

May 31, 2019

Mr. James A. Urisko
Director, Office of Pipeline Safety
Pipeline and Hazardous Materials Safety Administration
233 Peachtree Street
Suite 600
Atlanta, GA 30303

**RE: Sable Trail Transmission, LLC Response
Notice of Probable Violation and Proposed Compliance Order
CPF 2-2019-1001**

Dear Mr. Urisko,

From October 16, 2016 through April 7, 2017, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA) inspected construction activities and records related to Sabal Trail Transmission (STT) pipeline construction project in Alabama, Georgia, and Florida.

On March 19, 2019, PHMSA issued a Notice of Probable Violation¹ (NOPV) and Proposed Compliance Order alleging three (3) violations of the pipeline safety regulations and requiring STT to evaluate the entire pipeline for possible girth weld cracking. The following is a summary of PHMSA's finding and STT's response.

PHMSA Finding

1. §192.225 Welding Procedures.

STT failed to comply with the regulation because welding was not performed in accordance with procedures qualified under Section 5 of API 1104 on at least 2 welds. Specifically, STT did not adhere to the pre-heat requirements specified in the procedure qualification record throughout the welding process, as required under Section 5 of API 1104. API standard 1104 titled "Welding of Pipelines and Related Facilities," 20th Edition, is incorporated by reference in § 192.7.

Section 5 of API 1104 prescribes the required parameters and variables to be considered when qualifying a welding procedure. Section 5.4.2.13, titled "Pre-heat," states that "A

¹STT requested a time extension on April 9, 2019 to enable STT to fully review the issue and prepare a comprehensive response to the NOPV. PHMSA granted the time extension on April 11, 2019.

decrease in the specified minimum pre-heat temperature constitutes an essential variable.” STT Welding Procedure Specification (WPS) BCS-422.1 and BCS-122.2 (the primary welding procedures for main line welding and station piping, respectively), were developed in accordance with API 1104. These welding procedures were qualified using a minimum pre-heat and interpass temperature of 250° F. A decrease in the minimum pre-heat temperature from the original welding qualification during production requires requalification of the welding procedure.

Representatives of PHMSA observed construction activity at STT's Hildreth Compressor Station on December 5, 2016, and Spread 3 of the main line construction on February 1, 2017. PHMSA representatives observed welding being performed in accordance with STT's WPS BCS-122.2 and WPS BCS-422.1, respectively. During these site visits, the PHMSA representatives observed pre-heat temperatures for at least two welds that were not maintained at a minimum of 250° F immediately prior to welding, as required by the above-referenced welding procedures.

STT Response

STT acknowledges pre-heat was not maintained at the required 250° F for a weld on Spread 3 of the main line construction, as observed by PHMSA on February 1, 2017. STT maintains this was an isolated event on Spread 3 of the main line construction. PHMSA did not actually observe inadequate pre-heating at Hildreth Compressor Station during the inspection on December 5, 2016, but did express a concern about possible confusion in the pre-heat language contained in Welding Procedure Specification (WPS) BCS-122.2. WPS BCS-122.2 required a 250° F only when the ambient temperature is below 50° F, and the temperature was above 50° F at the time of the PHMSA inspection.

Given the single observation of inadequate pre-heat, STT believes that this was an isolated event, and there was no systemic issue with inadequate preheating on the STT pipeline. Furthermore, STT contends there is an extremely low potential for delayed hydrogen-assisted cracking (HAC) of girth welds to remain in the STT pipeline, based on the conclusions of an evaluation conducted by Det Norsk Veritas (U.S.A.), Inc. (DNV GL), the quality assurance/quality control (QA/QC) processes implemented on the STT project, and the evaluations performed on the entire project.

It is important to note that modern pipelines do not have a prevalent history of HAC with cellulosic welding. STT's pipeline follows this historical trend due the use of low carbon-equivalent pipe under conditions with a low risk of HAC.

Following PHMSA's observation on February 1, 2017, STT implemented several corrective actions, including:

- STT made revisions to the pre-heat language in its WPS to add clarity and avoid any confusion on the WPS pre-heat requirements.
- All contractor staff and inspectors were re-trained and informed of the WPS revision made to prevent any misunderstanding regarding what is expected during the welding process, particularly as it pertains to pre-heat temperature. It is important to note that STT utilized Certified Welding Inspectors (CWI) who were well-versed in welding fundamentals, practical applications, and welding code application.

Also following PHMSA's observation on February 1, 2017, STT performed a series of evaluations on the entire project and concluded that the pre-heat nonconformity identified by PHMSA was an isolated occurrence. The following are the evaluations and facts related to the pre-heat observation.

