



PHMSA
Safety of Gas Transmission Pipelines
A.K.A – The “Mega Rule”
RIN 2

February 8, 2024

Alex Kirschling

Pipeline Safety Program Manager

Public Service Commission of Wisconsin



Or by its official name...

Repair Criteria, Integrity Management Improvements, Cathodic Protection, Management of Change, and Other Related Amendments

Docket No: PHMSA-2011-0023

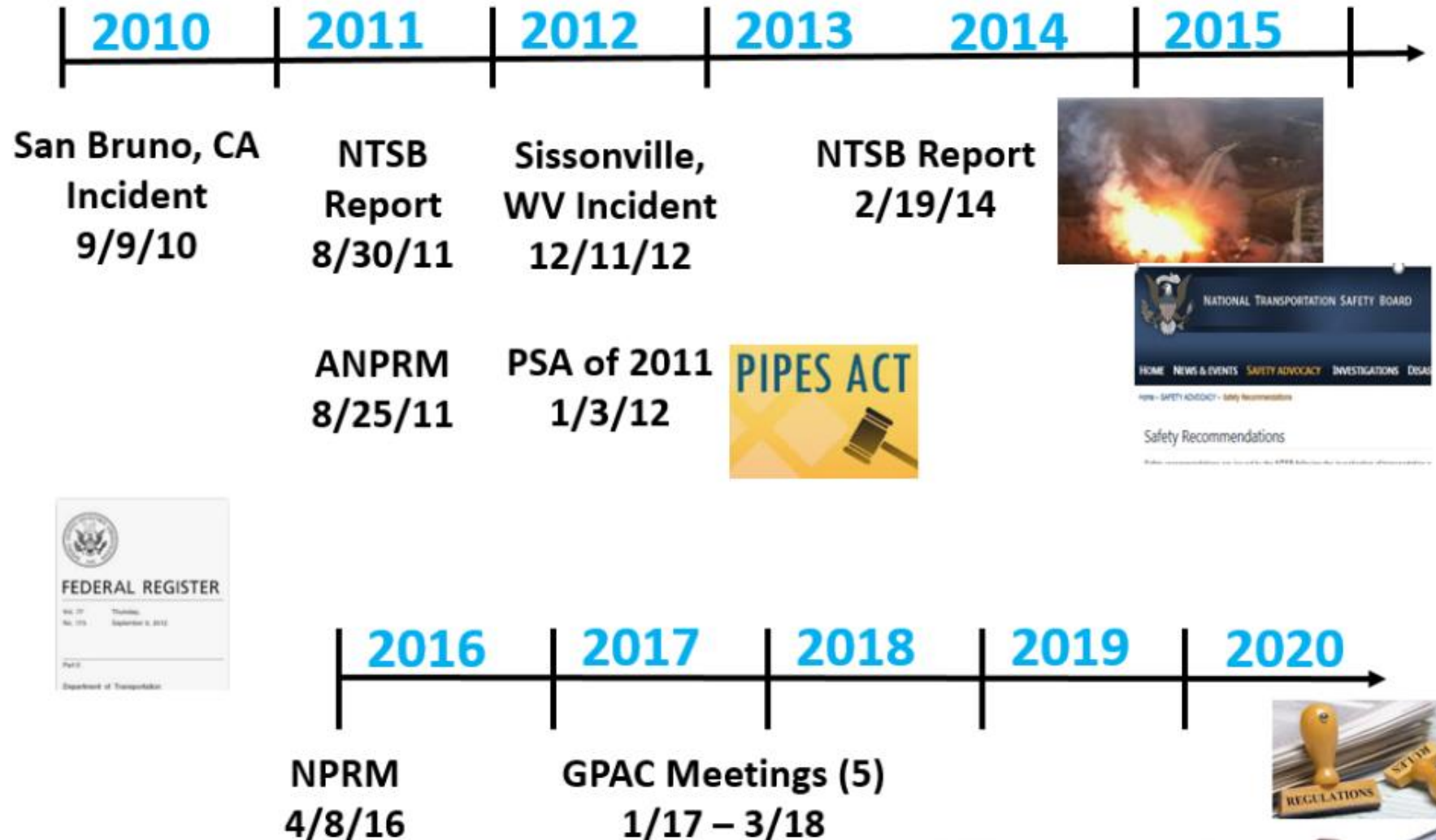
Amdt No 192-132 (and 192-133...)

