Safety of Gas Transmission and Gathering Pipelines

RIN: 2137-AE72

Docket: PHMSA - 2011 – 0023

Gas Pipeline Advisory Committee Meeting

June 6 - 7, 2017

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

Topic	Result
6-month Grace Period for 7 calendar year Reassessment Intervals 192.939(b)	Vote: Passed
Safety Features on ILI Launchers/Receivers 192.750	
Seismicity 192.917	
Inspections Following Extreme Events 192.613	
Management of Change 192.911	
Corrosion Control	**Discussed: Vote Postponed**
Records	
IM Clarifications	

Agenda for June 6 – 7, 2017 Meetings Conclude Topics Tabled from First Mtg

1. **Corrosion Control - 192.319; Subpart I; Appendix D; 192.935(f) & (g)**
   a. 192.319 & 461 – Installation of pipe in ditch / coating protection
   b. 192.465 & Appendix D – External Corrosion, monitoring and remediation
   c. 192.473 – External Corrosion, interference currents
   d. 192.478 – Internal corrosion
   e. 192.935(f) & (g) – Preventive & Mitigative (P&M) measures for internal and external corrosion

Agenda for June 6 – 7, 2017 Meetings Conclude Topics Tabled from First Mtg

2. **Records – 192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.624(f); and Appendix A**

   - 192.13(e) – "General Duty" clause
   - Section-specific records requirements
   - Appendix A – will be reviewed in 3rd Mtg.

Agenda for June 6 – 7, 2017 Meetings
Conclude Topics Tabled from First Mtg

3. IM Clarifications - 192.917 (a)–(c); 192.935(a)

a. 192.917(a) & (b) - Threat identification, data collection and integration

b. 192.917(c) – Risk assessment functional requirements

c. 192.917(d) – Threat assessment for plastic pipe

d. 192.917(e) – Cyclic fatigue, M&C defects, and ERW pipe

e. 192.935(a) – Preventive and mitigative measures

Agenda for June 6 – 7, 2017 Meetings
Topics Not Previously Discussed

4. **Reporting of MAOP Exceedances - 191.23; 191.25**
5. **Material Documentation – 192.607**
6. **Integrity Verification Process (IVP) - 192.624; 192.619(e); 192.503**
7. **Strengthened Assessment Requirements**
   a. 192.493 – Industry standards for ILI
   b. 192.921(a) – Expand assessment methods allowed for IM
   c. 192.923(b) & 192.927 - ICDA
   d. 192.923(c) & 192.929 - SCCDA
   e. App. F – Guided Wave Ultrasonics (GWUT)
   f. 192.150 – Passage of Internal Inspection Devices

Agenda for June 6 – 7, 2017 Meetings
Topics Not Previously Discussed

8. **Assessments Outside of HCAs - 192.3 & 192.710**
9. **Repair Criteria Revisions**
   a. HCA – 192.933
   b. Non-HCA - 192.711 & 192.713

Note: *This agenda is focused on gas transmission. The potential for these changes to impact gathering lines will be addressed in a future meeting when the committee considers the proposed changes to 192.9.*

Agenda for Next Meeting (Schedule TBD)

- Votes on topics tabled from Meeting #2 (this meeting)
- Topics not covered from agenda for Meeting #2 (this meeting)
- Gathering Lines
  - Reporting (Part 191)
  - Safety 192.8; 192.9; other conforming changes

1a. Installation of Pipe in Ditch & Protective Coating
192.319 & 192.461

- **ISSUE:** Construction practices can result in damaged coating that compromise corrosion control
- **PHMSA PROPOSED to require:**
  - An above ground coating survey within 3 months of placing the pipeline in service and repair moderate or severe coating damage within 6 months of the assessment.
- **BASIS:** Lessons learned from pipeline failures and extensive construction problems as discussed in the public workshop in Ft. Worth (2009)

1a. Installation of Pipe in Ditch & Protective Coating 192.319 & 192.461

- **Committee Comments:**
  - Direct Current Voltage Gradient (DCVG) and Alternating Current Voltage Gradient (ACVG) may not address issues related to coatings impeding cathodic protection
  - PHMSA should not set specific repair thresholds in the CFR
  - Increase the timeline from 3 months to 1 year to match requirement to install cathodic protection
  - Does not align with current NACE International standards

1a. Installation of Pipe in Ditch & Protective Coating
192.319 & 192.461

- **Committee Comments:**
  - 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)
  - Apply >1000-foot criteria for 192.319 (similar to 192.461)

1a. Installation of Pipe in Ditch & Protective Coating
192.319 & 192.461

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Proposed rule is to verify coating integrity after installation.
    - Cathodic Protection (CP) is required under 192.465. Integrity assessments would be required under proposed 192.710. Neither CP, nor ILI, assess the adequacy of pipeline coatings.
  - Previous versions of the NACE standards included specific repair thresholds. The most recent version of the NACE standard deleted all objective repair thresholds.
    - PHMSA believes it is necessary to retain objective repair criteria in the rule and supports a recommendation to raise the repair threshold from “moderate” to “severe” indications.

1a. Installation of Pipe in Ditch & Protective Coating
192.319 & 192.461

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Proposed rule clearly states that it applies to transmission pipelines.
    - PHMSA will clarify gathering line exclusion when proposed 192.9 is discussed at a future advisory committee meeting.
  - **192.319:** Modify the applicability of this requirement to segments > 1000' to be consistent with 192.461
  - **192.319 & 192.461:** Lengthen the assessment timeframe to 6 months after the pipeline is placed in service (192.319) or repaired/replaced (192.461), plus 6 months to complete repairs, to align with one year requirement to install CP, with allowance for delayed permitting.

1a. Installation of Pipe in Ditch & Protective Coating
192.319 & 192.461

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - **192.319** Modify records requirement as follows: "… make and retain for the life of the pipeline records documenting the ~~coating~~ **indirect** assessment findings and ~~repairs~~ **remedial actions**."

1a. Installation of Pipe in Ditch & Protective Coating
192.319 & 192.461
Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for Corrosion Control – Installation of Pipe in Ditch / Coating Protection
§ § 192.319 & 192.461

Approved GPAC Language 6/6/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for installation of pipe in a ditch and coating protection, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Raise the repair threshold from "moderate" to "severe" indications.
- Modify the applicability of this requirement to segments > 1000' to be consistent with 192.461
- Lengthen the assessment & remediation timeframe to 6 months after the pipeline is placed in service (192.319) and provide allowance for delayed permitting.
- Modify records requirement as follows: "… make and retain for the life of the pipeline records documenting the ~~coating~~ **indirect** assessment findings and ~~repairs~~ **remedial actions**."
- Providing flexibility for technology unless objected to by PHMSA.

1b. Ext. Corrosion Monitoring & Remediation
192.465, Appendix D

- **ISSUE:** Current requirements are not always effective at eliminating CP deficiencies
- **PHMSA PROPOSED to require:**
  - Close interval surveys in response to identified by CP monitoring deficiencies.
- **BASIS:** Lessons learned from pipeline failures and extensive construction problems as discussed in the public workshop in Ft. Worth (2009)

1b. Ext. Corrosion Monitoring & Remediation
§ 192.465, Appendix D

- **Committee Comments:**
  - Impact to distribution was not justified or analyzed and therefore distribution lines should be excluded
  - Timeframe for remediation does not take into account difficulties in obtaining permits, etc.
  - Disagreed with proposed revisions to Appendix D criteria for determining adequacy of cathodic protection
  - Always requiring CIS does not take into account cause for low CP readings. In some cases, CIS might be of little or no benefit.

