



# **2018 Annual System Integrity Plan**

**Self-Audit Report For  
Magellan Midstream Partners, L.P.  
Longhorn Pipeline**

**January 24, 2020**

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## 1.0 Acronyms and Definitions

<b>AI</b>	Asset Integrity or Action Item
<b>API</b>	American Petroleum Institute
<b>AO</b>	Abnormal Operations
<b>AOC</b>	Abnormal Operating Condition
<b>AOEC</b>	Areas of Elevated Concern
<b>AOPL</b>	Association of Oil Pipe Lines
<b>ASSE</b>	American Society of Safety Engineers
<b>ATPDPPA</b>	Annual Third-Party Damage Prevention Program Assessment
<b>BBL</b>	Barrel
<b>CFR</b>	Code of Federal Regulations
<b>CMS</b>	Compliance Management System
<b>COMs</b>	Coordinators of Operations and Maintenance
<b>DPOs</b>	Damage Prevention Operators
<b>EA</b>	Environmental Assessment
<b>EOY</b>	End-Of-Year
<b>HAZOP</b>	Hazard And Operability Analysis
<b>HCA</b>	High Consequence Area
<b>HNM</b>	Hazard Near Miss
<b>II</b>	Incident Investigations
<b>ILI</b>	In-Line Inspection
<b>IO</b>	Incorrect Operations
<b>ITPs</b>	Individual Training Plans
<b>LMP</b>	Longhorn Management Plan
<b>Longhorn</b>	The entire pipeline system and all parties, including MMP (see below)
<b>LOPA</b>	Layer of Protection Analysis

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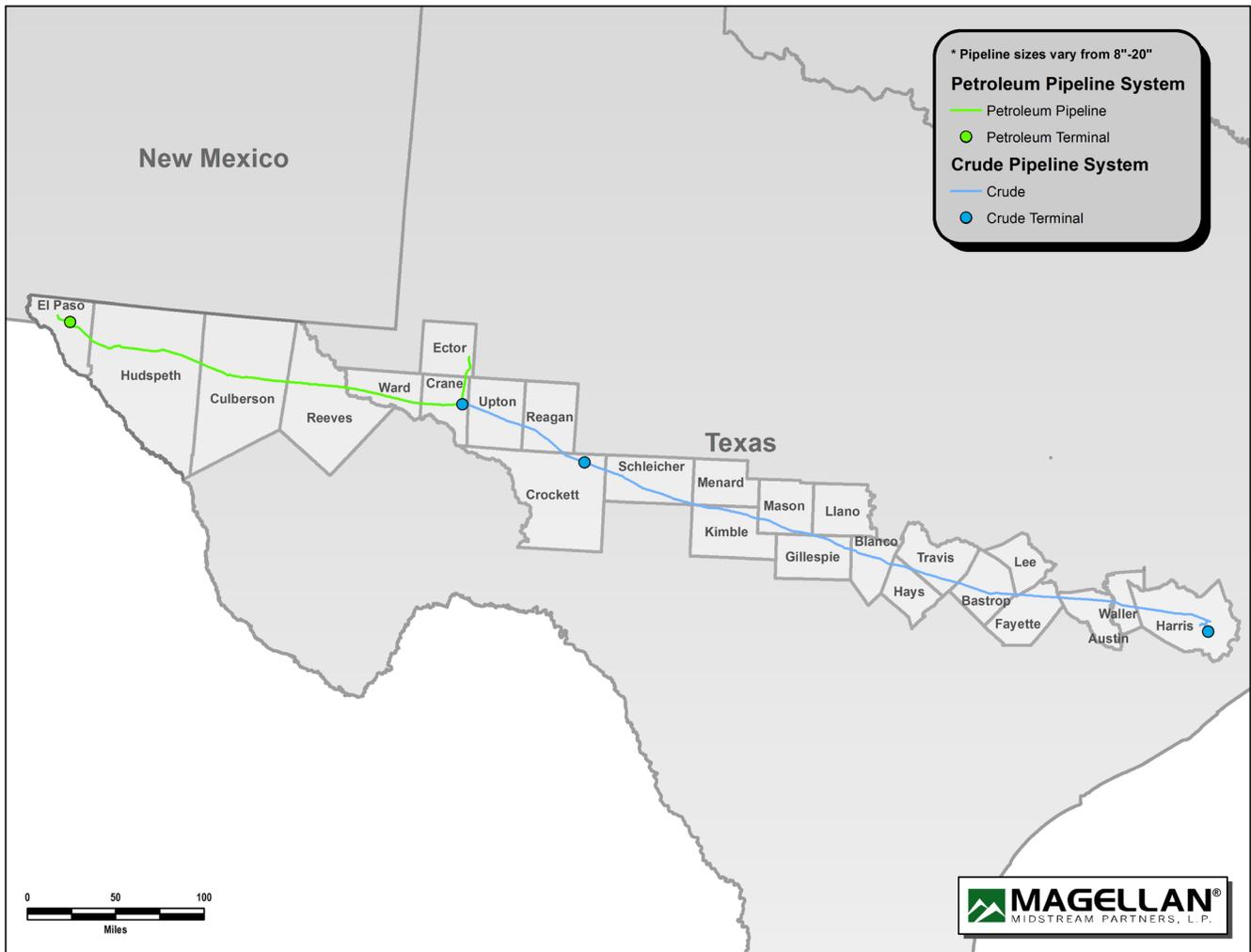
<b>LPSIP</b>	Longhorn Pipeline System Integrity Plan
<b>MC</b>	Management Commitment
<b>MCEMT</b>	Maintenance Capital Expense Management Team
<b>MMP</b>	Magellan Midstream Partners L.P. (the asset operator and owner as of August 27, 2009)
<b>MOCR</b>	Management of Change Requests
<b>NACE</b>	National Association of Corrosion Engineers
<b>Operator</b>	Magellan Midstream Partners, L.P. (MMP)
<b>ORA</b>	Operational Reliability Assessment
<b>PAT</b>	Project Assessment Tool
<b>PE</b>	Process Element
<b>PET</b>	API/AOPL Pipeline Performance Excellence Team
<b>PHAs</b>	Process Hazard Analyses (using HAZOP, LOPA, or What-If Analysis)
<b>PHMSA</b>	Pipeline and Hazardous Materials Safety Administration
<b>PIX</b>	Pipeline Information Exchange
<b>POE</b>	Probability of Exceedance
<b>PSSR</b>	Pre-Startup Safety Review
<b>ROW</b>	Right-Of-Way
<b>SBRMA</b>	Scenario Based Risk Mitigation Analysis
<b>SIP</b>	Magellan Midstream Partners, L.P. System Integrity Plan
<b>SME</b>	Subject Matter Expert
<b>TRACT</b>	Pipeline Right-of-way Land Owner Tracking Data Base
<b>TPDPP</b>	Third Party Damage Prevention Program Annual Assessment
<b>THLPSSC</b>	DOT's Technical Hazardous Liquid Pipeline Safety Standards Committee
<b>UCD</b>	Ultrasonic Crack Detection

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## 2.0 Introduction

The Longhorn Pipeline System (Longhorn) project initiated in the mid-1990s. Originally the flow was all refined products from East Houston/Pasadena to El Paso. Refined products continue to flow from Crane to El Paso. The remainder of Longhorn had the flow reversed (Crane to Pasadena) and converted to West Texas Crude. The map below shows the overall distribution network for the combination of refined products and crude in their respective branches of service.

**Figure 1 – Longhorn Pipeline System (Longhorn) Distribution Network**



## 2.1 Pipeline History

The history of Longhorn Pipeline is described in *Table 1 - History of the Longhorn Pipeline*, below.

**Table 1 – History of the Longhorn Pipeline System**

Year	Comments
1949 – 1995	Exxon constructed the 18"/20" pipeline, Crane to Baytown, to transport crude oil; operated and maintained refurbished until pipeline was idled and purged with nitrogen.
October 21, 1997	Longhorn acquired the existing (idled) pipeline from Exxon.
April 1998	National Environmental Policy Act (NEPA) lawsuit filed in Federal Court in Austin.
1998/1999	Cleaning and refurbishment of the existing pipeline. Construction of new pump stations (Galena Park, Satsuma, Cedar Valley, Kimble County, Crane, and El Paso). Construction of El Paso Terminal. Construction of pipeline extensions: 18" Crane to El Paso; 8" Crane to Odessa; 20" GATX to Tie-In; and 8" and 12" pipelines from El Paso Terminal to tie-ins with other systems.
March 1999	Settlement Agreement requires Environmental Assessment, which ultimately leads to the Longhorn Mitigation Plan.
November 2000	Finding of No Significant Impact issued, and Longhorn Mitigation Plan published.
2001 – 2004	Pre-Startup Mitigation Commitment Activities performed.
January 27, 2005	Official startup date for the Longhorn Pipeline System.
August 2006	Flying J acquires Longhorn Partners Pipeline, L.P.
August 27, 2009	Magellan Pipeline Company, L.P. purchased the Longhorn pipeline.
March 2013	The flow direction was reversed, refined product service transported changed to crude oil (flows to East Houston from Crane).

