



Valve Installation and Minimum Rupture Detection Standards

A.K.A – The “Valve Rule”



Why did this Rulemaking Occur?

Marshall, MI

July 25, 2010 –

- 19000 BBL (800,000 gallons) of Crude Oil
- \$1 Billion in Property and Environmental Damage
- 18 hrs 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



Edison, NJ

March 24, 1994 –

- 1 person died
- Destroyed 8 buildings
- Evacuation of 1500 Apartments
- \$25 Million in Damages
- 2½ Hours



Pipeline Safety Act 2011 -

§60102(n)

(n) 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.

Pipeline Safety Act 2011 -

§60102(n)

(n) 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.

DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

49 CFR Parts 192 and 195

[Docket No. PHMSA–2013–0255; Amdt. Nos.
192–130; 195–105]

RIN 2137–AF06

Pipeline Safety: Requirement of Valve Installation and Minimum Rupture Detection Standards

AGENCY: Pipeline and Hazardous
Materials Safety Administration
(PHMSA), DOT.

ACTION: Final rule.

April 8, 2022

Part 192 – Key Sections

§192.634 Transmission lines: Onshore valve shut-off for rupture mitigation.

§192.635 Notification of potential rupture.

§192.636 Transmission lines: Response to a rupture; capabilities of rupture-mitigation valves (RMVs) or alternative equivalent technologies.



§192.3 Definitions

- *Entirely replaced onshore transmission pipeline segments* 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.
- *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)* 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.

§192.18 How to notify PHMSA

Minor changes made to this section that was originally added as part of the Safety of Gas Transmission Rule for the use of “other technology”.

Key piece to 192.18 is:

The allowance of an operator to “proceed to use the other method, approach, compliance timeline, or technique 91 days after submitting the notification unless it receives a letter from the Associate Administrator for Pipeline Safety informing the operator that PHMSA objects to the proposal, or that PHMSA requires additional time and/or more information to conduct its review.”

Key Dates §192.179 and §192.610

After April 10, 2023 if.....

- Segments **constructed** after and equal to or greater than 6” in diameter require RMV’s or alternative equivalent when installing a valve to meet the spacing requirements
- Entirely replaced segments equal to or greater than 6” in diameter must have RMV’s or alternative equivalent when installing a valve to meet the spacing requirements

After October 5, 2022 if.....

- A change in class location that results in replacement of 2 or more miles, in the aggregate, within any 5 contiguous miles within a 24-month period
 - Operator has 24 months to comply with 192.179, 634 and 636
- A change in class location that results in replacement of **LESS** than 2 miles within 5 contiguous miles within a 24-month period
 - Operator must comply with valve spacing requirements of 192.179 OR
 - Install or use existing RMV’s or alternative equivalent
 - Exemption: replacements less than 1,000 feet within any 1 contiguous mile

§192.179 Transmission line valves

Exemption to line spacing requirements:

Replacements on a pipeline that the distance between each point on the pipeline and the nearest valve does not exceed:

- (1) 4 miles in Class 4 locations, with a total spacing between valves no greater than 8 miles;
- (2) Seven-and-a-half (7 1/2) miles in Class 3 locations, with a total spacing between valves no greater than 15 miles; or
- (3) Ten (10) miles in Class 1 or 2 locations, with a total spacing between valves no greater than 20 miles.

§192.634 Transmission lines: Onshore valve shut-off for rupture mitigation.

(a) *Applicability:*

- New or Entirely Replaced: Transmission Lines and Type A Gathering Lines
- Greater than or equal to 6" in diameter
- HCA
- Class 3 or 4
- Installed after April 10, 2023

Exempt:

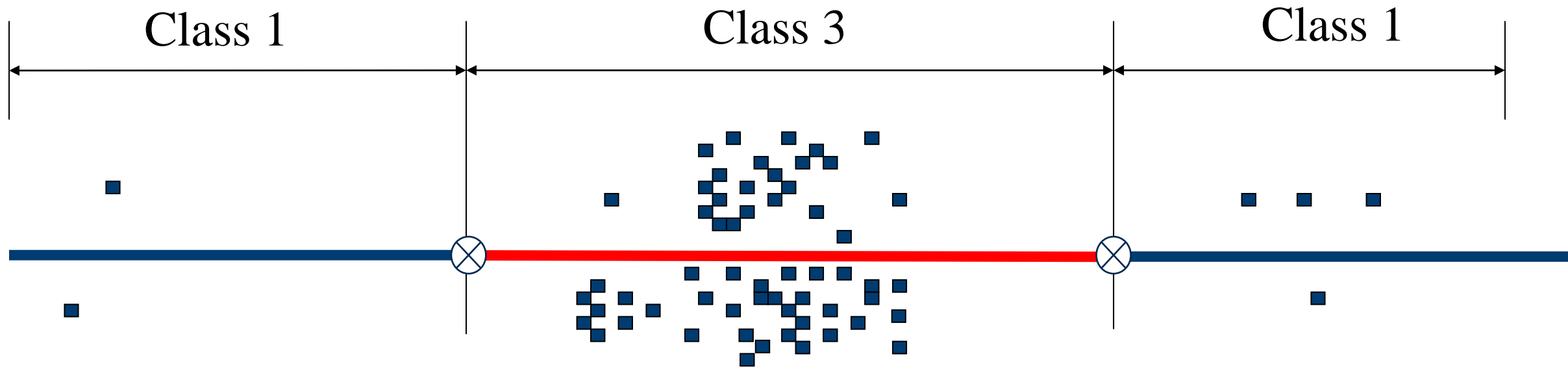
- Class 1 and 2 where PIR less than 150'

