U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

840 Bear Tavern Road, Suite 300
West Trenton, NJ 08628
609.771.7800

NOTICE OF PROBABLE VIOLATION
and
PROPOSED COMPLIANCE ORDER

OVERNIGHT EXPRESS DELIVERY

May 17, 2019

Greg McIlwain
Senior VP, Operations
Sunoco Pipeline, L.P.
1300 Main Street
Houston, TX 77002

CPF 1-2019-5006

Dear Mr. McIlwain:

On August 1 - 2, October 9-11, October 15-19, and November 5-8 of 2018, a representative from the Pipeline and Hazardous Materials Safety Administration (PHMSA), pursuant to Chapter 601 of 49 United States Code (U.S.C.), performed an inspection of Sunoco Pipeline, L.P. 's (Sunoco) GRE Flow Reversal / Repurposing Project on the Mariner East 2 pipeline system located in Pennsylvania. Sunoco is a subsidiary of Energy Transfer Operating, L.P. (ET).

As a result of the inspection, it is alleged that you have committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations (CFR). The items inspected and the probable violation(s) are:

1. **§ 195.106 Internal design pressure.**

   (b) The yield strength to be used in determining the internal design pressure under paragraph (a) of this section is the specified minimum yield strength. If the specified minimum yield strength is not known the yield strength to be used in the design formula is one of the following:

(1)

(i) The yield strength determined by performing all of the tensile tests of ANSI/API Spec 5L (incorporated by reference, see § 195.3) on randomly selected specimens with the following number of tests:

Pipe Size	No. of Tests
Less than 6 5/8 in (168 mm) nominal outside diameter	**One test for each 200 lengths**
6 5/8 in through 12 3/4 in (168 mm through 324 mm)	**One test for each 100 lengths**
Larger than 12 3/4 in (324 mm) nominal outside diameter.	**One test for each 50 lengths**

Sunoco failed to determine the design yield strength of pipe in accordance with § 195.106(b)(1)(i). Specifically, Sunoco failed to perform ANSI/API Spec 5L tensile tests on a sufficient number of randomly selected specimens of pipe from the Glen Riddle to Elverson segment (GRE Segment) of its 12-inch PTBR to MNTL pipeline to validate the design yield strength utilized for determining internal design pressure.

During review of Sunoco's flow reversal and repurposing project of the GRE Segment, PHMSA evaluated Sunoco's integrity management plan, including pipe material records, in light of a proposed change in transported product from refined petroleum products to highly volatile liquid (HVL) service. The reversal and repurposing project encompassed approximately 25 miles of existing, predominantly 1937 vintage 12-inch diameter pipe in Chester and Delaware counties of PA, and was pursued to mechanically complete serviceability of newly constructed portions of the 20-inch ME2 and 16-inch ME2X pipelines.

ME2 is poised to transport batched propane and butane from Scio, Ohio to Marcus Hook, PA. The proposed re-route and reversal tied new 20-inch diameter ME2 pipe to existing sections of 1937 vintage 12-inch pipeline at the Fairview valve station. It then followed the 12-inch pipeline until the Glen Riddle Junction valve station, where it tied into newly completed 16-inch diameter ME2X pipe and continued to Twin Oaks, where the ME2 pipeline continues as planned as a new dual 12-inch pipeline. The maximum operating pressure (MOP) of the 20-inch pipeline and the 16-inch pipeline is 1,480 psi. The MOP for the existing 12-inch GRE pipeline segment was identified by Sunoco to be 1,248 psi.

During the inspection, PHMSA requested and reviewed pertinent records associated with a 2016-2017 rehabilitation project of the 12-inch PTBR to MNTL pipeline. This project included in-line-inspection, pipe repair and/or replacements, and hydrostatic testing to support a new MOP of 1,248 psi. Prior to the rehabilitation project, the GRE Segment's MOP was limited to 950 psi based on historical operation.

