



# Definition of Traceable, Verifiable & Complete

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# History of TVC Term in Gas Industry

- September 9, 2010
  - Pacific Gas & Electric (PG&E) pipeline ruptures in San Bruno, CA.
- January 3, 2011
  - NTSB safety recommendation to PG&E (P-10-2).
- January 10, 2011
  - PHMSA Advisory Bulletin ADB-11-01.
- May 7, 2012
  - PHMSA Advisory Bulletin ADB-2012-06. [Definition provided.](#)
- July 31, 2012
  - Letter from John Gale, PHMSA Director of Office of Standards and Rulemaking, to the American Gas Association. [Clarification provided.](#)

# History of TVC Term in Gas Industry

- October 1, 2019
  - Safety of Gas Transmission Pipelines: MAOP reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments, AKA Mega Rule RIN 1. [Definition provided in preamble \(page 52218 -52219 of Federal Register Dated October 1, 2019\).](#)
- August 28, 2023
  - Distribution Rule NPRM section § 192.638 Distribution lines: Records for pressure controls. [Definition provided in preamble.](#)

# Traceable – Mega Rule Preamble

- “Traceable records are those which can be clearly linked to original information about a pipeline segment or facility. Traceable records might include pipe mill records, which include mechanical and chemical properties; purchase requisition; or as-built documentation indicating minimum pipe yield strength, seam type, wall thickness and diameter. Careful attention should be given to records transcribed from original documents as they may contain errors. Information from a transcribed document, in many cases, should be verified with complementary or supporting documents.”



# Verifiable – Mega Rule Preamble

- “Verifiable records are those in which information is confirmed by other complementary, but separate, documentation. Verifiable records might include contract specifications for a pressure test of a pipeline segment complemented by pressure charts or field logs. Another example might include a purchase order to a pipe mill with pipe specifications verified by a metallurgical test of a coupon pulled from the same pipeline segment. In general, the only acceptable use of an affidavit would be as a complementary document, prepared and signed at the time of the test or inspection by a qualified individual who observed the test or inspection being performed.”

# Letter From John Gale to AGA

- “A single quality document that is traceable and complete, as evidenced by appropriate markings, would be acceptable.”



U.S. Department of Transportation  
Pipeline and Hazardous Materials  
Safety Administration

1200 New Jersey Ave, S.E.  
Washington, D.C. 20590

JUL 31 2012

Ms. Christina Sames  
Vice President, Operations & Engineering  
American Gas Association  
400 North Capitol Street, NW  
Washington, DC 20001

Dear Ms. Sames:

In a June 28, 2012, email to the Pipeline and Hazardous Materials Safety Administration (PHMSA), you stated that members of the American Gas Association (AGA) are seeking clarification of PHMSA's recent Advisory Bulletin regarding Verification of Records (ADB-12-06, Docket No. PHMSA-2012-0068). AGA's question is whether a single quality document that contains the information needed to confirm a pipeline's Maximum Allowable Operating Pressure (MAOP) or Maximum Operating Pressure (MOP) would satisfy the intent of the Advisory Bulletin.

The owner or operator of a pipeline must meet the recordkeeping requirements of Part 192 and Part 195 in support of MAOP and MOP determination. As you stated in your request, operators need to identify appropriate records that establish a high level of confidence regarding the pipeline's MAOP or MOP, whether that record is a single quality record or information confirmed by other complementary, but separate, documents. Therefore, a single quality document that is traceable and complete, as evidenced by appropriate markings, would be acceptable.

I hope that this information is helpful to you. If I can be of further assistance, please contact me at 202-366-4046.

Sincerely,

A handwritten signature in blue ink, appearing to read 'John A. Gale'.

