May 3, 2016

VIA CERTIFIED MAIL AND FAX TO:

Mr. J. Andrew Drake
Vice President, Operations and Emergency, Health & Safety
Spectra Energy Corp
5400 Westheimer Court
Houston, TX 77056

Re: CPF No. 1-2016-1004H

Dear Mr. Drake:

Enclosed is a Corrective Action Order issued in the above-referenced case to your subsidiary, Texas Eastern Transmission, LP, to take certain corrective actions with respect to the Delmont Compressor Station pipeline section of Texas Eastern Transmission, LP's Penn Jersey System that failed on April 29, 2016, near Delmont, Pennsylvania. Service is being made by certified mail and facsimile. Service of the Corrective Action Order by electronic transmission is deemed complete upon transmission and acknowledgement of receipt, or as otherwise provided under 49 C.F.R. § 190.5. The terms and conditions of this Order are effective upon completion of service.

Thank you for your cooperation in this matter.

Sincerely,

Alan Mayberry
Acting Associate Administrator
for Pipeline Safety

Enclosure

cc: Ms. Linda Daugherty, Deputy Associate Administrator for Field Operations, OPS
Mr. Byron Coy, P.E., Director, Eastern Region, OPS

U.S. DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
OFFICE OF PIPELINE SAFETY
WASHINGTON, D.C. 20590

In the Matter of	)	
Texas Eastern Transmission, LP,	)	**CPF No. 1-2016-1004H**
a subsidiary of Spectra Energy Corp,	)	
Respondent.	)	

CORRECTIVE ACTION ORDER

Purpose and Background:

This Corrective Action Order (Order) is being issued, under the authority of 49 U.S.C. § 60112, to require Texas Eastern Transmission, LP (TET or Respondent), to take the necessary corrective action to protect the public, property, and the environment from potential hazards associated with the recent gas transmission pipeline failure on TET's Penn Jersey System (PJS).

On April 29, 2016, a reportable accident occurred on Line 27 of the PJS, resulting in the release of an as-yet-undetermined quantity of natural gas which ignited, destroying one home and causing severe injuries to one individual (Failure). The PJS transports natural gas from the discharge of the Delmont Compressor Station near Delmont, Pennsylvania, to Lambertville, New Jersey, a distance of approximately 263 miles. Near the site of the Failure, the PJS consists of four pipelines (Lines 12, 19, 27, and 28) between 24 and 36 inches in diameter. The cause of the Failure has not yet been determined. Pursuant to 49 U.S.C. § 60117, the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), initiated an investigation of the accident. The preliminary findings of the ongoing investigation are as follows.

Preliminary Findings:

- Texas Eastern Transmission, LP (TET), is a limited partnership subsidiary of Spectra Energy Corp (Spectra). TET operates approximately 9096 miles of natural gas

transmission pipeline and approximately 74 Bcf of natural gas storage capacity in the eastern United States.[1]

- The failed pipeline (Line 27) is a 30-inch diameter line that transports natural gas from the discharge of the Delmont, Pennsylvania Compressor Station, to Lambertville, New Jersey, and is one of four PJS pipelines near the scene of the incident (collectively the Affected Segment). Three of the lines, including Line 27, share a single right-of-way from Delmont to Lambertville, for a total distance of 263 miles. A fourth line is a 6.8 -mile loop line that begins at the Delmont Station discharge. The Failure occurred near milepost 2.0621 east of Delmont, Pennsylvania (Failure Site). At the Failure Site, the distances between each of the four lines range approximately from 25 to 28 feet. All four lines of the Affected Segment are linked with crossover interconnects; accordingly, pressure is usually equal across all four lines.

- Line 27 was constructed in 1981. The portion of Line 27 near the Failure Site consists of 0.404-inch wall thickness, X65 grade double submerged arc -welded pipe, manufactured by US Steel.

- Line 27 is coated with Fusion Bond Epoxy (FBE), with tape-coat coating at girth weld joints.

- The Affected Segment has a Maximum Allowable Operating Pressure (MAOP) of 1050 psig, as measured by a pressure transducer on the discharge header at the Delmont Compressor Station, established by hydrostatic testing in 1981. TET initially reported that the line pressure was approximately 1039 psig immediately prior to the Failure.