PHMSA's review of integrity management records noted several discrepancies and/or omissions with respect to pipe material records, including validation of pipe grade or specified minimum yield strength for the 1937 vintage pipe that had undergone an MOP upgrade from 950 psi to 1248 psi in 2017. Sunoco attempted to validate material strength records by providing supporting documentation depicting that the only material grades for 12-inch diameter 0.375" wall thickness

pipe manufactured by National Tube during 1937 was API 5L Grade B. The documentation provided included a 1935 catalogue for pipe manufacturing at National Tube, a 1937 Keystone Pipeline letter to National Tube seeking an inventory credit, 1969 Atlantic Pipeline System information, and a 1937 letter depicting delivery receipts for pipe transported to local yards. However, the documentation did not incorporate material testing reports (MTRs), purchase orders or other material certification reports.

Pertinent to the aforementioned is PHMSA Advisory Bulletin ADB-2014-04, issued to alert operators of hazardous liquid and gas transmission pipelines of the potential significant impact flow reversals, product changes, and conversion to service may have on the integrity of a pipeline.

Per the advisory, the section for O&M and Integrity Management Requirements and Considerations summarizes that (emphasis added) "integrity depends on accurate records to make suitable decisions. **Operators should validate material and strength test records for all affected segments of pipe as reminded in an advisory bulletin (ADB-12-06) published on May 7, 2012**; 77 FR 26822 titled: Pipeline Safety: Verification of Records. If the operator is missing records, they should create and implement a plan to obtain material documentation. **If mechanical and/or chemical properties (mill test reports) are missing, the plan should require destructive tests to confirm material properties of pipeline. Certain high risk pipelines merit a greater level of due diligence.** While a new hydrostatic pressure test with a spike test is an important part of confirming the integrity of a pipeline, it may not be advisable to perform flow reversals, product changes or conversion to service under the following conditions:

- Grandfathered pipelines that operate without a Part 192, Subpart J pressure test or where sufficient historical test or material strength records are not available.

- LF-ERW pipe, lap welded, unknown seam types and with seam factors less than 1.0 as defined in Sec. Sec. 192.113 and 195.106.

- Pipelines that have had a history of failures and leaks most especially those due to stress corrosion cracking, internal/ external corrosion, selective seam corrosion or manufacturing defects.

- Pipelines that operate above Part 192 design factors (above 72% SMYS).

- Product change from unrefined products to highly volatile liquids."

Subsequent to the material verification concerns raised by PHMSA during inspection of the proposed flow reversal project in October of 2018, Sunoco ultimately pursued material testing of twelve pipe samples taken from previously removed sections of the 12-inch PTBR-MNTL pipeline. Three of these samples fell outside the limits of the GRE segment reversal project, and two were conducted on 1967/1968 vintage pipe. In addition, Sunoco conducted in-situ material property validation testing for one joint of pipe, which in-line inspection records noted was logged with a wall thickness of 0.432" and material grade (SMYS) of 24000 psi.

As a result, Sunoco conducted material validation which included tensile tests prescribed by ANSI/API Spec 5L or other acceptable method for a total of 7 locations within the 24.5 mile GRE segment affected by the reversal and new MOP. The testing predominantly targeted 1937 vintage, 12.750-inch diameter, 0.375-inch wall thickness pipe and was based upon availability of specimens rather than random selection. Therefore, the representative sampling failed to meet the requirements of § 195.106(b)(1)(i) with respect to the number of tests required.

2. **§ 195.440 Public awareness.**

   (c) The operator must follow the general program recommendations, including baseline and supplemental requirements of API RP 1162, unless the operator provides justification in its program or procedural manual as to why compliance with all or certain provisions of the recommended practice is not practicable and not necessary for safety.

Sunoco failed to follow recommended practice API RP 1162 (IBR, see § 195.3). Specifically, Sunoco failed to tailor its communications coverage area (buffer) to fit its particular pipeline, location, and potential impact consequences.

