

# Valve Installation and Minimum Rupture Detection Standards

Hazardous Liquid Pipeline Advisory Committee

RIN: 2137-AF06

Docket: PHMSA - 2013 – 0255

July 23, 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.
- **97 reported HL pipeline accidents** from 2006-2019 resulting in 380,627 bbl (~16 million gal.) spilled.
- **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.
- **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.



# Brief History of Valve Rule

- **PHMSA issues hazardous liquid ANPRM** on October 18, 2010, seeking public comment on 6 topics (56 questions). PHMSA received comments from 21 entities. Specific to valves, the ANPRM included 2 topics (23 questions).
- **Pipeline Safety Act of 2011** was issued on January 3, 2012; includes several mandates related to gas and hazardous liquid pipeline regulation. 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.

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# 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 (GAO) 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 Hazardous Liquid 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 rupture identification and response times
4. Strengthen accident investigation requirements



# High Level Summary of Valve Rule

**PHMSA proposed rule changes in the following areas for Hazardous Liquid pipelines:**

5. Define spacing requirements for mainline block valves
6. Require installation of Rupture Mitigation valves for newly constructed or 2+ mile replacement pipelines greater than 6-inch diameter
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 Hazardous Liquid 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 EFRD 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. Maintenance**
- J. Failure Investigations**
- K. 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:

- 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:

- Since 2002, HL pipeline operators must evaluate and install leak detection systems for high consequence areas.
- In addition, new requirements in § 195.444 were promulgated in October 2019 to require that all HL pipelines have an effective system for detecting leaks in accordance with §§195.134 or 195.452, as appropriate.
- Also, HL pipelines must patrol for leaks every 3 weeks in accordance with § 195.412.
- PHMSA will monitor these requirements and leakage detection technology improvements to assure that current requirements adequately address the risk of leaks on HL lines.



# 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.
  - Revise the PRIA to account for recent energy industry hardships as a result of COVID-19.
  - Clarify if the PRIA includes costs for regulated rural 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



# HL Gathering Miles

Year	Non-rural	Rural
2015	1,759	1,744
2019	2,532	1,959
2019-2015	773	215
Per Year	155	43



# Baseline Estimate of Annual Valve Installation in New and Replaced HL Pipelines $\geq 6$ -inches 2015-2019

<b>Estimated Total New and Replaced Pipeline (miles)</b>	4,866
<b>Estimated Total New and Replaced Pipeline <math>\geq 6</math> inches (miles)</b>	4,708
<b>Valves Installed</b>	673
<b>Valve Upgrades for Rule Compliance</b>	269

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# 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

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# 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
  - Maintenance Requirements
  - Failure Investigations
  - Communications with 9-1-1



# Rupture Mitigation

§§ 195.2, 195.258(c), 195.260(c), (e), (g), & (h), 195.402(e)(4),  
195.418, & 195.452(i)(4)

- **ISSUES:**

- Section 4 of the Pipeline Safety Act of 2011 requires regulatory action if deemed economically, technically, and operationally feasible to require ASVs or RCVs for hazardous liquid and natural gas transmission lines.
- 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 (17 hr.) experienced in the 2010 Enbridge accident in Marshall, MI.



# Rupture Mitigation

§§ 195.2, 195.258(c), 195.260(c), (e), (g), & (h), 195.402(e)(4),  
195.418, & 195.452(i)(4)

- **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 hazardous liquid and CO<sub>2</sub> 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.





# Rupture Definition

## § 195.2

### 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.’
- Align definition of rupture with accident report definition.

(cont.)



# Rupture Definition

## § 195.2

### Rupture Definition - Public Comments:

- Define ‘*rupture*’ to mean the bursting, breaking, or splitting of a pipeline that immediately impairs its operation and results in an uncontrolled, large volume release of hazardous liquid or carbon dioxide.
- Define ‘*rupture identification*’ to mean that a pipeline operator has sufficient information to reasonably determine that a rupture occurred.
- Adjust definition of rupture to account for technically infeasible detection sensitivities.



