

Safety of Gas Transmission and Gathering Pipelines

RIN: 2137-AE72

Docket: PHMSA - 2011 - 0023

January 11-12, 2017

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Brief History of Gas Rule

- **September 9, 2010, incident at San Bruno, CA**, kills 8 people, injures many, causes several more to be evacuated, destroys 38 homes, and damages another 70 homes.
- **PHMSA issues Gas ANPRM on August 25, 2011**, seeking public comment on 15 topics (122 questions). PHMSA received 103 comments.
- **NTSB issues several recommendations** to several entities, including PHMSA, CPUC, PG&E, AGA, and INGAA, following the San Bruno incident through its investigation report adopted on August 30, 2011.



Brief History of Gas Rule

- **Pipeline Safety Act of 2011 issued on January 3, 2012**; includes several mandates related to gas pipeline regulation, many of which correlate to San Bruno investigation findings.
- **Incident near Sissonville, WV, on December 11, 2012**, destroys 3 homes, damages several other houses, and shuts down I-77 because of the fire and road surface damage.
- **NTSB issues new recommendations for IM of Gas Transmission Pipelines** in HCAs report adopted January 27, 2015.
- **PHMSA issues Gas NPRM on April 8, 2016.**



Congressional Mandates (2011 PSA)

- **5 (e)** – Allow extension (6 months) for an High Consequence Area (HCA) reassessment if operator submits sufficient justification
- **5 (f)** – Expand Integrity Management (IM) requirements or principles beyond HCAs
- **21** – Review gathering line regulations and issue a report to congress recommending the modification or elimination of existing exemptions if appropriate



Congressional Mandates (2011 PSA)

- **23** – Testing regulations to confirm the material strength of previously untested Gas Transmission (GT) pipelines; records verification
- **29** – Operators must consider seismicity when identifying pipeline threats



NTSB / GAO Recommendations Relating to Gas Rule

- **P-11-14** – Amend Part 192 to repeal exemptions from pressure test requirements and require all GT pipelines constructed before 1970 be subjected to a hydrostatic test that incorporates a spike test
- **P-11-15** – Manufacturing and construction-related defects can only be considered stable if a pipeline has been subjected to a post-construction hydrotest $\geq 1.25 \times$ Maximum Allowable Operating Pressure (MAOP)



NTSB / GAO Recommendations

Relating to Gas Rule

- **P-14-1** – Add principal arterial roadways, including interstates, other freeways and expressways, and other principal arterial roadways as defined by Federal Highway Administration (FHA) to the list of “identified sites” that establish an HCA
- **P-15-18** – Require all GT pipelines to be piggable by either reconfiguring the pipeline to accommodate ILI tools or through using new technology that permits the inspection of previously uninspectable pipelines; priority should be given to the highest-risk GT pipelines considering age, pressure, diameter, and class location (supersedes P-11-17)

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NTSB / GAO Recommendations Relating to Gas Rule

- **P-15-20** – Identify all operational complications that limit the use of inline inspection (ILI) tools in piggable pipelines, develop methods to eliminate the operational complications, and require operators use these methods to increase the use of ILI tools
- **P-15-21** – Develop and implement a plan for eliminating the use of Direct Assessment (DA) as the sole integrity assessment method for GT pipelines
- **P-15-22** – Develop and implement a plan for all segments of the pipeline industry to improve data integration for IM through the use of GIS.
- **GAO-12-388** – Collect data on Federally unregulated hazardous liquid and gas gathering pipelines

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High Level Summary of Proposed Rule

PHMSA proposed rule changes in the following areas for gas transmission and gas gathering pipelines:

1. Require assessments for non-HCAs
2. Strengthen repair criteria for HCAs and non-HCAs
3. Strengthen requirements for assessment methods
4. Clarify requirements for validating & integrating pipeline data
5. Clarify functional requirements for risk assessments
6. Clarify requirement to apply knowledge gained through IM
7. Strengthen corrosion control requirements
8. Add requirements for selected preventative and mitigative (P&M) measures in HCAs to address internal corrosion and external corrosion

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High Level Summary of Proposed Rule

9. Management of change
10. Require pipeline inspection following extreme external events
11. Include 6-month grace period (w/notice) to 7 year reassessment interval (Act § 5(e))
12. Require reporting of MAOP exceedance (Act § 23)
13. Incorporate provisions to address seismicity (Act § 29)
14. Add requirement for safety features on launchers and receivers
15. Gathering lines- Require reporting for all & some regulatory requirements
16. Grandfather clause/Inadequate records - Integrity Verification Process (IVP)

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NPRM Comment Summary

- PHMSA issued Gas NPRM on April 8, 2016.
- Comment period ended July 7, 2016.
- PHMSA received approx. 300 comments on the Gas NPRM.
 - Major entities include:
 - Industry Trade Associations (INGAA, API, AGA, APGA, others)
 - Pipeline Safety Trust (PST)
 - State Utility Commissions and regulators (NAPSR, NARUC, & CPUC)
 - Members of Congress
 - Public Interest Groups
 - Environmental Groups
 - (Sierra Club, Environmental Defense Fund (EDF))
 - Operators (including PG&E)

