Pipeline Safety Regulatory Update

Published Rule

- Periodic Standards Update Rule (Standards Update I)
  - NPRM published 1/15/21
  - Final rule published 4/29/24
  - Stay of Enforcement delaying compliance until **1/1/2025**.

- Major topics:
  - Updates IBR standards throughout parts 192 and 195
  - API 5 L (46th edition)
  - API 1104 (21st edition)
  - ASME B31.8 (2018 edition)
  - ASME B31.8S (2016 edition)
  - NFPA 58 (2020 edition)

Valve Installation and Minimum Rupture Detection Standards

DOCKET NO. PHMSA-2013-0255 (AMENDMENT 195-105)// (AMENDMENT 195-106)

RIN: 2137-AF06//2137-AF13

EFFECTIVE DATE: OCTOBER 05, 2022//AUGUST 1, 2023 (TECHNICAL CORRECTIONS).

APPEALS COURT DECISION FOR GATHERING TO BE STRICKEN: MAY 23, 2023

195.2 - Definitions

Entirely replaced - 2 or more miles of pipe, in the aggregate, have been replaced within any 5 contiguous miles within any 24-month period.

Notification of potential rupture - the notification to, or observation by, an operator of indicia identified in § 195.417 of a potential unintentional or uncontrolled release of a large volume of commodity from a pipeline.

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

NOTE: None of these definitions apply to gathering lines

Entirely Replaced?

June 2023
Replaced 1.5 Miles

July 2025
Replaced 1.5 Miles

April 2024
Replaced 0.4 Miles

195.258(c) - Valves: Newly Constructed
Subpart D - Construction

- Newly constructed
- Onshore hazardous liquid or carbon dioxide pipeline segments
- Diameters ≥ 6 inches after April 10, 2023
- Must install RMVs or AETs to meet spacing in §195.260.
- AETs require notification to PHMSA
- RMVs and AETs must meet §195.419.
- May request extension of compliance deadline per §195.18, that those requirements would be economically, technically, or operationally infeasible
  - Long lead time equipment
  - Availability of power

195.258(d) – Valves: Entirely Replaced
Subpart D - Construction

- Entirely replaced
- Hazardous liquid or carbon dioxide pipeline segments
- Diameters ≥ 6 inches after April 10, 2023
- Must install RMVs or AETs to meet valve spacing requirements
- AETs require notification to PHMSA
- RMVs and AETs must meet §195.419.
- Requirements apply if replacement project involves a valve, either through addition, replacement, or removal.
- May request an extension of compliance deadline per §195.18, that those requirements would be economically, technically, or operationally infeasible

195.258(e) – Valves: AETs
Subpart D - Construction

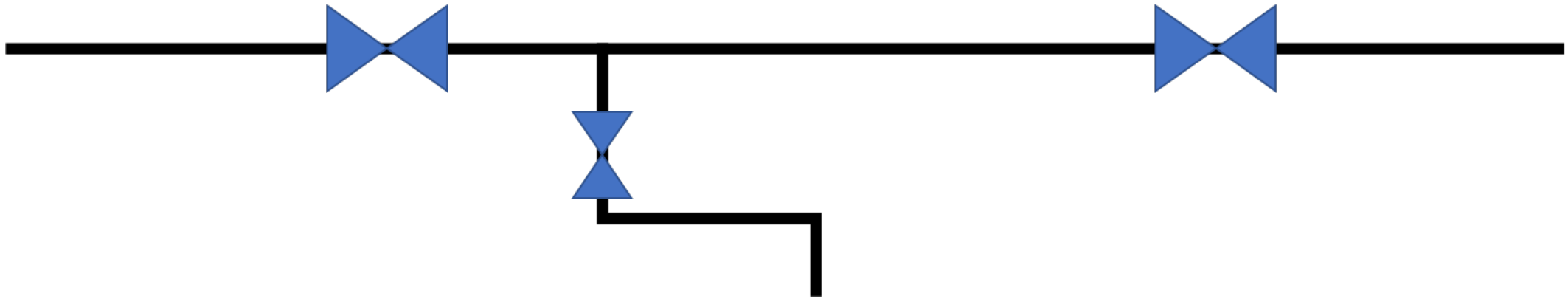
- If an AET is used, operator must notify PHMSA in accordance with § 195.18.
- Notification must include a technical and safety evaluation.
- AETs must comply with §§ 195.418, 195.419, and 195.420.
- Manual valve as an AET require notification to PHMSA including why an RMV would be economically, technically, or operationally infeasible.
- A manual pump station valve at a continuously manned station may be used and would not require a notification to PHMSA in accordance with § 195.18.
    - Must comply with §§ 195.419 and 195.420.

