NOV 28 2011

VIA CERTIFIED MAIL AND FAX TO: (205-325-7528)

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

Re: CPF No. 2-2011-1010H

Dear Mr. Cope:

Enclosed is a Corrective Action Order issued by the Associate Administrator for Pipeline Safety in the above-referenced case. It finds that a portion of your Line 100 natural gas pipeline system is hazardous to life, property, or the environment as a result of the failure that occurred in Panola County, Mississippi, on November 21, 2011, and requires you to take certain corrective actions.

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 Order are effective upon receipt.

Sincerely,

Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

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

cc: Mr. Pat Carey, Director, DOT Compliance, Tennessee Gas Pipeline Company, LLC
1001 Louisiana Street, P.O. Box 2511, Houston, TX 77252-2511
Mr. Wayne Lemoi, Director, Southern Region, PHMSA
Mr. Alan Mayberry, Deputy Associate Administrator for Field Operations, Pipeline Safety

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, LLC,	)	**CPF No. 2-2011-1010H**
Respondent.	)	

CORRECTIVE ACTION ORDER

I am issuing a Corrective Action Order to Tennessee Gas Pipeline Company, LLC (TGP or Respondent), a subsidiary of El Paso Corporation, under the authority provided in 49 U.S.C. § 60112. The Order requires TGP to take certain actions to protect the public, property, and the environment from the hazards associated with an 89.4-mile portion of the Line 100 System.

On November 21, 2011, one of the four parallel pipelines in the Line 100 System ruptured near Batesville, Mississippi, resulting in the release of natural gas. The escaping natural gas ignited and formed into a fireball that continued to burn for the next several hours. The local authorities evacuated approximately 20 homes. There were no reported injuries or fatalities.

The Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), Southern Region, has initiated an investigation of the incident pursuant to the authority provided in 49 U.S.C. § 60117. The cause of the rupture has not yet been determined.

Preliminary Findings

- The Line 100 System is a 1,400-mile natural gas pipeline system that runs in a northeasterly direction from Texas to West Virginia.

- The Line 100 System is composed of four parallel, looped pipeline systems that are generally located in a common right-of-way (ROW): Line 100-1, Line 100-2, Line 100-3, and Line 100-4.

- In the Batesville Area, a portion of the Line 100 System extends approximately 89.4 miles from the outlet of a compressor station in Greenville, Mississippi (Greenville CS), through a compressor station in Batesville, Mississippi (Batesville CS), to a mainline block valve (MLV 68-1) in Marshall County, Mississippi.

- At approximately 8:33 p.m. Central Standard Time (CST) on November 21, 2011, the operator of the Batesville CS detected a change in the pressure of Line 100-1. The operator immediately notified gas control and his supervisor of that abnormal condition.
- At approximately 8:41 p.m. CST, escaping natural gas from Line 100-1 at Valve Section 63-1, Station 126+43 ignited and formed into a fireball. Line 100-1 has a wrinkle bend with a pressure-containing sleeve at that location.
- At approximately 8:45 p.m. CST, TGP personnel activated the emergency shutdown system (ESD) at the Batesville CS, which automatically closed the mainline block valves on all four of the Line 100 System pipelines at that location. The Batesville CS is approximately 2.39 miles upstream of the rupture site.
- At approximately 9:20 p.m. CST, TGP personnel manually closed MLV 64-2, the first mainline block valve on Line 100-2 downstream of the rupture site.
- At approximately 9:30 p.m. CST, TGP personnel manually closed MLV 64-1, the first mainline block valve on Line 100-1 downstream of the rupture site. The closure of MLV 64-1 isolated the ruptured section of Line 100-1.
- At approximately 11:15 p.m. CST, the local authorities extinguished the fire at Line 100-1, Valve Section 63-1, Station 126+43.
- The rupture site is situated along a rural ROW in a Class 1 location, approximately 1.5 miles from U.S. Highway 278/Mississippi Highway 6.
- At the rupture site, Line 100-1 is laterally separated from Line 100-2 by approximately 136 feet, from Line 100-3 by approximately 256 feet, and from Line 100-4 by approximately 336 feet.
- TGP has removed Line 100-1 from service.
- TGP has shut-in Line 100-2 at a pressure of approximately 602 pounds per square inch gauge (PSIG).
- Line 100-3 and Line 100-4 remain in service.
- At approximately 3:30 p.m. CST on November 22, 2011, an OPS pipeline safety investigator from the Southern Region, PHMSA, arrived at the rupture site.
- The OPS inspection indicates the following:
    - Line 100-1 is a 24-inch natural gas pipeline constructed with API 5L X-50 steel pipe.