John A. Gale  
Director, Office of Standards  
and Rulemaking

# Complete – Mega Rule Preamble

- “Complete records are those in which the record is finalized as evidenced by a signature, date or other appropriate marking such as a corporate stamp or seal. For example, a complete pressure testing record should identify a specific segment of pipe, who conducted the test, the duration of the test, the test medium, temperatures, accurate pressure readings, and elevation information as applicable. An incomplete record might reflect that the pressure test was initiated, failed and restarted without conclusive indication of a successful test. A record that cannot be specifically linked to an individual pipeline segment is not a complete record for that segment. Incomplete or partial records are not an adequate basis for establishing MAOP or MOP. If records are unknown or unknowable, a more conservative approach is indicated.”



# Distribution Rule NPRM Preamble

- Traceable
  - “(e.g., can be clearly linked to original information about, or changes to, a pipeline segment, facility, or district regulator station)”
- Verifiable
  - “(e.g., their information is confirmed by other complementary but separate documentation)”
- Complete
  - “(e.g., as evidenced by a signature, date, or other appropriate marking such as a corporate stamp or seal)”

# PHMSA Definition

- Traceable
  - Clearly linked to original information about a pipeline segment or facility.
- Verifiable
  - Complementary, but separate, documentation.
  - Applicable for some transcribed documents.
- Complete
  - Finalized as evidenced by a signature, date or other appropriate marking.

# LG&E Approach

- Wholistic regulatory approach
  - 192.710 & Subpart O assessments
  - 192.607 material verification & Subpart O knowledge of system
  - 192.624 & 192.632 MAOP reconfirmation via ECA
- MTR
- Material verification
  - One test per mile
  - Alternative sampling approach

# Establish Populations

- Run ILI Tools
  - Technologies
    - High Resolution MFL-A or High Resolution MFL-C
    - High Resolution Geometry/Caliper
    - RoMat PGS (ROSEN technology for yield strength and ultimate tensile strength)
  - Measure
    - Strength
    - Wall thickness
    - Outside diameter
    - Pipe type
    - Joint length
- Review Construction Records

# Establishing TVC Status from ILI

- ILI data alone sufficient
  - Nominal diameter, nominal wall thickness, and seam type (longitudinally welded, spiral welded or seamless)
- Longitudinally welded seam process (i.e. HF ERW)
  - TVC ILI record of longitudinally welded seam and complimentary information.
    - Non-TVC construction record (i.e. a non-TVC construction record indicating HF ERW pipe was installed)
    - Single field verification within population
    - Industry knowledge (see ASME publication 'History of Line Pipe Manufacture in North America')

# Establishing TVC Status from ILI - Grade

- No minimum test spacing
  - Average of one test per mile
  - Average of less than one test per mile
- No tests (ILI data alone)
  - RoMat PGS performance specification is  $\pm 10.3$  ksi at 95% certainty



