



# INNOVATION TO REDUCE COST AND RISK

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# NEW REGULATIONS REQUIRE MORE TESTING

If lack of TVC (Traceable, Verifiable, and Complete)

## §192.607

### MATERIAL VERIFICATION

**Pipe cylinders or  
NDE at 2 quadrants**

192.607(d)(1): *“techniques that have been validated by a subject matter expert”*

192.607(d)(2): *“Conservatively account for measurement inaccuracy and uncertainty”*

## §192.624

### MAOP VERIFICATION

Pipe Replacement  
Pressure Reduction

ECA  
Hydrotesting  
Other Technologies

**Also Require §192.607**

**Issued Oct 1<sup>st</sup>, 2019  
Effective July 1<sup>st</sup>, 2020  
Complete plan July 1<sup>st</sup>, 2021**

## §192.712

### ANALYSIS OF PREDICTED FAILURE PRESSURE

192.712(e)(2): *“an operator must obtain the undocumented data through §192.607. Until documented material properties are available, [...] use conservative assumptions as follows:*

	Body	Seams
No history of incidents	13.0 ft-lbs	4.0 ft-lbs
History of incidents	5.0 ft-lbs	1.0 ft-lbs

# MATERIAL VERIFICATION COMPLIANCE

## OPTION 1: DESTRUCTIVE

### SERVICE INTERRUPTION

CYLINDER EXTRACTION AND PIPE REPAIR



Implemented by few LDCs at high cost when service can be fully interrupted.

