PIPELINE SAFETY
INSTITUTE

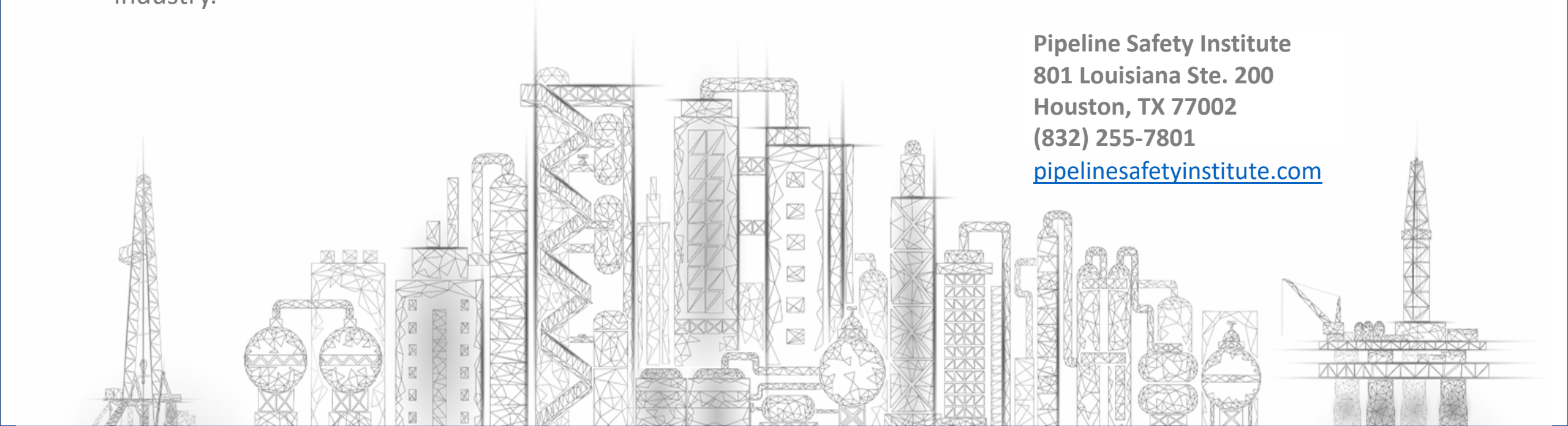
Pipeline Safety

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

Pipeline Safety Institute – Your one-stop destination for understanding pipeline compliance. Whether you are new to the industry, an experienced oil & gas professional that needs a refresher, or you want to take a deep dive into the latest regulation changes, you are at the right place.

Training topics cover pipeline operations and engineering concepts, with future course offerings for Integrity Management programs, including In-line inspection, material testing, fitting and component selection, and qualifying welders. Our curriculum continues to grow to meet the changes and challenges in the energy industry.

The Pipeline Safety Institute has a team of experienced trainers and subject matter experts from all disciplines. With over 25 years of training experience, we are committed to providing the best pipeline safety training in the industry.



Pipeline Safety Institute
801 Louisiana Ste. 200
Houston, TX 77002
(832) 255-7801
pipelinesafetyinstitute.com

Trainer Introduction

PIPELINE SAFETY INSTITUTE

Mike LaMont

Senior Director, RCP Inc.

mlamont@rcp.com

(832) 255-7801

Mr. LaMont specializes in pipeline integrity management and regulatory compliance strategies and brings over 20 years of associated experience. Through the application of process-driven, holistic strategies, he successfully supported numerous large and small pipeline operators in achieving their program goals and objectives. His 49 CFR 191, 192, 194 and 195 expertise includes HCA determinations, data integration and risk analysis, assessment planning, rehabilitation, preventative and mitigative measures, performance measures, hazardous liquid and natural gas pipeline integrity management, pipeline safety regulatory programs, written management systems development, program audits, integrity assessments, corrosion control, consequence modeling, environmental compliance, air permitting and investigations and Root Cause Analysis.

Agenda (Rule Contents)

PIPELINE SAFETY INSTITUTE

- Definitions
- Incorporated By Reference (IBR)
- Management of Change (MOC)
- New Construction
- Cathodic Protection (CP)
- Surveillance
- Repairs
- Integrity Management (IM) / Risk Analysis (RA)
- Direct Assessment (DA) – Internal Corrosion Direct Assessment / Stress Corrosion Cracking Direct Assessment (ICDA / SCCDA)
- Preventive and Mitigative Measures (P&MM)

Definitions

PIPELINE SAFETY INSTITUTE

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

Examples:

(1) At a metering location.

(2) A pressure reduction location or…

(3) Where there is a reduction in the volume of gas, such as a lateral off a transmission line.

