U S Department
of Transportation
**Pipeline and Hazardous Materials Safety Administration**

1200 New Jersey Ave S E
Washington DC 20590

SEP 2 5 2008

***VIA CERTIFIED MAIL AND FACSIMILE TO: (713) 215-4269***

Mr. Randall Barnard
Senior Vice President
Williams Gas Pipeline-Transco
P O. Box 1396
Houston, TX 77251

Re: CPF No. 1-2008-1004H

Dear Mr. Barnard·

Enclosed is a Corrective Action Order issued by the Associate Administrator for Pipeline Safety in the above-referenced case. It requires you to take certain corrective actions on the Charlottesville District section of the Williams Transco Gas Pipe Line System running from the Reidsville Compressor Station to the Ellicott City Compressor Station. Service is being made by certified mail and facsimile Your receipt of this Corrective Action Order constitutes service of that document under 49 C.F.R. § 190.5. The terms and conditions of this Corrective Action Order are effective upon receipt.

Sincerely,

for: Byron Coy, PE
Director, Eastern Region

Enclosures

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

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| **In the Matter of** | ) | |
| **Williams Transcontinental Gas Pipe Line Corp.,** | ) | **CPF No. 1-2008-1004H** |
| **d/b/a Williams Transco** | ) | |
| **Respondent.** | ) | |

## CORRECTIVE ACTION ORDER

### Purpose and Background

This Corrective Action Order is being issued, under authority of 49 U.S.C. § 60112, to require Williams Transcontinental Gas Pipe Line Corporation ("Respondent") to take necessary corrective action to protect the public, property, and the environment from potential hazards associated with a failure involving the Williams Transco Pipe Line (TPL) interstate natural gas pipeline system.

On September 14, 2008, a failure occurred on TPL Line B near Appomattox, Virginia resulting in the release of natural gas which ignited destroying two homes and causing multiple injuries. 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) has initiated an investigation of the incident.

### Preliminary Findings

- At approximately 7:44 a.m. EDT on September 14, 2008, Respondent's TPL Line B failed at Mile Post (MP) 1459.73 near the town of Appomattox, Virginia (Appomattox County). The incident was reported to the National Response Center (NRC Report No. 883754).

- The failure resulted in the release of an undetermined amount of gas which ignited producing a large fireball and resulting in a 37-foot wide, 15-foot deep crater and a burn zone approximately 1125 feet in diameter. Emergency responders including the Appomattox Fire Department, Virginia State Police, and Appomattox County Sheriff

responded to the scene and evacuated approximately 23 families and closed nearby roads including Route 26 and Route 460. Five individuals were injured requiring hospitalization and two houses were destroyed in the fire.

- Following the failure, Respondent's personnel initiated an emergency shutdown of the Appomattox Compressor Station. Respondent's personnel then closed the Line B block valve at the Appomattox Compressor Station upstream of the failure at MP 1457.23 and the nearest downstream block valve for Line B at MP 1469.17. TPL Line B remains out of service.

- The cause of the failure has not yet been determined. The 30-foot section of pipe that was blown out of the trench will be transported to a metallurgist for failure analysis. A preliminary examination of the pipe indicates that metal loss anomalies were present on Line B in the vicinity of the rupture.

- The TPL system is an interstate gas pipeline system that extends from the Gulf of Mexico to New York. The portion of the TPL system crossing Virginia, designated as the "Charlottesville District" in Respondent's maps and records, extends from the Reidsville Compressor Station at MP 1369.44 to the Ellicott City Compressor Station at MP 1628.78 and crosses many populated areas, high consequence areas, bodies of water, and highways.

- The section of TPL Line B crossing Virginia was installed in 1955 and is composed of 30-inch nominal diameter, 0.344-inch wall thickness, Grade X52, double-submerged arc-welded (DSAW) pipe of unknown manufacture It has an asphalt enamel coating and is cathodically protected with impressed current.

- The section of the TPL system crossing Virginia includes two additional pipelines that run parallel to Line B. Line A is a 30-inch diameter grade X52 gas pipeline constructed in 1950 with a coal tar enamel coating. Line C is a 36-inch diameter grade X52 gas pipeline constructed in 1962 with an asphalt enamel coating. In the vicinity of the failure site, these lines run on either side of Line B along the same right-of-way. For purposes of corrosion control and maintenance, Williams treats Charlottesville District Lines A, B and C as a common system with all rectifiers tied to all 3 pipelines as a common corrosion control system.

- The concussion of the Line B blast did not result in any apparent collateral damage to Line A or Line C, but the pressure in both lines was reduced to 670 psig pending further assessment for any undetected damage

- The established maximum allowable operating pressure (MAOP) of the Line B section where the failure occurred is 800 pounds per square inch gauge ("psig"). The actual operating pressure of the line at the time of the accident was 799 psig.

