U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

8701 S. Gessner, Suite 630
Houston, TX 77074

NOTICE OF PROBABLE VIOLATION
PROPOSED CIVIL PENALTY
and
PROPOSED COMPLIANCE ORDER

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 28, 2016

Mr. David Chalson
Vice President of Operations
Sunoco Pipeline L.P.
2700 West Passyunk Ave.
Philadelphia, PA 19145-BD

CPF 4-2016-5011

Dear Mr. Chalson:

Between May of 2014 to March of 2015, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), pursuant to Chapter 601 of 49 United States Code inspected your Sunoco Permian Express II Pipeline Construction Project (Sunoco, PEX II).

As a result of the inspection, it appears that you have committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations. The items inspected and the probable violations are:

1. **§195.214 Welding procedures**

(a) Welding must be performed by a qualified welder in accordance with welding procedures qualified under Section 5 of API 1104 or Section IX of the ASME Boiler and Pressure Vessel Code (ibr, see § 195.3) . The quality of the test welds used to qualify the welding procedure shall be determined by destructive testing.

(b) Each welding procedure must be recorded in detail, including the results of the qualifying tests. This record must be retained and followed whenever the procedure is used.

The Operator failed to perform welding during the construction of the Permian Express II (PEX II) pipeline according to a properly qualified welding procedure.

(1)The welding procedure initially provided states that it is a renamed legacy procedure. Upon further review, PHMSA discovered that was not the case. The new procedure specified different base material ranges than the legacy procedure did.

PHMSA was initially provided with *Welding Procedure Specification (WPS) No. SP-332S$_c$-6G Rev. 2 - 10/16/12*, as the butt welding procedure being used for construction PEX II pipeline. The procedure states it covers pipe material grades *"API 5L X65 to X42 and Below."* The provided procedure indicated it was a retitling of *Old Procedure SPL-16-6G Rev.: 0 – 11/09/2007.* However, *Old Procedure SPL-16-6G Rev.: 0 – 11/09/2007* states that it is qualified only for pipe grades "*API 5L Grade X65 to Grade X60 down to greater than X42."* The qualification range of *"API 5L X65 to X42 and Below"* in procedure *WPS No.: SP-332S$_c$-6G* is inconsistent with its predecessor's *"greater than X42"* range and constitutes a change of an essential variable, the Base Material.

API 1104 states that a welding procedure must be re-established as a new procedure specification and must be completely requalified when any of the essential variables listed in 5.4.2 are changed.[1] The changes in the base materials covered in the new and old procedures constitute a change in essential variables requiring procedure requalification. Operators records provides no evidence this was done. Consequently, *WPS No. SP-332S$_c$-6G Rev. 2 - 10/16/12* was not the same as the *Old Procedure SPL-16-6G Rev. 0 – 11/09/2007, an consequently not a properly qualified welding procedure.*

[1]API 1104 (ibr), Section 5.4.2 lists the following as essential variables: Welding Process or Method of Application, Base Material, Joint Design, Position, Wall Thickness, Filler Metal, Electrical Characteristics, Time Between Passes, Direction of Welding, Shielding Gas and Flow Rate, Shielding Flux, Speed of Travel, Pre-heat, and Post-weld Heat Treatment.

(2) The procedure initially provided spans all three groups of base materials. That is not allowed under API 1104. Each group of base material is required to be qualified with a separate procedure.

WPS No. SP-332S$_c$-6G, Rev. 2 - 10/16/12 states that the groups the procedure is qualified to weld includes *"API 5L X65 to X42 and Below."* API 1104 (ibr) states the following: "For the purposes of this standard, all materials shall be grouped as follows:

a. Specified minimum yield strength less than or equal to 42,000 psi (290 MPa).
b. Specified minimum yield strength greater than 42,000 psi (290 MPa) but less than 65,000 psi (448 MPa).
c. For materials with a specified minimum yield strength greater than or equal to 65,000 psi (448 MPa), each grade shall receive a separate qualification test."