The project to return the Longhorn Pipeline to service was opposed by various groups, resulting in a lawsuit and eventual settlement. Longhorn agreed to implement a Longhorn Mitigation Plan (LMP) as part of the original Environmental Assessment (EA). The LMP, immediately after it was originally developed, had two revisions. The LMP includes forty (40) "Mitigation Commitments" that address various integrity issues on the Longhorn System both before and after startup. The LMP also committed Longhorn to implement the Longhorn Pipeline System Integrity Plan (LPSIP), which includes three main elements:

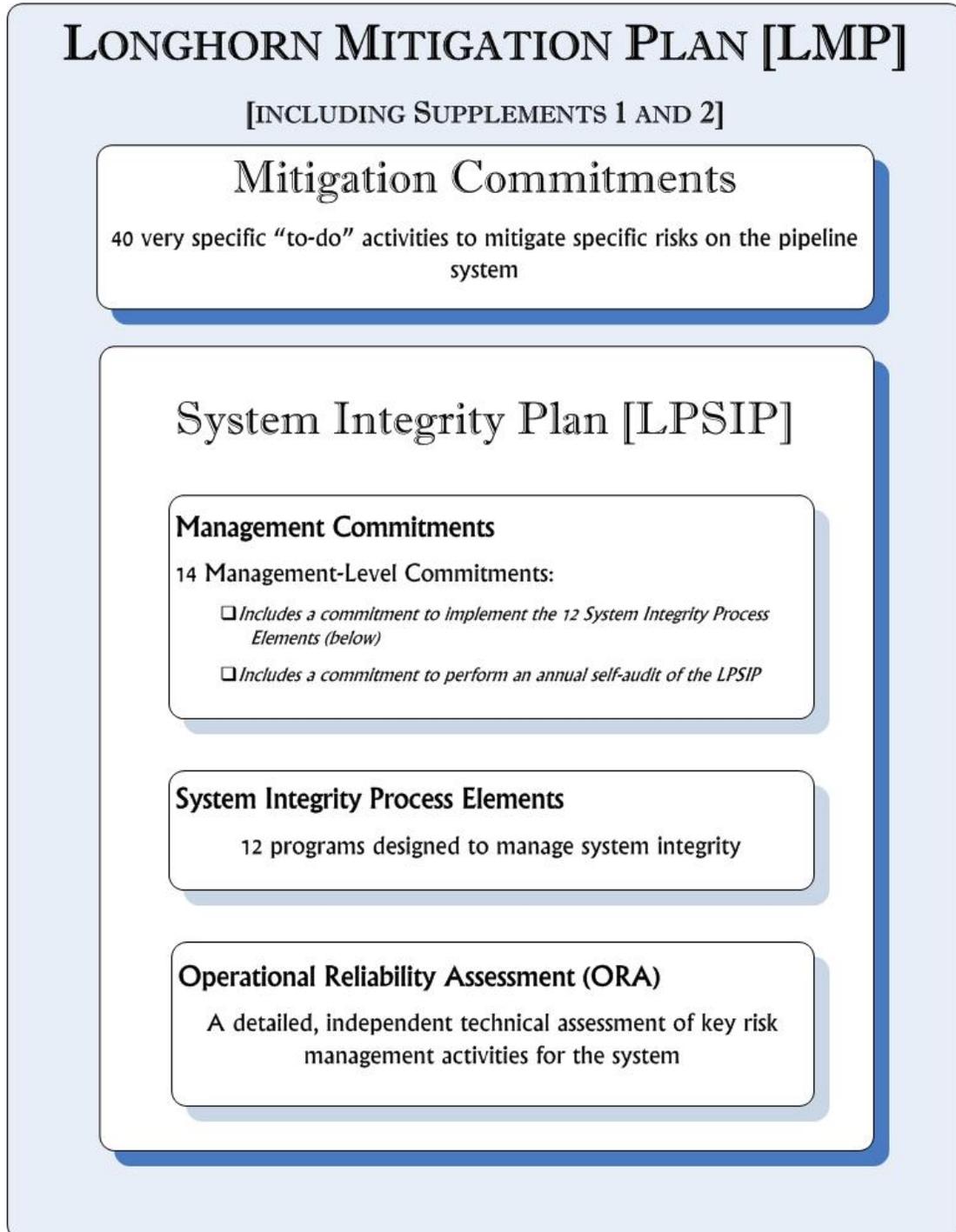
1. Management Commitments (14 total), addressing various integrity management programs for the pipeline system, including a commitment to conduct a self-audit of the LPSIP each year;
2. LPSIP Process Elements (12 total), addressing various operational management processes for the pipeline system; and
3. An Operational Reliability Assessment (ORA), providing an independent technical analysis of various integrity threats on the pipeline system.

Magellan contracted with RCP Inc., a regulatory and engineering consulting firm, to perform the Longhorn Pipeline System Integrity Plan annual self-audit (MC13). This 2018 self-audit satisfies this requirement. The Mitigation Commitments and the Operational Reliability Assessment reports are addressed in a separate reporting processes and are not included as part of this report.

The overall structure of the LMP Mitigation Commitments and the LPSIP Management Commitments, Process Elements, and Operational Reliability Assessment is defined in [Figure 2: LMP Organization](#) (see next page).

In this report, the fourteen (14) Management Commitments are referred to sequentially as MCxx. Likewise, the twelve (12) LPSIP Process Elements will be referred to sequentially as PExx. The [Table of Contents](#) for this document provides an easy reference, as the section numbers for the Management Commitments and Process Elements correspond with the appropriate MCxx or PExx number. For example, MC13 refers to the Management Commitment to perform a self-audit and is discussed in Section 13 of “Findings for the LMP Management Commitments”. Likewise, PE7 refers to the Management of Change Process Element, and is discussed in Section 7 of “Findings for the 12 LPSIP Process Elements,” and so forth.

Figure 2 – LMP Organization



### 3.0 Self-Audit Methodology

The self-audit team was composed of two representatives from RCP Inc., both experienced auditors with over seventy (70) years of combined experience in the industry. The auditors' statements of qualifications are contained in [Appendix D](#) to this report. The Auditors reviewed the LMP, the LPSIP and the SIP, as well as various documents from Longhorn as listed in [Appendix B](#), including but not limited to policies and procedures; work activity reports; agreements with third parties; performance tracking spreadsheets; and other relevant compliance documents. They also interviewed personnel from Magellan Midstream Partners (MMP) in El Paso, Midland/Crane, Austin, and Tulsa. Personnel interviewed are from both field operations and corporate management. A complete list of personnel interviewed is contained in [Appendix C](#) to this report. If more than one person had held the same position during 2017, the auditors generally interviewed all those personnel at once. All the field activities for the audit occurred between August and October of 2019.

The auditors developed the opinions and findings in this report based on the interviews and documentation, using their best professional judgment and experience. The auditors conducted a review with MMP of all interim findings to ensure findings were factually correct and considered all appropriate information. However, the findings and conclusions in this report are the independent work of the audit team based on requirements defined in the Longhorn Mitigation Plan, System Integrity Plan, the Texas Railroad Commission, and in PHMSA Pipeline Safety Regulations, as applicable.

## **4.0 Significant System Developments in 2018**

During 2018, Magellan continued to implement system integrity activities as required by PHMSA pipeline safety regulations and the LMP.

There were no significant system developments on the Longhorn Pipeline in 2018. However, improvements of the LMP included: further development and implementation of the electronic Management of Change (MOC) program, revisions to procedures associated with contract processes, and improvements with communication of Right of Way Patrol threats.

## 5.0 Summary of Findings from the Self-Audit

As mentioned above, the LMP requires an annual self-audit of the LPSIP. The LMP specifically requires that the self-audit address five (5) “core areas” of system integrity. The Five (5) core areas are addressed below in this section. Subsequent sections of this report address each of the fourteen (14) Management Commitments and the twelve (12) Process Elements in the SIP.

### 5.1 Synopsis of Integrity Issues Being Addressed and Their Status

The activities and programs used to manage risk on the Longhorn Pipeline System are addressed individually in the Management Commitments and Process Elements sections of this report.

The 2018 audit, conducted in 2019, of activities and programs used to manage risk were mature, functioning as designed and were well understood by employees. The [Recommendations](#) section of this report describes process improvements for the programs.

The 2019 interviews highlighted the Longhorn Pipeline System had fully implemented the electronic, on-line, Management of Change Request (MOCR) system. The system allowed for initiation, review, approval/rejection/revision of all changes to process chemicals, technology, equipment, instrumentation, material, regulatory jurisdiction, process set points, process controls and applicable procedures. The MOCR system allowed engineering/administrative controls, pipeline facilities, and infrastructure to be managed across the company with improved visibility and appropriate approvals. The MOCR system also provided clarity and insight into the justification and technical basis for the changes and the ongoing historical account of the evolution of the pipeline organization’s functionality.

The Longhorn Pipeline System started using an enhanced Abnormal Operations reporting form and process in 2018, streamlining the timeliness of reporting and correcting any operational upsets. Abnormal Operations are first documented as a note in the Operations Control Center logbook, i.e. Logmate. An email note then goes to the appropriate field operations location for follow-up action. Corrective work is usually handled by the field operations staff but may bring other personnel into the follow-up as needed. The field operations staff will develop MOCRs, as needed.

In 2014, two minor, non-DOT reportable release incidents occurred as the result of an issue with valve stems. These incidents initiated a program to replace all valve stems of this type. The manufacturer of the valves had a manufacturing issue with plating material on the valve stem; as a result, corrosion can occur on the valve stems. In 2018, MMP replaced two valve stems and continued to advance the program to replace all valve stems based on a prioritization of drain up, location to HCAs, and severity of leakage. The valve stem replacements continue with inspection and replacement of valves until all the defined scope of valve stems originally identified are replaced.

