

**VIA CERTIFIED MAIL AND FAX TO: (580)-395-3190**

June 15, 2011

Mr. Wes Christensen  
Senior Vice President of Operations  
ONEOK NGL Pipeline, LP  
100 West Fifth Street  
Tulsa, Oklahoma 74103-4298

**Re: CPF No. 3-2011-5008S**

Dear Mr. Christensen:

Enclosed please find a Notice of Proposed Safety Order (Notice) issued in the above-referenced case. The Notice proposes that you take certain measures with respect to ONEOK NGL Pipeline, LP's (ONEOK) North System pipeline. Your options for responding are set forth in the Notice. Your receipt of the Notice constitutes service of that document under 49 C.F.R. § 190.5.

We look forward to a successful resolution of this matter to ensure pipeline safety. Please direct any questions on this matter to me at (816) 329-3800.

Sincerely,

David Barrett  
Director, Central Region  
PHMSA – Office of Pipeline Safety

Enclosures: Notice of Proposed Safety Order and Copy of 49 CFR § 190.239

**U.S. DEPARTMENT OF TRANSPORTATION  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
OFFICE OF PIPELINE SAFETY  
CENTRAL REGION  
KANSAS CITY, MISSOURI 64106**

In the Matter of	)	
	)	
ONEOK NGL Pipeline, LP	)	CPF No. 3-2011-5008S
	)	
Respondent.	)	
	)	

**NOTICE OF PROPOSED SAFETY ORDER**

**Background and Purpose**

Pursuant to Chapter 601 of title 49, United States Code, the Pipeline and Hazardous Materials Safety Administration (PHMSA) has initiated an investigation of the safety of ONEOK NGL Pipeline, LP's (ONEOK) North System pipeline, including an incident that occurred on May 14, 2011 in which ONEOK's 106W hazardous liquid pipeline failed in a casing in Romeoville, Illinois. In addition to the onsite examination of the failed pipe in Romeoville, Illinois, PHMSA's investigation included a review of ONEOK's North System control center in Tulsa, Oklahoma.

As a result of the investigation, it appears that a condition or conditions exist on the ONEOK's 106W pipeline and North System control systems that pose a pipeline integrity risk to public safety, property or the environment. Pursuant to 49 U.S.C. § 60117(1), PHMSA issues this Notice of Proposed Safety Order, notifying you of the preliminary findings of the investigation and proposing that you take measures to ensure that the public, property, and the environment are protected from the potential risk.

**Preliminary Findings**

- ONEOK's North System is an interstate hazardous liquids pipeline system that transports natural gas liquids (NGL) between Medford, Oklahoma and Chicago, Illinois. The North System is approximately 1,756 miles long with 1,553 miles located in the states of Iowa, Illinois, Indiana, Kansas, Missouri, and Nebraska. The 106W line is approximately 35.23 miles long and transports NGL between Lemont and Wayne stations located in Illinois. Many portions of the North System are bi-directional.

- On May 14, 2011, at approximately 3:40 p.m. CDT, a failure occurred on the 106W line near the intersection of West 135<sup>th</sup> Street and North Weber Road in Romeoville, IL. The failure occurred in a cased crossing under West 135<sup>th</sup> Street. Initial reports by the Respondent indicated approximately 100 barrels of refinery grade butane were released.
- The released butane pushed dielectric material from the annulus of the casing and out the casing vent at West 135<sup>th</sup> Street. Local businesses including a gasoline station were closed and evacuated. There were no injuries reported as a result of the release.
- ONEOK reported the incident to the National Response Center (NRC) on May 14, 2011 at 8:55 p.m. Eastern Time (NRC Report #976327). PHMSA initiated an investigation of the incident, which involved an on-site investigation at the failure location and investigation at the ONEOK's control center in Tulsa, Oklahoma.
- The ONEOK North System control center consoles received notification of the release by two third-parties. The first party provided a call around 3:37 CDT but did not provide an address and hung up. The controllers began to look for any unusual pipeline response but only had an area code to go from. At 3:42 pm CDT, a second call came to the control room indicating a release and the emergency responder provided a location. Controllers began to close valves in conjunction with contacting Magellan at Wayne pump station and reversed flow into Lemont in an effort to eliminate as much product as possible from the release site. Shutdown, isolation, and blow down of the 106W pipeline was completed at 4:49 pm CDT.
- ONEOK purged the pipeline in the vicinity of West 135<sup>th</sup> Street and North Weber Road. The crossing was replaced by open cutting West 135<sup>th</sup> Street and installing new pipe and casing. The pipeline was returned to service on May 24, 2011 with a 20% pressure reduction.
- The failure occurred inside a 12-inch steel casing. PHMSA investigators and ONEOK visually examined the failed pipe and casing at the scene, and observed a failure that was indicative of external corrosion of the carrier pipe at the 12 o'clock position underneath a spacer used to maintain clearance between the carrier pipe and the casing. The failed pipe was transported to Kiefner and Associates near Columbus, Ohio for metallurgical examination. The exact condition or conditions on the pipeline that caused the failure are unknown at this time as final metallurgical reports have not been completed. Based on the visual examination and the nature of the corrosion, the same condition(s) that caused the failure could be present (or could develop) on other areas of the pipeline and impair the reliability and serviceability of the pipeline.
- As reported by ONEOK the 106W pipeline is generally constructed of 8-inch diameter pipe having a multiple wall thickness ranging from 0.188 to 0.322-inch with the predominate wall thickness being 0.188-inch, Grade API 5L X-52 pipe of

