U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue SE
Washington, DC 20590

MAY 15 2015

VIA CERTIFIED MAIL AND FAX TO: (918) 573-6714

Mr. Michael C. Pearson
Vice President of Technical Services
Magellan Pipeline Company, LP
One Williams Center,
MD-27
Tulsa, Oklahoma 74172

Re: CPF No. 3-2015-5003H

Dear Mr. Pearson:

Enclosed is a Corrective Action Order issued in the above-referenced case. It requires Magellan Pipeline Company, LP to take certain corrective actions with respect to the Magellan El Dorado to Kansas City #6-10 refined products pipeline, which failed on May 4, 2015, in Butler County, Kansas. Service is being made by certified mail and facsimile. Service by electronic transmission is deemed complete upon transmission and acknowledgement of receipt, or as otherwise provided under 49 C.F.R. § 190.5. The terms and conditions of this Order are effective upon completion of service.

Thank you for your cooperation in this matter.

Sincerely,

for Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

Enclosure

cc: Ms. Linda Daugherty, Deputy Associate Administrator for Field Operations, OPS
Mr. Allan C. Beshore, Director, Central Region, OPS
Mr. Jason Smith, Director, Integrity Management, Magellan Pipeline Company, LP

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

In the Matter of	)	
Magellan Pipeline Company, LP	)	**CPF No. 3-2015-5003H**
Respondent.	)	

CORRECTIVE ACTION ORDER

Purpose and Background:

This Corrective Action Order (Order) is being issued under the authority of 49 U.S.C. § 60112 to require Magellan Pipeline Company, LP (Magellan or Respondent), to take the necessary corrective actions to protect the public, property, and the environment from potential hazards associated with the recent failure on Respondent's El Dorado to Kansas City refined products pipeline.

A reportable accident occurred on the #6-10 portion of the El Dorado to Kansas City pipeline in Butler County, Kansas, on May 4, 2015, resulting in the release of an estimated 1,861 barrels of diesel fuel. 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 accident. The investigation remains ongoing. The preliminary findings of the ongoing investigation are as follows.

Preliminary Findings:

- On May 4, 2015, at approximately 4:11 a.m. Central Daylight Time (CDT), a failure occurred on the 10-inch nominal diameter El Dorado to Kansas City #6-10 portion of the pipeline in the town of El Dorado, KS.

- The accident was reported to the National Response Center (NRC Report #1115408) on May 4, 2015, at approximately 4:44 a.m. CDT. PHMSA received this notification at approximately 5:02 a.m. CDT.

- The pipeline is 170.16 miles long and comprised of 166.8 miles of 10-inch nominal diameter pipeline from East El Dorado Pump Station to the 18th street valve setting (#6-10), and 3.36 miles of 8-inch (#4-8) nominal diameter pipeline from the 18th street valve setting to Kansas City Terminal. The pipeline delivers refined petroleum products to the Topeka and Kansas City terminals.

- The East El Dorado to 18th street valve setting was originally constructed in 1955. The pipe at the failure location was 10-inch nominal diameter, low frequency electric resistance welded, X-46, 0.250 wall, pipe manufactured by Youngstown Steel with coal-tar coating and an impressed current cathodic protection system. An estimated 166.8 miles of "like" pipe exist in this section.

- The maximum operating pressure (MOP) of the El Dorado to Topeka portion of the pipeline is 1,142 psig. The maximum discharge pressure at East El Dorado pump station, the only active pump station on the pipeline, is 1,008 psig. At the time of the failure, the discharge pressure was 1,001 psig.

- In response to receiving SCADA system indications of a possible leak at 4:11 am CDT, Magellan shutdown the pipeline starting at 04:14:42 CDT. This involved the actuation of valves located at Kanas City Terminal, 18th Street, Emporia, Mile Post (MP) 156, Topeka, and East El Dorado pump station. Magellan completed the shutdown operation by 04:18:06 am CDT. After this had been established, Magellan also closed manual valves at MP 2, MP 7, and MP 12.

- The pipeline was hydrostatically tested in 1991 to a pressure of 1,937 psig. The MOP was established at 1,142 psig based on 72% specified minimum yield strength (SMYS) for 10-inch nominal diameter, 0.203 wall thickness, X-42 line pipe in 2003.