1b. Ext. Corrosion Monitoring & Remediation
§ 192.465, Appendix D

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Clarify that the new requirements in paragraph 192.465(d) only apply to gas transmission pipelines.
  - Address comments on timeframe by modifying proposed paragraph 192.465(d) to require a remedial action plan and apply for any necessary permits within six months and complete remedial action within one year, not to exceed 15 months, whichever is less, or as soon as practicable after obtaining necessary permits.

1b. Ext. Corrosion Monitoring & Remediation
192.465, Appendix D

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Address situations where CIS may not be an effective response by modifying proposed paragraph 192.465(f) to require that operators investigate and mitigate any non-systemic or location-specific causes, and that close interval surveys would only be required to address systemic causes.
  - To address comments on proposed revisions to Appendix D, PHMSA proposes to withdraw the proposed revisions to Appendix D from the final rule.

1b. Ext. Corrosion Monitoring & Remediation
§192.465, Appendix D
Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for Corrosion Control – External Corrosion Monitoring and Remediation § 192.465 & Appendix D

Approved GPAC Language 6/6/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for external corrosion monitoring and remediation, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Clarify that the new requirements in paragraph 192.465(d) only apply to gas transmission pipelines.
- Address comments on timeframe to require a remedial action plan and apply for any necessary permits within 6 months and complete remedial action within 1 calendar year, not to exceed 15 months, or as soon as practicable after obtaining necessary permits.
- Address situations where CIS may not be an effective response to require that operators investigate and mitigate any non-systemic or location-specific causes, and that close interval surveys would only be required to address systemic causes.
- To address comments on proposed revisions to Appendix D, withdraw the proposed revisions to Appendix D from the final rule.

1c. Interference Currents
192.473

- **ISSUE:** Current Code requirements are not always effective at interference currents
- **PHMSA PROPOSED to require:**
  - Interference surveys and interference remediation program.
- **BASIS:** Lessons learned from pipeline failures. Also, two operators have mitigated interference induced corrosion based on requirements in Special Permits that are comparable to those proposed for 192.473.

1c. Interference Currents
192.473

- **Committee Comments:**
  - Should only be required for lines subject to stray current risk
  - Interference surveys may not be feasible depending on what information operators can get from electricity transmission companies
  - Phase in compliance over 12-18 months
  - Timeframe for remediation does not take into account difficulties in obtaining permits, etc.

1c. Interference Currents
192.473

Based on committee discussion, PHMSA suggests the committee consider:

- Clarifying that surveys are required for lines subject to stray current
- Clarifying that remedial action is required when the interference is at a level that could cause significant corrosion
- Updating the timeframe for remediation to require a remediation plan and application for necessary permits within 6 months and complete remediation within one year (not to exceed 15 months), with allowance for delayed permitting.

1c. Interference Currents
192.473

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for Corrosion Control – External Corrosion Interference Currents § 192.473

Approved GPAC Language 6/6/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for external corrosion interference currents, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Clarifying that surveys are required for lines subject to stray current.
- Clarifying that remedial action is required when the interference is at a level that could cause significant corrosion (defined as 100 amps per meter squared, or if it impedes the safe operating pressure of a pipeline, or that may cause a condition that would adversely affect the environment or the public).
- Updating the timeframe for remediation to require a remediation procedure and application for necessary permits within 6 months and complete remediation within 12 months, with allowance for delayed permitting.

1d. Internal Corrosion
192.478

- **ISSUE:** Current requirements are not always effective at preventing incidents from internal corrosion
- **BASIS:** Lessons learned from previous incidents with reported cause of internal corrosion.
- **PHMSA PROPOSED to require:**
  - A program for monitoring gas streams to identify corrosive constituents
  - Mitigation program
  - Periodic program review

1d. Internal Corrosion
192.478

- **Committee Comments:**
  - Should only be required for lines carrying corrosive gas
  - Some distribution operators rely on suppliers to monitor gas quality and do not own any gas monitoring equipment
  - Monitoring frequency of twice per year is too frequent
  - Need to harmonize with 192.477, which duplicates the proposed 192.478(c)

1d. Internal Corrosion
192.478

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Provide flexibility for operators to determine the internal corrosion monitoring program by adding “as necessary” and “where applicable” in paragraph (a), as suggested in industry letter docketed April 5, 2017.
  - Address comments on methodology and that some distribution operators rely on suppliers for gas monitoring equipment by modifying (b)(1) as follows: “At points where gas with potentially corrosive contaminants enters the pipeline, the use of gas-quality monitoring methods to determine the gas stream constituents.”
  - Address frequency of monitoring and program review by changing frequency from twice per year to once per year.
  - Delete proposed paragraph (c) and refer to 192.477 in 192.478(a)

1d. Internal Corrosion
192.478

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for Corrosion Control – Internal Corrosion
§ 192.478

Approved GPAC Language 6/6/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for internal corrosion, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Modify (b)(1) as follows: "At points where gas with potentially corrosive contaminants enters the pipeline, the use of gas-quality monitoring methods to determine the gas stream constituents."
- Change frequency of monitoring and program review from twice per year to once per calendar year, not to exceed 15 months.
- Delete proposed paragraph (c) and refer to 192.477 in 192.478(a).
- Limit the applicability of paragraph (a) to the transportation of corrosive gas. PHMSA will provide additional guidance based on the GPAC discussion.
- Revise (b)(2) to read "Technology to mitigate the potentially corrosive gas stream constituents. Such technologies may include product sampling and inhibitor injections."

1e. Add P&M Requirements to Address Internal and External Corrosion in HCAs
192.935(f), (g)

- **ISSUE:** Prescriptive preventive and mitigative (P&M) measures are needed to assure that public safety is enhanced in High Consequence Areas (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

1e. Add P&M Requirements to Address Internal and External Corrosion in HCAs 192.935(f), (g)

- **Committee Comments:**
  - 192.935(f) and (g) are too broad and prescriptive and should not apply to every pipeline segment indiscriminately. The results of risk assessment should be used to inform specific P&M measures in accordance with the current integrity management approach.
  - Continuous gas quality monitoring should only apply if internal corrosion is a risk and should not have to be real time (f)
  - Some distribution operators rely on suppliers to monitor gas quality and do not own any gas monitoring equipment
  - Monitoring frequency of twice per year is too frequent
  - PHMSA should reference ASME standards for P&M measures and ensure they are consistent with NACE standards

1e. Add P&M Requirements to Address Internal and External Corrosion in HCAs
192.935(f), (g)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - PHMSA notes that the proposed changes in Subpart I apply to all pipe (both HCA and non-HCA) and are very similar to the proposed changes in 192.935.
  - Since proposed changes to subpart I would apply to all transmission pipelines, PHMSA would support withdrawing all proposed changes to the regulations in 192.935(f) and (g), and Appendix E.

1e. Add P&M Requirements to Address Internal and External Corrosion in HCAs

192.935(f), (g)

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for Corrosion Control – Preventive & Mitigative Measures for Internal and External Corrosion § 192.935 (f) & (g)

Approved GPAC Language 6/6/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for preventive and mitigative measures for internal and external corrosion, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Withdraw all proposed changes to the regulations in 192.935(f) and (g), and Appendix E.