# Rupture Definition

## § 195.2

### 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 § 195.2

## 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 hazardous liquid or CO<sub>2</sub> from a pipeline:

(1) A release of hazardous liquid or CO<sub>2</sub> 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 (**pressure, flow rate, or volume**) caused by fluctuations in hazardous liquid or CO<sub>2</sub> 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

§ 195.402(e)(4)

## 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.

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# 40-Min. Valve Closure Timeframe

§ 195.418(c), (e), & (f)

## 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.

(cont.)



# 40-Min. Valve Closure Timeframe

§ 195.418(c), (e), & (f)

## 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 for any HL pipeline.



# 40-Min. Valve Closure Timeframe

§ 195.418(c), (e), & (f)

## PHMSA Response:

- PHMSA believes that a 40-min. standard is achievable improvement (compared to recent rupture isolation performance during reportable accidents).
- 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 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.





# 40-Min. Valve Closure Timeframe

§ 195.418(c), (e), & (f)

## 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

§ 195.418(c), (e), & (f)

## 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.



# GPAC Valve Rule Vote July 22, 2020

This topic was also considered and evaluated by the GPAC. To facilitate the discussion of the LPAC, the GPAC approved language is as follows. PHMSA has also revised its recommendations based on this new input. Blue text contains recommendations that are or could be applicable to liquid lines.

- 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 “of operator identification of a rupture.” Operators must document a method for rupture identification in their procedure manual.
- PHMSA will consider allowing valves to remain open during emergency situations as discussed during the meeting and as presented in the slides. PHMSA will review the issue of allowing certain valves to remain open during emergency situations based on the committee discussion and public comments and ensure that the integrity of the rule is not compromised and would minimize environmental damage.
- Allowing manual valves in non-HCA **Class 1** locations only to exceed the 30-minute closure time requirement if the operator submits a notification, demonstrates that installing an ASV or RCV is economically, technically, or operationally infeasible, and provides a specific closure time.
- Revising applicable sections to eliminate duplication and improve readability.



# Rupture Mitigation

§§ 195.2, 195.258(c), 195.260(c), (e), (g), & (h), 195.402(e)(4), 195.418, & 195.452(i)(4)

**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.
- Eliminating the prescriptive 10-minute rupture identification req.
- **Requiring that valves be closed “as soon as practicable” within 30 minutes “of operator identification of a rupture.”** Operators must document a **method for rupture identification in their procedure manual.**
- Allowing manual valves, in non-HCA remote 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

§§ 195.2, 195.258(c), 195.260(c), (e), (g), & (h), 195.402(e)(4), 195.418, & 195.452(i)(4)

## Public Comment



# Rupture Mitigation

§§ 195.2, 195.258(c), 195.260(c), (e), (g), & (h), 195.402(e)(4), 195.418, & 195.452(i)(4)

## LPAC Discussion



# Rupture Mitigation

§§ 195.2, 195.258(c), 195.260(c), (e), (g), & (h), 195.402(e)(4), 195.418, & 195.452(i)(4)

## 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 “of operator identification of a rupture.” Operators must document a method for rupture identification in their procedure manual.
- Allowing manual valves, in non-HCA remote 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

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

- **PHMSA PROPOSED to:**

- Require ASVs, RCVs, or equivalent technology on newly constructed or entirely replaced pipelines greater than 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 specify that EFRDs installed to protect HCAs must meet the design, operation, testing, maintenance and rupture mitigation requirements of §§ 195.258, 195.260, 195.402, 195.418, & 195.420.
- Implement new construction and replacement requirements 12 months following effective date.





# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## General – Public Comments:

- Reorganize valve requirements:
  - Consider section for new construction and section for pipe replacement.
  - Minimize cross-references and duplication between sections and clarify apparently conflicting requirements created by cross-references.
  - Create scope statements in rule sections to simplify and clarify applicability.
  - Provide additional definition or further clarification for the terms “shutoff segment” and “rupture mitigation valve” and use them consistently throughout.

## PHMSA Response:

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



# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## General – Public Comments:

- PHMSA Notifications
  - Streamline notification for consistency with other Part 195 notification requirements.
  - Streamline notification process and information required by PHMSA for “other technology” requests.
  - 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:

- Notification requirements will be streamlined in a similar manner as codified for gas in § 192.18 and comments will be considered to improve readability in final rule.