## OPTION 2: NONDESTRUCTIVE IN-SITU TEST

### NO SERVICE INTERRUPTION

OPPORTUNISTIC TESTING

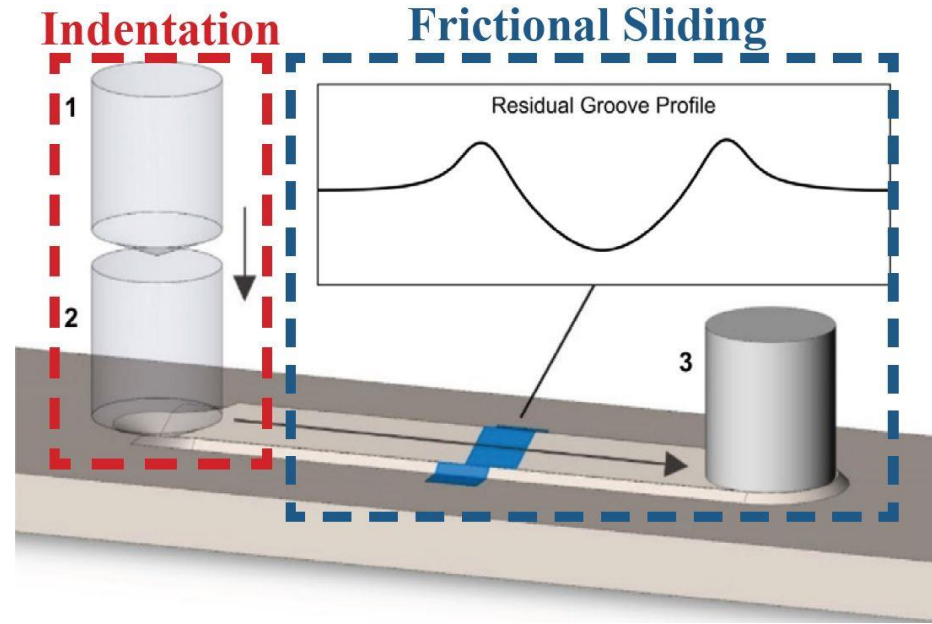


MATERIAL DATA AT REDUCED COST

# HSD: HARDNESS, STRENGTH, AND