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **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.

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **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).

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **PHMSA PROPOSED TO:**
  - 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
  - Require that each operator must make and retain records that demonstrate compliance with this part (192.13(e)
  - Require that Class Location determination records must be kept for life of pipeline (192.5)

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **PHMSA PROPOSED to:**
  - Require that each operator of GT pipelines make/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))
  - Add a new Appendix A to list required records and retention times

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **Committee Comments:**
  - Remove “reliable” from the standard for records and remain consistent with the “traceable, verifiable and complete” standard included in the NTSB recommendation.
  - Concerned about having a general records requirement in the “general duty clause” and that by doing so, the requirement would be retroactively applied and creates unintended consequences with respect to how to rectify past non-compliances.

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **Committee Comments:**
  - Exempt small components from the requirement to have material records for components.
  - Welders and joiner qualification records (§§ 192.227 and 192.285) should not need to be retained for the life of the pipe
  - Clarify applicability to gathering and distribution operators.

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Delete the word “reliable” from the records standard to now read “traceable, verifiable and complete” wherever that standard is used.
  - Amend proposed 192.13(e) and reference to retention periods in Appendix A.

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - In 192.5(d), clarify that documentation be required for the current class location
  - Revising 192.67 (Materials), 192.127 (Pipe Design), and 192.205 (Components) to clarify the records necessary, for both new and pre-existing pipelines, for the safe operation of pipeline systems.

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

Based on committee discussion, PHMSA suggests the committee consider:

- Modify 192.205 (Components) to clarify that it applies to components > 2 inches nominal diameter.
- Modify 192.227 (Qualification of welders) and 192.285 (Qualification of persons joining plastic pipe) to include an effective date and change retention period to five years.
- Modify proposed Appendix A to clarify that it does not apply to distribution or gathering lines.

2. Records
192.13(e); 192.5(d); 192.67; 192.127; 192.205; 192.227(c); 192.285(e); 192.619(f); 192.624(f)

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Approved GPAC Language 6/6/17

Voting Language for Records §§ 192.5(d), 192.227(c), 192.285(e), 192.619(f), 192.624(f)

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for records, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Delete the word "reliable" from the records standard to now read "traceable, verifiable and complete" wherever that standard is used.
- In 192.5(d), clarify that documentation be required for the current class location.
- Modify 192.227 (Qualification of welders) and 192.285 (Qualification of persons joining plastic pipe) to include an effective date and change retention period to five years.

Not Voted On but Tabled 6/6/17

Voting Language for Records
§ § 192.13(e), 192.67, 192.127, 192.205

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for records, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Amend proposed 192.13(e) and reference to retention periods in Appendix A.
- Revising 192.67 (Materials), 192.127 (Pipe Design), and 192.205 (Components) to clarify the records necessary, for both new and pre-existing pipelines, for the safe operation of pipeline systems.
- Modify 192.205 (Components) to clarify that it applies to components > 2 inches nominal diameter.
- Modify proposed Appendix A to clarify that it does not apply to distribution or gathering lines.

3a. Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: 192.917(b)

- **ISSUE:** Operators are collecting much information but an integrated and documented analysis is often lacking
- **BASIS:**
  - San Bruno highlighted weaknesses in this area
  - 2011 Act mandate
  - NTSB Safety Study SS-15/01
- **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

3a. Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: 192.917(b) GPAC Discussion

- **Committee Comments:**
  - Proposed rule does not include an allowance to address lack of availability of some data sets by assuming the pipe segment is susceptible to the threat associated with the missing data.
  - Committee questioned the purpose for extensive data list and generating compliance paperwork without safety benefit. This led to discussion of how the operator demonstrates to a regulator that that it is doing a risk analysis that is effective, that you're not just going through a list of things, and that you're doing things that are actually the appropriate things to generate better safety outcomes.

3a. Improving Requirements for Collecting, Validating, & Integrating Pipeline Data: 192.917(b) GPAC Discussion

- **Committee Comments:**
  - Rule has no timeframe for implementation of data collection.
  - Clarify meaning of data integration, verification and validation.
  - Industry commented to remove the requirement to address SME bias, but others commented that SME bias in risk analysis is recognized across different areas, and reflects the reality about how humans think about risk and must be addressed.
  - Challenged the zero cost conclusion in the PRIA that data collection was zero cost.
  - Concern that 192.917(b)(3) is a mandate for using a GIS system which might be impractical for small operators.

3a. Threat identification, data collection, integration
192.917(b)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Rule includes allowance for missing data by a mechanism in 192.607 to obtain missing information.
  - ASME B31.8S (Section 4.2.1) allowance for lack of data only applies to threat identification and applicable threats should be assumed to apply in cases where pertinent data is not available. Data is used in risk assessment for other purposes including risk management, identifying preventive and mitigative measures, analyzing interactive threats, etc. These purposes of risk assessment cannot be adequately implemented using gross assumptions about threat applicability.
  - B31.8S, Section 4.2 requires operator "shall have a comprehensive plan for collecting all data sets" (emphasis added). This has been a requirement incorporated by reference to B31.8S in 192.917 since 2004.

3a. Threat identification, data collection, integration
192.917(b)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - PRIA zero cost based on: 192.917(b) already requires that "At a minimum, an operator must gather and evaluate the set of data specified in Appendix A to ASME/ANSI B31.8S, and consider both on the covered segment and similar non-covered segments, past incident history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, internal inspection records & all other conditions specific to each pipeline."
  - 192.917(b)(1) is intended to reflect the set of data specified in Table 1 and Appendix A of B31.8S and existing 192.917(b)(1) plus the addition of seismicity-related data to implement the Congressional mandate in the 2011 Act.

3a. Threat identification, data collection, integration
192.917(b)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Make minor adjustments to the listing of pipeline attributes in 917(b)(1) to be more consistent with existing regulations and B31.8S [changes informed by the industry comments docketed on April 5, 2017].
  - Address the topic of SME bias by rewording 192.917(b)(2).
  - The proposed rule would not require a GIS system.

3a. Threat identification, data collection, integration
192.917(b)

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for IM Clarifications § 192.917 (a) & (b)

Approved GPAC Language 6/7/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for IM clarifications for threat identification, data collection, and data integration, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Revise the listing of pipeline attributes in 192.917(b)(1) to be more consistent with existing regulations and B31.8S. Add language to require operators collect data that is "pertinent" (and that a prudent operator would collect).
- Implementation timeframe beginning in year 1 with full incorporation by 3 years.
- Address the topic of SME bias by rewording 192.917(b)(2), including elimination of the last sentence (or revising the last sentence), in accordance with the GPAC discussion.
- Do not require a GIS system.

3b. Risk assessment functional requirements 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
- **BASIS:**
  - NTSB recom. and lessons learned from San Bruno investigation
- **PHMSA PROPOSED to:**
  - Incorporate concepts & requirements of ASME B31.8S, Section 5
  - Ensure that risk assessments adequately evaluate 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]
  - July 2011 Risk Management workshop

3b. Risk assessment functional requirements 192.917 (c) GPAC Discussion

- Suggest revisions to risk assessment requirements should be deferred until after the risk modeling workgroup issues its guidance.
- Support for proposed 192.917(c) was expressed and noted that the proposed rule language was written using a performance based approach that articulated functions and purposes of risk assessment without being prescriptive as to method or process to be used and is consistent with integrity management principles.
- Concern that the intent or effect was to always require probabilistic risk assessment techniques

3b. Risk Assessment
192.917(c)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Proposed functional requirements listed in the proposed rule are consistent with the existing requirements already required by reference to B31.8S, Section 5.
  - The Risk Modeling Work Group guidance would by a resource for operators, but is not intended to be requirements or inform rulemaking.