- A close-interval electrical survey was performed along the TPS system in parts of Virginia in 2003. The full extent of the 2003 survey results, anomalies identified, and remedial actions taken are unknown to PHMSA, but a preliminary review indicates that readings

taken at the incident location indicated low pipe-to-soil potentials were present. Readings taken in 2006 indicated that pipe-to-soil potentials remained low. Anodeflex intended to remedy the low potentials was installed at this location in 2007 but it is unknown to PHMSA whether the low readings were fully resolved.

- A section of Line A approximately 81 miles long that included the failure site was internally inspected in 2000 with a standard resolution magnetic flux leakage (MFL) tool and a deformation tool. This led to the replacement of a 36-foot section of pipe of Line A in the vicinity of the failure site. Sections of Lines B and C approximately 65 miles long that included the failure site were internally inspected in 2008 with a high resolution MFL tool and a deformation tool. This led to some immediate repairs on Line C including the replacement of a 200-foot section of Line C adjacent in the vicinity of the failure site.

- Respondent informed PHMSA that 9 excavations on Line B have been scheduled as a result of the 2008 internal inspections. To date, the data and results from these internal inspections that may indicate whether any anomalies of a similar magnitude to the anomalies in the vicinity of the rupture are present on any sections of the TPL system in the Charlottesville District that were internally inspected has not been provided to PHMSA.

- On October 22, 2007, PHMSA issued a Notice of Probable Violation and Proposed Civil Penalty to Respondent alleging that Respondent had violated 49 C.F.R. § 192.465(d) due to the following rectifiers being found to be inoperative during certain periods of time: Rectifiers 170-2 (MP 1463.54); 170-5 (MP 1478.97); 185-5A (MP 1604.616); 185-5B (MP 1604.620); and 190-0 (MP 1628.76). This case is still ongoing, but all of these rectifiers are located along the section of the TPS system crossing Virginia. In a letter dated July 13, 2006 from Mr. Bruce Beavers of Williams to Mr. Syed Shere of PHMSA, Respondent acknowledged that the specified rectifiers had low output or were inoperative for periods of time exceeding the required inspection interval.

**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 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 of Title 49, and the regulations promulgated thereunder, provide for the issuance of a Corrective Action Order without prior opportunity for notice and hearing upon a finding that failure to issue the Order expeditiously will likely result in serious harm to life, property, or the environment. In such cases, an opportunity for a hearing will be provided as soon as practicable after the issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that the continued operation of the section of Respondent's TPL system running from the Reidsville Compressor Station to the

Ellicott City Compressor Station without corrective measures would be hazardous to life, property, and the environment. Additionally, after considering the age of the pipe, its operating history, the proximity of the pipe to populated areas and public roadways, the hazardous nature of the product transported, the pressure required for transporting such product, and the ongoing investigation to determine the cause of the failure, I find that a failure to expeditiously issue this Order requiring immediate corrective action would likely result in serious harm to life, property, or the environment.

Accordingly, this Corrective Action 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 request a hearing, to be held as soon as practicable, by notifying the Associate Administrator for Pipeline Safety in writing, delivered personally, by mail or by facsimile at (202) 366-4566. Any requested hearing will be held in Washington, D.C. on a date that is mutually convenient to PHMSA and Respondent

After receiving and analyzing additional data in the course of this investigation, PHMSA may identify other corrective measures that need to be taken. In that event, Respondent will be notified of any additional measures required and amendment of this Order will be considered. 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 Action**

Pursuant to 49 U.S.C. § 60112, I hereby order Williams Transcontinental Gas Pipe Line Corporation to immediately take the following corrective actions with respect to its TPL system:

1. Prior to resuming operation of the section of Line B running from the Appomattox Compressor Station at MP 1457.23 to Block Valve 170 B10 at MP 1472.95, develop and submit a written re-start plan for prior approval of the Director, Eastern Region, Office of Pipeline Safety, Pipeline and Hazardous Materials Safety Administration, 409 3rd Street SW, Suite 300, Washington, DC 20024. The plan must include:

    (A) Exposure of Lines A, B, and C extending 20 feet on either side of the failed pipe joint to examine for corrosion, coating condition, collateral damage, thermally impacted areas, or other issues. Expose further pipe as needed. Perform safe operating pressure calculations and remediation for any pits or anomalies found using engineering permanent repair methods and design factors based upon 49 C.F.R. §§ 192.713 and 192.111 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;

(B) Perform a ground-level, hydrogen flame ionization (HFI) leak survey on Lines A and C for a distance of 3000 feet in both directions from the failure site. Investigate any elevated readings and make all appropriate repairs;

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

(D) Perform incremental start-up in 25% pressure increments with each increment to be held for at least one hour. Include sufficient pressure monitoring, HFI leak surveys, and surveillance on each increment to ensure that no leaks are present when operation of the line is resumed, covering a distance of 3000 feet in both directions from the failure site. The procedures must also provide for advance communication with local emergency response officials.

