



U.S. Department
of Transportation

Pipeline and Hazardous
Materials Safety
Administration

1200 New Jersey Avenue, SE
Washington, D.C. 20590

DECEMBER 20 2012

VIA CERTIFIED MAIL AND FAX TO: (304) 357-2644

Mr. Robert C. Skaggs, Jr.
President and Chief Executive Officer
Columbia Gas Transmission, L.L.C.
1700 MacCorkle Avenue SE
Charleston, WV 25314

Mr. Shawn Patterson
President, Operations and Project Delivery
Columbia Gas Transmission, L.L.C.
1700 MacCorkle Avenue
P.O. Box 1273
Charleston, WV 25314

Re: CPF No. 1-2012-1025H

Dear Mr. Skaggs and Mr. Patterson:

Enclosed is a Corrective Action Order issued in the above-referenced case. It finds that operation of the 20-inch diameter Columbia Gas Transmission, L.L.C., natural gas transmission pipeline, SM-80, is hazardous to life, property, and the environment without immediate corrective action. The Corrective Action Order requires you to take immediate action to protect the public, property, and the environment in connection with the December 11, 2012 failure of the SM-80 Pipeline in Kanawha County, West Virginia. This segment is 26.2 miles long, from Lanham Station to the Broad Run Meter facility. 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.

We look forward to a successful resolution of the concerns arising out of this failure to ensure the safe operation of the pipeline. Please direct any questions on this matter to Byron Coy, Director, Eastern Region, OPS, at (609) 989-2171.

Sincerely,

Jeffrey D. Wiese
Associate Administrator for Pipeline Safety

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

cc: Mr. Byron Coy, Director, Eastern Region, PHMSA
Mr. David Hippchem, Manager Pipeline Safety, West Virginia Public Service
Commission

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

In the Matter of

**Columbia Gas Transmission L.L.C.,
a subsidiary of NiSource Gas
Transmission & Storage**

Respondent

CPF No. 1-2012-1025H

CORRECTIVE ACTION ORDER

Purpose and Background

This Corrective Action Order (Order) is being issued, under authority of 49 U.S.C. § 60112, to Columbia Gas Transmission L.L.C.¹ (Columbia Gas or Respondent), the operator of the 20-inch natural gas transmission line, SM-80 (Affected Pipeline). On December 11, 2012, a pipeline rupture and fire occurred on the SM-80 pipeline, approximately 4.7 miles downstream of the Lanham Compressor Station near Sissonville, WV. This Order finds that operation of the pipeline without corrective action is hazardous to life, property, or the environment and requires Respondent to take immediate action to ensure the safe operation of the pipeline.

On December 11, 2012, Respondent experienced a failure on the Affected Pipeline requiring shutdown, and reported a natural gas pipeline failure to the National Response Center (NRC #1032935). Columbia Gas operates two additional pipelines, SM-86 Loop² and SM-86³, which run parallel to the SM-80 pipeline in the incident area.

Pursuant to 49 U.S.C. § 60117, the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), joined the National Transportation Safety Board (NTSB) and the Public Service Commission of West Virginia (PSCWV), acting as Agent for the

¹ Columbia Gas Transmission L.L.C., a subsidiary of NiSource Inc., owns and operates approximately 11,453 miles of pipeline in Delaware, Kentucky, Maryland, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia.

² SM-86 Loop (Lanham Compressor Station to Broad Run) consists of approximately 26.0 miles of 30" diameter pipeline.

³ Line SM-86 (Lanham Compressor Station to Broad Run) consists of approximately 25.8 miles of 26" diameter pipeline.

PHMSA, in the investigation of the Failure. OPS determined that the explosion and fire originated in the Affected Pipeline, but the cause of the Failure is still under investigation. The preliminary findings of the investigation are as follows:

Preliminary Findings

- At approximately 12:43 p.m. EST, on December 11, 2012, Respondent experienced a failure, in which a 15-foot section of pipe separated entirely from the Affected Pipeline and was ejected from the ground.
- The NTSB noted at a December 14, 2012 press conference that evidence at the failure site is consistent with external corrosion.⁴
- The Failure site is located at Mile Post (M.P.) 4.7, in Sissonville, West Virginia, approximately two miles from the town center and 10 miles north of Charleston, West Virginia.⁵
- The Failure resulted in the release and ignition of an undetermined amount of gas and created two flame plumes. As a result of the explosion and ensuing fire, Interstate 77 was damaged and closed. In addition, the fire destroyed three neighbouring homes, severely damaged another, and inflicted some damage to other residences.
- Following the Failure, Respondent isolated the failed pipe by closing the Rocky Hollow valve (13:20 p.m.) and the Lanham valve (13:40 p.m.). Currently, the failed segment is blocked off at upstream and downstream block valves, has not been repaired, or returned to service.
- Respondent notified the National Response Center (Report # 1032935) at approximately 1:45 p.m.
- Due to its proximity to the Failure Site, Interstate 77 was closed by the West Virginia Highway Department. The highway surfaces sustained thermal damage, causing the highway to be closed for approximately 18 hours while repairs were made.
- Line SM-80 was originally installed in 1951, from Lanham to Broad Run (26.2 miles). In 1955, it was extended from Lanham to Leach. Since that time, various segments of the pipeline have been replaced, resulting in a line with various vintages of pipe, the newest of which stems from a 1992 project.
- Columbia Gas operates two additional pipelines, SM-86 Loop and SM-86, which run parallel to the Affected Pipeline in the incident area. Following the explosion, service from Lanham Compressor Station to Patterson Fork was curtailed as a precautionary measure. After shut-in, Lines SM-86 Loop and SM-86 maintained a static pressure of approximately 520 psig.

⁴ <http://www.youtube.com/watch?v=DDK80Orr2hE&feature=youtu.be>.

⁵ See Map of Failure Site.

- At the incident location, SM-86 and the Affected Pipeline are separated by approximately 183 feet. Through consultation with an independent engineering firm, Det Norske Veritas (DNV), the Respondent concluded that the incident did not affect Line SM-86 and restored pressure slowly over a 2.5 hour period. Line SM-86 was returned to full service in the early morning hours of December 12, 2012. No leaks were detected on the pipeline during foot or aerial leakage surveys that were performed on start-up.
- At the incident location, Line SM-86 Loop and the Affected Pipeline are separated by approximately 53 feet. DNV⁶ also concluded that SM-86 Loop was not adversely impacted by the SM-80 accident. However, since SM-86 Loop is closer to SM-80, Columbia Gas developed a Return to Service Plan, dated December 15, 2012, for SM-86 Loop, which OPS reviewed and approved. The Return to Service Plan for SM-86 Loop pipeline was successfully implemented on December 19, 2012.
- OPS observed general wall thinning on the underside of the Affected Pipeline at the Failure location, OPS has preliminarily concluded that general wall thinning is a major factor in the cause of the Failure.
- The Affected Pipeline pipe at the failure location was constructed in 1967. Preliminary data from the pipe at the Failure location shows a general wall thickness of 0.281 inches, 20 inches in diameter and has an electric resistance weld (ERW) long seam.

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 for Pipeline Safety (Associate Administrator) may issue a corrective action order (CAO) 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 foregoing preliminary findings of fact, I find that the continued operation of the pipeline without corrective measures would be hazardous to life, property and the environment. Additionally, after considering the age of the pipe, circumstances surrounding this Failure, the proximity of the pipeline to populated areas, and public roadways the hazardous nature of the product the pipeline transports, the uncertainties as to the cause of the failure, 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 likely serious harm to life, property, and the environment. Accordingly, this Order mandating immediate corrective

⁶ Exhibit A. DNV Study.

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 the Eastern Region on a date that is mutually convenient to PHMSA and Respondent.

After receiving and analyzing additional data in the course of this investigation, OPS 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, Columbia Gas is ordered to immediately take the following corrective actions to ensure the safe operation of the Affected Pipeline, from Lanham Station to the Broad Run Meter facility:

I. PHASE I: RETURN LINE TO RESTRICTED OPERATION

- a. *Create Plan.* Respondent must establish a written Phase I plan, and then seek written approval from the Director, Eastern Region, prior to the initiation of the plan.
- b. *Repairs.* Conduct repairs based on Respondent's established written procedures. These procedures are to be identified in the plan.
- c. *Cathodic Protection (CP).* Verify that all CP equipment and test stations are operating properly, on all three pipelines, three miles up and down stream of the incident location.
- d. *Critical Valves.* Inspect and partially operate all critical valves that might be required during any emergency to ensure they can be completely closed. Take prompt remedial action to correct any deficiencies.
- e. *Discharge Pressure.* Analyze and validate the actual discharge pressure at Lanham compressor station for the Affected Pipeline at the time of the failure.
- f. *Temporary Maximum Allowable Operating Pressure.*
 1. Use the lower of 741 or 80% of the validated Lanham compressor station pressure in Item I.e. above.
 2. Set the temporary maximum allowable operating pressure, to the pressure determined in Item I.f.1.
 3. Step increase the pressure in SM-80, in quarter increments up to the pressure determined in Item I.f.1.