3b. Risk Assessment
192.917(c)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Retain proposed requirements in 192.917(c).
    - Risk Modeling Work Group guidance would by a resource for operators, but is not intended to be requirements for rulemaking.
    - Functional requirements listed are consistent with the existing requirements already required by reference to B31.8S, Section 5 in 192.917(c).
  - Restore reference to B31.8s, Section 5 to clarify other methods besides probabilistic techniques may be used.
  - Paragraph (c), change the term “probability” to “likelihood”
  - Delete the term “risk factors” from paragraph (c)(2).
  - Provide a 3 year phase-in period for risk assessments to meet the functional objectives specified in (c).

3b. Risk Assessment
192.917(c)

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for IM Clarifications § 192.917 (c)

Approved GPAC Language 6/7/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for IM clarifications for risk assessment functional requirements, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Restore reference to B31.8s, Section 5 to clarify other methods besides probabilistic techniques may be used.
- In 192.917 (c), change the term “probability” to “likelihood” and delete the term “risk factors” from 192.917 (c)(2).
- Provide a 3 year phase-in period for risk assessments to meet the functional objectives specified in (c).

3c. Threat Assessment for Plastic Pipe 192.917(d)

- **ISSUE:** Potential for incomplete assessments of the risks from threats unique to plastic pipe
- **PHMSA PROPOSED to:**
  - Add examples of threats unique to plastic pipe as follows:
    - (d) Plastic transmission pipeline. An operator of a plastic transmission pipeline must assess the threats to each covered segment using the information in sections 4 and 5 of ASME B31.8S, and consider any threats unique to the integrity of plastic pipe such as poor joint fusion practices, pipe with poor slow crack growth (SCG) resistance, brittle pipe, circumferential cracking, hydrocarbon softening of the pipe, internal and external loads, longitudinal or lateral loads, proximity to elevated heat sources, and point loading.
- **BASIS:** Clarify by adding examples of threats unique to plastic pipe

3c. Threat Assessment for Plastic Pipe 192.917(d)

GPAC Discussion

- **Committee Comments:**
  - No specific discussion on proposed 192.917(d).

3c. Threat Assessment for Plastic Pipe 192.917(d)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Retain proposed 192.917(d)
    - Proposed rule does not alter or update any requirement
    - Proposed rule merely lists examples of unique threats which risk assessment of plastic pipe must consider.

3c. Threat Assessment for Plastic Pipe 192.917(d)

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for IM Clarifications § 192.917 (d)

Approved GPAC Language 6/7/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for IM clarifications for threat assessments for plastic pipe, are technically feasible, reasonable, cost-effective, and practicable.

3d. Cyclic Fatigue, M&C defects, and ERW pipe 192.917(e)

- **ISSUE:** Operators have made assumptions about seam type and stability of problematic seams that have proven to be invalid.
- **PHMSA PROPOSED TO:**
  - Clarify that certain pipe designs (e.g., LF ERW) must have been pressure tested to assume that seam flaws are stable and that failures or changes to operating that could affect seam stability are evaluated using fracture mechanics analysis.
- **BASIS:**
  - Marshall MI incident
  - San Bruno incident
  - NTSB P-11-15
  - NTSB SS-15/01

3d. Cyclic Fatigue, M&C defects, and ERW pipe
192.917(e)
GPAC Discussion

- **Committee Comments:**
  - Proposal to address cyclic fatigue and requiring pressure test on seam threats is possible overcompensation.
  - Concern was expressed that proposed 192.624 (for MAOP verification when you've had an incident due to M&C threats) is in conflict with 192.917(e)(3) (for MAOP verification).
    - 192.624 allows operators to pick one of the five methods to establish MAOP, but 192.917(e)(3) only allows operators to consider that threat stable if you'd had a hydrostatic pressure test to 1.25 times MAOP.

3d. Cyclic Fatigue, M&C defects, and ERW pipe
192.917(e)

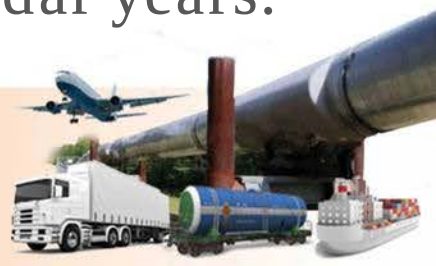
- **PHMSA Background information about 192.624 and 192.917(e)(3).**
  - No conflict between 192.624 and 192.917(e)(3).
  - 192.917(e)(3) allows operators to consider the M&C threat stable if a pressure test has been successful, and thus not conduct periodic integrity assessments for that threat thereafter.
  - Purpose of 192.624 is to verify MAOP. Code allows the assessments conducted under 192.624 to count as an IM assessment.
  - 192.624 is “one and done” in terms of establishing MAOP.
  - Conducting MAOP verification process, by itself, does not allow an operator to discontinue periodic integrity assessments under IMP.

3d. Cyclic Fatigue, M&C defects, and ERW pipe
192.917(e)

- **PHMSA Background information about 192.624 and 192.917(e)(3).**
  - If an operator chooses to verify MAOP by means of a spike pressure test, then the requirement in 192.917(e)(3) would be satisfied,
    - the operator may assume that the M&C threat is stable, and periodic integrity assessments would not be required in the future for the M&C threat
    - it would not alleviate the need for periodic integrity assessments for time dependent threats such as cracking defects or corrosion.

3d. Cyclic Fatigue, M&C defects, and ERW pipe
192.917(e)

- **Based on committee discussion, PHMSA suggests the committee consider:**
  - Retain proposed revisions to 192.917(e)(2), (3) and (4), with the modification described below
    - Necessary to address NTSB Recommendations.
  - To address the "overcompensation" comment, consider changes to periodic cyclic fatigue analysis from annually to periodically, based on changes to cyclic fatigue data and other changes to loading conditions since the previous analysis was completed, not to exceed 7 calendar years.



3d. Cyclic Fatigue, M&C defects, and ERW pipe 192.917(e)

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for IM Clarifications § 192.917 (e)(2)

Approved GPAC Language 6/7/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for IM clarifications for cyclic fatigue, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Revise 192.917(e)(2) based on GPAC discussion and considering PHMSA's proposed language at the meeting.

Voting Language for IM Clarifications § 192.917 (e)(3) & (e)4

Not Voted On but Tabled 6/7/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for IM clarifications for M&C defects, and ERW pipe, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- List changes

3e. Strengthen Requirements for Applying Knowledge Gained Through IM 192.935(a)

- **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.

3e. Strengthen Requirements for Applying Knowledge Gained Through IM 192.935(a)

GPAC Discussion

- **Committee Comments:**
  - Change made to the current Code in 192.935(a) removes a statement that an operator must base the additional measures on the threats the operator has identified to each pipeline segment.
  - Removal of that sentence, we believe implies that an operator must execute every single one of these P&M measures in 192.935(a) every single time.
  - Based on PHMSA's webinars and other discussions, we don't believe that was the intent.