In 2018, an oil release incident at Eckert Station occurred as the result of a strainer valve not being properly closed following maintenance. As a result, remotely controlled station isolation valves were installed on pig trap locations on the Longhorn Pipeline System beginning in October 2018, to prevent this type of incident from occurring again. This work continued into 2019, until all pig trap locations have been completed. These remotely controlled valves can be operated from the Operations Control Center.

In October 2018, a diesel release incident occurred at the El Paso Terminal location as a result of a seal failure on a pump flow switch. The pump flow switches on all the El Paso Terminal storage tanks were removed in Q4, 2018, and the flanges were blinded off, to prevent this type incident from reoccurring.

MMP issued three (3) “Lessons Learned” bulletins and two (2) “Safety Alert” bulletins in 2018. Human error incidents had become a focal point for the organization based on the number of incidents related specifically to the lack of attention, or incorrect measures, taken. To address employee and contractor errors, MMP has implemented a Human Error Report and Distraction Training to address incidents associated with human error and incorrect operations.

Magellan conducted nine (9) incident investigations on the Longhorn Pipeline in 2018. These investigations indicate the following:

- Three (3) incidents were associated with Third Party Unauthorized Encroachment, ROW Near Miss or One Call Violation.
- Four (4) incidents were small volume releases and not reportable to PHMSA. Two (2) were errors by contractors working for Magellan and two (2) were errors by Magellan employees. Two (2) of these incidents were the result of equipment failures.
- Two (2) incidents were DOT reportable due to volume released and was the result of equipment failure and human error. Installation of equipment control modifications were implemented to minimize the potential effects of these types of incidents.

In summary, the incident classifications are listed below with some incidents having multiple classifications:

**Table 2 – 2018 Incident Investigations and Incidents**

	DOT Reportable	Human Error - All	Hazardous Near Misses	Human Error - DOT Reportable	Human Error - Non-DOT Reportable	One-Call Violations	ROW Near Misses
Employee	1	2	0	0	2	0	0
Others	0	2	2	0	2	1	1
Equip Failure	1	0	0	0	0	0	0

## 5.2 Insights from New Integrity Management Processes or Technologies, or Innovative Applications of Existing Technologies

- Two (2) integrity management work processes were put in place in 2018: an enhanced Abnormal Operations reporting process and the new Jira software workflow process. These processes are intended to improve communications between all the impacted parties and ensure approval and actions for these changes/activities take place in an appropriate manner.
- The new Abnormal Operations form and process is described under [Section 5.1](#) above.

- Jira software workflow process is a change request process that all Operations Control Center changes must go through, including changes like screen modifications, process flow logic, permanent set point changes, etc. If the planned changes meet the MOCR process requirements, an MOCR is generated in addition to the Jira software workflow process.

### 5.3 Performance Measurement Results

The “scorecard” for 2018 is included in [Appendix A](#) of this report. The scorecard indicated there were two (2) DOT/PHMSA reportable releases in 2018.

There was one (1) One Call violations in 2018 and two (2) Right-Of-Way (ROW) near misses.

### 5.4 New Integrity Management Programs or Activities That Will Be Conducted or Significant Improvements to Existing Programs and Activities

New integrity management programs or significant improvements implemented in 2018 include a fully implemented Human Error Report and a distraction training program. Operations Management receives the weekly Human Error report and review for applicability to their operations. Distraction training is conducted for the field operations personnel to address distractions at work, both how to focus on procedures and how to limit distractions.

There were two (2) “*probability of exceedance*” (POE) digs completed on the Crane to Cottonwood segment related to a previous Magnetic Flux Leakage (MFL) In-Line Inspection recommended by the ORA.

#### 5.4.1 Emergency Official Email Program

The LMP requires Magellan to contact emergency response agencies within each county that the pipeline passes through. This program targets Emergency Officials along Magellan’s right-of-way to promote pipeline safety, leak recognition and pipeline awareness, emergency response, and training opportunities.

An email blast was sent out to 14,583 emergency officials near Magellan’s ROWs. Of that total, 3,681 were sent to emergency officials in Texas. Out of the 14,583 contacts, 74.19% were received.

Based on interviews (both in field and in Tulsa offices) and records review, LPP has continued Public Awareness/Damage Prevention by dynamically engaging with:

- Public Officials;
- Emergency Responders and LEPCs;
- Schools; and
- The affected Communities.

## 6.0 Findings for the LMP Management Commitments

The fourteen (14) Management Commitments described in the LMP are addressed below.

### 6.1 MC1: Longhorn Pipeline System Integrity “Process Elements”

The first of the fourteen (14) “*Management Commitments*” addressed in this section of this report commits Longhorn to implement a System Integrity Plan (SIP) consisting of twelve (12) “process elements” that meet or exceed the federal and state regulatory requirements. The twelve (12) SIP elements are addressed in the next section ([Section 7](#)) of this report.

### 6.2 MC2: Data Gathering and Identification and Analysis of Pipeline System Threats

There is a significant program in place to accumulate and integrate a wide array of information related to the operation and integrity of the Longhorn System, as described in the LMP Section 3.2.2. MMP has dedicated a full-time person to this task, who receives information from many different data sources; this data is entered into the Longhorn risk model. This data is also forwarded to the ORA contractor, who performs an evaluation. Magellan has also dedicated a full time Risk Engineer for the Longhorn System to work with all SMEs related to the Longhorn System to evaluate risks and ensures compliance with the SIP, LMP and Federal Regulations.

Magellan continued to perform Incident Investigations during 2018. There were nine (9) incident investigations completed in 2018 for incidents that occurred on facilities subject to the LMP. These investigations are not limited to incidents that are reportable to government agencies, and include other types of operational incidents such as near misses. The incident investigation results are shared broadly throughout MMP. Likewise, MMP captures information concerning Incorrect Operations, and summarizes this information in a spreadsheet on a quarterly basis to identify trends and potential areas for improvement. Incorrect Operation data is collected from AOs, IIs, and HNM reports (described in [PE11](#) of the SIP process elements). MMP manages changes to the Longhorn System through SIP process Element 11 – Management of Change. All MOCRs are entered in a report, which is widely distributed throughout MMP to personnel responsible for Longhorn operations. This report provides a quick reference as to whether the MOCR is open or closed.

The LMP also commits MMP to conduct an annual “*Third-Party Damage Prevention Program Assessment*” for the Longhorn Pipeline. The auditors reviewed this assessment for 2018 and did not identify any issues associated with the requirements of the LMP.

### 6.3 MC3: Integration of System-Wide Activities

Using information from the data gathering processes mentioned above and the data tracking and scorecard processes mentioned in [PE12](#). Evaluation of integrated system-wide activities is conducted by reviews of activities to ensure that all relevant information about the operation and integrity of the system is evaluated on a routine basis.

A Mitigation Plan Score Card and Performance Metrics document is prepared and reviewed monthly. Incidents are reviewed monthly by stakeholders, including Area Supervisors and Operations Managers.

Lastly, the ORA provides a comprehensive, independent technical review of all types of threats to the Longhorn System on an annual basis.

#### **6.4 MC4: Incorporation of Engineering Analysis**

Longhorn consistently obtains the assistance of engineering experts (both inside the organization, and from third parties) to help identify, manage, and resolve potential integrity issues on the pipeline system. The results of each in-line inspection are reviewed by independent pipeline assessment experts who perform an independent analysis and identification of any additional areas for physical inspection of the pipe based on statistical analysis of the results.

#### **6.5 MC5: Integration of New Technologies**

Longhorn continues to investigate system improvements, do research for new technologies, and to evaluate the use of additional technologies for future consideration.

In December 2018, an ILI tool run was made on a segment of the Longhorn Pipeline System in West Texas, with Ultrasonic Crack Detection (UCD). The UCD detection capability is intended to detect cracks or surface-breaking laminations in the pipeline system previously undetected by previous ILI tools. Additional ILI tool runs with the UCD tool are planned for the system in 2019.

#### **6.6 MC6: Root Cause Analysis and Lessons Learned**

This Management Commitment refers to the implementation of a formal incident investigation program for actual and near miss events, and for repairs made to correct deficiencies in system integrity. The program is described in [PE6](#).

MMP uses a “Lessons Learned” program and a “Safety Alert” program to share information and key learnings throughout the company. MMP issued two (2) “Lessons Learned” and two (2) “Safety Alert” bulletins in 2018, addressing various identified concerns.

Several incidents on the Longhorn Pipeline in 2018 were at least partially due to MMP employee and contractor/third-party human errors. Training issues associated with procedure compliance appears to be a consistent contributing factor. To address this, the Company has moved forward with a fully implemented Human Error Report and distraction training to reverse the upward trend.

Incident Investigations and Root Cause Analyses were discussed in the interviews at MMP’s Tulsa office. Employees stated that the Incident Investigation Oversight Group determines the Level of investigation. The procedure 13.02 – Incident Investigation states the following: “Section 2.0 Description and Section 2.2 Incident Investigation should identify the probable cause, the corrective actions and lessons learned.” During interviews, employees stated that some, but not all, incident investigations determined a Root Cause.

