Enbridge
5400 Westheimer Court
Houston. Texas 77056

April 4, 2019

Ms. Mary McDaniel
Director, Southwest Region
Pipeline and Hazardous Materials Safety Administration
8701 S. Gessner Road
Suite 900
Houston, TX 77074

**RE: Texas Eastern Transmission, LP Response**
**Notice of Probable Violation and Compliance Order**
**CPF 4-2019-1004**

Dear Ms. McDaniel,

From March 27, 2018 to December 13, 2018, representatives from the Pipeline Hazardous Material Safety Administration (PHMSA), Office of Pipeline Safety (OPS) performed an integrated inspection of the Texas Eastern Transmission, LP's (TETLP), a subsidiary of Enbridge, facilities in Texas, Louisiana, Arkansas, Illinois, Missouri, Indiana and Ohio.

On March 5, 2019, PHMSA issued the above reference Notice of Probable Violation (NOPV) and Proposed Compliance Order alleging five (5) violations of pipeline safety regulations. The following is a brief summary of PHMSA's findings and TETLP's response.

## PHMSA Finding

**1. §192.463 External Corrosion Control: Cathodic protection.**

Spectra failed to provide an adequate level of cathodic protection on the Mexico to Santa Fe (approximately 55.736 miles), and the Charco to End of Line (approximately 70 miles) pipelines to meet the applicable criteria contained in Appendix D of Part 192.

PHMSA reviewed the annual cathodic protection monitoring records for the Mexico to Santa Fe, and the Charco to End of Line pipelines for the calendar years 2015, 2016, 2017 and 2018. The records show that the Appendix D criteria was not met for three inspection cycles for several test points. The annual survey records show that IR free readings failed to meet the negative 850 mV "ON" criteria and Spectra did not apply any other Appendix D criteria to determine adequacy of cathodic protection for these two pipelines.

*Spectra's Standard Operating Procedure Number 2-2200 (12/19/2017), Section 3.0: -850 VDC "ON" Criterion states, "A negative (cathodic) potential of at least 0.850 V with the CP applied. This potential is measured with respect to a saturated copper/copper sulfate reference electrode contacting the electrolyte with the protective current applied. Voltage drops other than those across the structure-to-electrolyte boundary must be determined and appropriately compensated for valid interpretation of this voltage measurement."*

**TETLP Response**

TETLP acknowledges that certain test point readings on segments on Mexico to Santa Fe and Charco to End of Line did not meet the -.850 VDC "OFF" criterion as specified in 49 CFR 192 Appendix D(I)(A)(l) and TETLP's procedure for inspection cycles between 2015 and 2018.

TETLP had initiated remedial actions on these test points when the deficiencies were initially identified by TETLP's cathodic protection monitoring program. The remediation of inadequate cathodic protection is an iterative process of identifying low test points, remediating the low test points by various methods including groundbed replacements and pipe recoats; and conducting another test point survey or Close Interval Survey (CIS) to determine if the remedial actions corrected the deficiencies. This process is repeated again until the deficiencies are corrected. TETLP began performing remedial actions on the Mexico to Santa Fe and Charco to End of Line segments in 2016 to correct the inadequate cathodic protection on certain test points. This remedial action included the iterative process of installing groundbeds and recoats and subsequently performing CIS to identify locations with inadequate cathodic protection. The 2018 annual test point survey indicated a significant improvement adequate cathodic protection for most test points; however, there are some additional locations that still require additional remedial actions.

TETLP recognizes that 49 CFR 192.463(a), requires the level of cathodic protection to meet one or more of the applicable criteria contained in Appendix D. TETLP's procedure, SOP *2-2200, Application of Cathodic Protection Criteria,* states that "If acceptable levels of cathodic protection cannot be demonstrated by at least one of the criteria identified in the "Acceptable Criterion" sections below, take prompt remedial action to perform further testing and/or evaluations that result in adequate levels of cathodic protection." Section 2 - 4 of the procedure further identifies three (3) acceptance criteria (-.850 VDC "ON", -.850 VDC "OFF" and 100 mVDC Polarization), which are the same as specified in Appendix D.

