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
PROPOSED CIVIL PENALTY
and
PROPOSED COMPLIANCE ORDER

OVERNIGHT EXPRESS DELIVERY

November 16, 2018

Mr. Alan S. Armstrong
President and Chief Executive Officer
Williams Companies, Inc.
One Williams Center
Tulsa, OK 74172

CPF 1-2018-1005

Dear Mr. Armstrong:

Beginning December 13-15, 2016, a representative of the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), pursuant to Chapter 601 of 49 United States Code (U.S.C.) conducted an investigation of an incident that occurred on December 12, 2016, at Transcontinental Gas Pipe Line Company's (Transco) compressor station 535 in Austin, Potter County, Pennsylvania (Station 535). Transco is a subsidiary of Williams Partners, LP.

Background

Station 535

Station 535, commissioned in 1964, contains five reciprocating compressor units and compresses natural gas from Transco's 24-inch transmission pipeline Line A (Line A) for injection into the Wharton Storage Field. Transmission-quality gas[1] is delivered to the station though Transco's Line A. It is then compressed and injected into the Wharton Storage Field. During withdrawal from Wharton Storage Field, the gas flows under storage-field pressures (no compression required) to

[1] Transmission-quality gas has less than seven pounds of water per million standard cubic feet of gas.

gas scrubbers, where trace liquid impurities are removed. The gas then continues on to Station 535's dehydration units, where additional water is removed. The product then re-enter Line A as transmission-quality gas. Station 535 also provides delivery to National Fuel Gas Company's Metering and Regulation (M&R) station through the 12-inch Wharton Extension (2 miles long, installed 1963) and delivery to Penn Gas North M&R station through the 16-inch Wharton Loop (2 miles long, installed 1990).

2015 Incident

On November 24, 2015, Transco reported a leak (NRC #1134223) on a "dead-leg"[2] section of piping located on the 20-inch header/regen piping within the dehydration unit (2015 Incident). On the Incident Report, Transco noted that the cause of the leak was internal corrosion due to microbes. The Incident report also noted that Transco did not routinely utilize corrosion coupons on this part of Station 535, identifying them as "not applicable" because it was "not mainline pipeline." In addition, the Incident Report noted that the facility was shut down for 14 days for repairs and the cost of the damage was approximately $224,528.

Transco conducted an investigation of the 2015 Incident and ultimately issued a report titled, *Preliminary Internal Corrosion Threat Assessment for Station 535 (Wharton)* (Preliminary Report) on October 5, 2016. The Preliminary Report acknowledged that "the potential for wet gas does exist under withdrawal" and stated that there were no standard physical internal corrosion surveillance devices, such as corrosion weight-loss "coupons," in place at the station to provide data to address the magnitude of the corrosion threat.

2016 Failure

On December 12, 2016, at 15:07 hours, Transco reported an incident at Station 535. The incident resulted in an explosion and fire that severely damaged a portion of the facility and station piping in the vicinity of the station's dehydration units, resulting in an estimated $15,000,000 in damage to the facility (2016 Failure). The rupture occurred on the 20-inch-diameter inlet header/regen piping to the dehydration units located within the station yard – only 80 feet from the 2015 Incident location. As a result of the investigation conducted by PHMSA and supporting material provided in the metallurgical analysis report provided to Transco by Element Materials Technology (EHO), the root cause of the failure was determined to be internal corrosion caused by salt water produced from the Wharton Storage Field during gas withdrawal.

As a result of its investigation, PHMSA alleges that you have committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations (CFR). The items inspected and the probable violations are as follows:

1. **§ 192.475 Internal corrosion control: General**

   (a) Corrosive gas may not be transported by pipeline, unless the corrosive effect of the gas on the pipeline has been investigated and steps have been taken to minimize internal corrosion.

[2] A "dead leg" is a section of a pipeline system (*i.e.* piping, tubing, etc.) that does not, rarely or intermittently sees process flow. The fluid in the system becomes stagnant and can cause contamination or accelerated corrosion.

Transco violated § 192.475 by transporting corrosive gas without investigating the possibility of corrosive effect of the gas on Station 535 and taking steps to minimize internal corrosion. Specifically, Transco failed to investigate the corrosive effects of the natural gas withdrawn from the Wharton Storage Field on its Station 535 and failed to take steps to minimize internal corrosion.