Publication Date: August 24, 2022

Effective Date: May 24, 2023

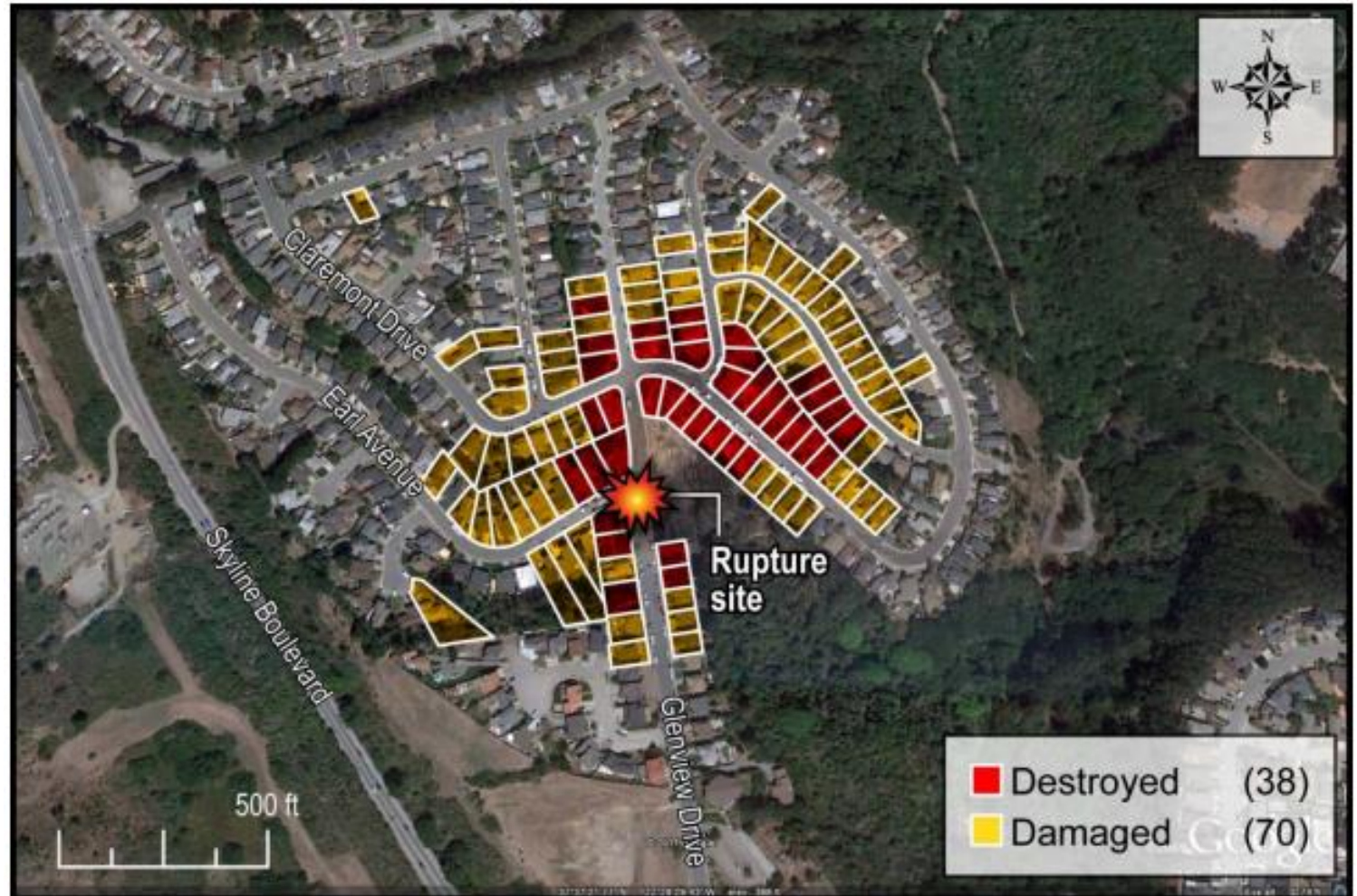
Stay of Enforcement Date: February 24, 2024

