Asset Tracking and Traceability

Oklahoma Gas Association

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Overview

- Why is it important for an operator to be concerned about traceability and tracking of assets?
- CenterPoint’s rational for developing a methodology for capturing relevant asset data… and more
- CenterPoint’s project to capture asset data.
Why Should an Operator be Interested in Asset Tracking and Traceability?
Distribution & Pipeline Integrity

• Knowledge of your system – Requirement to know the materials and components – new & *vintage*

• Threats to gas system
  - Find suspect material
  - Material or component recalls
Pipeline Integrity

- Traceability – pedigree of pipeline material/components to its manufacture and raw material.

- Verifiable - Traceability codes tied to secondary documents - purchase orders and MTRs.

- Complete - Documented and completed by a company representative with electronic “stamp”
ASTM STANDARD F2897

Tracking and Traceability Encoding System of Natural Gas Distribution Components (Pipe, Tubing, Fittings, Valves, and Appurtenances)
Future Target Tracking and Traceability Groups

• Meters and Regulators ANSI B109
• Transmission Systems
• Field Fusion/Joining Capture
Manufactures Register with PPI

Plastic Pipe Institute (PPI) administers the database of manufacturer’s I.D. codes

www.componentid.org
CenterPoint Asset Tracking and Traceability - Background

- Need for accurate asset data IM plans and to enhance reporting efficiency and accuracy.
- Streamline back-office QA
- Material movement and tracking-supply chain
- Ability to quickly react to recalls or material problems.
Material Standards Manual

PREFACE

The standards contained in this document establish the general material standards for CenterPoint Energy. This corporate standard outlines the general guidelines for Supplier to follow. CenterPoint Energy Gas Standards Group shall approve any exceptions or additions to this standard.

USE

This specification is for barcode and alphanumeric marking of polyethylene gas system components.

STANDARDS

When national or industry standards are incorporated by reference, they shall be the latest published editions at the time material is furnished. Material shall meet the requirements of the U.S. Department of Transportation, Office of Pipeline Safety Operations; Federal Regulation Title 49, Part 192; and applicable State Codes.

The markings covered by this specification shall also meet the requirements of the standards listed herein.

ASTM D2513-12a
Specification for Thermoplastic Gas Pressure, Pipe, Tubing and fittings

ASTM F2697-11a
Standard Specification for Tracking and Traceability Encoding System of Natural Gas Distribution Components (Pipe, Tubing, Fittings, Valves, and Appurtenances)

ASTM F1851-98 (2009)
Standard Practice for Bar Code Verification

ANSI INCITS 182-1990 (R2000)
Bar Code Print Quality Guidelines

ANSI INCITS 182-1990 (R2002)
Key Elements in a Purchasing Specification on Traceability Codes

- Standards for encoding ASTM F 2897
- Product standards ASTM D2513, ANSI B16.4
- Marking method- labels, tags, inkjet, etc.
- Marking symbology 1D, 2D, 16 digit alpha numeric, etc.
- Quality of marking
- Durability of marking
CenterPoint Approach

• Phase I
  ✓ Capture 16 digit barcode with a field rugged device – material traceability and pedigree
Hardware for Scanning

Considerations:

• How rugged does a device need to be?
• Scan all barcode formats 1D, 2D (Aztec, QR, Data matrix)
• Cords or Wireless
• Batch Scanning
• Simple data capture or ability to prompt for inputs as well as scanning.
• Other useful features to capture field specific information GPS, Photo capture, mobile mapping capability, ability to ask field employees relevant field questions.
Devices

- Simple scanner
- Batch scanners memory capability
- Scanners with or without manual keyboard entry and screen
- Handheld computers with Windows operating system
- Smart phones and Tablets
Current Mobile Platform at CNP

Panasonic CF31 Toughbook (current field laptop)
Hardware Field Testing

• Several Device Types now Under test
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Sub Total Part Amt
Desire to capture the 16 digit traceability code— but what else?

- Inventory and material movement populate material use lists for work orders
- GPS – coordinates of pipe or fitting location, and to what degree of accuracy?
- Photographs of installation or unique environments
- Other attributes of the installation: soil type, depth, installer I.D., fusion or weld parameters, etc.
Data Capture and Archival

Current Track

- Field Capture of barcode or other relevant data:
- Upload data into mobile data device
- Decode 16 digit barcode into SAP Equipment Record

Post information into GIS

Future Option

Secure Cloud Storage

Mobile GIS
Point and Track

- Customized software
- Can scan, GPS map, monitor inventory movement
- Customized field questions in app. format on Smartphone
GTI/ 3- GIS

- Tablet device with GIS-based data collection software
- Sub-foot GPS receiver
- Barcode scanner
- Application to convert barcode into asset attributes to auto populate the GIS
CNP Phased Approach

• Complete hardware testing and recommendations and business case
• Collect barcode information, and move to GIS
• Support expansion of the 16 digit traceability methodology to other pipeline materials.
• Monitor and move inventory to truck stock level.

Phase II:
• Incorporate GPS with traceability as accuracy and costs mature.
• Future: cloud storage and utilize direct mobile GIS?