A properly qualified welding procedure specification with a range of base materials of *API 5L X65 to X42 and Below* would require separate qualifying tests for a base material with a yield strength of 42,000 psi or less, greater than 42,000 psi but less than 65,000 psi, and separate qualifying tests for each material with a yield strength of 65,000 psi or greater. Sunoco did not perform the tests required to qualify the procedure for the base material range specified according to the requirements of API 1104 (ibr) and consequently, the procedure -was not properly qualified to weld a Part 195 pipeline.

(3) Sunoco did not perform the requisite destructive testing to qualify the groups of base materials covered by the procedure. Therefore the procedure initially provided by Sunoco is not a qualified welding procedure.

Sunoco did not perform destructive testing to qualify the *WPS No. SP-332S$_c$-6G, Rev. 2 - 10/16/12* procedure as required by API 1104 (ibr). Sunoco relied on the destructive testing performed for *SPL-16-6G Rev. 0 – 11/09/2007* to qualify the *SP-332S$_c$-6G* procedure. However the legacy welding procedure's qualification records did not include the full range of destructive testing for the full range of the groups of base materials covered in the *SP-332S$_c$-6G* procedure. Further, *WPS No. SP-332S$_c$-6G,* nor the referenced legacy procedure *Old Procedure SPL-16-6G Rev. 0 – 11/09/2007,* included destructive tests to substantiate the entire *range* of base materials the procedure claims to have covered as required by API 1104 (ibr). Therefore *SP-332S$_c$-6G* is not a qualified welding procedure according to the requirements of API 1104.

(4) After PHMSA questioned the validity of the procedure that was initially submitted, Sunoco offered two additional revised procedures that were reportedly used on the project instead of the one that was initially submitted. There is no conclusive evidence that these later substituted procedures were used on the project. More importantly, the two substituted revised procedures were not qualified procedures. None of the procedures offered by Sunoco for the project were qualified procedures.

After PHMSA questioned the validity of WPS No. SP-332S_c-6G, Rev. 2 - 10/16/12, Sunoco then denied using the procedure to weld the PEX II pipeline and subsequently produced two additional welding procedures they claimed were used to make the construction butt welds on the project. These were WPS No. SP-332S_c-6G Rev. 1 – 05/22/14, and WPS No. SP-332S_c-6G Rev. 2 – 11/07/14. Both of these subsequent substitutions reference an entirely different legacy procedure SPL-11-6G (11-26-03) than the one initially provided to PHMSA (SPL-16-6G Rev.: 0 – 11/09/2007 that was referenced by WPS No. SP-332S_c-6G, Rev. 2 - 10/16/12)

Substitution procedure *WPS No. SP-332S_c-6G Rev. 1 – 05/22/14* utilizes the qualification records for legacy procedure SPL-11-6G (11/26/03). While *WPS No. SP-332S_c-6G Rev. 2 – 11/07/14* utilizes its own procedure qualification record dated 10-29-14 as the source for destructive testing used to qualify the revised procedure.

These substitution procedures were not originally provided to PHMSA as being used to weld the PEX II pipeline; there was no evidence that these versions were actually used on the project; the procedure qualification dates are inconsistent with some of the welder qualification dates; and the procedures have qualification issues due to inconsistencies or inadequacies with some essential variables or required procedure specifications.

For example, the welding procedure qualification record for *WPS No. SP-332S_c-6G Rev. 2 11/07/14,* shows the actual travel speed for the root pass during the qualification weld was 10 – 12 inches per minute. However, Sunoco indiscriminately increased the range of travel speed for the root pass on the welding procedure specification *WPS No. SP-332S_c-6G Rev. 2 – 11/07/14* to 6 – 12 inches per minute. Other passes have had similar untested expansions of the range of travel speed. These constitute a change of an essential variable requiring requalification of the procedure.