MMP conducts monthly SIP meetings in Austin, El Paso, Houston, and Crane/Odessa, where SIP procedures, Hazard/Near Miss (HNM) Reports, other accidents, Safety Alert bulletins and lessons learned are reviewed with operating personnel.

## **6.7 MC7: Industry-Wide Experience**

Longhorn continues to benefit from the industry-wide sharing received by participation in industry and governmental committees. MMP personnel, including senior executives, continue to participate in industry organizations and committees. These committees and organizations include those such as the American Petroleum Institute/Association of Oil Pipe Lines Pipeline Performance Excellence Team, DOT's Technical Hazardous Liquid Pipeline Safety Standards Committee, Pipeline Information Exchange, API's Environmental Health and Safety Group, the American Society of Safety Engineers and the Common Ground Alliance.

## **6.8 MC8: Resource Allocation**

Funds and personnel are available as required to implement the requirements of the SIP. Allocation of resources is on an MMP-wide basis. The Maintenance Capital Expense Management Team, composed of the Vice-President of Technical Services and the Vice-President of Operations, reviews and approves discretionary expenditures.

MMP uses a risk-ranking process to risk-rank proposed projects for health, safety, environmental, and commercial risks. While there are no dedicated funds for Longhorn discretionary expenditures, all personnel interviewed during the auditing process expressed their belief that Longhorn has adequate resources from a financial standpoint. The Longhorn System still has dedicated resources, including a full-time integrity engineer and a full-time risk model and data/ORA coordinator.

## **6.9 MC9: Workforce Development**

MMP continues to use their new employee "On-boarding" process. This process includes an orientation on the SIP, business processes, and safety procedures. Field employees also have a week of field-based training that includes computer-based training modules and On The Job Training items with their immediate supervisor.

Field employee training is primarily conducted by local Operations management. Supervisors prepare Individual Training Plans for their employees. Discussion with the Lead Operating Technician in Houston and informal discussions with personnel at other locations indicated that the onboarding process is functioning well and making the LMP, LPSIP, and integrity programs a vital component of the on-boarding process.

## **6.10 MC11: Management of Change**

MMP's management of change process is described in SIP Element 11 and is addressed in section [PE7](#) of this report. Magellan utilizes a strong MOCR process which includes an electronic tool (Velocity EHS) for developing and routing standard MOCR forms. MOCRs are written for all changes to non-SIP operating

procedures and equipment/facilities modifications and appears to be a standard practice throughout their operations, especially since implementing the Velocity EHS tool in 2016.

The MOCR system includes a standard list of reviewers for all MOCRs, which can be modified as needed, ensuring comprehensive review of the proposed changes by all the right parties. Hazard analysis is completed and included in the proposed MOCR prior to routing for review and approval. MOCR action items, such as updating as-built drawings and updating operating procedures, are tracked to completion prior to the MOCR being closed out by the Area or Operations Supervisor.

In the two MOCRs listed below, both demonstrated the right level of review by appropriate EHS, Engineering and Operations personnel, as well as timely approvals. PSSRs were completed on both facility modifications prior to start-up. Redline As-Built drawings were developed and completed prior to closing out the MOCRs.

**Table 3 – MOCRs Reviewed**

No.	Description	Date	Notes
1	Flow switch modifications to El Paso Terminal Storage Tanks	10/08/2018	Follow-up from El Paso diesel release incident
2	Remote control of critical isolation valves in the Eckert area of the LPS	10/16/2018	Follow-up from Eckert crude oil release incident

### 6.11 MC12: Performance Monitoring and Feedback

This management commitment is addressed in [PE12](#). Measures have been established and are being tracked as required, and the annual system integrity plan audit has been conducted each year as required. Longhorn has also established several other performance measures and tracking systems, including the “*Mitigation Plan Scorecarding & Performance Metrics*” report.

### 6.12 MC13: Self-Audit

The LPSIP self-audit has been prepared each year as required. This report is the result of the 2018 LPSIP self-audit. The [Recommendations](#) section of this report contains the auditors’ recommendations. Prior Self-Assessment Reports are posted on Magellan’s [website](#) under the heading “*Longhorn Mitigation Plan Reports*”.

### 6.13 MC14: Longhorn’s Continuing Commitment

Longhorn continued to perform and sustain the programs required by the LMP in 2018. All personnel interviewed by the auditors indicated financial and personnel resources were properly budgeted and adequate to safeguard the integrity of the Longhorn pipeline.

## 7.0 Findings for the 12 LPSIP Process Elements

The twelve (12) process elements described in the LMP are addressed below.

### 7.1 PE1: Longhorn Corrosion Management Plan

Atmospheric corrosion inspections were performed as required. Identified the need to recoat the roof of two tanks.

There were five (5) API 653 internal inspections and five (5) API 653 external inspections conducted in 2018.

Internal corrosion is monitored using corrosion coupons, which are to be inspected three (3) times a calendar year, at intervals not to exceed 4 ½ months. No locations exceeded the 4 ½ month requirement and all locations met the inspection requirements. Coupon results have not indicated any internal corrosion problems on the pipeline. The results in the March 2018 ORA report explain in greater detail the internal corrosion monitoring program and inspection criteria.

### 7.2 PE2: In Line Inspection and Rehabilitation Program

MMP follows current industry standards to ensure the quality of ILI runs, and uses conservative methods to re-calibrate ILI results when determining what ILI results indicate a dig is appropriate. As an extra precaution, the ORA contractor performs a statistical analysis of the ILI data to identify any additional areas for physical inspection, beyond those that would normally be inspected. The ORA process provides a detailed, independent analysis of all ILI data. The schedule for recent ILIs has been driven by the mitigation commitments and has not been altered by ORA technical analysis. The ILI tool runs, and subsequent maintenance digs, showed no indication of third-party damage in 2017. Further discussion is included below.

ORA Process Manual 7.4 clarifies that an ILI tool capable of detecting Third Party Damage (TPD) will be run in any 25-mile pipeline segment when three (3) or more One Call violations occur within a 12-month time period. There was one (1) one-call violation; therefore, based on this requirement, an ILI inspection was not required. The One Call violation did not result in third-party damage to the pipeline.

There were three (3) ILI tool runs in 2018, one (1) UCD tool run and two (2) Magnetic Flux Leakage (MFL) tool runs.

Nine (9) digs were performed in 2018 related to the 2017 Magnetic Flux Leakage (MFL) tool runs. Five (5) digs were performed in 2018 related to the 2018 Magnetic Flux Leakage (MFL) tool run. Five (5) digs were performed in 2018 related to the 2018 UCD tool run. MMP applies HCA remediation timeframes even to Longhorn pipe segments outside of HCAs. All rehabilitations addressed were conducted in the necessary timeframe. The ILI tool runs and maintenance digs did not indicate any third-party damage.

In 2014 a Spiral Magnetic Flux Leakage (SMFL) tool was run between Satsuma and Speed Jct. Six (6) digs were completed in 2017 related to these ILIs. Five (5) on the Satsuma to East Houston segment and one (1) on the East Houston to Speed Jct. segment.

An MFL tool run was completed from Cottonwood to El Paso in year 2017, resulting in nine (9) digs completed in year 2018. In year 2018 an MFL tool run was completed from Crane to Cottonwood, resulting in three (3) digs; an MFL tool run was completed from Crane to Texon, resulting two (2) digs; and a UCD tool run completed from Crane to Texon, resulting in five (5) digs, for a total of nineteen (19) digs completed in year 2018.

The pipeline risk model was updated with information from operations in 2017. Results show no areas along the pipeline with POE greater than 1E-4 failures and as such supports the effectiveness of Magellan’s existing Integrity Management Program. No additional mitigative measures are required or recommended at this time.

In summary:

**Table 4 – Historical Tool Use and Outcomes**

	2018	2017	2016	2015	2014	2012
"Smart" ILI Tool Runs <sup>1</sup>	3	4	2 (SMFL & MFL)	1 (TFI)	2 (SMFL & MFL)	MFL
2018 Resultant Digs	10	2	4	51	12	4

### 7.3 PE3: Key Risk Areas Identification and Assessment

The Longhorn System is regulated under the PHMSA “Pipeline Integrity Management Regulations” in 49 CFR 195.452, which includes requirements for the identification and management of High Consequence Areas, including populated areas. The populated area information and resulting pipeline integrity management programs are updated as required by this regulation.

### 7.4 PE4: Damage Prevention Program

The aerial patrol program is well organized, and surveillance occurs more frequently than required. Patrol flights are conducted by contract pilots in both directions (up the pipeline one day, and back in the other direction the next). That gives the aerial patrol observer the ability to spot potential issues from both perspectives on a regular basis. An MMP operations person flies with the pilot annually to make sure the flight is taking the correct path and audits the pilot’s notes to ensure they are identifying items as expected by MMP.

Aerial patrol data indicated that agricultural activity was observed twenty-nine (29) times (3.6% of non-company observations) in 2018, twenty-nine (29) times (7.1% of non-company observations) in 2017, five (5) times (1.7% of non-company observations) in 2016, and seventeen (17) times (3.6% of non-company observations) in 2015. This data correlates with the fact that only a small percentage of the Longhorn Pipeline crosses agricultural areas. While there was an increase in agricultural activity observations, after further investigation most were determined to be outside the Longhorn ROW and/or not a threat to the

<sup>1</sup> Tool runs completed prior to 2017 had associated dig issues that were completed prior to 2017.

pipeline. As ongoing monitoring, landowners are being contacted annually to reaffirm that cultivation techniques and/or land use has not changed.

