



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

May 7, 2020

Mr. Darwin E. Farrar
Chief Counsel
Public Advocates Office
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Dear Mr. Farrar:

In a letter to the Pipeline and Hazardous Materials Safety Administration (PHMSA), dated March 10, 2020, you requested an interpretation of 49 Code of Federal Regulations (CFR) Part 192. Specifically, you requested an interpretation of § 192.113 as it relates to the longitudinal joint factor (E) for steel used under § 192.105 to determine a natural gas pipeline design maximum allowable operating pressure (MAOP).

You ask for clarification whether a value of $E = 1.0$ or $E = 0.8$ is used to calculate MAOP for steel pipelines with diameter of over four inches, installed after 1970, with an unknown longitudinal joint, and is used in the construction or replacement sections of natural gas pipelines.

You stated that the California Public Utilities Commission recently required its Safety and Enforcement Division to oversee an audit of the MAOP-related records of the Southern California Gas Company and San Diego Gas and Electric Company natural gas transmission Line 1600. You stated, in the Line 1600 case, the longitudinal joint type in certain segments is unknown. However, you stated an auditor who examined the records on the pipeline has stated that because the operator has represented there are no lap weld or furnace butt welds pipe in these segments, an $E = 1.0$ may be used. You stated this is in contradiction to the requirement under § 192.113 for a type of longitudinal joint that cannot be determined.

You stated that the Public Advocates Office seeks PHMSA's interpretation of the following questions based on the concerns set forth above. PHMSA's responses follow the questions.

Question 1: Are all Line 1600 segments installed after 49 CFR Part 192 was codified in 1970, that are over four inches, and that have an unknown longitudinal seam type, required to have a longitudinal joint factor of no greater than 0.8, assuming it is conclusively determined that such segments do not contain lap welds or butt welds (which would necessitate a longitudinal joint factor of no greater than 0.6)?

PHMSA Response: Yes, the table included in § 192.113 states that if the type of longitudinal joint cannot be determined, the joint factor to be used must not exceed that designated for “Other.” For “Other” pipe over 4 inches (102 millimeters) the longitudinal joint factor E is 0.8. Methods for determining the pipe joint factor can be based upon factors, such as whether the pipe diameters, wall thicknesses, yield strength, and manufacturing period are applicable for that seam type. Also, the seam type can be determined based upon inspections of the pipe, such as excavations of the pipe or pipe removals.

Question 2: Given the applicable ASA [American Standard Code for Pressure Piping] standards establishing MAOP, dating back to 1955 and continuing until the codification of 49 CFR Part 192 in 1970, is it proper to assume a longitudinal joint factor of no greater than 0.8 for pipe segments installed during that period, which have unknown longitudinal seam types, and which are over four inches in diameter, even if it is conclusively determined that such pipes do not contain lap welds or butt welds?

PHMSA Response: If the longitudinal seam type of a pipeline is unknown, a value of E equal to 0.8 must be used in § 192.105 for determining the design pressure of pipelines with a diameter greater than 4 inches.

If the pipelines’ MAOPs were established prior to 1970, under the § 192.619(c) requirements, the operators can operate them under those established MAOPs. However, a segment of pipeline that has been relocated or replaced cannot be returned to service without meeting the testing requirements under § 192.503, as well as the design and pressure test requirements in § 192.619(a)(1-2).

Question 3: Where the answer to question 1 or 2 is yes, does the resulting required reduction of the longitudinal joint factor from 1.0 to 0.8 also require that when the design is based upon MAOP required under 49 CFR § 192.105 to be reduced by 20%, assuming all other inputs into that formula are accurate and are otherwise unchanged?

PHMSA Response: Yes, since the MAOP is determined based on the design pressure requirements in § 192.105, and with E being a proportional factor in the equation in § 192.105, then a reduction of E from 1.0 to 0.8 is a 20% reduction in MAOP.

If we can be of further assistance, please contact Tewabe Asebe at 202-366-5523.

Sincerely,

JOHN A
GALE

Digitally signed
by JOHN A GALE
Date: 2020.05.11
08:10:55 -04'00'

John A. Gale
Director, Office of Standards
and Rulemaking



Public Advocates Office
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102
Tel: 415-703-1584
www.publicadvocates.cpuc.ca.gov

March 10, 2020

John Gale
Director, Standards and Rulemaking
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
East Building, Second Floor
1200 New Jersey Avenue SE
Washington, D.C. 20590

Dear Mr. Gale:

The Public Advocates Office is the independent consumer advocate at the California Public Utilities Commission. We are writing to the Pipeline and Hazardous Materials Safety Administration (PHMSA) to request an interpretation of the regulations at 49 Code of Federal Regulations (CFR) § 192.113 that address determinations regarding the Longitudinal Joint Factor (LJF) for steel pipe, a required factor for determining the design-based Maximum Allowable Operating Pressure (MAOP) for natural gas pipelines under 49 CFR §192.105.

Specifically, we seek to clarify that for pipelines installed after 1970, if a transmission line is over four inches, has steel pipe with a type of longitudinal joint that cannot be determined because it is unknown, and is used in the construction or replacement sections, does 49 CFR §192.113 allow for a Longitudinal Joint Factor value of 1.0, or must the Longitudinal Joint Factor be no greater than 0.8?