During review of Sunoco's flow reversal and repurposing project involving the 12-inch PTBR to MNTL pipeline segment, PHMSA evaluated Sunoco's Public Awareness Program (Public Awareness Plan HLA.17 and HLI.40 04012018) in light of a proposed change in transported product from refined petroleum products to highly volatile liquid (HVL) service (specifically natural gas liquids mainly comprised of propane and butane). As part of the inspection, PHMSA requested and reviewed pertinent risk assessments, including 3rd party consultant reports completed for the 12-inch reversal section and newly constructed portions of the ME2 project titled Hazard Assessment of the Proposed Mariner East 2 Pipeline (Stantec 03272017), Pipeline Flow Reversal Assessment (Dynamic Risk 10052018) and Mariner East 2 Pipeline Re-Route near Chester and Delaware, Pennsylvania - Butane Spill Assessment (Stantec Final 10152018).

During initial review of the Stantec 03272017 report covering the 20-inch diameter ME2 project, PHMSA noted that dispersion and thermal radiation consequence modelling results for accidental releases under Section 5.4 noted:

> …the maximum distance to the LFL along the entire pipeline route was predicted to be Sunoco Redaction [redacted]. The maximum predicted distances to thermal radiation consequences along the entire pipeline were: Sunoco Redaction [redacted]

The report also negated the consequence of multiple releases based on the fact that the pipelines are buried and failure of one would require exposure of another, including ignition, to sufficiently heat and damage the adjacent line. Although PHMSA acknowledges the assessment, exception is taken for valve and pump station locations where multiple pipelines transporting various commodities exist aboveground. These locations undoubtedly incorporate a higher potential of risk and increased public impact in the event of multiple pipeline failures.

Information redacted by Sunoco may be requested under FOIA, 5 U.S.C. 552. If requested, the information will be evaluated by PHMSA for any applicable FOIA exemptions.

Further inspection noted that Sunoco's original Public Awareness Plan specified mailings to the affected public located 660 feet on either side of the proposed HVL transmission line, and Sunoco noted that this was to be applicable to the entire ME2 project including the re-purposing/reversal section.

During numerous meetings regarding the project held in August 2018, PHMSA conveyed concerns associated with Sunoco's current 660 foot buffer for the HVL service citing API RP 1162 requirements that clearly state, "The transmission operator should tailor its communications coverage area (buffer) to fit its particular pipeline, location, and potential impact consequences."

In addition, review of the subsequent Dynamic Risk 10052018 report noted that a separate consequence assessment was completed by ET and provided to Dynamic Risk. This analysis showed that any release from nearly any location along the reversal segment would be expected to impact high consequence areas as defined by § 195.450. The report further concluded that:

> ...due to significantly different consequences of a pipeline failure in NGL versus prior service, the prior emergency response plans and public awareness programs for the segment would be inappropriate for application to an NGL pipeline. Energy Transfer should ensure emergency response plans and public awareness programs are updated appropriately, including outreach to both internal and external stakeholders such as local first responders.

The Stantec 10152018 report, focused on consequence modelling of a butane spill for the re-route of a 29 mile section of the ME2 pipeline project between Wallace Township and Aston, Pennsylvania due to the potential risk for the formation of a butane evaporating pool in the vicinity of release.

The report concluded that (emphasis added) "spill modeling used the source characterization to predict the extents of spill areas at 100 foot increments along the re routed pipeline section. The spill model included evaporative and boiling effects based on the thermo-physical properties of butane and varying meteorology, including changes in wind speed and temperature. [redacted] Sunoco Redaction [redacted]"

During follow up meetings held in October 2018, Sunoco conveyed that they had modified their Public Awareness Plan coverage area by extending it to a 1000' buffer on either side of the pipeline. Sunoco stated the basis for the increase was solely in response to PHMSA's concern and request conveyed during prior meetings. Due to the statement, PHMSA requested a formal response to support the 1000' communication coverage limit, which was provided in November 2018.

