



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

AUG 19 2011

1200 New Jersey Ave., SE
Washington, DC 20590

VIA CERTIFIED MAIL [7005 1160 0001 0070 4077] AND FACSIMILE TO: (713) 803-1440

Mr. Kevin Bodenhamer
Senior Vice President-Liquid Pipelines
Enterprise Products Operating, LLC
2727 North Loop, West
Houston, Texas 77210

Re: CPF No. 3-2011-5009H

Dear Mr. Bodenhamer:

Enclosed please find a Corrective Action Order issued in the above-referenced case. It requires Enterprise Products Operating, LLC, to take certain corrective actions with respect to the Enterprise West Leg Red natural gas liquids pipeline and the West Leg Blue propane (HVL) pipeline that run from Conway, Kansas, to Pine Bend, Minnesota. Service of this Order by electronic transmission is effective upon transmission, in accordance with 49 C.F.R. § 190.5.

Sincerely,

for Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

cc: Mr. David Barrett, Director, Central Region, PHMSA
Mr. Alan Mayberry, Deputy Associate Administrator for Pipeline Safety, PHMSA

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

_____)
In the Matter of)

Enterprise Products Operating, LLC,)

CPF No. 3-2011-5009H

Respondent.)
_____)

CORRECTIVE ACTION ORDER

Background and Purpose

This Corrective Action Order is being issued, under authority of 49 U.S.C. § 60112, to require Enterprise Products Operating, LLC (Enterprise or Respondent), to take the necessary corrective action to protect the public, property, and the environment from potential hazards associated with a failure involving Respondent's 8-inch natural gas liquids pipeline designated as West Leg Red Line, which runs from Conway, Kansas to Pine Bend, Minnesota.

On August 13, 2011, a failure occurred on Enterprise's West Leg Red Line hazardous liquid pipeline that crosses underneath the Missouri River approximately eight miles west of Onawa, Iowa ("Failure"). The incident was reported to the National Response Center on August 13 at 04:23 a.m. CDT. The suspected failure location is inaccessible due to flooding. 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), Office of Pipeline Safety (OPS), initiated an investigation of the incident. The preliminary findings of the ongoing investigation are as follows.

Preliminary Findings

- The West Leg Red Line is an 8-inch diameter pipeline, approximately 536 miles in length, that transports natural gas liquids from Conway, Kansas, to Pine Bend, Minnesota (Red Line). The West Leg Blue Line is an 8-inch diameter pipeline, approximately 471 miles in length, that transports propane (HVL) from Conway, Kansas, to Mankato, Minnesota (Blue Line) within the same right-of-way as the Red Line.
- At approximately 1:57 a.m. CDT, on August 13, 2011, a release occurred on the Red Line. Although no released product has been detected, Respondent reported 3,351 barrels

released, based on the volume of product between block valves initially closed at Mile Post (MP) 269 and MP 280 (Whiting Station). The failure occurred near MP 271 approximately eight miles west of Onawa, Iowa, in Monona County.

