Improving Pipeline Risk Assessments and Recordkeeping

Chad Zamarin
Vice President – Engineering
NiSource Gas Transmission & Storage

Thursday July 21, 2011

Quality recordkeeping enables effective risk assessment

Records and related data are required for effective risk assessment

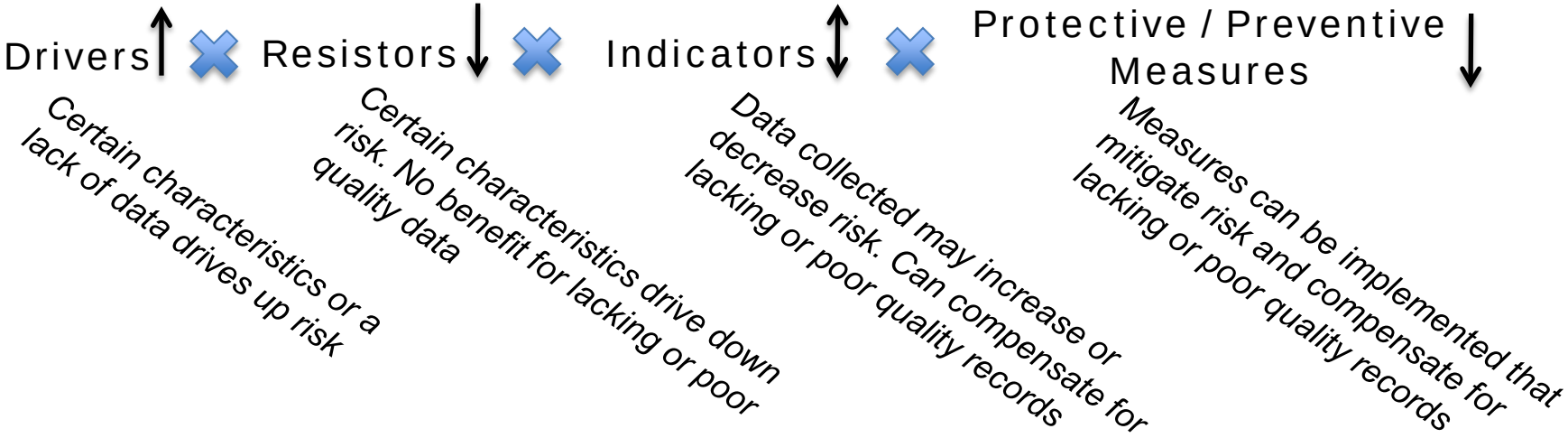
- **Pipe Properties** – seam type, install date, size, material strength, etc.
- **Environmental Factors** – activity, outside forces, stress levels, etc.
- **Operating Characteristics** – pressure, gas quality, cycles, etc.
- **Testing and Assessment History** – qualification tests, integrity assessments, etc.

  - ✓ ***Traceable*** – the origin of the record can be determined.
  - ✓ **Verifiable** – the record can be confirmed by supporting documentation or credible statements that have been recorded.
  - ✓ ***Complete*** – the record was complete according to the requirements in place at the time the data was created.

Effective risk assessment enables good decision making

Model for characterizing risk and compensating for data quality

- **D**rivers – parameters that drive risk for a given threat (i.e. seam type)
- **R**esistors – characteristics that resist a given threat (i.e. heavy wall thickness)
- **I**ndicators – data providing an indication of severity of a given threat (i.e. ILI data)
- **P**rotective / Preventive Measures – actions that mitigate risk of a given threat (i.e. pressure test)



Workgroup formed to ensure integrity of pipe installed prior to regulations

Action Steps:

- Develop guidelines for records to support operation of pipelines installed prior to regulations
  - Process for supporting MAOP of pipelines
  - Process for addressing PHMSA and NTSB bulletins regarding records to support risk management and integrity management
  - Standards for records and compensating measures when records are inadequate.
  - Best practices for records management systems and processes
- Characterize risks to pipeline systems installed prior to regulations and document a process for mitigating associated risks.
  - Summary report of the inventory of pipeline systems and recommended integrity assurance protocols to be applied to these systems.