MMP conducts an aerial photo survey every five (5) years to look for scouring at thirteen (13) water crossings. The most recent survey conducted was in 2015 and the next aerial photo survey is scheduled for 2020.

Pipeline Performance Tracking System 2018m (PPTS) identified Other Pipeline/Utility Operators as the second largest damaging party after farming. This continues to be the case for the Longhorn Pipeline in 2018, accounting for ~34% of non-company activities reported by aerial patrol (foreign line crossings and industrial activity). In 2017, 2016, and 2015, 15%, 14%, and 25% respectively, non-company activities were classified as “no activity found.” Other than emergency observations, line locators are expected to complete investigations within a 48-hour window. Depending on the aerial sighting it is reasonable to understand this percentage; i.e., the observation may simply be a truck, backhoe or other equipment in the vicinity of the ROW; however, no evidence of any soil disturbance was discovered.

A depth of cover survey was completed in 2017 on the crude section of Longhorn from Crane to East Houston. All concern areas were analyzed by the Risk Assessment Group, which identified six (6) possible areas in ranch road crossings with shallow pipe. Two of the locations were mitigated in 4<sup>th</sup> Quarter 2017 and four (4) locations were mitigated in 1<sup>st</sup> Quarter 2018. Forty-six (46) exposed locations were noted on the report. All sites will be actively managed under the Outside Forces Damage Prevention Program in accordance with SIP. No third-party damage was found. There were no new shallow areas found in areas of cultivation.

There was one (1) Right of Way Near Miss Incident without any recorded pipeline damage in 2018. The incident was the result of “Third-Party” actions that indicate a failure to follow One-Call requirements.

The public awareness program for Longhorn was implemented as required by the LMP. For 2018 the Longhorn Mitigation Plan (LMP) and 49 CFR 195 (which incorporates by reference API Recommended Practice 1162, Public Awareness Programs for Pipeline Operators), require Magellan to communicate with the affected public adjacent to its right-of-way (ROW) and facilities through targeted mailings on an annual basis. Magellan distributes bilingual brochures annually to the affected public, general businesses and schools within a two-mile radius either side of the pipeline ROW in rural areas; a one-quarter mile radius either side of the ROW in metropolitan areas; to farmers and excavators within a 10 mile radius either side of the pipeline ROW; to emergency and local public officials within the county plus a 20 mile radius; to any internal database of one call violators, landowners, excavators etc.; and all of the one call centers in the state. These brochures contain information detailed in RP1162 regarding awareness of the pipeline, damage prevention and response to an emergency with a bounce back card and a magnet to keep. Response cards have been included in the mailings since 2007. Since 2011, the mailings have been in envelopes, which have resulted in a larger number of returned response cards.

The annual mailing was sent out on 11/16/2018; 819,890 pieces were mailed. In 2011, Magellan began mailing the brochures in envelopes instead of self-mailers; Magellan has seen an increase in Business Reply Cards (BRC's) returned compared to pre-2011 mail outs without envelopes.

#### **Table 5 – BRC's Returned**

2010	2011	2012	2013	2014	2015	2016	2017	2018
76	638	824	669	608	789	742	733	749

The LMP requires door-to-door visits with the public in areas adjacent to the pipeline in Tier II and Tier III areas every two (2) years, not to exceed thirty (30) months. In this program, door hangers are distributed to residents located in Tier II and III areas and who are directly adjacent to the pipeline. The objective is to reach stakeholders who back up to the ROW on a more frequent basis than those that only receive annual mailings and to educate them about pipeline safety, damage prevention and emergency preparedness.

This program now runs every other year. In 2018 Magellan provided a communications program (via door hanging) in Tier II and Tier III class pipeline locations from Houston to El Paso (Harris to El Paso Counties); 7,210 door hangers were distributed and scheduled again for 2020.

Longhorn Damage Prevention Operators (DPOs) participated in group emergency responder and excavator meetings. The LMP and 49 CFR require Magellan to contact emergency response agencies within each county that the pipeline passes through. In addition, it stresses the importance of excavator education to promote cooperation and awareness with this stakeholder group. The objective is to reach emergency responders with information regarding their actions during an emergency and to provide information to excavators regarding the use of the One Call system. This is accomplished through participation in a series of meetings that take place on a county-by-county basis along the ROW. In most cases, the Coordinators of Operation and Maintenance (COMs) participate in these meetings and are available to answer any questions these groups may have about Magellan operations. The following are some of the details from these meetings:

- Magellan completed 100% of the meetings scheduled for all 25 counties (Austin, Bastrop, Blanco, Crane, Crockett, Culberson, Ector, El Paso, Fayette, Gillespie, Harris, Hays, Hudspeth, Kimble, Lee, Llano, Schleicher, Menard, Mason, Reeves, Travis, Upton, Waller, Ward and Reagan) in 2018 by 10/4/18.
- Magellan participated in twenty-seven (27) meetings:
  - Fredericksburg 11am and 6pm on 01/31/18 included Gillespie and Llano counties
  - Junction 11am on 02/01/18 included Kimble, Mason, Menard, and Schleicher counties
  - Pasadena 7am and 11am on 02/07/18 included Harris county
  - Katy 11am and 6pm on 02/08/18 included Harris and Waller counties
  - San Angelo 11am and 6pm on 02/08/18 included Crockett county
  - Brenham 11am and 6pm on 02/15/18 included Austin and Waller counties
  - Midland 11am and 6pm on 03/06/18 included Reagan county
  - New Braunfels 11am and 6pm on 03/07/18 included Blanco and Hays counties

- Odessa 11am and 6pm on 03/07/18 included Crane, Ector, and Upton counties
- Austin 11am and 6pm on 03/08/18 included Travis county
- Pecos 11am and 6pm on 03/20/18 included El Paso and Hudspeth counties
- El Paso 11am and 6pm on 03/20/18 included El Paso and Hudspeth counties
- Giddings 11am and 6pm on 03/20/18 included Bastrop, Fayette and Lee counties
- Fort Stockton 11am and 6pm on 02/22/18 included Crockett county

Emergency Responders and LEPCs are an essential part of the damage prevention program. When managing an emergency, protecting lives and the environment requires a concerted team effort with local emergency responders. This program targets emergency responders and non-emergency response government agencies to provide them with information on how to best work together to maintain public safety. Magellan targeted one hundred forty-six (146) locations and conducted face to face meetings with emergency responders along our ROW. Magellan met this requirement for all twenty-five (25) Longhorn Pipeline counties scheduled by November 22, 2018. Meetings were conducted in the following counties: Austin, Bastrop, Blanco, Crane, Crockett, Culberson, Ector, El Paso, Fayette, Gillespie, Harris, Hays, Hudspeth, Kimble, Lee, Llano, Mason, Menard, Reagan, Reeves, Schleicher, Travis, Upton, Ward and Waller.

Public Officials are a fundamental part of the damage prevention program. Magellan informs public officials of the location of the pipeline and the dangers associated with development and encroachments adjacent to the pipeline. Magellan works within the local network of public officials, city and county planning departments, zoning and building permit offices and agricultural agencies to ensure safe development near the pipeline. The LMP states that Magellan must reach non-emergency response government agencies that are exempt from one-call mandates to provide them with maps of the system and inform them of the presence of the pipeline in order to maintain public safety.

Magellan included the Local Emergency Planning Commission (LEPCs) and non-emergency response government agencies in MMP annual mail out program.

The Magellan school program is designed to reach students and their households who are located in close proximity (within a one (1) mile radius) to the pipeline, to educate them about pipeline safety, damage prevention and emergency preparedness. The program is currently targeted at 4th and 5th grade elementary students in Houston and Austin. Additionally, a state-wide program targets school officials such as teachers, principals and bus drivers.

#### Austin/Magellan Program:

- In 2018 school year, Magellan targeted seventeen (17) elementary schools in the Austin area for the program.
- The following two (2) schools received a presentation: Joe Dan Mills Elementary presentation was completed on 10/31/2018 and Kiker Elementary presentation was on 11/1/2018 (two (2) schools, fourteen (14) teachers, three hundred three (303) students).

- A total of fifteen (15) schools either declined participation, cancelled or were unable to schedule, or did not respond to the repeated requests for a presentation during the 2018 school year.
- Magellan will continue to contact schools for the 2019 school year.

#### Houston/Safe at Home Program:

- In 2018, the “Safe at Home School Program” for the Houston area received participation from Carroll Academy, Eiland Elementary, Fonwood Elementary, Gleason Elementary and Nitsch Elementary, (five (5) schools, twenty-two (22) teachers, four hundred seventy four (474) students, twenty-five (25) classroom kits). Safe at Homes plans to continue to offer additional stipends and incentives to increase participation.

#### Texas Statewide School Pipeline Safety Outreach:

- In the 2017/2018 school year, there were four hundred nineteen (419) bus drivers and three (3) school officials that completed pipeline safety training; the Texas School Safety conference brought nine hundred (900) conference attendees from two hundred seventy five (275) districts/agencies, and one hundred fourteen (114) attendees visited the booth at the Corpus Christi Conference and Trade Show. The program also sent a spring and winter newsletter to 60,053 recipients.