Additionally, *WPS No. SP-332S_c-6G Rev. 1 – 05/22/14* states that time between passes is "5 minutes maximum between Root/Hot Pass; Remaining passes as soon as possible." API 1104 (ibr), Section 5.3.2.10, requires that "The maximum time between the completion of the root bead and the start of the second bead, as well as the maximum time between the completion of the second bead and the start of other beads, shall be designated." The time between passes of "…Remaining passes as soon as possible." is not an adequate specification.

Another example of not using a qualified procedure for testing of welders and use in pipeline construction involves Sunoco's WPS No.: SP-122SLH – BR-7018 Rev 1: 6/6/14 procedure. The procedure states it covers "All" for the Diameter Group and "All" for the Wall Thickness Group. The procedure record shows it was qualified with "Grade: API X42 / 52 with supporting destructive testing results for only that one grade of material. There was no supporting PQR (destructive testing results) for the actual grade of materials that the welders tested with or used in the actual construction of the line (X65).

Sunoco's WPS No.: SP-122SLH – BR-7018 Rev 1 : 6/6/14 also states " * Procedure applies to all pipe grades and thicknesses" and lists electrode filler materials for the correspondingly different grades of pipe material. None of the other additional grades listed in the procedure had supporting destructive testing records associated with them, either.

Per the requirements of API 1104, 20th Ed., Section 5.4.1,

> "A welding procedure must be re-established as a new procedure specification and must be completely requalified when any of the essential variables listed in 5.4.2 are changed."

Being that a listed essential variable was changed related to Section 5.4.2.2 "Base Material" a new welding procedure specification should have been established and completely requalified for use for the X65 material used. Section 5.4.2.2 states "A change in base material constitutes an essential variable" and required Sunoco to produce a separate procedure for the grade of material used in testing and construction (X65) with its own destructive testing results documented fully. Without such procedure qualification (a separate procedure for the specific grade of base material as required by API 1104), Sunoco did not have a properly qualified procedure to test welders with or to do mainline production welding with related to WPS No.: SP-122SLH – BR-7018 Rev 1 : 6/6/14 and its use with X65 materials.

2. § 195.222 Welders: Qualification of welders.

(a) Each welder must be qualified in accordance with section 6 of API 1104 (incorporated by reference, see§ 195.3) or section IX of the ASME Boiler and Pressure Vessel Code, (incorporated by reference, see§ 195.3) except that a welder qualified under an earlier edition than listed in § 195.3 may weld but may not re-qualify under that earlier edition.
(b) No welder may weld with a welding process unless, within the preceding 6 calendar months, the welder has—
(1) Engaged in welding with that process; and
(2) Had one welded tested and found acceptable under section 9 of API 1104 (incorporated by reference, see§ 195.3).
[Amdt. 195-81, 69 FR 54593, Sept. 9, 2004, as amended by Amdt. 195-86, 71 FR 33409, June 9, 2006]

Sunoco failed to properly qualify welders used to construct the PEX II pipeline, as required by Part 195, API Standard 1104 (ibr) and Sunoco's procedures. API 1104 (ibr) states "The purpose of the welder qualification test is to determine the ability of welders to make sound butt or fillet welds using previously qualified procedures." The Operator allowed welders to weld on the PEX II pipeline construction project despite records showing that they had not welded within the welding procedure specifications during the qualification test. In some cases, the documentation was inadequate to show the welding had been performed according to the welding procedure specifications during the test. Examples of welder qualification test inadequacies include failing to weld within the specified electrical ranges (voltage and amperage) specified by the procedure, *WPS No.: SP-332Sc-6G,* failing to perform the welds in the specified number of passes, failing to document the specific version of the procedure the welders were qualifying to weld, and qualification forms that did not accurately state the test parameters such as the weld position.