TETLP plans to conduct a depolarization survey to demonstrate that these deficient test points meet the 100 mVDC polarization criterion as specified in Appendix D and TETLP's procedure.

**PHMSA Finding**

**2. §192.706 Transmission Lines: Leakage surveys.**

Spectra failed to conduct leakage surveys using leak detector equipment in a Class 3 location on Line 16 at intervals not exceeding 7½ months, but at least twice each calendar year.

During the April 2017 Class location survey, Spectra identified an increased number of trailers and other structures near their Line 16 (between station 1392+27 and 1430+15). The increased number of structures resulted in a reclassification of the Line from a Class 2 to a Class 3 location; however, Spectra did not adjust the leak survey frequency based on this Class location change.

Although Spectra was aware of the newly identified Class location upgrade in April of 2017, the company failed to include this section of pipeline for the leakage survey in September 2017. Further review revealed that this section of the pipeline was not leak surveyed until March 7, 2018. In the event such surveys were performed, the operator could not provide records of the inspection as required by §192.709(c) by failing to maintain the record of a survey required by the regulations.

**TETLP Response**

TETLP acknowledges it did not adjust the leak survey frequency following a change in Class location on Line 16 (between station 1392+27 and 1430+15).

TETLP recognizes process improvements were needed to TETLP's Class location survey program to ensure field personnel are immediately notified following a change in Class location. TETLP has implemented a work management process in SAP to generate a work order task that will notify the Area Management of a new Class 3 and 4 locations and create a task to perform leak surveys.

**PHMSA Finding**

**3. §192.911 What are the elements of an integrity management program?**

Spectra failed to follow their written Integrity Management Plan, Section 10, Rev 7 to complete a performance analysis. Spectra failed to analyze the results for 1.) satisfactory performance, 2,) failed to recommend changes to improve the integrity management program and 3.) failed to perform internal/external audits to review overall functioning of IMP performance.

1.) While reviewing the 2016 Annual Pipeline Integrity Performance Evaluation Report, PHMSA learned that Spectra failed to analyze the results from each Region for

satisfactory performance on a business unit by business unit basis as described in their IMP, Section 10.5.4.2.

*Spectra's IMP, Section 10.5.4.2: Performance Analysis states "The Pipeline Operational Risk Management Committee (PORMC) will analyze the results from each Region for satisfactory performance on a business unit by business unit basis. The analysis will include a determination whether specific results for each metric were achieved or not an identification of favorable or unfavorable trends that might be developing. The PORMC will make an overall Program performance evaluation and distribute these results in accordance with the Company's Internal Communications Plan."*

2.) Spectra's 2016 Annual Pipeline Integrity Performance Evaluation Report failed to provide Program Enhancements based on multilevel review. Spectra failed to document recommended program changes or corrective actions to improve IMP or monitored effectiveness of their implementation.

*Spectra's IMP, Section 10.5.5.1: Developing Improvements states, "The PORMC will utilize results from its analysis to identify specific Program performance improvements. These improvements may be the result of exceptional performance achieved by a particular Region relative to one or more metrics or unsatisfactory performance on a similar scale. The PORMC analysis may identify the need for improvements in the Program, procedure, guideline or specification. The MOC process controls changes to procedure, guideline or specification."*

3.) Spectra failed to perform an internal audit of the IMP during 2017. Spectra provided a draft copy of the 2016 annual Pipeline Integrity Performance Evaluation report which is deemed inadequate by the PHMSA inspection team. Further, as of today Spectra has not commissioned an external audit team to review the overall functioning of the Company's IMP and as a result no external audit was performed as required by their own procedure.

