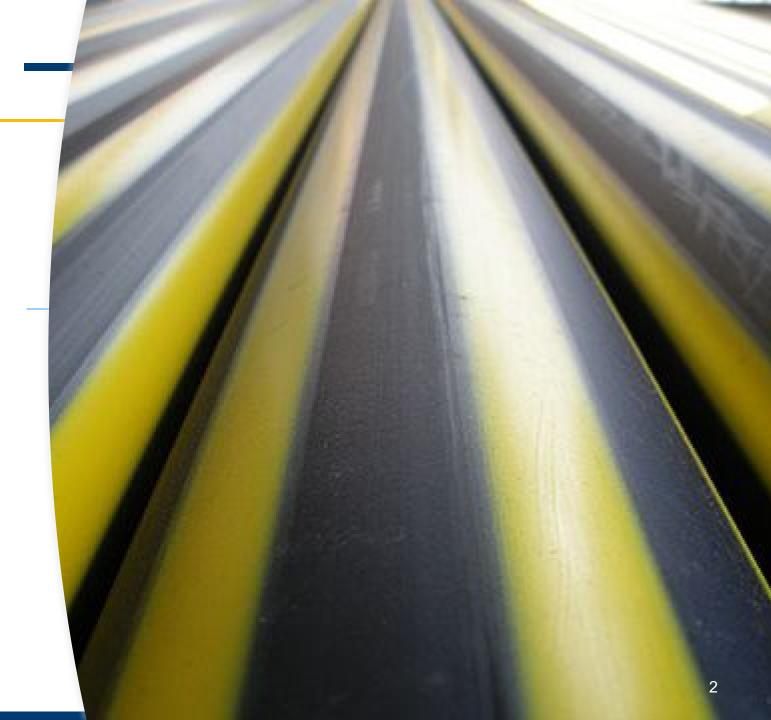


PHMSA Rule Update
North Dakota 2023
PHMSA Training and Qualifications

Presented by Bryan Kichler Bryan.Kichler@dot.gov

Agenda

- Who are PHMSA
- Regulatory Construction
- Regulatory Landscape
- Merrimack Valley Incident
- Key regulatory changes coming from Leonel Rondon sections of the 2020 Pipeline Safety Act





Office of Pipeline Safety



Office of Planning and Analytics

Office of Pipeline Safety

Office of Hazmat Safety

OPS, PHMSA and State Partners

Office of Pipeline Safety

207 PHMSA Employees

- ~ 435 State Inspectors
- ~ 550 Total Field Inspectors

Pipeline and Hazardous Materials Safety Administration

Accident Investigation

Analytics

Engineering and Research

State Programs

Administration

Code and Compliance

Field Inspection Training and Qualifications

State Partners

Jurisdictional Pipeline Milage

NATURAL GAS

- 2.3 Million Miles Gas distribution
- 17,000 Miles of Gas Gathering
- 301,501 Miles of Gas Transmission
- Total = 2,619,617

OIL AND GASOLINE

- 17 Miles Biofuel
- 5,339 Miles of CO2
- 84,795 Miles of Crude Oil
- 75,603 Miles of HVL/Flammable/Toxic
- 64,218 Miles of Refined Products
- Total = 229,971

STORAGE TANKS

- 9 Biofuel
- 0 CO2
- 3413 Crude Oil
- 299 HVL
- 4960 Refined Products

US DOT Pipeline and Hazardous Materials Safety Administration Portal Data as of 1/18/2023



Regulatory Hierarchy

Regulatory Relationships

- U.S. Congress
 - Defines a goal for regulatory reform through directive or law or directly institutes reform through law. Reauthorizes PHMSA.
- NTSB (National Transportation Safety Board)
 - Insures through accident investigation that congresses intent is being meet and recommends improvements
- PHMSA (Pipeline and Hazardous Materials Safety Administration)
 - Writes regulations based on reform, participates in industry groups, trains investigators, investigate failures, inspect operators, initiate legal actions and ensures state partners are performing at expected levels.
- State Partners
 - Granted regulative authority through state program agreements to act as PHMSA representatives.
 - PHMSA State Programs ensures that state partners have the tools they need and are performing at an appropriate level

New Notices of Proposed Rulemakings

Leak Detection and Repair NPRM

RIN: 2137-AF51

Published May 18, 2023

- Leak detection and repair (LDAR) program.
- Grade and repair all leaks.
- More frequent leakage surveys and patrols
- Performance standard for LDAR equipment and programs.
- Minimize O&M-related releases.
- Reporting on large releases, leaks discovered, and NPMS participation for regulated gathering.

Pipeline Safety: Safety of Gas Distribution Pipelines and Other Pipeline Safety Initiatives NPRM

RIN: 2137-AF53

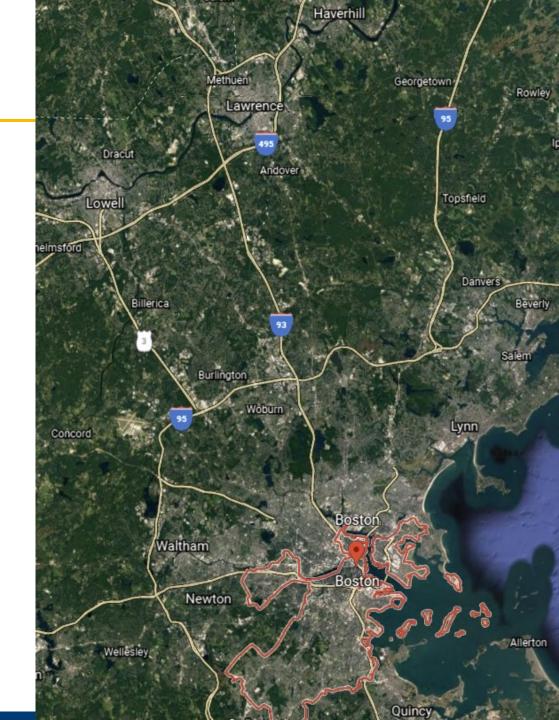
Published September 7, 2023

- Additional construction inspection
- Customer notification of accidents and outages
- MOC for distribution
- Communication with first responders
- Additional pressure regulation and monitoring
- Qualified review of plans and projects

