U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

JUN 2 6 2009

1200 New Jersey Ave., SE
Washington, DC 20590

VIA CERTIFIED MAIL [7005-1160-0001-0046-9730] AND FAX TO: (402) 398-7118

Mr. Royce Ramsay
Vice President of Operations
Northern Natural Gas Company
1111 South 103rd Street
Omaha, NE 68124

Re: CPF No. 3-2009-1010H

Dear Mr. Ramsay:

Enclosed is a Corrective Action Order issued by the Associate Administrator for Pipeline Safety in the above-referenced case. It requires you to take certain corrective actions with respect to your Carlton to Marquette natural gas pipeline in connection with the June 23, 2009 failure near Bessemer, Michigan. 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

cc: Mr. Ivan A. Huntoon
Director, Central Region, OPS

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

In the Matter of	)	
Northern Natural Gas Company,	)	**CPF No. 3-2009-1010H**
Respondent.	)	

CORRECTIVE ACTION ORDER

Purpose and Background

This Corrective Action Order is being issued, under authority of 49 U.S.C. § 60112, to require Northern Natural Gas Company, LP ("Respondent"), to take the necessary corrective action to protect the public, property, and the environment from potential hazards associated with a failure involving the Carlton to Marquette natural gas pipeline.

On June 23, 2009, a failure occurred on the 16-inch diameter line section approximately 1 ¼ miles north of Bessemer, Michigan resulting in the release of natural gas. 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.

Preliminary Findings

- At approximately 10:33 a.m. CDT, on June 23, 2009, a rupture occurred on Respondent's natural gas pipeline, resulting in the release of approximately 95 million cubic feet of natural gas. The failure occurred at Mile Post (MP) 121, approximately 1 ¼ miles north of the town of Bessemer, Michigan. The incident was reported to the National Response Center (NRC Report No. 909472).

- When the pipeline ruptured, a section of pipe approximately 66 feet in length was ejected from the ground. Emergency responders evacuated approximately 15 homes within a ½ mile radius of the failure site.

- Following the failure, Respondent's personnel initiated emergency response procedures Respondent's personnel then isolated the failed line section by temporarily closing

Mainline Block Valve 9 at MP 117.68 and the inlet valve at MP 123.8. Respondent further isolated the failed section by installing stopples on both sides of the failure site.

- The cause of the failure is unknown and the investigation is ongoing. The failed pipe section is being transported to a metallurgist for examination and failure analysis. The preliminary investigation indicates that the longitudinal seam split open along the entire pipe joint. A 6 mile long section of the pipeline currently remains out of service.

- The pipe in the failed segment was manufactured by Youngstown in 1965 and is constructed of 16-inch x 0.203 and 0.250-inch w.t., grade X-60 electric-resistance welded (ERW) pipe. It has a tape coating and an impressed current cathodic protection system.

- At the time of the incident, the operating pressure at the Carlton Compressor Station discharge was 953 psig and the estimated operating pressure at the failure site was 923 psig. The maximum allowable operating pressure (MAOP) of this line segment is 1080 psig.

- Respondent's Carlton to Marquette pipeline originates in Carlton, Minnesota and runs eastward through the Upper Peninsula of Michigan. The pipeline crosses Carlton County in Minnesota; Douglas, Bayfield, Ashland, and Iron counties in Wisconsin; and Gogebic, Ontonagon, Houghton, Baraga, and Marquette counties in Michigan. The pipeline intersects with two High Consequence Areas (HCAs) at MP 98 and MP 115. The line crosses various state and local highways as well. This pipeline is part of the Northern Natural Gas pipeline system which transports natural gas from West Texas across Oklahoma, Kansas, Nebraska, Iowa, South Dakota, Minnesota, Wisconsin and Michigan

- Respondent performed an in-line inspection on the line section running from MP 54 to the Wakefield Compressor Station in 2007. Only one verification dig and repair was performed.