Sunoco's response, dated November 2, 2018, explained the basis for selection of a 1000' buffer and extent of communication with the Affected Public. The response stated, in part (emphasis added) "After **a discussion with representatives from the Pipeline and Hazardous Materials Safety Administration and the Pennsylvania Public Utilities Commission in August 2018, an internal company review was performed and a determination was made to increase the buffer beyond the required 660 feet to 1,000 feet for all company-operated NGL pipelines**

Information redacted by Sunoco may be requested under FOIA, 5 U.S.C. 552. If requested, the information will be evaluated by PHMSA for any applicable FOIA exemptions.

for the 2018 distribution of pipeline safety messages to the Affected Public. The increase to a 1,000 foot buffer is not just in high population areas, but in all areas along NGL pipelines, and exceeds the basic requirements of RP 1162 by more than 50 percent." The response did not include any reference to the aforementioned Flow Reversal and/or Hazard Assessments.

Sunoco's Public Awareness Program should clearly state their buffer(s) and how they were determined and/or rational for selection. Per § 195.440(c), an operator "must follow the general program recommendations of API RP 1162, including baseline and supplemental requirements of API RP 1162, unless the operator provides justification in its program or procedural manual as to why compliance with all or certain provisions of the recommended practice is not practicable and not necessary for safety."

PHMSA takes exception with the fact that no reference to the established risk assessments and/or vapor dispersion modelling reports were included.

The following sections of API RP 1162 state, in part (emphasis added):

> 3 Stakeholder Audiences
>
> ...The operator should consider tailoring its communication coverage area to fit its particular pipeline location and release consequences. The operator would be expected to consider areas of consequence as defined in federal regulations. Where specific circumstances suggest a wider coverage area for a certain pipeline location, the operator should expand its communication coverage area as appropriate.
> ...
> 6.1 CONSIDERATIONS FOR SUPPLEMENTAL ENHANCEMENTS FOR THE BASELINE PROGRAM
> ...
> 6.3.1 The Affected Public
> Consideration should be given to supplemental program enhancement where:
>
> The **potential for concern about consequences of a pipeline emergency is heightened**. Consideration should be given to **widening the coverage area for**:
> **- HVL pipelines in high population areas, extend the coverage area beyond the 1/8th mile minimum distance each side of the pipeline**
> - Large diameter, high pressure, high volume pipelines where a pipeline **emergency would likely affect the public outside of the specified minimum coverage area extend the coverage area to a wider distance** as deemed prudent.

Therefore, Sunoco failed to follow the general program recommendations of AP RP 1162 prescribed by § 195.440(b) by neglecting to identify and educate the affected public whose safety could potentially be compromised in the event of an unintended release of product from the ME2 pipeline. Specifically, by not tailoring its communications coverage area (buffer) to areas of consequence recognized in pertinent risk assessment reports, and by not presenting reasonable

justification, Sunoco failed to tailor its buffer to the particular pipeline, location, and potential impact consequences as required by API RP 1162 (IBR, see § 195.3).

Proposed Compliance Order

Under 49 U.S.C. § 60122 and 49 CFR § 190.223, you are subject to a civil penalty not to exceed $213,268 per violation per day the violation persists, up to a maximum of $2,132,679 for a related series of violations. For violation occurring on or after November 2, 2015 and before November 27, 2018, the maximum penalty may not exceed $209,002 per violation per day, with a maximum penalty not to exceed $2,090,022. For violations occurring prior to November 2, 2015, the maximum penalty may not exceed $200,000 per violation per day, with a maximum penalty not to exceed $2,000,000 for a related series of violations.

We have reviewed the circumstances and supporting documents involved in this case, and have decided not to propose a civil penalty assessment at this time.

With respect to items 1 and 2, pursuant to 49 U.S.C. § 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).

Following the receipt of this Notice, you have 30 days to submit written comments, or request a hearing under 49 CFR § 190.211. 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. If you are responding to this Notice, we propose that you submit your correspondence to my office within 30 days from receipt of this Notice. This period may be extended by written request for good cause.