195.260(c) – Valves: Location
Subpart D - Construction

- Minimize consequences for onshore areas and HCAs
- Newly constructed or entirely replaced after April 10, 2023
- Onshore hazardous liquid or carbon dioxide pipeline segments
- Valve spacing must not exceed:
  - 15 miles for pipeline segments that could affect or are in HCAs
  - 20 miles for pipeline segments that could not affect HCAs.
- Valves in HCAs or which could affect HCAs must be installed per
  - §195.452(i) P&M measures **and** by using the selection process in section I.B of appendix C
  - Maximum distance that does not exceed 7 1/2 miles from the endpoints of the HCA segment or the segment that could affect an HCA
- May request an exemption from the compliance deadline with notification to demonstrate to PHMSA that the compliance would be economically, technically, or operationally infeasible.

195.260(d) – Valves: Location
Subpart D - Construction

(d) On each lateral takeoff from a pipeline in a manner that permits shutting off the lateral without interrupting flow in the pipeline.



195.260(e) – Valves: Location
Subpart D - Construction

- On each side of one or more adjacent water crossings that are more than 100 feet (30 meters) wide from high water mark to high water mark as follows:
  - 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
  - Valves that protect multiple adjacent water crossings cannot exceed 1 mile in length.

195.260(f) – Valves: Location Subpart D - Construction

(f) On each side of a reservoir holding water for human consumption.

195.260(g) – Valves: Location
Subpart D - Construction

- HVL pipelines located in a high-population area (HPA) or other populated area (OPA)
- Newly constructed or entirely replaced after April 10, 2023
- Maximum valve spacing of 7 1⁄2 miles
- Valve spacing may be increased by 1.25 times, up to a 9 3⁄8-mile spacing, provided:
  - Operator submits a notification to PHMSA requesting alternative spacing
    - Installing a valve between a 7-mile to a 7 1⁄2-mile spacing would be economically, technically, or operationally infeasible
    - Alternative spacing would not adversely impact safety; and
- Documents supporting that determination are life of the pipeline records

195.260(h) – Valves: Notifications

- An operator may submit a notification to PHMSA for:
  - A site-specific exemption from the valve installation requirements.
  - Exemption from valve spacing in §195.260 (c), (e), or (f)
    - Must demonstrate such exemption would not adversely affect safety.
  - Extension of compliance deadlines because they would be economically, technically, or operationally infeasible

195.417 – Notification of potential rupture
Subpart F – Operations and Maintenance

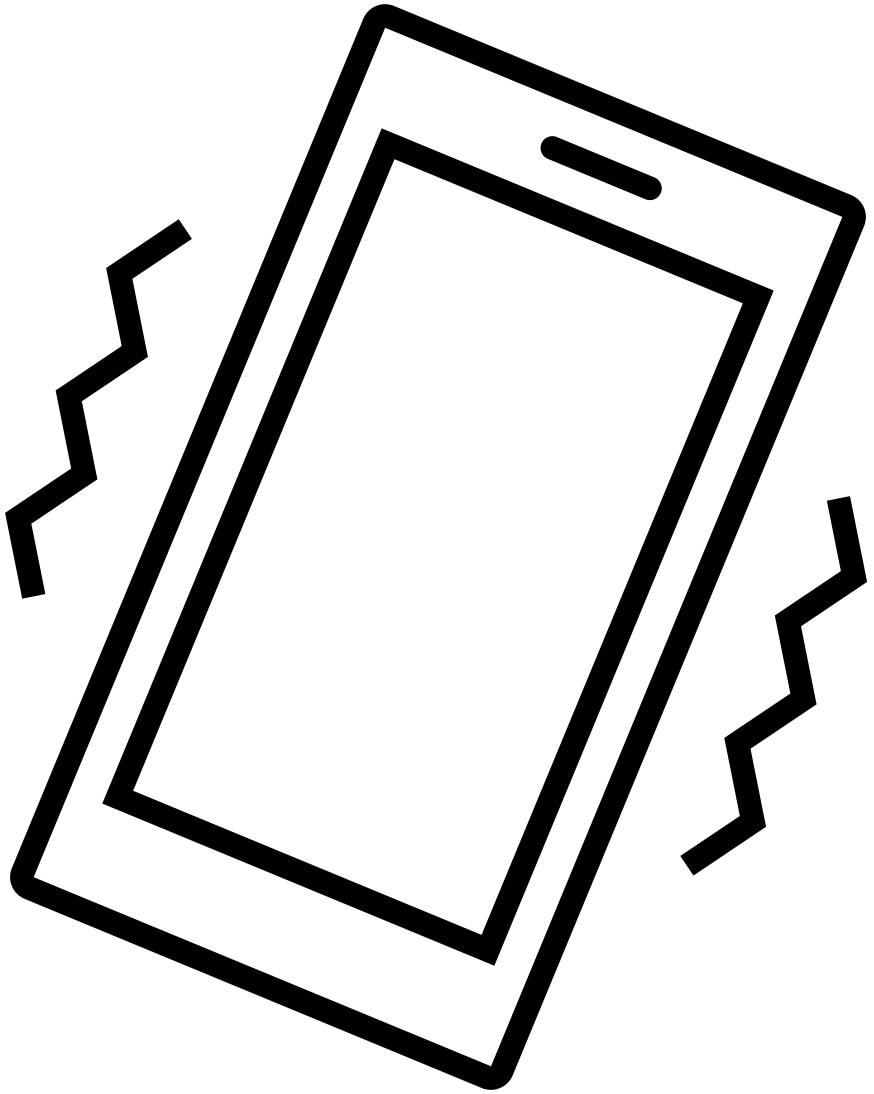
The notification to, or observation by, an operator of a potential unintentional or uncontrolled release of a large volume of hazardous liquids or carbon dioxide from a pipeline reported by:

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

195.417(a) – Notification of potential rupture Subpart F – Operations and Maintenance

Operator observes any unanticipated, unplanned or unexplained (according to procedures)

- Pressure Loss outside of normal operations – 10% over 15 minutes
- Flow Rate Change
- Pressure Change
- Equipment function or instrumentation indication U/S or D/S
- Rapid release of large volume of hazardous liquid or carbon dioxide
- Fire or explosion (immediate vicinity of the pipeline)



195.417(b) – Notification of potential rupture

(b) A notification of potential rupture occurs when an operator first receives notice of or observes an event specified in paragraph (a) of this section.

195.418(a) – Valves: Onshore valve shutoff for rupture mitigation Subpart F – Operation and Maintenance

Applicability

- New or entirely replaced ≥ 6 inches installed after April 10, 2023
- Hazardous liquid or carbon dioxide
- HCA or could affect an HCA
- Must install or use existing RMVs or AETs
- RMVs and AETs must be operational within 14 days of placing the segment into service.
- May submit PHMSA notification to request an extension of this 14-day requirement if it can demonstrate that application of that requirement would be economically, technically, or operationally infeasible.
- **Applies to all applicable pipe replacement projects, even those that do not otherwise involve the addition or replacement of a valve.**

195.418(b)(1) – Valves: shut-off segment
Subpart F – Operation and Maintenance

RMVs or AETs, must be installed in accordance with the following requirements:

- Entirety of the new or replaced HCA or could affect HCA is between the closest U/S and D/S RMVs or AETs.
- Crossovers or laterals connected to the shut-off segment must have a valve that will stop flow back to the shut-off segment.
- Multiple HCAs or could affect HCAs may be within a single shut-off segment.
- All entirely replaced segments must include at least one RMV
- The operator is not required to select the closest valve to the shut-off segment as the RMV or AET.
- A manual pump station valve at a continuously manned station may be used as an AET.
    - Notification to PHMSA is not required for this manual valve.

195.418(b)(2) Valves: shut-off segment valve spacing
Subpart F – Operation and Maintenance

New or entirely replaced pipeline segments must be protected on the U/S and D/S side with RMVs or AETs. The distance between RMVs or AETs must not exceed:

Non-highly volatile liquids: 15 miles, with a maximum distance not to exceed 7 1/2 miles from the endpoints of a shut-off segment: or

HVLs: 7 1/2 miles. The maximum valve spacing intervals for these valves may be increased by 1.25 times the spacing distance, up to a 9 3/8-mile spacing at an endpoint, provided the operator notify PHMSA in accordance with § 195.260 (g).

195.418(b)(2) Valves: shut-off segment valve spacing
Subpart F – Operation and Maintenance

195 Valve Rule - Valve Spacing Chart	**Newly constructed pipe**	**Entirely Replaced**		
	Every X miles	**Shutoff segment required** per 195.418	**Valve endpoint spacing for shutoff segment** per 195.260, 195.418	**Shutoff Segment Spacing** Every X miles
HCA	15	Yes	7.5**	15
HCA HVL	7.5 or 9-3/8*	Yes	7.5**	7.5 or 9-3/8*
Non HCA, Non HCA HVL	20***	No	N/A	N/A

* with notification to PHMSA per 195.18
** Must be <= 7.5 miles outside the endpoints of the replacement
*** 20 mile spacing also applies to all non HCA entirely replaced segments

