DEC 3 2010

VIA CERTIFIED MAIL AND FAX TO: (205-325-7528) [7005 1160 0001 0041 3191]

Mr. Bill Cope
Vice President Eastern Operations
Tennessee Gas Pipeline Company
569 Brookwood Village , Suite 501
Birmingham, AL 35209

Re: CPF No. 4-2010-1007H

Dear Mr. Cope:

Enclosed is a Corrective Action Order issued by the Associate Administrator for Pipeline Safety in the above-referenced case. It requires Tennessee Gas Pipeline Company to take certain corrective actions with respect to the TGP 100 Pipeline System that experienced a failure on November 30, 2010. 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.

We look forward to a successful resolution of concerns arising out of the recent pipeline failure to ensure pipeline safety. Please direct any questions on this matter to me at (713) 272-2859.

Sincerely,

R. M. Seeley
Director, Southwest Region

Enclosures: Corrective Action Order and Copy of 49 C.F.R. § 190.233

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

In the Matter of	)	
Tennessee Gas Pipeline Company,	)	**CPF No. 4-2010-1007H**
Respondent.	)	

CORRECTIVE ACTION ORDER

Background and Purpose

This Corrective Action Order is being issued, under authority of 49 U.S.C. § 60112, to require Tennessee Gas Pipeline Company (TGP or Respondent) to take necessary corrective action to protect the public, property, and the environment from potential hazards associated with a failure involving the TGP 100 Pipeline System.

On November 30, 2010, a failure occurred on Line 100-2 of the system in Natchitoches, Louisiana, resulting in the release of natural gas. The cause of the failure has not yet been determined, but early examinations indicate that there is a straight circumferential crack along a wrinkle bend. 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 incident. The preliminary findings of the agency's ongoing investigation are as follows.

Preliminary Findings

- The TGP 100 Pipeline System is approximately 1400 miles in length, running from Texas to West Virginia, and consists of a looped system that includes Lines 100-1, 100-2, 100-3, and 100-4 (Affected System).

- On November 30, 2010, at approximately 2:40 PM CST, a failure occurred on Line 100-2 of the Affected System in Natchitoches, Louisiana, approximately 1.5 miles downstream of the Natchitoches compressor station. The failure site is a semi-rural area between Highway 1 and State Road 3191, approximately two miles northwest of the city center, 0.25 miles northeast of a country club, and 2000 feet south of a residential subdivision. There are also other populated areas along the pipeline right-of-way.

- The failure resulted in the release of natural gas. There were no fires, injuries, or explosions reported as a result of the release. Louisiana state police evacuated approximately 100 homes as a result of the release. Residents were permitted to return to their homes by 10:00 PM on November 30, 2010.

- PHMSA became aware of the incident on November 30, 2010, when the agency received NRC Report #961059. PHMSA initiated an investigation of the incident, which involved an on-site investigation at the failure location.

- Within approximately one hour following the failure, TGP had closed the upstream and downstream valves and isolated the failed section. By 4:40 PM, the line pressure was at 0 psig.

- TGP excavated Line 100-2 on December 1, 2010, in the presence of PHMSA investigators. Based on a visual inspection of the failed pipe in the ditch, it appears that there is a straight circumferential crack from the 9 o'clock to 3 o'clock position in the furthest downstream of three wrinkle bends that make up a sag-bend in the pipeline. The crack appears to be 52.5 inches in length and approximately 0.5 inches in maximum width. There appears to have been strain on the sag-bend area, based on the width of the opening, which could have come from soil, original construction, or operational stresses. There are no signs of recent excavations in the area identified at this time. The coating is described as cohesive and coherent in the areas where it is still present (following the failure). There are no signs of external corrosion identified at this time, based on visual examination of the exposed section.

- TGP has indicated that Line 100-2 is 30-inch diameter, 0.312-inch wall thickness, Grade X-52, double-submerged arc-welded seam, constructed in 1948 from pipe supplied by Consolidated. The coating is coal tar with a felt wrap, and the pipeline is cathodically protected with impressed current. The use of wrinkle bends was a common construction practice at the time of construction. TGP has stated that there have been no previous wrinkle bend failures on this pipeline, based on their research to date.

- Of the other pipelines on the Affected System, Line 100-1 was constructed in 1944, Line 100-3 was constructed in 1950, and Line 100-4 was constructed in 1953. Wrinkle bends were typically used for pipeline alignment during the construction of pipelines up until about 1955. The bending process generally resulted in sharp circumferential "ripples" or wrinkle deformations on the inside bend radius of the pipe. It is suspected that wrinkle bends similar to the one that experienced the November 30, 2010, failure are present elsewhere on the Affected System.

- The MAOP of Line 100-2 is 750 psig established by hydrostatic pressure test in 1966 at 1082 psig and again in 1975 at 1050 psig. The discharge pressure at the Natchitoches, Louisiana compressor station was 671 psig at the time of the failure. The failure site is approximately 1.5 miles downstream of the compressor station.

- TGP Line 100-2 remains out of service. TGP plans to remove the failed section of pipe beyond the upstream and downstream girth welds and transport the it to a metallurgical laboratory for evaluation to establish probable cause. The failed section will be replaced with a factory-bent section of pipe. TGP is preparing a return-to-service plan that it intends to provide to PHMSA for preapproval before making the repairs and restarting the pipeline.

- TGP performed an inline inspection (ILI) of the pipeline in 2010 with an MFL tool (telescoping 24"-30"), and the company indicated that a review of the ILI information revealed no actionable metal loss features in the vicinity of the release.

