NOTICE OF PROBABLE VIOLATION
and
PROPOSED COMPLIANCE ORDER

OVERNIGHT EXPRESS DELIVERY

February 4, 2019

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

CPF 1-2019-5002

Dear Mr. McIlwain:

From March 19 to March 23, 2018, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code (U.S.C.) inspected Sunoco Pipeline L.P.'s (Sunoco) Mariner East I pipeline system in Honeybrook, Pennsylvania.

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. **§ 195.571 What criteria must I use to determine the adequacy of cathodic protection?**

   Cathodic protection required by this subpart must comply with one or more of the applicable criteria and other considerations for cathodic protection contained paragraphs 6.2.2, 6.2.3, 6.2.4, 6.2.5 and 6.3 in NACE SP 0169 (incorporated by reference, see § 195.3).

Sunoco failed to provide cathodic protection on the Mariner East 1 (ME1) pipeline that complies with one or more of the applicable NACE SP 0169 - 2007 edition (SP 0169) criteria and other considerations. Specifically, Sunoco Pipeline L.P. failed to consider voltage drops other than those across the structure-to-electrolyte boundary (IR drop) when applying SP 0169's Section 6.2.2.1.1 -850 mV criterion during its annual cathodic protection testing**.**

SP 0169 Section 6.2.2.1.1 describes the -850 mV criterion for steel and cast iron piping as follows:

> "A negative (cathodic) potential of at least 850 mV with the cathodic protection current applied. This potential is measured with respect to a saturated copper/copper sulfate electrode contacting the electrolyte. Voltage drops other than those across the structure-to-electrolyte boundary must be considered for valid interpretation of this voltage measurement.

NOTE: Consideration is understood to mean the application of sound engineering practice in determining the significance of voltage drops by methods such as:

6.2.2.1.1.1 Measuring or calculating voltage drops;

6.2.2.1.1.2 Reviewing the historical performance of the cathodic protection system;

6.2.2.1.1.3 Evaluating the physical and electrical characteristics of the pipe and its environment; and

6.2.2.1.1.4 Determining whether or not there is physical evidence of corrosion."

During the inspection, the PHMSA inspectors reviewed annual cathodic protection survey records for 2015-2017 for the ME1 system. The PHMSA inspectors noted that no IR Free readings were provided when utilizing the -850 mV SP 0169 criterion found in Section 6.2.2.1.1. Additionally, Sunoco did not provide a valid explanation for how IR drop was being considered when evaluating the adequacy of the readings that were taken.

Therefore, Sunoco failed to consider voltage drops other than those across the structure-to-electrolyte boundary when utilizing the SP 0169 -850 mV criterion at its test stations along the ME1 pipeline system.

2. 195.589 What corrosion control information do I have to maintain?

(c) You must maintain a record of each analysis, check, demonstration, examination, inspection, investigation, review, survey, and test required by this subpart in sufficient detail to demonstrate the adequacy of corrosion control measures or that corrosion requiring control measures does not exist. You must retain these records for at least 5 years, except that records related to Secs. 195.569, 195.573(a) and (b), and 195.579(b)(3) and (c) must be retained for as long as the pipeline remains in service.

Sunoco failed to maintain records in sufficient detail to demonstrate the adequacy of corrosion control measures. Specifically, Sunoco failed to provide records that demonstrate how the cathodic protection measures for the ME1 pipeline complied with the applicable NACE SP 0169 - 2007 edition (SP 0169) criteria at certain test stations.

SP 0169 states the following, in part:

6.2.2.2 Special Conditions

6.2.2.2.1 On bare or ineffectively coated pipelines when long-line corrosion activity is of primary concern, the measurement of a net protective current at predetermined current discharge points from the electrolyte to the pipe surface, as measured by an earth current

technique, may be sufficient.

…

6.2.2.3 PRECAUTIONARY NOTES

6.2.2.3.1 The earth current technique is often meaningless in multiple pipe rights-of-way, in high-resistivity surface soil, for deeply buried pipe, in stray-current areas, or where local corrosion cell action predominates.