  - The original installation of Line 100-1 occurred in 1944.

  - In 1946, a wrinkle bend on Line 100-1 was repaired with a field-fabricated, pressure-containing sleeve after a leak was discovered. That sleeve is placed at a low point in the line between two river weights.

  - After reviewing the results of a prior inline inspection (ILI), TGP excavated, visually inspected, recoated, and reburied the sleeve in 2000.

  - In September 2011, TGP performed another ILI of Line 100-1, including the section that contains the wrinkle bend and sleeve, with a high-resolution magnetic flux leakage/deformation tool.

  - TGP received the results from the September 2011 ILI inspection on the date of the rupture.

  - The November 21, 2011 rupture of Line 100-1 occurred at the wrinkle bend with the pressure-containing sleeve. The depth of cover at that location was approximately 10 feet at that time.

  - The maximum allowable operating pressure (MAOP) of Line 100-1 is 750 PSIG, as established based on the 5-year highest operating pressure prior to July 1970 and confirmed by hydrostatic pressure tests conducted in 1966/1967, 1983, 1989, 2005, and 2011.

  - The actual operating pressure of the affected portion of Line 100-1 at the time of the rupture was 748 PSIG.

- TGP is currently excavating and dewatering the rupture site.

- TGP has not determined whether the conditions that caused the November 21, 2011 rupture exist on other portions of the Line 100 System.

- On November 16, 2011, a failure occurred on TGP’s Line 200 System in Morgan County, Ohio. The Associate Administrator has issued a Corrective Action Order to TGP as a result of that failure.

- On November 23, 2011, the National Transportation Safety Board (NTSB) sent PHMSA a request for information about the November 21, 2011 failure. Specifically, NTSB asked whether Line 100-1 had been subjected to hydrostatic pressure testing or inline inspections, for information on the distance between the rupture site and the nearest mainline shutoff valve, and for an estimate of the time that TGP took to close those shutoff valves after discovery of the rupture.

- TGP is a subsidiary of El Paso Corporation, which is in the process of being purchased by Kinder Morgan Pipelines, subject to regulatory approvals.

Determination of Necessity for Corrective Action Order and Right to Hearing

Under 49 U.S.C. § 60112 and 49 C.F.R. § 190.233, the Associate Administrator may issue a corrective action order after providing reasonable notice and the opportunity for a hearing if he finds that a particular pipeline facility is or would be hazardous to life, property, or the environment. The terms of such an order may include the suspended or restricted use of a pipeline facility, physical inspection, testing, repair, replacement, or any other action as appropriate. The Associate Administrator may also issue a corrective action order without providing any notice or the opportunity for a hearing if he finds that a failure to do so expeditiously will result in likely serious harm to life, property or the environment. The opportunity for a hearing will be provided as soon as practicable after the issuance of the CAO in such cases.

After evaluating the preliminary findings, I find that the continued operation of Line 100-1 without corrective measures would be hazardous to life, property, and the environment. The portion of Line 100-1 that failed is more than 60 years old, and its installation and subsequent repair occurred more than 20 years before the issuance of the minimum federal standards for natural gas pipeline systems. The rupture also resulted in a fire that burned for several hours and necessitated the evacuation of approximately 20 homes. TGP has not yet determined whether the conditions that caused the failure exist on other portions of the Line 100 System, a 1,400-mile pipeline that extends from Texas to West Virginia. TGP also experienced another failure on its Line 200 System in Morgan County, Ohio, on November 16, 2011. NTSB has asked PHMSA for information about both of these incidents.

