2019 Annual System Integrity Plan

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

January 27, 2021

RCP®

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1.0 Acronyms and Definitions

API	American Petroleum Institute
AO	Abnormal Operations
AOC	Abnormal Operating Condition
ATPDPPA	Annual Third-Party Damage Prevention Program Assessment
ATW	Authorization to Work
BBL	Barrel
CFR	Code of Federal Regulations
CMS	Compliance Management System
DHS	Department of Homeland Security
DIMP	Distribution Integrity Management Program
DOT	Department of Transportation
DPO	Damage Prevention Officer
EA	Environmental Assessment
EFW	Electric Fusion Welded
ERP	Emergency Response Plan
EOY	End-Of-Year
FSP	Facility Security Plans
FVA	Facility Vulnerability Assessment
HAZOP	Hazard And Operability Analysis
HCA	High Consequence Area
HNM	Hazard Near Miss
HR	Human Resources
HSE	Health, Safety and Environment
ILI	In-Line Inspection
ISN	ISNetworld

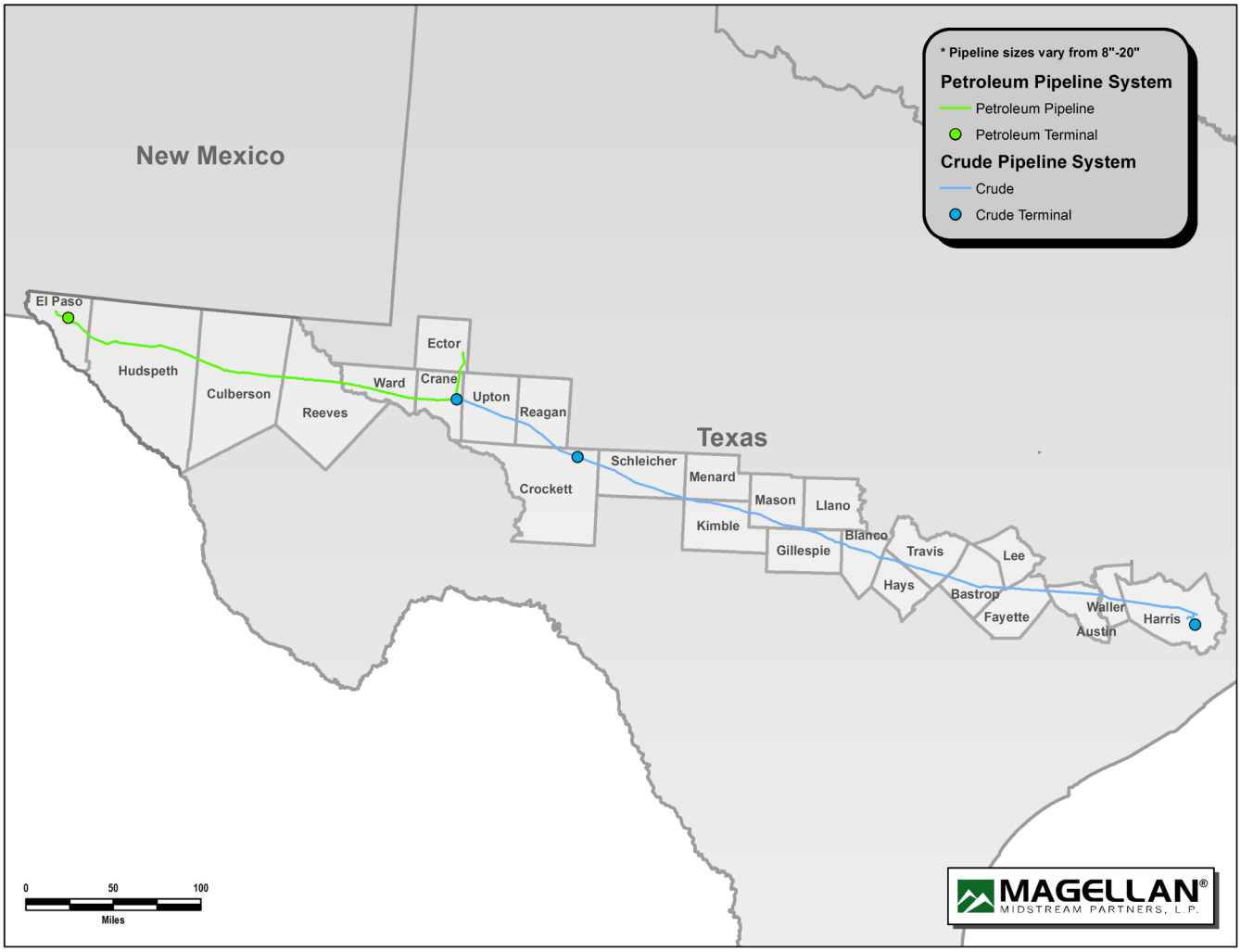
ITPs	Individual Training Plans
JSA	Job Safety Analysis
LMP	Longhorn Management Plan
Longhorn	The entire pipeline system and all parties, including MMP (see below)
LOPA	Layer of Protection Analysis
LPS	Longhorn Pipeline System
LPSIP	Longhorn Pipeline System Integrity Plan
MAPS	Magellan ArcGIS Portal System
MC	Management Commitment
MCEMT	Maintenance Capital Expense Management Team
MFL	Magnetic Flux Leakage
MMP	Magellan Midstream Partners L.P. (the asset operator and owner as of August 27, 2009)
MOC	Management of Change
MOCR	Management of Change Requests
NACE	National Association of Corrosion Engineers
NFPA	National Fire Protection Association
O&M	Operations and Maintenance
Operator	Magellan Midstream Partners, L.P. (MMP)
OQ	Operator Qualification
ORA	Operational Reliability Assessment
PE	Process Element
PHAs	Process Hazard Analysis (using HAZOP, LOPA, or What-If Analysis)
PHMSA	Pipeline and Hazardous Materials Safety Administration
PSMS	Pipeline Safety Management System
PSSR	Pre-Startup Safety Review
ROW	Right-Of-Way