4. Set any and all pressure control and relief devices to insure the temporary maximum allowable operating pressure will not be exceeded.
5. Each quarter step is to be followed by a 30-minute idle period.
6. Conduct a leak survey over the entire segment with either foot or aerial patrol, but ensure that an on-ground foot leak patrol with hydrogen flame ionization devices are conducted for 300 feet up and down stream of the incident location.
7. Investigate and resolve any discovered leaks before continuing the quarter step process.
8. Conduct another set of leak surveys, as set forth in Item I.f.6 above, 24 hours after the fourth quarter pressure increment is completed.
9. Investigate and resolve any discovered leaks within 24 hours.

II. PHASE II: LONG TERM ASSESSMENT AND REMEDIATION

- a. *Create Plan.* Respondent must establish a written Phase II plan, and then seek written approval from the Director, Eastern Region, prior to the initiation of the plan.
- b. *Data.* Review pipe data to ascertain records reflect actual pipe specifications, including representative sampling with bell hole validation.
- c. *Records.* Review MAOP records to ascertain MAOP does not exceed related records. If records do not support the current normal MAOP, arrange to reset normal MAOP to match records.
- d. *In-Line Inspection (ILI).* Conduct an ILI inspection for High Resolution Deformation and Metal Loss within 30 days of completing Phase I. Submit to the Director, Eastern Region, copies of the preliminary ILI reports, which would delineate any and all immediate conditions that could jeopardize the temporary maximum allowable operating pressure, from successful tool runs within 40 days of running the tools, directly from the tool vendors.
- e. *Analysis.* Analyze all data, including field digs for tool results validation.
- f. *Excavation.* Excavate to investigate anomalies and make repairs as though the entire Affected Pipeline was in an HCA, using the criteria established in 49 C.F.R. Subpart O.
- g. *Cathodic Potential Survey.* Perform close interval survey, investigate, and correct deficiencies.
- h. *Coating Integrity.* Assess the integrity of the coating using direct current voltage gradient (DCVG) or alternating current voltage gradient (ACVG). Within 30 days of completing the CIS. Perform a DCVG or ACVG survey in accordance with NACE RP 0502-2002, Appendix A, of all pipe locations where CIS results reveal CP levels below the requirements of 49 CFR Part 192, Subpart I. Correct any deficiencies identified.

III. PHASE III: CRITERIA

- a. *Criteria.* Complete assessment and all necessary repairs in Phase II within 365 days of issuance of this Order.
- b. *Summarize Work.* Operator is to maintain records of work performed and prepare a complete package of information for presentation to OPS when they believe the work is complete. Operator is to use this information to seek OPS approval to return the line to full and normal pressure.
- c. *Restore Pressure.* Pressure can only be returned to normal MAOP after all work is successfully completed and approved by the Director.

IV. PHASE IV: CONCLUSION CRITERIA

- a. *Monthly Reports for Phase I.* Submit monthly 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 corrective and/or remedial actions being undertaken. The first monthly report is due by the third week of each month until Phase I has been completed. The Director may adjust the reporting period upon written request of the Respondent.
- b. *Quarterly Reports for Phase II.* Submit quarterly reports to the Director, Eastern Region, that: (1) include all available data and results of the testing and evaluations required by this CAO; and (2) describe the progress of the repairs or other corrective and/or remedial actions being undertaken. The first calendar quarterly report are due once Phase I has been determined by the Director to be completed. There should be four quarterly report submissions while this Order is still in effect.
- c. *Summary Report for Phase II.* When the Operator believes Phase II has been completed, a composite summary of all work performed is to be assembled, regardless of what may have been provided earlier, and presented to the Director. The Director will review the summary as part of the consideration for approval to return to normal MAOP.
- d. *Documentation.* It is requested but not required that Respondent maintain documentation of the costs associated with implementation of this Corrective Action Order. Include in each monthly 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.

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 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 Director, Respondent must take all actions required by the submission, as approved or modified by the Director. If the Director disapproves all or any portion of the submission, Respondent must correct all deficiencies within the time specified by the Director, and resubmit it for approval. If 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 the Director may otherwise proceed to enforce the terms of this Order.

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), you must provide, along with the complete original document, a second copy of the document with those portions you believe qualify for confidential treatment redacted, along with 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. 1-2012-1025H" 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. Part 195, 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 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

DEC 20 2012

Date Issued