



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

OCT 31 2006

VIA CERTIFIED MAIL AND FACSIMILE TO: (713) 803-8056

Mr. Terry Hurlburt
Senior Vice President/General Manager Operations
Enterprise Products Operating L.P.
1100 Louisiana Street
Houston, TX 77002-5227

Re: CPF No. 3-2006-5044H

Dear Mr. Hurlburt:

Enclosed is a Corrective Action Order issued by the Acting Associate Administrator for Pipeline Safety in the above-referenced case. It requires you to take certain corrective actions on your anhydrous ammonia pipeline system running from Skellytown, Texas to Mankato, Minnesota. 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.

Sincerely,

James Reynolds
Pipeline Compliance Registry
Office of Pipeline Safety

Enclosures

cc: Ivan A. Huntoon, Director, Central Region, PHMSA

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

In the Matter of)

Enterprise Products Operating L.P.,)

Respondent)

CPF No. 3-2006-5044H

CORRECTIVE ACTION ORDER

Purpose and Background

This Corrective Action Order is being issued, under authority of 49 U.S.C. § 60112, to require Enterprise Products Operating L.P. (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 anhydrous ammonia pipeline system.

On October 25, 2006, a failure occurred on Respondent's pipeline system in Clay County, Kansas resulting in the release of anhydrous ammonia. 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) initiated an investigation of the incident.

Preliminary Findings

- At approximately 9:43 a.m. CDT on October 25, 2006, Respondent's anhydrous ammonia (NH₃) hazardous liquids transmission pipeline system experienced a failure in Clay County, Kansas resulting in the release of anhydrous ammonia. The failure site was identified at Mile Post (MP) 72, close to the intersection of 12th and Hackberry Streets in Clay County, approximately 8.5 miles southwest of Clay Center.
- Following the failure, Respondent implemented a phased shutdown of the pipeline system. Respondent shut down the Abilene Pump Station upstream of the leak site. Beatrice Pump Station downstream of the leak site continued to be operated in order to remove product from the failed line section. Respondent then closed main line block valves (MLBVs) at MP 68 and MP 78 and allowed product to vent from the leak site during the day and night of October 25, 2006.

- Respondent estimates that approximately 4,400 barrels (bbls) of anhydrous ammonia was discharged as a result of the failure. Two hunters were reportedly hospitalized for respiratory problems and several animals were found dead in the vicinity of the failure, presumably due to ammonia exposure. A two mile radius was evacuated around the leak site, including 19 homes. A portion of Kansas State Route 24 was shut down for a short time following the release. Soil contamination has been reported around the leak site. A worker was also hospitalized on October 26 when lightning struck the pipeline during an attempt to install portable flares. No fires or human fatalities were reported in connection with the accident.
- Respondent's dedicated anhydrous ammonia pipeline system is approximately 1,100 miles long and transports anhydrous ammonia from Skellytown, Texas to Mankato, Minnesota. The pipeline runs through Texas, Oklahoma, Kansas, Nebraska, Iowa and Minnesota. The section of the pipeline on which the failure occurred transports ammonia from the Oklahoma border north-northeast across Kansas. This section traverses mostly rural areas of Kansas, but crosses various public roads including two Federal highways (US 70 and US 135) and numerous streams and drinking water Unusually Sensitive Areas (USAs). The remaining portion of Respondent's pipeline system traverses high consequence areas and public highways. The pipeline system is owned by Magellan Midstream Partners, L.P. and operated by Respondent.
- The cause of the failure has not yet been determined, but seam failure is suspected. Respondent conducted a preliminary visual examination at the failure site and reported that a split of approximately 3.5 feet in length was observed at the 9 o'clock position. The pipeline system remains shut down between the Abilene to Beatrice Stations.
- The leak site segment of Respondent's ammonia pipeline system was constructed in 1968. The pipeline system was constructed between 1960 and 1973. The pipeline is predominately 8-inch nominal pipe diameter, with some 6-inch portions. The 8-inch pipe has wall thicknesses of 0.156-, 0.188-, and 0.203-inch, and the 6-inch pipe has wall thickness of 0.156-inch. The pipe that failed is believed to be 8-inch diameter, 0.156-inch wall thickness, pre-1970 electric resistance weld (ERW) pipe, Grade X46, manufactured by Lone Star Steel. It has a tar-tape coating and is cathodically protected.
- PHMSA has issued Alert Notices ALN-88-01 and ALN-89-01 concerning the susceptibility of pre-1970 ERW pipe to longitudinal seam failures.
- The established maximum operating pressure (MOP) of the pipeline is 1185 pounds per square inch gauge (psig) as established by hydrotest at the time of construction. The actual operating pressure when the accident occurred was approximately 1152 psig as measured at the Abilene Pump Station.
- Respondent has not previously internally inspected the failed pipeline segment, but a baseline assessment is scheduled for 2007.
- On October 27, 2004, Respondent's anhydrous ammonia pipeline system experienced a failure in Kingman, Kansas caused by third party damage. PHMSA issued Corrective Action

Order CPF No. 3-2004-5032H in response to that failure. The same pipeline system experienced another failure in 2004 caused by third party damage in Blair, Nebraska.