# Rupture Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## 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

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## General – Public Comments:

- Commenters requested that PHMSA exempt low stress pipelines (MOP 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.
- The Rupture Mitigation valves will also serve an important safety function in mitigating leaks by limiting the leak volume when closed.



# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## General – Public Comments:

- Commenters requested that PHMSA exempt pipeline segments that could not affect HCAs to create the greatest benefit using an HCA-focused approach consistent with the overall risk-based philosophy of Part 195.

## PHMSA Response:

- There are many locations that could experience significant consequences from a spill, such as non-navigable waterway crossings, even though they are not technically HCAs.
- PHMSA notes that §§ 195.258 and 195.260 would apply to all new and entirely replaced pipelines, but that § 195.418(a) & (b) would apply only to new and entirely replaced pipelines that could affect HCAs.



# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## Public Comments:

- Commenters requested that PHMSA consider whether it is appropriate to include regulated gathering lines.
- Industry trade organizations commented that § 4 of the Act is limited to transmission pipelines only and gathering lines should be exempted.

## PHMSA Response:

- Rupture-mitigation valve requirements in §§ 195.258, 195.260, 195.418, and 195.420 are intended to apply to all regulated gathering lines, including regulated rural gathering lines, due to proximity to USAs.
- PHMSA would consider an exemption for regulated rural gathering lines that do not actually cross the body of water (stream, river, or lake) or water source that established the USA.



# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## 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.
- 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 that maintenance replacement less than two (2) miles do not require new or upgraded rupture mitigation valves.
- Multiple public commenters request to reduce length to include pipe replacement > 1-mile sections.



# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## 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 of 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.**

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# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## Replaced Segment – Public Comments:

- Industry organizations requested that segments less than 2,000 continuous feet be exempted from §§ 195.258(a) & (b) and 195.260.
- Allow operators to automate existing valves instead of installing new valves if spacing requirements are met.

## PHMSA Response:

- PHMSA would consider including a notification requirement for requesting exceptions (no objection from PHMSA) on a case-by-case basis for small pipeline replacements less than 1,000 ft. within one contiguous mile.
- PHMSA believes that operators should be allowed to automate existing valves with RCVs/ASVs and pressure sensors, if spacing requirements are met, consistent with the operational capability specified in § 195.418.



# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## Valve Technology – Public Comments:

- Modify § 195.418(b) to allow use of additional technologies and practices.
- The inclusion of requirements proposed for laterals is unnecessary.
- 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 shutoff valves
  - Pump shutoffs with limited drain down

## 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.

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# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## 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

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## Integrity Management – Public Comments:

- Simplify § 195.452(i) by requiring that EFRDs must meet applicable section of Part 195 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

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## Implementation Period – Public Comments:

- Change implementation period for new construction to 24 months (from 12 months).
- Change the timeframe to activate Rupture Mitigation valve 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.**



# GPAC Valve Rule Vote July 22, 2020

This topic was also considered and evaluated by the GPAC. To facilitate the discussion of the LPAC, the GPAC approved language is as follows. PHMSA has also revised its recommendations based on this new input. Blue text contains recommendations that are or could be applicable to liquid lines.

- Incorporating reporting requirements of § 192.18 into the final rule.
- 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 within a 24-month period.
- Adding specificity on standards for PHMSA review of 'other technology' and manual valve notifications. PHMSA will consider check valves as a mitigation technology.
- Changing the timeframe to activate Rupture Mitigation valves, after completion of construction, from 7 days to 14 days.
- PHMSA would consider exceptions for 1) pipelines with SMYS of 30% or less and 2) for all GT/GG lines with a PIR equal to or less than 150 feet, but not those within a Class 4 location, considering cost-benefit issues and while maintaining the integrity of the rule.
- PHMSA would support an exception for Type A gathering lines of 12 inches or less and Type B gathering lines. PHMSA will consider the appropriateness of applying this rulemaking, or a separate rulemaking, to gathering lines due to the lack of public notice.
- PHMSA change the implementation of the rule to 24 months after the publication date.