Merrimack Valley

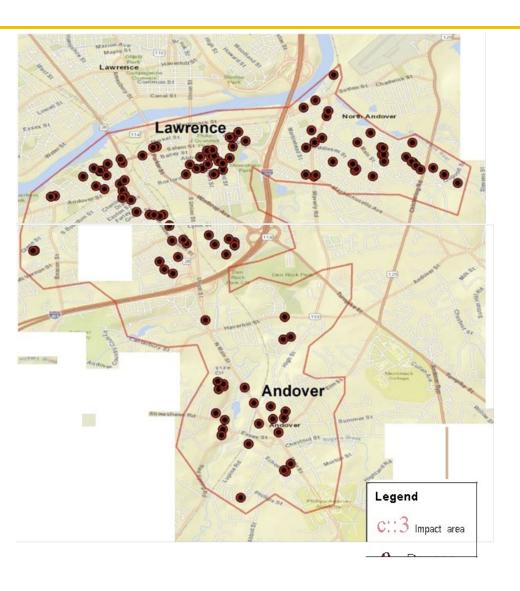
 Region along the Merrimack River of New Hampshire and Massachusetts.





Merrimack Valley Incident

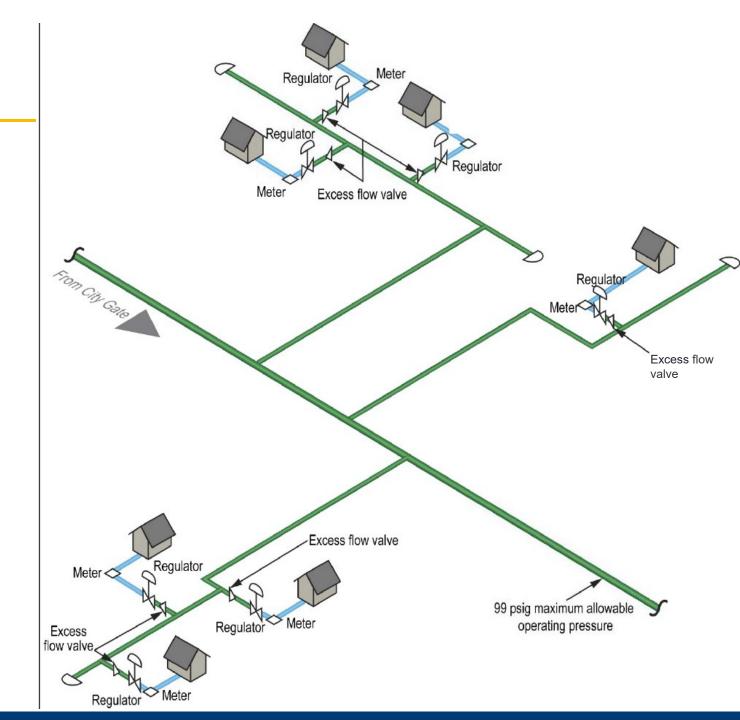
- September 13, 2018
- Affecting the towns of Lawrence,
 North Andover and Andover
- 1 fatality
- 22 injuries, 3 were firefighters
- Impacted over 10,000 customers
- 180 Fire Depts
- 140 Law Enforcement Agencies



High Pressure Gas System

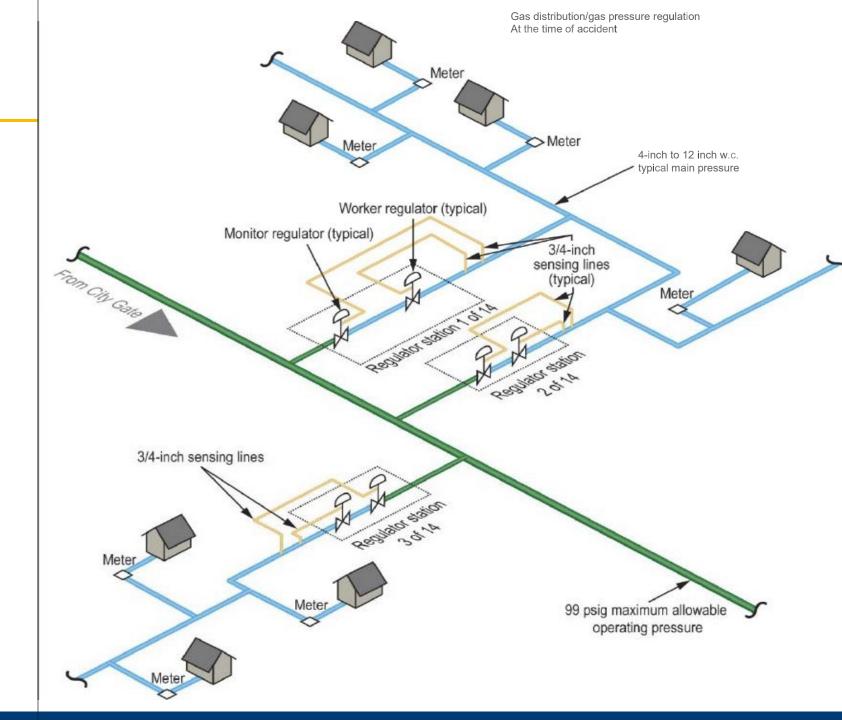
- Pressure in the main is higher.
- Pressure regulator at the house to cut pressure before entering the house.