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NPRM Comment Summary

- **A. Records**
- **B. Legal**
- **C. IVP**
- **D. Require Assessments for Non-HCAs (MCAs)**
- **E. Gathering Lines**
- **F. Repair Criteria for HCAs and Non-HCAs**
- **G. Requirements for Assessment Methods**
- **H. Requirements for Validating and Integrating Pipeline Data**
- **I. Functional Requirements for Risk Assessments**
- **J. Applying Knowledge Gained Through IM**
- **K. Corrosion Control**
- **L. Preventative and Mitigative Requirements to Address External Corrosion and Internal Corrosion in HCAs and Actions to Address Integrity Issues**
- **M. Management of Change**
- **N. Inspections of Pipelines Following Extreme Weather Events**
- **O. Grace Period (with notice) for Reassessment Interval**
- **P. Reporting of MAOP Exceedance**
- **Q. Seismicity**
- **R. Safety Features on Inline Inspection Tool Launchers and Receivers**
- **S. General**

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Topic Order for the First GPAC Meeting

Topic	Revised Code Sections Proposed	Comment Summary Section
Reassessment Period 6 Month Grace Period	§ 192.939	O
Safety Features for Pig Launchers/Receivers	§ 192.750	R
Provisions to Address Seismicity	§§ 192.917(a)(3); 192.917(b)(1); 192.935(b)(2)	Q
Inspections Following Extreme Events	§ 192.613	N
Management of Change	§§ 192.911 & 192.13(d)	M
Records	§§ 192.5(d); 192.13(e); 192.67; 192.127; 192.205; 192.227(c); 192.319(d); 192.624(f); and Appendix A	A
Corrosion Control	§§ 192.319; Subpart I: 192.451-491; App. D	K
Corrosion Preventative and Mitigation Measures	§ 192.935	L
Integrity Management Clarification	§§ 192.613; 192.917 (a) – (c); 192.935(a)	H, J



Topic Order for the Second GPAC Meeting

Topic	Code Sections	Comment Summary Section
Assessments Outside of HCAs	§§ 192.3 & 192.710	G, O, I
Strengthened Assessment Requirements	§§192.921(a); 192.923; 192.927; 192.929; 192.493; App. F	O
Integrity Verification Process (IVP) for Grandfathered Segments	§§ 192.150; 192.503; 192.607; 192.619; 192.624; 192.713	C
Reporting (Primarily Gathering)	§§ 191.1; 191.23; 191.25; 191.29	E
Gathering Lines	§§ 191.29; 192.3; 192.8; 192.9; 192.13 (a) & (b)	E
Repair Criteria Revisions	§§ 192.711 & 192.713	F
Gas Transmission (and Distribution Center) Definitions	§§ 192.3 & 192.8	E



Agenda for 1/11 & 1/12/2017 Meetings

- 6-month Grace Period for 7-year Reassessment Intervals (with notice)
- Safety Features on ILI Launchers/Receivers
- Seismicity
- Pipeline Inspections Following Extreme Weather Events
- Management of Change
- Records
- Corrosion Control
- IM Clarifications



Include 6-month Grace Period to 7-Year Reassessment Interval

§ 192.939

- **ISSUE:** Subsection 5(e) of the Pipeline Safety Act of 2011 identifies a technical correction to Title 49 of the United States Code.
- **BASIS:**
 - This codifies Act § 5(e) technical correction.
- **PHMSA PROPOSED to:**
 - Allow operators to request an extension of the **seven year reassessment interval for an additional 6 months** if the operator submits written notice to the Secretary with sufficient justification of the need for the extension, in accordance with the Act § 5(e) technical correction.



Grace Period for Reassessment Interval: Comments

- Request for clarification that the six month extension begins after the close of the **seven calendar year** reassessment interval period



Grace Period for Reassessment Interval: PHMSA initial take

- PHMSA plans to update the final rule language to reflect the **seven calendar year** language in the statute.



Grace Period for Reassessment Interval: Public Comment



Grace Period for Reassessment Interval: GPAC Discussion

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Add Requirements for Safety Features on Launchers and Receivers

§ 192.750

- **ISSUE:** Current regulations for liquid pipelines (Part 195) contain safety requirements for scraper and sphere facilities. Part 192 does not explicitly address this area.
- **BASIS:** Some incidents have occurred at launchers and receiver stations.
- **PHMSA PROPOSED to:**
 - Require launchers & receivers to be equipped with a device (safety valve) capable of safely relieving pressure in the barrel before insertion or removal of inline inspection tools, scrapers, or spheres.
 - Require use of a suitable device to indicate that pressure has been relieved in the barrel or must provide a means to prevent opening if pressure has not been relieved.



Safety Features on Inline Inspection Tool Launchers and Receivers: Comments

- Supported by citizen and government groups and pipeline safety advocates
- One commenter recommended a phase in period of 18-months to plan, budget, and complete the upgrades.
- One commenter recommended the rule be effective prior to next use of the launcher or receiver.