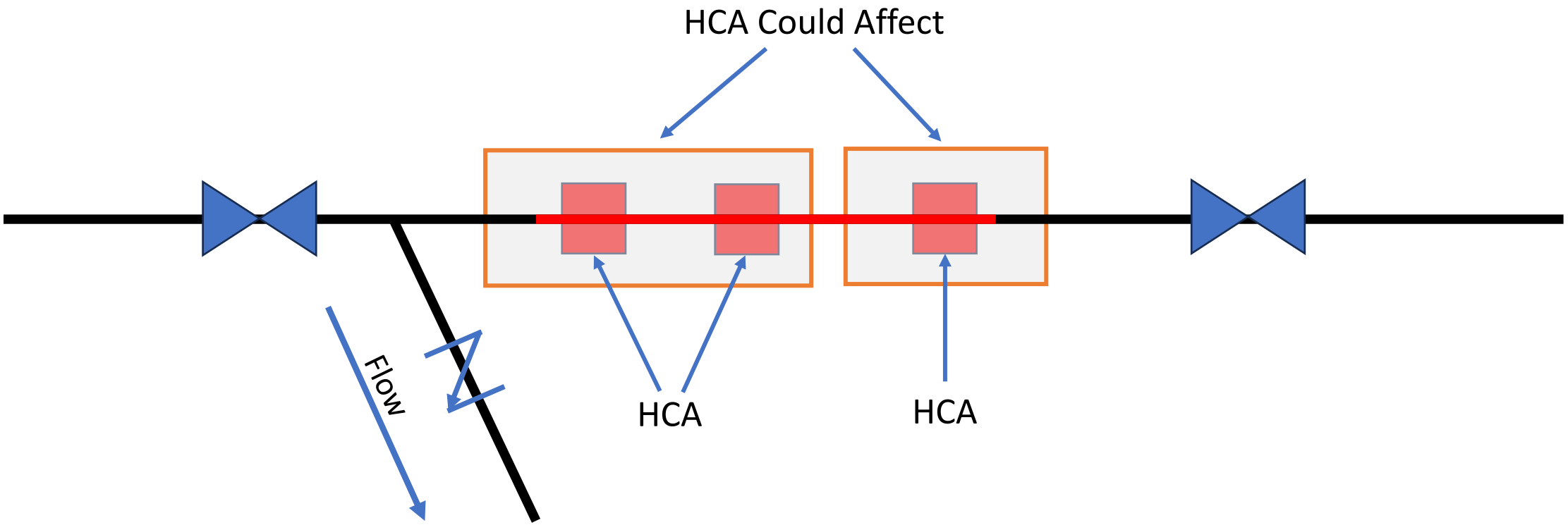
195.418(b)(3) – Laterals

Laterals that contribute less than 5 percent of the total shut-off segment volume may have RMVs or AETs at locations other than mainline receipt/delivery points.

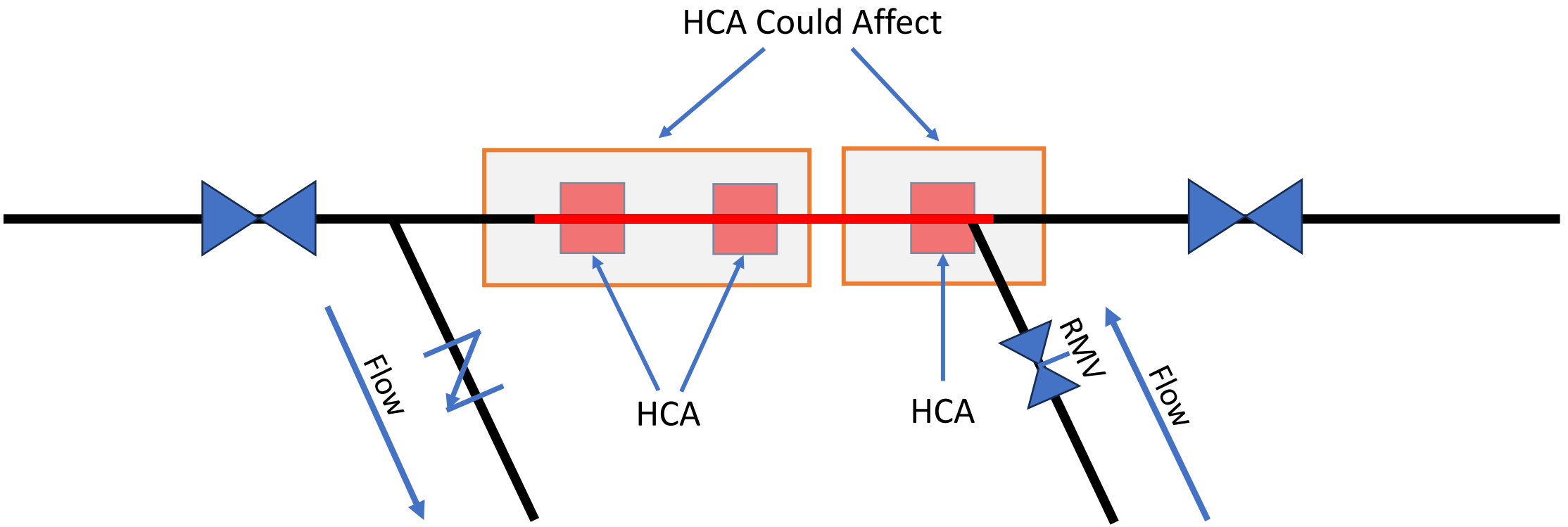
Check valves may be used as an AET where it is positioned to stop flow into the lateral.