Southern California Gas Company and San Diego Gas & Electric Line 1600

The California Public Utilities Commission (CPUC) recently required its Safety and Enforcement Division (SED) to oversee an audit of the MAOP-related records of the Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company

(SDG&E)¹ transmission Line 1600 (Line 1600 Audit).² In this case, the longitudinal joint type in certain segments of a transmission line is unknown. However, an auditor who examined the records on that line has stated that because the operator has represented there are no lap weld or furnace butt welds pipe in these segments, a 1.0 LJF may be used.³ Specifically, the Line 1600 Audit states:

There are records for pipe segments that did not have a seam type listed in the pipe specifications. SDG&E performed an internal study on long seam types based on the history of the company's Pipe Design Standards. No Lap Weld or Furnace Butt Weld pipe was used in the construction and replacement sections of Line 1600. Therefore, a longitudinal joint factor of 1.0 can be used when there is no specification of seam type on a document.^{4, 5}

The Public Advocates Office is concerned with both the operator's and the auditor's assertion that the MAOP of design is being properly calculated for Line 1600.

It is the Public Advocates Office's understanding that 49 CFR §192.113 requires that, in cases where a transmission line is over four inches in diameter, and the type of longitudinal joint cannot be determined, the longitudinal joint factor to be used in the formula to calculate the design MAOP must not exceed 0.8.⁶

The Public Advocates Office is also concerned that MAOP of design asserted by both the operator and the auditor does not comport with the American Standards Association (ASA) standards in effect between 1955 and when 49 CFR Part 192 was adopted in 1970. Indeed, the ASA standards in effect from 1955 and 1967 for "Joint Efficiency" provide

¹ Collectively the operator.

² See D.18-06-028, mimeo, p. 129, Ordering Paragraph 9. Available at: <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M217/K013/217013446.pdf>

See also, Line 1600 MAOP Audit-Interim Report, p. 3. "RCP was selected as an independent auditor for this audit pursuant to California Public Utilities Commission (CPUC) D.18-06-028 (Decision). The CPUC's Safety and Enforcement Division (SED) is directed to oversee this audit of San Diego Gas & Electric Company's (SDG&E) and Southern California Gas Company's (SoCalGas) MAOP records for Line 1600."

³ The auditor made this statement based on the knowledge of SoCalGas and SDG&E. The results of this audit are provided as Attachment A and the Line 1600 Audit can be found at: <http://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&DocID=323170376>

⁴ See Attachment C, p. 10, point iii. Emphasis added.

⁵ The Line 1600 Audit was publicly provided by the Safety and Enforcement Division in redacted form. Public Advocates Office has received the version that SoCalGas/SDG&E asserts has confidential information. Public Advocates Office is providing the public version as Attachment A.

⁶ All entries in the Line 1600 Audit show that the outside diameter of the pipeline is over four inches.

that, “[i]f the type of longitudinal joint can be determined with certainty, the corresponding Longitudinal Joint Factor ‘E’ (Table 841.12) may be used. Otherwise, the factor ‘E’ shall be taken as 0.60 for the pipe 4 inches and smaller, or 0.80 for pipe over 4 inches.”⁷

The Public Advocates Office understands that the conclusion that, “a longitudinal joint factor of 1.0 can be used when there is no specification of seam type on a document,” would render meaningless the 49 CFR §192.113 requirement that a pipe over 4 inches in the “Other” category have an LJF no greater than 0.8. Relatedly, the Public Advocates Office understands this conclusion would also render meaningless the portion of the table under 49 CFR §192.113 that provides a 0.8 LJF for “Other” pipe classes that are not shown on that table.

The Public Advocates Office also understands that this same conclusion would not comport with the ASA standards in effect from 1955 until the adoption of 49 CFR Part 192 in 1970, because those standards prescribed a LJF of 0.8 for pipe over four inches where the type of longitudinal joint was uncertain or unknown.

A review of the record shows pre-1971 and post 1970 audit entries that have imputed LJF’s of 1.0, even though the records indicate the operator does not know the seam type. All of these entries have unknown pipe manufacturers, and an outside diameter of over four inches.⁸

The Public Advocates Office seeks PHMSA’s interpretation of the following questions based on the concerns set forth above:

1. Are all Line 1600 segments installed after 49 CFR Part 192 was codified in 1970, that are over four inches, and that have an unknown longitudinal seam type, required to have a longitudinal joint factor of no greater than 0.8, assuming it is conclusively determined that such segments do not contain lap welds or butt welds (which would necessitate a longitudinal joint factor of no greater than 0.6)?

⁷ See American Standard Code for Pressure Piping (ASA) B31.1.8-1955, “Gas Transmission and Distribution Piping Systems” §811.27.D, pp. 17-18.

See also USA Standard Code for Pressure Piping (USAS) B31.8-1967 “Gas Transmission and Distribution Piping Systems”, §811.253.D, p. 11.

⁸ These long seam entries and pipe manufacture entries are redacted in the Line 1600 Audit that was publicly provided by SED. SoCalGas has marked these entries as confidential in the data response to the Public Advocates Office. These blacked out entries can be seen beginning on page 19 of 32, with the document entitled “Audit Line 1600-Final.”

2. Given the applicable ASA standards establishing MAOP, dating back to 1955 and continuing until the codification of 49 CFR Part 192 in 1970, is it proper to assume a longitudinal joint factor of no greater than 0.8 for pipe segments installed during that period, which have unknown longitudinal seam types, and which are over four inches in diameter, even if it is conclusively determined that such pipes do not contain lap welds or butt welds?
3. Where the answer to question 1 or 2 is yes, does the resulting required reduction of the LJJ from 1.0 to 0.8 also require that the design based MAOP required under 49 CFR §192.105 be reduced by 20%, assuming all other inputs into that formula are accurate and are otherwise unchanged?

If you wish to discuss any questions or concerns, please contact Dr. Nathaniel Skinner, Public Advocates Office Safety Branch Program Manager, at (415) 703-1393.

Sincerely,



Darwin E. Farrar
Chief Counsel
Public Advocates Office
California Public Utilities Commission

Enclosure