Safety Features on Inline Inspection Tool Launchers and Receivers: PHMSA Initial Take

- PHMSA proposed that this requirement would apply to launcher(s) or receiver(s) that is **used after 6 months after the effective date of the rule.**
- This does not require that all launchers and receivers be so equipped within 6 months of the rule; rather that any **launcher or receiver be so equipped upon its next use after 6 months after the rule.**



Safety Features on Inline Inspection Tool Launchers and Receivers: Public Comment

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Safety Features on Inline Inspection Tool Launchers and Receivers: GPAC Discussion

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Incorporate Provisions to Address Seismicity

§§ 192.917(a)(3); 192.917(b)(1)(xxxv); 192.935(b)(2)

- **ISSUE:** Section 29 of the Act states that in **identifying and evaluating all potential threats to each pipeline segment**, an operator of a pipeline facility shall **consider the seismicity of the area**.
- **BASIS:**
 - This codifies the specific requirement from Act § 29.
- **PHMSA PROPOSED to:**
 - Include seismicity in evaluating Preventive and Mitigative (P&M) measures for the threat of outside force damage.
 - Include seismicity of the area in the data gathering and integration of information about pipeline attributes and other relevant information.



Seismicity: Comments

- Most supported
- One commenter recommended adding requirements to analyze any significant localized threat, considering the pipeline operating conditions, that could impact integrity.
- PHMSA should define seismic event for the purposes of compliance
- PHMSA should clarify whether seismic risk investigations are a one-time requirement or if there is an expected timetable for re-investigation



Seismicity: PHMSA Initial Take

- Data integration and risk analysis requirement of § 192.917 already requires seismicity to be analyzed considering operating conditions and any other factor that could impact pipeline integrity.
- PHMSA did not use the term “seismic event” in the proposed regulations. **PHMSA stated that operators must consider seismicity, as well as other related geotechnical threats such as soil stability.** This is a broader and more technically comprehensive scope than merely “seismic events.”
- Existing regulations § 192.937 already require that the analyses required § 192.917, which includes data integration and risk assessment, must be performed periodically as frequently as needed to assure integrity.



Seismicity: Public Comment



Seismicity: GPAC Discussion

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Require Pipeline Inspection Following Extreme Events

§ 192.613

- **ISSUE:** Current rules do not address extreme events that can damage pipelines or disrupt pipeline operations
- **BASIS:**
 - Recent example of extreme event (Yellowstone River scouring caused by flooding) that resulted in pipeline incident
- **PHMSA PROPOSED to:**
 - Clarify that inspection of pipeline and right-of-way for “other factors affecting safety and operation” includes extreme weather events, man-made, and natural disasters, and similar events
 - Specify the timeframe for performing inspections & remedial actions



Inspections Following Extreme Events: Comments

- Most supported, if certain expectations were clarified
 - Define inspection requirements
 - Define extreme weather event
 - Clarify “other events”
- Duplicative with requirement for “prompt and effective response” to emergency situations
- Change timeline “as soon as practicable” or permit exceptions as inspections within 72 hours may not always be possible



Inspections Following Extreme Events: PHMSA Initial Take

- Regarding the comment on predefining inspection requirements or events; the focus of the requirement is for **operators to inspect the pipeline after any circumstance that has the likelihood of significant damage.**
- Regarding the comment that the proposed requirement is duplicative of the emergency response requirements, the requirement for inspection(s) following severe weather events include such events that do not rise to the level of “a state of emergency.”
 - **For example**, a Yellowstone River incident that resulted from scouring due to heavy rains was not caused by a weather event characterized as “emergency.”



Inspections Following Extreme Events: PHMSA Initial Take

- **PHMSA will consider:**
 - timeline comments and language to address inspections occurring within 72 hours after the operator judges conditions to be safe and that requires personnel and equipment to be available.
 - Clarifications that apply to events that have the likelihood of significant damage (not minor damage that does not threaten pipeline integrity) and that pipeline “facilities” (a defined term) is preferable to “infrastructure” (a term not defined in § 192.3).



Inspections Following Extreme Events: Public Comment



Inspections Following Extreme Events: GPAC Discussion



Management of Change

§§ 192.911 & 192.13(d)

- **ISSUE:** Codifying the specific attributes of the Management of Change process will enhance the visibility and emphasis on these important program elements.
- **BASIS:** Address lessons learned from San Bruno and Marshall, MI with respect to operational and other decision-making that affects risk.
- **PHMSA PROPOSED to:**
 - **Codify the specific attributes of the Management of Change process from ASME/ANSI B31.8S, Section 11** (already incorporated by reference).
 - Require operators to develop and follow a Management of Change process and address risk as part of the general requirements of Part 192.



Management of Change: Comments

- Supported by citizen and government groups and pipeline safety advocates
- Requirements are unnecessary, too broad, and would apply to routine activities that already have established procedures in line with industry standards
- PHMSA underestimated the costs of implementing requirements for changes beyond those in ASME B31.8S
- Operators should have 1-5 years to implement the proposed changes
- Commenters were concerned that the proposed changes appeared retroactive



Management of Change: PHMSA Initial Take

- The proposed requirements addressed findings from the San Bruno, CA incident that concluded that current industry practices may not be sufficient.
- The proposed language aligns with and is based on ASME B31.8S, and does not propose requirements beyond those in the industry standard.
- The proposed language is aligned with existing ASME B31.8S requirements, which operators must have been complying with for covered segments since 2004.
- This proposed requirement would become effective on the effective date of the rule. Nothing in the proposed rule language suggests that this would be retroactive.