- Check valves but must be inspected, operated, and remediated in accordance with § 195.420, including for closure and leakage, to ensure operational reliability
- Use of a check valve requires submission of a request to PHMSA per § 195.18.

195.418(b)(3) – Laterals



195.418(b)(3) – Laterals

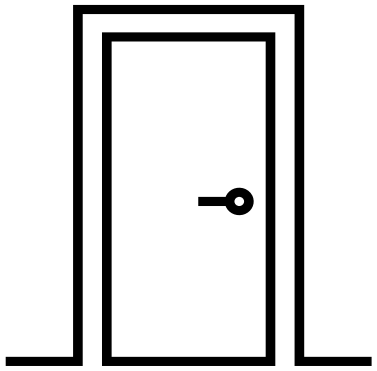


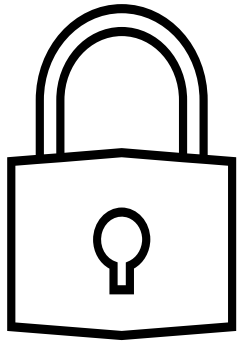
(3) Laterals extending **from shut-off segments**….

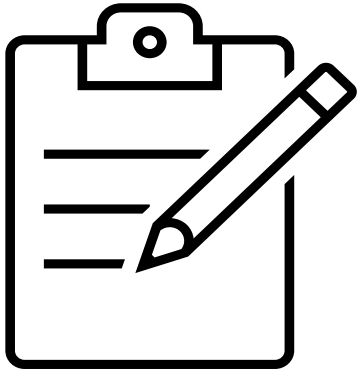
195.418(b)(4) – Crossovers

An operator may use a manual valve as an AET for a crossover connection if:

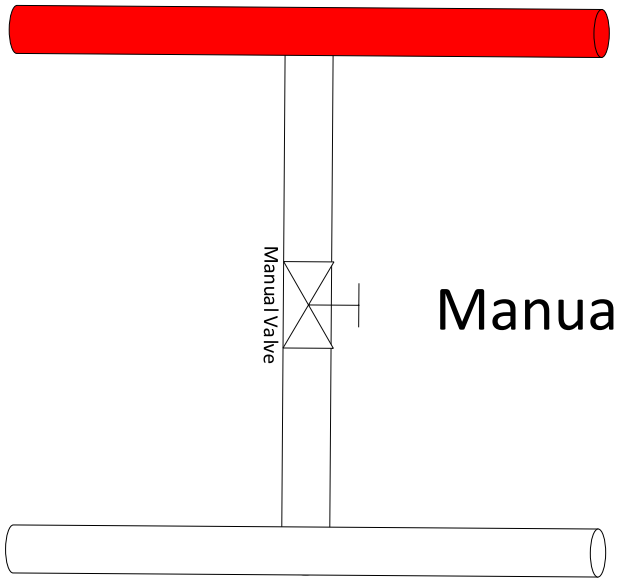
- During normal operations, the valve is closed and locked
- Documented in operator's lock-out and tag-out procedures
- Submit a request to PHMSA in accordance with § 195.18.



