



U.S. Department  
of Transportation

Research and  
Special Programs  
Administration

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

OCT 24 2001

Mr. Robert (Bob) Cronk  
Vice President of Technical Services  
Williams Energy Services  
Williams South 1 Building  
1800 South Baltimore Avenue  
Tulsa, OK 74119

Re: CPF No. 3-2001-5015H

Dear Mr. Cronk:

Enclosed is a Final 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 the operation of your pipeline. Service is being made by certified mail and facsimile. Your receipt of the enclosed document constitutes service of that document. The terms and conditions of this Final Order are effective upon receipt.

Sincerely,

Gwendolyn M. Hill  
Pipeline Compliance Registry  
Office of Pipeline Safety

cc: Michael C. Pearson, P.E., Manager, Asset Integrity

Enclosure

**VIA CERTIFIED MAIL (RETURN RECEIPT REQUESTED) AND TELECOPY**

**DEPARTMENT OF TRANSPORTATION  
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION  
WASHINGTON, DC 20590**

**In the Matter of**

**Williams Energy Services,**

**Respondent**

**CPF No. 3-2001-5015H**

**CORRECTIVE ACTION ORDER**

On June 22, 2001, the Director, Central Region, Office of Pipeline Safety (OPS) issued a Notice of Proposed Corrective Action Order (Notice), pursuant to 49 U.S.C. § 60112, proposing to require Williams Energy Services (Williams) to take the necessary corrective action to protect the public and environment from potential hazards associated with its 6 $\frac{1}{2}$ -inch diameter pipeline, which extends from Alexandria, Minnesota to Grand Forks, North Dakota (hereinafter referred to as Alexandria-Grand Forks #1-6" Line).

The Notice was issued following a rupture on April 14, 2001 on a section of the pipeline between Fargo and Grand Forks, ND. The rupture resulted in the release of approximately 40 barrels of #2 fuel oil. Following the rupture Williams isolated the segment of pipeline involved in the failure by closing the upstream mainline valve at MP 112 and the downstream valve at MP 116. Williams restarted the Alexandria-Grand Forks #1-6" Line on April 17, 2001, with a 20% pressure reduction from Alexandria, MN to Grand Forks, ND. The Notice proposed that Williams maintain a 20 percent (20%) reduction in the operating pressure along the Alexandria-Grand Forks #1-6" Line, which is not to exceed 80% of the operating pressure in effect at each pump station just prior to the failure. Specifically, the pressure is not to exceed 667 psig at the failure site.

Respondent responded to the Notice by letter dated June 29, 2001 (Response). Respondent requested a hearing. By letter dated August 9, 2001, Respondent stated that it would proceed to verify the integrity of the line in accordance with the Notice and withdrew its request for a hearing. Therefore, Respondent has waived its right to a hearing.

Based on the information gathered during the inspection, and during subsequent correspondence, I find that the operation of the Alexandria-Grand Forks #1-6" Line, from Alexandria, MN to Grand Forks, ND, without corrective measures would be hazardous to life, property and the environment.

This finding is based on the following factual determinations:

1. At approximately 4:40 p.m. CDT, on April 14, 2001, Williams' Alexandria-Grand Forks #1-6" Line failed, along the Fargo-Grand Forks segment, resulting in the release of approximately 40 barrels of #2 fuel oil. The leak at Mile Post 113+30 (MP 113+30), near Harwood, ND, occurred in the Brooktree Park Addition subdivision.
2. The failure is approximately 150 feet from the nearest home. The failure site is about 500 feet east of North Dakota State Highway 81 and about 150 feet west of the Sheyenne River.
3. The Alexandria-Grand Forks #1-6" Line is routed through predominantly rural areas of Minnesota and North Dakota, passing within 1-2 miles of numerous small communities along the route as well as crossing numerous public roadways, rivers, and streams. The pipeline also passes through residential areas of Fargo and Grand Forks, ND and crosses the Red River.
4. The Alexandria-Grand Forks #1-6" Line originates at Alexandria, MN running northwest into Fargo, ND where it shifts in a northerly direction passing through the Brooktree Park Addition subdivision to Grand Forks, ND.
5. The pipeline is owned by Williams Pipe Line Company and operated by Williams Energy Services.
6. The Alexandria-Grand Forks #1-6" Line transports gasoline, diesel, fuel oil and jet fuel.
7. The Alexandria-Grand Forks #1-6" Line was installed in 1946 and is constructed of 6 5/8-inch x 0.188-inch w.t., Grade B, low frequency, ERW (electric resistance welded) pipe manufactured by Republic Steel. The protective coating is coal tar.
8. The April 14, 2001 failure appears to be similar to the Alexandria-Grand Forks #1-6" Line failure that occurred on June 12, 1987, in the Brooktree Park subdivision along the Fargo-Grand Forks segment.
9. On June 12, 1987, a failure occurred at MP 113 on the Alexandria-Grand Forks #1-6" Line resulting in the release of 200 to 300 gallons of #2 fuel oil. The failure was attributed to a defect left in the longitudinal seam resulting from the low frequency ERW process used in the manufacturing of the pipe. This failure was located about 300 feet south of the April 14, 2001 failure.
10. OPS issued Hazardous Facility Order (CPF No. 3548-H) on July 7, 1987 requiring Williams to hydrostatically pressure test the Alexandria-Grand Forks #1-6" Line. This test was completed in October 1987. Five (5) failures occurred during the testing of the line segment from Alexandria, MN to Fargo, ND. Metallurgical analysis of the failures indicated the

failures were the result of defects left in the longitudinal seam by the low frequency ERW process. No test failures occurred in the line segment from Fargo, ND to Grand Forks, ND.

11. CPF No. 3548-H also required Williams to pressure test all of the low-frequency ERW pipe in all of the pipelines they operated at that time.

On June 4, 1993, a failure occurred in the Alexandria-Grand Forks #1-6" Line about 2 miles south of the April 14, 2001 failure, resulting in the release of approximately 210 gallons of #2 fuel oil. Metallurgical analysis of the 1993 failure indicated the failure was the result of a defect left in the longitudinal seam by the low frequency ERW welding process.

13. OPS identified low-frequency ERW pipe to be subject to failures in the longitudinal seams because of manufacturing defects. OPS issued Alert Notices on January 28, 1988, and again on March 8, 1989, to inform pipeline operators of the problem. Failures of the longitudinal seam of the pipe had been caused by the growth over time of manufacturing defects in the ERW seams. Selective corrosion of the seam and cyclic fatigue contribute to the growth of these defects. Although OPS review has also shown that in many cases pipelines that had been hydrostatically tested had operated safely since they were tested, there are also cases in which selective corrosion or cyclic fatigue have led to operating failures many months or years after the test.

14. The 1987, 1993, and April 14, 2001 failures stem from manufacturing defects in the ERW longitudinal seam, which were possibly aggravated by cyclic operation of the line.

15. In 1959, the first seam leak occurred in the MP 110-114 line segment downstream of Fargo. There have been four seam leaks, which occurred during operation, in the MP 110-114 line segment. However, no operational leaks have occurred in seams upstream of Fargo since 1962.

16. At the time of the incident, discharge pressure at the Fargo Pump Station (MP 104+34) was 920 psig and suction pressure at the Hillsboro Pump Station (MP 132+42) was 608 psig. Pressure at the failure site (MP 113+30) was 833 psig. The maximum operating pressure of this line segment is 950 psig. The failure location is approximately 74 miles south of Grand Forks and 9 miles downstream of the Fargo pump station (MP104+34).

The preliminary investigation on April 14, 2001 revealed a small leak in the longitudinal seam. The cause of the leak and the length of the fracture could not be determined by examination at the site. The failed pipe segment was sent to a metallurgical laboratory for further analysis.