3e. Strengthen Requirements for Applying Knowledge Gained Through IM
192.935(a)

- **Potential committee recommendations (based on committee discussion @ previous meeting):**
  - Incorporate proposed changes to the regulatory text provided in the industry comments docketed on April 5, 2017 to clarify that it is not PHMSA's intent to require that all listed P&M measures be implemented.

3e. Strengthen Requirements for Applying Knowledge Gained Through IM

§§ 192.935(a)

Discussion & Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for IM Clarifications § 192.935 (a)

Approved GPAC Language 6/7/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for IM clarifications for P&M measures, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Clarify that it is not PHMSA's intent to require that all listed P&M measures be implemented (& that "must consider" will be instituted).

Conclusion of Topics Discussed in Meeting #1

- This concludes the topics discussed at meeting #1.
- The following topics address new agenda items that were not previously discussed in meeting #1.

4. MAOP Exceedance Reporting
191.23, 191.25

- **ISSUE:** Congressional mandate in 2011 Act requires that operators report MAOP exceedances to PHMSA.
- **PHMSA PROPOSED TO:** Include reporting requirements in Part 191 to specify the procedures and information required to be included in MAOP exceedance reports.
- **BASIS:** Pipeline Safety Act of 2011, Section 23.

- **[Note: This topic does not include gas gathering reporting.]**

4. MAOP Exceedance Reporting 191.23, 191.25

NPRM Comments

- Many commenters support reporting of MAOP exceedances.
- PHMSA was requested to revise 191.23 to require filing SRCRs only when the operator is unable to meet the pressure reduction requirements and/or response timeframes specified in 49 CFR Part 192.
- **PHMSA:** The Congressional mandate in the 2011 Act requires that MAOP exceedances be reported without exception.

4. MAOP Exceedance Reporting 191.23, 191.25

NPRM Comments

- An operator expressed concern that the proposed change would require additional Safety Related Condition Reports (SRCR) be submitted (beyond what is currently required) anytime the operator had to implement a pressure reduction upon discovery of an immediate condition.
- **PHMSA:** Proposed rule would not require additional SRCRs for pressure reductions in response to immediate conditions, only for an actual operational exceedance of the established MAOP plus the margin allowed for operation of pressure limiting or control devices.

4. MAOP Exceedance Reporting 191.1, 191.23, 191.25, 191.29

Discussion and Vote

- Public Comments
- GPAC discussion and comments on PHMSA suggestions.
- GPAC vote on proposed rule.
  - Start with vote on proposed rule.
  - Accept additional motions as necessary.

Voting Language for MAOP Exceedance
§ 191.1, 191.23, 191.25, 191.29

Approved GPAC Language 6/7/17

The proposed rule as published in the Federal Register and the Draft Regulatory Evaluation, with regard to the provisions for MAOP exceedance, are technically feasible, reasonable, cost-effective, and practicable if the following changes are made:

- Clarify that MAOP exceedance reporting does not apply to gathering lines.

5. Material Documentation:
Proposed 192.607

5. Material Documentation
192.607
The Issue of Missing Records

- Immediately after the San Bruno, CA accident, NTSB issued 3 urgent recommendations to PG&E. NTSB recommended that PG&E:
  - Conduct an immediate search for missing records
  - Use verifiable records to determine a valid MAOP, and
  - If a valid MAOP cannot be substantiated, conduct pressure tests to re-establish a valid MAOP
- The results of the PG&E review revealed that PG&E could not substantiate MAOP for a significant amount of PG&E's transmission system

5. Material Documentation
192.607
Implications to Industry

- In the wake of the San Bruno incident and PG&E problems revealed by the records review, Congress mandated (2011 Act, Section 23) that:
  - All pipeline operators conduct a records review for segments in HCAs and Class 3 and 4 locations, and report the results to PHMSA
  - "The purpose of the verification shall be to ensure that the records accurately reflect the physical and operational characteristics of the pipelines … and confirm the established maximum allowable operating pressure of the pipelines"

5. Material Documentation 192.607

Why are pipeline material records needed?

- To establish design and maximum operating pressures (MAOP)
- For integrity management (IM)
- Anomaly evaluations for safe operating pressure

5. Material Documentation
192.607
Implications to Industry

- Operators reported ~5,000 miles of pipe in HCAs and Class 3 & 4 locations had inadequate records to confirm MAOP (13% of ~37,500 miles)
- For segments without such records, Congress also mandated (2011 Act, Section 23) that PHMSA
  - Require the operator to reconfirm a maximum allowable operating pressure as expeditiously as economically feasible; and
  - Determine what actions are appropriate for the pipeline owner or operator to take to maintain safety until a maximum allowable operating pressure is confirmed.

5. Material Documentation
192.607
Implications to Industry

- In the addition, Congress (as well as NTSB in its report on the San Bruno accident) included other mandates and recommendations that have significant implications to the issue of missing records to substantiate MAOP
  - ***PSA of 2011 - § 23(a) 60139(d) mandate "Testing Regulations"*** - pressure testing or alternative equivalent means such as ILI program for all Gas Transmission pipe (Class 3, 4 and all HCAs) not previously tested;
  - ***NTSB P-11-14 "Delete Grandfather Clause"*** - recommends all grandfathered pipe be pressure tested, including a "spike" test for HCA and non-HCA segments
  - ***NTSB P-11-15 "Seam Stability"*** - recommends pressure test to 1.25 x MAOP before treating latent manufacturing and construction defects as "stable" for all pipe, both HCA and non-HCA segments

5. Material Documentation
192.607
Alternatives PHMSA Considered

- A “no action” alternative is not feasible
  - Congress has mandated action that is now law
  - Actions required by existing regulations to establish material properties for unknown pipe segments would be prohibitively expensive.

5. Material Documentation
192.607
Alternatives PHMSA Considered (cont.)

- A "no action" alternative is not feasible, current Code:
  - Cutout and destructively test samples every 10 joints (192.107(b) and App. B)

192.107(b) For pipe that is manufactured in accordance with a specification not listed in section I of appendix B to this part or whose specification or tensile properties are unknown, the yield strength to be used in the design formula in §192.105 is one of the following:

(1) If the pipe is tensile tested in accordance with section II-D of appendix B to this part, the lower of the following:

(i) 80 percent of the average yield strength determined by the tensile tests.

(ii) The lowest yield strength determined by the tensile tests.

(2) If the pipe is not tensile tested as provided in paragraph (b)(1) of this section, 24,000 p.s.i. (165 MPa).