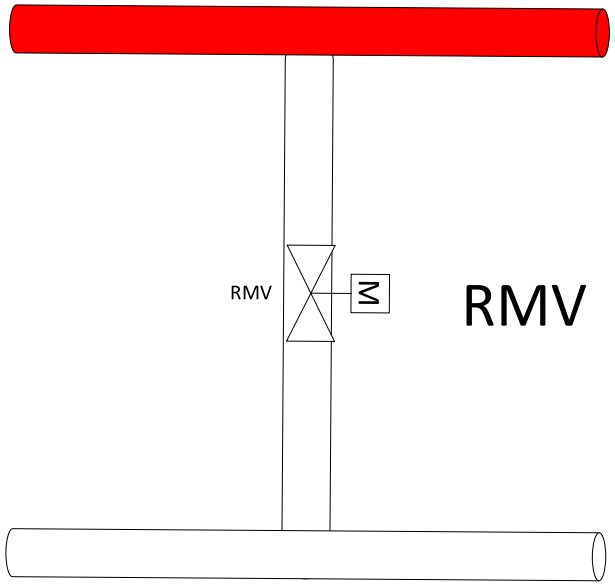




195.418(b)(4) – Crossovers



Manual Valve

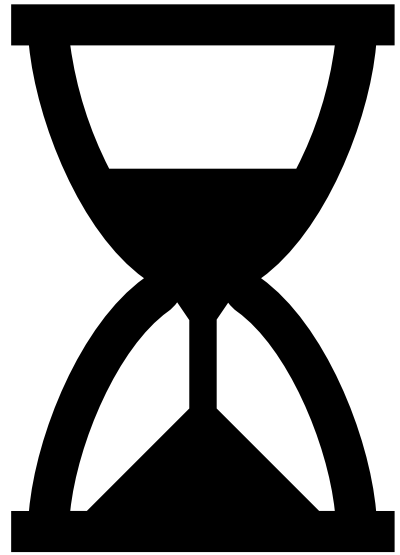


RMV

195.419 – Valve Capabilities
Subpart F – Operations and Maintenance

(a) Scope. The requirements in this section apply to…RMVs,…or AETs…installed pursuant to §§ 195.258 and 195.418.

(b) Rupture identification and valve shut-off time. An operator must, *as soon as practicable but within 30 minutes of rupture identification* …, fully close any RMVs or AETs…necessary to minimize the volume of hazardous liquid or carbon dioxide released from a pipeline and mitigate the consequences of a rupture.



195.419(c) – Valve Capabilities
Subpart F – Operations and Maintenance

Valve shut-off capability

- A valve must have actuation capability to mitigate the consequences of a rupture.

195.419(d) – Valve Capabilities
Subpart F – Operations and Maintenance

Valve monitoring and operational capabilities

An RMV or AET must be capable of being monitored or controlled either remotely or by on-site personnel as follows:

- Operated during normal, abnormal, and emergency operating conditions
- Monitored for valve status (i.e., open, closed, or partial closed/open)
- Upstream and downstream pressure
- Have a back-up power source to maintain SCADA systems and other remote communications or be monitored and controlled by on-site personnel.

Note: A SCADA system is not required if operator can monitor line via other means.

195.419(e) – Valve Capabilities
Subpart F – Operations and Maintenance

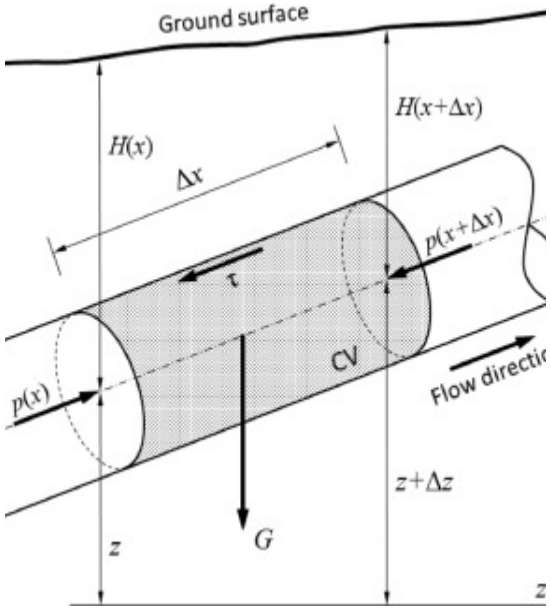
Valve monitoring, operational capabilities and shut-off response status

- RMV position and operational status must be appropriately monitored through electronic communication with remote instrumentation or other equivalent means.
- ASV status does not need to be monitored remotely if pressures and flow rates are monitored to identify and locate a rupture.

195.419(f) – Flow Modeling
Subpart F – Operations and Maintenance

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 for:

- 30 minutes or less closure time following rupture identification
- The flow modeling must include:
  - Anticipated maximum, normal, or any other flow volumes, pressures, or other operating conditions that may be encountered during the year
  - Modeling timeframe cannot exceed a period of 15 months
  - Modeling must include the flow between the RMVs or AETs and any looped pipelines or receipt tie-ins.
  - A new flow model if conditions change that could affect operation. ASV set pressure changes must be implemented prior to the next review.
  - Time/pressure chart for the segment containing the ASV if a rupture occurs
  - If the 30-minute valve closure time may be unachievable, the flow modeling must be completed prior to making flow changes.