Magellan has committed to distribute pipeline safety and damage prevention information to the public through various events, such as county fairs, trade shows, agricultural shows, feed and seed stores, home and garden shows, and equipment rental companies. The goal of this program is to reach out to nearby neighbors to educate them about pipeline safety, damage prevention and emergency preparedness.

- In December 2018, a follow-up on the Kiosk Program was completed. Additionally, contact with seventeen (17) stores was completed and added to the program. Magellan implemented a new box design that is smaller, takes up less space, allows printing to be added to the box and attracts more attention. Magellan provided Kiosk refills to seven (7) of the thirty-eight (38) stores that were contacted.
- In addition to the follow-up, the vendor conducted an effectiveness survey to store owners or managers regarding their experience with the program. Of those contacted, 63% of the owners or managers found the information helpful and believed their customers found it helpful as well.

Magellan has committed to use the mass media through radio public service announcements. In addition, Magellan targets the general public who live near the pipeline through printed ads in local community newspapers. The goal is to provide them with damage prevention messages and communicate with them regularly about the importance of calling before you dig. Communications include many ads, public service announcements, community event sponsorships and participation, and even an interactive app communicating pipeline safety and awareness.

## 7.5 PE5: Encroachment Procedures

Operations personnel are keenly aware of the need to prevent unauthorized encroachments and to properly manage authorized encroachments. An encroachment agreement is executed for every

authorized encroachment. MMP uses two different encroachment agreements: a “short form” that is used for routine activities, such as installing utility lines across the ROW; and a “long form” that is used for more complex situations, such as land development. The land representative is informed of every encroachment agreement and reviews them to ensure that they are appropriate. These are retained permanently in the TRACT land files.

In 2018 there were seventy (70) encroachments (a 14% decrease from 2017), eight (8) of which were unauthorized. The 2018 unauthorized encroachments did not result in damage to the pipeline. MMP gathers ROW near miss and unauthorized encroachment data in the “*Mitigation Plan Scorecarding & Performance Metrics*” report. Although unauthorized encroachments are not uncommon for any pipeline, near misses and unauthorized encroachments reinforce the need for an active ROW patrol program, in addition to the public awareness programs.

## 7.6 PE6: Incident Investigation Program

To promote awareness of hazards and to ensure “near misses” are identified, MMP uses a hazard/near miss (HNM) report (note that these operational “near misses” are not the same as the ROW “near misses” described in [PE4](#)). All operations employees are encouraged to complete these reports. There were four (4) HNM reports in 2018, eight (8) in 2017 versus four (4) HNM reports in 2016, five (5) for 2015, two (2) for 2014, four (4) in 2013, three (3) in 2012 and seven (7) in 2011.

The LPSIP requires that Incident Investigations (IIs) be performed for accidents, incidents, repairs, and near misses (“close calls”). The Incident Data Report form (13-FORM-1301) includes checkboxes to identify the event as Minor, Serious, or Major. MMP had a decrease in Incident Investigations conducted in 2018. MMP performed nine (9) Incident Investigations for facilities covered by the LMP in 2018 versus twenty-four (24) in 2017, versus eight (8) in 2016, eighteen (18) in 2015, ten (10) in 2014, eight (8) in 2013, nine (9) in 2012 and thirteen (13) in 2011.

**Table 6 – Historical Incident Investigation Breakdown**

	2018	2017	2016	2015	2014	2013	2012	2011
Hazardous Near Misses	4	8	4	5	2	4	3	7
Incident Investigations	9	24	8	18	10	8	9	13

The 2018 Incidents included two (2) incidents reportable to PHMSA. One (1) reportable incident was the result of Equipment failure, and one (1) was due to Human Error. Four (4) incidents were Hazardous Near Misses. Four (4) incidents were a result of human error, small volume releases or equipment failures non-reportable to PHMSA. Two (2) of those incidents were the result of human error by Magellan employees and two (2) incidents were by others.

There were three (3) Unauthorized Encroachments in 2018. These excavators were educated on the requirements for completing a one call, added to the Damage Prevention annual mailings, and received a letter from the ROW department explaining the importance of the one call program.

Excavators and/or landowners associated with a ROW Near Miss are added to the Damage Prevention annual mailing distribution list if not already included.

Note that Incident Investigations for the Longhorn System are reviewed on a monthly basis. Incident Investigations and Hazard/Near Miss reports are analyzed and Lessons Learned (see [MC7](#)) are generated if any lessons learned can be applied globally.

MMP distributes a weekly scorecard of all incident data (including reportable releases, human error events and compliance issues). The Vice President (VP) of Operations, Operations Directors, and the VP of Asset Integrity are included in this distribution. The auditors did not investigate the level of detail or trending that is reported to management or the outputs that may come from these reviews.

MMP has an action item (AI) tracking process that tracks Incident Investigations, HNM reports, and SIP meeting action items. The AI tracking process excludes action items that are performed immediately. The Safety Specialists participate in Hazard/Near Miss Action Item meetings with the Manager of Operations, Area Supervisors, Asset Integrity personnel, and the Compliance Coordinator. They modify the Action Items as needed and trend Hazard/Near Misses company-wide.

## 7.7 PE7: Management of Change

MMP's management of change process is described in SIP Element [MC11](#). The LMP requires that all documents and files affected by the change be identified and modified in a timely basis.

The LMP requires that all changes on the Longhorn System "be evaluated using an appropriate hazard analysis (e.g., "What-If", "HAZOP", and/or "LOPA")." The MMP MOCR form includes a "Yes or No" checkbox to indicate whether a "Process Hazard Analysis" (PHA) is required, and MMP's procedures require the asset integrity engineer to determine the appropriate risk assessment methodology for change requests. MMP performed one (1) PHA pertaining to the Longhorn facilities in 2018.

A Process Hazard Assessment (PHA) was conducted every five (5) years on the Crane area portion of the Longhorn Pipeline System, including the terminal facilities in the area. The PHA assessment was executed using a comprehensive HAZOP process. Representatives from Operations and Engineering staff, as well as Safety, were a part of the HAZOP review team. All potential risks identified during the HAZOP were ranked on Magellan's Risk Assessment Matrix, stating the number of protective barriers that should be in place to effectively manage the risks. A list of risk reduction recommendations were developed during the HAZOP exercise. All the recommendations were agreed to and had a responsible party assigned to address the actions. Up to date P&IDs were used by the HAZOP team in identifying potential risks associated with all the critical pipeline/terminal operations. The Longhorn HAZOP process included a list of wide-ranging questions/issues to be discussed and answered on all aspects of the pipeline and terminal operations.

The SIP requires that a post-installation inspection for safety and technical completeness of the project, called a "Pre-Startup Safety Review" (PSSR), be conducted prior to bringing new equipment into operation

or prior to bringing modified equipment back online. The MOCR form includes a section in the MOCR Closure Approvals section that confirms whether a PSSR was completed.

## **7.8 PE8: Depth of Cover Program**

The depth of cover program is tracked as part of the “*Asset Integrity*” (AI) report and is included in the “*Third Party Damage Program Assessment*” report. A depth of cover survey was completed in 2017 on the crude section of Longhorn from Crane to East Houston. All concern areas were analyzed by the Risk Assessment Group, which identified six (6) possible areas in ranch road crossings with shallow pipe. Two of the locations were mitigated in 4<sup>th</sup> Quarter 2017 and four (4) locations were mitigated in 1<sup>st</sup> Quarter 2018. Forty-six (46) exposed locations were noted on the report. All sites will be actively managed under the Outside Forces Damage Prevention Program in accordance with SIP. There was no third-party damage found. There were no new shallow areas found in cultivation.

## **7.9 PE9: Fatigue Analysis and Monitoring Program**

The fatigue analysis and monitoring program is part of the 2018 ORA. The results are described in the 2018 ORA report.

## **7.10 PE10: Scenario Based Risk Mitigation Analysis**

The “*Scenario Based Risk Mitigation Analysis*” (SBRMA) is conducted annually, after the results of the “*Annual Third-Party Damage Prevention Program Assessment*” (ATPDPPA) and the results of the probabilistic model are available. In 2013, the risk model used by MMP was enhanced by developing a new probabilistic risk model. The model utilizes integrated field data and incorporates a dynamic segmentation process to provide accurate results.

The LMP risk management commitment is to maintain pipeline related failure rates at or below a probability level of 1 in 10,000 (0.0001) per mile year. The SBRMA for the 2017 operating year was performed in 2018 and resulted in no areas along the pipeline exceeding the failure rate commitment.

## **7.11 PE11: Incorrect Operations Mitigation**

MMP has found that, in the past, operator error has been a significant contributing factor to incidents and near misses on the Longhorn System. MMP has taken steps to address that issue as well as uses an Incorrect Operations (IO) tracking spreadsheet. The spreadsheet is updated and reviewed monthly. IOs include Abnormal Operations (AO), IIs, and Hazard/Near Miss reports. The following table summarizes the historical incorrect operations and hazardous near misses.

**Table 7 – Historical Incorrect Operations/Near Miss Breakdown**

	2018	2017	2016	2015	2014	2013
Abnormal Operations	18	12	14	44	75	110
Hazardous Near Misses	0	4	4	9	2	4

**7.12 PE12: System Integrity Plan Scorecarding and Performance Metrics Plan**

This element commits Longhorn to establish and track general program performance measures, specific program performance measures, and to conduct an annual system integrity plan audit. These measures have been established and are being tracked as required, and the annual system integrity plan audit has been conducted each year as required. Longhorn has also established several other performance measures and tracking systems, including the *“Mitigation Plan Scorecarding & Performance Metrics”* report and incorrect operations scorecard. The scorecard metrics are reviewed monthly.