- The failure occurred in a High Consequence Area (HCA). Homes were located within 625 feet of the failure location and a large NuStar tank facility was within 180 feet. An active railroad crosses over Constant Creek and diesel fuel flowed down the creek into this area and traveled approximately 0.5 miles from the failure location.

- The failure site is located approximately 688 feet downstream of East El Dorado Pump Station known as MP 0.2 in initial reports. This location is in a common corridor with an overhead electric line, and six other pipelines (5 connecting tank lines and the #7-16" from El Dorado to Wathena Junction). The El Dorado to Kansas City pipeline crosses numerous public roads, several HCAs due to population, and Unusually Sensitive Areas (USA).

- As a result of the failure, an estimated 1,861 barrels of diesel fuel were released with a reported 672 barrels recovered. Of the 672 barrels recovered, 627 barrels made it into Constant Creek.

- The Magellan El Dorado to Kansas City Terminal pipeline remains shut down. The pipe has been delivered to a metallurgical laboratory for testing and failure analysis.

- The cause of the failure has not yet been confirmed, butinitial observations indicate selective seam corrosion as the likely failure mechanism.

- The pipeline's recent leak history includes:
  - 2/28/2011- the #6-10 portion of the pipeline experienced a 20 barrel release of gasoline in Emporia, KS as a result of a malfunction of Control/Relief equipment.
  - 10/06/2011- the #6-10 portion of the pipeline experienced a 590 barrel release of refined products near Lawrence, KS due to a third party excavation damage.
  - 05/23/2005 – the #4-8 portion of the pipeline experienced a 2936 barrel release of gasoline in Kansas City, KS reported by the operator as being caused by external corrosion.
  - The #6-10 portion of the pipeline experienced a manufacturing defect failure in 1998 and several external corrosion failures in 1989 and 1986 respectively.

- Magellan conducted an in-line inspection (ILI) of the El Dorado to Topeka segment in 2011. A preliminary review of the ILI results indicates that the joint that failed had an anomaly called out in the ILI data as a 27% metal loss feature.

  A new section of pipe has been installed at the failure location and the pipeline was filled with product on May 6, 2015 to assist with identification of any leak areas. However, Magellan has not placed the line back into operational status and has not resumed operations
- ERW pipe manufactured prior to 1970 has a history of increased risk of seam failures. PHMSA issued two advisory bulletins (ALN-88-01 on January 28, 1988, and ALN-89-01 on March 8, 1989) regarding factors contributing to operational failures of pipelines constructed with ERW pipe manufactured prior to 1970. PHMSA identified selective corrosion of the ERW seam as a contributing cause of failure in a significant number of these accidents. Other failures have occurred due to the growth of manufacturing defects in ERW seams. The advisory bulletins recommended that operators re-evaluate the potential for safety problems on their high-pressure pre-1970 ERW pipelines by hydrostatic testing on those pipelines, ensuring the effectiveness of cathodic protection systems, and taking additional safety measures.

  Magellan operates one of the largest products pipeline systems in the country and its assets consist of 9,500 miles of refined products pipelines with 53 connected terminals and 27 independent terminals.

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 or would be 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 opportunity for hearing, upon a finding that failure to issue the Order expeditiously would result in the likelihood of serious harm to life, property, or the environment. In such cases, an opportunity for a hearing and expedited review will be provided as soon as practicable after the issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that continued operation of the pipeline without corrective measures is or would be hazardous to life, property, or the environment. Additionally, having considered the nature of the failure; the proximity of the pipeline to public road crossings and residences; the location of portions of the pipeline in HCAs; the age and manufacture of the pipeline; the hazardous nature of the product the pipeline transports; the pressure required for transporting the material; 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 the likelihood of 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 contest its issuance obtain expedited review either by answering in writing or requesting a hearing under 49 C.F.R. § 190.211, to be held as soon as practicable under the terms of such regulation, by notifying the Associate Administrator for Pipeline Safety in writing, with a copy to the Director, Central Region, PHMSA (Director). If Respondent requests a hearing, it will be held telephonically or in-person in Central Region Office or Washington, D.C.

