated or valves are inoperable), suggesting 10, 14, or 30 days.
  - Allow a notification process to inform PHMSA when timeframes are not practicable.

[cont.]





# Maintenance Requirements

## § 192.745(c), (d), & (e)

- Clarify that alternate compliance valves (i.e., valves that comply with shutoff time requirement) would not be required to comply with the spacing requirement.

### PHMSA Response:

- PHMSA believes a 7-day timeframe to identify alternative shutoff measures and a 6-month timeframe for valve repair are appropriate.
- PHMSA will consider allowing notification by operators that justify a need to extend the timeframes.
- PHMSA did not intend that alternate compliant valves comply with spacing requirements; however they would be required to contain the entire shutoff segment and comply with established closure timeframes. PHMSA will clarify in the final rule.



# Maintenance Requirements

## § 192.745(c), (d), & (e)

### Maintenance – Public Comments:

- PST expressed support for proposed maintenance requirements.
- Clean Air Council requests that drills be enhanced to include regular, periodic personnel training and management provisions.
- Clean Air Council requests that maintenance requirements be enhanced to cover valve-related specialized equipment (e.g., electrical, communications).

### PHMSA Response:

- With respect to personnel training and specialized equipment, PHMSA notes that those topics are covered under other facets of pipeline safety regulations (OQ, CRM, etc.).



# Failure Investigation

## § 192.617

- **ISSUE:** Improve operator use and evaluation of incident response data and lessons learned, including additional preventive and mitigative measures, to improve incident response and rupture isolation times.
- **BASIS:** GAO-13-168
- **PHMSA PROPOSED to:**
  - Formalize post-incident procedures for investigation of rupture incidents, analysis of rupture and valve shutoff events, and effectiveness of rupture mitigation performance.
  - Identify and implement lessons learned including rupture mitigation operating procedures and additional P&M measures such as automatic or remote-control valves.



# Failure Investigation

## § 192.617

### Failure Investigation – Public Comments:

- Use defined terms (remove “failure” in favor of “incident”).
- Remove proposed § 192.617(d), failure investigations, because it duplicates incident reporting requirements.

### PHMSA Response:

- PHMSA will consider the comments to clarify terminology and improve readability of the final rule but notes that existing rule addresses investigation of failures which is broader than reportable incidents.
- PHMSA does not consider this a duplicative requirement, as this is intended to build on existing requirements and be a deeper, technical evaluation of valve functionality and performance during incident mitigation. PHMSA intended that failures, as defined in ASME B31.8S, involving rupture mitigation valves be investigated.





# Failure Investigation

## § 192.617

### Failure Investigation – Public Comments:

- Clarify which incident investigation requirements apply to gas distribution lines.
- Associations support lessons learned for gas distribution pipelines.

### PHMSA Response:

- PHMSA intended that § 192.617 (a) and (b), general failure investigations, build on the existing requirements in § 192.617 and apply to distribution lines and would clarify in the final rule. Paragraphs (c) and (d) address failure investigations specific to rupture mitigation valves and would not apply to distribution lines, since rupture mitigation valves would not be required for distribution systems. PHMSA will clarify this in the final rule.



# Failure Investigation

§ 192.617

## Failure Investigation – Public Comments:

- PST requests clarification if lessons learned requirements for rupture incident and valve closures should be treated equally.

## PHMSA Response:

- PHMSA intends that both events require investigation and evaluation.



# Failure Investigation

§ 192.617

## Failure Investigation – Public Comments:

- Only require senior executive official certification of the final report.
- Remove requirements for senior executive official certification of report.
- Remove risk analysis certification by senior executive officer based on lack of hands-on involvement with risk assessment (subjective decision vs. fact-based assertion).

## PHMSA Response:

- PHMSA believes that senior executive official certification is essential to assuring quality and highlighting the importance of the investigation results.

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# Failure Investigation

§ 192.617

## Failure Investigation – Public Comments:

- Move training requirements to applicable part for emergency response training.

## PHMSA Response:

- PHMSA believes it is important to specify that lessons learned from incident investigations and drills be factored into training programs.



# Maintenance & Failure Investigation

§§ 192.617, 192.745(c), (d), & (e)

**This concludes the PHMSA response to comments on general topics related to Maintenance and Failure Investigation.**

**In light of comments received from the NPRM, PHMSA recommends the Committee consider:**

- Deleting the requirement for point-to-point testing from § 192.745(c) (duplicates requirements in the control room management at § 192.631).
- Clarifying that implementation of lessons learned and additional P&M measures after incidents are required only where reasonable and practicable.
- Clarifying that annual drills apply to manually-operated valves only (either by manual operation of a local actuator or by hand), not to ASVs or RCVs.
- Specifying that 25% valve closure is sufficient to demonstrate successful completion of the response time validation drill.

(cont.)



# Maintenance & Failure Investigation

§§ 192.617, 192.745(c), (d), & (e)

**This concludes the PHMSA response to comments on general topics related to Maintenance and Failure Investigation.**

**In light of comments received from the NPRM, PHMSA recommends the Committee consider:**

- Allowing notification by operators that justify a need to extend the timeframes for repair and establishing alternate rupture mitigation valves.
- Specifying that alternate compliant valves would not be required to comply with spacing requirements.
- Specifying that § 192.617 (a) and (b), general failure investigations, would apply to distribution lines and paragraphs (c) and (d), failure investigations specific to rupture mitigation valves, would not apply to distribution lines.