Once these actions have been successfully completed, obtain written approval to resume operation of Line B from the Regional Director.

2. Once Line B is re-started in accordance with Item 1, the operating pressure on the section of Line B running from the Appomattox Compressor Station at MP 1457.23 to the Scottsville Compressor Station at MP 1499.37 is not to exceed 80 percent of the actual operating pressure in effect immediately prior to the September 14, 2008 failure. Specifically, the pressure is not to exceed 640 psig at the Appomattox Compressor Station discharge. This pressure restriction will remain in effect until written approval to increase the pressure or return the pipeline to its pre-failure operating pressure is obtained from the Regional Director pursuant to Item 13.

3. The operating pressures on the sections of Line A and Line C running from the Appomattox Compressor Station to the Scottsville Compressor Station are not to exceed 80 percent of the actual operating pressures in effect immediately prior to the September 14, 2008 failure. Specifically, the pressure for Lines A and C is not to exceed 640 psig at the Appomattox Compressor Station discharge. This pressure restriction will remain in effect until written approval to increase the pressure is obtained from the Regional Director pursuant to Item 13.

4. 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 Director, Eastern Region;

(C) Prior to commencing the mechanical and metallurgical testing, provide the Regional 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 Director, Eastern Region, at the same time as they are made available to Respondent.

5. Make any results or information received from the metal loss and deformation ILI tool runs performed in 2008 on the sections of Lines B and C running from the Reidsville Compressor Station to the Ellicott City Compressor Station, including information obtained from the resulting excavations and all associated re-coats and repairs, available to PHMSA or its representative in their entirety (including all media). Make any results or information from these tool runs not yet received from the tool vendor available to PHMSA at the same time as the vendor makes them available to Respondent. Within 60 days of receipt of this order, re-analyze all of this information for the purpose of determining whether any anomalies were present that could have contributed to the Line B failure and whether any other anomalies of a similar magnitude are present elsewhere on the Charlottesville District sections of these lines. Make the results of this analysis available to PHMSA

6. Within 180 days of receipt of this order, run a high-resolution MFL metal loss tool and a deformation tool on the section of Line A running from the Reidsville Compressor Station to the Ellicott City Compressor Station. ILI data must be evaluated using engineering repair methods and design factors based upon 49 C.F.R. §§ 192.713 and 192.111 using ASME/ANSI B31G or R-STRENG methods and for dents based upon 49 C.F.R. § 192.933(d)(3). All imperfections and anomalies equal to or greater than 60 percent wall loss must be excavated, remediated and/or repaired when failure pressure ratios (FPR) for class location using ASME/ANSI B31G or R-STRENG methods are less than or equal to the following:

    1. Class 1 pipe with FPR less than or equal to 1.39;
    2. Class 2 pipe with FPR less than or equal to 1.67;
    3. Class 3 pipe with FPR less than or equal to 2.0; and
    4. Class changes per 49 C.F.R. § 192.611, per existing pipe design class and/or all anomalies with wall loss of 60 percent or greater remediated.

    Make the results of these tool runs and evaluations available to the Director, Eastern Region, at the same time as they are received from the tool vendors

7. Within 90 days of receipt of this order, perform an evaluation of the section of the TPL system running from the Reidsville Compressor Station to the Ellicott City Compressor Station (Lines A, B, and C) for inadequate corrosion control and areas of disbonded or damaged coating, including but not limited to a close-interval survey with current interrupted and a direct current voltage gradient (DCVG) survey or other comparable type of electrical survey. Any damaged coating indications found during these

assessments that are classified as moderate (i.e. 35% IR and above for DCVG or 50 dBμV and above for ACVG) or severe based on NACE International Recommended Practice 0502-2002, Pipeline External Corrosion Direct Assessment Methodology, (NACE RP 0502-2002) must be remediated. A minimum of two coating survey assessment classifications must be excavated, classified and/or remediated per each survey crew and compressor station discharge section. Make the results of the electrical surveys and remediation activities available to PHMSA. Close interval and DCVG/ACVG surveys performed on any TPL pipe mileage in Virginia in the 12 months prior to the date of this order need not be repeated but the data must be re-analyzed.