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# Rupture-Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

**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 (similar to notification requirements § 192.18 for gas pipelines) into the final rule.
- 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 within a 24-month period.**
- Adding specificity on standards for PHMSA review of ‘other technology’ and manual valve notifications.
- Changing the timeframe to activate Rupture Mitigation valve after completion of construction from 7 days to 14 days.
- PHMSA would consider exceptions for pipelines with SMYS of 30% or less considering cost-benefit issues and while maintaining the integrity of the rule.
- PHMSA would consider an exemption for regulated rural gathering lines that do not actually cross the body of water (stream, river, or lake) or water source that established the USA.
- PHMSA would consider change the implementation of the rule to 24 months after the publication date.
- PHMSA would consider the appropriateness of applying this rulemaking, or a separate rulemaking, to gathering lines due to the lack of public notice.



# Rupture Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), (h), & 195.452(i)(4)

## Public Comment





# Rupture Mitigation Valves

§§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), & (h), & 195.452(i)(4)

## LPAC Discussion



# Rupture Mitigation Valves

## §§ 195.258(c), 195.260(c), (e), (g), & (h), 195.418(a), (b), (d), (e), & (h), & 195.452(i)(4) Committee Voting Slides

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

- Incorporating reporting requirements (similar to notification requirements § 192.18 for gas pipelines) into the final rule.
- 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 within a 24-month period.
- Adding specificity on standards for PHMSA review of ‘other technology’ and manual valve notifications.
- Changing the timeframe to activate Rupture Mitigation valve after completion of construction from 7 days to 14 days.
- PHMSA would consider exceptions for pipelines with SMYS of 30% or less considering cost-benefit issues and while maintaining the integrity of the rule.
- PHMSA would consider an exemption for regulated rural gathering lines that do not actually cross the body of water (stream, river, or lake) or water source that established the USA.
- PHMSA would consider change the implementation of the rule to 24 months after the publication date.
- PHMSA would consider the appropriateness of applying this rulemaking, or a separate rulemaking, to gathering lines due to the lack of public notice.

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# Valve Spacing and Location

§§ 195.258(c), 195.260(c), (e), & (g), 195.418(b) & (h), & 195.452(i)(4)

- **PHMSA PROPOSED to:**
  - Require ASVs, RCVs, or equivalent technology on newly constructed or entirely replaced (i.e., 2 miles) pipelines  $\geq 6$  inches in diameter at specified intervals ([see table on next slide](#)).
  - Modify IM requirements to specify that EFRDs installed to protect HCAs must meet the design, operation, testing, maintenance and rupture mitigation requirements of §§ 195.258, 195.260, 195.402, 195.418, & 195.420.



# Valve Spacing

§§ 195.258(c), 195.260(c), (e), & (g), 195.418(b) & (h), & 195.452(i)(4)

	Rupture mitigation valve spacing (§195.418)	Mainline block valve spacing (§195.260)
HCA	15 miles	15 miles
HVL Lines ('High Pop' or 'Other Pop' HCAs)	7 1/2 miles.	7 1/2 miles.
Non-HCA	n/a	20 miles
Water Crossing >100 ft.	n/a	1 mile and located outside of the flood plain or actuators/controls unaffected by flood



# Valve Spacing

§§ 195.258(c), 195.260(c), (e), & (g), 195.418(b) & (h), & 195.452(i)(4)

## 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. Valve spacing proposed in the NPRM was based on ASME B31.4.



# Valve Spacing

§§ 195.258(c), 195.260(c), (e), & (g), 195.418(b) & (h), & 195.452(i)(4)

## Valve Spacing – Public Comments:

- Consolidate valve spacing requirements into a single part.
- Industry organizations did not support the use of prescriptive valve spacing standards for HCAs (15 miles) and non-HCAs (20 miles).
- Multiple industry organizations asked to align spacing for HVL segments with Canadian standards, which allow a 25% tolerance for all valve spacing and allows approx. 10-mile spacing for HVL lines.
- Retain 7.5 mile spacing for HVL segments only in HCAs.