- Prior to the Failure, three of the four lines (Lines 19, 27, and 28) on the PJS, including the Affected Segment, were in normal operating status with gas flowing north on the system. The fourth line (Line 12) had been taken out of service days prior to the incident and blown down for maintenance work.

- The Failure occurred at approximately 8:13 a.m. EST on April 29, 2016. At that time, TET personnel located at the Delmont Compressor Station heard a loud explosion and the sound of natural gas being released from an undetermined location. The Failure resulted in the release of an as-yet-undetermined quantity of natural gas, which ignited, producing a crater approximately 30 feet wide, 50 feet in length, and 12 feet deep and a burn zone of approximately ¼ mile radius. The explosion resulted in the ejection of approximately 24.5 feet of 30-inch pipe, which landed approximately 100 feet from the rupture site. The Failure occurred in a rural class 1 area. The Failure was reported to the National Response Center (NRC Report No. 1146495) on April 29, 2016, at approximately 9:15 EST.

[1] http://www.spectraenergy.com/Operations/US-Natural-Gas-Operations/US-Pipelines/Texas-Eastern-Transmission/ (last accessed May 3, 2016).

- The TET personnel contacted Spectra's Pipeline Control Center (PCC) located in Houston, Texas, to alert them to the situation. PCC personnel observed a pressure drop on the four pipelines on the discharge side of the Delmont Compressor Station and ordered a complete shutdown of all pipelines. TET personnel were dispatched to begin closing mainline block valves within the Delmont Compressor Station to isolate the lines. As a result of the valve closures, TET personnel identified Line 27 as the failed pipeline. Direct observations were made in the field and confirmed that the Failure had occurred on Line 27. The Affected Segment is currently shut-in and isolated between the Delmont Compressor Station at MP 0.41 and the Conemaugh River Valves at MP 15.45. The Affected Segment was shut-in after the Failure by closing main line valve MLV 27-263 and crossover valves 27-917 and 27-273 downstream of the Failure Site at the Conemaugh River Valves and at the Delmont Compressor Station mainline valve MLV 27-289 upstream of the Failure Site.

- PHMSA, along with various state and local emergency responders responded to the scene on the day of the Failure. A third-party metallurgist (DNV GL), contracted by Spectra, was also at the scene of the Failure later the same day.

- The cause of the Failure is unknown at this time, and the investigation is ongoing. The failed pipe section is being transported to an independent metallurgist for examination and failure analysis. The preliminary investigation has identified evidence of corrosion along two of the circumferential welds: one at the point of failure and another excavated after PHMSA's response to the Failure Site. The pattern of corrosion indicates a possible flaw in the coating material applied to girth weld joints following construction welding procedures in the field at that time. Line 27 and the other three lines of the Affected Segment remain shut-in and out of service pending integrity assessment.

- The incident caused one known injury to a man residing near the Failure Site, with third-degree burns over 75% of his body. The injured person was admitted to a local hospital for treatment.

- Emergency responders evacuated nine homes in the area and closed nearby roads, including Route 819. Three homes within a quarter mile of the Failure Site received external damage due to the radiant heat from the fire and one home was destroyed. The fire burned an area approximately one -quarter of a mile in radius, burning trees and vegetation. Beaver Run Creek near the Failure Site was not impacted. The other three lines of the Affected Segment running in the same right-of-way as Line 27 were not exposed by the explosion.

- Recent in-line inspections (ILI) of Line 27 occurred in 2005 and 2012, using high-resolution magnetic flux leakage (MFL) and inertial measurement unit (IMU) tools.

Determination of Necessity for Corrective Action Order and Right to Hearing:

Section 60112 of Title 49, United States Code, provides for the issuance of a Corrective Action Order, after reasonable notice and the opportunity for a hearing, requiring corrective action, which may include the suspended or restricted use of a pipeline facility, physical inspection,

testing, repair, replacement, or other action, as appropriate. The basis for making the determination that a pipeline facility is or would be hazardous, requiring corrective action, is set forth both in the above-referenced statute and 49 C.F.R. § 190.233, a copy of which is enclosed.