- OPS issued Alert Notices on January 28, 1988, and again on March 8, 1989, determining that pre-1970 ERW pipe was susceptible to seam failure and informing pipeline operators of the problem. Numerous documented failures of the longitudinal seam of pre-1970 ERW pipe have been caused by the growth over time of manufacturing defects in the ERW seams. Selective corrosion of the seam and cyclic fatigue can contribute to the growth of these defects. In some cases, pipelines that had been successfully hydrostatically tested had longitudinal seam failures involving selective corrosion or cyclic fatigue many years after the test. Various regulations issued by PHMSA since pre-1970 ERW pipe was determined to be susceptible to seam failure have reflected the need for this threat to be addressed (see e.g., 49 C.F.R. § 192.917(e)(4)).

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, provide 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 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 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 publicly accessed areas, roadways and high consequence areas, the hazardous nature of the product the pipeline transports, 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 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 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 Northern Natural Gas Company to immediately take the following corrective actions with respect to the Carlton to Marquette pipeline:

1. Prior to resuming operation of the line section running from Mainline Block Valve 9 to the Wakefield Compressor Station, develop and submit a written re-start plan for prior approval of the Director, Central Region, OPS, Pipeline and Hazardous Materials Safety Administration, 901 Locust Street, Suite 462, Kansas City, MO 64106-2641.

2. The restart plan must provide for adequate patrolling of the pipeline segment during the restart process. The restart plan must specify a daylight restart and detail advance

communications with local emergency response officials. Obtain written approval to resume operation of the line from the Regional Director prior to resuming operation.

3. After receiving approval from the Regional Director to restart the pipeline, maintain a pressure reduction in the operating pressure of the line section running from Carlton Compressor Station (MP 54) to Mainline Block Valve 7 (MP 226) as follows: (1) the operating pressure at the Carlton discharge is not to exceed eighty-five percent (85%) of the operating pressure in effect immediately prior to the failure. Specifically, the pressure at the Carlton discharge is not to exceed 810 psig; and (2) the operating pressure at the failure site and downstream of the failure site is not to exceed 80% of the operating pressure in effect immediately prior to the failure. Specifically, the pressure at the failure site is not to exceed 739 psig. 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 Regional Director pursuant to Item 11.

4. 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 any foreign materials. The testing and analysis shall 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, Central Region;

   C. Prior to commencing the mechanical and metallurgical testing, provide the Regional 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 Regional Director at the same time as they are made available to Respondent.

5. Within 60 days following receipt of this order, submit an integrity verification and remedial work plan to the Director, Central Region, OPS for approval. The plan must provide for the verification of the integrity of the pipeline and must address all factors known or suspected in the June 23, 2009 failure, including, but not be limited to:

   A. Integrate the results of the metallurgical analysis required by Item 4 with all relevant operating data and perform a root cause analysis of the June 23, 2009 failure;

   B. The performance of additional 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 along the remainder of the Carlton to Mainline Block Valve 7 line section. To the extent warranted by the failure analysis,

include consideration of an in line inspection or hydrostatic testing. 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. Include a detailed description of the repair criteria to be used for any anomalies that are excavated. This is to include a description of how any defects are to be graded and the schedule for repairs or replacement;

D. Include provisions for continuing long-term periodic testing and integrity verification measures to ensure the ongoing safe operation of the Carlton to Mainline Block Valve 7 line section considering the results of the analyses, inspections, and corrective measures undertaken pursuant to this Order; and

E. Include a proposed schedule for completion of the actions required by paragraphs A-D of this Item.

6. The integrity verification and remedial work plan becomes incorporated into this Order and shall be revised 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 Regional Director for prior approval. The Regional Director may approve plan elements incrementally.

7. Implement the work plan as it is approved by the Director, Central Region, OPS, including any revisions to the plan.

8. Submit quarterly reports to the Director, Central Region OPS 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 June 23 through September 30, 2009 shall be due by October 31, 2009.

9. 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.

10. With respect to each submission that under this Order requires the approval of the Regional 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 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 the submission, Respondent shall correct all deficiencies within the time specified by the Director, and resubmit it for approval.

11. The Regional Director may allow the removal or modification of the pressure restriction set forth in Item 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.

The Director, Central Region, OPS 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 192, 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.

JUN 2 6 2009

Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

Date Issued