## PHMSA Response:

- PHMSA will consider recommendations to improve readability of the final rule.
- PHMSA believes a minimum standard for mainline valve spacing is appropriate and that the 15-mile (HCA) and 20-mile (non-HCA) standards are reasonable.
- PHMSA would consider adding the **25% tolerance to the spacing for HVL lines and other HL lines in HCAs.**
- PHMSA believes a 20-mile maximum spacing for non-HCA lines is appropriate.

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# Valve Spacing

§§ 195.258(c), 195.260(c), (e), & (g), 195.418(b) & (h), & 195.452(i)(4)

## 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

§§ 195.258(c), 195.260(c), (e), & (g), 195.418(b) & (h), & 195.452(i)(4)

## Valve Spacing – Public Comments:

- Clarify that locations outside of HCA's do not require rupture mitigation valves unless the replacement project involves a valve (i.e., an “opportunistic” approach).

## PHMSA Response:

- The rupture mitigation valving requirements in non-HCA locations were intended to only apply to new construction and those replacement projects, two miles or greater in length, involving a valve. This is unlike the requirements affecting 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, will clarify in the final rule that non-HCA locations do not require rupture mitigation valves unless the replacement project involves a valve (i.e., an “opportunistic” approach).





# Valve Spacing

§§ 195.258(c), 195.260(c), (e), & (g), 195.418(b) & (h), & 195.452(i)(4)

## Valve Spacing – Public Comments:

- Specify a process for operators to ask PHMSA to approve alternative valve spacing distances for those situations where installation of additional valves is demonstrated to provide no additional value to public safety or where installation is infeasible.

## PHMSA Response:

- PHMSA will consider adding a notification requirement to allow operators to obtain valve spacing relief on a case-by-case basis.



# Valve Location

§§ 195.260(c) & (e), 195.418(b) & 195.452(i)(4)

## Valve Location Comments:

- Explicitly state in § 195.418(b) that the shutoff segment must contain the new or replaced 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 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

§§ 195.260(c) & (e), 195.418(b) & 195.452(i)(4)

## Valve Location – Public Comments:

- Multiple commenters, including PST and industry requested clarification of “flood plain” extent for water crossings (using the 100-year flood plain was suggested).
- PST requested clarification of the term “flood conditions.”

## PHMSA Response:

- PHMSA will consider specifying the 100- year flood plain.



# Valve Location

§§ 195.260(c) & (e), 195.418(b) & 195.452(i)(4)

## Valve Location – Public Comments:

- Remove the 1-mile limitation on water crossings or clarify alternatives if the 1-mile location is still within a flood plain.

## PHMSA Response:

- PHMSA's intent was to provide operators flexibility to address multiple water crossings in close proximity with access problems to valves between water crossings. This was based in part on approvals that PHMSA has issued to operators under authority of § 195.260.
- PHMSA will clarify this intent in the final rule.



# Valve Location

§§ 195.260(c) & (e), 195.418(b) & 195.452(i)(4)

## 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 Location

§§ 195.260(c) & (e), 195.418(b) & 195.452(i)(4)

## Valve Location - Public Comments:

- Remove the requirement to locate valves within 7.5 miles of the endpoint of an HCA segment (retain spacing requirements).

## PHMSA Response:

- PHMSA did not intend that this would have the effect of reducing valve spacing. PHMSA was simply reminding operators of the requirement for P&M measures in § 195.452. PHMSA agrees that the requirement to locate valves within 7.5 miles of the endpoint of an HCA segment is unnecessary and will delete it from the final rule.



# Valve Status Monitoring

§ 195.418(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

## § 195.418(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.





# GPAC Valve Rule Vote July 22, 2020

This topic was also considered and evaluated by the GPAC. To facilitate the discussion of the LPAC, the GPAC approved language is as follows. PHMSA has also revised its recommendations based on this new input. Blue text contains recommendations that are or could be applicable to liquid lines.

- 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.)