PHMSA Rule History



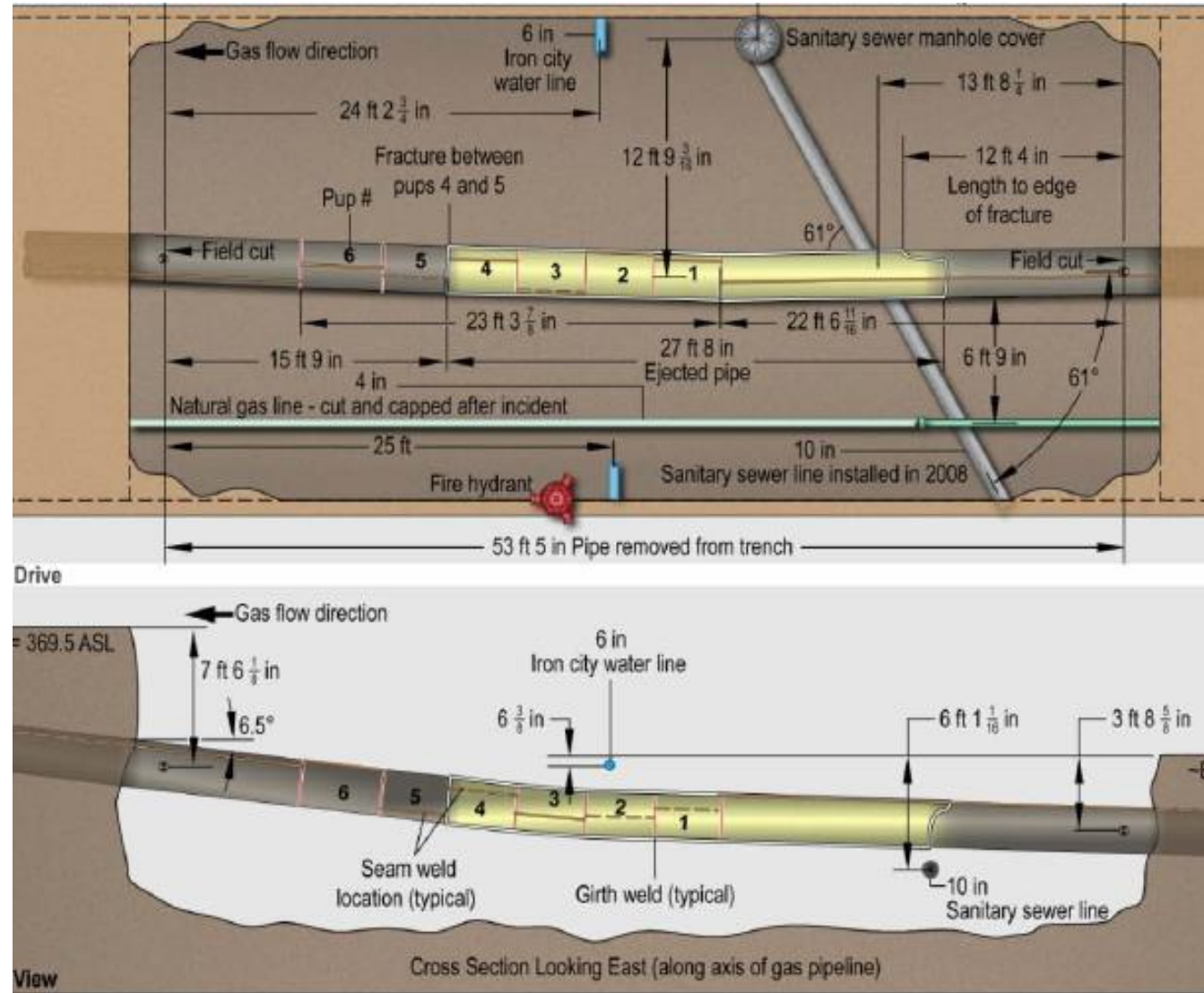
Gas Rule – Incident Drivers – San Bruno

- 30” pipeline rupture
- Resulting fire destroyed 38 homes and damaged 70
- 8 fatalities
- 58 injuries
- Produced a crater 72ft x 26ft and the ejected pipe was found 100 ft away from the crater
- 48 MMCF gas released



Gas Rule – Incident Drivers – San Bruno

- Contributor to the “grandfather clause”
- Fracture originated in the partially welded longitudinal seam 1 of 6 pups installed in 1956.
- The 2008 probable cause of the accident was (1) inadequate QA and QC in 1956, which allowed the installation of a sub-std and poorly welded pipe section with a visible seam weld flaw that, over time grew to a critical size, causing the pipeline to rupture; and (2) inadequate pipeline IM Program, which failed to detect and repair/remove the defective pipe.