unknown manufacture. ONEOK reports the pipe seam is high frequency electric resistance welded (ERW) and was constructed in 1967 but could not produce documentation confirming the manufacturer. The failed carrier pipe at West 135<sup>th</sup> Street is 8-inch diameter, 0.250 inch wall thickness. Per the alignment sheets and observations by PHMSA and ONEOK onsite, it is apparent the West 135<sup>th</sup> Street crossing has been modified since the time of original construction.

- The maximum operating pressure (MOP) of the 106W pipeline is 1440 psig. The discharge pressure at Lemont Pump Station was approximately 1148 psig at the time of the failure.
- The 106W pipeline crosses heavily traveled public roadways, including East West Tollway, Butterfield Road, and Interstate 55. The pipeline also travels through high population areas. ONEOK indicated there are approximately 120 cased crossings of railroads and public roadways on the 106W pipeline.
- The previous operator of the 106W pipeline performed an inline inspection (ILI) of the pipeline in 2007 with high resolution magnetic flux leakage (MFL) and caliper tools. A 37% deep metal loss anomaly was reported approximately 2.5 feet downstream of the failure. Review of the raw ILI data by ONEOK after the May 14<sup>th</sup> failure showed an indication of a feature at the point of failure under the spacer in the casing. ONEOK has indicated that at the time of the 2007 ILI, none of the features reported at the 135<sup>th</sup> Street crossing were actionable.
- On August 12, 2006, the previous operator of the 106W pipeline experienced a failure on above-grade piping on the Des Plaines River bridge releasing 1,416 barrels of butane. The cause of the failure was determined to be external corrosion.
- On May 17<sup>th</sup> PHMSA conducted controller interviews at the ONEOK facility. It was determined that at the time of the incident, the console logger for one of the two consoles operating the North system had quit logging commands or events and alarms coming from the console. The absence of this SCADA data prevented ONEOK from being able to verify the exact time certain activities had been performed in comparison with other information.
- PHMSA determined that computational pipeline monitoring was not installed on the North system consoles at the time of the incident. The controllers did not have instrumentation on the 106W line except three pressures located in close proximity to the Lemont Pump Station and it was necessary to manually record data about what was being delivered or received.
- On Jan 26<sup>th</sup>, 2010, PHMSA issued Advisory Bulletin ADB-10-01 reminding operators of the importance of prompt and effective leak detection capability in protecting public safety and the environment. The Advisory Bulletin recommends an engineering review of the pipeline system regarding leak detection applicability,

regular line balance activities, and the implementation of CPM leak detection systems where feasible.

### **Proposed Issuance of Safety Order**

Section 60117(l) of Title 49, United States Code, provides for the issuance of a safety order, after reasonable notice and the opportunity for a hearing, requiring corrective measures, which may include physical inspection, testing, repair, or other action, as appropriate. The basis for making the determination that a pipeline facility has a condition or conditions that pose a pipeline integrity risk to public safety, property, or the environment is set forth both in the above-referenced statute and 49 C.F.R. § 190.239, a copy of which is enclosed.

After evaluating the foregoing preliminary findings of fact and considering the age of the pipeline, the proximity of the pipeline to public roadways and populated areas, the hazardous nature of the product being transported, the pressure required for transporting the material, the ongoing investigation to determine the condition(s) that caused the pipeline failure, the likelihood that the condition(s) causing the failure could be present or could develop on other areas of the pipeline, and the likelihood that such condition(s) could again impair the serviceability of the pipeline, it appears that the continued operation of the pipeline without corrective measures would pose a pipeline integrity risk to public safety, property, or the environment.

