Steel Material Traceability
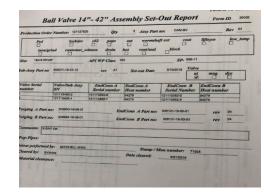
PHMSA R&D FORUM

ALICIA FARAG, LOCUSVIEW

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Current Practices

- Material traceability records are delivered from the manufacturer to the operator in the form of a Material Test Report (MTR) and/or Certificate of Compliance (CoC) in accordance with an industry standard such as API 5L

- MTRs are typically scanned/PDF paper documents delivered via email or uploaded to a portal

- MTRs do not follow a standard format and can be difficult to interpret, illegible, fuzzy, and/or provided in another language

- Limited ability to link MTR to a specific asset

- Pipe marking is not standardized and can use a combination of proprietary barcodes, stencils, and markers

- Limited traceability throughout supply chain after original manufacture (coating, welding, pressure testing)

Industry Need

- New regulations require operators to receive and retain material traceability records that are traceable, verifiable, and complete throughout the asset's life

- Current practices do not support material traceability throughout the supply chain and construction process

- Operators need material traceability data in a standardized, electronic format
  ◦ Positive identification upon receipt
  ◦ Confirmation during construction
  ◦ Integration of material traceability data into a system of record

Background R&D

- Current R&D work is in-progress to deliver the following:
  - Blockchain-approach to material traceability throughout the supply chain
  - Industry standard for MTR content and format to allow electronic interchange of material records from manufacturer to operator (published API Recommended Practice)
  - Industry standard marking format and content to identify assets and link to material records

Gap

- Transition from R&D to real-world implementations

- Need for large scale pilot projects
  - Identify gaps and barriers to implementation including practical considerations such as the use of distributors, coating mills, and contractors
  - Develop case studies to generate industry momentum and normalize best practices