Transmission Rule 2: *Safety of Gas Transmission Pipelines: Repair Criteria, Integrity Management Improvements, Cathodic Protection, Management of Change, and Other Related Amendments*

Summary

The rulemaking is part 2 of 3 of the original 2016 rulemaking: **Safety of Gas Transmission and Gas Gathering Lines** that has been called the "*Transmission mega rule*". This rulemaking contains extensive updates to response and repair criteria for integrity assessments and expands cathodic protection requirements. This rulemaking does not apply to Gas Gathering lines.

Rulemaking Topics

- **Repair Criteria**
- **Risk Modeling**
- **Risk Assessment Requirements**
- **Surveillance After Weather Events**
- **Internal Corrosion**
- **General P&M Measures**
- **External Corrosion**
- **Safety of Launchers & Receivers**
- **Appendix D**
- **Management of Change**
- **Corrosion P&M Measures**
- **Definition of Transmission Line and Distribution Center**

Expected Final Publication Dec 2019

Rulemaking Highlights

- Proposed regulatory language that captures GPAC's intent in approved voting are highlighted in *red*
- Industry proposed regulatory language revisions are highlighted in *blue*

Transmission Line and Distribution Center - PHMSA is proposing to revise the definition of a Transmission Line, and codify the definition of a distribution center to clarify the boundary between transmission and distribution lines.

Transmission Line Definition §192.3

Transmission Line: "*...means a pipeline ~~or connected series of pipelines~~, other than a gathering line, that:*

1) *Transports gas from a gathering line or storage facility to a distribution center, storage facility; or large volume customer that is not down-stream from a distribution center;*
2) *~~Has an MAOP~~ Operates at a hoop stress of 20 percent or more of SMYS; or*
3) *transports gas within a storage field; or*
4) *is voluntarily determined by the operator to be a transmission pipeline."*

Distribution Center Definition §192.3

Distribution Center: "*means the initial point where gas piping used primarily to deliver gas to customers who purchase it for consumption as opposed to customers who purchase it for resale, for example:*

1) *at a metering location*
2) *pressure reduction location, such as a gate station or custody transfer point, or*
3) *where there is a reduction in the volume of gas, such as a lateral off a transmission line."*

External Corrosion Control – PHMSA is seeking to establish additional requirements for external corrosion inspection and mitigation.

Inspection of New Pipe Install & Protective Coating - §192.319(d), §192.461(f)

- Indirect assessment via DCVG or ACVG no later than *six months* after backfill for any *1000 contiguous feet*.
- Remediate severe coating damage, as defined by NACE SP0502, within six months of the assessment

Monitoring - §192.465(d-g)

- Operator must develop plan to remediate corrosion control deficiencies within *6 months* of discovery and complete remedial action within *12 months or as soon as practicable after obtaining necessary permits.*
- CIS, at interval of 5 feet, required in both direct of test station with low read, if non-systematic causes of low read are not present
- Non-systematic causes defined as electrical shorts, rectifier malfunction, interruption of power source, interruption of CP current.

Interference Currents - §192.473(c)

- For transmission pipe segments subject to stray currents:
  - Require interference surveys to detect presence and level of electrical stray current
  - Analysis to determine if interference could cause *significant corrosion (defined as 100 amps per meter squared for AC-induced corrosion)*
  - Remedial action plan within *6 months*. Completion of remedial action within *12 months or as soon as practicable after obtaining necessary permits.*

Internal Corrosion Control – PHMSA is seeking to codify additional requirements for pipe internal corrosion P&M measures

Scope - §192.478(a)

- *Onshore transmission pipelines that transport corrosive gas*

Monitoring & Mitigation Program - §192.478(b-c)

- Determine gas stream constituents at point where gas with potentially corrosive contaminants enters the pipeline
- Use "*technology to mitigate the effects of potentially corrosive gas stream constituents."* (ex. Product sampling, inhibitor injections, In-line cleaning, separators, etc.)
- Evaluate gas stream and the monitoring and mitigation program *once per calendar year*, not to exceed *15 months*.