- The failure site is in the same vicinity where TGP experienced a previous failure on Line 100-1 in 1965, which resulted in multiple fatalities. That failure was attributed to stress corrosion cracking (SCC).

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 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 is provided as soon as practicable after issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that continued operation of the Affected System without corrective measures would be hazardous to life, property, and the environment. Additionally, having considered the age of the pipelines in the Affected System, the common method of construction, the circumstances surrounding the failure, the proximity of the Affected System to populated areas and public roadways, the hazardous nature of the product being transported, the pressure required for transporting the material, and the ongoing investigation to determine the cause of the failure, 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 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, with a copy to the Director, Southwest Region, PHMSA. If a hearing is requested, it will be held telephonically or in-person in Houston, Texas, 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. 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 Tennessee Gas Pipeline Company (TGP) to immediately take the following corrective actions with respect to the TGP 100 Pipeline System from Texas to West Virginia (Affected System):

1. Prior to resuming operation of the section of Line 100-2 running from the Jasper, Texas compressor station (MP MLV 32+00) to the West Monroe, Louisiana compressor station (MP MLV 47+00), develop and submit a written restart plan for prior approval of the Director, Southwest Region, PHMSA (Director).

2. After receiving approval from the Director to restart the Jasper-to-West Monroe section of Line 100-2, the operating pressure on that section shall be under a 20% pressure reduction. Specifically, the discharge pressure at the Natchitoches, Louisiana compressor station shall not exceed 536 psig, which is 80% of the actual operating pressure in effect immediately prior to the November 30, 2010, failure. The discharge pressures for each of the other stations on that section shall be limited to no more than 80% of the actual operating pressure in effect immediately prior to the November 30, 2010, failure. 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 Director as set forth in Item 9. If the results of any action undertaken pursuant to this Order necessitate a reduction in the operating pressure permitted by this Order, Respondent must further reduce the operating pressure accordingly.

3. Within 30 days of receipt of this Order, complete mechanical and metallurgical testing and failure analysis of the failed pipe. 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 originating from the failure site;

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

(C) Prior to commencing the mechanical and metallurgical testing, provide the 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, whether draft or final, to the Director at the same time they are made available to Respondent.

4. Within 60 days of receipt of this Order, develop and submit to the Director for prior approval a written remedial work plan that includes corrective measures. The work plan must provide for the verification of the integrity of the Affected System and must fully address all known or suspected factors that caused or contributed to the November 30, 2010, incident, including, but not limited to:

(A) The integration of the information developed from the actions required by Item 3 with all relevant operating data and the identification of the apparent cause of the November 30, 2010, failure;

(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 elsewhere on the Affected System. Data-gathering activities shall include, to the extent warranted by the failure analysis, identification of the location and integrity of wrinkle bends along the Affected System. 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, and evaluations available to PHMSA or its representative;

(C) The performance of repairs or other corrective measures that fully remediate the condition(s) associated with the pipeline failure and any other integrity-threatening condition everywhere along the Affected System where such conditions are identified by 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;

(D) Provisions for continuing long-term periodic testing and integrity verification measures to ensure the ongoing safe operation of the pipeline considering the results of the analyses, inspections, and corrective measures undertaken pursuant to this Order; and

(E) A proposed schedule for completion of the actions required by paragraphs (A) through (D) of this Item.

5. The remedial work plan becomes incorporated into this Order and shall be revised as necessary to incorporate the results of actions undertaken pursuant to this Order and whenever necessary to incorporate new information obtained during the failure

investigation and remedial activities. Submit any such plan revisions to the Director for prior approval. The Director may approve plan elements incrementally.

6. Implement the work plan as it is approved by the Director, including any revisions to the plan. Any actions taken by TGP to meet the requirements of the work plan must be in accordance with the terms of that work plan, as approved by the Director, unless the actions have prior written approval from the Director before the actions are initiated. Make the results of all actions taken in accordance with the approved plan available to PHMSA or its representative.

7. Submit quarterly reports to the Director that: (1) include available data and results of the testing and evaluations required by this Order; and (2) describe the progress of the repairs and other remedial actions being undertaken. The first quarterly report shall be due December 31, 2010.

8. Maintain documentation of the costs associated with implementation of this Corrective Action Order. Include in each quarterly report submitted pursuant to Item 7, 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.

9. The Director may allow the removal or modification of the pressure restriction set forth in Item 2 upon a written request from Respondent demonstrating that the hazard has been abated and that restoring the pipeline, or portion thereof, 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, anomalies, and operating parameters of the pipeline.

The 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.

With respect to each submission that under this Order requires the approval of the Director, the Director may: (a) approve, in whole or part, the submission; (b) approve the submission on specified conditions; (c) modify the submission to cure the 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 Director, Respondent shall proceed to take all actions required by the submission as approved or modified by the Director. In the event that the Director disapproves all or any portion of the submission, Respondent shall correct all deficiencies within the time specified by the Director, and resubmit it for approval. In the event that a resubmitted item is disapproved in whole or in part, the Director may again require Respondent to correct the deficiencies in accordance with the foregoing procedure, and/or the Director may otherwise proceed to enforce the terms of this Order.

Respondent may appeal any decision of the 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).

In your correspondence on this matter, please refer to **CPF No. 4-2010-1007H** and for each document you submit, please provide a copy in electronic format whenever possible.
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. Parts 190 through 199, under any other order issued to Respondent under authority of 49 U.S.C. Chapter 601, or under any other provision of Federal or State law.

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.

_____ _____

Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

Date Issued