Section 60112 and the regulations promulgated thereunder provide for the issuance of a Corrective Action Order, without prior notice and opportunity for hearing, upon a finding that failure to issue the Order expeditiously would result in the likelihood of serious harm to life, property, or the environment. In such cases, an opportunity for a hearing and expedited review will be provided as soon as practicable after the issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that continued operation of the Affected Segment without corrective measures is or would be hazardous to life, property, or the environment. In addition to the failed Line 27, there are three other lines in the Affected Segment that could potentially have been affected by the Failure and that, accordingly, should not be restarted without further investigation. Having considered the uncertainties of the cause of the Failure, the location of the Failure, and the great risk of fire to the environment and populated areas in the vicinity of the Affected Segment, I find that a failure to issue this Order expeditiously to require immediate corrective action would result in the likelihood of serious harm to life, property, or the environment.

Accordingly, this Order mandating immediate corrective action is issued without prior notice and opportunity for a hearing. The terms and conditions of this Order are effective upon receipt.

Within 10 days of receipt of this Order, Respondent may contest its issuance and obtain expedited review either by answering in writing or requesting a hearing under 49 C.F.R. § 190.211, to be held as soon as practicable under the terms of such regulation, by notifying the Associate Administrator for Pipeline Safety in writing, with a copy to the Director, Eastern Region, PHMSA (Region Director). If Respondent requests a hearing, it will be held telephonically or in-person in Trenton, New Jersey, or Washington, D.C.

After receiving and analyzing additional data in the course of this investigation, PHMSA may identify other corrective measures that need to be taken on the Affected Segment or other pipelines in the PSJ. In that event, PHMSA will notify Respondent of any additional measures that are required and an amended Order will be issued, if necessary. To the extent consistent with safety, Respondent will be afforded notice and an opportunity for a hearing prior to the imposition of any additional corrective measures.

Required Corrective Actions:

Pursuant to 49 U.S.C. § 60112, I hereby order Texas Eastern Transmission, LP to immediately take the following corrective actions for the Affected Segment:

1. *Assessment, Remediation and Restart Plans.* Prior to resuming operation of the section of the PJS running between the Delmont Compressor Station at MP 0.41 and the Conemaugh River Valves at MP 15.45, develop and submit written assessment, remediation and re-start plans for prior approval by the Region Director, PHMSA. The plans must include:

(A) Procedures for the exposure, testing, and repair of Line 27:

i. Exposure of Line 27 extending for at least two girth welds on either side of the Failure Site to examine for corrosion, coating condition, concussive damage, and thermally -impacted areas. If damage to the exposed pipe is discovered, additional pipe must be exposed until at least ten feet of undamaged pipe is exposed and examined. Perform safe operating -pressure calculations and remediation for any pits or other forms of anomalies found, using engineering permanent repair methods and design factors based upon 49 C.F.R. §§ 192.713 and 192.111 and using ASME/ANSI B31G or R-STRENG methods. Repair or replace pipe or coating, as necessary. Upon completion of pipe replacement and repairs, ensure proper backfill and protection from stones and rocks, pursuant to procedures developed under this Order;

ii. Establishment of adequate cathodic protection for the area where the Failure occurred. Replace any damaged rectifier(s) and establish a permanent electrical test station with an above-grade test point in a protected location. Once backfill and land settling have occurred, ensure pipe-to-soil readings are within applicable criteria; and

iii. Development of additional requirements for remediation and the eventual restart for Line 27 as the investigation yields more information about the cause of the Failure and the condition of the Affected Segment.

(B) Procedures for the exposure, examination, remediation, and restart of Lines 12, 19, and 28:

i. Development of assessment, remediation, and restart plans that are aligned with the criteria show immediately below;

ii. Exposure of Lines 12, 19, and 28, extending for at least two girth welds in both directions from the Failure location. Examine the girth welds and pipeline coating materials for damage caused by thermal and concussive forces. Continue a broader exposure of each line if associated damage is discovered, until 10 feet of undamaged pipe is reached and verified. Any needed repairs are to be guided by established Spectra procedures and safe operating -pressure calculations and remediation for any pits or other forms of anomalies found, using engineering permanent repair methods and design factors based upon 49 C.F.R. §§ 192.713 and 192.111 and using ASME/ANSI B31G or R-STRENG methods. Repair or replace pipe or coating, as necessary. Upon completion of pipe replacement and repairs, ensure proper backfill and protection from stones and rocks, all pursuant to Spectra's established procedures;

iii. Restarts for each individual line in pressure increments, at 25%, 50%, and 80%, to be held for at least one hour after pressure stabilization. After reaching 80% pressure, Respondent must obtain specific individual written approval from the Region Director to increase pressure to pre-Failure normal pressure. Respondent

must obtain separate approval for each pipe (Lines 12, 19, and 28) before increasing pressure to the final normal operating pressure; and

iv. A ground-level, hydrogen flame ionization (HFI) leak survey on Lines 12, 19, and 28, for a distance of two miles in both directions from the Failure Site. Investigate any elevated readings and make all appropriate repairs.

