



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

OCT 20 2014

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

VIA CERTIFIED MAIL AND FAX TO: (713) 479-1711

Mr. Albert Williams
President
Chevron Petrochemical Pipeline LLC
4800 Fournace Place
Bellaire, TX 77401

Mr. Stanley Horton
CEO, President and Director
Boardwalk Pipeline Partners, LP
9 Greenway Plaza, Suite 2800
Houston, TX 77046

Re: CPF No.: 4-2014-5027H

Dear Mr. Williams:

Enclosed is a Corrective Action Order issued in the above-referenced case. It requires Chevron Petrochemical Pipeline LLC to take certain corrective actions with respect to the Evangeline Ethylene Pipeline that failed on October 10, 2014 in Cameron Parish, Louisiana. Service is being made by certified mail and facsimile. Service of the Corrective Action Order by electronic transmission is deemed complete upon transmission and acknowledgement of receipt, or as otherwise provided under 49 C.F.R. § 190.5. The terms and conditions of this Order are effective upon completion of service.

Thank you for your cooperation in this matter.

Sincerely,

Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

Enclosure

cc: Ms. Linda Daugherty, Deputy Associate Administrator for Field Operations, OPS
Mr. Rodrick Seeley, Regional Director, PHMSA, Southwest Region

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

In the Matter of)
)
Chevron Petrochemical Pipeline LLC,)
)
Respondent.)
_____)

CPF No.: 4-2014-5027H

CORRECTIVE ACTION ORDER

Purpose and Background:

This Corrective Action Order (Order) is being issued, under the authority of 49 U.S.C. § 60112, to require Chevron Petrochemical Pipeline LLC (Chevron or Respondent), to take the necessary corrective action to protect the public, property, and the environment from potential hazards associated with the recent failure on Chevron’s Evangeline Ethylene Pipeline (Evangeline Pipeline)¹ near Cameron, Louisiana.

On October 10, 2014, an accident occurred on the Evangeline Pipeline, resulting in a minor release of Ethylene (the Failure). The Evangeline Pipeline is a 16-inch diameter pipeline approximately 176 miles in length that transports ethylene from the Port Neches meter station in Jefferson County, TX, to the Exxon Mobile Anchorage Tank Farm in West Baton Rouge Parish, LA. The cause of the Failure is unknown but an investigation is ongoing. 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 accident. The preliminary findings of the ongoing investigation are as follows.

¹ The Evangeline System was purchased by Boardwalk Pipeline Partners, LP (Boardwalk) on October 8, 2014, but by prior agreement Chevron remains the operator of record until November 1, 2014. Boardwalk is a midstream master limited partnership that provides transportation, storage, gathering and processing of natural gas and liquids. Through subsidiaries, Boardwalk owns and operate approximately 14,195 miles of interconnected natural gas pipelines, with customers in thirteen states.

Preliminary Findings:

- Chevron, an indirect wholly-owned subsidiary of Chevron Corporation, operates approximately 10,000 miles of pipeline transporting crude oil, refined petroleum products, liquefied petroleum gas, natural gas and chemicals within the United States.²
- The failed pipeline is a 16-inch diameter line that transports ethylene from the Port Neches meter station in Jefferson County, TX, to the Exxon Mobile Anchorage Tank Farm in West Baton Rouge Parish, LA, a distance of approximately 176 miles. The Failure occurred near milepost identifier MP 16.65 near Cameron, Louisiana (Failure Site).
- The pipe was manufactured in 1953. The Evangeline Pipeline was constructed in 1954 as a crude products line, and converted to natural gas service in 1966. The pipeline was then converted back to a liquids line in 2001. The Failure site consists of 16-inch diameter, 0.312/0.314 wall thickness, Grade X 52 LF-ERW seam pipe.
- The maximum operating pressure (MOP) of the pipeline is 1336 psig, as established by hydrostatic test in 2001. At the time of the Failure, the actual operating pressure of the pipeline was 1191 psig.
- At approximately 12:30 pm CST on October 10, 2014 Chevron experienced a minor leak on their Evangeline Pipeline system located in Cameron Parish, Louisiana. The leak on the ethylene line is the most recent pinhole leak identified on the system in the last 4 years. The release occurred adjacent to an intra-coastal waterway, in a marshy area. The release was identified when bubbles were observed in the marsh. There were no reported injuries, fatalities, or evacuations and there was no ignition.
- There were no reported road closures. The line crosses major waterways including the Calcasieu River. The 29 mile section of line has to be flared to remove the product.
- As a result of the leak, Chevron took action to shut the Evangeline Pipeline in and began evacuating the line to identify the leak site. It is anticipated the line will be isolated and repairs initiated by Monday October 20, 2014.
- The probable cause of the failure is unknown but the investigation is ongoing. However, there is pertinent history:
 - LF-ERW pipe manufactured prior to 1962 was made by direct current (d.c) or low frequency alternating current (a.c) using low carbon steels. The inclusion of dirt, grease, scale, or other oxide films during the welding of the “skelp” (steel plates used to form the pipe) often prevented adequate heating at the bonding interfaces. These areas of non-bonding are called “cold welds”. “A significant number of cold welds in close proximity could reduce the strength of the bondline, and a rupture would occur when the pipe is subjected to pressurization”.