8. Within 90 days of receipt of this Order, develop and submit a written remedial work plan to the Director, Eastern Region for prior approval. The work plan must fully address all known or suspected factors that caused or contributed to the failure and must include:

   (A) The integration of the information developed from the actions required by Items 1, 4, 5, and 7 with relevant pipeline system information, including previous failure investigations, leak history, repair records, corrosion control/cathodic protection records, in-line inspections, hydrostatic testing, changes in pressure cycling, and other relevant operating data for the purpose of performing a comprehensive analysis of the available information associated with the factors that caused or contributed to the failure. The analysis of the in-line inspection data must include overlaying the results from previous data collected including any and all electrical indirect surveys;

   (B) The performance of additional field testing, inspections, and evaluations to determine whether and to what extent the conditions associated with the failure, or any other integrity threatening conditions, are present along the remainder of the TPL system running from the Reidsville Compressor Station to the Ellicott City Compressor Station. Include a detailed description of the criteria to be used for the evaluation and prioritization of any integrity threats/anomalies that are identified. Make the results of the inspections, field excavations, evaluations, and monitoring available to PHMSA or its representative;

   (C) The performance of repairs, pipe replacement or other corrective measures that fully remediate the condition(s) associated with the failure everywhere such conditions, or any other integrity-threatening conditions, are identified through the evaluation process. Include a detailed description of the repair criteria and method(s) to be used in undertaking any repairs or other remedial actions, taking into account engineering repair methods and design factors for permanent repair of imperfections, damages and dents based upon 49 C.F.R. §§ 192.713, 192.111 and 192.933(d)(3). Pipe remediation and repairs of pipe segments with change in class location per 49 C.F.R. § 192.611 must be repaired per both of these: existing pipe design factor based upon 49 C.F.R. § 192.111, and/or all anomalies with wall loss of 60 percent or greater remediated. All anomalies must be excavated, remediated and/or repaired

when failure pressure ratios (FPR) for class location using ASME/ANSI B31G or R-STRENG methods are less than or equal to the following:

1. Class 1 pipe with FPR less than or equal to 1.39,
2. Class 2 pipe with FPR less than or equal to 1.67;
3. Class 3 pipe with FPR less than or equal to 2.0; and
4. Class changes per 49 C.F.R. § 192.611, per existing pipe design class and/or all anomalies with wall loss of 60 percent or greater remediated;

(D) Provisions for continuing long-term periodic testing and integrity verification measures to ensure the ongoing safe operation of the TPL system running from the Reidsville Compressor Station to the Ellicott City Compressor Station considering the results of the analyses, inspections, and corrective measures undertaken pursuant to this Order. Include a process for monitoring metal loss, assessing corrosion procedures, evaluating pipe coating surveys and other field survey results, and how remedial actions are reported and implemented throughout the TPL organization to ensure appropriate resources are allocated and remedial actions are taken in a timely manner when need is identified by field surveys; and

(E) A proposed schedule for completion of the actions required by paragraphs (A) through (D) of this Item, include a schedule for excavating and remediating all findings of DCVG, CIS, metal loss and deformation ILI tool surveys.

9. The work plan becomes incorporated into this Order and shall be revised as necessary to incorporate the results of the metal loss and deformation ILI tool runs required by Item 6 when the results become available and whenever necessary to incorporate new information obtained during the failure investigation and remedial activities undertaken pursuant to this Order. Submit any such plan revisions to the Regional Director for prior approval. The Regional Director may approve plan elements incrementally.

10. Implement the work plan as it is approved by the Director, Eastern Region, including any revisions to the plan.

11. Submit quarterly reports to the Director, Eastern Region 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 quarterly report for the period from September 15 through December 15, 2008 shall be due by December 31, 2008.

12. Maintain documentation of the costs associated with implementation of this Corrective Action Order. Include in each quarterly report submitted pursuant to Item 11, the to-date total costs associated with: (1) testing, evaluations and information analysis; (2) revisions of procedures and additional monitoring and inspections, and (3) physical changes to pipeline infrastructure, including repairs, replacements and other modifications.

13. The Director, Eastern Region may allow the removal or modification of the pressure restriction set forth in Items 2 and 3 upon a written request from Respondent demonstrating that increasing the pressure or returning the line to its pre-failure operating pressure is justified based on a reliable engineering analysis showing that the pressure increase is safe considering all known defects (either repaired or remaining), anomalies and operating parameters of the pipeline.

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

The Regional Director may grant an extension of time for compliance with any of the terms of this Order upon a written request timely submitted demonstrating good cause for an extension.

The actions required by this Corrective Action 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 Regional Director to the Associate Administrator for Pipeline Safety. Decisions of the Associate Administrator shall be final.

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.

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

William Huse
for

Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

SEP 25 2008

Date Issued