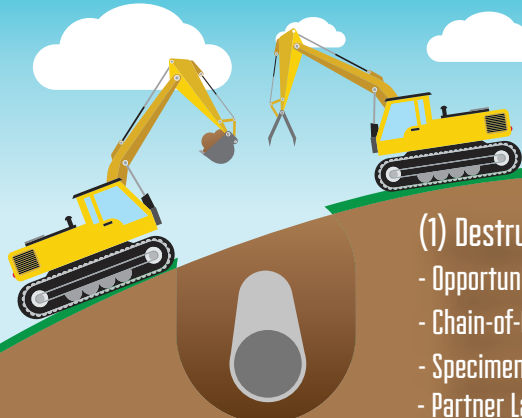




ASSET KNOWLEDGE ACQUISITION (MATERIAL VERIFICATION)

4 Methods of Data Acquisition & Critical Elements



(1) Destructive Testing

- Opportunistic samples
- Chain-of-Custody
- Specimen custodian
- Partner Labs
- DT database

(2) Non - Destructive Testing

- Technology must be proven
- Standard "battery of tests"
- Process must cover data quality review before backfill
- NDT database

(3) Pipeline Validation

- Decision Tree required for the various opportunities
- Enforcement of data acquisition
- Quality of data
- Uncertainty of "how far to go"

(4) ILLI Data

- Intent of ILLI run
- Location and Specifications data
- Data accuracy
- Data Quality

Hierarchy of Data Acquisition

Destructive Testing

- Pipe Measurements
- Material Strength Tests
- Seam Assessment

Non - Destructive Testing

- Ultrasonic Testing
- Pipe Measurements
- Material Strength Tests
- Seam Assessments
- Coating Assessment

In - Line Inspections

- Tool Measurement Reads

Pipeline Validation

- Potholing Access
- Washouts
- Exposed Main due to Foreign Line Crossings

Asset Knowledge Acquisition Best Practices

Processes should be established for an understanding that acquired data will be used to update asset information systems (e.g. GIS) and new MAOP calculations must be performed.

Data conflict resolution protocols should be established and exercised.

Standard tests should be determined for the various conditions that offer the opportunity to pipeline access