# GPAC Valve Rule Vote July 22, 2020

This topic was also considered and evaluated by the GPAC. To facilitate the discussion of the LPAC, the GPAC approved language is as follows. PHMSA has also revised its recommendations based on this new input. **Blue text contains recommendations that are or could be applicable to liquid lines.**

- 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

§§ 195.260(c) & (e), 195.418(b), (f), (g) & 195.452(i)(4)

**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:**

- Adding 25% tolerance to the spacing for HVL lines and other HL lines in HCAs.
- Revising the rule to clarify that replacement projects in non-HCA locations do not require rupture mitigation valves unless the replacement project involves a valve (i.e., an “opportunistic” approach).
- Add a notification requirement to allow HL operators to obtain valve spacing relief on a case-by-case basis.
- Specifying in § 195.418(b) that the shutoff segment must contain the new or replaced segment that could affect an HCA. (cont.)



# Valve Spacing, Location, Status Monitoring

§§ 195.260(c) & (e), 195.418(b), (f), (g) & 195.452(i)(4)

**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 100-year flood plain at HL water crossings.
- Specifying that operational block valves would 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

## §§ 195.260(c) & (e), 195.418(b), (f), (g) & 195.452(i)(4)

# Public Comment



# Valve Spacing, Location, Status Monitoring

§§ 195.260(c) & (e), 195.418(b), (f), (g) & 195.452(i)(4)

## LPAC Discussion



# Valve Spacing, Location, Status Monitoring

## §§ 195.260(c) & (e), 195.418(b), (f), (g) & 195.452(i)(4)

### Committee Voting Slides

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

- Adding 25% tolerance to the spacing for HVL lines and other HL lines in HCAs.
- Revising the rule to clarify that replacement projects in non-HCA locations do not require rupture mitigation valves unless the replacement project involves a valve (i.e., an “opportunistic” approach).
- Add a notification requirement to allow HL operators to obtain valve spacing relief on a case-by-case basis.
- Specifying in § 195.418(b) that the shutoff segment must contain the new or replaced segment that could affect an HCA.



# Valve Spacing, Location, Status Monitoring

## §§ 195.260(c) & (e), 195.418(b), (f), (g) & 195.452(i)(4)

### Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to filing reports for 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 100-year flood plain at HL water crossings.
- Specifying that operational block valves would 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).





# Maintenance Requirements

## § 195.420(b), (d), (e), & (f)

- **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

## § 195.420(b), (d), (e), & (f)

- **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

## § 195.420(b), (d), (e), & (f)

### Maintenance – Public Comments:

- Remove duplicative requirement in § 195.420(d) to conduct point-to-point testing (it is already required in the control room management requirements at § 195.446).

### PHMSA Response:

- PHMSA concurs that the point-to-point testing is addressed in the CRM regulations and will consider deleting this requirement [§ 195.420(d)] in the final rule.



# Maintenance Requirements

## § 195.420(b), (d), (e), & (f)

### 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

## § 195.420(b), (d), (e), & (f)

### 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

## § 195.420(b), (d), (e), & (f)

### 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.



# Maintenance Requirements

## § 195.420(b), (d), (e), & (f)

- 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

## § 195.420(b), (d), (e), & (f)

### 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 (i.e. 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

## § 195.402(c)(5)

- **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-accident 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

## § 195.402(c)(5)

### Failure Investigation – Public Comments:

- Use defined terms (remove “failure” in favor of “accident”).
- Remove requirement to investigate accidents and failures [§ 195.402(c)(5)] because it duplicates accident reporting in Part 195, Subpart B.

### PHMSA Response:

- PHMSA will consider the comments to clarify terminology and improve readability of the final rule but notes that investigation of failures (not only reportable accidents) is prudent and important to proactively identify conditions that need to be corrected to avert future accidents.
- 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 involving rupture mitigation valves be investigated.



# Failure Investigation

## § 195.402(c)(5)

### Failure Investigation – Public Comments:

- Specify that implementation of lessons learned and additional P&M measures after accidents are required only where reasonable and practicable.

### PHMSA Response:

- PHMSA agrees that the intent is to implement where reasonable and practical. PHMSA would not expect operators to implement P&M measures that were unreasonable or impractical. PHMSA will clarify this in the final rule.