There were three (3) unauthorized encroachments in 2018. There were two (2) DOT PHMSA-reportable releases in 2018. See [Appendix A](#) for a description of key metrics on the system in 2018.

## 8.0 Recommendations

MMP has effectively executed the System Integrity Plan; however, there are opportunities for continued process improvement in the opinion of the auditors.

### 8.1 Recommendation – Procedure Revision

Procedure Revisions:

- Procedure 13.02 – Incident Investigation

This procedure directs the process of investigation of incidents. Section 2.0: *Description*, Section 2.3 states: “Magellan has established an Incident Investigation Oversight Group...” and defines two levels of Incident Investigation:

- Level 1: Major and Significant incidents as defined in SIP-ADM-13.02, 2.2.1 and 2.2.2, and/or incidents that will likely involve Litigation or have Commercial impacts such as extended outages or downtime.
- Level 2: Minor incidents as defined in SIP-ADM-13.01, 2.2.3.

The Tulsa Interview discussions involved Incident Investigations regarding Root Cause Analysis. The procedure 13.02 – Incident Investigation states the following: “Section 2.0 *Description* and Section 2.2 *Incident Investigation* should identify the probable cause, the corrective actions and lessons learned.” There was mixed feedback from the individuals we interviewed on the requirements for when root cause analysis are conducted and how they are completed.

Recommend a round of meetings for the impacted Magellan employees to raise awareness on the requirements in the above-mentioned sections, as well as how root cause analysis are conducted in the company.

### 8.2 Recommendation – Procedure Revision

Procedure Revisions:

- Procedure 13.01 – Incident Reporting

This procedure objective as defined in Section 1.0 *Objective* is as follows: “Section 1.1: The objective of this initiative is to standardize the notification, classification and documentation of all incidents, hazards, and abnormal operations (AOs).”

The Element does not provide guidance on who is responsible for determining the classification of all incidents.

Recommend a review of this Element to clarify the responsibilities for the classification of incidents and to provide a comprehensive accounting documentation of the classification of incidents.

## 9.0 Conclusions

Magellan's SIP was effective in 2018 and served its function of managing risks on the Longhorn System. Personnel at all levels of the organization were aware of and are committed to comply with the requirements of the SIP. Comprehensive programs were in place to manage risks on the pipeline system and to implement the commitments in the SIP. These programs were mature and, on a continual basis, improved. The Auditors have made two recommendations for improvement and consideration by Magellan L.P.

## 10.0 Appendices

- [Appendix A: Summary of Key Metrics for 2018](#)
- [Appendix B: Key Documents Reviewed for the 2018 SIP Self-Audit](#)
- [Appendix C: Personnel Interviewed](#)
- [Appendix D: Statements of Qualifications for the Auditors](#)

## 10.1 Appendix A: Summary of Key Metrics for 2018 (Update from scorecards)

Category	Measure	2018 Results	
Incident Data	Releases (DOT-reportable only)	Two (2) Total	
	Releases in sensitive and hypersensitive areas (DOT-reportable only)	0	
	Releases by cause (DOT Reportable only)	TPD = 0	
		Corrosion = 0	
		Design = 0	
		Incorrect Operations = 2	
	Releases by volume (BBL) (DOT Reportable only)	Tier 1 = 2	
		Tier 2 = 0	
		Tier 3 = 1	
	Facility Near Misses	Tier 1 = 0	
Tier 2 = 0			
Tier 3 = 0			
Risk Awareness	Identification of new and/or previously unrecognized risks	2 - See 2017 ORA	
	Number and type of projects completed that are not required by prescriptive code	0	
Public Customer Service	Number of validated complaints on safety or environmental issues	0	
	Number of landowner contacts related to pipeline safety and land use	16	
Operator Resources and Innovation	Number of new technologies, alternative methodologies and innovative approaches to control risk	0	
Damage Prevention Program	Number of third-party damage incidents due to One Call Process not being practiced (One Call Violations)	1	
Unauthorized Encroachments	Number of unauthorized encroachments	3	
Facility Inspections	Number of facility inspections	2	
Corrosion Management Plan – Smart Pig Results	Dents with any of the following: metal loss, corrosion, exceeds 6% of the outside diameter, or located on the longitudinal seam or girth weld	1	
	Remaining strength of the pipe results in a safe operating pressure that is less than the current MOP at the location of the anomaly using a suitable pressure calculating criterion (e.g. B31 G, modified B31 G, RSTRENG or LAPA)	0	
	Casing shorts with associated metal loss	0	
	Girth weld anomalies	0	
	Corrosion with 3" of either side and/or across girth welds	See ORA Report	
	Preferential corrosion of or along seam welds	See ORA Report	
	Gouges or grooves greater than 50% of nominal wall thickness	0	
	Cracks located in the pipe body, girth weld, and longitudinal seam that are determined to be injurious to the integrity of the pipe	See ORA Report	

Leading Measure	Definition	Standard	Score
Number of Releases	Number of Releases from company assets or projects that are managed by area employees in quantities exceeding 1 Gallon.	Zero (0)	2
Number of Recordable Releases	Number of DOT Reportable releases experienced on the Longhorn System.	Zero (0)	2
Number of Line Hits	Number of contacts with pipeline by first, second or third parties. Contact with pipeline includes coating contact or damage.	Zero (0)	0
Number of ROW Near Misses	Number of events that in slightly different circumstances could have resulted in damage to the pipeline by first, second or third parties.	Zero (0)	3
Number of Markers Repaired or Replaced	Pipeline ROW Location Markers	Actual Number	105
Number of Unauthorized Encroachments	Number of activities that resulted in a structure being placed on the ROW that was not authorized by Longhorn Pipeline.	Zero (0)	4
Number of LMP Emergency Drills Conducted			6

## 10.2 Appendix B: Key Documents Reviewed for the 2018 SIP Self-Audit

### 2018 LPSIP Self-Audit Backup Docs - Appendices

No	Document Name
1	Magellan System Integrity Plan
2	2018 Mitigation Plan Scorecarding & Performance Metrics
3	2018 Mitigation Plan - Commitment Implementation Status Report
4	Incorrect Operations Spreadsheet
5	Hazard/Near Miss (HNM) Reports
6	ROW near miss reports
7	Asset Integrity Report (year-end for 2018)
8	Action Item Spreadsheet for EOY 2018
9	API 653 Internal and 653 External inspections in 2018 and issues identified
10	2018 Longhorn Year End Preventative Maintenances Tasks Summary
11	Abnormal Operating Condition (AOC) Report
12	Incident Data Reports and 2018 Incident Investigation Reports and actions
13	Facility Inspection Forms
14	Asset Integrity Report – 2018
15	Public Awareness Summary Report – 2018
16	Management of Change Data, including <ul style="list-style-type: none"> <li>• Selected MOCR Reports</li> <li>• Open MOCR list</li> <li>• Closed MOCR list</li> <li>• Pre-Startup Safety Reviews (PSSRs)</li> </ul>
17	Lessons Learned and Safety Alert Bulletins – 2018
18	2018 <i>Scenario Based Risk Mitigation Analysis</i> and any issues associated with the report
19	All correspondence to/from local, state and federal agencies regarding incidents, drills, inspections or other issues
20	Valve Inspection Report data – 2018
21	Operational Reliability Assessment Reports and related actions summary
22	Corrosion Control Records – 2018, including: <ul style="list-style-type: none"> <li>• MPL Longhorn Rectifier Maintenance Activity Report</li> <li>• MPL Longhorn Test Point Exception Report</li> <li>• Atmospheric Maintenance Report</li> <li>• Close Interval Survey Results for Tier III</li> <li>• Coupon Test Results</li> <li>• NACE Rust Test Results</li> <li>• And other maintenance requirements</li> </ul>
23	Leak Detection System Report – December 2018
24	CMS Summary Report – December 2018
25	2018 Third Party Damage Prevention Program (TPDPP) Annual Assessment

No	Document Name
26	2018 Longhorn Mitigation Plan – Annual Commitment Implementation Status Report
27	Damage Prevention Notebook (website monitoring statistics, non-emergency call log, etc.)
28	Dig list (per Tulsa interviews)
29	Aerial photogrammetry results (per Tulsa interview)
30	PLM reports – explanations. (per Tulsa interviews)
31	5 Year PHA for Crane/Odessa Area - July, 2018
32	2018 Scenario Based Risk Mitigation Analysis (SBRMA)
34	MOCRs <ul style="list-style-type: none"><li>• Eckert MOV to ROV Change – October, 2018</li><li>• El Paso Remove Flow Switches from Tank Pumps on Tanks 20, 21, 22, &amp; 23 – October, 2018</li></ul>
35	El Paso Terminal 6” and 12” Receipt & Storage Tank Project PHA – 2016
36	Magellan LPS AO and IOC List - 2018

### 10.3 Appendix C: Personnel Interviewed

(In each case, Jamie Graves was in attendance and supported the interview process.)