- As part of STT's construction practice and prior to commencement of construction activities, STT specifications required 100% radiographic test of all girth welds project wide in accordance with STT's construction specifications, which exceeds the DOT requirements². Of the total of 51,551 girth welds produced with a cellulosic welding process on the project, only thirty (30) welds were identified with crack-like defects, representing 0.058% of welds produced with cellulosic welding processes. All these welds were cut out in accordance with STT construction specifications.
- The weld observed by PHMSA to have inadequate pre-heat on February 1, 2017 was on a section of pipeline that had not yet been installed. All welds on this section were re-examined with radiography and found to be compliant with acceptance criteria in API 1104 with no indications of cracks.
- STT employed an ASNT NDT³ Level III audit program at a frequency designated by STT to review radiographic films and another independent ASNT RT Level III to review the work performed by the ASNT NDT Level III. The audit program identified no findings other than radiographic workmanship observations such as reshoots.
- STT's construction policy during construction was to conduct a welder compliance check at a minimum frequency of each welding rig once per day. A total of 27,352 welder compliance checks were performed during construction and a review of these records verified that that minimum pre-heat at the time of welding was adequate for each weld.
- Following the PHMSA observation on February 1, 2017, STT developed and implemented a targeted approach for girth weld re-inspection that posed the highest risk of HAC and re-evaluated 199 welds by radiographic retesting. In addition, STT performed an analysis of its weld documentation and determined that at least another 795 welds were radiographically examined after a 24-hour post weld completion. These evaluations and analysis produced no actionable indications.
- At the conclusion of the project, geometry tools runs were conducted on the STT pipeline systems and all anomalies were excavated, investigated and remediated.

² 49 CFR 192.243(d) requires NDE of 10% of welds in Class 1 locations and 15% of welds in Class 2 locations.

³ ASNT is the American Society of Nondestructive Testing for Nondestructive Testing (NDT) professionals.

- After the mechanical completion of the pipeline, hydrostatic tests were performed to confirm the integrity of the pipeline for service and detect critical size cracks. No hydrostatic leaks, breaks, or ruptures were detected in any girth welds during the hydrostatic testing activities. Since the beginning of gas service, no girth weld in-service releases have occurred.
- STT consulted with global quality assurance and risk management company DNV GL to assess the risk of HAC in pipeline girth welds on the STT pipeline project. DNV GL's assessment reinforces STT's stance on the low potential for HAC risk associated with STT's pipeline.

STT does not contest PHMSA's finding that the weld observed on February 1, 2017 was not maintained at a minimum of 250° F immediately prior to welding. However, based on the facts stated above, STT believes that the conclusions of the DNV GL report, the QA/QC processes implemented on the STT project, and the evaluations performed on the entire project mentioned above demonstrate that the inadequate pre-heat observation made by the PHMSA was an isolated occurrence, and that there is a lack of evidence of the potential for hydrogen-assisted cracking (HAC) to remain in the girth welds on the STT pipeline. Furthermore, STT did not gain economic benefit from this violation. Therefore, STT requests an elimination or reduction of the civil penalty associated with this violation.

2. § 192.235 Preparation for welding.

STT failed to comply with the regulation because the alignment of the pipe or component being welded was not preserved while the root bead was being deposited. As documented in STT reports, titled "Delayed Weld Examination (ML)" and "Welding Preheat Report," dated March 28, 2017, and January 18, 2018, respectively, STT identified and cut out thirty (30) cracks during construction. Thirteen (13) of these cracks were described as longitudinal crack defects. Per STT's "Crack Cut Out and Repair Log," dated March 7, 2017, the probable cause was the pipe was moved *"before sufficient weld metal was deposited" for several of these welds, refer to the descriptions listed in the column labeled, "Comments."*

STT Response

The NOPV alleges that STT failed to comply with the regulation because the alignment of the pipe or component being welded was not preserved while the root bead was being deposited. This alleged violation appears to be based solely on the information provided by STT in the "Crack Cut Out and Repair Log". STT contends a finding of violation must be based on facts and/or PHMSA observations of the alleged violation. The following is a summary of the facts relating to the cracks identified on the STT project and the content in the referenced reports provided to PHMSA.

- The referenced reports were indicative of the most probable cause of the cracks based on review of radiographic films. There is no practicable way of definitively determining that the cause of the cracks was due to pipe movement.
- The referenced report does not indicate how much of the root pass, or any additional weld passes, were completed prior to the assumed pipe movement. It is possible that the root pass and some additional weld passes were completed prior to the assumed pipe movement, and therefore would comply with §192.235.
- At no point during the construction did PHMSA inspectors actually witness any pipe movement before the root pass was completed.