195.419(g) – Manual Valves
Subpart F – Operations and Maintenance

For pipeline segments that are not in an HCA or cannot affect an HCA, the manual valve (AET) notification to PHMSA may include an exemption request to the 30-minute closure time.

195.420 – Valve Maintenance
Subpart F – Operations and Maintenance

- Operator shall maintain each valve to ensure good working order at all times.
- Each valve must be inspected 2/CY NTE 7 1/2 months
- Each RMV or AET must be closed a minimum of 25%
  - Procedures may require an additional closure
- Each valve must have protection from unauthorized access

195.420(d) – Valve Maintenance
Subpart F – Operations and Maintenance

For each RCV, an operator must conduct a point- to-point verification between SCADA system displays and the installed valves, sensors, and communications equipment

195.420(e) – Valve Maintenance
Subpart F – Operations and Maintenance

For each AET that is manually or locally operated:

- Operators must achieve a response time of 30 minutes or less
  - Initial drill and periodic validation
- An operator must review each phase of the drill response and document the results to validate the total response time, including:
  - the identification of a rupture
  - valve shut-off time of less than or equal to 30 minutes after rupture identification.

195.420(e) – Valve Maintenance
Subpart F – Operations and Maintenance

Within each pipeline system, and within each operating or maintenance field work unit operators must randomly select an AET for:

- annual 30-minute-total response time validation drill simulating worst- case conditions
- A minimum 25 percent valve closure is sufficient
- The response drill must occur 1/CY NTE 15 months
- Procedures must include the random selection method

195.420(e) – Valve Maintenance
Subpart F – Operations and Maintenance

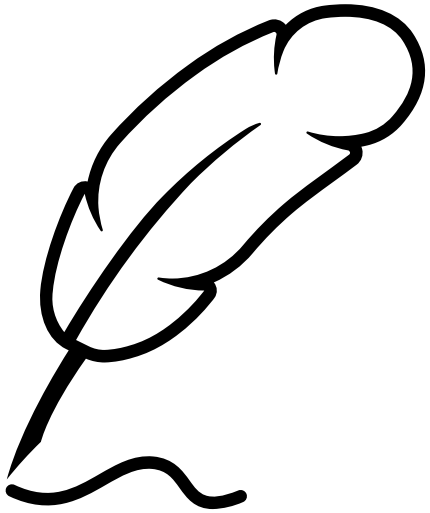
If the 30-minute-maximum response time cannot be achieved in the drill, the operator must:

- Revise response efforts to achieve compliance within 12 months after the drill
- Implement alternative valve shut-off measures within 7 days of the drill.
- Include lessons learned in:
  - Training and qualifications programs;
  - Design, construction, testing, maintenance, operating, and emergency procedures manuals; and
  - Any other areas identified by the operator as needing improvement.

195.420(f) – Valve Maintenance
Subpart F – Operations and Maintenance

If an RMV or AET is found inoperable or unable to maintain effective shut-off, the operator must:

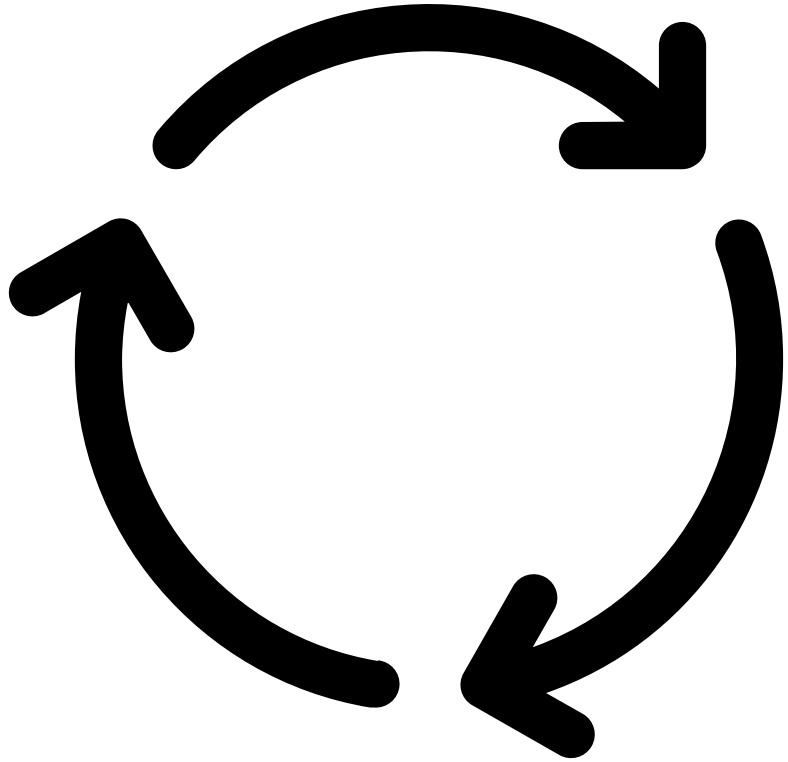
- Repair or replace the valve as soon as practicable but within 12 months
  - May request an extension if economically, technically, or operationally infeasible; and
- Designate an alternative compliant valve within 7 calendar days while repairs are being made
  - Document an interim response plan to maintain safety.
  - Alternative compliant valves are not required to comply with valve spacing requirements