# Failure Investigation

## § 195.402(c)(5)

### 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

## § 195.402(c)(5)

### 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.



# Failure Investigation

## § 195.402(c)(5)

### 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.



# GPAC Valve Rule Vote July 22, 2020

This topic was also considered and evaluated by the GPAC. To facilitate the discussion of the LPAC, the GPAC approved language is as follows. PHMSA has also revised its recommendations based on this new input. Blue text contains recommendations that are or could be applicable to liquid lines.

- 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.)



# GPAC Valve Rule Vote July 22, 2020

This topic was also considered and evaluated by the GPAC. To facilitate the discussion of the LPAC, the GPAC approved language is as follows. PHMSA has also revised its recommendations based on this new input. Blue text contains recommendations that are or could be applicable to liquid lines.

- Allowing notification by operators that justify a need to extend the timeframes for repair and establishing alternate rupture mitigation valves. PHMSA will consider adjusting the timeframe for repairs to 12 months but as soon as practicable.
- 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 & Failure Investigation

§§ 195.402(c)(5), 195.420(b), (d), (e), & (f)

**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 § 195.420(d) (duplicates requirements in the control room management at § 195.446).
- 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.

(cont.)



# Maintenance & Failure Investigation

§§ 195.402(c)(5), 195.420(b), (d), (e), & (f)

**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:**

- Specifying that 25% valve closure is sufficient to demonstrate successful completion of the response time validation drill.
- Allowing notification by operators that justify a need to extend the timeframes for repair and establishing alternate rupture mitigation valves. **PHMSA will consider adjusting the timeframe for repairs to 12 months but as soon as practicable.**
- Specifying that alternate compliant valves would not be required to comply with spacing requirements.



# Maintenance & Failure Investigation

## §§ 195.402(c)(5), 195.420(b), (d), (e), & (f)

# Public Comment



# Maintenance & Failure Investigation

## §§ 195.402(c)(5), 195.420(b), (d), (e), & (f)

# LPAC Discussion



# Maintenance & Failure Investigation

§§ 195.402(c)(5), 195.420(b), (d), (e), & (f)

## Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to filing reports for maintenance 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 § 195.420(d) (duplicates requirements in the control room management at § 195.446).
- 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.

(cont.)



# Maintenance & Failure Investigation

§§ 195.402(c)(5), 195.420(b), (d), (e), & (f)

## Committee Voting Slides

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

- Specifying that 25% valve closure is sufficient to demonstrate successful completion of the response time validation drill.
- Allowing notification by operators that justify a need to extend the timeframes for repair and establishing alternate rupture mitigation valves. PHMSA will consider adjusting the timeframe for repairs to 12 months but as soon as practicable.
- Specifying that alternate compliant valves would not be required to comply with spacing requirements.



# Communications with 9-1-1

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

- **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

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

- **PHMSA PROPOSED to:**
  - Require hazardous liquid and CO<sub>2</sub> 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.
  - Identify immediate response areas to include HCAs and Rupture Mitigation valves.





# Communications with 9-1-1

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

## 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

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

## Public Comments:

- Remove redundancy in emergency response requirements. Limit § 195.402(c)(12) to emergency preparedness activities and § 195.402(e)(7) to emergency response activities.

## PHMSA Response:

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



# Communications with 9-1-1

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

## 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

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

## 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.



# GPAC Valve Rule Vote July 22, 2020

This topic was also considered and evaluated by the GPAC. To facilitate the discussion of the LPAC, the GPAC approved language is as follows. PHMSA has also revised its recommendations based on this new input. Blue text contains recommendations that are or could be applicable to liquid lines.

- 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

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

**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 § 195.402(c)(12) to emergency preparedness activities and § 195.402(e)(7) 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

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

## Public Comment



# Communications with 9-1-1

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

## LPAC Discussion





# Communications with 9-1-1

§ 195.402(c)(4), (c)(12), (e)(1), (e)(4), (e)(7), & (e)(10)

## Committee Voting Slides

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to filing reports for 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 § 195.402(c)(12) to emergency preparedness activities and § 195.402(e)(7) 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