PHMSA's speculative conclusion that the alignment of the pipe being welded not preserved while the root bead was being deposited is not supported by observations by PHMSA nor the documentation STT provided to PHMSA. The alleged violation is solely based on the statements in the "Crack Cut Out and Repair Log" provided by STT. PHMSA's conclusion that the assumed pipe movement occurred prior to completion of the root bead is unsupported by fact. In addition, PHMSA does not allege they witnessed pipe movement prior to the root bead completion at any time during the construction. For the reasons stated above, STT contests this finding and requests a withdrawal of this violation. In the event that PHMSA still considers this violation as warranted, STT requests a Hearing in accordance with §190.209(a) and (b) and §190.211(a).

3. § 192.505 Strength test requirements for steel pipeline to operate at a hoop stress of 30 percent or more of SMYS.

STT failed to comply with the regulation because it did not demonstrate that it was impractical to conduct post installation tests for fabricated units and short sections of pipe. Specifically, STT did not demonstrate the impracticality of post installation tests for prefabricated main line valve assemblies.

In its report, titled "Mainline Valve Hydrostatic Test Assessment Report," dated January 18, 2018, the justification provided as to why it was impractical to perform post installation hydrostatic testing of the mainline valves was that STT wanted to minimize the possibility of damaging the valve seats caused by dirt, debris and weld slag getting into the seats during filling, hydrostatic testing, dewatering and drying of the pipeline. Upon PHMSA's request however, STT was unable to provide any evidence, historical or otherwise, of valve seat damaged during a post installation hydrostatic pressure test on any previous pipeline construction project. STT also failed to provide any evidence that its own valves had been damaged due to dirt, debris and weld slag entering the valve seats during filling, hydrostatic testing, dewatering and drying of the pipeline.

It should be noted that PHMSA representatives confirmed that STT complied with the requirements of § 192.503 (b)(2) and 192.51 7(a)(7) which require that dirt, debris and/or

weld slag be removed during the construction. §192.503(b)(2) states, in part, that, "...*The test medium must be liquid., relatively free of sedimentary materials,* " and § 192.5 17(a)(7) states, in part, that, "...*Each operator shall make, and retain for the useful life of the pipeline, record of each test performed under §192.505 and 192.507. The record must contain at least the following information ...Leaks and failures noted and their disposition.*" Furthermore, STT Construction Specifications (CS) CSPL1.8 and CS1 .5, titled "Onshore Pipeline and Meter Stations," and "Onshore Compressor Stations," respectively, state, in part, "*Prior to being aligned and welded into the line, each pipe joint shall be thoroughly inspected for presence of debris. If debris is visible, each joint shall be swabbed to remove all debris to the satisfaction of the Engineer.*"

STT Response

PHMSA contends that STT failed to comply with the regulation because it did not demonstrate that it was impractical to conduct post-installation tests for fabricated main line valve (MLV) assemblies. This is not factually correct. The following is a summary of the facts relating to the STT's concern of potential damage to the MLVs and why it was impractical for STT to conduct a post-installation test on the MLVs.

- Damage caused by debris following post-installation hydrostatic tests, is a known industry concern. The debris can come from many sources, such as dirt from the right-of-way, weld splatter, etc., and can enter the pipeline during hydrostatic testing, dewatering and drying process.
- It is impracticable to prevent all debris from getting into the pipeline during construction. Any of this debris can be picked up by the hydrostatic test water, or pushed by the pig, during the filling, dewatering and drying process.
- Debris can cause damage to MLV seats over time, resulting in a MLV that won't completely seal, which can result in gas leakage through the MLV when closed. A pipeline operator may not identify this until the MLV is used to isolate a pipeline segment, possibly months or years after the pipeline has been placed into service.
- STT performed a pre-installation test by maintaining the pressure for at least 4 hours in accordance with 192.505(d) since considered it impractical to perform a post-installation test due to the potential of damaging the MLVs as mentioned above.
- It is important to note that the regulations in §192.505(d) do not use the term "impossible" and do not define the term "impractical", nor has PHMSA published any guidance or clarification of the intent of this wording, which leaves it up to operators to determine situations that would make it impractical to conduct a post-installation test for fabricated units and short sections of pipe.

While STT does not agree this issue warranted a finding of violation, STT will not contest this finding. STT maintains that it complied with its understanding of §192.505(d) requiring pre-installation test to be performed when a post-installation test is impractical, and

maintains that the integrity and safety of the MLVs or the STT pipeline were not compromised.