Accordingly, PHMSA issues this Notice of Proposed Safety Order to notify ONEOK of the proposed issuance of a safety order and to propose that the company take the measures specified herein to address the potential risk.

### **Response to this Notice**

In accordance with 49 C.F.R. § 190.239, you have 30 days following receipt of this Notice to submit a written response to the Regional Director who issued the Notice. If you do not respond within 30 days, this constitutes a waiver of your right to contest the Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in the Notice without further notice to you and to issue a safety order.

In your response, you may notify the Regional Director that you intend to comply with the terms of the Notice as proposed, or you may request that an informal consultation be scheduled. Informal consultation provides you with the opportunity to explain the circumstances associated with the risk condition(s) alleged in the notice and, as appropriate, to present a proposal for a work plan or other remedial measures, without prejudice to your position in any subsequent hearing. If you and PHMSA agree within 30 days of informal consultation on a plan and schedule for you to address each identified risk condition, we may enter into a written consent agreement (Agreement). PHMSA would then issue an administrative consent order incorporating the terms of the agreement.

If a consent agreement is not reached, or if you have elected not to request informal consultation, you may request an administrative hearing in writing within 30 days following receipt of the

Notice or within 10 days following the conclusion of an informal consultation that did not result in a consent agreement, as applicable. Following a hearing, if the Associate Administrator finds the facility to have a condition that poses a pipeline integrity risk to the public, property, or the environment in accordance with 49 C.F.R. § 190.239, the Associate Administrator may issue a Safety Order.

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 3-2011-5008S and for each document you submit, please provide a copy in electronic format whenever possible.

### **Proposed Corrective Measures**

Pursuant to 49 U.S.C. § 60117(l) and 49 C.F.R. § 190.239, PHMSA proposes to issue to ONEOK NGL Pipeline, LP a Safety Order (Order) incorporating the following remedial requirements with respect to the ONEOK 106W pipeline system:

1. Develop and submit a written restart plan for approval by the Director, Central Region, PHMSA (Director) for this segment. The restart plan must provide for adequate patrolling of the pipeline during the restart process, specify a daylight restart, provide details associated with the monitoring of other casings, and detail advance communications with local emergency response officials. The restart plan must include actions taken by ONEOK to confirm the integrity of pipeline facilities that were damaged, or were suspected of being damaged, as a result of the incident, prior to restart. After completion of restart ONEOK shall submit within 30 days of the receipt of the Order or Agreement documentation demonstrating the advance communications with local emergency response officials.
2. After the line has been restarted, the operating pressure of the 106W pipeline must not exceed 80% of the actual operating pressure in effect immediately prior to the May 14, 2011 failure. Specifically, the discharge pressure at Lamont Station into 106W must not exceed 918 psig. This pressure reduction requires any relevant remote or local alarm limits, software programming, set-points or control points, and mechanical over-pressure devices to be adjusted accordingly. Documentation of the adjustments to alarm limits, software programming, set-points etc shall be submitted. The pressure restriction must 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, as set forth in Item 17. If the results of any action undertaken pursuant to the Order or Agreement necessitate a reduction in the operating pressure permitted by the Order or Agreement, ONEOK must further reduce the operating pressure accordingly and notify the Director.

3. Within 15 days of receipt of the Order or Agreement, submit a plan to conduct an instrumented leak survey of the 106W pipeline system detailing the schedule for the expeditious completion of the leak survey within 30 days of initiating the survey. Include in the plan a description of the equipment to be used and performance specifications describing sensitivity of leak detection. The plan must include provision for submission of a summary report detailing the findings of the leak survey to be provided directly from the instrumented leak survey provider to the Director. This summary report should include a description of any elements affecting the leak survey data, the area covered and associated ranges of the leak survey findings, and any other items of significance such as accuracy of the instrumentation or malfunction of equipment. The Director is to receive distribution of all resulting reports in their entirety, including all media, at the same time they are made available to ONEOK. The plan must provide for the ongoing performance of patrol surveillance activities for 106W pipeline on a weekly basis until approved otherwise by the Director.

Within 5 days from of the leak survey completion, submit a separate report detailing the schedule of planned maintenance activities to occur as a result of the leak survey for the 106W pipeline system.

4. Within 45 days of the Director's approval of testing protocols, complete third-party mechanical and metallurgical testing and failure analysis of the 106W pipeline failed pipe, the associated spacer(s) and casing as relevant to the incident. If a review of the casing vent stacks is required for any reason based on information received from the third-party tester, this shall be completed as well. Provide documentation verifying manufacturer and seam type, or in the alternative the testing shall also include examination of a sample of pipe to confirm wall thickness and seam type (low or high frequency ERW). 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 originating from the failure site;
  - (B) Utilize mechanical and metallurgical testing protocols which have been previously 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 ONEOK. Additional testing may be requested by the Director based on metallurgical findings.

