



PIPELINE SAFETY  
INSTITUTE

# Pipeline Safety

*Amendments to Parts 192*

*To Require Valve Installation and  
Minimum Rupture Detection Standards*

**Chris Foley**

Vic President

RCP Inc.

# Rupture Mitigation Valve (RMV) - Rule Complexity

## Applicability

- Transmission & Type A Gathering
  - New definitions
  - New valve spacing
  - Valve retrofits for class location changes
  - Notification of “Potential Rupture”
  - RMV closure response time < 30 minutes from rupture verification
  - RMV monitoring
  - RMV maintenance
  - TIMP RMV risk analysis
- ALL Gas Pipelines, including Gas Distribution
  - Emergency response
  - Investigation of Failures and Incidents

# Rupture Mitigation Valve (RMV) - Rule Complexity

## Program Impacts

Design

Construction

Operations

Maintenance

Emergency Response

Control Room  
Management

Incident Investigation

Transmission Integrity  
Management



## New Definitions in §192.3

- ❑ **Entirely Replaced:** Doesn't really mean entirely replaced, it means 2 or more miles within a 5-mile pipeline segment within 24 months period.
- ❑ **Notification of Potential Rupture:** Includes notification, observation, or indications of ...
- ❑ **Rupture Mitigation Valve (RMV):** Includes Automatic Shut-off Valves and Remote Controlled/Remote Operated Valves.



## Exceptions for Gas Gathering §192.9

- ❑ Type B & C exempt from RMV installation requirements §192.179(e)(f), .634, .636.
- ❑ RMV installation required for **Type A** for new or entirely replaced ...

## □ After – April 10<sup>th</sup>, 2023

- *New transmission  $\geq 6''$  OD, (includes Type A gathering), RMV must be installed to meet spacing criteria, unless.*
- *Class 1 & 2 (trans & Type A) w/ PIR  $\leq 150$  feet.*
- *Entirely replaced – same criteria.*