5. Material Documentation 192.607
Alternatives PHMSA Considered (cont.)

- Prohibitively expensive
- Simply pressure testing the pipe does not address missing records needed for establishing
  - design pressure, determining yield strength, wall thickness, and seam type, and analyzing/prioritizing defects for repair, etc.
- All pipe segments (HCA and non-HCA) are currently subject to these requirements if pipe material properties are unknown

5. Material Documentation
192.607
Proposed Rule to Re-establish Material Properties

- PHMSA proposed a process that is based on an ***opportunistic*** sampling approach
  - ***No mandatory excavation solely for verification of pipe material properties would be required***
  - Verify material properties ***as opportunities present themselves during the course of normal operations and maintenance***, such as excavations for evaluation or repair of anomalies or defects
  - Allow non-destructive testing to verify material properties where feasible (not currently allowed by Part 192)
  - Operator could elect destructive testing per existing code if practical (e.g., if the segment is being replaced anyway)
  - Components such as valves, flanges, and fabrications could be verified by code stamp and other markings

5. Material Documentation
192.607
Proposed Rule to Re-establish Material Properties (cont.)

- **PHMSA proposed a process that is based on an opportunistic sampling approach:**
  - Over time operators will gain data and records to provide confidence in material properties (PHMSA did not propose a schedule or deadline for completion)
  - Use the results to extrapolate to other unknown segments
  - Discontinue the program after a specified number of segment properties had been verified

5. Material Documentation
192.607
Minimum Required Parameters

- PHMSA considered the minimum material properties that must be known to establish MAOP, and operate and maintain the pipeline to assure operating pressure stays within the MAOP limits
- Pipe segments for which 192.607 does not apply would continue to be subject to existing rule requirements to establish unknown material properties

5. Material Documentation
192.607
Minimum Required Parameters (cont.)

- The minimum material properties are:
  - Diameter, wall thickness, yield strength
    - Design Pressure (192.905),
    - MAOP determination (192.619(a))
    - Safe operating pressure of pipe with defects (192.933)
  - Ultimate tensile strength

5. Material Documentation
192.607
Minimum Required Parameters (cont.)

- Charpy v-notch toughness (only where required for failure pressure and crack growth analysis)
- Chemical properties (IMP threat analysis per 192.917 and welding)
- Seam type (IMP threat analysis per 192.917, pressure testing requirements per proposed 192.624) [Note: this was a key piece of erroneous information that contributed to San Bruno accident.]
- Coating type (IMP threat analysis per 192.917)
- Test for the presence of stress corrosion cracking, seam cracking, or selective seam weld corrosion

5. Material Documentation
192.607
Other Issues

- Proposed rule would apply only to pipeline segments in HCA, Class 3, and Class 4
- Balance of pipe segments (non-HCAs in Class 1 and 2) would continue to be subject to existing rule requirements to establish material properties for unknown pipe

5. Material Documentation
192.607
Other Issues

- PHMSA proposed to require operators establish sample populations based on similar or comparable pipe to address:
  - Vintage
  - Manufacturer
  - Type of Seam
  - Comparable key parameters
  - Pipelines acquired from others
  - Segments of pipeline systems that have been replaced
  - Other reasons for variation in unknown pipe properties

5. Material Documentation
192.607
NPRM Comments

- Widely supported by NTSB, PST, public & safety advocates. Concern was expressed that the need for this section reflects poor operator implementation of IMP since the inception of Subpart O.

PHMSA: Since 2004, 192.917 requires that operators establish a program to collect all data sets. In addition, for remaining strength calculations, material and pipe properties must be known to reliably calculate the predicted failure pressure (PFP). Those properties are also specified in B31.8S.

Table 1 Data Elements for Prescriptive Pipeline Integrity Program

Category	Data
Attribute data	Pipe wall thickness
	Diameter
	Seam type and joint factor
	Manufacturer
	Manufacturing date
	Material properties
	Equipment properties

5. Material Documentation
192.607
NPRM Comments

- **PHMSA:** ASME B31.8S: 4.2 Data Requirements. The operator shall have a comprehensive plan for collecting all data sets.
  - The operator must first collect the data required to perform a risk assessment (see para. 5).
  - Implementation of the IM program will drive the collection and prioritization of additional data elements required to more fully understand and prevent/mitigate pipeline threats.
  - 4.2.1 Prescriptive Integrity Management Programs. Limited data sets shall be gathered to evaluate each threat for prescriptive integrity management program applications. These data lists are provided in Nonmandatory Appendix A for each threat and summarized in Table 1.
  - All of the specified data elements shall be available for each threat in order to perform the risk assessment.

5. Material Documentation
192.607
NPRM Comments

- Recommend that PHMSA withdraw this section (192.607) for this regulatory rulemaking does not deliver clear, identifiable safety benefits and contains many serious unintended consequences that will have the effect of decreasing the integrity of pipeline systems. Availability of non-destructive testing personnel and equipment will be severely tax the available resources, making implementation impracticable. Proposed requirements in 192.607 are unnecessarily complex to achieve needed improvements to material validation. Costs will increase dramatically and many communities will experience significant disruptions and increased traffic safety risk exposure resulting from the proposed rule.
- **PHMSA:** Deleting this section would be unresponsive to both Congress and NTSB. Also, PHMSA believes concerns about cost, impracticability, and additional significant disruptions are based on an incomplete understanding of the proposed rule.

5. Material Documentation
192.607
NPRM Comments

- One commenter suggested including a deadline for operators to finish implementing the material documentation plan.
- **PHMSA:** The approach is opportunistic in order to take advantage of excavations as they occur for other reasons. Setting a deadline would be impractical in such a program.

5. Material Documentation
192.607
NPRM Comments

- If an operator has previously established MAOP as per the 192.619(a)(2) strength test requirements or will do so per the proposed 192.624 methodology for pressure test or pressure reduction, the verification of pipeline material proposed in 192.607 is not necessary for the purpose of ensuring safe operation. For remaining strength calculations, use supported, sound engineering judgments or conservative assumptions that functionally serve as safety factors when there are specific record gaps.
- **PHMSA:** Even in cases where MAOP has been verified with a strength test, material properties are necessary to conduct effective integrity management, including, but not limited, to calculation of Predicted Failure Pressure (PFP) in response to discovered defects, determining vulnerability to certain threats, etc.

5. Material Documentation
192.607
NPRM Comments

- 192.607 could be interpreted as being applicable to distribution pipelines (both mains and services) and gathering lines. PHMSA should clarify that distribution and gathering facilities are exempt from the Proposed Rule.
- **PHMSA:** Proposed 192.607 applies to onshore steel transmission pipelines. The final rule will clarify that distribution and gathering lines are exempt from 192.607.

5. Material Documentation
192.607
NPRM Comments

- Performing these examinations would require unnecessarily breeching the pipeline coating, an important component of effective cathodic protection.
- **PHMSA:** Reapplying coating when pipelines are exposed is common and effective.
- Recommend PHMSA consider a performance based approach to determine the minimum number of test locations at each excavation or above-ground location.
- **PHMSA:** PHMSA will consider relaxing or revising the minimum number of test locations at each excavation.

5. Material Documentation
192.607
NPRM Comments

- A retroactive material verification rule would amount to a pipe replacement rule. Given the expense of performing the steps necessary to verifying a pipeline's material properties as set forth in the proposed rule, many operators may find it less expensive to simply replace the pipe.
- **PHMSA:** believes concerns about cost are based on an incomplete understanding of the proposed rule.
- Urged PHMSA to restrict to transmission pipe >30% based on Leak Before Break concept
- **PHMSA:** did not restrict to ≥ 30% since pipe have ruptured while operating at <30%

5. Material Documentation
192.607
NPRM Comments

- Suggests that PHMSA review the various cross-references in the NPRM and eliminate cross-references that would expand the applicability of 192.607 beyond onshore steel transmission lines in HCAs or Class 3 or Class 4 locations.
- **PHMSA:** 192.607 is applicable to those locations specified in 192.607(a). PHMSA proposes to clarify language in other locations to avoid confusion on this point.