- The Red and Blue Lines cross the Missouri River between Burt County, Nebraska (MP 269), and Monona County, Iowa (MP 271).
- At approximately 1:57a.m. CDT on August 13, 2011, discharge pressure at Enterprise's Whiting Pump Station (downstream of failure site) began to drop. The pump unit gas turbine dropped out at 2:09 a.m. on Under Speed Shutdown. A low suction pressure shutdown alarm occurred at 2:14 a.m. Enterprise's control center staff noted the sudden drop in pressure on the Red Line.
- In response to the Failure, Enterprise's operations control center (OCC) shut down the Red Line at 2:19 a.m. by remotely closing a block valve located at MP 269 west of the Missouri River Channel. Another remotely operated block valve located at MP 271, east of the Missouri River Channel, was inoperable. Electrical service to this block valve was cut off in June 2011 due to high water. As a result, the OCC closed the remotely operated valve at Whiting Station (MP 280) at 2:29 a.m.
- The Failure was reported to the National Response Center at 4:23 a.m. CDT on August 13, 2011 (NRC Report No. 985803). Enterprise updated the initial report to the National Response Center at 8:14 a.m. CDT (Report No. 985813) and 10:09 a.m. CDT (NRC Report No. 985822), on August 13, 2011.
- No fires, injuries, or evacuations were reported as a result of the Failure. The toll bridge across the Missouri River had been closed previously due to flooding.
- The cause of the Failure is unknown and the investigation is ongoing. Due to flooding conditions on the Missouri River, visual observation of the failure location is not possible at this time.
- A sonar survey of the flooded river performed after the Failure indicated washout areas that have exposed both of the Affected Pipelines close to Highway 175 near Onawa, Iowa. Therefore, the Blue Line faces a heightened risk of suffering the same type of failure as the one already experienced on the Red Line.
- The Red and Blue Lines between Decatur, Nebraska (MP 269) and Onawa, Iowa (MP 271) (Affected Pipelines) remain shut down. The Affected Pipelines share a common right-of-way with an 8-inch ammonia pipeline operated by Magellan Pipeline Company (Green Line), which is also shut down.
- The Affected Pipelines impact one or more "High Consequence Areas," as defined under 49 C.F.R. 195.450, and the site of the Failure along the Missouri River is located adjacent to State Route 175 in Monona County, Iowa.

- The Red Line pipe in the area of the Failure was replaced in 1993, in conjunction with a project to remove all three pipelines from the toll bridge. The replacement pipe consists of 8.625-inch diameter, 0.277-inch wall thickness, Grade X-42 line pipe manufactured by Lone Star Steel, and 8.625-inch diameter, 0.172-inch wall thickness, Grade X-60 line pipe manufactured by Ipsco Steel. The pipe is coated with Plastic Tape, and cathodic protection is provided by an impressed current cathodic protection system.
- At the time of the incident, the pressure of the Red Line pipeline was 748 psig at the Greenwood pump station discharge. The maximum operating pressure (MOP) in the area of the Failure is 1354 psig.
- Respondent most recently performed an in-line inspection of the Red Line in 2008, for deformation and metal loss anomalies. Initial information provided by Respondent indicates no reported metal loss anomalies that meet repair criteria. Respondent most recently performed an in-line inspection of the Blue Line in 2009 for deformation and metal loss anomalies.
- OPS issued Advisory Bulletin ADB-11-04 in the Federal Register on July 27, 2011, entitled "Potential for Damage to Pipeline Facilities Caused by Flooding," cautioning operators to take appropriate action to minimize the risk of damage to pipelines due to flooding. The Advisory was also posted on PHMSA's website:
<http://phmsa.dot.gov/staticfiles/PHMSA/WebArticles/Pipeline%20topics/Advisory%20Bulletins/Flooding%20Advisory.pdf>

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, and may require various corrective actions to be taken, including 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 notice and an opportunity for a hearing upon a finding that failure to issue the order expeditiously will result in likely 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 Affected Pipelines without corrective measures would be hazardous to life, property and the environment. Additionally, after considering the age of the pipe, the unknown circumstances surrounding the Failure, the proximity of the pipeline to populated areas, public roadways, navigable waterways, and High Consequence Areas, the hazardous nature of the product being transported, the pressure required for transporting the material, 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 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 service 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 Kansas City, Missouri, or 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. 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 Enterprise to immediately take the following corrective actions with respect to the Affected Pipelines:

1. Enterprise's Red Line and Blue Line crossing the Missouri River between Decatur, Nebraska, and Onawa, Iowa, are to remain shut down.
2. Within 30 days following service of this Order and prior to restart of the Affected Pipelines, Enterprise must develop and submit a written repair plan (Repair Plan) for approval to the Director, Central Region, OPS (Director), Pipeline and Hazardous Materials Safety Administration, 901 Locust Street, Suite 462, Kansas City, MO 64106-2641. The terms of that Repair Plan, at a minimum, must include the following provisions:
 - a. Any testing, assessments, or evaluations necessary to understand the condition of the Affected Pipelines in the area of the pipeline crossings of the Missouri River between Decatur, Nebraska, and Onawa, Iowa, affected by flooding, including a written report of findings;
 - b. Replacement of the Red and Blue Lines crossing the Missouri River between Decatur, Nebraska, and Onawa, Iowa, to fully remediate any risks identified by evaluations required by Item 2(A);
 - c. The design basis for the replacement of the Red and Blue Lines crossings the Missouri River, including, but not limited to, anticipated internal and external loads, pipeline operating conditions, and anticipated Missouri River flooding conditions impacting the replaced crossing; and
 - d. Relocation of block valve sites and/or other protective measures for existing block valve sites as needed to maintain continuous remote control operation of the valves in the event of flooding.

3. Within 30 days following service of this Order, develop and submit to the Director for prior approval a written "Restart Plan" for the Affected Pipelines. The terms of the Restart Plan must, at a minimum, include the following provisions:
 - a. A specified daylight restart date;
 - b. Aerial patrolling of the Red and Blue Line 8-inch loop lines during the restart process;
 - c. Advance communications with local emergency response officials; and
 - d. A contingency plan to operate and monitor the Affected Pipelines during flooding conditions, including enhanced patrolling and remote monitoring.

4. Within 60 days of obtaining access to the failure site and retrieval of the failed pipe, complete mechanical and metallurgical testing and failure analysis of the failed pipe, including analysis of soil samples and any foreign materials, as may be applicable. The testing and analysis must 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;
 - 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 they are made available to Respondent.

5. Within 90 days following service of this Order, submit to the Director a Root Cause Failure Analysis (RCFA) for the August 13, 2011 accident on the Affected Pipelines. Enterprise must take the following actions:
 - a. Submit a proposal, for the Director's prior approval, to utilize a third party to perform and/or facilitate the RCFA;
 - b. The RCFA must evaluate the 1993 crossing design and any assumptions utilized in developing the design, and the actions taken by Enterprise since the advent of the 2011 flooding to prevent failure;
 - c. Elements of the RCFA must include, but not limited to: a scoping document for the RCFA; procedures associated with the RCFA; multiple methods used for the RCFA analysis and updates on each method as it progresses; documentation of the decision-making process; and a final report of the RCFA results, including any lessons learned and whether the findings are applicable to other segments, processes, or programs across Respondent's pipeline system; and
 - d. Develop and submit a plan with identified timelines to apply the lessons learned to other segments, processes or programs across the Respondent's pipeline system.

6. The Repair Plan shall be incorporated into this Order and revised as necessary to incorporate the results of actions undertaken pursuant to this Order and 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.
7. Implement the Repair Plan as approved by the Director, including any revisions. Any actions taken by Enterprise to meet the requirements of the Repair Plan must be in accordance with the terms of such plan, as approved by the Director, unless the actions have prior written approval from the Director before they are initiated. Make the results of all actions taken in accordance with the approved plan available to PHMSA or its representative.
8. Submit monthly 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 monthly report shall be due September 30, 2011.
9. It is requested that Enterprise maintain documentation of the costs associated with implementation of this Corrective Action Order. It is requested that Enterprise include in each monthly report submitted pursuant to Item 8 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.

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 under this Order that 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 action 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.

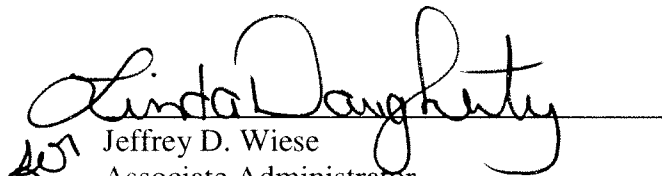
Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document you

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. 3-2011-5009H 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 service in accordance with 49 C.F.R. § 190.5.


Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

AUG 19 2011

Date Issued