Gas Rule – Split Into Three Final Rules



RIN 1 – Safety of Gas Transmission Pipelines: MAOP Reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments

Final Rule Published October 1, 2019

RIN 2 – Repair Criteria, IM Improvements, Cathodic Protection, Management of Changes, and Other Related Amendments

Final Rule Published August 24, 2022

RIN 3 – Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High Pressure Lines, and Other Related Amendments

Final Rule Published November 15, 2021

- Amendment 192-132 – Original rule
- Amendment 192-132c – Corrects an error in the wrinkle bend calculation in (2)(i) of the wrinkle bend definition in 192.3
- Amendment 192-133 – Technical Corrections, Response to Petition for Reconsideration.
 - Consistency Between §§ 192.714 and 192.933
 - Consistency Between §§ 192.319(f) and 192.461(h)
 - Specify the Unit Measurement in § 192.473(c)(3) Is in Alternating Current (AC)

- Sent to PHMSA September 23, 2022
- PHMSA responded November 18, 2022
 - States that PHMSA will issue guidance on “connected series of pipelines” and guidance that in-line inspection can include free swimming tools
 - PHMSA will exhibit enforcement discretion for 9 months (until late February 2024)
 - Exception to provisions with independent compliance timelines
 - (i.e., 49 CFR 192.917(b) and 192.13(d))
- PHMSA issues enforcement discretion notice December 6, 2022

- Definitions—§192.3
- Management of Change—§§ 192.13, 192.911
- Corrosion Control—§§ 192.319, 192.461, 192.465, 192.473, 192.478, 192.935
- Inspections Following Extreme Weather §192.613
- Repair Criteria—§§ 192.711, 192.712, 192.714, 192.933
- IM Clarifications—§§ 192.917, 192.935
- Strengthening Assessment Methods—§§ 192.923, 192.927, 192.929

- Transmission Line
- Distribution Center
- Close Interval Survey
- Dry Gas or Dry Natural Gas
- Hard Spot
- In-line Inspection
- In-line Inspection Tool or Instrumented Internal Inspection Device
- Wrinkle Bend

The definitions clarify technical terms used in part 192 or in this rulemaking.

- Establishes requirements for the Management of Change process in ASME/ANSI B31.8S, section 11.
- Previously management of change needed for High Consequence Areas (HCAs) only.
- 18-month compliance period for non-HCAs
- Evaluate and mitigate significant changes.
- Reason for change, authority for approving changes, analysis of implications, acquisition of required work permits, etc.

- Per ASME/ANSI B31.8S Section 11, MOC should include:
 - Reason for change
 - Authority for approving changes
 - Analysis of implications of the change
 - Proper acquisition of required work permits
 - Appropriate documentation
 - Communications of the change to affected parties
 - Time limitations of the change
 - Qualification of staff

- In both construction and O&M sections
- §§ 192.319 and 192.461 are essentially identical
- Despite performing holiday detection, coating can sometimes be damaged during handling, lowering, and backfilling process
- Requires operators to perform an above-ground indirect assessment (ACVG/DCVG/“other technology”) after backfilling is completed and remediate any coating damage found.
 - Survey must be completed within 6 months after repair/placing the pipeline in service
 - 1,000 feet or more of continuous backfill
 - Must repair any damage classified as severe within 12 months of the assessment
 - Voltage drop greater than 60 percent for DCVG or 70 dB μ V for ACVG
 - Section 4 NACE SP0502
 - Records kept for the life of the pipeline

- Sets timeframe for prompt remedial action for operators of onshore gas transmission pipelines
 - Must develop a remedial action plan and apply for permits within 6 months of the test or inspection that identified the deficiency
 - Must complete remedial action within 15 months of survey or 6 months after obtaining necessary permits (whichever is earliest)
- Operators must determine the extent of the area with inadequate CP
 - Must investigate and mitigate any non-systemic or location-specific causes
 - For systemic causes, conduct close interval surveys in both directions at a maximum interval of 5 feet or less (unless impractical)
 - Protective current must be interrupted unless impractical
 - Must remediate issues and confirm restoration of CP following remedial actions

- Operators are already required to have a program to minimize the detrimental effects of stray currents
- New rule requires interference surveys when potential monitoring indicates significant increase in stray current or when new potential stray current sources are introduced.
 - Crossing pipelines, Light rail or commuter trains, HVAC electrical lines
- Analysis of results of survey to determine cause of interference and whether it could cause significant corrosion, impede safe operation, or adversely affect environment or public.
- Development of remedial action plan when current is ≥ 100 A/M² AC
- Apply for necessary permits within 6 months of the survey
- Complete remedial actions: 15 months of survey or 6 months after obtaining necessary permits (whichever is earliest)

- Requires operators of GT pipelines with corrosive constituents in the gas to monitor for gas quality, evaluate gas monitoring data yearly, and evaluate IC monitoring and mitigation program yearly.
- Monitoring and mitigation must include
 - Gas quality monitoring where potentially corrosive gas enters the pipeline
 - Technology to mitigate corrosive constituents such as inhibitor injections, in-line cleaning pigging, separators, or other technology
 - An evaluation once each calendar year not to exceed 15 months to ensure effective monitoring and mitigation
- Operator must review its program once each calendar year not to exceed 15 months and implement adjustments as necessary