§192.634 Transmission lines: Onshore valve shut-off for rupture mitigation.

(a)(1)

Shut-off segment. For purposes of this section, a “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 so that the entirety of the segment that is within the HCA or the Class 3 or Class 4 location is between at least two RMVs or alternative equivalent technologies.

Shut-off segment



§192.634 Transmission lines: Onshore valve shut-off for rupture mitigation.

(a)(2)

Shut-off segment valve spacing..

- (i) Eight (8) miles for any Class 4 location,
- (ii) Fifteen (15) miles for any Class 3 location, or
- (iii) Twenty (20) miles for all other locations.

§192.635 Notification of potential rupture.

(a).... Also includes:

Indication of a potential unintentional or uncontrolled release of a large volume of gas from a pipeline:

- (1) Pressure loss outside of the pipeline's normal operating pressures (10 percent in 15 minutes)
- (2) Flow rate change, pressure change, equipment function, or other pipeline instrumentation indication
- (3) Rapid release of a large volume of gas, a fire, or an explosion in the immediate vicinity of the pipeline.



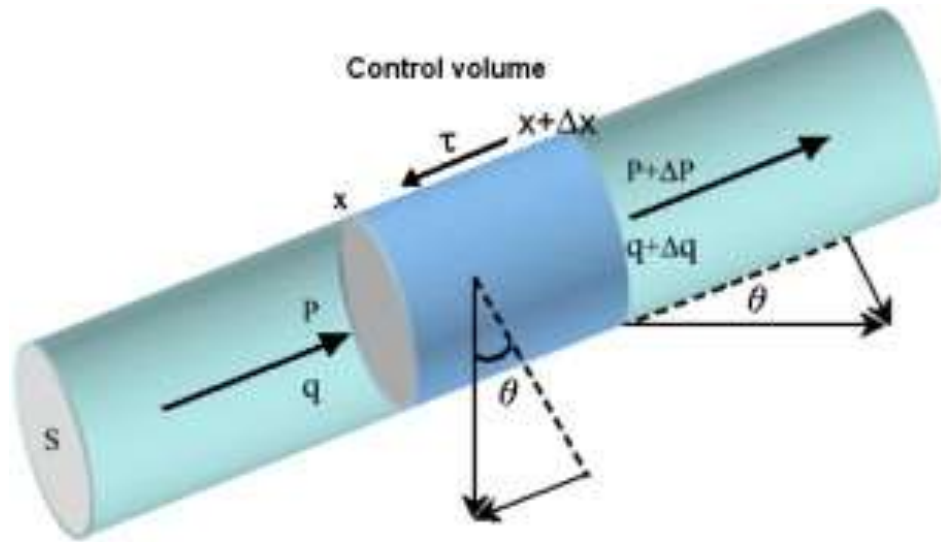
§192.636 Transmission lines: Response to a rupture; capabilities of rupture-mitigation valves (RMVs) or alternative equivalent technologies.

- - (b) *Rupture identification and valve shut-off time.* An operator must, as soon as practicable but within 30 minutes of rupture identification (§192.615(a)(12)), fully close any RMVs



§192.636 Transmission lines: Response to a rupture; capabilities of rupture-mitigation valves (RMVs) or alternative equivalent technologies.

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(f) *Flow modeling for automatic shutoff valves.* Prior to using an ASV as an RMV, an operator must conduct flow modeling for the shut-off segment and any laterals that feed the shut-off segment, so that the valve will close within 30 minutes or less....