Considering the age of the pipe, the circumstances surrounding the rupture, the proximity of the Line 100-1 to populated areas and public roadways, the hazardous nature of the product being transported, the remaining uncertainties as to the cause of the rupture, the ongoing status of the OPS failure investigation, the recent occurrence of other failures on TGP's natural gas pipeline systems, and the inquires made by NTSB, I find that a failure to issue this Order expeditiously to require immediate corrective action would result in likely serious harm to life, property, and 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 telecopy at (202) 366-4566. The hearing will be held in Atlanta, Georgia, or Washington, D.C., on a date 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. 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 TGP to immediately take the following corrective actions on Line 100-1:

1. The "Affected Pipeline" means the 89.4-mile portion of Line 100-1 that extends from the outlet of the Greenville Compressor Station (Station 54) to main line valve MLV 68-1.

2. The "Isolated Segment" means the 9.16-mile section of Line 100-1 that extends from the Batesville Compressor Station to MLV 64-1. The Isolated Segment is the portion of the Affected Pipeline that was removed from service immediately after the November 21, 2011 rupture and which must remain out of service until a restart plan is submitted and approved by the Director, Southern Region in accordance with Items 4 and 5.

3. The operating pressure along the Affected Pipeline must not exceed eighty percent (80%) of the actual operating pressure in effect immediately prior to the rupture (i.e., TGP will reduce, if required, and maintain a 20% pressure reduction in the operating pressure along the entire length of the Affected Pipeline). This pressure restriction will remain in effect until written approval to increase the pressure or return Line 100-1 to its pre-failure operating pressure is obtained from the Director pursuant to Item 17 or 18. By December 1, 2011, TGP must provide the Director with a list of the actual operating pressure at the Greenville and Batesville Compressor Stations on Line 100-1 at the time of failure, and the reduced discharge pressure settings at each compressor station.

4. TGP must not operate the Isolated Segment until authorized to do so by the Director, Southern Region.

5. Prior to resuming operation of the Isolated Segment, TGP must develop and submit a written re-start plan for prior approval to the Director, OPS Southern Region, Pipeline and Hazardous Materials Safety Administration, 233 Peachtree Street, Suite 600, Atlanta, GA 30303. The restart plan must include actions to confirm the integrity of the Isolated Section.

6. After receiving authorization from the Director to restart the Isolated Segment, the pressure must not exceed 598 PSIG at any point in the Affected Pipeline. 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 pursuant to Item 17 or 18.

7. Within 45 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. Complete the testing and analysis as follows:

A. Document the chain-of-custody when handling and transporting the failed pipe section(s) and other evidence from the failure site;

B. Utilize the mechanical and metallurgical testing protocols, including 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 (including all media) whether draft or final, to the Director at the same time as they are made available to TGP.

8. Within 15 days following receipt of this Order, submit a report to the Director identifying any sections of the Affected Pipeline where any buildings intended for human occupancy are within the Potential Impact Radius (as defined in 49 C.F.R. § 192.903), all road and railway crossings, all High Consequence Areas (as provided in 49 C.F.R. §§ 192.903-192.905), and all Class 2, 3 and 4 locations.

9. Within 30 days of receipt of this Order, perform an aerial instrument or ground instrumented leakage survey of the Affected Pipeline. Investigate all leak indications and remedy all leaks discovered. Submit documentation of this survey to the Director within 45 days of receipt of this Order.