Management of Change: Public Comment

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Management of Change: GPAC Discussion



Records

§ 192.13 (e), Appendix A

- **Issue:** Immediately after the San Bruno, CA accident, NTSB issued 3 urgent recommendations to PG&E. PG&E conducted an immediate search for missing records, and determined that many records could not be found. Congressional mandate required that all operators report pipeline mileage that did not have adequate records.
- **Basis:** San Bruno incident showed that operators lack records to verify MAOP of lines they operate in HCAs. Operators reported ~5K miles of pipe in Class 3 & 4 locations and HCAs had inadequate records to confirm MAOP (13% of 37,500 miles).
- **Proposal:** Clarify that records required by Part 192 must be documented in reliable, traceable, verifiable, and complete records. Summarize records required and retention periods in a new Appendix A. When records are not available, operators must re-establish pipeline documentation.



Records (continued)

- **PHMSA Proposed:**

- Class Location determination records must be kept for life of pipeline (§ 192.5)
- Each operator must make and retain records that demonstrate compliance with this part (§ 192.13 (e))
- Each operator of GT pipelines must acquire/retain records for:
 - Materials (§ 192.67)
 - Pipe Design (§ 192.127)
 - Pipeline Components (§ 192.205)
 - Welder Qualification (§ 192.227)
 - Plastic Pipe Joining Qualification (§ 192.285)
 - Installation in Ditch (§ 192.319(d))
 - MAOP Verification (§ 192.624(f))

- Appendix A



Appendix A – Records Retention

- **Retention Time**

- Life of Pipeline
- 5 years
- 3 years
- Other – such as: 1 year or last 2 periodic tests

- **Effective Date for Retention Time**

- Pre Code(Pre 1971); Post Code; Final Rule; or other time intervals
- MAOP
 - Materials, Pressure Test, Class Location, & Construction Records
- Operations & Maintenance (O&M) including Operator Qualification, Integrity Management & Corrosion Control
 - Subparts Parts L, M, N, O and I



Appendix A – Records Retention

Code Section	Section Title		
Subpart A – General			
§ 192.5(d)	Class Location		
§ 192.13(e)	What general requirements apply to pipelines regulated under this part?		
§ 192.14(b)	Conversion to service subject to this part		
§ 192.16(d)	Customer notification		
Subpart B – Materials			
§ 192.67	Records: Materials and Pipe		
Subpart C – Pipe Design			
§ 192.112	Additional design requirements for steel pipe using alternative maximum allowable operating pressure		
§ 192.127	Records: Pipe Design for External Loads and Internal Pressures		
Subpart D – Design of Pipeline Components			
§ 192.144	Qualifying metallic components		
§ 192.150	Passage of internal inspection devices		
§ 192.153	Components fabricated by welding		
§ 192.205	Records: Valves, Flanges, Fittings and Other Components		
Subpart E – Welding of Steel in Pipelines			
§ 192.225(b)	Welding procedures		
§ 192.227(c)	Qualification of welders		
§ 192.243(f)	Nondestructive testing		
Subpart F – Joining of Materials Other than by Welding			
§ 192.283	Plastic pipe; Qualifying joining procedures		
§ 192.285(e)	Plastic pipe: Qualifying persons to make joints		



Appendix A – Records Retention

Subpart G – General Construction Requirements for Transmission Lines and Mains			
§ 192.303	Compliance with Written specifications or standards		
§ 192.305	Inspection: General		
§ 192.307	Inspection of materials		
§ 192.319(d)	Installation of pipe in a ditch.		
§ 192.328	Additional construction requirements for steel pipe using alternative maximum allowable operating pressure.		
Subpart I – Requirements for Corrosion Control			
§ 192.452(a)	How does this subpart apply to converted pipelines and regulated onshore gathering lines?		
§ 192.459	Exposed buried Pipe inspection		
§ 192.461	External corrosion control: Protective coating.		
§ 192.465(a)	External corrosion control: Monitoring		
§ 192.465(b)	External corrosion control: Monitoring -Rectifiers		
§ 192.465(c)	External corrosion control: Monitoring - Stray Current / Interference Mitigation and Critical Interference Bonds		
§ 192.465(e)	External corrosion control: Monitoring - Active Corrosion Zones		
§ 192.467(d)	External corrosion control: Electrical Isolation		



Appendix A – Records Retention

Code Section	Section Title		
§ 192.473	External corrosion control: Interference currents.		
§ 192.475	Internal pipe inspection		
§ 192.476(d)	Internal corrosion control: Design and construction of transmission line.		
§ 192.477	Coupons or other means for monitoring internal corrosion		
§ 192.478	Internal corrosion control: Onshore transmission monitoring and mitigation.		
§192.478(b)(3)	Gas and Liquid Samples		
§192.481(a)	Atmospheric corrosion control: Monitoring		
§ 192.485(c)	Remedial measures: Transmission lines		
§ 192.491(a), (b)	Corrosion control records		
§ 192.491(c)	Corrosion control records		
Subpart J – Test Requirements			
§ 192.517(a)	Records		
§ 192.517(b)	Records		
Subpart K – Uprating			
§ 192.553(b)	General requirements		