§192.745 Valve maintenance: Transmission Lines

- Each RCV installed per 192.179 and 192.634 must have a point to point conducted
- If “*alternative equivalent technology*” is installed
 - Drills must be conducted to assure 30-minute closure time
- Inoperable or unable to maintain effective shut-off:
 - Designate an alternative valve with 7 calendar days and repair or replace as soon as practicable but no later the 12 months

Part 195 – Key Sections

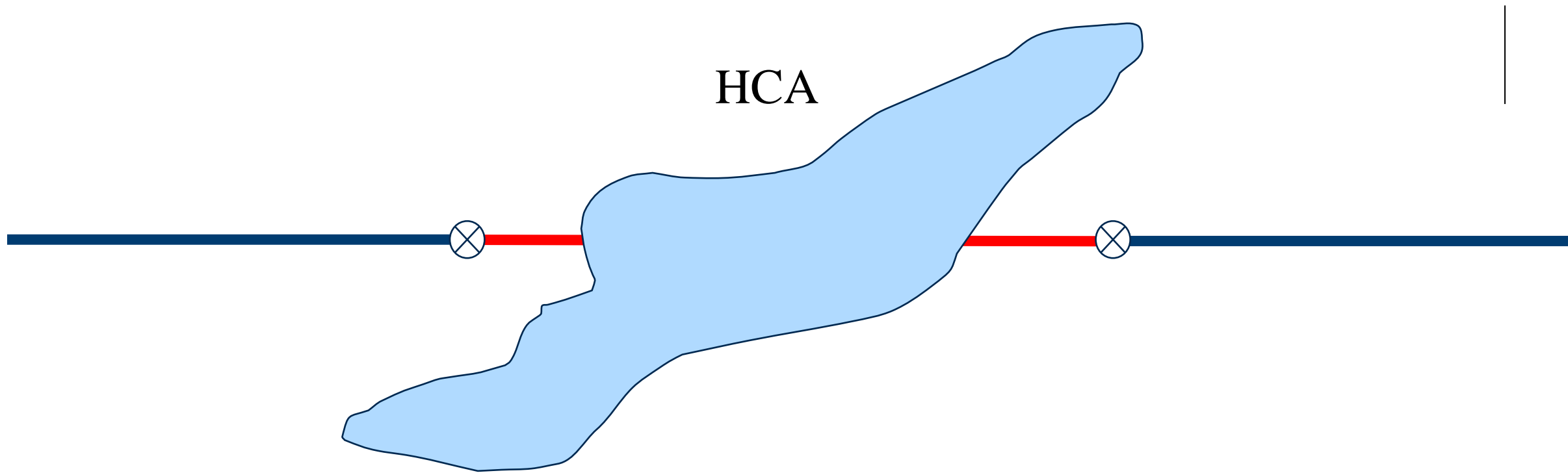
§195.417 Notification of potential rupture.

§195.418 Valves: Onshore valve shut-off for rupture mitigation..

§195.419 Valve capabilities.



Shut-off segment



§195.418 Valves: Onshore valve shut-off for rupture mitigation.

(b)(2)

Shut-off segment valve spacing..

- (i) Non - HVL: 15 miles, with a maximum distance not to exceed 7½ miles from the endpoints of a shut-off segment: or
- (ii) HVLS: 7½ miles.

§195.260 Valves: Location.

- (c)For pipeline segments that can not affect HCAs – 20 miles...
- (e) On each side of one or more adjacent water crossings that are more than 100 feet wide from high-water mark to high-water mark, as follows:
 - (1) Valves must be installed at locations outside of the 100-year flood plain or be equipped with actuators or other control equipment that is installed so as not to be impacted by flood conditions; and
 - (2) The maximum spacing interval between valves that protect multiple adjacent water crossings cannot exceed 1 mile in length.

§195.419 Valve capabilities.

(b) *Rupture identification and valve shut-off time.* An operator must, as soon as practicable but within 30 minutes of rupture identification (§195.402(e)(4)), fully close any RMVs



Other Key Changes for Transmission/Distribution/Hazardous Liquid Pipeline Systems

§192.615 / §195.402 - Emergency plans

Establishing and maintaining adequate means of communication with the appropriate public safety answering point (i.e., 9–1–1 emergency call center)...

§192.617 / §195.402 - Investigation of failures

Post-failure and incident lessons learned. Each operator must develop, implement, and incorporate lessons learned from a post-failure or incident review...

Other Key Changes for Transmission/Hazardous Liquids

§192.617 / §195.402

Analysis of rupture and valve shutoffs.

....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.

Rupture post-failure and incident summary.

....complete a summary of the post-failure or incident review required by paragraph (c) of this section within 90 days of the incident...

Other Key Changes for Hazardous Liquids

§195.420 Valve Maintenance

- (a) Each operator shall maintain each valve that is necessary for the safe operation of its pipeline systems in good working order at all times.
- (b) Each operator must, at least twice each calendar year, but at intervals not exceeding 7½ months, inspect each **mainline** valve to determine that it is functioning properly...



THANK YOU!!!!