

Magellan Midstream Partners L.P. - Longhorn Pipeline System

Summary Report of 2009 Operational Reliability Assessment (ORA) Developments

This report summarizes developments relating to the 2009 ORA, and is shared with the public in accordance with the Longhorn Mitigation Plan (LMP) Section 3.2.14, *“Longhorn’s Continuing Commitment.”* Kiefner and Associates, Inc. (KAI), the ORA Contractor selected by Magellan Midstream Partners, L. P., and approved by the Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration (PHMSA)/Office of Pipeline Safety (OPS), performed the annual assessment for 2009 of the operational reliability of the Longhorn pipeline system.

The ORA Contractor analyzed the data collected by the Longhorn Pipeline System Integrity Plan (LPSIP) activities and integrity inspections conducted in 2009, evaluated the analytical results, and provided recommendations in its report to preserve the long term integrity of the Longhorn pipeline system.

I. EXECUTIVE SUMMARY

The ORA report of the Longhorn system assets addresses the following subjects:

- Threats and Potential Threats to the Pipeline
 - Pressure-Cycle-Induced Fatigue
 - Corrosion
 - Laminations and Hydrogen Blisters
 - Earth Movement and Water Forces
 - Third-Party Damage
 - Stress-Corrosion Cracking
 - Threats to Facilities Other than Line Pipe
- Technical Assessment of the effectiveness of the LPSIP

The analyses of operational pressure cycles to date show that the intensity of pressure cycles is relatively nonaggressive in relation to benchmarks established on the basis of typical liquid petroleum products and crude oil pipelines. If this continues to be the mode of operation, integrity reassessment from the standpoint of electric-resistance weld (ERW) seam anomalies will not be necessary until the year 2040. A TFI tool run, completed in 2007 and early 2008, is used to define a flaw size that will determine the reassessment interval. Eighty-six (86) seam weld features were identified and remediated during the 2007 and 2008 program. Therefore, the reassessment interval uses the seam weld feature detection threshold value from the TFI tool vendor.

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Corrosion is a time dependent threat that is continually monitored using ILI, annual corrosion surveys, and close interval surveys. Ultrasonic (UT) wall measurement tools have been run from Galena Park to Crane and were completed in 2010. The UT data will be used in conjunction with the previous MFL metal loss tools to assess corrosion growth on the pipeline. These activities will occur in 2010, as the UT data are available. In addition, excavations were completed in 2009 on the Crane to Cottonwood, the Cottonwood to El Paso, and the Cedar Valley to Eckert segments completing the ILI remediation required on the new pipeline extension between Crane and El Paso.

The condition of any laminations and blisters that may still exist in the 1950 pipe material will be evaluated using the UT tool results. Although LMC 12 required this inspection to be completed by January 26, 2010, a delay was encountered because of slow throughput and the need for extensive cleaning to run a UT ILI tool. The final reports from these runs are expected in 2010 and will be reported in the 2010 ORA annual report.

From the standpoint of earth movement, the primary integrity concerns are soil erosion and scouring from floods and the ground movement from aseismic faults at specific points along the pipeline. Scour surveys on the Colorado River and its tributary Pin Oak Creek show little to no evidence of soil erosion or scouring. No other river crossing inspections were required in 2009, but should be re-inspected in 2010 as part of their 5-year re-inspection requirement. As of 2009, 5 years of data of aseismic fault movements have been taken. The results show fault movement on three of the faults to be so small that ground movement will not be a threat over the potential life of the pipeline and the fourth fault at the Hockley site is only a minor threat.

The Longhorn third-party damage (TPD) prevention program far exceeds the minimum requirements of federal or Texas state pipeline safety regulations, and it represents a model program for the industry. The aerial surveillance and ground patrol frequencies mostly exceeded the frequencies set forth in the LMP except when prevented from doing so by weather. In our opinion, the damage prevention program is a major contributing reason why no hits occurred on the pipeline in 2009 in spite of the fact that 13,242 One-Call notifications were received by the operator of the pipeline.

No occurrence of stress-corrosion cracking (SCC) has ever been recorded on the pipeline, including the 449 miles of the Existing Pipeline. In accordance with the

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ORAPM, Longhorn performed investigative digs each year for the three years from 2005-2007 in areas potentially susceptible to SCC. No SCC was found. Magellan continues to carry out checks as part of the normal dig program by performing an SCC examination program using magnetic particle testing at each dig site.

From the standpoint of facilities data acquired in 2009, one can conclude that pump station and terminal facilities had no adverse impact on public safety. Only one small non-reportable release of product occurred which was contained onsite so there was no risk to public safety.

The technical assessment of the LPSIP indicates that Magellan is achieving the goal of the LPSIP, namely, to prevent incidents that would threaten human health or safety or cause environmental harm. In terms of activity measures, Magellan exceeded the goals of aerial surveillance and ground patrol frequency. In addition, public-awareness meetings were held, an equipment rental/farm store public education program was conducted, and right-of-way markers and signs were repaired or replaced. From the standpoint of deterioration measures, a small number of metal-loss and seam anomalies were discovered and repaired. In terms of failure measures, there were no DOT-reportable incidents and there were no known third-party hits.

II. RECOMMENDATIONS:

A. Technical Assessment of LPSIP Effectiveness

The LPSIP contains twelve process elements. Seven of these elements are listed below along with an assessment of their effectiveness. These elements are most closely related to the threats addressed by the ORAPM and are summarized in detail with recommendations. The assessments for the remaining five elements can be found in the Annual LPSIP Self-Audit Report for Longhorn Pipeline System.

1. Longhorn Corrosion Management Plan

The corrosion management plan has been effective at preventing corrosion degradation in 2009. The pipe replacement between Crane and Cottonwood successfully eliminated the most severe corrosion as measured by the MFL tools run in 2008. Internal corrosion coupon results show little to no corrosion.