DUCTILITY TESTER



*“Best performing technique”  
PRCI NDE 4-8 Report (2018)*



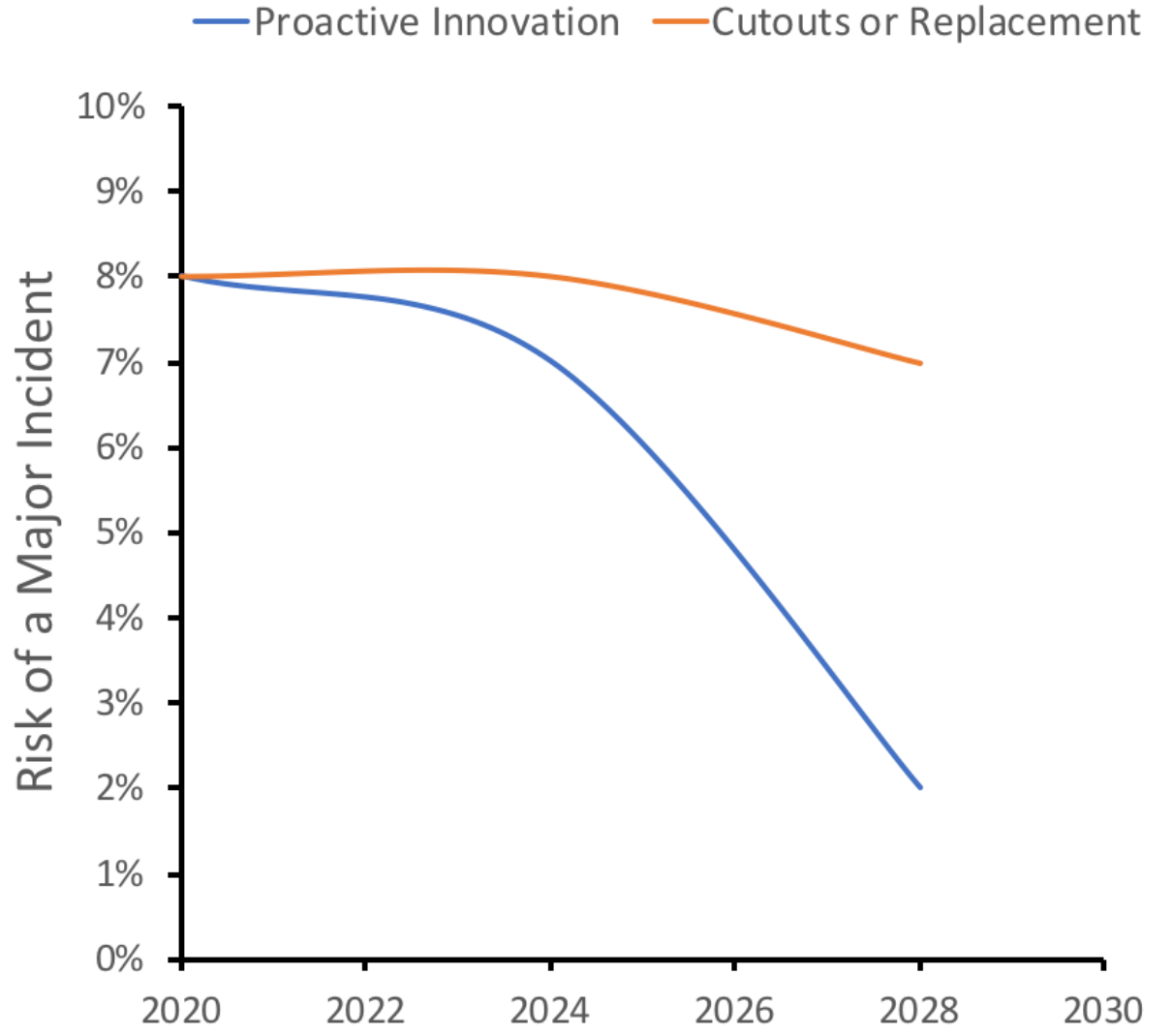
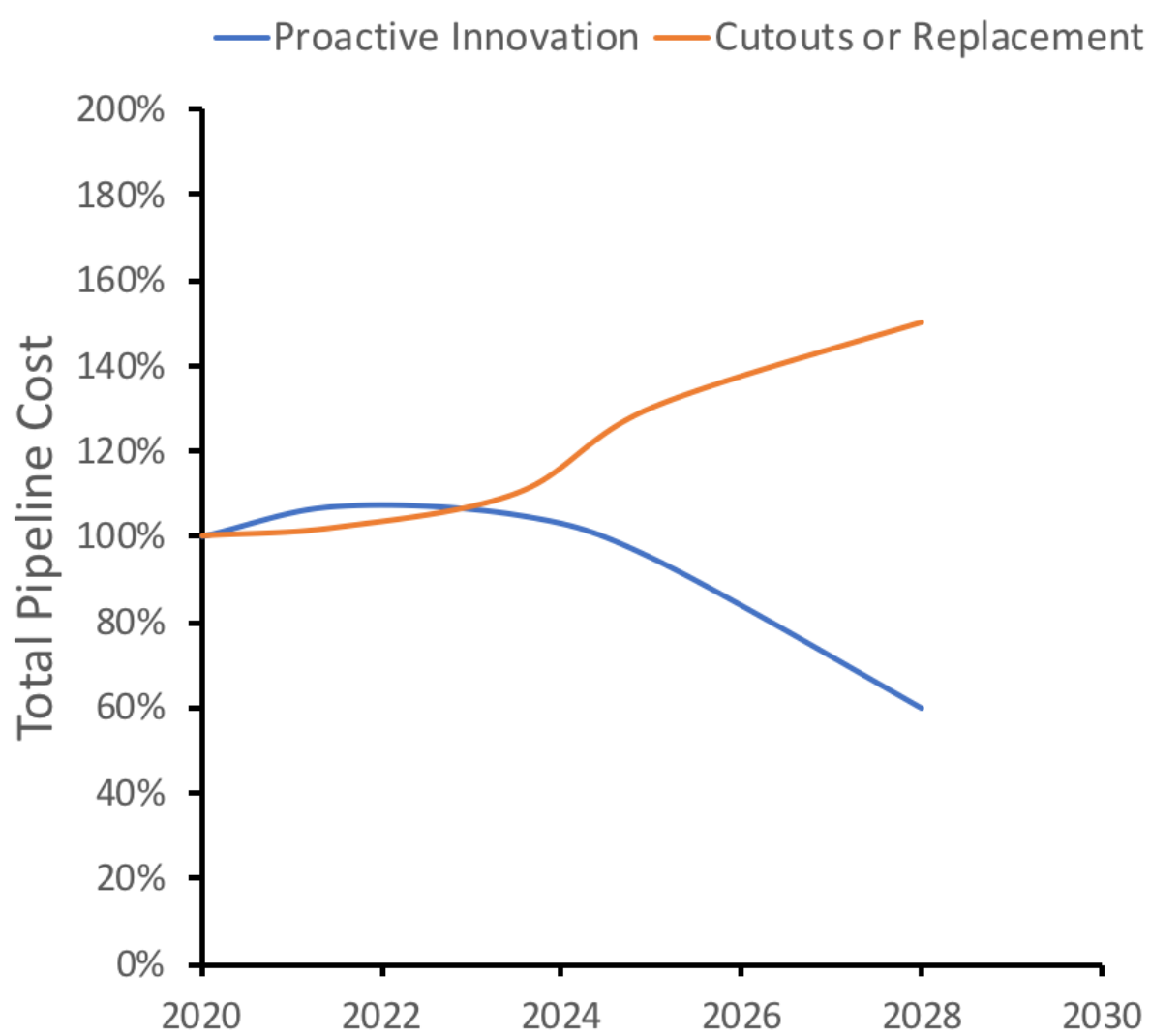
**UNIQUE** TO MMT’s HSD TESTER:

- High accuracy and reliability in the field
- Testing longitudinal seams

**JIP : 80+ pipes tested with lab seam  
Charpy and MMT’s field NDE**



# VISION – ACHIEVE OPERATOR GOALS



Notes: Cost reduction includes reducing amount of long seam repairs after ILI crack and anomaly assessment. Major incidents per PHMSA definition/data. Risk is % is over 5 year / 1000 miles of vintage pipe.

# EXAMPLES OF COST SAVINGS

## IMMEDIATE

- Determining MAOP on acquired assets (versus default to low SMYS)
- Uprate to original design pressure (2 projects)
- Confirming adequate longitudinal seams (7 projects)

## LONGER TERM

- Screening of assets (3 operators)
- Completing records (3 operators)
- Reducing risk: More than 300 digs completed in 2 years
  - 1 project with a pipe that was expanded (low yield) and detected with HSD
  - 1 project (out of 50) where assumed SMYS incorrect (HSD + lab after)



# **HSD TECHNOLOGY PRIMER**

Brendon M. Willey, VP

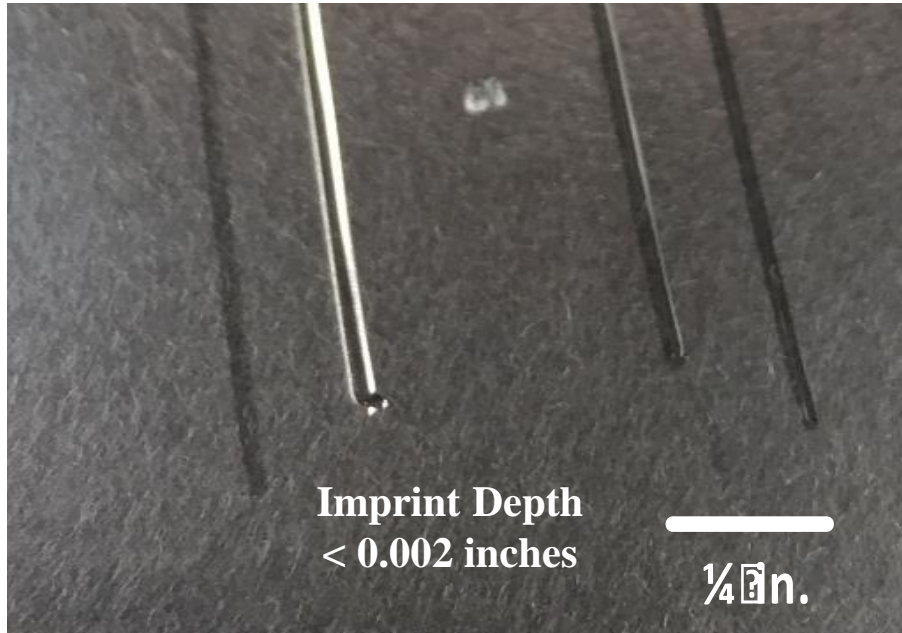
# HSD TESTERS READY FOR DEPLOYMENT

- Improved yearly from 2015 to 2019
- Rigorous field procedures
- Staff training and certification program
- Near zero downtime





# HSD IS SIMPLE, FAST, AND RELIABLE

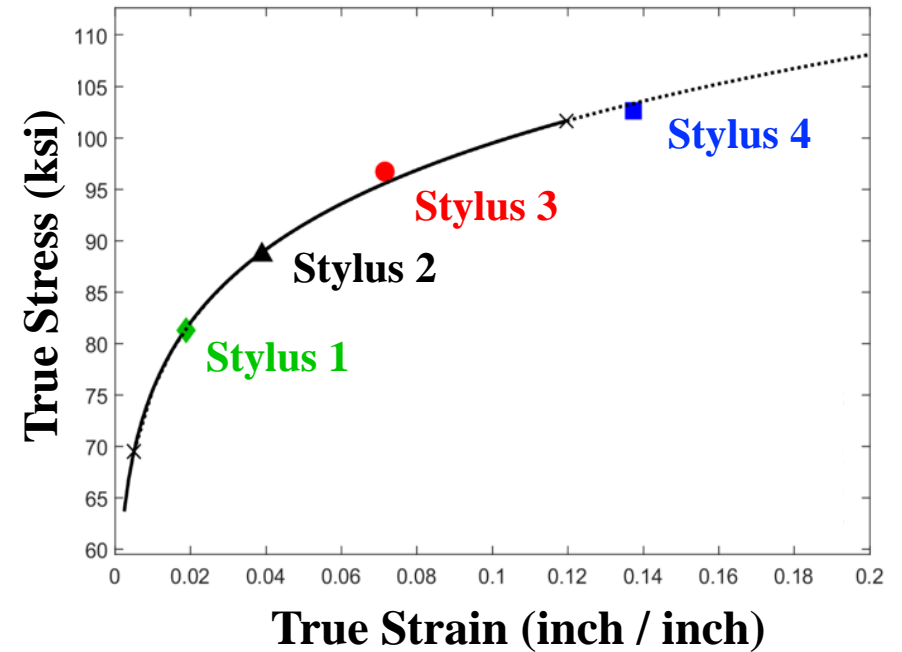


**Simple:** Apply constant load and measure width

**Fast:** 200 datapoints in 10 minutes

**Reliable:**

- Auto in-ditch data
- Advanced contact mechanic analytics plus machine learning
- No effect of field variables such as vibration and user dependence



# BENEFITS OF ENGAGING MMT ON PROJECTS

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## Options to work with MMT:

- All field work by MMT (2 technicians)
- MMT has a subcontractor to your NDE provider that also performs ASNT tasks (1 MMT technician)

## Project integration:

- Work step-by-step with operators to determine best ways to utilize MMT in material verification programs

## Benefits:

- Compliance
- Cost efficiency by avoiding unnecessary
  - Replacements
  - Cutouts
  - Further inspections and repairs