## □ Notification required to use alternative(s), except.

- *A manual valve at a continuously manned compressor station may be used.*

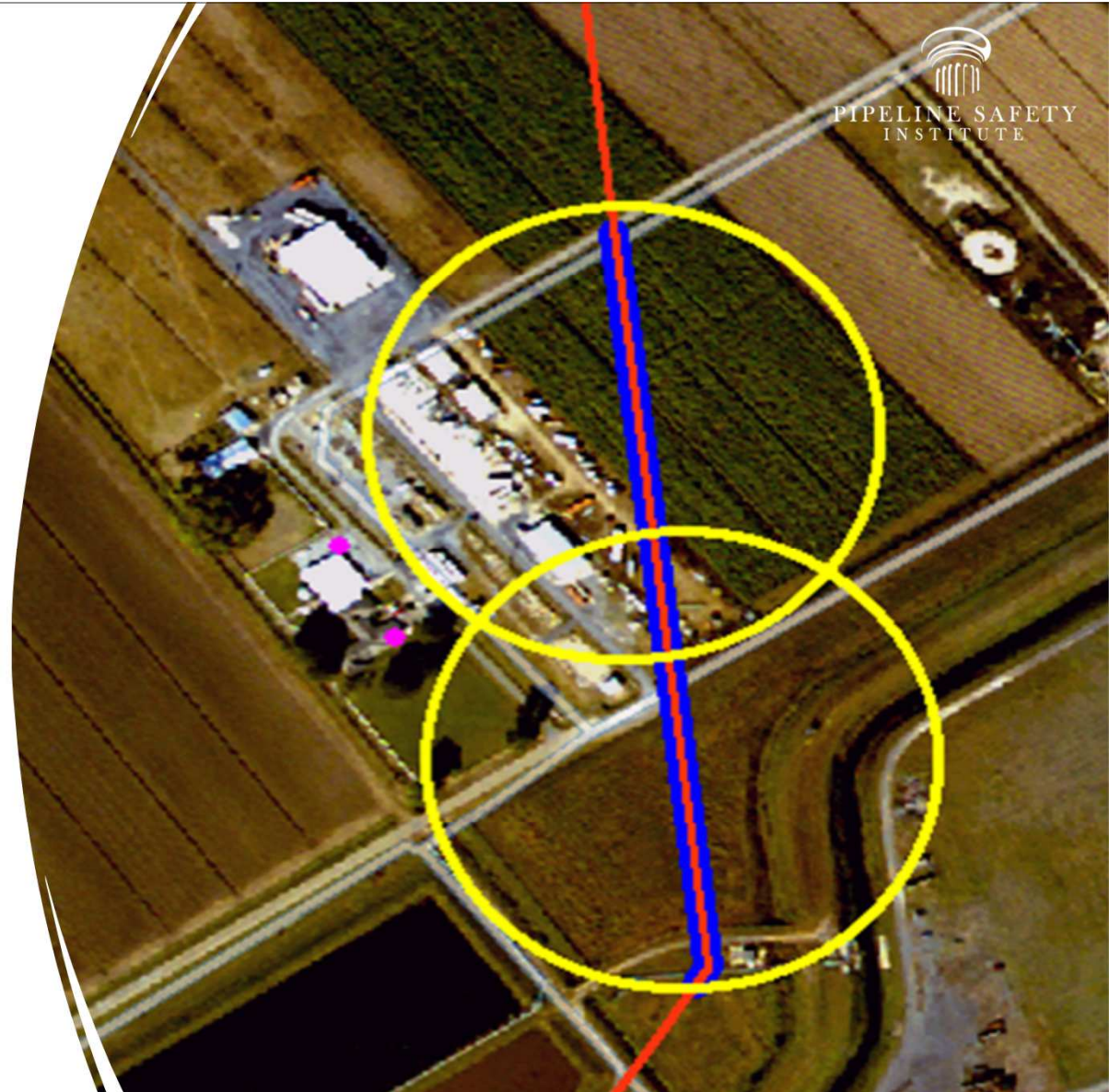


**New Valve  
Spacing  
Requirements  
§ 192.179**

# Class Location Changes - §192.610

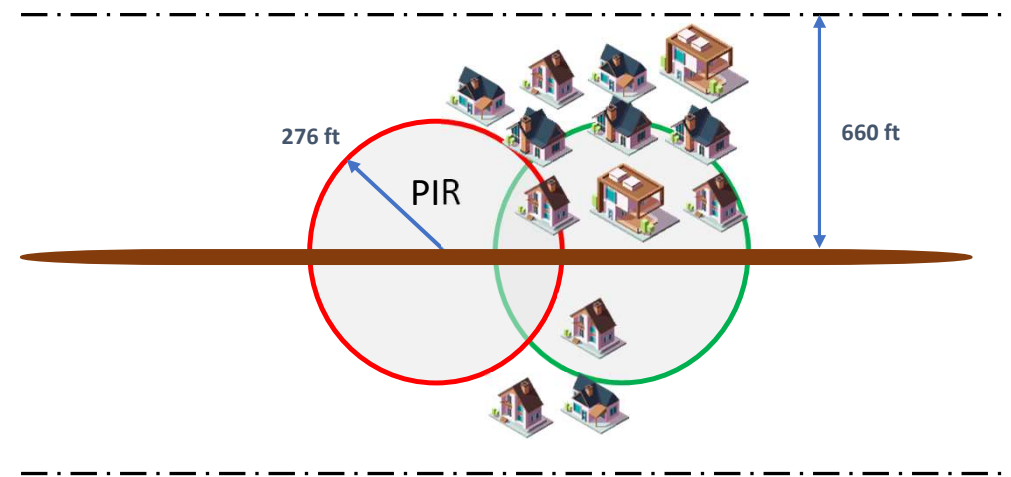
After — September 27<sup>th</sup>, 2022

- Class location change results in the pipe replacement (in entirety  $\geq 2$  miles) to meet §192.611, 192.619, or 192.620, install valves.
- Pipe replacement  $< 2$  miles
  - Meet 192.179
  - Use or retrofit existing provided distance between valves does not exceed 20 miles.
  - N/A, if pipe replacement is  $< 1000$  feet within a 1-mile segment.



# Required Retrofitting – §192.634

- ❑ After — April 10<sup>th</sup>, 2023
  - Install or existing for new or entirely replaced  $\geq 6$ "OD in HCA's and Class 3 & 4 locations.
  - Specifically exempts Class 1 & 2 w/PIR <150'
- ❑ Operational within 14 days of commissioning the new or replacement line segment.
- ❑ Applicable to all replacements, even if project would not otherwise require the addition or replacement of a valve.



***Pipeline MAOP = 400 psi & Nominal Diameter***

***= 20 Inches***

***PIR =  $0.69\sqrt{pd^2} = 276$  Feet***





## Required Retrofitting §192.634

A new definition for this Section

- ❑ Shut-off Segment – “...means the segment of pipe located between the upstream valve ***closest*** to the upstream endpoint of the new or replaced Class 3 or Class 4 or HCA pipeline segment and the downstream valve ***closest*** to the downstream endpoint of the new or replaced Class 3 or Class 4 or HCA pipeline segment...”
- ❑ “...The operator is ***not required*** to select the ***closest*** valve to the shut-off segment as the RMV...”
- ❑ Manual valve at manned compressor station acceptable, if...