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6.3 Other Considerations

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6.3.3 When feasible and practicable, in-line inspection of pipeline may be helpful in determining the presences or absence of pitting corrosion damage. Absence of external corrosion damage or the halting of its growth may indicate adequate external corrosion control. The in-line inspection technique, however, may not be capable of detecting all types of external corrosion damage, has limitations in its accuracy, and may report as anomalies items that are not external corrosion. For example, longitudinal seam corrosion and general corrosion may not be readily detected by in-line inspection. Also, possible thickness variations, dents, gouges, and external ferrous objects may be detected as corrosion. The appropriate use of in-line inspection must be carefully considered."

During the inspection, cathodic protection survey records (Annual Survey) for 2015-2017 were provided by Sunoco for the Mariner East 1 (ME1) system. The PHMSA inspectors noted that the recorded pipe-to-soil potential readings were below the SP 0169 -850 mV criterion from 2015 to 2017 at the following test stations:

Pipeline ID 11190

- 2366+30 Rm 96 Twin Valley Road
- 2459+00 Rm 100 Private Lane

Pipeline ID 12124

- 201+87 Rm 5, James Road
- 3058+17 Hempt Valve Outlet Riser
- 3058+42 Hempt Valve Inlet Riser
- 3060+55 Hempt Rd (9)
- 3866+53 Grahman's Woods Rd Rm 32 (CTS)
- 4078+20 Owl Rd (37a)
- 4128+00 Gypsy Road (37b)

In discussions with Sunoco personnel, the PHMSA inspectors established that IR Free readings were not taken when utilizing the -850 mV SP 0169 criterion found in Section 6.2.2.1.1. Instead, Sunoco stated that net protective current surveys were performed at the above locations to establish compliance, due to their inability to achieve a reading that complies with the -850 mV criterion.

In conjunction with these surveys, Sunoco also performed reviews of historical ILI data in the area of the test stations. During a 2017 inspection of this pipeline system, Sunoco had provided a letter dated October 26, 2017, which included data from 2015 side drain readings taken at the test stations listed above during the net protective current surveys, along with a summary of the historical ILI data review.

When requested, Sunoco was unable to explain how the data provided demonstrates adequate cathodic protection that meets the special considerations described in SP 0169 sections 6.2.2.2.1 and 6.3.3, and accounts for the precautionary notes about the earth current technique found in section 6.2.2.3.1.

Therefore, Sunoco failed to maintain records in sufficient detail to demonstrate that the cathodic protection on their ME1 pipeline met applicable SP 0169 criteria at the test stations listed above.

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 item(s) 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. 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. Be advised that all material you submit in response to this enforcement action is subject to being 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 1-2019-5002** 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 CD 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 U.S.C. § 60118, the Pipeline and Hazardous Materials Safety Administration (PHMSA) proposes to issue to Sunoco Pipeline L.P. (Sunoco) a Compliance Order incorporating the following remedial requirements to ensure the compliance of Sunoco with the pipeline safety regulations:

1. In regard to Item 1 of the Notice pertaining to Sunoco's failure to provide cathodic protection that complies with one or more of the criteria listed in NACE SP0169 – 2007 edition (SP 0169) on its Mariner East 1 (ME1) pipeline, Sunoco shall take the following actions:

   a. Complete a cathodic protection survey of its ME1 pipeline utilizing rectifier interruption, or other acceptable methods, to establish a measured voltage drop (other than those across the structure-to-electrolyte boundary) for all test points. This survey shall be completed within 120 days of issuance of the Final Order.

2. In regard to Item 2 of the Notice pertaining to Sunoco's failure to maintain sufficient records to demonstrate that cathodic protection met one or more SP 0169 criteria at certain test stations, Sunoco shall:

   a. In completing the surveys required by 1.a. above, maintain adequate records to demonstrate that the test stations listed in Item 2 of the Notice satisfy one or more criteria listed in SP 0169.

   b. Develop a written plan to remediate all deficiencies in cathodic protection identified from the survey in 1.a. This plan and the records required by 2.a. shall be provided to PHMSA within 60 days of completion of the survey for review. The plan shall prioritize any of the specific test stations in Item 2 that fail to meet criteria.

3. Sunoco shall complete the items above within 180 days of issuance of the Final Order.

4. 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.