#### 10.3.1 Austin Interviews

Name	Title
Danny Stokes	Area Supervisor
Lee Moore	Technician
Darcy Madsen	Compliance Coordinator

#### 10.3.2 Tulsa Interviews

Name	Title
Brad Kindle	Supervisor, Ops Control
Mark Lepich	Corrosion Supervisor
Brad Niehus	Supervisor, Ops Control
Jeremy Martin	Manager, Operations Control
Al Wolff	Manager, SCADA
Robert Craig	Supervisor, Ops Control Applications
Mark Lepich	Corrosion Supervisor
Clyde Clausen	Manager Pipeline Integrity
Dennis Vasicek	Supervisor Asset Integrity (Pipeline)
Dyan Gillean	Supervisor One Call
Chris Sellars	Manager of Training & Staffing
Amber Kistler	Health & Safety Specialist
Pat McKenzie	Director of Operations
Buddy Cronk	Area Supervisor Manager, Operations
Joe Butler	Director Operations Control
Zach Howard	Director Facility Integrity (effective June 1, 2018)

#### 10.3.3 Crane Interviews

Name	Title
Mike Blankendaal	Manager, Operations
Danny Lampe	Area Supervisor

#### 10.3.4 El Paso Interviews

Name	Title
Cliff Bryant	El Paso Area Supervisor
Brad Martin	El Paso Senior Technician
Greg Melton	Damage Prevention Operator

## 10.4 Appendix D: Statements of Qualifications for the Auditors

**Stephen E. Gilliam**

**Senior Advisor III**

### Executive Summary

Mr. Gilliam brings a wealth of detailed knowledge and experience in the area of pipeline regulatory and operational requirements. He has developed and implemented programs that have delivered outstanding performance improvements including cost reduction, spill reduction, and process system improvements.

### Accomplishments/Experience

With over 30 years of experience in the oil and gas industry, Mr. Gilliam has established a significant list of achievements and accomplishments. During his tenure with RCP, his accomplishments include:

- Performed gap analysis of regulatory compliance programs for numerous pipeline operators.
- Performed regulatory compliance pre-audit inspections for numerous pipeline operators.
- Assisted in the development of DOT required Operations and Maintenance Manuals for pipeline operators.
- Coordinated and performed a detailed Corrosion Compliance audit for pipeline operators.
- Conducted detailed Maximum Allowable Operating Pressure analysis for gas transmission pipeline operators.

### Other Industry Experience:

- Ensured that procedures, performance documents and physical assets complied with State and Federal Regulatory Codes.
- Developed Internal Audit protocols and managed the internal audit process.
- Developed a Regulatory Compliance database to provide guidance for document control, compliance tracking and establishment of RAA (Responsibility, Authority, and Accountability).
- Assisted the Office of Pipeline Safety and the National Transportation Safety Board (NTSB) as the Company representative during lab investigations of failed pipe at the NTSB lab in Washington, D.C.
- Responsible for documentation provided to the Office of Pipeline Safety, NTSB in response to compliance actions/recommendations.
- Coordinated, planned and assisted in compliance inspections by the Office of Pipeline Safety.
- Tracked compliance issues and developed response documents to resolve issues in an expedited time frame.
- First responder member of the Emergency Response Team as DOT Coordinator during pipeline accidents. Facilitated communication with regulators.

- Reduction of compliance violations issued by the Office of Pipeline Safety.
- Supervised the development of the Integrity Management Plan.
- Managed the development of the Damage Prevention Program.
- Performed due diligence for regulatory compliance documents for a pipeline acquisition.
- Developed a computerized maintenance tracking program.
- Developed procedures for the performance of preventative maintenance.
- Ensured that required preventive maintenance was completed and documented.
- Development of Sequence Control wiring diagrams for pipeline control systems.
- Development of fabrication drawings for Control Consoles, including the graphic control panels and wiring diagrams.
- Coordination with vendor fabrication of systems to ensure quality and scheduled delivery.
- Oversaw the field installation of control systems and control consoles.

### **Military Experience**

U.S. Army 1968 to 1971 – Chemical Staff Specialist – Viet Nam 1968 to 1969

### **Honors and Awards**

Eagle Scout

Colonial Pipeline Company – 25-year service award without injury

### **Education**

Associate Degree, Mechanical Technology – South Georgia Technical School

B.A., Business Management – Georgia State University

## Dwight Johnston

### Executive Consultant II

#### Executive Summary

Dwight Johnston has 40 years of experience in the oil & gas industry as a safety / operation management systems specialist. He is a solutions-focused leader with a proven track record optimizing operational and improving HSE performance. He has led or supported diverse technical, cultural and operational teams to successfully create and implement both operational performance improvement and safety management systems. He has a strong knowledge of all aspects of upstream, pipeline and downstream operations. Mr. Johnston's experience includes facilities, production, HSE management systems, operations, process improvement and operations services. He has supported project work both onshore and offshore, across the U.S. and internationally.

#### Accomplishments/Experience

Prior to joining RCP, Mr. Johnston was Vice President HSE Offshore Operations for a major integrated oil and gas company. He directed HSE accountability for offshore operations in the Gulf of Mexico, Southeast Asia, West Africa and Brazil, and supported exploration efforts in Alaska. His experience includes:

- Led team of 100 staff that provided HSE support in areas including regulatory compliance, training / learning, incident investigation, safety leadership coaching / support, risk management assessment, barrier assurance and support.
- Supported offshore business representing over 12MM man-hours of exposure each year and over 4000 full-time and contractor employees.
- Coached global executive leadership team on safety management systems and their personal safety leadership behaviors.
- Accountable for development and implementation of HSE Management System and Process Safety Management (PSM).
- Led a global team of 40 engineers and operations staff that developed future operating requirements for all asset integrity and process safety aspects of the company's operations. Collaborated with downstream experts to develop a company-wide PSM process, which included upstream, pipeline and downstream operations.
- Implemented a multibillion-dollar repair / remediation program across the company's upstream organization around the globe.
- Organized and led over 35 Safety Management System workshops for company leaders around the globe, helping them to understand the SMS requirements and their role in successful implementation.
- Coordinated the development of HSE Cases for all major upstream facilities, including hazard assessments and barrier management mitigation measures for each location.
- Developed and led risk management workshops for all safety and environmental risks in respective organizations.

- Oversaw engineering and operations staff handling maintenance and integrity assurance, logistics, HSE support, engineering and construction projects, operations training and skill pool development, improvement process and operational readiness.
- Developed U.S. Production Division Operations Excellence Model, as well as yearly plans to work and achieve Operations Excellence in all U.S. upstream operations.
- Effectively implemented projects including SAP Blueprint, Total Reliability (Maintenance Improvement exercise), STARS (Reliability/Maintenance Improvement exercise) and HSE global processes.
- Served as one of the co-leads on the U.S. Production Division improvement team effort working to redesign the organizational structure and improve the business / operational processes and systems.
- Operations Manager for the deepwater Ram-Powell TLP in the Viosca Knoll area in the Gulf of Mexico. Led both the field operations staff and the asset engineering team.
- Project Manager, supervising a team in charge of developing and implementing the new HSE Management System, including identifying and putting together a plan to assess and correct all asset integrity issues.
- Led the implementation effort of the new HSE Management System across all of the company's North American operations, equating to over 2,000 staff.
- Led numerous HSE Management System and PSM audits / reviews to assess progress against company requirements, identifying gaps in local operations and working with local leadership to develop gap closure plans for needed improvement areas.
- Led a team during the systems selection stage of the Bonga Development Project offshore Nigeria. Assessed alternative systems for potential development of the field and also pulled together the detailed design and construction plans necessary for bidding the design, fabrication and installation of the new FPSO to be used for development.
- Led a project engineering and construction team to install and start-up the Ursa TLP in the Gulf of Mexico. Total budget of \$250MM and involved over 300 full-time and contract staff.
- Served in two of different positions on the Mars and Ram-Powell TLP Development Projects. Supervisor of a study team handling the systems selection decision for both TLPs, followed by the detailed topsides facilities design. Construction Manager of the topsides facilities for both projects in McDermott's fabrication yard.

## **Education**

B.S., Civil Engineering Degree – Texas A&M University

## **Associations**

- Member of Center for Offshore Safety (COS) group working as offshore industry leaders to develop and successfully execute Safety and Environmental Management System (SEMS) requirements.

- Chairperson of new Ocean Energy Safety Institute (OESI), a group of leaders from industry, academia and regulators, working to conduct research and share best practices around all aspects of safety, environmental and risk management systems.

## **Presentations and Publications**

*(Excluding in-house training sessions)*

Johnston, D., "Risk Management," AGA Management System Workshop, February 2018. Johnston, D., "Safety Considerations in Offshore Contracting Strategies," Presented at the COS Safety Forum, September 2015.

Johnston, D., "Importance of Leadership in a Strong Safety Culture," Presented at the Offshore Technology Conference, May 2015.

Johnston, D., "Shell's Safety and Environmental Management Systems," Presented at the Deepwater Offshore Technology Conference, November 2014.

Johnston, D., "Asset Integrity and Process Safety Management, A Shell Perspective," Presented at the Offshore Technology Conference, May 2014.

Johnston, D., "Balancing Personal and Process Safety Management," Presented at the Center for Offshore Safety Forum, April 2014.

Johnston, D., "Building a Quality Process Safety Management Program," Presented at the Offshore Safety Conference, October 2013.