*Spectra's IMP, Section 10.5.6.1: Internal Audits states, "The Director, Pipeline Integrity (Houston), will initiate an annual internal audit of the IMP. The audit team will forward its audit results to the Vice President, Transportation Services within ninety days of completing the audit. Internal audits are not required in those years' external audit occur."*

*Spectra's IMP, Section 10.5.6.2: External Audits states, "At intervals not to exceed three years, the Vice President, Transmission Services will commission an external audit team to review the overall functioning of the Company's IMP. The audit will review results for the lesser of the three pervious calendar years and the previous external audit. The audit team will forward its audit results to the Vice President, Transmission within thirty days of the completing its audit work."*

**TETLP Response**

TETLP takes compliance with our Integrity Management Program (IMP) very seriously and assures the application of IMP practices are consistent and executed through the Pipeline Operational Risk Management Committee (PORMC) which comprises of subject matter experts from technical areas within the company. The PORMC meets on a semi-annual basis to communicate the requirements of the IMP, promote continuity and quality assurance of the physical implementation, monitor and evaluate performance of the plan and bring forward opportunities for improvement.

The 2016 Annual Pipeline Integrity Performance Evaluation Report was completed for the company and the results were analyzed by the PORMC. However, TETLP acknowledges that the 2016 Annual Pipeline Integrity Performance Evaluation report was not parsed to include a specific evaluation for each business unit. TETLP recognizes that process improvements can be made to the PORMC meeting summary to better document the details of the meeting and the results of the performance analysis. TETLP will make the necessary improvements to the review performed by the PORMC to ensure that the review identifies specific program performance improvements; determine the need for improvements in the program, procedures, guidelines or specifications; and provide program enhancements based on multilevel review as specified in the Compliance Order.

TETLP initiated an external audit of TETLP's IMP in October, 2018 to review the overall functioning of the IMP. An internal audit is scheduled to commence in April, 2019. In addition, TETLP has made revisions to its IMP to now require the Director of Pipeline Integrity to commission internal and external audits as needed.

It is important to note that there was no increased integrity risk to the pipeline as a result of performing the 2016 Annual Pipeline Integrity Performance Evaluation on a broader basis, or by not performing an audit on the IMP. Integrity management was an essential element of all work and evaluative activities.

**PHMSA Finding**

**4. §192.917 How does an operator identify potential threats to pipeline integrity and use the threat identification in its integrity program?**

Spectra failed to follow their written Integrity Management Plan, Section 13, Rev 7 by failing to gather, integrate existing data and validate the result of risk rankings as required by§192.917.

*Spectra's IMP, Section 13.2 states the first step in performing a risk assessment is to identify which threat(s) exist within a covered segment. A review of each new or expanded HCA that*

*identifies any HCA segments susceptible to any of the threats occurs once each calendar year, as part of the annual IMP update process.*

*Spectra's IMP, Section 13.3 states, "The next step in the Risk Assessment process is to determine the relative risk level for all threats identified in a covered segment. All nine threats identified in B31.8S use an algorithm based on failure likelihood to determine the relative risk level. Within each failure likelihood algorithm, each threat is assigned a weighting that is based on its expected contribution to the overall failure susceptibility. The Company refers to its Risk Algorithm Document (RAD) that defines the algorithms for each threat in more detail. This section provides a high level overview of the risk evaluation for each threat."*

PHMSA inspectors reviewed Risk Algorithm Document (RAD), section 2.1: External Corrosion states, "There are two different methodologies employed in the calculation of external corrosion scores. Method 1 is used when there is no in-line inspection data available for the pipeline segment. Method 2 is used where in-line inspection data is available for the pipeline segment."

The PHMSA inspectors reviewed 2016 HCA risk ranking (run date: March 3, 2017) and selected HCA #7-00955L (DONA – NLRK segment) with a risk ranking of 34 and HCA #7-00955 (DONA – NLRK segment) with a risk ranking of 270 for further review.

Spectra stated that HCA #7-00955 was last assessed by in-line inspection (MFL/Deformation) in 2012 and Spectra did not use Method 2 to calculate external corrosion threat.

PHMSA inspectors further reviewed Spectra's External Corrosion (EC), Internal Corrosion (IC), Third Party Damage (TPD), and Construction Threat failure likelihood score on HCA #7-00955 and #7-00955L. Spectra could not explain risk calculations in their risk model, for example:

- External Corrosion: Spectra did not consider coating age factor of 10 for 1950 vintage pipe. Coating age is weighted 10% of baseline susceptible score;
- Internal Corrosion: Spectra indicated that they are in process of inputting data into the Risk Model and run the analysis related to internal corrosion threat;
- Third Party Damage Threat: The Modeled Impact Frequency Score ("F in the Hit Susceptibility Equation) (1-10) is not consistent with Risk Algorithm Document (RAD), section 2.3. Spectra has not performed depth of cover survey for 1950 vintage pipeline and selected 2.99 feet of cover by default; and
- The risk score calculation spreadsheet provided for Construction threat is not consistent with Risk Algorithm Document (RAD). Spectra failed to integrate the data into RAD.