Management of Change (MOC) – PHMSA is seeking to establish requirements for management of change principals that includes an 8-step process:

Applicability and Scope - §192.13(d)

- Onshore gas transmission pipeline operators must evaluate and mitigate "*significant changes to pipeline operations that pose a risk to safety or the environment through management of change process*."
- MOC process will address *"…technical, design, physical, environmental, procedural, operational, maintenance, and organizational changes to the pipeline or processes, whether permanent or temporary*."
- MOC process will include "*(1) reason for change, (2) authority for approving changes, (3) analysis of implications, (4) acquisition of required work permits, (5) documentation, (6) communication of change to affected parties, (7) time limitations, and (8) qualification of staff.*"
- MOC process must be implemented within 2 years of effective date of rule. 1 year extension available with notification to PHMSA

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Integrity Risk Assessments - PHMSA is seeking to prescribe additional requirements for pipeline risk assessments that includes the expansion of types of threats considered and new data collection requirements.

Threat Definition - §192.917(a)

- Expanded time-independent threats to include incorrect operational procedure and weather related (seismicity, geology, soil stability)

Threat Data Gathering - §192.917(b)

- *"Pertinent existing data and information"* per modified list from ASME/ANSI B31.8S Appendix A
- *"…employ adequate control measure to ensure consistency and accuracy of information"*
- Analyze data for evidence of interacting threats
- Begin to integrate data elements starting *1 year* after effective date of rule and completed within *3 years*

Risk Assessment Process - §192.917(c)

- Assess likelihood and potential consequence of incidents due to threats
- Ensure risk characterization is consistent with operator and industry experience
- Must use risk assessment results to determine additional preventive and mitigative (P&M) measures

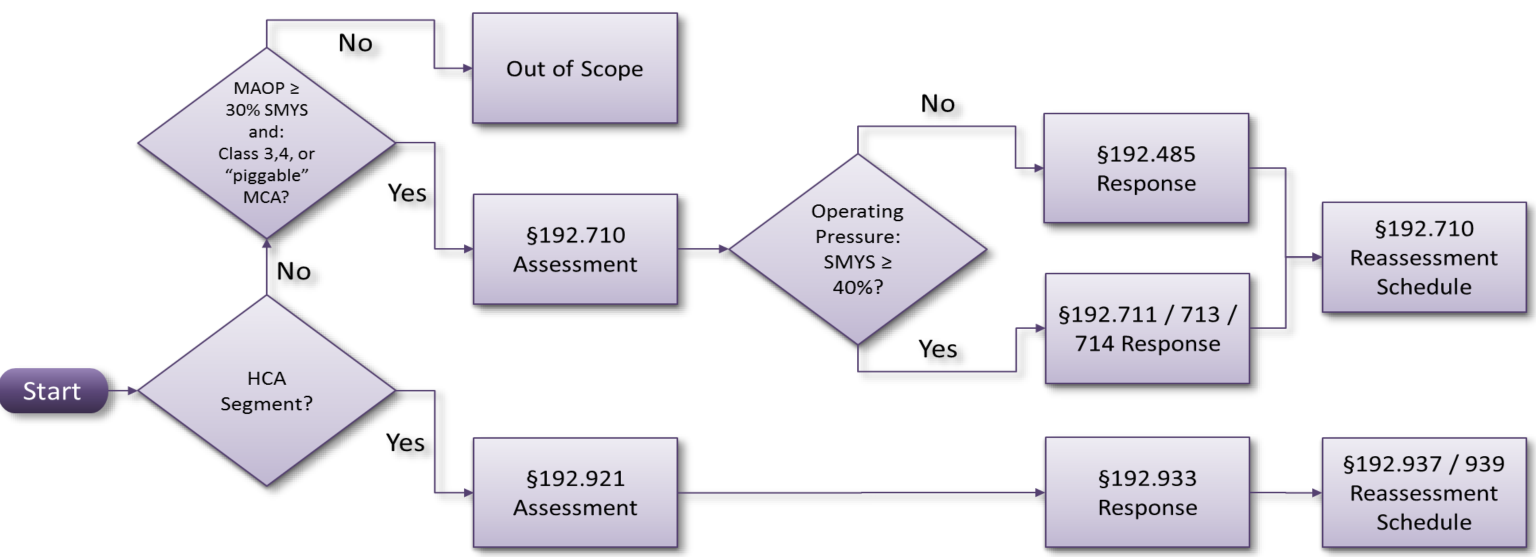
Actions to address particular threats - §192.917(e)

- Additional requirements for evaluating certain threats, such as cyclic fatigue, cracking, etc.