Appendix A – Records Retention

Subpart L – Operations			
§ 192.603(b)	General provisions		
§ 192.605	Procedural manual for operations, maintenance, and emergencies		
§ 192.605 (b)(12)	Procedural manual for operations, maintenance, and emergencies		
§ 192.605(c)	Procedural manual for operations, maintenance, and emergencies		
§ 192.607(c)	Verification of Pipeline Material: Onshore steel transmission pipelines		
§ 192.609	Change in class location: Required study.		
§ 192.611	Change in class location: Confirmation or revision of maximum allowable operating pressure		
§ 192.612	Underwater inspection and reburial of pipelines in the Gulf of Mexico and its inlets		
§ 192.613(a)	Continuing surveillance		
§ 192.613(b)	Continuing surveillance		
§ 192.613(c)(1)	Continuing surveillance		
§ 192.613(c)(3)	Continuing surveillance		
§ 192.614	Damage prevention program		
§ 192.614	Damage prevention program		
§ 192.615	Emergency Plans		
§ 192.615	Emergency Plans		
§ 192.616	Public awareness		
§ 192.617	Investigation of failures.		
§ 192.619	Maximum allowable operating pressure: Steel or plastic pipelines		
§ 192.620(c)(7)	Alternative maximum allowable operating pressure for certain steel pipelines		
§ 192.624(f)	Maximum allowable operating pressure verification: Onshore steel transmission pipelines		
§ 192.625	Odorization of gas		
§ 192.631(a)	Control room management		
§ 192.631(j)	Control room management		



Appendix A – Records Retention

Subpart M – Maintenance			
§ 192.703(c)	General.		
§ 192.705	Transmission lines: Patrolling		
§ 192.706	Transmission lines: Leakage surveys		
§ 192.709(a)	Transmission lines: Record keeping		
§ 192.709(b), (c)	Transmission lines: Record keeping		
§ 192.710	Pipeline assessments.		
§ 192.713(c)	Transmission lines: Permanent field repair of imperfections and damages.		
§ 192.713(d)	Transmission lines: Permanent field repair of imperfections and damages		
§ 192.731	Compressor stations: Inspection and testing of relief devices		
§ 192.736	Compressor stations: Gas detection		
§ 192.739	Pressure limiting and regulating stations: Inspection and testing		
§ 192.743	Pressure limiting and regulating stations: Capacity of relief devices		
§ 192.745	Valve maintenance: Transmission lines		
§ 192.749	Vault maintenance		
Subpart N- Qualification of Pipeline Personnel			
§ 192.807	Operator Qualification Recordkeeping		
Subpart O – Gas Transmission Integrity Management			
§ 192.947	Integrity Management		



Records: Comments

- Supported by citizen and government groups and pipeline safety advocates
- § 192.13(e) applies an unfeasible standard that appears to be retroactive
- “Reliable, traceable, verifiable and complete”
 - Oppose inclusion
 - Eliminate reliable
 - Require “verifiable” in accordance with 2012 ADB only if any single record is not traceable or complete



Records: Comments (Cont.)

- Appendix A
 - Appears to introduce new recording and retention requirements
 - Should be non-retroactive
 - PHMSA needs to clarify what applicability to pipelines other than transmission lines
- Specific Concerns
 - Pipeline components requirements (§ 192.205) should be removed, or those smaller than 2” diameter should be exempt
 - Welders and joiner qualification records (§§ 192.227 and 192.285) should not need to be retained for the life of the pipe
 - PHMSA should clarify that some records only apply to transmission pipelines



Records: PHMSA Initial Take

- PHMSA is obligated to address the records issue, especially with regard to establishment and documentation of maximum allowable operating pressure (MAOP):
 - PIPELINE SAFETY, REGULATORY CERTAINTY, AND JOB CREATION ACT of 2011, Section 23, 49 USC 60139
 - Response to NTSB Recommendations to PG&E on records search
 - In response to the Act, operators reported extensive mileage in HCAs and Class 3 & 4 locations without records to establish MAOP



Records: PHMSA Initial Take

- Operators have been required to have records sufficient to demonstrate compliance with Part 192 (49 U.S.C. 60117(b))
- Part 192 requires operators to have MAOP records
 - 192.603(b) Each operator shall keep records necessary to administer the procedures established under §192.605.
 - 192.605(b)(5) Starting up and shutting down any part of the pipeline in a manner designed to assure operation within the MAOP limits prescribed by this part, plus the build-up allowed for operation of pressure-limiting and control devices.