Definitions

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

(1) Transports gas from a gathering pipeline or storage facility to a distribution center, storage facility, or large volume customer that is not downstream from a distribution center.

(2) Has an MAOP of 20 percent or more of SMYS.

(3) Transports gas within a storage field, or..

(4) Is voluntarily designated by the operator as a transmission pipeline.

Incorporated By Reference

PHMSA updated this code section to the following updates incorporated by reference standards:

- **ASME/ANSI B31.8S-2004, *Managing System Integrity of Gas Pipelines (Approved January 14, 2005).***
- **NACE SP0502-2010, *External Corrosion Direct Assessment (Revised June 24, 2010)*.**

The following standards were added to this Section:

- **NACE SP0204-2008, *Stress Corrosion Cracking Direct Assessment Methodology*.**
- **NACE SP0206-2006, *Internal Corrosion Direct Assessment Methodology*.**

Management of Change

PIPELINE SAFETY INSTITUTE

The management of change process must include consideration of the following change factors:

- Technical
- Design
- Physical
- Environmental
- Procedural
- Operational
- Maintenance
- Organization

(Pipeline or Process)
(Permanent or Temporary)

§192.13

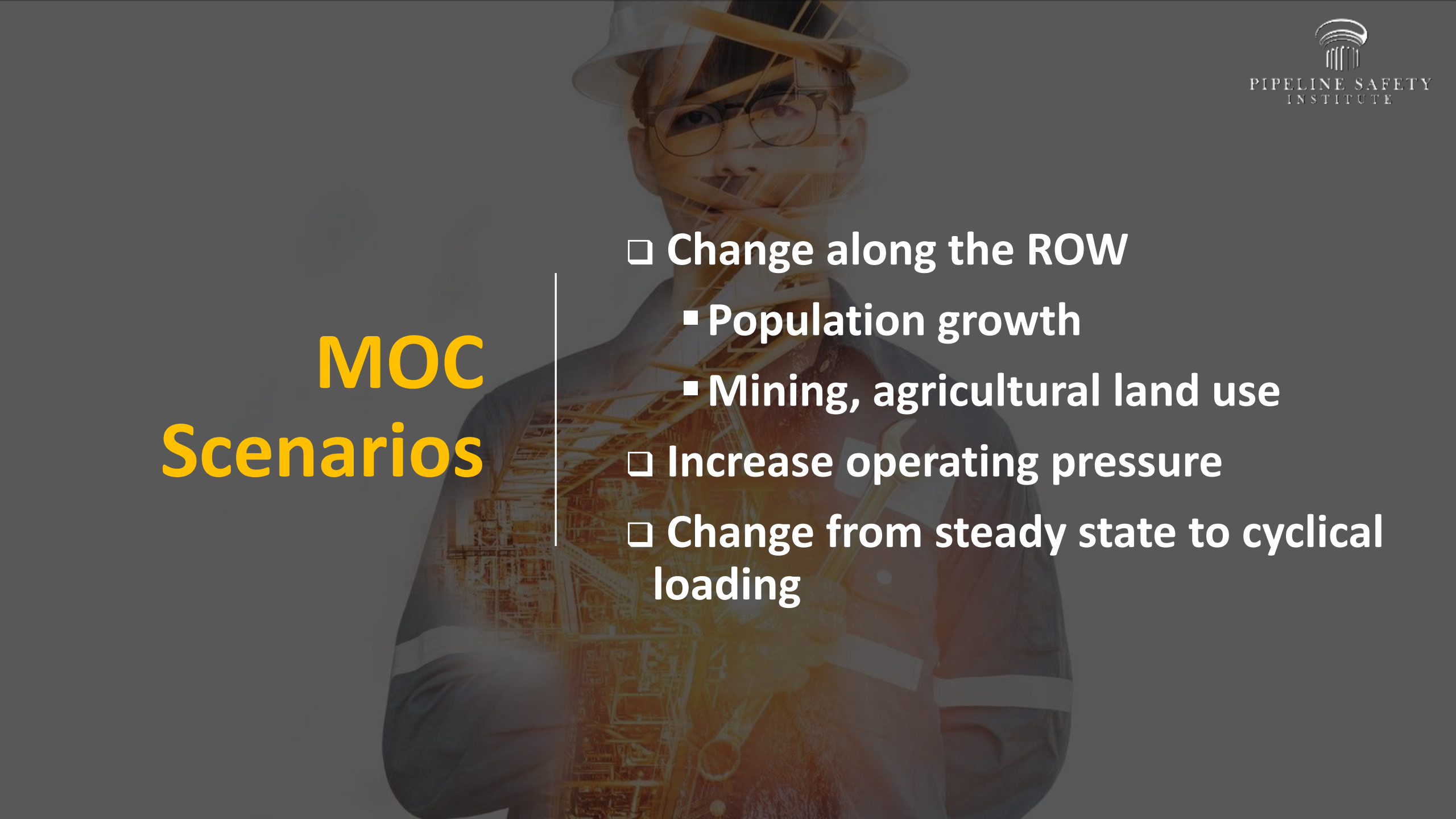
Management of Change

PIPELINE SAFETY INSTITUTE

The management of change process must include the following process elements:

- Reason for Change
- Authority for Approving Changes
- Analysis of Implications
- Acquisition of required Work Permits
- Documentation
- Communication of Change to Affected Parties
- Time Limitations
- Qualifications of Staff

§192.13



PIPELINE SAFETY INSTITUTE

MOC Scenarios

- Change along the ROW
  - Population growth
  - Mining, agricultural land use
- Increase operating pressure
- Change from steady state to cyclical loading

Installation of Pipe in a Ditch

PIPELINE SAFETY INSTITUTE

…Operator must perform an assessment to assess any coating damage and ensure the integrity of the coating using direct current voltage gradient (DCVG), alternating current voltage gradient (ACVG), or other technology that provides comparable information about the integrity of the coating. Coating surveys must be conducted, except in locations where effective coating surveys are precluded by geographical, technical, or safety reasons.

§§192.319(d) & .461(f)

Corrosion Control: Monitoring and Remediation

PIPELINE SAFETY INSTITUTE

§192.465(d) … correct any deficiencies indicated by the inspection and testing … must develop a remedial action plan and apply for any necessary permits within 6 months of completing the inspection or testing that identified the deficiency. …

(f) …determine the extent of the area with inadequate cathodic protection … systemic areas … conduct a CIS … remediate areas with insufficient cathodic protection levels, or areas where protective current is found to be leaving the pipeline…

§192.465(d) & (f)

Continuing Surveillance

Following an extreme weather event or natural disaster:

- ❑ Named tropical storm or hurricane.
- ❑ Flood that exceeds the river, shoreline, or creek high-water banks in the area of the pipeline.
- ❑ Landslide in the area of the pipeline or an earthquake

Inspect within 72 hours

Take action, e.g. pressure reduction, correct damages, address unsafe conditions, implement additional activities, activate ER, communication to communities.

PIPELINE SAFETY INSTITUTE

§192.613

Predicted Failure Pressure

PIPELINE SAFETY INSTITUTE

New requirement to develop procedures for evaluating dents and other mechanical damage…

- Including ground movement, external loading, fatigue, cracking, and corrosion …
- High-resolution deformation, inertial mapping, and crack detection inline inspection data for damage in the dent area and any associated weld region …
- Curvature-based strain analysis …
- Compare the dent profile between the most recent and previous …
- Identify and quantify all previous and present significant loads acting on the dent.
- Evaluate the strain level associated with the anomaly or defect and any nearby welds using Finite Element Analysis …
- Crack growth rate assessment…
- Notification per 192.18 if using ECA …

§ 192.712(c)