Section 192.475 requires that gas pipeline operators protect their facilities against the threat of internal corrosion, which can cause a steel pipeline to deteriorate and ultimately fail, as occurred in this case. Internal corrosion occurs due to chemical attack on the interior surface of the steel pipe from the commodities being transported. In some cases, the corrosive liquids may be contaminants such as water or other chemicals entrained or suspended within the commodity being transported. Typically, either the commodity's quality is controlled, internal coatings are applied, or corrosion inhibitors utilized to prevent internal corrosion. When one or more of these protective measures break down, internal corrosion can occur.[3]

During its investigation of the 2016 Failure, PHMSA conducted interviews, examined the accident site, photographed the accident location, and reviewed operating, maintenance, corrosion control, and inspection records applicable to the 2016 Failure. PHMSA's inspection revealed that Transco has transported corrosive gas from the Wharton Storage Field for years without investigating the corrosive effects of the corrosive gas on the pipeline. Specifically, PHMSA's inspection discovered the following:

- On November 24, 2015, Transco reported a leak (NRC #1134223) on a "dead-leg"[4] section of piping on the 20-inch header/regen piping (2015 Incident), approximately 80-feet from where the December 12, 2016 rupture occurred. The 2015 Incident report noted that the cause of the leak was internal corrosion due to microbes.
- Transco conducted an investigation of the 2015 Incident and ultimately issued a Preliminary Report on October 5, 2016. The Preliminary Report acknowledged that "the potential for wet gas does exist under withdrawal" and stated that there were no standard physical internal corrosion surveillance devices, such as corrosion weight-loss "coupons," in place at the station to provide data to address the magnitude of the corrosion threat. It went on to state that "Mechanical Integrity assessments were postponed for 2016. Ensure they are on schedule for 2017 and that a close look is given to this 207-foot section of piping from the National Fuel Gas Transmission (NFG) custody point up to the dehydration units." The NFG custody point is the physical location between NFG's facilities and Transco's facilities where ownership is transferred.
- According to statements by Transco personnel during PHMSA's investigation, no internal corrosion coupons had ever been installed at the compressor station prior to, or after, the 2015 Incident, and no fluid samples have ever been collected and tested to monitor for internal corrosion.

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[3] PHMSA Fact Sheet: Internal Corrosion, available at https://primis.phmsa.dot.gov/comm/FactSheets/FSInternalCorrosion.htm (last accessed July 18, 2018).

[4] A "dead leg" is a section of a pipeline system (*i.e.* piping, tubing, etc.) that does not, rarely or intermittently sees process flow. The fluid in the system becomes stagnant and can cause contamination or accelerated corrosion.

- An internal corrosion plan for Station 535 has never been developed.
- Information outlined in the Preliminary Report shows elevated moisture levels in the gas stream during withdrawal from the Wharton Storage Field; however, no internal corrosion monitoring program was implemented at the station prior to, or after, the 2015 Incident.

Even though Transco used a separator and dehydration units, which is an acknowledgment that Transco knew wet gas was present in the system, Transco could not provide any information indicating that an investigation of the corrosive effects of the Wharton Storage gas was ever completed prior to the 2015 Incident. And though Transco had a reportable leak due to internal corrosion in 2015, Transco continued to transport gas without investigating the effects of corrosive gas. The lack of liquid sampling, gas sampling, internal-corrosion surveillance tools, or any other means of detecting the threat of internal corrosion, combined with the two internal-corrosion leaks/failures, supports the conclusion that the corrosive effects were not investigated and that steps to minimize internal corrosion were not taken.

Therefore, Transco transported corrosive gas without investigating the corrosive effects of the gas on the pipeline and without taking steps to minimize internal corrosion,[5] in violation of § 192.475(a).

2. **§ 192.605 Procedural manual for operations, maintenance, and emergencies.**

   (a) *General.* Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least one each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted.

Transco violated 49 C.F.R. § 192.605(a) by failing to follow its own manual of written procedures for conducting normal operations and maintenance activities. Specifically, Transco failed to follow its procedures for taking appropriate steps within one year of the date of the 2015 Incident to minimize internal corrosion when internal corrosion is found in its pipeline system, in accordance with § 192.475(b)(3).

Section 192.475(b)(3) states:

> (b) Whenever any pipe is removed from a pipeline for any reason, the internal surface must be inspected for evidence of corrosion. If internal corrosion is found-

[5] Transco was recently cited for a similar violation of 49 C.F.R. § 192.475(a), for failing to investigate the corrosive effects of the gas being transported between storage caverns and onsite dehydration plants in Seminary, Mississippi. *See In the Matter of Transcontinental Pipeline Company, LLC,* [CPF 2-2017-1002], issued October 31, 2017.

(1) …

(3) Steps must be taken to minimize the internal corrosion.

During the investigation, the PHMSA inspector reviewed Transco's *20.11.01 Internal Corrosion Inspections - WilSOP Operations and Maintenance Manual*, dated 1/30/2013 *(Procedure*). The introduction of the *Procedure* states that the company's policy is to:

> 1. Ensures[sic] that Williams performs actions as described in this policy in order to identify, assess, and mitigate internal corrosion that is occurring within the Company pipeline system and associated facilities…
>
> 3. Investigate the adjacent pipe if evidence of corrosion is found, to determine the extent of the internal corrosion…
>
> 7. Take prompt remedial action as outlined in this procedure when internal corrosion is identified.