# Maintenance Requirements & Failure Investigation

## § 192.617, 192.745(c), (d), & (e)

# Public Comment



# Maintenance Requirements & Failure Investigation

## § 192.617, 192.745(c), (d), & (e)

# GPAC Discussion



# Maintenance Requirements & Failure Investigation

§ 192.617, 192.745(c), (d), & (e)

## Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to maintenance requirements and failure investigations, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Deleting the requirement for point-to-point testing from § 192.745 (duplicates requirements in the control room management at § 192.631).
- Clarifying that implementation of lessons learned and additional P&M measures after incidents are required only where reasonable and practicable.
- Clarifying that annual drills apply to manually-operated valves only (either by manual operation of a local actuator or by hand), not to ASVs or RCVs.
- Specifying that 25% valve closure is sufficient to demonstrate successful completion of the response time validation drill. (cont.)

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# Maintenance Requirements & Failure Investigation

§ 192.617, 192.745(c), (d), & (e)

## Committee Voting Slides – (Continued)

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to maintenance requirements and failure investigations, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Allowing notification by operators that justify a need to extend the timeframes for repair and establishing alternate rupture mitigation valves.
- Specifying that alternate compliant valves would not be required to comply with spacing requirements.
- Specifying that § 192.617 (a) and (b), general failure investigations, would apply to distribution lines and paragraphs (c) and (d), failure investigations specific to rupture mitigation valves, would not apply to distribution lines.



# Communications with 9-1-1

## §§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

- **ISSUE:** NTSB recommendation P-11-9 calls for PHMSA to require that natural gas transmission and distribution control room operators immediately and directly notify local 9-1-1 emergency call center(s) when a rupture is indicated.
- **BASIS:** Multiple incidents with untimely first emergency response because operators did not promptly notify the applicable 9-1-1 emergency call center.





# Communications with 9-1-1

§§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

- **PHMSA PROPOSED to:**
  - Require gas pipeline operators to contact the appropriate public safety answering point (9-1-1 emergency call center) after the operator determines a rupture has occurred.
  - Establish and maintain liaison with public safety 9-1-1 answering point as well as fire, police, and other public officials.



# Communications with 9-1-1

§§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

## Public Comments:

- NTSB and PST reminded PHMSA that recommendation P-11-9 calls for all gas transmission and distribution pipelines to be required to contact 9-1-1 to report a pipeline rupture. Specifically, the NPRM's clarifications could possibly exclude some ruptures, such as systems or portions of systems which do not contain "Rupture Mitigation" valves, from the notification requirement.
- Industry associations support PHMSA requiring distribution pipeline operators to liaise with and notify public safety answering points.

## PHMSA Response:

- PHMSA did not intend to include any exceptions, including for lines where rupture mitigation valve closure is **not** implemented.
- PHMSA will clarify in the final rule that this provision applies to all potential ruptures.



# Communications with 9-1-1

## §§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

### Public Comments:

- Remove redundancy in emergency response requirements. Limit § 192.615(a)(2) to emergency preparedness activities and § 192.615(a)(8) to emergency response activities.

### PHMSA Response:

- PHMSA will consider these comments to improve readability of the final rule.



# Communications with 9-1-1

## §§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

### Public Comments:

- Include provisions for pipelines not located within 9-1-1 areas or that have no public safety answering points.

### PHMSA Response:

- PHMSA will consider any Committee recommendation and address this circumstance in the final rule.



# Communications with 9-1-1

§§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

## Public Comments:

- Allow operators to liaise with appropriate local emergency coordinating entities as a means to communicate with first responders.
- Revise liaison audience to more specific, actionable criteria (i.e. agencies with primary jurisdiction for a pipeline incident).
- Allow emergency planning and response coordination with lead agency if recognized by state and local law.

## PHMSA Response:

- PHMSA did not propose amending long-standing requirements about interfacing with local fire, police and other public officials. PHMSA's proposed rule was to simply add the explicit requirement to call 9-1-1 (when applicable) after notification of a potential rupture.
- Operators may establish liaison with the appropriate local emergency response coordinating agencies, such as 9-1-1 emergency call centers or county emergency managers, in lieu of communicating individually with each fire, police, or other public entity. PHMSA will clarify this in the final rule.



# Communications with 9-1-1

§§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

**This concludes the PHMSA response to comments on general topics related to Communications with 9-1-1.**

**In light of comments received from the NPRM, PHMSA recommends the Committee consider:**

- Stating that communication with 9-1-1 applies to all ruptures, without exception.
- Limiting § 192.615(a)(2) to emergency preparedness activities and § 192.615(a)(8) to emergency response activities.
- Including provisions for pipelines not located within 9-1-1 areas or that have no public safety answering points.
- Stating that operators may establish liaison with the appropriate local emergency response coordinating agencies, such as 9-1-1 emergency call centers or county emergency managers, in lieu of communicating individually with each fire, police, or other public entity.



# Communications with 9-1-1

§§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

## Public Comment



# Communications with 9-1-1

§§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

## GPAC Discussion





# Communications with 9-1-1

§§ 192.615(a)(2), (a)(6), (a)(8), (a)(11), & (c)

## Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to communications with 9-1-1, are technically feasible, reasonable, cost-effective, and practicable, if the following changes are made:

- Stating that communication with 9-1-1 applies to all ruptures, without exception.
- Limiting § 192.615(a)(2) to emergency preparedness activities and § 192.615(a)(8) to emergency response activities.
- Including provisions for pipelines not located within 9-1-1 areas or that have no public safety answering points.
- Stating that operators may establish liaison with the appropriate local emergency response coordinating agencies, such as 9-1-1 emergency call centers or county emergency managers, in lieu of communicating individually with each fire, police, or other public entity.



# Committee Report

## Committee Voting Slides

The transcript of this meeting (duly recorded and accurately transcribed), together with the presentation slides documenting the committee's votes during this meeting, represent the report of this proceeding.



# Any Questions