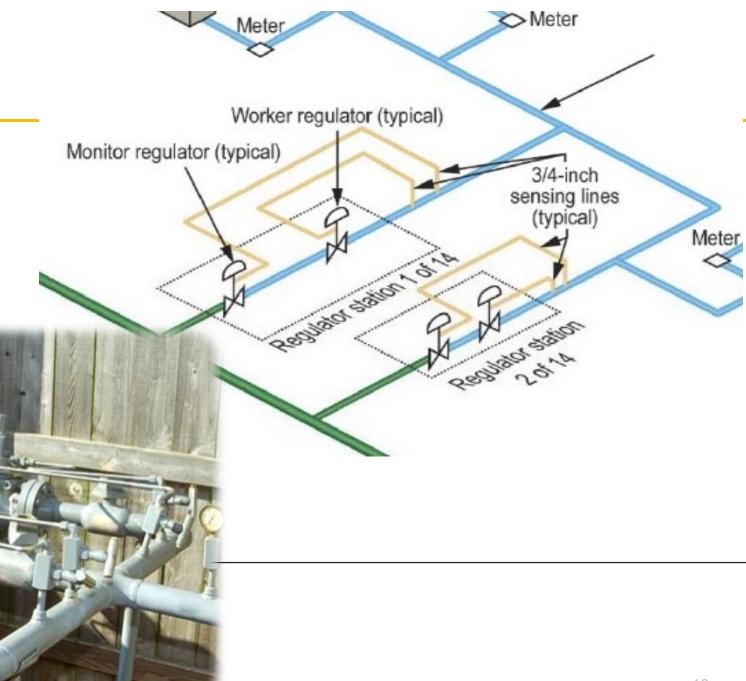


Low Pressure Gas System



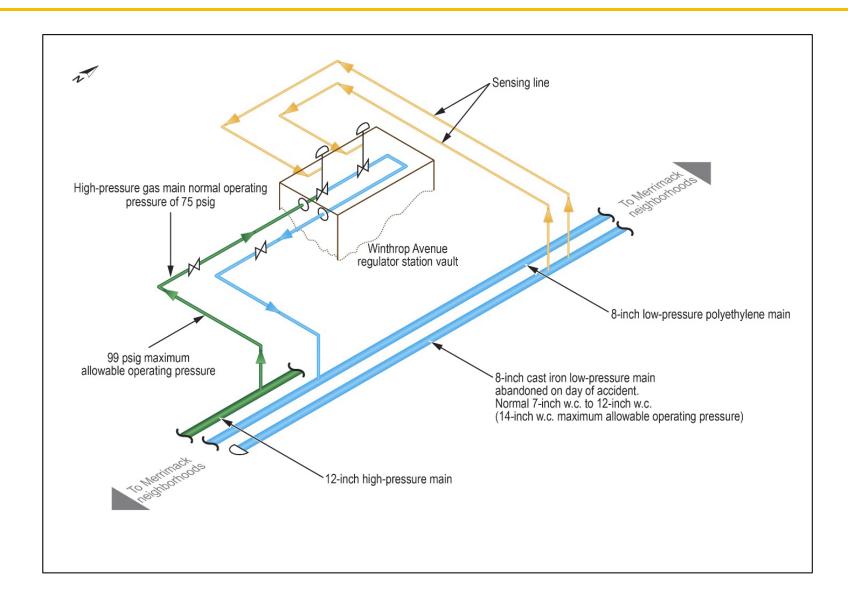


Regulatory Station Configuration



Regulator Station at Accident Site

- Sensing lines not mapped
- Abandoned 8"castiron main
- Regulators opened up



Leonel Rondon Act in the PIPES Act of 2020



1. Emergency Plans...

Modify the regulations to ensure that operators address establishing communications with first responders, as soon as practicable, from time of confirmed discovery..



NTSB/PAR-21/02



1. Emergency Plans...continued.

- Fire from unintended release
- Explosion
- Fatality
- Customers lost due to unscheduled release of gas

§60102(r)(1)

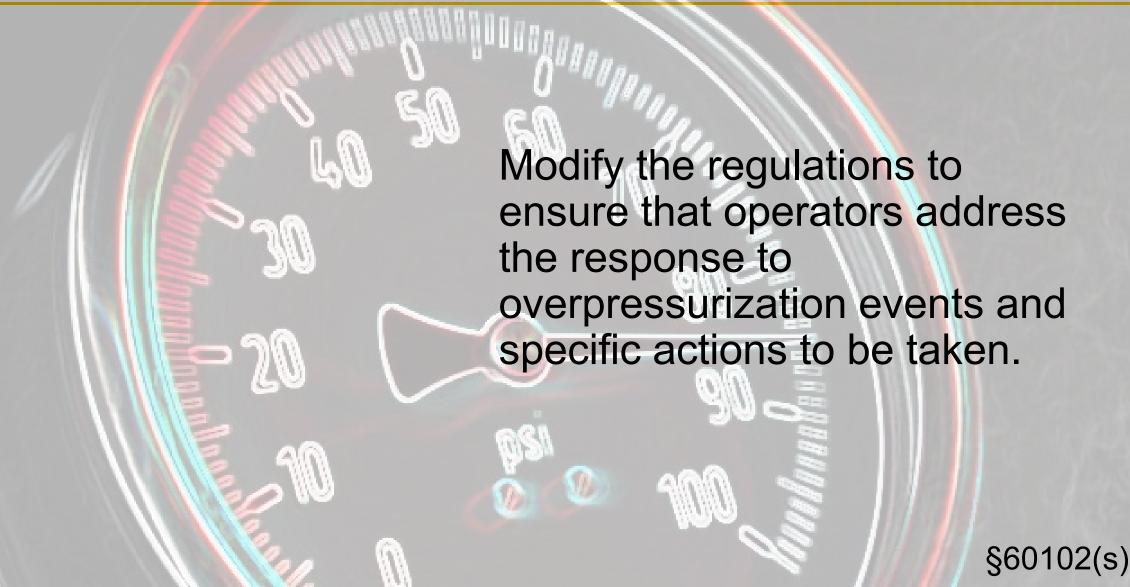
1. Emergency Plans...continued.