2. *Testing and Failure Analysis.* Within 30 days of receipt of this Order, complete mechanical and metallurgical testing and failure analysis of the failed pipe, including analysis of soil samples and any foreign materials. The testing and analysis shall be completed as follows:

   (A) Document the chain-of-custody when handling and transporting the failed pipe section and other evidence from the Failure Site;

   (B) Utilize the mechanical and metallurgical testing protocols, including the testing laboratory approved by the Region Director;

   (C) Prior to commencing the mechanical and metallurgical testing, provide the Region Director with the scheduled date, time, and location of the testing to allow a PHMSA representative to witness the testing; and

   (D) Ensure that the testing laboratory distributes all resulting reports in their entirety (including all media), whether draft or final, to the Region Director at the same time as they are made available to Respondent.

3. *Availability of Prior ILI Assessments.* Make any results or information received from the ILI tool runs performed in 2005 and 2012 on the Affected Segment, including information obtained from any resulting excavations and all associated re-coats and repairs, available to PHMSA or its representative in their entirety (including all media). Within 60 days of determining whether any anomalies were present that could have contributed to the Line 27 Failure and whether any other anomalies of a similar magnitude are present elsewhere in Lines 12, 19, 27, or 28 in the Affected Segment. Make the results of this analysis available to PHMSA.

4. *Incorporation by Reference.* The work plans will be incorporated into this Order and shall be revised as necessary when additional information becomes available which may influence changes. Submit any such plan revisions to the Region Director for prior approval. The Region Director may approve plan elements incrementally.

5. *Implementation of Work Plans.* Implement the work plans as approved by the Region Director, including any revisions to the work plan.

Other Requirements:

6. *Reporting.* Submit monthly reports to the Region Director that: (1) include all available data and results of the testing and evaluations required by this Order; and (2) describe the progress of the repairs or other remedial actions being undertaken. The first monthly report for the

period April 29 through May 31 is due on June 10, 2016. The Region Director may change the interval for the submission of these reports.

7. *Documentation of Costs.* It is requested but not required that Respondent maintain documentation of the costs associated with implementation of this Order. Include in each monthly report the to-date total costs associated with: (1) preparation and revision of procedures, studies and analyses; (2) physical changes to pipeline infrastructure, including repairs, replacements and other modifications; and (3) environmental remediation, if applicable.

8. *Approvals.* With respect to each submission requiring the approval of the Region Director, the Region Director may: (a) approve the submission in whole or in part; (b) approve the submission on specified conditions; (c) modify the submission to cure any deficiencies; (d) disapprove the submission in whole or in part and direct Respondent to modify the submission; or (e) any combination of the above. In the event of approval, approval upon conditions, or modification by the Region Director, Respondent shall proceed to take all action required by the submission, as approved or modified by the Region Director. If the Region Director disapproves all or any portion of a submission, Respondent must correct all deficiencies within the time specified by the Region Director and resubmit it for approval.

9. *Extensions of Time.* The Region Director may grant an extension of time for compliance with any of the terms of this Order upon a written request timely submitted and demonstrating good cause for an extension.

The actions required by this Order are in addition to and do not waive any requirements that apply to Respondent's pipeline system under 49 C.F.R. Part 192, under any other order issued to Respondent under authority of 49 U.S.C. § 60101, *et seq*., or under any other provision of Federal or State law.

Respondent may appeal any decision of the Region Director to the Associate Administrator for Pipeline Safety. Decisions of the Associate Administrator shall be final.

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).

Failure to comply with this Order may result in the assessment of civil penalties and in referral to the Attorney General for appropriate relief in United States District Court pursuant to 49 U.S.C. § 60120.

In your correspondence on this matter, please refer to CPF No. 1-2016-1004H and for each document you submit, please provide a copy in electronic format whenever possible.

The terms and conditions of this Corrective Action Order are effective upon receipt.

_____ _____

Alan Mayberry
Acting Associate Administrator
for Pipeline Safety

Date Issued