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, PHMSA will notify Respondent of any additional measures that are required and an amended Order issued, if necessary. 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 Actions:

Pursuant to 49 U.S.C. § 60112, I hereby order Magellan to immediately take the following corrective actions on the El Dorado to Kansas City pipeline:

Definitions:

"Affected Segment" - The *"Affected Segment"* means the El Dorado to Kansas City #6-10 pipeline extending 166.8 miles from East El Dorado Pump Station to 18th Street valve setting and includes the *Isolated Segment*.

"Isolated Segment" - The *"Isolated Segment"* means the approximately 2-mile segment of the #6-10 pipeline from East El Dorado Pump Station to the valve setting at MP 2.

"Director" - The *"Director"* means the Director, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety, Central Region. The Director's address is 901 Locust, Suite 462, Kansas City, Missouri 64106.

1. **Operating Restriction.** Magellan must not operate the *Isolated Segment* until authorized to do so by the Director.

2. **Pressure Restriction.** Upon returning the pipeline to operational status, Magellan must implement and maintain a twenty percent (20%) pressure reduction in the actual operating pressure along the entire length of the *Affected Segment* such that the operating pressure along the *Affected Segment* will not exceed eighty percent (80%) of the actual operating pressure in effect immediately prior to the failure on May 4, 2015. Specifically, the East El Dorado pump station discharge pressure cannot exceed 801 psig.

   a. This pressure restriction is to 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.

   b. By May 31, 2015, Magellan must provide the Director the actual operating pressures and flows for any locations monitored on the pipeline between East El Dorado Pump Station and Kansas City terminal. This shall include pressures and flows available on the entire #6-10 pipeline and the number #4-8 or other lines continuing off of the #6-10 between East El Dorado Pump Station and Kansas City terminal.

   c. This pressure restriction requires any relevant remote or local alarm limits, software programming set-points or control points, and mechanical overpressure devices to be adjusted accordingly and supporting documentation provided to the Director.

   d. When determining the pressure restriction set-points, Magellan must take into account any "like pipe" locations, in-line inspection (ILI) features or anomalies present in the *Affected Segment* to provide for continued safe operation while further corrective actions are completed.

3. **Restart Plan**. Prior to resuming operation of the *Affected Segment* develop and submit a written *Restart Plan* to the Director for prior approval.

   a. The Director may approve the *Restart Plan* incrementally without approving the entire plan but the *Affected Segment* cannot resume operation until the *Restart Plan* is approved in its entirety.

   b. Once approved by the Director, the *Restart Plan* will be incorporated by reference into this Order.

   c. The *Restart Plan* must provide for adequate patrolling of the *Affected Segment* during the restart process and must include incremental pressure increases during start up, with each increment to be held for at least 2 hours.

d. The *Restart Plan* must include sufficient surveillance of the pipeline during each pressure increment to ensure that no leaks are present when operation of the line resumes.

e. The *Restart Plan* must specify a day-light restart and include advance communications with local emergency response officials.

f. The *Restart Plan* must also include documentation of the completion of all mandated actions, and a management of change plan to ensure that all procedural modifications are incorporated into Magellan's operations and maintenance procedures manual.

4. **Return to Service.** After the Director approves the *Restart Plan*, Magellan may return the pipeline to service but the operating pressure must not exceed eighty percent (80%) of the actual operating pressure in effect immediately prior to the failure on May 4, 2015, in accordance with Item 2 above.

5. **Removal of Pressure Restriction**.

a. The Director may allow the removal or modification of the pressure restriction upon a written request from Magellan demonstrating 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.

b. The Director may allow the temporary removal or modification of the pressure restrictions upon a written request from Magellan demonstrating that temporary mitigative and preventive measures are implemented prior to and during the temporary removal or modification of the pressure restriction. The Director's determination will be based on the failure cause and provision of evidence that preventative and mitigative actions taken by the operator provide for the safe operation of the *Affected Segment* during the temporary removal or modification of the pressure restriction.