Establishing general public communication through an appropriate channels

- About the Emergency
- Status of Public Safety

2. O&M Plans

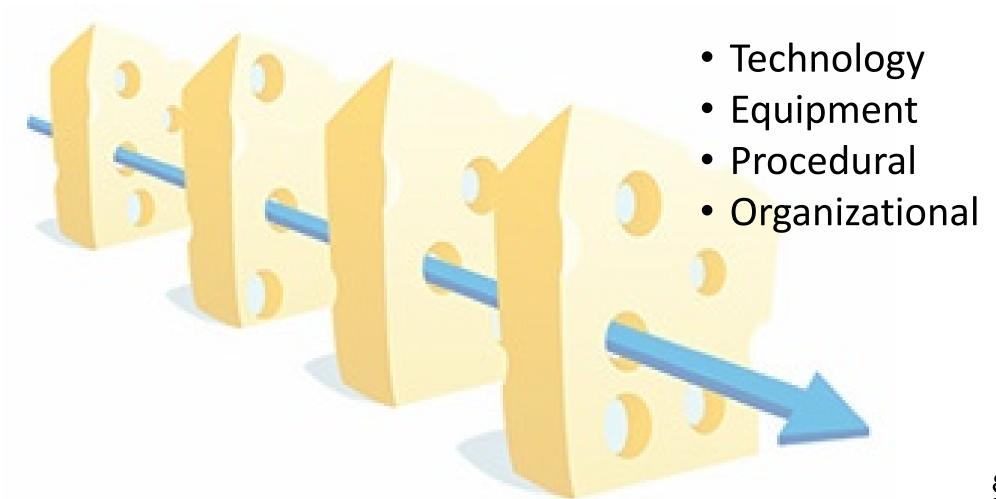


2. O&M Plans...Continued



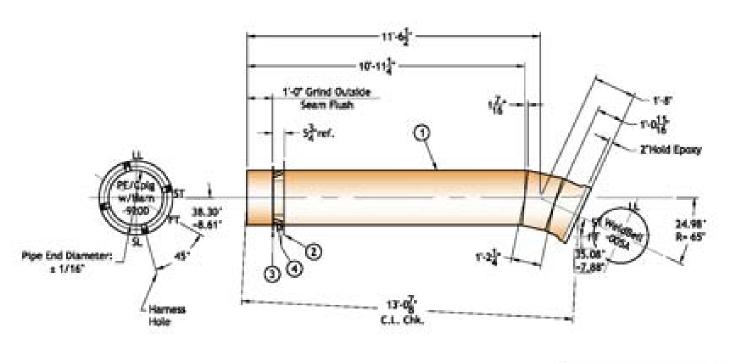
Immediately reduce pressure or shut in when overpressurization happens.

2. Management of Change...



§60102(s)(2)

2. Management of Change...Continued



- Pipeline Design
- Construction



3. Other Pipeline Safety Practices

Identify and manage traceable, reliable, and complete records

- Pressure controls for Distribution
- Records to support Risk Analysis



3. Other Pipeline Safety Practices...Continued

Person to monitor pressure and promptly shut in, to control overpressurization.

§60102(t)(2)



3. Other Pipeline Safety Practices...Continued

Modify designs of pressure control equipment if necessary

§60102(t)(3)(A)

4. Risk of Cast Iron...





4. Low Pressure Systems

- Evaluate the risk of the overpressurization a low-pressure gas system.
- Identifying measures to address or mitigate the risk.

§60109(e)(7)(A)

Additional Resources and Tools

PHMSA Homepage, Office of Pipeline Safety www.phmsa.dot.gov

Standards & Rulemaking http://www.phmsa.dot.gov/pipeline/regs

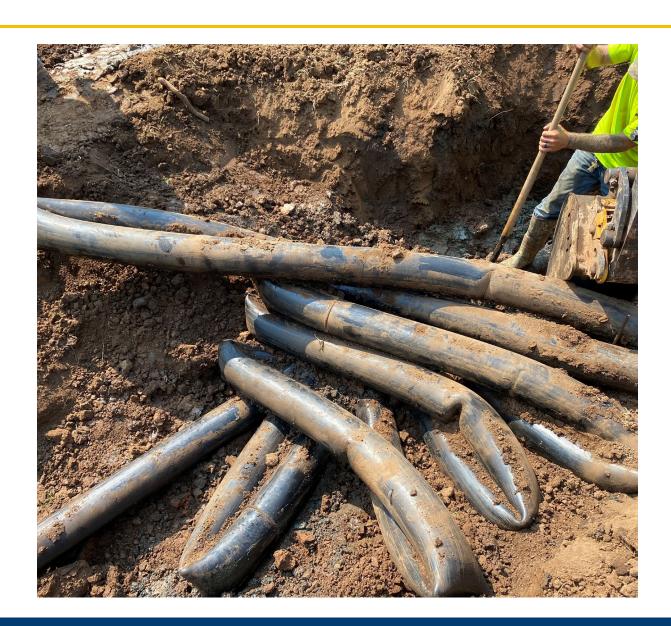
PHMSA Technical Resources

https://www.phmsa.dot.gov/technical-resources/pipeline/pipeline-technical-resources-overview

GPAC Meeting slides for reference at "Public Meetings" tab (https://primis.phmsa.dot.gov/meetings/)

PHMSA's Stakeholder Communications Site http://primis.phmsa.dot.gov/com

For Federal Regulations (Official Version) www.ecfr.gov



Questions?