195.420(g) – Valve Maintenance
Subpart F – Operations and Maintenance

ASVs as an RMV, operator must 1/CY
NTE 15 months:

- Document and confirm the ASV shut-in pressures
- Prove and reset shut-in pressures at each ASV



195.452(i)(4) – Preventive and Mitigative Measures – EFRD Integrity Management in High Consequence Areas

If an operator determines that an EFRD or *RMV* is needed to protect an HCA, the operator must:

- Install the EFRD or RMV
- Evaluate the following factors:
  - Swiftness of leak detection and pipe shutdown capabilities
  - The type of commodity being carried
  - Rate and volume of a potential leak
  - Topography or pipeline profile within or that could affect the HCA
  - Potential for ignition
  - Proximity of power sources
  - Location of nearest response personnel
  - Benefits of a reduced spill size

195.452(i)(4) – Preventive and Mitigative Measures – EFRD Integrity Management in High Consequence Areas

For new or entirely replaced segments:

- EFRD installation, actuation, operation, and maintenance of such EFRDs (including valve actuators, personnel response, operational control centers, supervisory control and data acquisition (SCADA), communications, and procedures) must meet the design, operation, testing, maintenance, and rupture-mitigation requirements of §§ 195.258, 195.260, 195.402, 195.418, 195.419, and 195.420.
- EFRD analysis and assessments must be completed prior to placing segment into service
  - Implementation of EFRD findings for RMVs must meet shut-off segment requirements per § 195.418.
- An operator may request an exemption if the EFRD compliance deadline would be economically, technically, or operationally infeasible.

195.402(c)(5)(ii) – Preventive and Mitigative

If a failure or accident involves the closure of an RMV or AET, the operator's procedures must include a requirement for a post failure or accident analysis

- The Analysis must include all factors that impacted release volume and consequences including:
  - Detection, identification, operational response, system shut-off, and emergency-response communications
  - Appropriateness and effectiveness of procedures and pipeline systems, including SCADA, communications, valve shut-off, and operator personnel
  - Actual response time from identifying a rupture, initiation of mitigative actions, isolation of the segment, and the appropriateness and effectiveness of the mitigative actions taken
  - Location and timeliness of actuation of all RMVs or AETs
  - All other factors the operator deems appropriate.
- Identifying and implementing O&M measures to minimize consequences of a future failure or accident

195.402(c)(5)(iii) – Rupture Post-failure Accident Summary

If a failure or accident involves a rupture or the closure of an RMV/AET, the operator must:

- Complete a summary of the post-failure or accident review within 90 days
- Conduct quarterly status reviews until the investigation is completed and documented
- The final summary and all other reviews and analyses produced must be:
  - Reviewed, dated, and signed by the appropriate senior executive officer.
- All records associated with the analysis, review and summary are life of pipeline records
  - Summary
  - Investigation documents
  - Analysis documents
  - Lessons learned

195.402(e)(4) – Emergencies

Operator's emergency procedures must include:

- Taking emergency actions including but not limited to:
  - Emergency shutdown, valve shut-off or pressure reduction
- Rupture identification procedures following notification of potential rupture including:
  - Sources of information
  - Operational factors
  - Other criteria the operator uses
  - Rupture identification should be provided as soon as practicable

195.402(e)(7) – Emergencies

Operator's emergency procedures must include:

- Immediate notification to 911 following a notification of potential rupture
- Coordinate and share information with 911, for both planned and actual responses, to:
  - Determine location of release
  - Additional precautions with respect to product (HVL)

NOTE: This communication must take place regardless of whether RMVs are installed per § 195.258 (c) or (d), § 195.418, or § 195.419.

What does it all mean?

Operator receives information from control center, field personnel, public, public authorities or any other means

Operator evaluates information per procedures to determine a potential rupture or not

Operator must IMMEDIATELY notify 911 or other agencies of the potential rupture and share information

As soon as practicable, determine if notification of potential rupture is a rupture

Operator must take necessary actions to close valves to protect life, property and the environment. If RMVs are installed, closure must be within 30 minutes of rupture confirmation.

Questions?