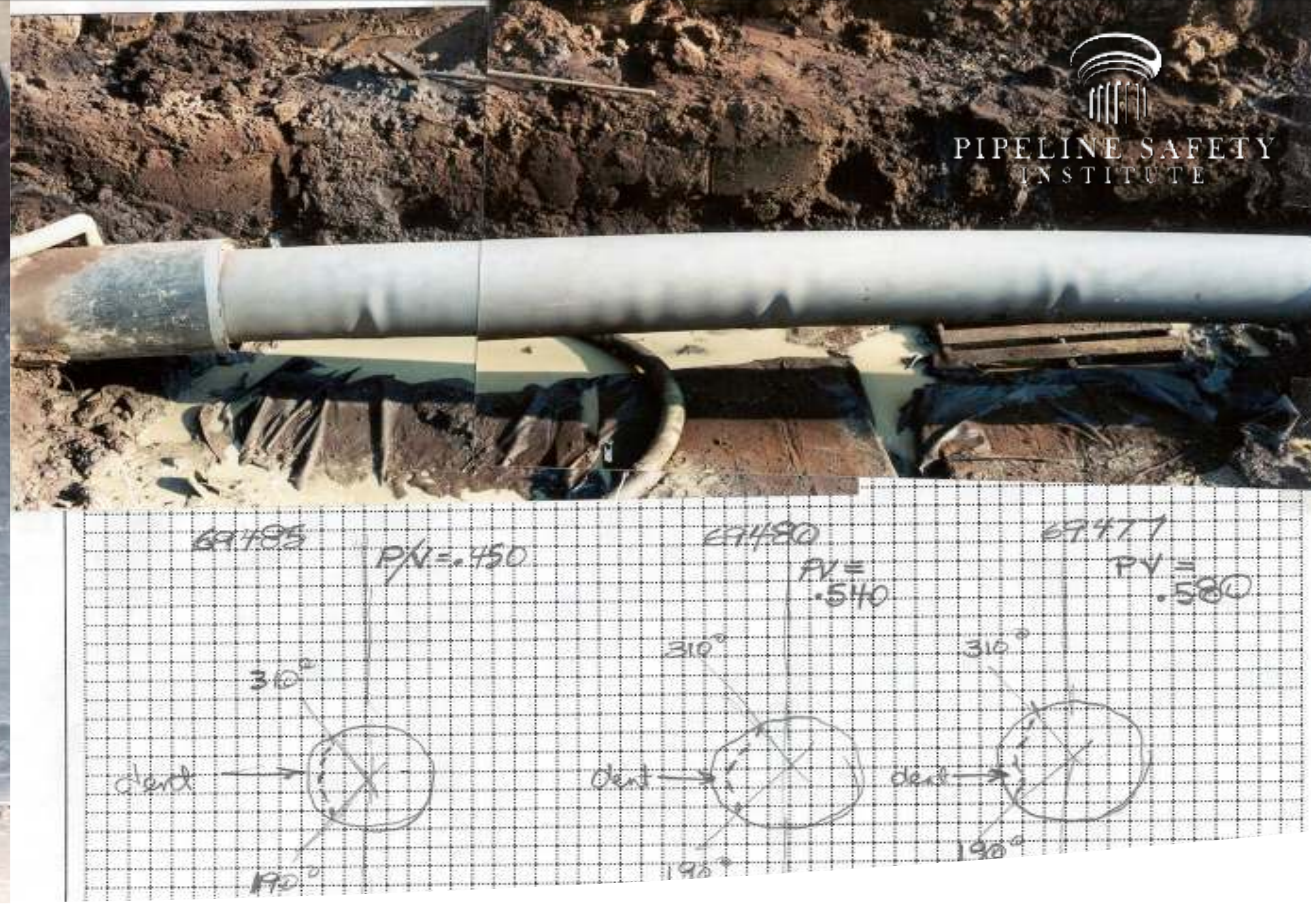
PIPELINE SAFETY INSTITUTE

General requirements are established under Paragraph (b) and require that operators must ensure repairs are made in a safe manner and rare made to prevent damage to persons, property, and the environment. This paragraph also requires that:

- Pipelines operation pressure must be less than the predicated failure pressure.
- Repairs are preformed must use pipe and material properties documented in traceable, verifiable, and complete records.
- If documented data required is not available the operator must obtain the undocumented data per § 192.607.

Repairs Outside of Integrity Management

§192.714



Repairs Outside of Integrity Management

- ❑ Immediate
- ❑ Two-year conditions
- ❑ Monitored

- ❑ Pressure reductions
  - 80% OP @ discovery
  - PFP/F
  - PFP/1.1

§192.714

PIPELINE SAFETY INSTITUTE

Integrity Management

Specific data elements that operators must integrate into their Risk Assessment.

§192.917(b)

Integrity Management Risk Analysis

PIPELINE SAFETY INSTITUTE

Also consistent with the 2019 hazardous liquids integrity management updates, this Section is updated to require that operators:

- *Identify and analyze spatial relationships among anomalous information (e.g., corrosion coincident with foreign line crossings or evidence of pipeline damage where overhead imaging shows evidence of encroachment) and….*
- *Analyze the data for interrelationships among pipeline integrity threats, including combinations of applicable risk factors that increase the likelihood of incidents or increase the potential consequences of incidents.*

§192.917(b)

PIPELINE SAFETY
INSTITUTE

Repair Criteria

Adjusted and added some criteria.

§192.933

Preventative and Mitigative Measures

- Added a number of specific additional preventative and mitigative measures.
- Updated to reflect the PHMSA expectation that operators document preventive and mitigative measures analysis including the basis for implementing new measures or the justification for not implementing preventive and mitigative measures considered.

PIPELINE SAFETY INSTITUTE

§192.927 What are the requirements for using Internal Corrosion Direct Assessment (ICDA)?

§192.929 What are the requirements for using Direct Assessment for Stress Corrosion Cracking?

- Mirrors requirements of NACE SP0206 (incorporated by reference, see § 192.7)
- Mirrors requirements of NACE SP0204

Any Questions?

PIPELINE SAFETY
INSTITUTE

Thank You!

Mike LaMont
mlamont@rcp.com
(832) 255-7801