- Operator must inspect potentially affected transmission pipeline facilities following an extreme weather event or natural disaster
 - Named tropical storm or hurricane
 - Flood that exceeds the river, shoreline, or creek high-water banks near pipeline
 - Landslide in the area of the pipeline
 - Earthquake in the area of the pipeline
- Inspection must commence within 72 hours after the point in time when the operator reasonably determines the affected area can be safely accessed by personnel and equipment, and such personnel and equipment are available. If unable, must notify PHMSA Region Director as soon as practicable.

- Operator must take prompt and appropriate remedial action based on the inspection, which might include, but not limited to:
 - (i) Reducing the operating pressure or shutting down the pipeline;
 - (ii) Modifying, repairing, or replacing any damaged pipeline facilities;
 - (iii) Preventing, mitigating, or eliminating any unsafe conditions in the pipeline right-of-way;
 - (iv) Performing additional patrols, surveys, tests, or inspections;
 - (v) Implementing emergency response activities with Federal, State, or local personnel; or
 - (vi) Notifying affected communities of the steps that can be taken to ensure public safety.

- Rule establishes repair criteria for non-HCA transmission pipelines
- 192.710 – Clarifies that anomalies discovered during MCA assessments must be repaired in accordance with non-HCA repair criteria
- 192.711 – Changed to clarify new requirements in 192.714 must be followed for non-HCA, instead of just as soon as feasible
- Repair criteria for non-HCAs in 192.714 is essentially the same as HCA, EXCEPT timelines for scheduled repairs (2 years vs. 1 year)

- Rule also adds a number of new repair requirements that apply to both HCA and non-HCA repairs
- Changes shown in **RED** on the following slides

- Anomalies where the metal loss is greater than 80 percent of wall thickness.
- Metal loss anomalies with a predicted failure pressure (PFP) determined from 192.712 to be $\leq 1.1 \times \text{MAOP}$.
- A topside dent that has metal loss, cracking, or a stress riser (“unless” ECA in accordance w/§192.712).
- Anomalies where there is an indication of metal loss affecting certain longitudinal seams.
- Cracks or crack-like anomalies meeting specified criteria.
- Indications of anomalies that require immediate action.

- Smooth upper 2/3 dents with a depth greater than 6% of the pipeline diameter (“unless” ECA in accordance with 192.712 [...]).
- Dents greater than 2% of the pipeline diameter located at a girth weld, longitudinal, or spiral seam weld (“unless” ECA [...]).
- Lower 1/3 dent with metal loss, cracking, or stress riser (“unless” ECA).
- Certain metal loss anomalies and cracks with a PFP (192.712) to be < the MAOP times 1.1/1.39/1.5 depending on class location

- Dents with depth greater than 6% and where ECA shows critical strain levels are not exceeded.
- Dents with depth greater than 2% that affects pipe curvature at a girth weld or longitudinal or helical seam weld, and “where” ECA [...].
- Dents with metal loss, cracking, or a stress riser, and “where” ECA [...].
- Certain metal loss anomalies and cracks with a PFP $\geq 1.39 \times \text{MAOP}$ in Class 1 locations or where Class 2 locations have uprated pipe, and that has a PFP $\geq 1.5 \times \text{MAOP}$ in all other Class 2, Class 3, and Class 4 locations.

- Inserts specific attributes from ASME/ANSI B31.8S into the regulations for risk assessments. (35 different attributes)
- Specifies operators must perform risk assessments that are adequate for evaluating the effects of interacting threats. Account and compensate for uncertainties in the model and data used.
- Requires operators use validated information and data as inputs and validate their risk models considering incident, leak, and failure history, and other historical information.
- Provides specific examples of integrity threats for plastic pipe that must be addressed.
- “PHMSA has found that provisions incorporated directly into its regulatory text have higher levels of compliance.”

- Incorporates NACE SP0206-2006 into the regulations for ICDA and establishes additional requirements for ICDA for covered segments.
- Incorporates NACE SP0204-2008 into the regulations for SCCDA and establishes additional requirements for SCCDA.
- Standards did not exist for these assessment methods at the time the original IM regulations were issued in 2003

Important Dates:

- Rule Effective Date: May 24, 2023
- PHMSA Stay of Enforcement February 24, 2024
- 192.13 Management of Change – February 26, 2024
- 192.917 IM Threats and IM Risk Assessment Feb 26, 2024

Questions?