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Magellan completed an AC mitigation study in 2009 for the 9 mile extension between Galena Park and MP 9. These results should be considered in conjunction with the results obtained from the September 2009 UT ILI run. The September 2009 UT ILI data indicated no new corrosion, therefore the AC mitigation is considered to have been effective.

2. In-Line-Inspection and Rehabilitation Program

Magellan had attempted to perform the ILI inspection to address the commitment to LMC 12, the requirement to conduct a UT ILI of the existing pipeline (Valve J-1 to Crane), by the January 26, 2010 deadline. Because of throughput limitations they were unable to meet the deadline for three of the six ILI segments. An analysis outlined in a February 17, 2010 KAI Letter Report determined there was minimal risk for an additional delay. The three segments were inspected by August 5, 2010. Other than this delay, Magellan continues to meet its ILI commitments and the program has been effective at fulfilling the integrity requirements in the LMP.

3. Damage Prevention Program

The absence of reportable incidents involving mainline pipe and the absence of third party contact with the pipe suggests the Longhorn proactive damage prevention and maintenance plans (including the aerial surveillance frequency) have been effective and are functioning as intended. The aerial surveillance program had one time period in 2009 where surveys could not be conducted in the required 72 hours because of bad weather. This preceded the implementation of better procedures to ensure ground patrols are performed when the aerial patrols are not possible because of weather. Since the implementation of better procedures Magellan has been able to meet its 72-hour commitment.

4. Encroachment Procedures

There were 67 encroachments recorded in 2009 of which 3 were unauthorized. The program's encroachment agreements have been effective at keeping authorized encroachments from damaging the pipeline. This is demonstrated because none of the authorized encroachments resulted in contact with the pipeline, while each of the three unauthorized encroachments did result in a near miss. In addition, the absence of reportable incidents involving mainline pipe and

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the absence of third party damage also support that the program has been effective.

5. Incident Investigation Program

Magellan is performing incident investigations on all DOT reportable incidents and on many more non-reportable incidents. Incident investigations were reviewed on all near-misses as recommended in last year's ORA. KAI finds these incident investigations sufficient. In addition, Magellan should be commended for having no DOT reportable incidents on the Longhorn pipeline in 2009.

6. Depth of Cover Program

A Depth of Cover (DOC) survey has not been performed since the 2007 survey. 2009 focused on preventing removal of cover by road graders where unpaved roads cross the Longhorn ROW. We find this program effective at identifying shallow pipe that may increase the threat of outside force damage.

7. Fatigue Analysis and Monitoring Program

The 2009 fatigue analysis performed by KAI incorporated results from the 2007-2008 TFI tool runs and was effective at monitoring the potential of fatigue cracking failures from pressure-cycle-induced growth. The analysis for this program is covered under Section 5.1 of this report.

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B. Recommended Intervention Measures and Timing

1. Pressure-Cycle-Induced Fatigue

For the threat of pressure-cycle-induced fatigue, a reassessment in the year 2040 was calculated based on the pressure cycles for 2008 through 2009 and using the results from the 2007-2008 TFI tool runs.

2. Corrosion

For the threat of corrosion, no new reassessments were performed for the Existing Pipeline. MFL inspections were evaluated between Crane and El Paso. UT inspections for the Existing Pipeline will be used to reassess the interval in 2010 and determine corrosion rates based on the UT ILI runs and the earlier MFL ILI runs.

3. Laminations and Hydrogen Blisters

The UT tool inspection initiated in 2009 should confirm whether any blisters remain in the pipeline and allow the operator of the pipeline to remediate any remaining injurious blisters.

4. Earth Movement and Water Forces

The earth-movement analysis from data collected from 2004-2009 shows movement that is an order of magnitude less than the assumptions used to justify the required monitoring program in the EA. The measurements at three of the faults show no probability of failure within the lifetime of the pipeline. Measurements across the fourth fault should continue, but at a reduced inspection rate. Because there is a possibility of fault movement re-initiating, some monitoring of the three faults is warranted, but also at an increased time between measurements. KAI recommends five years between measurements which is the same time frame for other monitoring measurements on the pipeline such as ILI and ground movement patrols. If the faults appear to become more active, then more frequent measurements can be implemented.

Inspections showed no signs of erosion or scour damage at stream crossings from storm water flooding. Stream crossing monitoring should continue every five years and after storm events for identified stream crossings. The scour inspection for the Colorado River and Pin Oak Creek should continue biannually and after every second standard flood as specified by studies referenced in LMC 19.

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5. Third-Party Damage

For the threat of TPD, Magellan should continue both prevention and inspection activities. Prevention activities include ROW surveillance and public-awareness activities that continued to be successful in 2009. Inspection activities include almost all ILI inspections required as part of the ORA, including the MFL-geometry inspection carried out in 2004-2007, the TFI-geometry inspection in 2007-2008, and the UT-geometry inspection initiated in 2009. LMC 12A requires inspections with a “smart” geometry tool be carried out within three years of a previous inspection. These inspections are occurring more frequently because they also fulfill other Longhorn Mitigation Commitments.

6. Stress-Corrosion Cracking

As no evidence of SCC has been detected, it is not necessary to recommend an intervention measure. Magellan should continue to monitor for this threat through their current method, which consists of looking for evidence of SCC when maintenance excavations are performed.

7. Threats to Facilities Other than Line Pipe

Magellan should continue to carry out inspections and maintenance of facilities with the same diligence and frequency as performed in 2009.

C. Implementation of New Mechanical Integrity Technologies

No new technologies were implemented in 2009.

D. ORA Process Improvements

Magellan should continue to use RSTRENG calculations or other equivalent effective area methods for failure pressures calculations when using the POE process.