10. Within 90 days following receipt of this Order, complete a failure root cause analysis (RCA) for the November 21, 2011 rupture, which is supplemented and facilitated by an independent third-party acceptable to the Director. Elements of the RCA must include but are not limited to: a scoping document of the RCA; procedures associated with the RCA; the methods used for the analysis and updates on each method as it progresses; and a study and analysis of environmental and other factors that may have caused stresses on the pipeline contributing to the failure. The RCA must document all contributory factors and the decision-making process. A final report of the RCA results must be submitted to the Director, including any lessons learned and whether the findings are applicable to other locations and pipelines within the TGP pipeline system.

11. Within 90 days of receipt of this Order, submit to the Director for approval an Integrity Verification and Remediation Plan (IVRP) to investigate, evaluate, and remediate the Line 100-1 pipeline. The IVRP will include, at a minimum, the following actions:

A. Identify all pipe in the Affected Pipeline with characteristics similar to the contributing factors identified for the November 21, 2011 failure;

B. Perform an evaluation of the Affected Pipeline based on the findings of the mechanical and metallurgical study performed as required by Item 7 and of the RCA required by Item 10.

C. Determine if conditions similar to those contributing to the failure are likely to exist elsewhere on the Affected Pipeline;

D. Develop and implement an integrity testing plan. The integrity testing plan must address all factors known or suspected in the failure, including, but not limited to, internal inspection tool surveys, pressure testing, and remedial action. The type of internal inspection tools or other testing used must be technologically appropriate for assessing the system based on the types of failure(s) that occurred on November 21, 2011, with an emphasis on identifying and evaluating: 1) anomalies associated with wrinkle bends repaired by sleeves and 2) dents, gouges, and grooves repaired by sleeves. Previous testing results may be used if approved by the Director.

E. Provide a detailed description of the inspection and repair criteria to be used in the field evaluation of the anomalies that are excavated, to include a description of how any defects are to be graded (if appropriate) and a schedule for repairs or replacement;

F. Remediate any pipe in the Affected Pipeline identified as having the potential to fail as soon as conditions permit, focusing on areas where there is a potential threat to life, property or the environment;

G. A process for extending the IVRP to the entire length of Line 100-1 and to Lines 100-2, 100-3, and 100-4 should the results of the evaluation, testing, and remediation indicate a potential systemic issue on the Line 100 System; and

H. Provide a proposed schedule for completion of the actions required by paragraphs (A) through (G) of this Item.

12. The IVRP will be incorporated into this Order. Revise the IVRP, 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.

13. Implement the IVRP as it is approved by the Director, including any revisions to the plan.

14. Submit quarterly reports to the 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 quarterly report for the period from November 21 through December 31, 2011, must be submitted by January 31, 2012. Each subsequent quarterly report must be submitted by the last day of the month

following the last month of the quarter; e.g. April 30, 2012, for the first quarter of 2012, and July 31, 2012, for the second quarter of 2012.

15. It is requested but not required that TGP maintain documentation of the costs associated with implementation of this Corrective Action Order. Include in each quarterly report submitted, 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.

16. 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 any deficiencies; (d) disapprove in whole or in part, the submission, directing that TGP modify the submission, or (e) any combination of the above. In the event of approval, approval upon conditions, or modification by the Director, TGP must proceed to take all action required by the submission as approved or modified by the Director. If the Director disapproves all or any portion of the submission, TGP must correct all deficiencies within the time specified by the Director, and resubmit it for approval.

17. The Director may allow the permanent removal of the pressure restriction set forth in Item 3 upon a written request from TGP demonstrating that the hazard has been abated and that restoring the pipeline 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.

18. The Director may allow the temporary removal or modification of the pressure restrictions set forth in Item 3 upon a written request from TGP demonstrating that temporary mitigative and preventive measures are implemented prior to and during the temporary removal or modification of the pressure restriction. The Director's determination will be based on the failure cause and provision of evidence that preventative mitigative actions taken by the operator provide for the safe operation of the pipeline segment during the temporary removal or modification of the pressure restriction. Appeals of determinations by the Director will be decided by the Associate Administrator for Pipeline Safety.

19. 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.

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

Respondent may appeal any decision of the 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.

___________________________________ __________________

Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

Date Issued