The INGAA Board and its members have published commitments related to records and MAOP

INGAA members recognize need to define and implement a “fitness for service” protocol for pipelines built prior to promulgation of regulations by DOT in 1970. INGAA members commit to the following:

- ***Develop and apply guidance, including a process for systematically validating records and the MAOP, for pipelines within HCAs.***
- ***Process will address NTSB recommendations to demonstrate traceable, verifiable and complete records with examples of the types of records.***
- ***Where records do not meet this standard, a process will include a pressure testing protocol to be applied within seven years, contingent upon the ability of an operator to meet customer delivery requirements.***
- ***INGAA will reinforce the need to consider fatigue in pre-regulation pipe.***

Maximum Allowable Operating Pressure (MAOP)

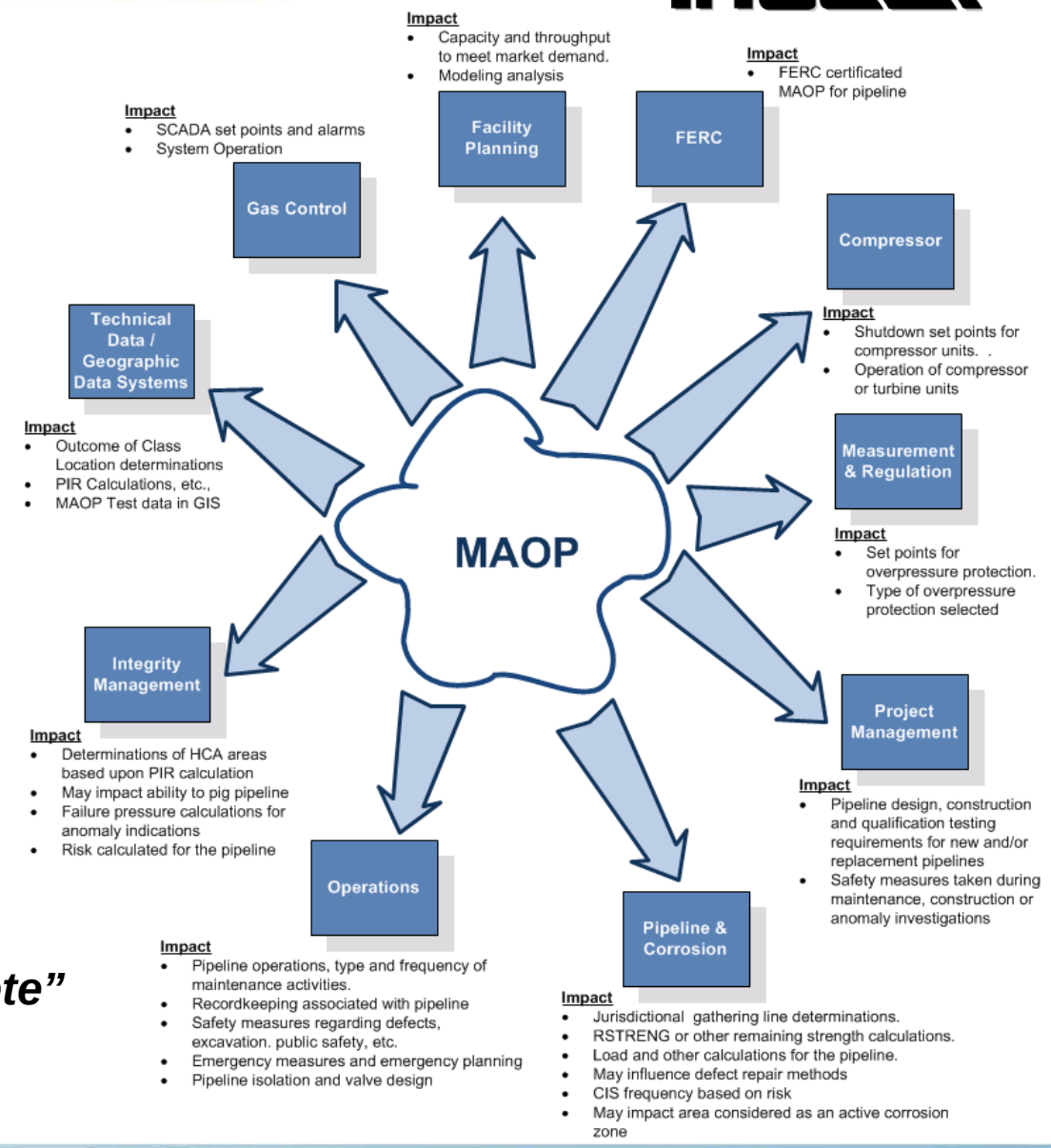
Significant Focus on Records and MAOP

- NTSB Advisory Bulletin
- PHMSA Advisory Bulletin
- California MAOP Order

MAOP impacts numerous key functions

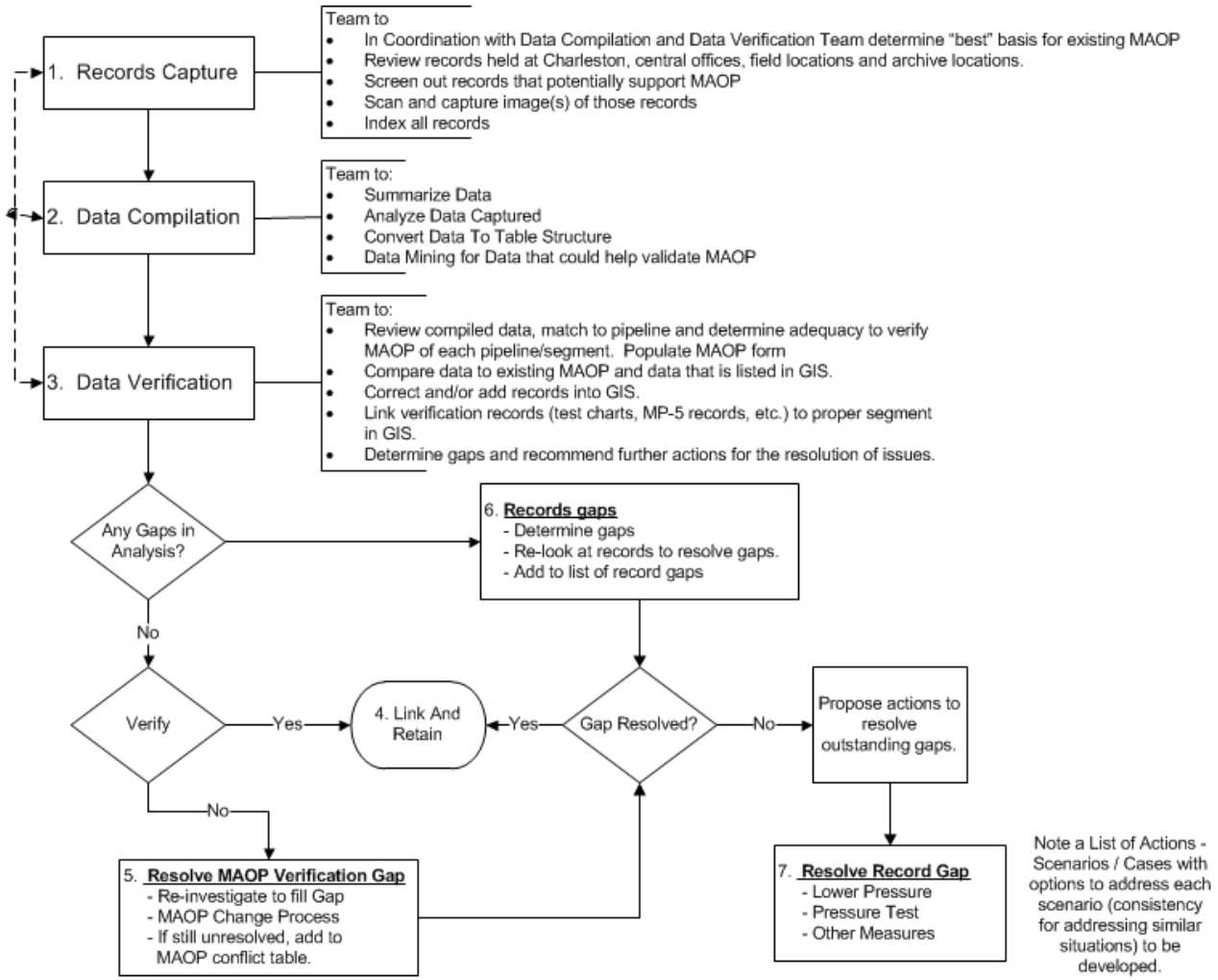
- Understanding MAOP and related properties is critical to effective risk assessment