² See <http://chevronpipeline.com/about/> (last accessed on October 16, 2014).

- On April 6, 2011 and November 8, 2011, two incidents occurred on the Evangeline Pipeline. Both incidents were determined to be caused by a “cold weld” in the longitudinal LF ERW pipe seam. In both cases, metallurgical analysis concluded that the cold welds were original manufacturing defects in the pipe seam.
- In the summer of 2013, an additional 10 pinhole leaks in the weld were identified during maintenance on the line. (NRC #'s 1054340, 1058513, 1058754, 1058760, 1058762, 1058766, 1058771, 1058774, 1058777, 1058779 - There were no reported injuries, fatalities, or evacuations and there was no ignition).
- In September 2013, PHMSA issued a NOPV and CO to Chevron in CPF 4-2013-5019. The CO required Chevron to perform an integrity assessment of their pipeline by a method prescribed in Appendix G of their Pipeline Integrity Management Program Manual.. Chevron completed hydrostatic testing of the line prior to the end of 2013. A spike test was performed to 1.39 MOP; however, the testing was limited to 80% SMYS. As a result of the hydrostatic test, 41 repairs were made. In addition, there were two failures during the hydrostatic testing. One of the ruptures occurred during the spike test.
- In June 2012, the Evangeline Pipeline was assessed using the geometry and MFL tool. There was no hydro-test performed in 2012. From September – December 2013, the Evangeline Pipeline was hydrostatically tested to 1670 psig, and then 1858 psig for a 30 minute spike test.

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 or would be 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 notice and opportunity for hearing, upon a finding that failure to issue the Order expeditiously would result in the likelihood of serious harm to life, property, or the environment. In such cases, an opportunity for a hearing and expedited review will be provided as soon as practicable after the issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that continued operation of the pipeline without corrective measures is or would be hazardous to life, property, or the environment. Additionally, having considered the nature of the Failure, the location of the Failure, the proximity of the Affected Segment to populated areas, marshlands, an intra-coastal waterway, and other sensitive areas, the history of known problems with this pipeline, and the nature of the product being transported, 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 contest its issuance obtain expedited review either by answering in writing or requesting a hearing under 49 C.F.R. § 190.211, to be held as soon as practicable under the terms of such regulation, by notifying the Associate Administrator for Pipeline Safety in writing, with a copy to the Director, Southwest Region, PHMSA (Director). If Respondent requests a hearing, it will be held telephonically or in-person in the Southwest Regional office 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, PHMSA will notify Respondent of any additional measures that are required and an amended Order issued, if necessary. 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 Actions:

Pursuant to 49 U.S.C. § 60112, I hereby order Chevron to immediately take the following corrective actions:

Definitions

The "*Affected Segment*" means the 29 miles of the Evangeline Ethylene system from Mile Post 0 to Mile Post 29.

The "*Director*" means Rod Seeley, Director, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety, Southwest Region. The Director's address is 8701 S. Gessner, Suite 1110, Houston, Texas 77074.

Corrective Actions

1. **Operating Restriction.** Chevron must not operate the *Affected Segment* until authorized to do so by the Director.
2. **Operating Pressure Restriction.** Respondent must reduce and maintain a twenty percent (20%) pressure reduction in the actual operating pressure along the entire length of the Evangeline Pipeline System such that the operating pressure on this segment will not exceed eighty percent (80%) of the actual operating pressure in effect immediately prior to the failure on October 10, 2014.