# TVC Grade With <1 Test Per Mile

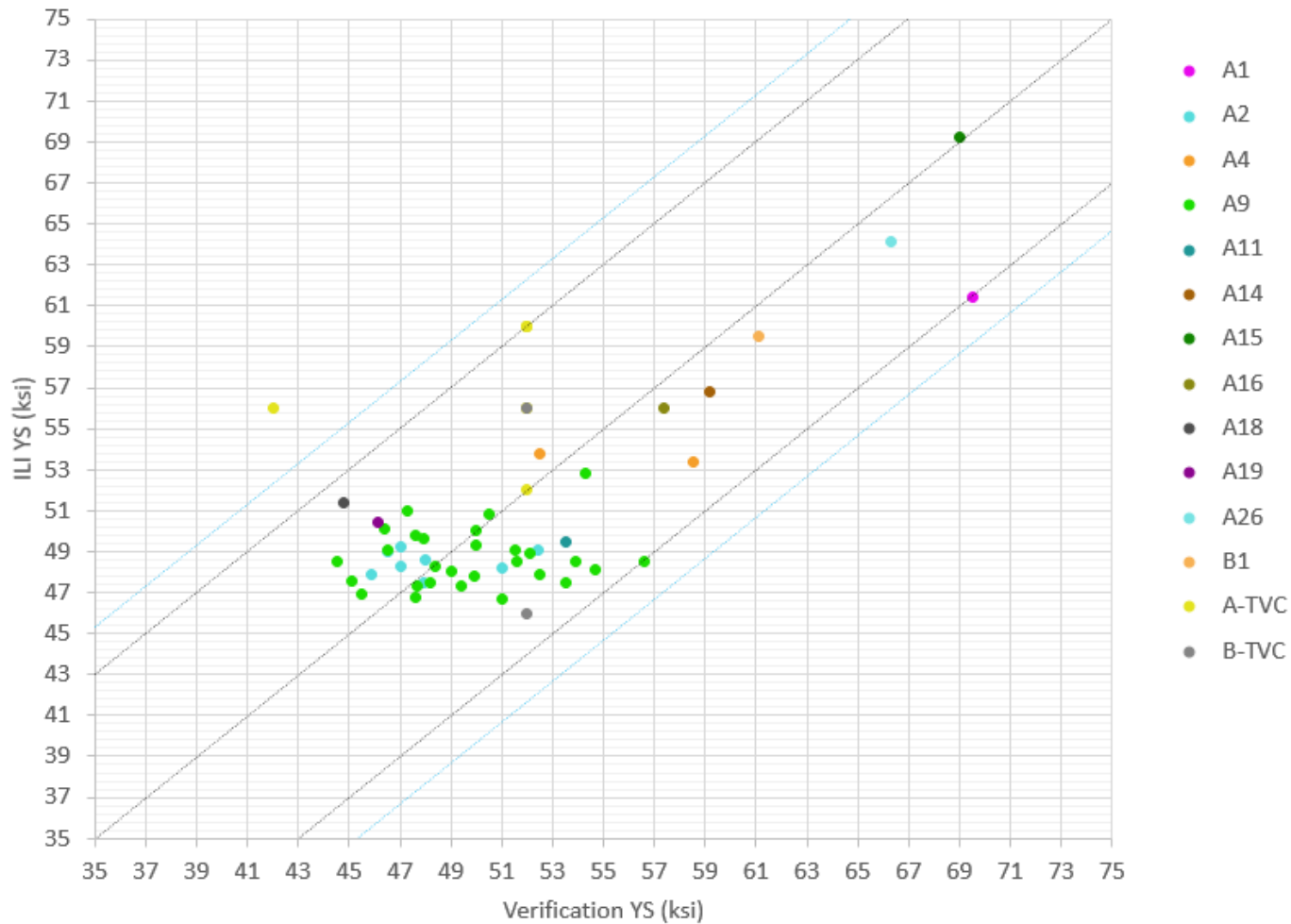
Test #	Yield Strength (ksi)
1	48.0
2	52.4
3	47.0
4	47.9
5	47.0
6	45.9
7	51.0
8	46.5
9	49.0
10	46.0
Results	
Mean $\bar{X}$	48.07
Standard Deviation S	2.16

Table 1 - Yield Strength Data from Tensile Tests for Population A2

*95% lower bound YS (or UTS) = Mean – (1.645 \* Standard Deviation)*

*95% lower bound YS = 48.07 – (1.645 × 2.16) = 44.5 ksi*

# API 1163 ILI System Validation



# Complete Pressure Test Record

§192.517 Records	Mega Rule Preamble Example
(1) The operator's name, the name of the operator's employee responsible for making the test, and the name of any test company used.	Who conducted the test
(2) Test medium used.	The test medium
(3) Test pressure.	
(4) Test duration.	The duration of the test
(5) Pressure recording charts, or other record of pressure readings.	Accurate pressure readings
(6) Elevation variations, whenever significant for the particular test.	Elevation information as applicable
(7) Leaks and failures noted and their disposition.	
	Temperatures

# TVC Pressure Test Record

- Primary impact of pressure test record not being TVC is triggering MAOP reconfirmation in certain circumstances.
- LG&E performs Engineer Critical Assessments via ILLI.

# Questions

Pete Clyde

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