Additional P&M Measures - §192.935

- PHMSA provided list of P&M measures that *"Operators must consider… for implementation, as necessary"*

Pipeline Integrity Assessments – Rulemaking 1 and 2 of the original 2016 *Safety of Gas Transmission and Gas Gathering Lines* Rulemakings combine to overhaul the pipeline assessment scope, assessment interval, and anomaly evaluation/response. The flow diagram below is an overview of the sections of Part 192 of the federal code that govern the complete integrity assessment process after rule 1 and 2 are both published.



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Summary

AGA 100 YEARS

HCA and non-HCA assessment Response Criteria – PHMSA is seeking to update the integrity assessment response criteria for HCA pipe and establish new response criteria for non-HCA pipeline.

The anomalies that require response following HCA assessments and non-HCA assessments are defined in §192.933 and §192.713 respectively. Generally, the three types of anomalies that require response if meeting specific requirements are:

- Pipe wall thinning (general metal loss, metal loss preferentially affecting long seams)
- Dents (top-side dents, bottom-side dents, dents on welds, other dents)
- Crack-like features

Specific anomaly response criteria appear to be the same and can be summarized in the table below:

Anomaly	Immediate	Scheduled (HCA: 1yr, Non-HCA: 2yr)	Monitored
General metal loss anomalies	PFP ≤ 1.1 x MAOP, or Metal loss > 80% nominal WT	PFP ≤ 1.39 x MAOP in Class 3 & 4 unless PFP ≥ MAOP / Design Factor	
Metal loss preferentially affecting long seam on DC/LF ERW / EFW	PFP ≤ 1.25 x MAOP	PFP ≤ 1.39 x MAOP for Class 1, PFP ≤ 1.5 x MAOP for Class 2, 3, and 4, or PFP < MAOP / Design Factor	PFP > 1.39 x MAOP for Class 1, PFP > 1.5 x MAOP for Class 2, 3, and 4, or PFP ≥ MAOP / Design Factor
Metal loss > 50% at crossing/circumferential / girth weld		PFP ≤ 1.39 x MAOP for Class 1, PFP ≤ 1.5 x MAOP for Class 2, 3, and 4, or PFP < MAOP / Design Factor	PFP > 1.39 x MAOP for Class 1, PFP > 1.5 x MAOP for Class 2, 3, and 4, or PFP ≥ MAOP / Design Factor
Dents between 8 and 4 o'clock (top 2/3 of pipe)	Dent w/ metal loss, cracking, or stress riser unless strain < critical	Smooth dents with depth > 6% unless strain < critical	Depth > 6% and ECA strain < critical
Dents between 4 and 8 o'clock (bottom 1/3 of pipe)		Dent w/ metal loss, cracking, or stress riser unless ECA strain < critical	Depth > 6%
Dent on weld		Depth > 2% at weld, unless ECA strain < critical	Depth > 2% at weld, and strain < critical
Other dents			Dent w/ metal loss, cracking, or stress riser and strain < critical
Crack or Crack-like anomalies	Crack depth > 50% of WT at location of crack PFP ≤ 1.1 x MAOP	PFP ≤ 1.39 x MAOP for Class 1, PFP ≤ 1.5 x MAOP for Class 2, 3, and 4, or PFP < MAOP / Design Factor	PFP > 1.39 x MAOP for Class 1, PFP > 1.5 x MAOP for Class 2, 3, and 4, or PFP ≥ MAOP / Design Factor

Note: PFP – Predicted failure pressure

Please visit the following link to read the complete set of proposed rulemaking language based on GPAC voting slides: https://www.aga.org/research/policy/safety-of-gas-transmission--gathering-lines-rule/

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