Please submit all correspondence in this matter to Robert Burrough, Director, PHMSA Eastern Region, 840 Bear Tavern Road, Suite 300, West Trenton, New Jersey 08628. Please refer to **CPF 1-2019-5006** on each document you submit, and whenever possible provide a signed PDF copy in electronic format. Smaller files may be emailed to robert.burrough@dot.gov. Larger files should be sent on a USB flash drive accompanied by the original paper copy to the Eastern Region Office.

Additionally, if you choose to respond to this (or any other case), please ensure that any response letter pertains solely to one CPF case number.

Sincerely,

Robert Burrough
Director, Eastern 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 Sunoco Pipeline, L.P. a Compliance Order incorporating the following remedial requirements to ensure the compliance of Sunoco with the pipeline safety regulations:

1. With respect to Item Number 1 of the Notice pertaining to Sunoco's failure to meet the requirements of § 195.106(b)(1)(i) regarding the number of tests required to validate specified minimum yield strength for the Glen Riddle to Elverson (GRE) segment of its 12-inch PTBR-MNTL pipeline, Sunoco shall complete at a minimum, the following actions:

    a. Evaluate the GRE segment to determine the appropriate representative sampling of pipe joints required under § 195.106(b)(1)(i), and complete tests per ANSI/API Spec 5L in order to, at a minimum, validate that the segment is comprised of Grade B pipe. The order is applicable to all pipe, regardless of vintage, where the specified minimum yield strength is unknown due to inadequate or missing records.
    b. If the GRE pipeline segment affected by Item 1 of this order is in service at the time of receipt of this notice, actions shall immediately be taken to limit operation so that its original MOP of 950 psi or an MOP based on design pressure formula utilizing 24000 psi as the specified minimum yield strength, whichever is less, is not exceeded. The MOP limitation shall stand until such time the finding under 49 CFR 195 has been satisfactorily remediated.
    c. Within 10 days of the issuance of the Final Order, provide a written plan addressing implementation of compliance order Item 1, and the process for any remedial action required by 49 CFR 195, including excavation and testing schedules, if warranted.

2. With respect to Item Number 2 of the Notice pertaining to Sunoco's failure to follow the general program recommendations of API RP 1162 prescribed by § 195.440(b) by neglecting to identify and educate the affected public whose safety could potentially be compromised in the event of an unintended release of product from the ME2 pipeline, Sunoco shall complete at a minimum, the following actions:

    a. Modify its Public Awareness Plan (PAP) applicable to the new ME2 pipeline, including any temporary reversal and repurposed portions of the existing 12-inch PTBR to MNTL pipeline and any components of the new 16-inch ME2X pipeline which will be utilized to facilitate transportation of HVLs. Sunoco shall expand their communication coverage area for Stakeholder Audience Identification, as defined by API RP 1162, consistent with areas of potential impact for their pipeline facilities. Sunoco shall also update their PAP to reflect communication buffer area(s) and information on how buffer(s) were determined and/or rational for selection.
    b. Should the modification be deemed unwarranted, Sunoco shall provide justification in its program or procedural manual as to why compliance with all or certain provisions of the recommended practice is not practicable and not necessary for safety, specifically, education of Stakeholder Audiences that were concluded to be susceptible to product dispersion and/or thermal radiation impact.

c. PAP modifications and/or justifications required under Item 2 shall be submitted to the PHMSA Director of the Eastern Region for evaluation and approval.

3. All items under this order shall be completed within 60 days of the issuance of the Final Order.

4. All documentation demonstrating compliance with each of the items outlined in this Compliance Order must be submitted to Robert Burrough, Director, Eastern Region, PHMSA, 840 Bear Tavern Road, Suite 103, West Trenton, NJ 08628.

5. It is requested (not mandated) that Sunoco maintain documentation of the safety improvement costs associated with fulfilling this Compliance Order and submit the total to Robert Burrough, Director, Eastern 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.