5. Material Documentation
192.607
NPRM Comments

- Recommend that the language in proposed 192.607 be revised to include or refer to the option of using the provisions of 192.619(a)(1) for establishing MAOP when traceable, verifiable, complete material records are not available for calculating design pressure.
- **PHMSA:** 192.607 requires material documentation for purposes other than MAOP Verification. Also, all four of the tests in 192.619(a) must be satisfied to determine which is lowest. Establishing wall thickness, seam, yield, and other parameters are necessary for IM as well as determining Predicted Failure Pressure of defects.

5. Material Documentation
192.607
NPRM Comments

- Recommend changing the size limit for small components from great than or equal to 2 inches to greater than 2 inches.
- **PHMSA:** PHMSA will consider this proposal.

- Implementation timeframe should be extended – 1 year to develop plan
- **PHMSA:** will consider extending the implementation to 1-year.

5. Material Documentation
192.607
NPRM Comments

- Recommend that PHMSA limit the required records to what is needed to calculate design pressure in order to determine MAOP (i.e. diameter, wall thickness, grade (yield strength), and longitudinal joint factor).
- **PHMSA:** Chemical composition is important for welding; seam type is important for IMP threat analysis; coating type is important for threat analysis (e.g., SCC).

5. Material Documentation
192.607
NPRM Comments

- 192.607(d)(4), all components to not have an ANSI rating.
- **PHMSA:** will add "where applicable" in response to this comment.

- Confidence specifications for NDE tests would add significant cost for inherently inaccurate test results.
- **PHMSA:** will review the confidence specifications for NDE tools.

5. Material Documentation
192.607
NPRM Comments

- Comment to delete the sampling requirement and not require performance of material documentation if, when the pipe is excavated for repair, a repair sleeve or replacement is installed.
- **PHMSA**: operators can and should repair the pipe if there is a defect. In such cases, the operator would then conduct NDE and material documentation at the exposed pipe near the repair.
  - To not perform any material documentation would defeat the purpose of the material documentation program which is to learn about the pipe in the ground for which records are insufficient.
  - The purpose is larger than to assure safety at one pipe location being excavated, but the entire pipeline segment. Information obtained fmust be applied to other similar pipe in the pipeline in order to establish material properties for unexcavated segments.

5. Material Documentation
192.607
NPRM Comments

- Do not concur with establishing a requirement for the specified number of excavations for material verification. The minimum number of excavations should be determined by the operator in their material verification plan and through statistical analysis to achieve targeted confidence levels. PHMSA's proposed prescriptive sampling plan is too limiting.
- **PHMSA:** will consider adjusting the minimum number of excavations if credible alternatives are proposed.

5. Material Documentation
192.607
NPRM Comments

- Commenters support AGA's alternative approach to PHMSA's prescriptive and complex proposals related to Material Verification (192.607), MAOP Verification (192.624), and Integrity Assessments Outside of HCAs (192.710). Commenters stated that AGA's approach is more simplistic, would be easier to follow and enforce, and would focus resources on the areas of highest risk within pipeline systems.
- **PHMSA:** believes the proposed approach is appropriate.

5. Material Documentation
192.607
NPRM Comments

- Encourage consistency between the material documentation required within 192.607(c) and those listed within the prospective documentation requirements in 192.67 Records: Materials, 192.127 Records: Pipe design, and 192.205 Records: Pipeline components. Inconsistencies between these documentation requirements could create irrational scenarios where operators are meeting the new documentation requirements but find themselves still required to perform the Material Verification requirements under 192.607.
- **PHMSA:** Operators would only be required to verify material properties in accordance with 192.607 in cases where required documentation is missing (see 192.607(d)). Operators that establish records per other requirements would not have to also comply with 192.607.

5. Material Documentation
192.607
NPRM Comments

- 192.607(c)(2) and 192.607(c)(3) require the operator to know the weld-end bevel conditions for in-service valves and flanges. Once a weld-end is welded to a piece of pipe or other component - unaware of any method that an operator can employ to determine the bevel of a weld-end.
- **PHMSA:** will consider deleting the requirements associated with bevel end conditions.

5. Material Documentation
192.607
NPRM Comments

- 192.607(d) - There is no technical justification for the number of material properties tests being required at each test location by the proposed rule. The requirement of 5 tests in each circumferential quadrant for nondestructive tests and one test in each circumferential quadrant for destructive tests is unsupported in the proposal.
- **PHMSA**: will consider reducing the requirements for the number of quadrants tested (from 4 to 2) at each location, but not the number of tests at each location.

5. Material Documentation
192.607
NPRM Comments

- The proposed 192.607(d)(3)(iii), would require testing for SCC in all cases. This requirement should be limited to only pipelines that are susceptible to SCC.
- **PHMSA:** Current methods for determining if a segment is susceptible to SCC have not proven to be sufficiently reliable. PHMSA believes the information gained from checking for SCC will improve our understanding of SCC and enhance safety and integrity management.

5. Material Documentation
192.607
NPRM Comments

- Allow operators to establish design yield strengths for unknown pipe grade as described in 192.107(b)(1).
- **PHMSA:** Operators must be following 192.107(b)(1) if tensile strength is unknown. In addition, operators must also follow 192.109 (if wall thickness is not known) and 192.113 (if seam type is unknown).
- Delete the notification requirement to use other technology.
- **PHMSA:** believes the notification serves an important function for oversight and is currently used for IM.

5. Material Documentation
192.607
NPRM Comments

- **192.607(d)(3) -** Recommend including language that would allow the use of advanced ILI and NDE, such as Pipe Identification, to comply with the requirements. Pipe Identification would also enable a more accurate assessment interval as (A) and (B) do not take into account the variation in pipe material and manufacturing that actually exist. By using ILI data, an assessment of variation of the pipe can be used to determine an accurate assessment interval.
- **PHMSA:** The proposed rule would allow either destructive or nondestructive testing, as long as the methods used are reliable and results are confirmed.

5. Material Documentation
192.607
NPRM Comments

- **192.607(d)(3) -** The definition of excavation is unclear in this section. Pipe may be excavated to a point for many operational activities including; spotting for construction safety, installation of cathodic protection test, or current source wires. These types of excavations are not opportunities for material verification.
- **PHMSA:** will consider limiting excavations to repair, remediation, anomaly examination, and maintenance, and delete the phrase "or other reasons for which the pipe is exposed."

5. Material Documentation
192.607
NPRM Comments

- 192.607(d)(3) - SMEs in both metallurgy & fracture mechanics are not needed to validate non-destructive test methods. Engineers with knowledge in test validation methods but not necessarily metallurgy and fracture mechanics are capable of validating NDT methods.
- **PHMSA:** will consider revising the rule to address this comment.
- Recommend PHMSA allow alternative methods of assessing strength properties that provide a suitable lower bound to the actual strengths. Allowing alternative methods will provide flexibility to consider conservative but realistic estimates of material properties.
- **PHMSA:** Proposed rule allows NDE methods that reliably provide a suitable lower bound for strength. Also, the proposed rule allows operators to submit notifications to use other technology.

5. Material Documentation
192.607
NPRM Comments

- Opposition to requiring operators to remove a cylinder of pipe to perform destructive tests and then perform a material test at each of the four quadrants on the cylinder that is removed. This requirement is unnecessarily costly, and has a negative impact on pipeline safety since the integrity of the pipeline has now been compromised and a new joint of pipe will need to be welded onto the pipe.
- **PHMSA:** The proposed rule would not require destructive testing, but allows it as an alternative.