- a. This pressure restriction is to 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.
 - b. This pressure restriction requires that any relevant remote or local alarm limits, software programming set-points or control points, and mechanical over- pressure devices be adjusted accordingly.
3. **Restart Plan.** Prior to resuming operation of the *Affected Segment*, develop and submit a written Restart Plan to the Director for approval.
 - a. The Director may approve the Restart Plan incrementally without approving the entire plan, but the *Affected Segment* cannot resume operation until the Restart Plan is approved in its entirety.
 - b. Once approved by the Director, the Restart Plan will be incorporated by reference into this Order.
 - c. The Restart Plan must provide for adequate patrolling of the *Affected Segment* during the restart process and must include incremental pressure increases during start-up, with each increment to be held for at least one hour.
 - d. The Restart Plan must specify a day-light restart and include advance communications with local emergency response officials.
 - e. The Restart Plan must provide for a review of the *Affected Segment* for conditions similar to those of the failure, including a review of construction, operating and maintenance (O&M) and integrity management records. These would include such records as in-line inspection (ILI) results, hydrostatic tests, root-cause failure analysis of prior failures, aerial and ground patrols, corrosion, cathodic protection, excavations and pipe replacements. Respondent must address any findings that require remedial measures to be implemented prior to restart.
 - f. The Restart Plan must also include documentation of the completion of all mandated actions, and a management of change plan to ensure that all procedural modifications are incorporated into Chevron's/Boardwalk's operations and maintenance procedures manual.
4. **Return to Service.** After the Director approves the Restart Plan, Respondent may return the *Affected Segment* to service, but the operating pressure must not exceed eighty percent (80%) of the actual operating pressure in effect immediately prior to the failure on October 10, 2014, in accordance with Item 2 above.
5. **Removal of Pressure Restriction.**
 - a. The Director may allow the removal or modification of the pressure restriction upon a written request from Respondent demonstrating 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.
 - b. The Director may allow the temporary removal or modification of the pressure restrictions upon a written request from Respondent 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 and mitigative actions taken by the operator provide for the safe operation of the *Affected Segment* during the temporary removal or modification of the pressure restriction. Appeals to determinations of the Director in this regard will be decided by the Associate Administrator for Pipeline Safety.

6. **Mechanical and Metallurgical Testing.** Within 45 days of receipt of this Order, complete mechanical and metallurgical testing and failure analysis of the failed pipe, including an analysis of soil samples and any foreign materials. The company must complete the testing and analysis as follows:
 - a. Document the chain-of-custody when handling and transporting the failed pipe section and other evidence from the failure site;
 - b. Within 10 days of receipt of this Order, develop and submit the testing protocol and the proposed testing laboratory to the Director for prior approval;
 - c. Prior to beginning the mechanical and metallurgical testing, provide the Director with the scheduled date, time, and location of the testing to allow for an OPS representative to witness the testing; and
 - d. Ensure the testing laboratory distributes all reports, whether draft or final, in their entirety to the Director at the same time they are made available to Respondent.

7. **Integrity Verification and Remediation Plan (IVRP).**
 - a. Within 90 days following receipt of this Order, Chevron must submit an Integrity Verification and Remediation Plan (IVRP) to the Director for approval for the entire 176 mile length of the Evangeline pipeline from MP 0 to MP 197.
 - b. The Director may approve the IVRP incrementally without approving the entire IVRP.
 - c. Once approved by the Director, the IVRP will be incorporated by reference into this Order.
 - d. The IVRP must specify the tests, inspections, assessments, evaluations, and remedial measures Chevron will use to verify the integrity of the Evangeline Pipeline. Chevron should consider both the risk of another failure and the consequence of another failure to develop a prioritized schedule for IVRP related work along the Evangeline System.
 - e. The IVRP must include a procedure or process to:
 - i. Conduct additional field tests, inspections, assessments, and/or evaluations to determine the integrity of the Evangeline System. At a minimum, this process must specify the use of one or more of the following:
 1. Inline inspection (ILI) tools that are technically appropriate for assessing the pipeline system based on the cause of failure on October 10, 2014, (including prior seam leaks/failures) and that can reliably detect and identify these anomalies; and
 2. Hydrostatic pressure testing at a level that will produce 90% SMYS.
 - f. Implement continuing long-term periodic testing and integrity verification measures to ensure the ongoing safe operation of the Evangeline System considering the

results of the analyses, inspections, evaluations, and corrective measures undertaken pursuant to the Order.

- g. Include a proposed schedule for completion of the IVRP.

Note: Respondent may use the results of previous tests, inspections, assessments, and evaluations, if approved by the Director, provided the results of the tests, inspections, assessments, and evaluations are analyzed with regard to the factors known or suspected to have caused the October 10, 2014 failure.

8. **Record Keeping.** Respondent must maintain records demonstrating its progress in completing all requirements of this Order, make them available to the Director, and retain them for a period of at least five years following completion of all work to be performed. When Respondent believes it has concluded all the items in this Order, it will submit a proposed completion report to the Director.

Other Requirements

1. *Documentation of Costs.* It is requested but not required that Respondent maintain documentation of the costs associated with implementation of this Order. Include in each monthly report 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.
2. *Approvals.* With respect to each submission requiring the approval of the Director, the Director may: (a) approve the submission in whole or in part; (b) approve the submission on specified conditions; (c) modify the submission to cure any deficiencies; (d) disapprove the submission in whole or in part and direct Respondent to 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 action required by the submission, as approved or modified by the Director. If the Director disapproves all or any portion of a submission, Respondent must correct all deficiencies within the time specified by the Director and resubmit it for approval.
3. *Extensions of Time.* The Director may grant an extension of time for compliance with any of the terms of this Order upon a written request timely submitted and 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 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.

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).

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.

In your correspondence on this matter, please refer to CPF No.: 4-2014-5027H and for each document you submit, please provide a copy in electronic format whenever possible.

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



Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

OCT 20 2014

Date Issued