Records:

PHMSA Initial Take

- Records to demonstrate MAOP involve more than pressure test records.
- MAOP is the lowest of the following (192.619(a)):
 - Design pressure of components (192.619(a)(1))
 - Characteristics to calculate design pressure of pipe [t, D, S, E, T (joint factor which depends on type of pipe), and F (which depends on Class Location)] (192.105)
 - Pressure test (192.619(a)(2))
 - Pressure test records (Part 192, Subpart J)
 - Class location (192.5)
 - Prior operating pressure history (192.619(a)(3))
 - The pressure determined by the operator to be the maximum safe pressure after considering the history of the segment, particularly known corrosion and the actual operating pressure (192.619(a)(4))



Records:

PHMSA Initial Take

- Regarding maximum **safe operating pressure** considering condition of line and actual operating pressure
 - Defects and anomalies can compromise pipeline integrity and make it unsafe to operate at MAOP
 - 192.619(a)(4) requires that MAOP consider the condition of the pipe
 - Determining safe operating pressure at the location of a defect requires the use of B31G, RSTRENG or other comparable analytical technique, which requires that operators know the following parameters:
 - Diameter
 - **Pipe wall thickness**
 - **Specified Minimum Yield Strength (SMYS)**
 - Defect dimensions
 - Seam Type



Records: PHMSA Initial Take

- For segments without adequate records to establish MAOP, PHMSA proposed 192.607 to create both destructive and non-destructive standards by which operators could re-establish and document a technically sound basis for material properties to use in re-establishing MAOP
 - PHMSA sought to set a reasonable standard by which operators without records could substantiate MAOP using alternative test methods that would not necessarily require operators to perform extensive cutouts and destructive testing per 192.107(b) for pipe strength, 192.109(b) for wall thickness, 192.113 for seam type/joint factor, or extensive pipe replacement.
 - Integrity Management (IM) in section 192.917 requires data gathering and integration of pipe attributes for High Consequence Areas (HCAs)

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Records: PHMSA Initial Take

- PHMSA also proposed to clarify or elaborate on related records requirements, where needed
- The intent was not to establish new requirements but to make existing regulations clearer
- PHMSA proposed Appendix A as a convenient source for records requirements
 - Appendix A is intended as a compilation of existing requirements
 - There are some cases where PHMSA proposed retention periods when no explicit retention period exists in current regulations
 - Where new retention periods are proposed, those retention periods would become effective as of the effective date of the rule



Records: PHMSA Initial Take

- Operating and Maintenance (O&M) Records
 - In general, existing § 192.709 specifies records retention periods for all records required by subparts L (operations) and M (maintenance)
 - Appendix A was intended to be consistent with and reflect these retention periods
 - In addition, existing § 192.603(b) requires “operator shall keep records necessary to administer the procedures established under § 192.605”, which are needed for operations, maintenance, and emergencies.
 - Existing § 192.605(a)(1) – requires procedures for operating, maintaining, and repairing the pipeline in accordance with subpart L and M, which includes MAOP.



Records: PHMSA Initial Take

- Design Records
 - In general, PHMSA sought to more explicitly clarify the records needed to support maximum allowable operating pressure (MAOP).
 - For example, existing 192.105, Design Formula, requires information on pipe specifications such as diameter, wall thickness, pipe grade and seam type to determine the pipe MAOP.
 - Records to establish design pressure are required because MAOP depends on design pressure (192.619(a)(1)), and MAOP records are required (192.603(b) and 192.605(b)(5)).



Records: PHMSA Initial Take

- Welding and Construction Records
 - In general, existing regulations require welding and other construction records but are silent on retention period
 - PHMSA proposed to add retention periods to provide greater clarity for those records
 - New retention periods would be effective upon the effective date of the rule.



Records: Public Comment



Records: GPAC Discussion



Strengthen Corrosion Control

§§ 192.319; 192.461; 192.465; 192.473; 192.478; and
Appendix D

- **ISSUE:** Current rules for external & internal corrosion need strengthening
- **BASIS:** Disbonded coating and corrosion were significant contributing factors in the Marshall, MI & Sissonville, WV incidents
- **PHMSA PROPOSED to require:**
 - Expansion of corrosion controls required in Subpart I
 - Specific Preventive and Mitigative measures for HCAs to address both external and internal corrosion



Corrosion Control: Comments

- Supported by citizen and government groups and pipeline safety advocates
- Oppose exemption for certain gathering lines
- Oppose expanding corrosion control requirements
 - Proposal is burdensome and existing practices are sufficient
 - Does not align with current NACE standards
- Clarify applicability to transmission, distribution and gathering
- Coating surveys are not always feasible and PHMSA should not limit the tools for performing those surveys (i.e. close interval surveys or ILI)



Corrosion Control: Comments (cont.)

- Direct Current Voltage Gradient (DCVG) and Alternating Current Voltage Gradient (ACVG) may not address issues related to coatings impeding cathodic protection and PHMSA should not set specific thresholds in the CFR
- Increase the timeline from 3 months to 1 year to match requirement to install cathodic protection
- Interference surveys
 - May not be feasible depending on what information operators can get from electricity transmission companies
 - Should only be required for lines subject to stray current risk
 - Phase in compliance over 12-18 months



Corrosion Control: Comments (cont.)