5. Material Documentation
192.607
NPRM Comments

- Delete the reference in 192.607(d)(6) to the requirement to obtain a "no objection letter" from the PHMSA Associate Administrator. PHMSA enforcement and regulatory procedures do not provide for such letters and adding a new process that is not articulated in the rules or well-defined would cause even more confusion.
- **PHMSA:** The "no objection" letter has been effectively implemented since the inception of the IMP rule in subpart O.

5. Material Documentation
192.607
NPRM Comments

- There is no benefit of determining pipeline chemical compositions with no direction or guidance for a company to apply this newly validated characteristic. There is a high probability that many pipelines that were otherwise considered to have acceptable material documentation could now fail the proposed records requirements in 192.607(c) thereby requiring additional verification action per 192.607(d).
- **PHMSA:** Chemical properties are needed for welding. For example, see Appendix B, Section II.B. PHMSA may consider adjusting the proposed rule to address this comment.

5. Material Documentation
192.607
NPRM Comments

- Allow operators to use short-duration spike portion of a spike pressure test to determine the lower bound of the yield strength of the test section, including all pipe and components that are subjected to the test pressure. Such a test, if used for this purpose, must also confirm that yielding beyond that experienced in a standard tensile test to determine yield strength, typically on the order of 0.5%, has not occurred. This confirmation may be demonstrated by data from a pressure-volume plot of the test or a post-test geometry tool in-line inspection.
- **PHMSA:** agrees that a yield test (which would be greater than 110% SMYS) is valuable to confirm the pressure-retaining capability of the pipe body and seam. It would not confirm other key parameters such as wall thickness, seam type, and grade.

5. Material Documentation
192.607
NPRM Comments

- In 192.607(d)(3)(iii), PHMSA requires the nondestructive testing to be validated with unity plots comparing the results from non-destructive and destructive testing. This severely limits the value of non-destructive testing, since the operator will have to remove samples for destructive testing just to create the unity plots. It is also unclear how many destructive test samples would be required.
- **PHMSA:** will consider eliminating the term "unity plots" and generally specify the use of reliable engineering test and analysis.

5. Material Documentation
192.607
NPRM Comments

- Comment that there is no NDE testing methodology for obtaining Charpy v-notch toughness. Thus PHMSA's requirement to obtain Charpy values eliminates the availability of non-destructive testing.
- **PHMSA**'s intent was not to require Charpy in every case, but to only require Charpy where required for failure pressure and crack growth analysis. PHMSA will review the wording for this paragraph in this context.

5. Material Documentation
192.607
Public Comments

- Applicable locations (192.607 (a))
- Material Documentation Plan (192.607 (b))
- Material Documentation (192.607 (c))
- Verification of Material Properties (method) (192.607 (d))

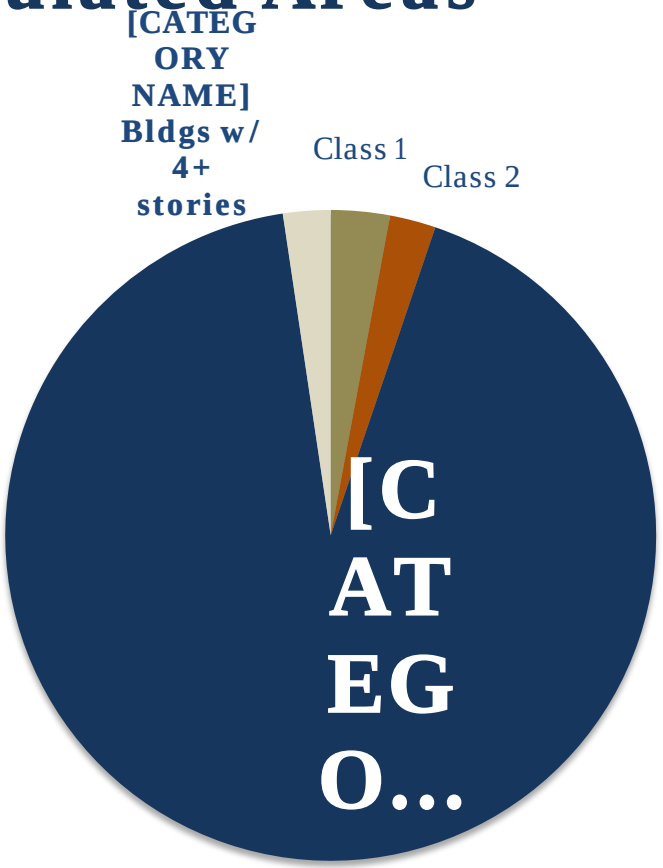
5. Material Documentation 192.607 GPAC Discussion

- Applicable locations (192.607 (a))
- Material Documentation Plan (192.607 (b))
- Material Documentation (192.607 (c))
- Verification of Material Properties (method) (192.607 (d))

Background Materials

Incomplete records and Grandfathered Pipe: Primarily Located in Populated Areas

Incomplete MAOP Records and Grandfathered Pipe by Class Location			
Class Location	**Incomplete Records**	**Grandfather Clause**	**Total**
Class 1	95	87	181
Class 2	88	54	142
Class 3	4,221	1,512	**5,733**
Class 4	135	11	146
Total	**4,539**	**1,664**	**6,203**



Source: 2016 Gas Transmission Operator Annual Reports submitted to PHMSA

ASME B31.8S-2004 Data Integration for Integrity Management

4.3 Data Sources

The data needed for integrity management programs can be obtained from within the operating company and from external sources (e.g., industry-wide data). Typically, the documentation containing the required data elements is located in design and construction documentation, and current operational and maintenance records.

Table 1 Data Elements for Prescriptive Pipeline Integrity Program

Category	Data
Attribute data	Pipe wall thickness
	Diameter
	Seam type and joint factor
	Manufacturer
	Manufacturing date
	Material properties
	Equipment properties
Construction	Year of installation
	Bending method
	Joining method, process and inspection results
	Depth of cover
	Crossings/casings
	Pressure test
	Field coating methods
	Soil, backfill
	Inspection reports
	Cathodic protection installed
	Coating type
Operational	Gas quality
	Flow rate
	Normal maximum and minimum operating pressures
	Leak/failure history
	Coating condition
	CP (cathodic protection) system performance
	Pipe wall temperature
	Pipe inspection reports
	OD/ID corrosion monitoring
	Pressure fluctuations
	Regulator/relief performance
	Encroachments
	Repairs
	Vandalism
	External forces
Inspection	Pressure tests
	In-line inspections
	Geometry tool inspections
	Bell hole inspections
	CP inspections (CIS)
	Coating condition inspections (DCVG)
	Audits and reviews

Advisory Bulletin ADB-2012-6

- **Traceable records** are those which can be clearly linked to original information about a pipeline segment or facility. Traceable records might include pipe mill records, purchase requisition, or as-built documentation indicating minimum pipe yield strength, seam type, wall thickness and diameter. Careful attention should be given to records transcribed from original documents as they may contain errors. Information from a transcribed document, in many cases, should be verified with complementary or supporting documents.
- **Verifiable records** are those in which information is confirmed by other complementary, but separate, documentation. Verifiable records might include contract specifications for a pressure test of a line segment complemented by pressure charts or field logs. Another example might include a purchase order to a pipe mill with pipe specifications verified by a metallurgical test of a coupon pulled from the same pipe segment. In general, the only acceptable use of an affidavit would be as a complementary document, prepared and signed at the time of the test or inspection by an individual who would have reason to be familiar with the test or inspection.