"Traceable, verifiable and complete" records requirement



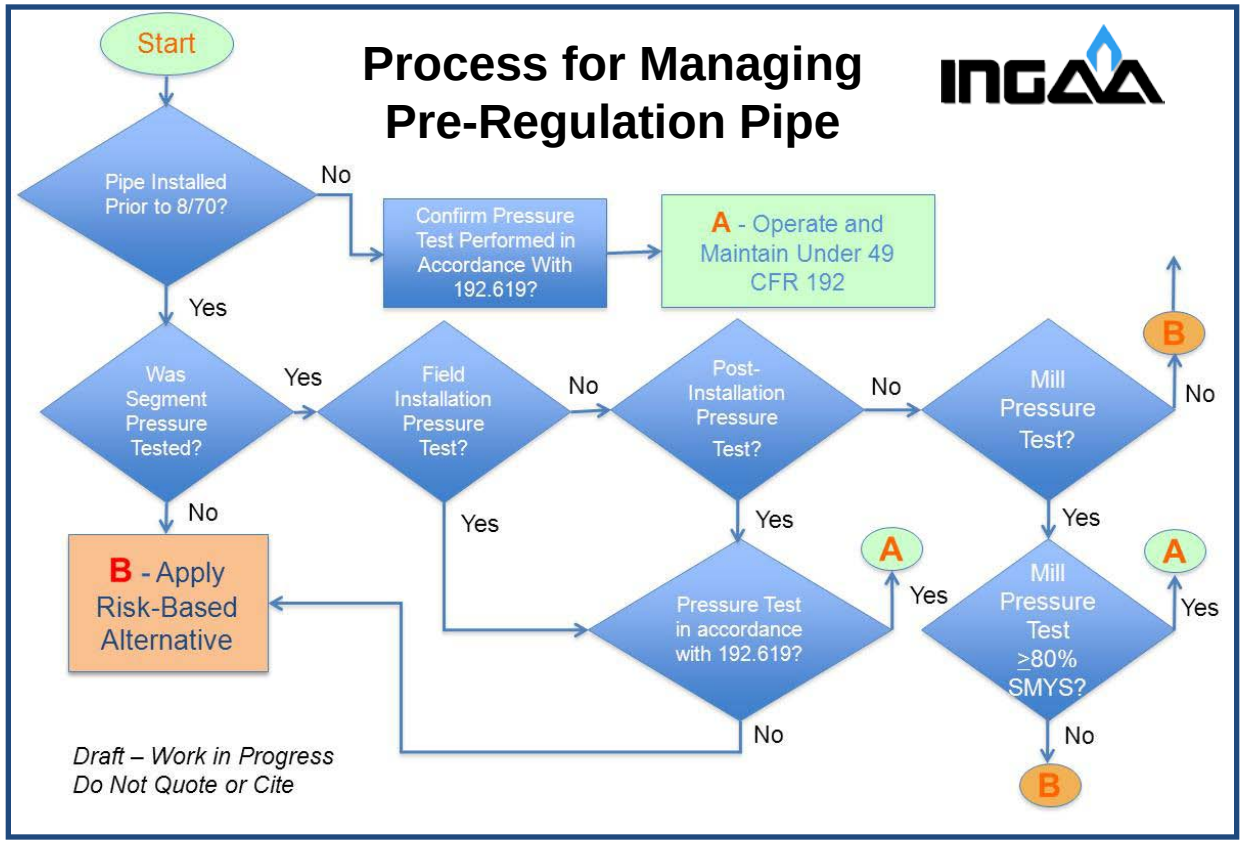
Records and MAOP Verification

- Disciplined Process Being Developed
  - Prioritization
  - Standards
  - Procedures
  - Chain of Custody
  - Management of Change
- Technology to Ensure Traceability and Transparency