Additionally, Section 4.4 of the *Procedure* requires that Transco "[I]nitiate the remedial action in a time frame that is considered to be as soon as practical while also being cautious. The remedial action must be performed within a period not to exceed 1 year, which includes time to evaluate the data and determine an appropriate course of action."

During the investigation of the 2016 Failure, Transco personnel stated that the remediation of the November 24, 2015 leak consisted of the removal and replacement of approximately 11 feet of 20-inch-diameter header/regen piping to the dehydration units and the removal of old regulator piping no longer in use in the vicinity of the leak. The internal pipe surface on the open ends of the pipe remaining in the system was visually inspected, with no additional internal corrosion observed. Additional examinations/testing beyond the open pipe ends were not performed. According to information gathered during the investigation, Transco was aware of additional locations where fluids and debris could collect in the system causing internal corrosion ("dead legs"), and a project was planned for 2016 to investigate these locations for internal corrosion.

On October 5, 2016, Transco issued its Preliminary Report, which outlined the mechanical integrity work that needed to be performed at the station to assess the internal-corrosion threat. The Preliminary Report confirmed that "No mechanical integrity work has been done on the 207 feet of the 20" diameter withdrawal piping or the associated dehydration equipment" and emphasized the importance to "focus on any discovered dead leg sections of the processing piping." According to Transco personnel, implementation of the mechanical integrity assessment was originally planned for 2016 but was postponed until 2017 to coincide with a planned integrity assessment of Station 535's below-ground piping and vessels. The Preliminary Report also recommended further sampling and testing at the facility to determine the extent of the internal corrosion threat. Neither the proposed implementation of a mechanical integrity assessment nor the further sampling and testing to determine the extent of the internal corrosion threat were conducted prior to the 2016 Failure.

Transco' *Incident Investigation Report – Transco Station 535 – December 12, 2016 – Yard Piping Rupture*, dated May 23, 2017, stated that "…the recommendation to have 'a close look at this 207-foot section of piping (20" header/regen piping) from the NFG custody point up to the dehydration

units,' as outlined in the Preliminary Internal Corrosion Threat Assessment for Station 535 report, would have encompassed the pipe that ruptured and likely prevented the incident."

Therefore, Transco failed to determine the extent of the internal corrosion, and perform remedial action within one year following its November 24, 2015 internal corrosion leak at Station 535, as required by its Procedure.

Proposed Civil Penalty

Under 49 U.S.C. § 60122 and 49 CFR § 190.223, you are subject to a civil penalty not to exceed $209,002 per violation per day the violation persists up to a maximum of $2,090,022 for a related series of violations. 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. 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 $718,700 as follows:

Item number	PENALTY
1	$276,400
2	$442,300

Proposed Compliance Order

With respect to item 1 pursuant to 49 U.S.C. § 60118, the Pipeline and Hazardous Materials Safety Administration proposes to issue a Compliance Order to Transcontinental Gas Pipe Line Company. 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 1-2018-1005 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.

Please note, the address for the PHMSA Eastern Region, Office of Pipeline Safety, has changed:

PHMSA, Eastern Region, Office of Pipeline Safety
840 Bear Tavern Road, Suite 300
West Trenton, NJ 08628

Please make a notice of this new information in your records. If you have any questions, please contact us at 609-771-7800.

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 Transcontinental Gas Pipe Line Company (Transco) a Compliance Order incorporating the following remedial requirements to ensure the compliance of Transco with the pipeline safety regulations:

1. In regard to Item Number 1 of the Notice pertaining to Transco' failure to investigate the corrosive effects of the gas from Wharton Storage and determine steps necessary to minimize internal corrosion at Station 535:

   a. Transco must investigate the corrosive effects of gas on all compressor stations and piping associated with storage field operations within 90 days of receipt of the Final Order.

   b. Based on the results of the investigations in 1(a), Transco must determine what steps, if any, are necessary to minimize internal corrosion on the pipelines between the compressor station and the storage caverns or storage field piping, within 120 days of receipt of the Final Order. These steps could include, but are not limited to, developing site specific internal corrosion programs for minimizing and monitoring of internal corrosion.

   c. Transco must implement the steps determined to be necessary in 1(b) within 180 days of receipt of the Final Order.

2. Transco must submit to PHMSA documentation demonstrating the completion of the Items outlined above within 210 days of receipt of the Final Order.

3. It is requested (not mandated) that Transco 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.