In addition to the errant welder testing practices and inadequate documentation, Sunoco did not provide sufficient supervision and control related to these practices and allowed the unqualified welders to make several thousand welds on the PEX II construction project using *WPS No.: SP-332Sc-6G*. Upon discovery of these errant practices, Sunoco attempted to qualify the welders by re-testing them after-the-fact. While this is not consistent with the requirements of Part 195, it is even more problematic that some of these welders who had already made production welds on the PEX II pipeline failed to pass the re-test, and in some cases failed multiple qualification attempts.

3. §195.214 Welding procedures

a) Welding must be performed by a qualified welder in accordance with welding procedures qualified under Section 5 of API 1104 or Section IX of the ASME Boiler and Pressure Vessel Code (ibr, see § 195.3) . The quality of the test welds used to qualify the welding procedure shall be determined by destructive testing.

(b) Each welding procedure must be recorded in detail, including the results of the qualifying tests. This record must be retained and followed whenever the procedure is used.

§195.204 Inspection – General

Inspection must be provided to ensure the installation of pipe or pipeline systems in accordance with the requirements of this subpart. No person may be used to perform inspections unless that person has been trained and is qualified in the phase of construction to be inspected.

As evidenced by their continued construction of a pipeline in the face of known problems with both their welding procedures and the qualifications of their welders, Sunoco failed to ensure the

construction and inspection of their pipeline in accordance with the requirements of 49 C.F.R. 195. Sunoco allowed unqualified welders to perform welding during construction activities on PEX II, contrary to the requirements of Part 195 and API Standard 1104. Welders made approximately 3,000 welds on the PEX II project before it was discovered that that the welder qualification testing was not conducted to the requirements Part 195 and API Standard 1104. Sunoco welder qualification records showed that the welders had not followed the qualified welding procedure, *WPS No.: SP-332Sc-6G*, but were still shown as passing the welder qualification tests. When this errant practice was discovered, Sunoco attempted to back-qualify welders through the retesting of welders to welding procedure *WPS No.: SP-332Sc-6G*, of which several of the welders, who were retested, failed to qualify with multiple retesting attempts. These same failed welders had each participated in the welding of numerous production welds prior to attempting requalification.

Select production welds made by some of the welders who were not properly qualified were cut out of the pipeline and destructively tested. Some of these cutouts also failed to pass the API 1104 destructive testing for welder qualification but Sunoco took no further actions to discover and test additional welds made by unqualified welders on the PEX II project that may not have the required strength and mechanical properties. Sunoco's attempt to "back-qualify" welders to welding procedure *WPS No.: SP-332Sc-6G* demonstrates that the Operator recognized the deficiency but did not take appropriate measures to achieve compliance.

4. §195.202 Compliance with specifications or standards.

Each pipeline system must be constructed in accordance with comprehensive written specifications or standards that are consistent with the requirements of this part.

§195.214 Welding procedures

(a) Welding must be performed by a qualified welder in accordance with welding procedures qualified under Section 5 of API 1104 or Section IX of the ASME Boiler and Pressure Vessel Code (ibr, see § 195.3) . The quality of the test welds used to qualify the welding procedure shall be determined by destructive testing.

Sunoco failed to follow its own written specifications related to the "requalification of welders" in their attempt to qualify its welders after the fact. Sunoco's "*Specification for Welder Performance Qualification, SPL-102, Revision 4, October 6, 2012, Section 6.0, Retesting*" states the following:

> *"6.0 RETESTING*
> *If, in the opinion of the company welding inspector, a welder fails to pass the qualification test because of unavoidable conditions or conditions beyond his control, the welder may be given a second opportunity to qualify. Should the welder fail the second*

test, no further retests shall be given until the welder has submitted proof of subsequent welder training that is acceptable to the Company."