- Internal Corrosion
 - Already addressed by existing regulations in Subparts I and O
 - Monitoring timeline is unreasonable
 - Should only be required for lines carrying corrosive gas
- Appendix D
 - Criteria for determining adequacy of cathodic protection is too narrow
 - PHMSA should follow the standard set in NACE SP0169 and be consistent with § 195.571. Impact to distribution was not justified or analyzed and therefore distribution lines should be excluded



Corrosion Control: PHMSA Initial Take

- Gathering lines would be required to have corrosion control, just not the enhanced requirements proposed in this NPRM for transmission lines.
- Existing requirements and industry practices do not appear to be sufficient in light of recent incidents.
- PHMSA believes the proposed rule language clearly states that the **new requirements are applicable to onshore transmission pipelines and do not apply to distribution pipelines.**



Corrosion Control: PHMSA Initial Take

- The purpose of § 192.319 is not to assess the adequacy of Cathodic Protection (CP); rather, to identify if the coating was damaged during construction or backfill.
- 3 months was proposed so that damage can be promptly repaired while construction crews are still deployed.
- PHMSA will consider modifying language to clarify requirements for when interference surveys are appropriate.



Corrosion Control: PHMSA Initial Take

- **Internal Corrosion**

- PHMSA will consider relaxing the proposed internal corrosion monitoring requirement from twice per year to once per year (not to exceed 15 months).
- PHMSA may clarify that certain proposed internal corrosion language based on suggestions from commenters.



Corrosion Control: PHMSA Initial Take (Cont.)

- **Appendix D**

- The criteria for determining adequacy of cathodic protection have been in place for decades.
- Appendix D has always applied to distribution pipelines where applicable.



Corrosion Control: Public Comment

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Corrosion Control: GPAC Discussion

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Add P&M Requirements to Address Ext. Corrosion and Int. Corrosion in HCAs

§ 192.935

- **ISSUE:** Prescriptive preventive and mitigative (P&M) measures are needed to assure that public safety is enhanced in HCAs and affords greater protections for HCAs.
- **BASIS:**
 - Disbonded coating and corrosion were significant contributing factors in the Marshall, MI & Sissonville, WV incidents
 - Implement Act § 29 (seismicity)
- **PHMSA PROPOSED to:**
 - Enhance internal & external corrosion control programs in HCAs to provide additional protection from corrosion
 - Consider other measures, such as additional right-of-way patrols and hydrostatic tests in areas where material has quality issues or lost records
 - Address seismicity in evaluating P&M measures for outside force damage

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Preventative and Mitigative Measures: Internal and External Corrosion Comments

- Supported by citizen and government groups and pipeline safety advocates
- Requirements proposed for § 192.935(f) and (g) are too broad and prescriptive
- PHMSA should either reference ASME standards for P&M measures and ensure they are consistent with NACE standards
- Specific objections to § 192.935
 - Continuous gas quality monitoring should only apply if internal corrosion is a risk and should not have to be real time (f)
 - Periodic indirect inspections should only be required if there is a history of corrosion (g)
- PHMSA should assure that the requirements in §§ 192.933 and 192.713 align with ASME and other standards



Corrosion Preventative and Mitigative Measures: PHMSA Initial Take

- PHMSA will consider comments that the proposed requirements for external corrosion and internal corrosion are too broad and prescriptive.
- PHMSA intended for these requirements to supplement existing industry standards.
- The proposal is intended to provide an enhanced level of safety for all HCAs, not merely those with a known history of failures. The intent is to prevent future incidents in HCAs, not merely to react to incidents after they occur.



Corrosion Preventative and Mitigative Measures: Public Comment

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Corrosion Preventative and Mitigative Measures: GPAC Discussion

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Improving Requirements for Collecting, Validating, & Integrating Pipeline Data

§ 192.917 (b) – (e)

- **ISSUE:** Operators are collecting much information but an integrated and documented analysis is often lacking
- **PHMSA PROPOSED TO:**
 - Clarify that data be verified and validated
 - Clarify Requirements for integrated analysis of data and information
 - Establish minimum pipeline attributes that must be included
 - Require use of validated, objective data whenever practical
 - Address requirements for use of SME input
- **Basis**
 - San Bruno highlighted weaknesses in this area
 - 2011 Act mandate
 - NTSB Safety Study SS-15/01



Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: Comments

- Supported by citizen and government groups and pipeline safety advocates. Strongly supported by NTSB.
- Others acknowledged the importance of verified and validated data but had other concerns
- Regarding codification of B31.8S attributes
 - Supported by one operator
 - These are not burdensome but may not always be possible to collect in practice
 - A more limited list of attributes would be more useful
 - Trade associations noted that the proposed language may be more prescriptive than the ASME standard and could introduce confusion



Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: Comments

- Regarding the proposal to address quality of SME Input
 - PHMSA should delete references to SME bias and replace the text with general language to include peer review and verification
 - One operator commented that this would add unnecessary cost
 - A trade association commented that the proposals are common industry practice and don't need to be incorporated into the regulations
- Requirement to identify spatial relationships is unclear and potentially burdensome
- Remove requirement for fracture mechanics modeling to address cyclic fatigue and defect weld seams such as Low Frequency Electric Resistance Weld (ERW) seams
- Extend frequency to re-evaluate cyclic fatigue

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Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: PHMSA Initial Take

- Codification of B31.8S data
 - The proposed data sets mimic B31.8S, with minor clarifications such as including the word “seismicity” per Congressional mandate.
 - The B31.8S (Section 4, Table 1) is already prescribed as a mandatory data set in § 192.917(b) via IBR.
 - Repeating the mandatory data set in the rule text is intended to provide clarity, not confusion.



Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: PHMSA Initial Take

- Regarding the proposal to address quality of SME Input:
 - The need to address human SME bias in the design and populating of risk models is a standard concept in effective risk analysis



Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: PHMSA Initial Take

- Regarding comment that the requirement to identify spatial relationships is unclear and potentially burdensome
 - Spatial relationship aspects of data integration are already required in Section 4.5 of B31.8S, incorporated by reference in the current § 192.917.



Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: PHMSA Initial Take

- Regarding comments to remove requirement for fracture mechanics modeling to address cyclic fatigue and defective weld seams
 - PHMSA has sponsored research that proves the efficacy of fracture mechanics as an effective means to analysis crack and crack-like defects in order to understand pipeline integrity with such latent defects.
 - PHMSA believes the proposed fracture mechanics requirements are essential in order to allow any such defects to remain in the pipe unrepaired.
- PHMSA will consider comments to extend frequency to re-evaluate cyclic fatigue



Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: Public Comment

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Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: GPAC Discussion



Add Specific Functional Requirements for Risk Models

§ 192.917 (c)

- **ISSUE:** More specificity is needed for the nature and application of risk models to improve the usefulness of these analyses to control risks from pipelines
- **PHMSA PROPOSED TO:**
 - Add a new definition of “quantitative risk assessment” that adequately evaluates the effects of interacting threats, contribution of individual risks, and the effects of uncertainty
 - Require validation of risk models in light of incident, leak, and failure history and other historical information [NTSB P-11-29 to PG&E]
- **Basis**
 - Addresses NTSB recommendations and lessons learned from the San Bruno incident investigation
 - Addresses input from the July 2011 Risk Management workshop



Add specific Functional Requirements for Risk Models: Comments

- Supported by citizen and government groups and pipeline safety advocates
- Industry entities acknowledged the importance of risk assessments
- Industry groups commented that prescriptive regulations are unnecessary and a regulatory commission proposed a performance based alternative
- Operators commented that they should have discretion to select which datasets to incorporate as they are best able to identify which threats are applicable
- PHMSA should define “validate” and “verify”

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Add specific Functional Requirements for Risk Models: Comments (continued)

- It may not be feasible to collect and integrate all data points without pipeline upgrades
- Industry groups commented that the regulations would require expensive quantitative or probabilistic risk models
- Requirements deviate from industry consensus standards
- Commenters recommended a phase-in period for operators to incorporate these requirements into their IM programs ranging from two to five years



Add Specific Functional Requirements for Risk Models: PHMSA Initial Take

- The proposed rule leaves the techniques and procedures to the operator to determine, and merely sets the performance objectives and functions that the risk assessment must accomplish
- Quantitative or probabilistic models are beneficial for pipeline safety and to achieve the functional capabilities needed. The rule does not prescribe which type of risk model to use, but codifies the functional objectives specified in B31.8S, which is already incorporated by reference in Part 192.



Add Specific Functional Requirements for Risk Models: PHMSA Initial Take

- The proposed rules builds on the risk modeling requirements in B31.8S.
- The revision includes new guidance for evaluating interacting threats and anomalous conditions. PHMSA is sponsoring a working group to develop additional guidance for risk assessments
- With regard to phase-in time frames, PHMSA believes that subpart O already contains adequate language in § 192.907(a) that set the expectation that operator programs will continually improve. This continual improvement expectation would apply to the proposed changes to § 192.917.

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Add Specific Functional Requirements for Risk Models: Public Comment



Add Specific Functional Requirements for Risk Models: GPAC Discussion



Strengthen Requirements for Applying Knowledge Gained Through IM

§§ 192.917 (b) – (e)

- **ISSUE:** Strengthening requirements related to operators' use of insights gained from its IM program is prudent to ensure effective risk management
- **PHMSA PROPOSED TO:**
 - Clarify the expectation that operators use knowledge from risk assessments to establish and implement adequate Preventative & Mitigative measures
 - Provide more explicit examples of the types of P&M measures to be evaluated
- **Basis:** PHMSA inspection experience which shows that most operators do not implement additional P&M measures based on the evaluation required in § 192.935.

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Strengthen Requirements for Applying Knowledge Gained Through IM: Comments

- Vaguely phrased risk assessment requirements should be removed or defined
- An operator requested clarification regarding which elements need to be included in the risk model versus those which only need to be included in the general IM plan
- Several commenters requested removing the requirement to perform all the listed preventative and mitigative measures from § 192.935(a)



Strengthen Requirements for Applying Knowledge Gained Through IM: PHMSA Initial Take

- The risk model must include the data elements and factors that are needed to adequately characterize the likelihood and consequences of pipeline incidents. The learnings from some of the other distinct program elements (e.g., root cause analysis) are critical to properly characterizing risk.
 - This fundamental aspect of risk modeling is already required by virtue of B31.8S, Section 5, which is incorporated into Part 192 by reference.
- PHMSA believes the list of P&M measures is important, but will consider adjusting the rule language to clarify that P&M measures must be implemented “as applicable.”



Strengthen Requirements for Applying Knowledge Gained Through IM: Public Comment



Strengthen Requirements for Applying Knowledge Gained Through IM: GPAC Discussion



Any Questions