Bryan Kichler

PHMSA Training and Qualifications

Bryan.Kichler@dot.gov

Valve Installation and Minimum Rupture Detection Standards

DOCKET NO. PHMSA-2013-0255 (AMENDMENT 192-130)

RIN 2137-AF06

EFFECTIVE DATE OCTOBER 5, 2022



Edison, NJ – March 24, 1994

1 person died*

Destroyed 8 buildings

1,500 Residents Displaced

\$25 Million in Damages

2½ Hours



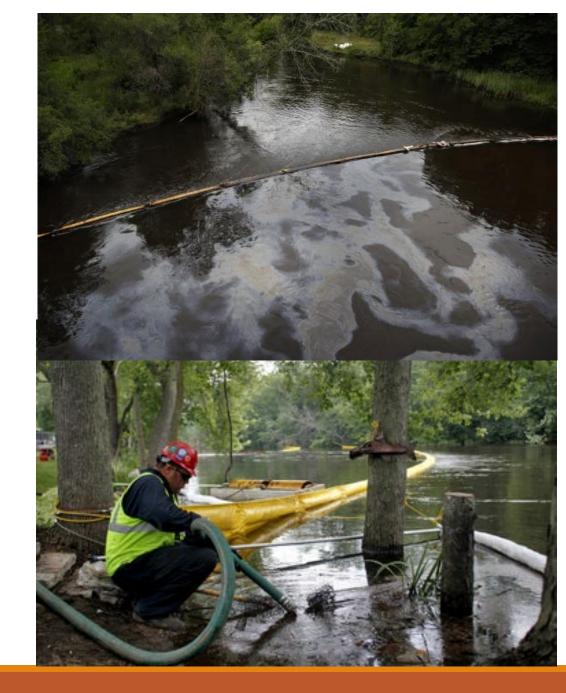
Marshall, MI – July 25, 2010

19,000 BBL (800,000 gallons) of Crude Oil

\$1 Billion in Property and

Environmental Damage

18 hours from Initial Alarm



San Bruno, CA – September 9, 2010

8 people killed

51 injured

Destroys 38 homes

Damaged 70 homes

47 MMCF of Gas

95 Minutes





PIPES Act of 2011

§60102(n) – Purpose and General Authority, Automatic and Remote-Controlled Shut-off Valves for New Transmission Pipelines

(1) IN GENERAL-....the Secretary, if appropriate, shall require by regulation the use of automatic or remote-controlled shut-off valves, or equivalent technology, ...on transmission pipeline facilities constructed or entirely replaced after the date on which the Secretary issues the final rule containing such requirement.

PIPES Act of 2011

§60102(n) – Purpose and General Authority, Automatic and Remote-Controlled Shut-off Valves for New Transmission Pipelines

- (2) HIGH-CONSEQUENCE AREA STUDY-
 - (A) STUDY- conduct a study on the ability of transmission pipeline facility operators to respond to a hazardous liquid or gas release from a pipeline segment located in a high-consequence area.
 - (B) CONSIDERATIONS-shall consider the swiftness of leak detection and pipeline shutdown capabilities, the location of the nearest response personnel, and the costs, risks, and benefits of installing automatic and remote-controlled shut-off valves.

What Part 192 code sections changed?

The following is a list of new or amended code sections:

§192.3	– Definitions	§192.617	 Investigation of Failures and incidents 	
§192.9	 What requirements apply to gathering lines? 	§192.634	 Transmission lines: Onshore valve shut- off for rupture mitigation 	
§192.18	 How to notify PHMSA 	§192.635	 Notification of potential rupture 	
§192.179	 Transmission line valves 	§192.636	Transmission lines: Response to a rupture; capabilities of rupture-	
§192.610	 Change in class location: Change in valve spacing 		mitigation valves (RMVs) or alternative equivalent technologies	
§192.615	Emergency Plans	§192.745	 Valve Maintenance: Transmission lines 	
		§192.935	 What additional preventive and mitigative measures must an operator take? 	

Entirely replaced onshore transmission pipeline segment

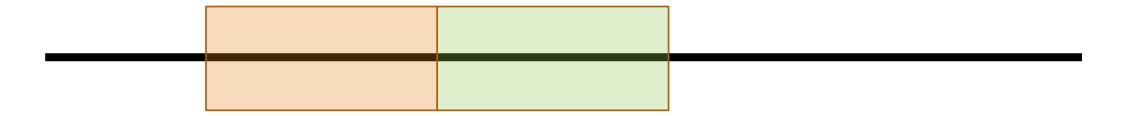
Entirely replaced onshore transmission pipeline segment means, for the purposes of §192.179 and §192.634, where 2 or more miles, in the aggregate, of onshore transmission pipeline have been replaced within any 5 contiguous miles of pipeline within any 24-month period.

Entirely replaced onshore transmission pipeline segment



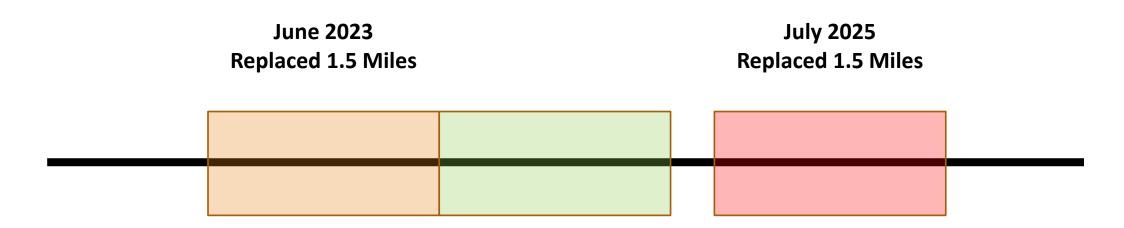
Entirely replaced onshore transmission pipeline segment