Over 20 of the 37 welders reviewed were found to not have been properly qualified by the records presented, which did not properly detail the qualification test data for each welder as required by API 1104. Of the 37 welders, some were no longer working on the project or had been terminated. However, at the time of the inspections only 10 of the welders (out of the 37 identified) that had not been properly qualified continued to weld on the PEX II pipeline and were administered additional qualification tests "after the fact." Two of these welders failed these qualification tests, and were allowed to immediately (the same day) re-test for a third time without submitting proof of subsequent welder training as required by Sunoco's specifications. Not only did Sunoco fail to properly qualify welders before allowing to weld on the PEX II project, as required by Part 195, but made multiple attempts to qualify welders after they had already made welds on the PEX II pipeline project in violation of Part 195 and Sunoco's specifications.

5. §195.222 Welders: Qualification of welders

(a) Each welder or welding operator must be qualified in accordance with section 6 or 12 of API Std 1104 (incorporated by reference, see §195.3) or with Section IX of ASME Boiler and Pressure Vessel Code (BPVC) (incorporated by reference, see §195.3), except that a welder qualified under an earlier edition than listed in §195.3 may weld but may not re-qualify under that earlier edition.
(b) No welder may weld with a welding process unless, within the preceding 6 calendar months, the welder has—
(1) Engaged in welding with that process; and
(2) Had one weld tested and found acceptable under section 9 or Appendix A of API Std 1104 (incorporated by reference, see § 195.3).

§195.204 Inspection – General

Inspection must be provided to ensure the installation of pipe or pipeline systems in accordance with the requirements of this subpart. No person may be used to perform inspections unless that person has been trained and is qualified in the phase of construction to be inspected

As evidenced by their start-and-stop efforts to post-qualify welders in the face of known shortcomings in both their welding procedures and the qualifications of their welders, Sunoco failed to ensure the construction of their pipeline in accordance with the requirements of 49 C.F.R. 195. Sunoco attempted to post-qualify welders after they had performed several thousand welds on Spread 24-3 through re-administering welder qualification tests. Further, Sunoco used a modified version of a procedure with expanded welding parameter ranges in order to attempt to qualify welds made by these welders on the pipeline (welds made questionable as to being suitable for service). By expanding the electrical parameters, the modified procedure can be said

not to have been the original procedure used to test the welders or used to make the previous construction welds.

After Sunoco determined that unqualified welders had been allowed to perform welding on the PEXII, the Operator made a limited attempt to determine if welds made by improperly qualified welders who were no longer on the job had the required strength and mechanical properties. This was done by cutting out and destructive testing of a small sample of girth welds made by some of the welders. Some of the cutouts failed the API 1104 destructive testing criteria required to qualify a welder. By allowing welders who were not properly qualified according to the requirements of API 1104 to weld on the PEXII project and then having a small select sample of welds made by these welders fail destructive testing, all of the welds on Spread 24-3 of the PEX II project are suspect as to whether they meet the required strength and mechanical properties as required by the design of this pipeline.

Proposed Civil Penalty

Under 49 United States Code, § 60122, you are subject to a civil penalty not to exceed $200,000 per violation per day the violation persists up to a maximum of $2,000,000 for a related series of violations. For violations occurring prior to January 4, 2012, the maximum penalty may not exceed $100,000 per violation per day, with a maximum penalty not to exceed $1,000,000 for a related series of violations. The Compliance Officer has reviewed the circumstances and supporting documentation involved in the above probable violation(s) and has recommended that you be preliminarily assessed a civil penalty of $1,278,100 as follows:

Item number	PENALTY
1	$119,500
2	$149,700
3	$613,400
4	$51,400
5	$344,100

Proposed Compliance Order

With respect to item numbers 1 and 2, pursuant to 49 United States Code § 60118, the Pipeline and Hazardous Materials Safety Administration proposes to issue a Compliance Order to Sunoco Pipeline L.P. Please refer to the *Proposed Compliance Order*, which is enclosed and made a part of this Notice.

