

TR 2019-50 – GM – Verification of Pipeline Materials

TR Number	19-50
Primary	192.607
Purpose	Review and develop GM as appropriate in light of Amendment 192-125
Origin/Rationale	Amendment 192-125: See new §192.607 below.
Assigned to	Design Task Group

Note: Revisions are shown in **yellow highlight** and **red font**.

Section 192.3

GLOSSARY OF COMMONLY USED ABBREVIATIONS	
<i>Note:</i> For added organizational abbreviations, see Guide Material Appendix G-192-1, Sections 4 and 5.	
Abbreviation	Meaning
...	...
<u>PFP</u>	<u>predicted failure pressure</u>
...	...
<u>TVC</u>	<u>traceable, verifiable, and complete</u>

Section 192.607

~~*This guide material is under review following Amendment 192-125.*~~

[Letter Ballot Note: This is all new guidance material under §192.607, so no underlining is necessary]

1 APPLICABILITY

- (a) Section 192.607 only applies to onshore steel transmission pipelines. This section does not apply to offshore transmission, non-steel transmission, gathering, or distribution pipelines.
- (b) Section 192.607 defines a process that an onshore steel gas transmission pipeline operator must follow if there are missing material property or attribute records that are required by other sections of Part 192. Examples include the following.
 - (1) Section 192.624 requires verification of material properties for certain types of pipelines that do not have traceable, verifiable, and complete MAOP records.
 - (2) Section 192.712 requires verification of certain material properties under §192.607 for onshore steel gas transmission pipelines that do not have records necessary to determine the predicted failure pressure (PFP) of a segment for specific anomalies or defects.
 - (3) Even if not explicitly required under Part 192, operators may elect to follow §192.607 to determine material attributes when material records are unknown or unreliable.

2 DOCUMENTATION OF MATERIAL PROPERTIES AND ATTRIBUTES

Records for material properties must be maintained for the life of the pipeline and should be traceable, verifiable, and complete (TVC). Operators should consider digitizing the records to enhance proper organization, security, and controlled access.

3 VERIFICATION OF MATERIAL PROPERTIES AND ATTRIBUTES

- (a) There is no compliance deadline for completing material verification of non-TVC segments or components. The opportunistic gathering of data on unknown material properties does not need to meet the MAOP reconfirmation schedule outlined in §192.624(b), except when the selected MAOP reconfirmation method requires material properties testing to reconfirm the MAOP. The timeframe for opportunistic data collection may vary based on the length of the pipeline, amount

of pipe with missing material properties, number of opportunities, and testing results. Section 192.712 requires the operator to know the pipe material properties when conducting the analysis of predicted failure pressure for anomalies or defect evaluations.

- (b) If material properties are unknown and are necessary for an MAOP reconfirmation (per §192.624), an engineering critical assessment (per §192.632), or a failure pressure analysis (per §192.712), then operators should verify the unknown material properties needed on an opportunistic basis.
- (c) Operator procedures should establish specific criteria for identifying when opportunistic sampling is appropriate. Operators should consider when pipeline exposures are safe for material verification and identify criteria that would render an exposure inappropriate for material verification, such as confined space concerns or unstable excavations.
- (d) Section 192.607(c) states that certain types of excavations could require a material verification opportunity for non-TVC segments. Pipeline segment exposures during excavation activities covered under §192.614 are not included in these types of excavations. However, if material verification is performed for non-TVC segments during a one-call excavation, it must be performed per §192.607.
- (e) Depending on the in-line inspection tool capabilities, operators can use pipe grade, wall thickness, and seam type derived from in-line inspection tools for material verification under §192.607(c). Verification of material properties and attributes using nondestructive methods or in-line inspection tools must meet the requirements in §192.607(d).

4 SPECIAL REQUIREMENTS FOR NON-DESTRUCTIVE METHODS

- (a) Operators should consider using in-line inspection tool capabilities that can verify pipe grade, wall thickness, and seam type within the required confidence levels. If using in-line inspection to verify attributes, the operator should ensure its procedures meet the requirements of §192.607(d).
- (b) Depending on the equipment being used for nondestructive testing, operators should consider requiring the equipment used for nondestructive testing to be calibrated on site, in order to prevent the equipment from losing calibration during transit. The documentation associated with the calibration for nondestructive testing, in accordance with §192.607, should be stored for the life of the pipe with the records used to document the physical pipeline characteristics and attributes.

5 SAMPLING MULTIPLE SEGMENTS OF PIPE

- (a) Operators should only split populations based on known attributes of the pipe and they should have separate populations of pipe segments where material property attributes are unknown. Operators that can document pipe material properties for MAOP (e.g., outside diameter, wall thickness, yield strength, seam type), but are missing the manufacturing or construction date attributes, would not need to conduct an expanded sampling program to determine additional material properties.
- (b) When required material documentation is missing, operators should implement a material sampling program for each unique pipe population group with unknown pipe attributes. Operators can initially group pipe segments with no known material properties information into a single population. When performing material properties testing on pipe from the unknown population group, operators should add newly verified samples into matching pipe populations or create new pipe population groups, as applicable.
- (c) **Use of certain in-line inspection tools that can collect material properties would be appropriate data may be used to delineate various pipe population groups for subsequent material sampling of multiple segments for material property verification. Depending on the in-line inspection tool**

capabilities, operators may be able to determine certain material properties and attributes with the required 95% confidence levels (§192.607(e)(4)).

- (d) Operators may take advantage of pipeline excavations and exposures to collect material properties regardless of pipeline location. If operators plan to use material and attribute information collected from pipe segments outside of HCA, MCA, and Class 3 and 4 areas to fulfill the requirements of §§ 192.624 and 192.712, they should adopt and follow procedures for implementing §192.607(e) in those areas as well.

6 COMPONENTS

Some component pressure ratings can be obtained from field inspection if there are visible manufacturing stamps or tags that identify the pressure rating of the fitting. For most flanges, taking measurements of the flange thickness and bolt pattern could help identify the vintage and pressure rating by comparison to early editions of ASME/ANSI B16.1 or ASME/ANSI B16.5.

7 UPRATING

If a segment’s MAOP is established using the assumed yield strength of 24,000 psi and material verification of SMYS confirms a higher yield strength or material specification value in accordance with §192.607(d), those verified values may be used to uprate the MAOP of that segment in accordance with Subpart K.

8 ADDITIONAL GUIDANCE

On September 15, 2020, PHMSA issued a final list of Frequently Asked Questions (FAQs) related to the Final Rule titled *“Pipeline Safety: Safety of Gas Transmission Pipelines: MAOP Reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments.”* This includes FAQs associated with §192.607 *“Verification of Pipeline Material Properties and Attributes: Onshore steel transmission pipelines.”* These FAQs can be found within federal docket number PHMSA-2019-0225.

Guide Material Appendix G-192-1

2 GOVERNMENTAL DOCUMENTS (Continued)		
PHMSA-OPS	Distribution Integrity Management: Guidance for Master Meter and Small Liquefied Petroleum Gas Pipeline Operators	GMA G-192-8
	Frequently Asked Questions (FAQs) on Gas Transmission Final Rule (Docket No. PHMSA-2019-0225, Sept. 15, 2020)	§192.607
	Gas Integrity Management Protocols	§192.925 §192.927