18. On August 13, 2001, Respondent submitted to the Director of the Central Region, OPS, a report by Kiefner and Associates, Inc. dated August 9, 2001, which revealed that the leak was caused by a cold weld defect in the ERW seam.

19. No in-line inspection tool has been run on the Alexandria-Grand Forks #1-6" Line, as the diameter of the line limits the use of in-line inspection tools to those that are not capable of detecting longitudinal seam defects such as cracks.
20. The segment of pipe that failed, between Fargo and Grand Forks, ND, was last pressure tested in 1987.
21. Following the April 14, 2001 accident, Williams' personnel isolated the line by closing the upstream mainline valve at MP 112 and the downstream valve at MP 116. The upstream valve is located approximately 1.57 miles from the failure site. The downstream valve is located approximately 2.43 miles from the failure site.
22. Respondent restarted the Alexandria-Grand Forks #1-6" Line on April 17, 2001 with a 20% pressure reduction from Alexandria, MN to Grand Forks, ND. The failure site is approximately 19.23 miles south of the Hillsboro Pump Station (MP132+42) and approximately 9 miles north of the Fargo Pump Station (MP104+34).

Based on the above information, I find that the operation of the Alexandria-Grand Forks #1-6" Line, from Alexandria, MN to Grand Forks, ND, without the following corrective measures is hazardous to life, property and the environment. Accordingly pursuant to 49 U.S.C. § 60112, Williams is required to take the following corrective actions with respect to its Alexandria-Grand Forks #1-6" Line:


1. Maintain a 20 percent (20%) reduction in the operating pressure along the Alexandria-Grand Forks #1-6" Line, which is not to exceed 80% of the operating pressure in effect at each pump station just prior to the failure. Specifically, the pressure is not to exceed 667 psig at the failure site.
2. Submit a written plan, subject to approval by the Regional Director, Central Region, OPS, to verify the integrity of the line segment from Fargo, ND to Grand Forks, ND. The plan must provide integrity testing that addresses all known or suspected factors in the April 14, 2001 failure, including, but not limited to:

Hydrostatically pressure testing the line, in accordance with the requirements set forth in §195.304, and/or other mitigative measures required to address the cause and contributing factors to the April 14, 2001 pipeline failure. The pressure testing must include a thirty (30) minute burst test. The burst test pressure shall be to a minimum of 139% of the maximum operating pressure at the high elevation in each test section.

Conducting a detailed metallurgical analysis of each seam failure that occurs during the hydrostatic pressure testing of the line. The cause of other types of failures must also be determined.

- C. A schedule and means for providing the results and data for testing programs performed to the Central Region, including a project status report to be filed on a monthly basis.
3. Each element of the plan must be approved by the Regional Director, who may provide approvals incrementally. Implement the plan as approved.
  4. Respondent may request approval from the Regional Director, to increase its operating pressure above the interim maximum operating pressure under item 1, based on a showing that the hazard has been abated or that a higher pressure is justified based on an analysis showing that the pressure increase is safe considering all known defects, anomalies and operating parameters of the pipeline. The Regional Director's determination will be based on cause of failure and provision of evidence that mitigative actions taken by the operator provide for the safe operation of the pipeline. Appeals to determinations of the Regional Director in this regard will be subject to the decision of the Associate Administrator for Pipeline Safety.
  5. Submit your integrity management plan, as required by §195.452, ensuring the operational reliability of the Alexandria-Grand Forks #1-6" Line including determination of periodic pressure testing intervals and periodic assessment to OPS for review and approval by December 31, 2001.
  6. The Central Regional Director may grant an extension of time for compliance with any of the terms of this order for good cause. A request for an extension must be in writing.

Failure to comply with this Final Order may result in the assessment of civil penalties of up to \$25,000 per violation per day and in referral to the Attorney General for appropriate relief in United States District Court.

  
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Stacey Gerard  
Associate Administrator  
for Pipeline Safety

OCT 24 2001

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Date Issued