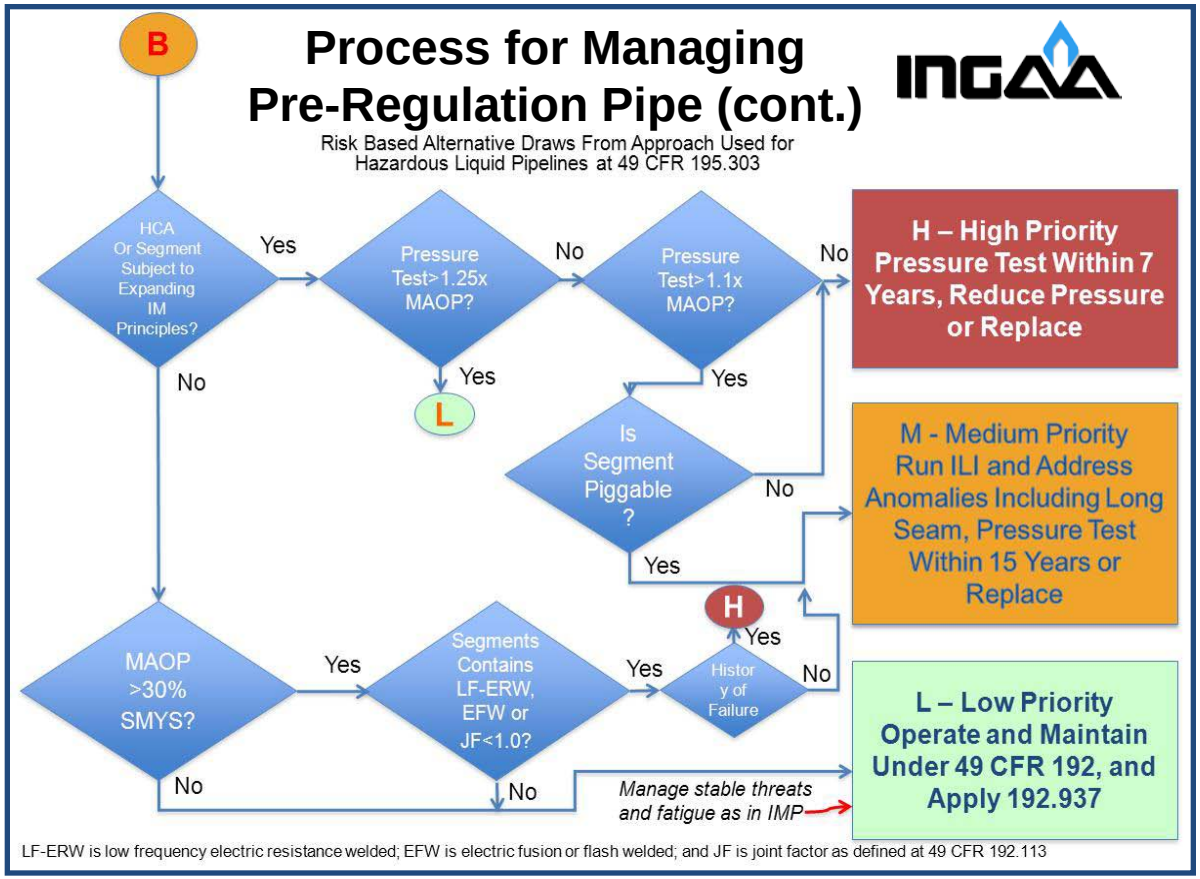
Industry Action

- Legislation will include an MAOP / records requirement
- INGAA commissioned workgroup focused on records and MAOP
- Broad Industry Involvement
- Hopeful PHMSA Integration
- Operators are already aggressively researching their systems



Industry Action

- Draft Process based on prior precedent – hazardous liquids regulation
- Highest risk pipelines likely require pressure test if records are not available
- Medium risk pipelines will require test or equivalent measure on longer timeline
- Continue operating low risk pipelines under current regulations

