

Steel Material Traceability

PHMSA R&D FORUM

ALICIA FARAG, LOCUSVIEW

FEBRUARY 19, 2020

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)

Ball Valve 14"-42" Assembly Set-Out Report Form ID: 28008

Production Order Number: 121127828 Qty: 2 Assy Part no: CMB-SV Rev: 01

Part: lockdev c&2 mps ext wormshaft ext cast flanges low_temp

Material: customer_witness drain bolt vent/bolt block

Size: 14x42 Rev: API 5L Class: 200 SP: 1000-11

Sub-Assy Part no: 00807-18-03-10 rev: A1 Set-out Date: 3/19/2018 Value: \$10,000

Value Serial number	Sub-Assy Part no	EndConn A Serial number	EndConn A Heat number	EndConn B Serial number	EndConn B Heat number
121116483-2	121116483-2	121110262-6	34279	121110262-5	34279
121116483-1	121116483-1	121110262-7	34279	121110262-8	34279

Forging A Part no: 00809-18-08-01 EndConn A Part no: 008101-18-08-01 rev: 04

Forging B Part no: 00809-18-08-01 EndConn B Part no: 008101-18-08-01 rev: 04

Comments: XRAY OK

Prep-Pipes:

Visual performed by: MITCHELL MARE Stamp / Man number: 71928

Cleared by: SVIWA Date cleared: 3/21/2018

Material clearance:



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