Response to this Notice

Enclosed as part of this Notice is a document entitled *Response Options for Pipeline Operators in Compliance Proceedings*. Please refer to this document and note the response options. All material you submit in response to this enforcement action may be made publicly available. If

you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document you must provide a second copy of the document with the portions you believe qualify for confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. 552(b). If you do not respond within 30 days of receipt of this Notice, this constitutes a waiver of your right to contest the allegations in this Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in this Notice without further notice to you and to issue a Final Order.

In your correspondence on this matter, please refer to **CPF 4-2016-5011** and for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,

R. M. Seeley
Director, Southwest Region
Pipeline and Hazardous Materials Safety Administration

Enclosures: *Proposed Compliance Order*
Response Options for Pipeline Operators in Compliance Proceedings

PROPOSED COMPLIANCE ORDER

Pursuant to 49 United States Code § 60118, the Pipeline and Hazardous Materials Safety Administration (PHMSA) proposes to issue to [Company name] a Compliance Order incorporating the following remedial requirements to ensure the compliance of [Company name] with the pipeline safety regulations:

1. In regard to Item Number 1 of the Notice, Sunoco must correct all welding procedures to reflect the proper qualifications for each grade of materials, filler metals and other changes in essential variables and welding parameters, reflect proper versioning for any changes and provide the PHMSA Southwest Region Director revised procedures and complete destructive testing records for each procedure. The procedures cannot be used on any other construction project or Part 195 regulated piping until all corrections are made and accepted by the PHMSA Southwest Region Director.

2. In regard to Item Number 2 of the Notice, Sunoco must perform destructive tests on a statistically significant number of girth welds on Spread 24-3 to show that the welds have the required strength and mechanical properties for the application. The proposed testing plan must include specific designation of the welds to be tested, the analysis showing that the number of welds to be tested is statistically significant based on the total number of welds made, the procedures that Sunoco proposes to be used to cut out and test the welds, and the qualified welding procedure that will be used to re-weld the pipeline. The proposed testing plan must be submitted to the PHMSA Southwest Region director for approval prior to initiating the plan. If any of these welds fail destructive testing, the number of welds tested must be expanded as specified by the Southwest Region Director to include an additional number of welds made by that welder.

   In addition, Sunoco must review welder qualification testing on all the other construction spreads on the PEXII pipeline to determine if there were similar instances of unqualified welders performing welding during construction. Evidence in the form of properly completed welder qualification records showing that all welders were qualified to a previously qualified welding procedure must be submitted to PHMSA. If any issues with welder qualification are identified, the welds made by those welders must be tested to determine if the welds meet the qualification and mechanical characteristics required for the project in a manner similar to the process described in the previous paragraph. The testing plan to be approved by the PHMSA Southwest Region Director must also include a specific process for the detailed review of welder qualification records on all of the other construction spreads on the PEX II project. If any other welders are determined to have been not been properly qualified, Sunoco must submit an amended test plan for approval by the Southwest Region Director, to identify welds that made by these welders and destructively test a statistically significant sample of these welds in a manner similar to describe in the paragraph above. If any of these welds fail destructive testing, the number of welds

tested must be expanded as specified by the Southwest Region Director to include an additional number of welds made by that welder.

4. Provide PHMSA with documentation that verifies completion of Item 1 within 30 days following the date of the Final Order. Submit the testing plan described in Item 2 for approval by the Southwest Region Director within 30 days following the date of the Final Order and documentation showing completion of the testing and weld repairs within 120 days following approval of the plan by the Southwest Region Director.

5. It is requested (not mandated) that Sunoco Pipeline L.P. maintain documentation of the safety improvement costs associated with fulfilling this Compliance Order and submit the total to R. M. Seeley, Director, Southwest Region, Pipeline and Hazardous Materials Safety Administration. It is requested that these costs be reported in two categories: 1) total cost associated with preparation/revision of plans, procedures, studies and analyses, and 2) total cost associated with replacements, additions and other changes to pipeline infrastructure.