5. Within 30 days of receipt of the Order or Agreement, conduct an evaluation of the previous in-line inspection (ILI) results, including a review and reporting by the ILI vendors' analysts (including raw data) of the failed 106W pipeline as follows:
  - (A) Re-evaluate the 1996 and 2007 in-line inspection results to determine whether any features with similar characteristics to the feature at the failure site are present elsewhere on the pipeline; and
  - (B) Within 15 days of the completion of the re-evaluation, submit a report within describing the process used to re-evaluate ILI results, and the results of the re-evaluation.
6. Within 30 days of receipt of the Order or Agreement, perform an ILI of the 106W pipeline. Before performing the ILI tool run, the Director will review and approve the final criteria and specific technology considerations ONEOK has taken into account when selecting the specific tool. Technology considerations and final criteria should account for the size of anomalies experienced in the casing and other 106W pipeline specific elements. The data analysis must be completed within 60 days of successful completion of the ILI. The ILI must include consideration of best technology to reliably detect and size anomalies in casings. The ILI vendor shall evaluate the results per a performance specification, including consideration of the location and size of the defect that failed on May 14, 2011. Results of the inline inspection must be compared with previous ILI results from 1996 and 2007. Submit the ILI results to the Director including: the comparison with prior results, and a plan for remediation of anomalies requiring immediate action; including criteria for immediate action.
7. Perform corrective measures to SCADA operations as follows:
  - (A) Within 30 days of the receipt of the Order or Agreement, submit a review and implementation plan to the Director for a leak detection system on the entire North system. The implementation plan shall include a timeline to complete implementation for all pipeline segments on all Consoles for the North system and is not to exceed 24 months. A prioritization for all pipeline segments on the Consoles operating the ONEOK North system is to be included in the implementation plan submitted. This review and implementation plan shall include instrumentation improvements. Upon completion of the review submit a report for the Director's approval describing the prioritization, consideration of risk in developing schedule, implementation milestones, and a detailed explanation of the existing and new instrumentation requirements to be utilized for each prioritized leak detection section.
  - (B) Within 90 days of receipt of the Order or Agreement, install and activate additional instrumentation on the 106W pipeline. At a minimum, this instrumentation must consist of pressure and flow monitoring at the Wayne station IAP Valve 185 and additional pressure monitoring on either side of

IAP Valve 184, IAP Valve 416, and IAP Valve 4. This instrumentation shall be used by the future leak detection system. If additional instrumentation is required for the leak detection, this shall also be installed.

- (C) Within 1 year of receipt of the Order or Agreement, update the SCADA software to a version that will allow stale data, forced values, or points off scan to be backlit a different color per individual point on each Function Control Unit (FCU). Should additional time be required after initiating this upgrade for complete implementation, ONEOK will utilize provisions identified in Item 18.
8. Within 60 days of receipt of the Order or Agreement, identify what caused the console logger to stop working for the console assigned the tag name TCU2. Contact the vendor and work to design and implement a software alarming system to indicate when this happens in the future. In addition, create a “re-boot” log that records all times, dates, identify employee performing, systems involved and /or causing, and reasons for rebooting of SCADA PCs or servers. This log shall be kept and available for PHMSA review upon request.
  9. Within 60 days of receipt of the Order or Agreement, thoroughly review and update all written control room procedures to reflect ONEOK specific requirements and remove references to previous pipeline operator(s).
  10. Within 60 days of receipt of the Order or Agreement, submit to the Director a company-wide management of change process including attached documentation describing the various departments that utilize the process and how the process is implemented by all departments within ONEOK. Require all revisions to procedures, process, assets including abandonments or idling of facilities, instrumentation, communication, networks, or new pipeline facilities involve the control room in such a manner as their input is provided before final decisions are made and their involvement is performed with enough time that controller training can occur in advance of operations of any asset associated with changes or newly operated. This is required to involve all departments in ONEOK Partners at large including but not limited to: asset management, scheduling, new business development, operations (field and headquarters), communications, design and engineering (field and headquarters), maintenance, leak detection, integrity management, IT, etc.
  11. Within 90 days of receipt of the Order or Agreement, design and implement a training program for all maintenance crews requiring them to call the control room before, during, and upon completion of all maintenance activity. The program must emphasize that this required contact should occur as frequently as needed to keep all controllers aware of the status of maintenance activities. This applies to any pipeline or facility repairs, emergency response, routine valve maintenance, routine instrumentation, or other routine maintenance.