*Continued..*

# Required Retrofitting §192.634

Crossovers, laterals & receipt points included:

## ❑ Laterals

- May locate somewhere other than tap location if  $< 5\%$  of the volume of shut-off segment.
- May use check valve if lateral is  $\leq 12$ -inch – Notification required.

## ❑ Crossovers

- May use the manual valve if the normal position is closed & LOTO
- Notification required.



# Manual Valve (Alternative RMV) 192.634

- Notification & Approval 192.18
- Manual operation procedures must:
  - Designate and locate personnel.
  - Include time for assembly of personnel.
  - Include time to acquire tools and equipment.
  - Include drive time under heavy traffic at the posted speed limit.
  - Include walking time.
  - Include time to shut the valve.
- NTE - 30 minutes of rupture identification.



# Notification of Potential Rupture



- ❑ Notification occurs upon first notice or observation.
- ❑ Written procedures to identify:
  - Unanticipated or unexplained pressure loss of 10% of normal operating within 15 minutes or less.
  - Change in flow rate, pressure change, and equipment function.
  - Release of a “large” volume of gas, fire, and explosion.

# RMV Response

## 192.636

- ❑ Be closed within 30 minutes of “identification”.
- ❑ May be left open, IF:
  - Submitted Notification to PHMSA per §192.18.
  - Coordinated with ER to develop procedures.
  - ER concurs.
  - Procedures included as part of Notification.



# RMV Monitoring

- ❑ Each RMV must be monitored or controlled:
  - During normal, abnormal, and emergency conditions.
  - Valve status except ASV's may monitor pressure or flow rate.
  - Have backup power for SCADA or remote comms.
- ❑ Flow modeling for ASV's
  - Maximum, normal, and any other flow/pressure/operating conditions.
  - Model again if parameters change.

# Maintenance – §192.745



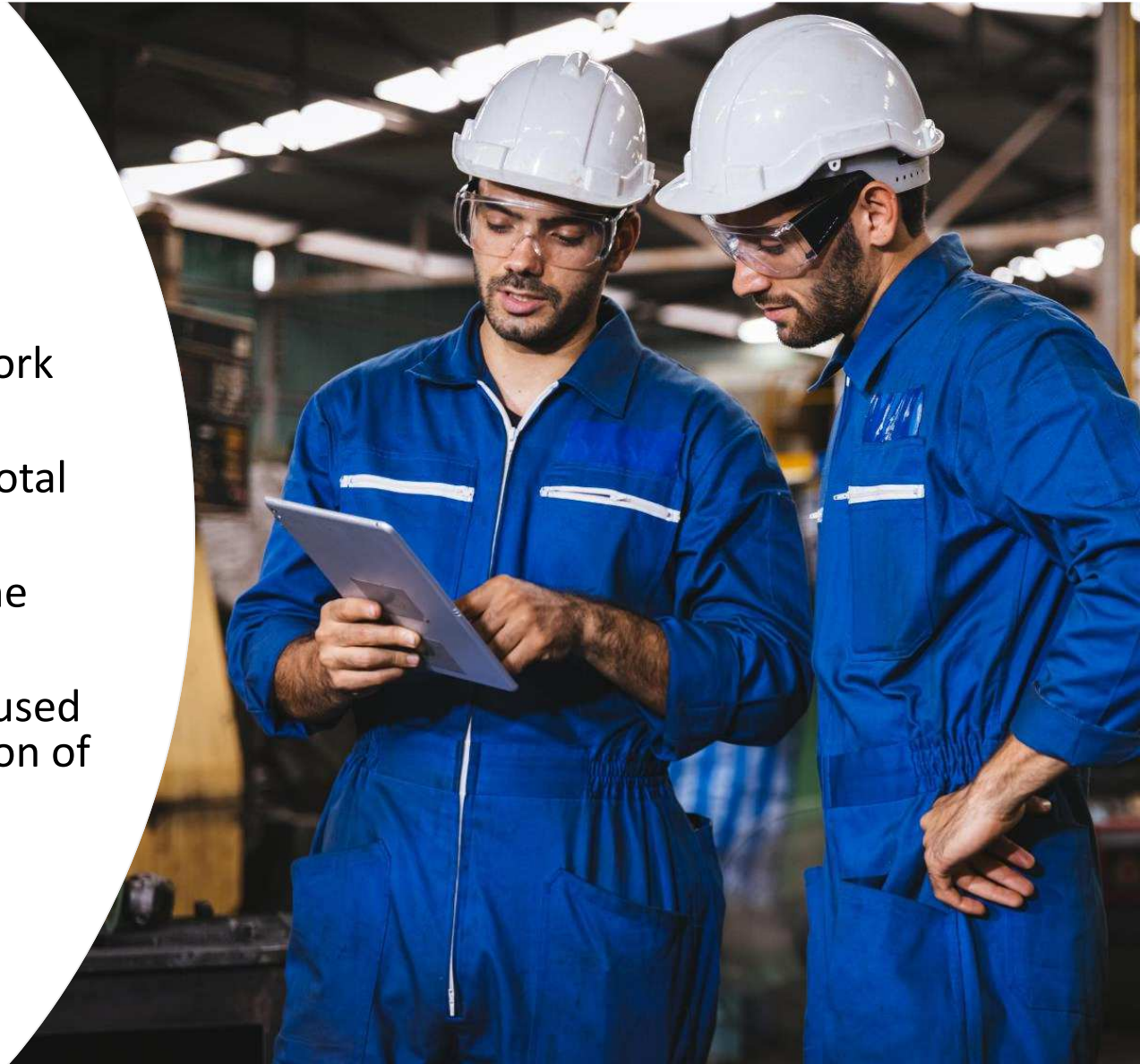
Must conduct point-to-point:

- ❑ Field equipment is added or moved and when other changes that affect pipeline safety are made to field equipment or SCADA displays.
- ❑ Verify alarm values each year.
- ❑ Review for offline, manual values, and false alarms per §192.631 (e).

# Maintenance

If a manual or alternative technology is used, select:

- ❑ Within each pipeline and work unit.
- ❑ Annual drill for 30-minute-total response time validation.
- ❑ Worst case conditions for the location.
- ❑ Stipulate the methodology used to conduct a random selection of locations.
- ❑ Document lessons learned





# Maintenance

## □ Remedial measures

- Repair or replace ASAP not-to-exceed 12-months.
- Designate an alternate within 7-days.

## □ ASV's

- Confirm and document ASV shut-in pressure.
- Shut-in pressure proven and reset calendar year NTE 15-months.



*Continued..*

# Integrity Management - §192.935(c)(f)

- Risk analysis and protection against ruptures.
- Periodic risk analysis and protection against ruptures.
  - Risk analysis and protection against ruptures must be reviewed by Senior Executive.
  - Each calendar year cycle is 15-months.
  - Within 3 months of incident or SRC.

# Emergency Response – §192.615

Notice of Potential Rupture  
immediately and directly notify 911  
or... after receiving a notification of  
potential rupture to coordinate and  
share information to determine the  
location of any release, *regardless of  
whether the segment is subject to the  
requirements of §§192.179, 192.634,  
or 192.636.*



# Emergency Response

Develop written rupture identification procedures to evaluate and identify whether a notification of potential rupture is an actual rupture event.

- specify the sources of information
- operational factors
- other criteria
- procedures must provide for rupture identification as soon as practicable.





## Investigation of Failures and Incidents / Accidents

**Post-failure and incident lessons learned. Develop procedures, implement, and incorporate lessons learned from a post-“failure” or incident review**

- Personnel training & qualification programs
- Design
- Construction
- Testing
- Maintenance
- Operations
- Emergency response procedures

**This new paragraph doesn't reference the RMVs at all!!!!**

# Investigation of Failures & Incidents

Analysis of rupture and valve shut-offs. If an incident ... involves the closure of a rupture-mitigation valve (RMV)... the operator of the pipeline must also conduct a post-incident analysis of all the factors that may have impacted the release volume and the consequences of the incident and identify and implement O&M measures to prevent or minimize the consequences of a future incident.

- (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.
- (3) Actual response time from identifying a rupture following notification of potential rupture as defined, to initiation of mitigative actions and isolation of the pipeline segment, and the appropriateness and effectiveness of the mitigative actions taken.
- (4) Location and timeliness of actuation of RMVs or alternative equivalent technologies.
- (5) All other factors the operators deem appropriate.

# Thank You!

**Chris Foley**  
[cfoley@rcp.com](mailto:cfoley@rcp.com)  
(832) 255-7900