Spectra failed to correct errors in the input data of the Risk Model. Spectra's SMEs did not complete the review of Risk Model output data and did not validate the risk rankings consistent with §192.917.

**TETLP Response**

TETLP acknowledges that the methodologies employed in the calculation of external corrosion, internal corrosion, third party and construction threat failure likelihood scores for HCA #7-00955L and HCA #7-00955 did not validate the risk rankings consistent with TETLP's Risk Algorithm Document (RAD) and §192.917.

TETLP recognizes that process improvements are needed to ensure the data for TETLP's Risk Model is accurate and has since been actively engaged in the development of our risk algorithm and data to support our risk model. TETLP believes this ongoing effort will continually improve the data quality and completeness.

The process improvement for the data gathering, integration and risk assessment to ensure the Risk Model is accurate for all pipelines is very complex requiring a significant amount of time and effort to test and validate the Risk Model to ensure that it is accurate. To fully address this issue, TETLP respectfully requests an extension of the timeframe in the Compliance Order. TETLP is committed to completing this effort by December, 2020.

**PHMSA Finding**

**5. §192.935 What additional preventive and mitigative measures must an operator take?**

Spectra did not identify and take additional preventative and mitigative (P&M) measures to mitigate the consequences of a pipeline failure in a High Consequence Area (HCA) as required by §192.935.

During the inspection, Spectra provided a technical documentation to define the company's methodology for determining the location of remote control valves (RCV) for the purpose of improving response time and minimizing consequences of pipeline emergencies. This methodology is applicable to both existing facilities and new construction as well as applies to both covered and non-covered segments.

When the PHMSA inspector requested to review the finalized list of the RCV site candidates, it was found that Spectra considered and addressed only the Priority 1 RCV selection criteria. According to Spectra's methodology for selection of RCV sites, Priority 1 is valve sites isolating Class 3 or High Consequence Area (HCA) with a response time greater than 2 hours. Spectra failed to provide documentation showing they conducted analysis that considers swiftness of leak detection and pipe shutdown capabilities, the types of gas being

transported, operating pressure, the rate of potential release, pipeline profile and the potential for ignition. In addition, Spectra did not consider the factors beyond immediate injury such as: prolonged flame exposure to emergency responders and public, danger to people caught in difficult to evacuate areas, impact on key transportation corridors, and the risk of wildfires.

**TETLP Response**

TETLP performed an analysis that considers swiftness of leak detection and pipe shutdown capabilities, the type of gas being transported, operating pressure, the rate of potential release, pipeline profile and the potential for ignition, however, TETLP acknowledges it was unable to provide adequate documentation to demonstrate that these factors were taken into consideration.

TETLP recognizes that improvements can be made to the methodology for determining the location of remote control valves (RCV) and will initiate an evaluation/risk analysis of its pipelines to determine if RCVs would be an appropriate means of adding protection in High Consequence Areas (HCA).

TETLP will enhance its existing methodology as necessary and continue to conduct the evaluation of its pipelines to determine if ASV or RCV would be an adequate means to mitigate the consequence of a pipeline failure.

TETLP does not intend to contest the NOPV findings and is paying the proposed civil penalty of $75,600 in accordance with the Response Options attached to the NOPV. TETLP also does not intend to contest the Proposed Compliance Order, and will begin the specified actions. TETLP respectfully requests an extension of the timeframe specified in the Compliance Order for Item 4 to December 2020.

TETLP takes these issues very seriously, and we are committed to addressing these issues in an expeditious manner.

Please call me at (713) 627-5008 if you need additional information.

Sincerely,

Nathan Atanu
Supervisor, Operational Compliance