12. Within 120 days of receipt of the Agreement or Order, develop and submit to the Director for prior approval a remedial work plan that includes corrective measures. The work plan must provide for the verification of the integrity of the 106W pipeline and must fully address all known or suspected factors that caused or contributed to the May 14, 2011 incident, including, but not limited to:
  - (A) The integration of the information developed from the actions required by the Agreement or Order with all historical construction, operating, maintenance, testing, and assessment data for the entire pipeline including:
    - (i) Within 30 days of completion of the testing and analysis required by Items 3-6, complete a root cause failure analysis for 106W pipeline relating to the May 14, 2011 incident that is supplemented and facilitated by an independent third-party expert acceptable to the Director. Elements of the root cause analysis must include, but not be limited to: scoping document of the root cause analysis; procedures associated with root cause analysis; multiple methods used for the analysis and updates on each method as it progresses; contributory factors; documentation of the decision-making process; and a final report of the root cause process results, including any lessons learned and whether the findings are applicable to other locations within the ONEOK System; and
    - (ii) Within 30 days of completion of the root cause failure analysis, integrate the findings of the root cause failure analysis into other data integration efforts and the remedial work plan.
  - (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 elsewhere on the 106W pipeline. Data-gathering activities must include a review of the failure history (in-service and pressure test failures) of the entire length of the 106W pipeline and development of a written report to the Director containing all available information regarding locations, dates, and causes of failures. Include a detailed description of ONEOK's plan to confirm the integrity of the 106W pipeline, including the criteria to be used for the evaluation and prioritization of any integrity threats and anomalies that are identified. Make the results of the actions required by this provision available to the Director or PHMSA's representative;
  - (C) The performance of repairs or other corrective measures that fully remediate the condition(s) associated with the pipeline failures and any other integrity-threatening condition everywhere along the 106W pipeline where such 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;

- (D) Provisions for continuing long-term periodic testing and integrity verification measures to ensure the ongoing safe operation of the 106W pipeline considering the results of the analyses, inspections, and corrective measures undertaken pursuant to the Safety Order; and
  - (E) A proposed risk-based schedule for completion of the actions required by paragraphs (A) through (D) of this Item, including a schedule associated with all elements of the internal root cause analysis. Provide the Director with advance notice of scheduled repairs.
13. The remedial work plan becomes incorporated into the Order or Agreement and must be revised as necessary to incorporate the results of actions undertaken pursuant to the Order or Agreement and whenever necessary to incorporate new information obtained during the failure investigations and remedial activities. Submit any such plan revisions to the Director for prior approval. The Director may approve plan elements incrementally.
  14. Implement the remedial work plan as approved by the Director, including any revisions to the plan. The results of all actions taken in accordance with the approved plan must be available for review by PHMSA or its representative.
  15. Submit monthly reports to the Director that: (1) include available data and results of the testing and evaluations required by the Order or Agreement; and (2) describe the progress of the repairs and other actions being undertaken as a result of the Order or Agreement. The first monthly report is due on the last day of the month following receipt of the Order or Agreement. The regular intervals for submitting reports may be adjusted with prior approval of the Director.
  16. It is requested (but not required) that ONEOK maintain documentation of the costs associated with implementation of the Safety Order, and include in each report submitted pursuant to Item 16, 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.
  17. The Director may allow the removal or modification of the pressure restriction set forth in Item 2 upon a written request from ONEOK demonstrating that the hazard has been abated and that restoring the pipeline, or portion thereof, to its pre-failure operating pressure would be 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.
  18. The Director may grant an extension of time for compliance with any of the terms of the Safety Order upon a written request timely submitted demonstrating good cause for an extension.

19. ONEOK may appeal any decision of the Director to the Associate Administrator for Pipeline Safety. Decisions of the Associate Administrator are final.

The above actions proposed to be required by this Notice of Proposed Safety Order are in addition to and do not waive any requirements that apply to ONEOK's North System under 49 C.F.R. Parts 190 through 199, under any other order issued to ONEOK under authority of 49 U.S.C. Chapter 601, or under any other provision of Federal or State law.

After receiving and analyzing additional data in the course of this proceeding and implementation of the work plan, PHMSA may identify other safety measures that need to be taken. In that event, ONEOK will be notified of any proposed additional measures and, if necessary, amendments to the work plan or safety order.

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David Barrett  
Director, Central Region  
Pipeline and Hazardous Materials Safety Administration

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June 15, 2011  
Date issued