June 2023 Replaced 1.5 Miles



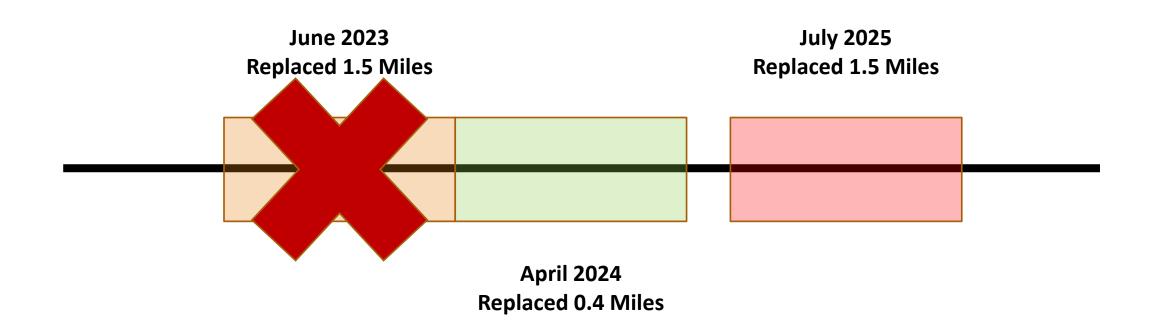
April 2024 Replaced 0.4 Miles

Entirely replaced onshore transmission pipeline segment



April 2024 Replaced 0.4 Miles

Entirely replaced onshore transmission pipeline segment



Notification of Potential Rupture

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

Rupture-Mitigation Valve (RMV)

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

§192.9 – What requirements apply to gathering lines?

(d)(1) – If a line is new, replaced, relocated, or otherwise changed, the design, installation, construction, initial inspection, and initial testing must be in accordance with requirements of this part applicable to transmission lines. Compliance with §§ 192.67, 192.127, 192.179(e), 192.179(f), 192.205, 192.227(c), 192.285(e), 192.506, **192.634**, and 192.636 is not required.

§192.18 – How to notify PHMSA

(c) Unless otherwise specified, if an operator submits, pursuant to §192.8, §192.9, §192.179, §192.506, §192.607, §192.619, §192.624, §192.632, **§192.634**, **§192.636**, §192.710, §192.712, **§192.745**, §192.921, or §192.937, a notification for use of a different integrity assessment method, analytical method, sampling approach, or technique (e.g., "other technology" or "alternative equivalent technology") than otherwise prescribed in those sections, that notification must be submitted to PHMSA for review at least 90 days in advance of using the other method, approach, compliance timeline, or technique.

(e) Newly Installed Transmission or Type A Gathering Line, Operators must install a RMV if:

- Constructed after April 10, 2023
- Greater than or Equal to 6"

Exemption: Class 1 or Class 2 with a PIR less than 150'

- (f) Entirely Replaced Transmission or Type A Gathering Line, Operators must install a RMV if:
- Constructed after April 10, 2023
- Greater than or Equal to 6"
- Replacement project involves a valve
 - Addition, Replacement, or Removal
- Exemption: Class 1 or Class 2 with a PIR less than 150'

(g) Alternative Equivalent Technology

- Must notify PHMSA (§192.18)
- Must include a technical and safety evaluation
- Must comply with §192.634 and §192.636

(g) Alternative Equivalent Technology - Manual Valve

Must include a demonstration that installation of RMV as otherwise required would be;

- Economically,
- Technically, or
- Operationally infeasible

Exception: Manual Compressor Station Valve

(h) Pipe Replacements – Valve Spacing Requirements

The valve spacing requirements of paragraph (a) of this section do not apply to pipe replacements on a pipeline if the distance between each point on the pipeline and the nearest valve does not exceed:

Class Location	Nearest Valve	Total Spacing
Class 1 or Class 2	10 Miles	20 Miles
Class 3	7 ½ Miles	15 Miles
Class 4	4 Miles	8 Miles

§192.610 – Change in Class Location: Change in valve spacing

Pipe Replacement to meet MAOP (§192.611, §192.619, §192.620)

Class Location change occurs after October 5, 2022

Length of Replacement	Replacement Period	Applicable Rule
2 or More Miles / 5 Contiguous Miles	24 Months	§192.610(a)
Less than 2 miles / 5 Contiguous Miles	24 Months	§192.610(b)
Less than 1000'/ 1 Contiguous Mile	24 Months	§192.610(c)

§192.610 – Change in Class Location: Change in valve spacing

§192.610(a) - 2 or more miles

- •§192.179, §192.634 and §192.635 apply
- Apply to NEW Class Location
- Must install RMV (or alternative equivalent technologies)

Must be installed within 24 months of class location change

§192.610 – Change in Class Location: Change in valve spacing

§192.610(b) – Less than 2 miles

- Comply with Valve Spacing in §192.179(a),
 or
- Install or use existing RMVs or alternative existing technologies
- Must not exceed 20 miles between RMVs
- Must comply with §192.636

Must comply within 24 months of class location change

§192.634(a) – Applicability

New or Entirely Replaced Transmission Pipeline Segments

Equal to or greater than 6"

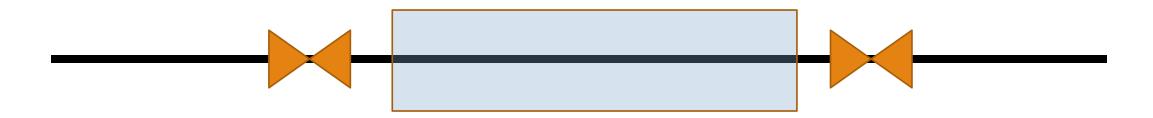
Located in HCA, Class 3 or Class 4

Installed after April 10, 2023

Operational within 14 days or placing into service (or returning to service)

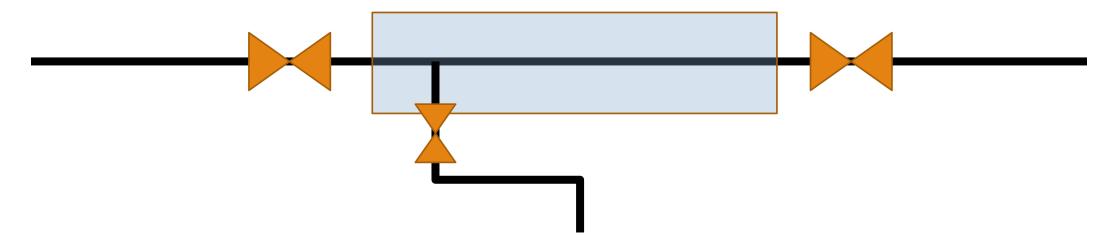
Exemption: Class 1 or Class 2 with PIR less than 150'