6. ***Review of Prior Inline Inspection (ILI) Results.*** Conduct a review of any previous inline inspection (ILI) results of the *Affected Segment.* Re-evaluate all ILI results from the past 10 calendar years. Review the ILI vendors' raw data and associated analysis. Determine whether any features were present in the failed pipe joint and/or any other pipe removed. Also, determine if any features with similar characteristics are present elsewhere on the *Affected Segment.* Magellan must submit documentation of this ILI review to the Director within 45 days of receipt of this Order as follows:

a. List all ILI tool runs, tool types, and the calendar years of the tool runs.

b. List, describe (type, size, wall loss, etc.), and identify the specific location of all ILI features present in the failed joint and/or other pipe removed.

c. List, describe (type, size, wall loss, etc.), and identify the specific location of all ILI features with similar characteristics present elsewhere on the *Affected Segment.*

d. Explain the process used to review the ILI results and the results of the reevaluation.

7. **Mechanical and Metallurgical Testing**. Within 45 days of receipt of this Order, complete mechanical and metallurgical testing and failure analysis of the failed pipe, including an analysis of soil samples as may be possible and any foreign materials. Complete the testing and analysis as follows:

   a. Document the chain-of-custody when handling and transporting the failed pipe section and other evidence from the failure site.

   b. Within 10 days of receipt of this Order, develop and submit the testing protocol and the proposed testing laboratory to the Director for prior approval.

   c. Prior to beginning the mechanical and metallurgical testing, provide the Director with the scheduled date, time, and location of the testing to allow for an OPS representative to witness the testing.

   d. Ensure the testing laboratory distributes all reports whether draft or final in their entirety to the Director at the same time they are made available to Magellan.

8. **Root Cause Failure Analysis.** Within 90 days following receipt of this Order, complete a root cause failure analysis (RCFA) and submit a final report of this RCFA to the Director. The RCFA must be supplemented/facilitated by an independent third-party acceptable to the Director and must document the decision making process and all factors contributing to the failure. The final report must include findings and any lessons learned and whether the findings and any lessons learned are applicable to other locations within Magellan's pipeline system.

9. **Remedial Work Plan (RWP).**

   a. Within 90 days following receipt of this Order, Magellan must submit a Remedial Work Plan (RWP) to the Director for approval.

   b. The Director may approve the RWP incrementally without approving the entire RWP.

   c. Once approved by the Director, the RWP will be incorporated by reference into this Order.

   d. The RWP must specify the tests, inspections, assessments, evaluations, and remedial measures Magellan will use to verify the integrity of the *Affected Segment*. It must address all known or suspected factors and causes of the May 4, 2015 failure. Magellan should consider both the risk of another failure and the consequence of another failure to develop a prioritized schedule for RWP related work along the *Affected Segment.*

   e. The RWP must include a procedure or process to:

      i. Identify pipe in the *Affected Segment* with characteristics similar to the contributing factors identified for the May 4, 2015 failure.

      ii. Gather all data necessary to review the failure history (in service and pressure test failures) of the *Affected Segment* and to prepare a written report containing all the available information such as the locations, dates, and causes of leaks and failures.

iii. Integrate the results of the metallurgical testing, root cause failure analysis, and other corrective actions required by this Order with all relevant pre-existing operational and assessment data for the *Affected Segment.* Pre-existing operational data includes, but is not limited to, construction, operations, maintenance, testing, repairs, prior metallurgical analyses, and any third party consultation information. Pre-existing assessment data includes, but is not limited to, ILI tool runs, hydrostatic pressure testing, direct assessments, close interval surveys, DCVG/ACVG surveys, rectifier and cathodic protection data, maintenance records, and systems specific to Magellan that may record field findings and observations or concerns associated with maintenance, historical construction, or operations activities.

iv. Determine if conditions similar to those contributing to the failure on May 4, 2015 are likely to exist elsewhere on the *Affected Segment*.

v. Conduct additional field tests, inspections, assessments, and/or evaluations to determine whether, and to what extent, the conditions associated with the failure on May 4, 2015 and other failures from the failure history or any other integrity threats are present elsewhere on the *Affected Segment*. At a minimum, this process must consider all failure causes and specify that the *Affected Segment* will receive an assessment appropriate for the RCFA within 1 one year of the date of receipt of this Order.

vi. Describe the inspection and repair criteria Magellan will use to prioritize, excavate, evaluate, and repair anomalies, imperfections, and other identified integrity threats. Include a description of how any defects will be graded and a schedule for repairs or replacement.