Proposed Compliance Order

The Proposed Compliance Order requires STT to perform an in-line inspection to specifically detect and evaluate potential cracks in the girth welds of the entire pipeline, including laterals. While STT contends there is a lack of evidence of the potential for hydrogen-assisted cracking (HAC) to remain in the girth welds on the STT pipeline, STT does recognize the value of conducting an in-line inspection (ILI) of the pipeline to identify other potential integrity concerns. Thus, STT does not contest this requirement and will run the ILI in the entire pipeline, as required by the Proposed Compliance Order. STT has already conducted⁴ an ILI run for a 154-mile section of the pipeline, and will schedule the other ILI assessments.

STT believes the timeframes for some activities specified in the Proposed Compliance Order are inadequate. Also, several of the requirements in the Proposed Compliance Order need clarification. STT respectfully requests that PHMSA revise certain timelines in the Proposed Compliance Order that are impractical for STT to meet and provide clarifications, as summarized below.

- Item 1d requires STT to excavate a minimum of two girth welds to validate the ILI tool's performance. STT interprets this to require excavation of only two (2) girth welds if the same ILI tool is utilized for multiple segments. For example, if STT uses the same ILI tool for two (2) different ILI segments, STT will be required to excavate a total of two (2) girth welds for tool validation, not two (2) welds per ILI run. STT requests that PHMSA clarify this requirement.
- Item 2d requires STT to complete the data analysis required by 1c within 60 days of the successful completion of ILI run required by Item 1a. The ILI vendor typically takes 65 days to complete their analysis and provide the ILI data and results. Following receipt of the data and results, STT will assign one of our staff Level 3 ILI Analysts to do a complete Enhanced Survey Analysis (ESA) of the tool data, reviewing it joint by joint for the complete run length. Thus, 60 days is not an adequate timeframe to complete all these analyses. For these reasons, STT requests that PHMSA modify the timeframe to complete the analyses within 90 days of each successful ILI tool run.
- Item 2e requires STT to excavate a minimum of two (2) girth welds to verify the ILI tool's accuracy within 30 days of the successful completion of the data analysis required by 1c. There are a number of factors beyond STT's control that may prohibit completion

⁴ On May 17, 2019, STT informed and received approval the PHMSA Southern Region Director via telephonic conference of STT's intent to run an ILI tool from ALEX-ALBA 1. STT sent e-mails dated May 21 and 22, 2019 notifying PHMSA of the ILI tool description and method of data analysis in accordance with item 1b of the Compliance Order.

of the required verification excavations within the specified 30-day timeframe, including environmental permits, weather conditions, and right-of-way access. STT respectfully requests that PHMSA modify this timeframe to 60 days to allow adequate time to properly plan and execute the verification excavations. In addition, STT requests that PHMSA include a provision that allows STT to provide a letter justifying any delay in the anticipated date of completion in the event that factors beyond STT's control prevent STT from completing the excavation within 60 days, such as extended permitting delays.

- Item 2f requires STT to complete Item 1g within 30 days of completion of the last corrective action taken per Item 1f. It appears this is an editorial error in the Proposed Compliance Order, as there is no Item 1g. STT assumes the references should be to 1e and 1f. STT requests this be clarified in the final Compliance Order.

Conclusion

In summary, STT takes these issues seriously, and has worked, and will continue to work expeditiously to resolve them. Regarding the specific issues in the NOPV and Proposed Compliance Order:

- STT is not contesting Item 1, but does request an elimination or reduction in the civil penalty based on the QA/QC program implemented on the STT project that goes beyond the requirements of 49 CFR Part 192 and the lack of evidence of delayed HAC. Furthermore, STT did not gain economic benefit from this violation.
- STT contests Item 2 of the NOPV based on the lack of facts or observations to support PHMSA's allegation of a violation. In the event that PHMSA still considers this violation as warranted, STT requests a Hearing in accordance with §190.209(a) and (b) and §190.211(a).
- STT does not contest Item 3 of the NOPV.
- STT does not contest the Proposed Compliance Order requirement to run an ILI tool to evaluate the STT pipeline for possible girth weld cracks. However, STT does request PHMSA modify certain timeframes and provide clarifications as stated above. If PHMSA is not willing to make the requested modifications to the specified timeframes or the requested clarifications, STT requests a Hearing to discuss these matters.

Please call me at (713) 627-6388 if you need additional information or to schedule a Hearing.

Sincerely,



Rick Kivela
Manager, Operational Compliance