§192.634(b)(1) – Shut-off segment



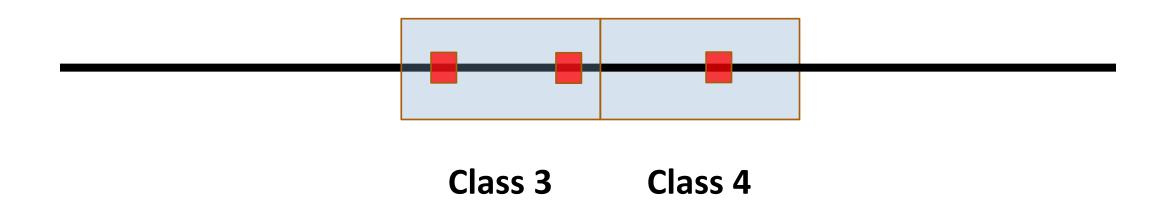
Class 3, Class 4, or HCA

§192.634(b)(1) – Shut-off segment (Lateral/Crossover)

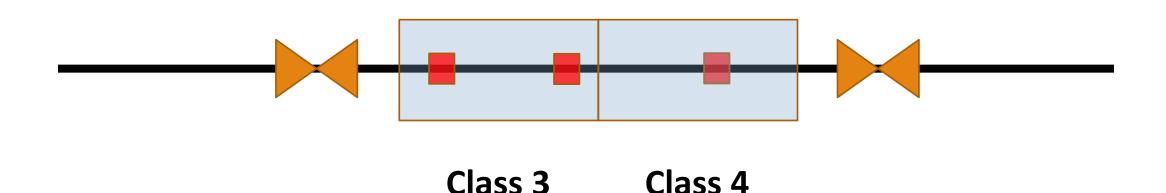


Class 3, Class 4, or HCA

§192.634(b)(1) – Shut-off segment (Multiple Criteria)



§192.634(b)(1) – Shut-off segment (Multiple Criteria)



§192.634(b)(2) – Shut-off segment valve spacing

If pipeline is subject to 192.634(a)

Class Location	Spacing Between Valves
Class 4	Eight (8) Miles
Class 3	Fifteen (15) Miles
Class 1 or Class 2	Twenty (20) Miles

§192.634(b)(3) – Laterals

RMV's or Alternative Equivalent Technologies can be installed at points other than mainline receipt or delivery points if the length of the lateral does not contribute more than 5% of Total Shut-Off Segments gas volume. (Calculated as Max Flow at Operating Pressure)

§192.634(b)(3) – Laterals (Check valves)

Laterals less than or equal to 12", check valves can be used as an alternative equivalent technology.

Not subject to §192.636

Must be inspected, operated, and remediated per §192.745

Must notify PHMSA per §192.18/ §192.179

§192.634(b)(4) – Crossovers (Manual Valves)

Manual Valves as an alternative equivalent technology can be used in lieu of RMV if:

- Locked and closed during normal operations
- Develop and Implement operating procedures
- Document the valves are closed and locked (lock-out/tag-out)
- Notify PHMSA per §192.18 and §192.179

§192.634(c) – Manual Operation

Must develop and implement operating procedures that;

- Designate and Locate nearby personnel
- Account for response and action times
- •Must be done in 30 minutes of rupture identification (§192.636)

§192.635(a) — Notification of Potential Rupture

Who must the operator consider as sources of rupture notification or observation?

- Operator (i.e. Control Room Operator)
- Field Personnel
- Nearby Pipeline Personnel (or other utility worker)
- Local First Responders
- Public Authorities
- Public

§192.635(a) — Notification of Potential Rupture

What indications must an operator consider?

Unanticipated or Unexplained

- Pressure Loss
- Flow Rate Change
- Pressure Change
- Equipment Function or Instrumentation Indication
- Release of Large Volume of Gas
- Fire or Explosion (immediate vicinity)

§192.635(b) — Notification of Potential Rupture

When does a notification occur?

A notification of potential rupture occurs when an operator first receives notice of or observes an event specified in §192.635(a)

When must a valve be fully closed after rupture identification?

- •(b) Fully Closed within 30 Minutes
- •(c) Left Open IF detrimental to Public Safety
 - Established in Operating Procedures
 - Notified PHMSA (§192.18)
 - Coordinated with Local Emergency Responders
 - Procedures to determine if left open (environmental factors included)
 - Communication Plan with Local Emergency Responders

Valve Monitoring and Operation Capabilities

Must be capable of monitoring or controlled as follows:

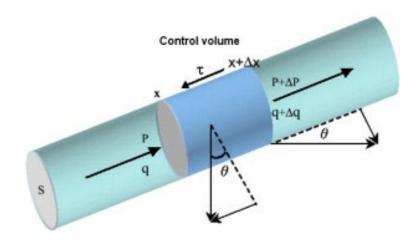
- (d)(1) Operated during normal, abnormal and emergency conditions
- (d)(2) Monitored for Status
 - Position and Upstream/Downstream Pressures
 - ASV/Manual Monitor pressure or flow between RMV
- (d)(3) Back-up power to SCADA or Communications System

Flow Modeling for Automatic Shutoff Valves

Flow Modeling for the Shut-Off Segment, including laterals, so that the valves will close within 30 minutes.