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, provides 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 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 Respondent's anhydrous ammonia pipeline system without corrective measures would be hazardous to life, property and the environment. Additionally, after considering the age of the pipe, the method of manufacture, the proximity of the pipeline to populated areas, public highways and waterways, including drinking water USAs, the nature of the product the pipeline transports, the pressure required for transporting the product, and the ongoing investigation to determine the cause of the failure, I find that a failure to expeditiously issue this Order requiring immediate corrective action would likely result in 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, delivered personally, by mail or by facsimile 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. 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 Enterprise Products Operating L.P. to immediately take the following corrective actions with respect to its anhydrous ammonia pipeline system:

1. Prior to resuming operation of the pipeline system between the Abilene and Beatrice Stations, develop and submit written start-up procedures for prior approval by the Director, Central Region, PHMSA (Director). The procedures must provide for sufficient pressure monitoring, leak patrolling, and surveillance to ensure that no leaks are present when operation of the line is resumed. When the Director provides written approval for restart, operations may be resumed only in accordance with the start-up procedures approved by the Director.
2. Once the pipeline system between the Abilene and Beatrice Stations is restarted in accordance with Item 1, the operating pressure on that portion of the pipeline system is not to exceed eighty percent (80%) of the actual operating pressure in effect immediately prior to the October 25, 2006 failure. Specifically, the operating pressure at each pump station is not to exceed 80% of the actual operating pressure at that station immediately prior to the failure.
3. The operating pressure on the remaining portion of Respondent's anhydrous ammonia pipeline system between the Borger and Abilene Stations (the south end) and between the Beatrice and Mankato Stations (the north end) is not to exceed 80% of the highest normal operating pressures that each station experienced in the 60 days prior to the October 25, 2006 failure. Specifically, the restricted operating pressure for each station is as follows:

Station Name	Recent High Operating Pressure (psig)	New Restricted Operating Pressure (psig)
Borger	1188	950
Mocane	1000	800
Wellsford	1000	800
Partridge	987	790
Conway	1223	978
Greenwood	1143	914
Herman	1072	858
Whiting	1474	1179
Sgt Bluff	1143	914
Battle Creek	1491	1193
Early	1190	952
Pocahontas	1462	1170
Luverne	1343	1074
Gardner	1011	809

4. The pressure restrictions set forth in Items 2 and 3 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. If the results of any action undertaken pursuant to this Order dictate a

reduction in the allowable operating pressure below that imposed by this Order, Respondent must further reduce the operating pressure accordingly.

5. Within 30 days of receipt of this Order, complete mechanical and metallurgical testing and failure analysis of the failed pipe, including analysis of soil samples and foreign materials. The testing and analysis shall be completed as follows:
 - (A) When handling and transporting the failed pipe section and other evidence from the failure site, document the chain-of-custody;
 - (B) Obtain the Director's prior approval of the mechanical and metallurgical testing protocols, including approval of the testing laboratory;
 - (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, whether draft or final, to the Director at the same time as they are made available to Respondent.

6. Within 30 days of receipt of this Order, develop and submit to the Director for prior approval a written return-to-service plan that includes corrective measures. The plan must fully address all known or suspected factors that caused or contributed to the failure and must include, as applicable:
 - (A) The integration of the information developed from the actions required by Item 5 with any relevant pipeline system information from previous failure investigations, leak history, repair records, corrosion control/cathodic protection records, in-line inspections, hydrostatic testing, changes in pressure cycling, and other relevant operating data for the purpose of performing a comprehensive analysis of the available information associated with the factors that caused or contributed to the failure;
 - (B) The performance of 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 anhydrous ammonia pipeline system. If seam failure is determined to have caused or contributed to the pipeline failure, field testing must include hydrostatic testing, including a "spike" test and detailed metallurgical testing of any hydrostatic test failures that occur. 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 failure everywhere along the anhydrous ammonia pipeline system where such conditions, or any other integrity threatening 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; and

- (D) A proposed schedule for completion of the actions required by paragraphs (A) through (C) of this Item.
7. The return-to-service plan shall be submitted to the Director, Central Region, Pipeline and Hazardous Materials Safety Administration, 901 Locust Street, Suite 462, Kansas City, MO 64106-2641. The plan must be revised as necessary to incorporate new information obtained during the failure investigation and remedial activities undertaken pursuant to this Order. Submit any such plan revisions to the Director for prior approval. The Director may approve plan elements incrementally.
 8. Implement the plan as it is approved, including any revisions to the plan.
 9. 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 or other remedial actions being undertaken. The first quarterly report is due January 31, 2007.
 10. Maintain documentation of the costs associated with implementation of this Corrective Action Order. Include in each quarterly report submitted pursuant to Item 9, 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) spill remediation costs.
 11. The Director may allow the removal or modification of the pressure restrictions set forth in Items 2 and 3 upon a written request from Respondent 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.


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 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.

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 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 administrative civil penalties of up to \$100,000 per violation per day pursuant to 49 U.S.C. § 60122, and in referral to the Attorney General for imposition of civil judicial penalties or other appropriate relief in United States District Court pursuant to 49 U.S.C. § 60120.



for
Theodore L. Willke
Acting Associate Administrator
for Pipeline Safety

OCT 31 2006

Date Issued