vii. Based on the known history and condition of the *Affected Segment,* describe the methods Magellan will use to repair, replace, or take other corrective measures to remediate the conditions associated with the pipeline failure on 5/4/2015 and to address other known integrity threats along the *Affected Segment*.

viii. Implement continuing long-term periodic testing and integrity verification measures to ensure the ongoing safe operation of the *Affected Segment* considering the results of the analyses, inspections, evaluations, and corrective measures undertaken pursuant to the Order.

ix. Review existing pressure cycling program and determine enhancements that can be implemented to reduce chances of future failures as the RCFA may determine is appropriate.

f. Include a proposed schedule for completion of the RWP.

g. Magellan must revise the RWP as necessary to incorporate new information obtained during the failure investigation and remedial activities, to incorporate the results of actions undertaken pursuant to this Order, and/or to incorporate modifications required by

the Director.

i. Submit any plan revisions to the Director for prior approval.

ii. The Director may approve plan revisions incrementally.

iii. Any and all revisions to the RWP after it has been approved and incorporated by reference into this Order will be fully described and documented.

h. Implement the RWP as it is approved by the Director, including any revisions to the plan.

11. Emergency Response Plan and Training Review.

Magellan must review and assess the effectiveness of its emergency response procedures, plan and associated performance in regards to the failure of May 4, 2015. Include in the assessment a detailed review of the on-scene response and support activities (including timeline), coordination with all parties (including regulatory requests and proceeding with work), site security (including all phases of the response), procedures for improvements, lessons learned, and communication with emergency responders, third party contractors, public officials, and internal resources. Assess the effectiveness of communication with all other modes of transportation that could have been impacted by this type of spill such as municipal water impacts, roads, railroad, electric power, the local refinery operations and water intake considerations. This should include a review of the Federal Response Plan, an understanding of the worst case discharge in the area for the pipeline and the other pipelines or facilities in the area that may need communication and coordination activities such as Nustar or Jayhawk or Holly Energies. The review will include existing training under the Incident Command structure and emergency procedures. Also included will be a review and assessment of the effectiveness of other Magellan company emergency training or responses elements such as SOP. Magellan must amend its FRP or emergency response operating procedures and associated training, if necessary, to reflect the results of this detailed review. The documentation associated with this detailed *Emergency Response Plan and Training Review* must be provided to the Director.

12. Topography Review

Within 90 days of the receipt of this Order, review the topography, soil types, and water runoff patterns associated with the failure location and prepare a report that identifies type, location, and options for improvements to be made in the immediate area designed to minimize potential product migration into Constant Creek. Submit this report along with recommendations to the Director.

Other Requirements:

1. *Reporting.* Submit quarterly reports to the Director that: (1) include all available data and results of the testing and evaluations required by this Order; (2) document any approved revisions to the RWP and their implementation; and (3) describe the progress of the repairs or other remedial actions being undertaken. The first quarterly report is due on July 1, 2015. The Director may change the interval for the submission of these reports.

2. *Documentation of Costs.* It is requested but not required that Respondent maintain documentation of the costs associated with implementation of this Order. Include in each

quarterly report the to-date total costs associated with: (1) preparation and revision of procedures, studies and analyses; and (2) physical changes to pipeline facilities, including repairs, replacements and other modifications.

3. *Approvals.* With respect to each submission requiring the approval of the Director, the Director may: (a) approve the submission in whole or in part; (b) approve the submission on specified conditions; (c) modify the submission to cure any deficiencies; (d) disapprove the submission in whole or in part and direct Respondent to 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 a submission, Respondent must correct all deficiencies within the time specified by the Director and resubmit it for approval.

4. *Extensions of Time.* The Director may grant an extension of time for compliance with any of the terms of this Order upon a written request timely submitted and 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. Parts 190-199, 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.

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).

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.

In your correspondence on this matter, please refer to CPF No. 3-2015-5003H and for each document you submit, please provide a copy in electronic format whenever possible.

The terms and conditions of this Corrective Action Order are effective upon receipt.

MAY 15 2015

for Jeffrey D. Wiese
Associate Administrator
for Pipeline Safety

Date Issued