Must Include:

- Anticipated Maximum, Normal or other flow volumes
- Operating Conditions (15 Month)
- Between RMV or Looped System



Non-HCA Manual Valves - Class 1

If a request pursuant to §192.18 and §192.179 for manual valves, the operator can also request an exemption from §192.636(b)

(30 Minute time to closure)

§192.745 – Valve Maintenance: Transmission lines

- (c) Must conduct Point-to-Point Verification per §192.631 (c) & (d)
- (d) Alternative Equivalent Technology
 - 30 Minute Drill Validation (Full Closure)
 - Random Selection AEV in lieu of RMV (25% Drill)
 - Revise Response Efforts (30 Minute Failure)
 - Lessons Learned
 - Does not apply to §192.636(g)

§192.745 – Valve Maintenance: Transmission lines

(e) – Remedial Measures

Repair / Replace within 12 months and

Designate alternative valve withing 7 Calendar Days

(f) – Document and Confirm ASV Shut-in pressures annually (not to exceed 15 months)

§192.935 – What additional preventive and mitigative measures must an operator take?

(c) – Risk Analysis for gas releases and protection against ruptures
If a RMV is determined to be an efficient means of adding
protection to HCA in event of gas release, must install RMV

(f) – Periodic Evaluations
Risk Analysis per §192.935(c) must be reviewed by the operator and certified by a senior executive of the company. Must occur once per calendar year, not to exceed 15 months.
Also occurs within 3 months of an incident or SRC

§192.617(a) – Post-failure and incident procedures

Each operator must establish and follow procedures for investigating and analyzing **failures and incidents** as defined in § 191.3, <u>including sending the failed pipe</u>, <u>component</u>, <u>or equipment for laboratory testing or examination</u>, where appropriate, for the purpose of determining <u>the causes and contributing factor(s)</u> of the failure or <u>incident</u> and minimizing the possibility of a recurrence.

§192.617(b) – Post-failure and incident lessons learned

Each operator must develop, implement, and incorporate lessons learned from a post-failure or incident review into its written procedures, including personnel training and qualification programs, and design, construction, testing, maintenance, operations, and emergency procedure manuals and specifications.

§192.617(c) – Analysis of Rupture and Valve Shut-offs

If an incident involves the closure of a rupture-mitigation valve (RMV) or the closure of alternative equivalent technology, the operator of the pipeline must also conduct a post-incident analysis of all of the factors that may have impacted the release volume and the consequences of the incident and identify and implement operations and maintenance measures to prevent or minimize the consequences of a future incident.

§192.617(c) – Analysis of Rupture and Valve Shut-offs

The analysis must include all relevant factors impacting the release volume and consequences, including, but not limited to, the following:

- (1) Detection, identification, operational response, system shut-off, and emergency response communications, based on the type and volume of the incident;
- (2) Appropriateness and effectiveness of procedures and pipeline systems, including supervisory control and data acquisition (SCADA), communications, valve shut-off, and operator personnel;

§192.617(c) – Analysis of Rupture and Valve Shut-offs

The analysis must include all relevant factors impacting the release volume and consequences, including, but not limited to, the following:

(3) Actual response time from identifying a rupture following a notification of potential rupture, as defined at § 192.3, to initiation of mitigative actions and isolation of the pipeline segment, and the appropriateness and effectiveness of the mitigative actions taken;

§192.617(c) – Analysis of Rupture and Valve Shut-offs

The analysis must include all relevant factors impacting the release volume and consequences, including, but not limited to, the following:

- (4) Location and timeliness of actuation of RMVs or alternative equivalent technologies; and
- (5) All other factors the operator deems appropriate.

§192.617(d) – Rupture post-failure and incident summary

The operator must complete a summary of the post-failure or incident review within 90 days of the incident

If the investigation is pending, conduct quarterly status reviews until the investigation is complete and a final post-incident summary is prepared.

Must be reviewed, dated and signed by the appropriate Senior Executive Officer

All investigation and analysis documents and records of lessons learned must be kept for the applicable life of the pipeline

§192.615(a)(2) – Communication with Emergency Responders and Officials

Establishing and maintaining adequate means of communication with the appropriate public safety answering point (911) or appropriate emergency coordinating agencies.

§192.615(a)(6) – Actions to take in Emergency

Taking necessary actions, including but not limited to, emergency shutdown, valve shut-off, or pressure reduction, in any section of the operator's pipeline system, to minimize hazards of released gas to life, property, or the environment.

§192.615(a)(8) – Emergency Response

Notifying the appropriate public safety answering point available for the location of the pipeline of gas pipeline emergencies to coordinate and share information to determine the location of the emergency (Planned Responses and Actual Responses).

§192.615(a)(8) - Rupture

The operator must immediately and directly notify the appropriate public safety answering point or other coordinating agency for the communities and jurisdictions in which the pipeline is located after receiving a notification of potential rupture, as defined in Sec. 192.3, to coordinate and share information to determine the location of any release, regardless of whether the segment is subject to the requirements of Sec. 192.179, Sec. 192.634, or Sec. 192.636.

§192.615(a)(11) – Control Room Actions

Actions required to be taken by a controller during an emergency <u>in</u> accordance with the operator's emergency plans and requirements set forth in §192.631, §192.634, and §192.636.

APPLIES TO ALL OPERATORS (Except §192.634 and §192.636)

§192.615(a)(12) – Rupture Identification

Each operator must develop written rupture identification procedures to evaluate and identify whether a notification of potential rupture, as defined in Sec. 192.3, is an actual rupture event or a non-rupture event. **APPLIES TO ALL OPERATORS**

For operators installing valves in accordance with Sec. 192.179(e), Sec. 192.179(f), or that are subject to the requirements in Sec. 192.634, those procedures must provide for rupture identification as soon as practicable.

§192.615(c) – Establish and Maintain Liaison with Emergency Responders and Officials

Each operator must establish and maintain liaison with the appropriate public safety answering point (i.e., 9–1–1 emergency call center) where direct access to a 9–1–1 emergency call center is available from the location of the pipeline, as well as fire, police, and other public officials

Anyone have a friend who owns a pipeline?