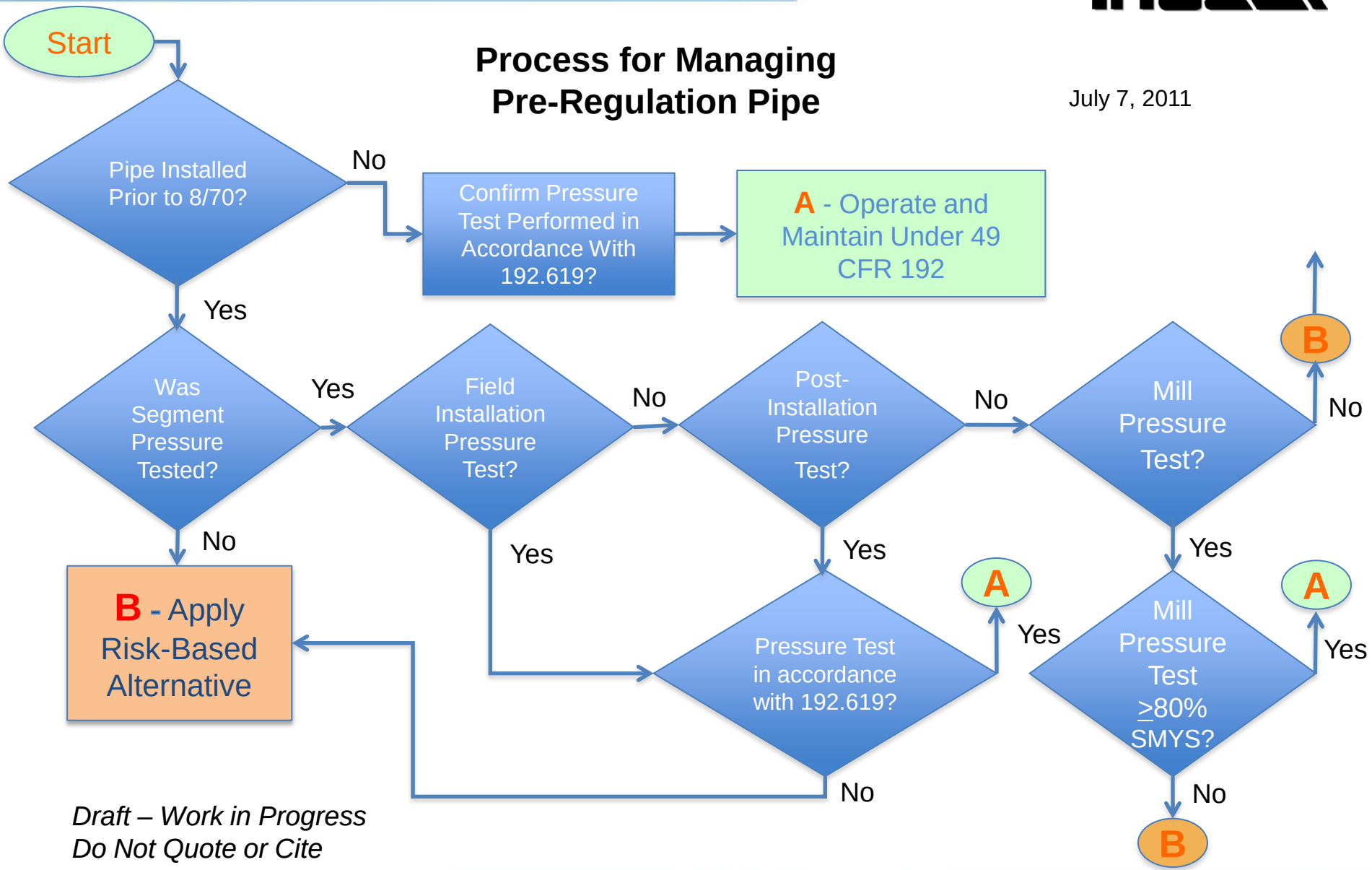


Improving Pipeline Risk Assessments and Recordkeeping

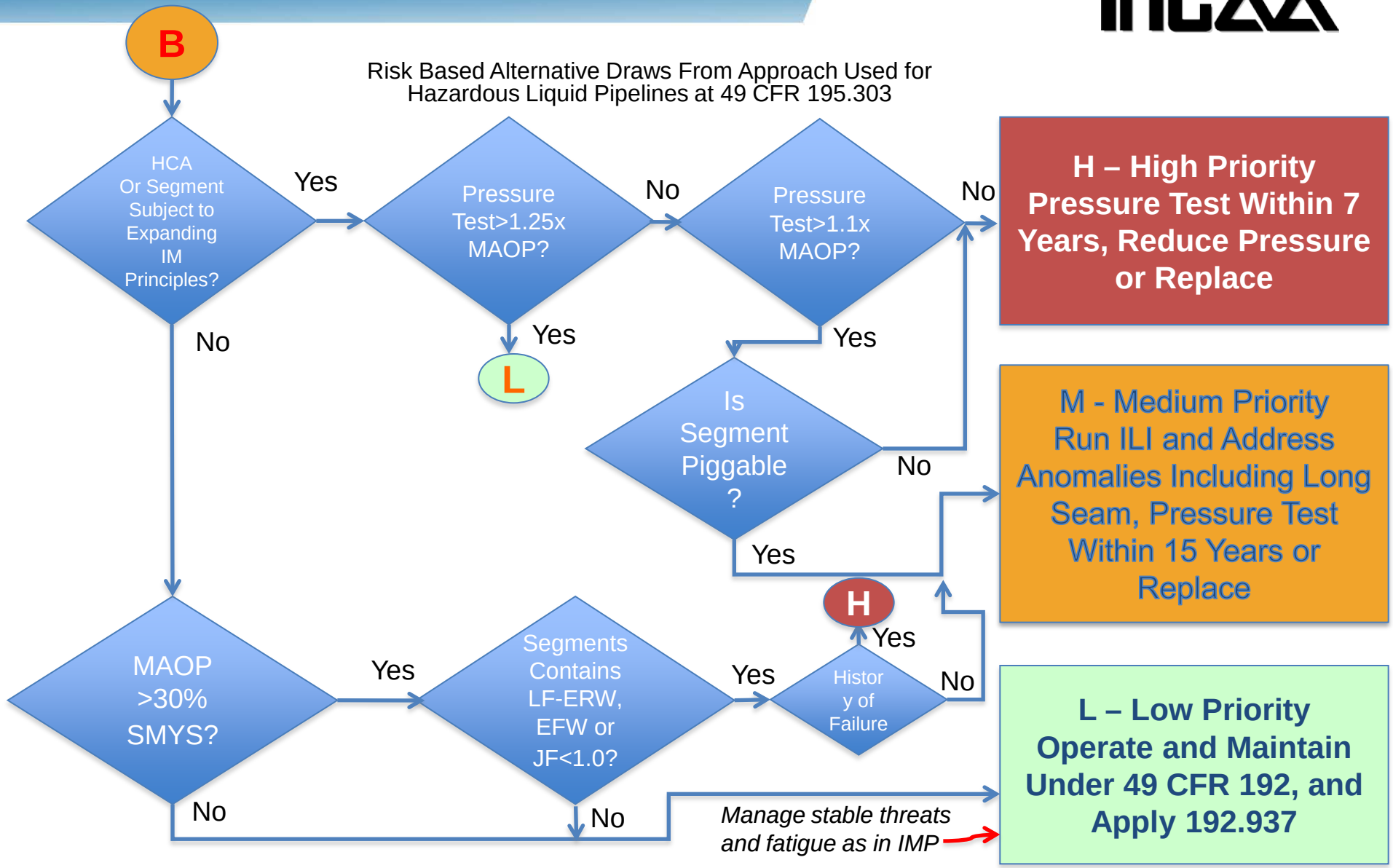
Chad Zamarin
Vice President – Engineering
NiSource Gas Transmission & Storage

Thursday July 21, 2011

Appendix


Start
Process for Managing Pre-Regulation Pipe
July 7, 2011
Pipe Installed Prior to 8/70?
No
Confirm Pressure Test Performed in Accordance With 192.619?
A - Operate and Maintain Under 49 CFR 192
Yes
Was Segment Pressure Tested?
Yes
Field Installation Pressure Test?
No
Post-Installation Pressure Test?
No
Mill Pressure Test?
B
No
No
B - Apply Risk-Based Alternative
Yes
Yes
Yes
A
Pressure Test in accordance with 192.619?
Yes
Mill Pressure Test ≥80% SMYS?
A
Yes
No
No
B
Draft – Work in Progress
Do Not Quote or Cite

Process for Managing Pre-Regulation Pipe



LF-ERW is low frequency electric resistance welded; EFW is electric fusion or flash welded; and JF is joint factor as defined at 49 CFR 192.113