RP	Recommended Practices
SBRMA	Scenario Based Risk Mitigation Analysis
SIP	Magellan Midstream Partners, L.P. System Integrity Plan
SME	Subject Matter Expert
SMFL	Spiral Magnetic Flux Leakage
TIMP	Transmission Integrity Management Program
TPDPP	Third Party Damage Prevention Program Annual Assessment
TRIR	Total Recordable Incident Rate
UCD	Ultrasonic Crack Detection
VCU	Vapor Combustion Unit

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 the Longhorn system had the flow reversed (Crane to Pasadena) and converted to West Texas Crude. The map below shows the overall product service for the pipeline asset.

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).
July 2017	Crude oil spill (approx. 50,000 gallons) in pipe section in Bastrop County

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 concerns on the Longhorn System both before and after startup. The LMP also committed Longhorn to implement the Magellan System Integrity Plan (SIP), 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 Magellan SIP for the Longhorn Pipeline System each year;
2. Magellan SIP Process Elements (15 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 annual self-audit of the Magellan SIP for the Longhorn Pipeline System. This 2019 self-audit satisfies this requirement. The Mitigation Commitments and the Operational Reliability Assessment reports are addressed in separate reporting processes and are not included as part of this report.

Magellan's SIP is their comprehensive Safety Management System. The SIP was first issued in 2004 and has been updated on several occasions since then. The integrity management programs included in the original 14 Management Commitments, as well as the original 12 Longhorn Pipeline System SIP Elements, were all rolled into the 15 Elements in the Magellan level SIP. The Magellan SIP contains a requirement for a formal annual review, validation, and updates, which also ensures compliance with current regulatory requirements. Process performance measurement, assessment, and continual improvement objectives are incorporated within the SIP. In 2015, the American Petroleum Institute (API) published API Recommended Practice 1173 for Pipeline Safety Management Systems. API RP 1173 provides operators with a framework to 1) identify and manage risk, 2) promote a learning environment and 3) continually improve pipeline safety and integrity. Magellan's SIP is aligned with the API RP 1173 objectives, and has formally joined other pipeline operators in committing to implementation of API RP 1173.

In this report, the fifteen (15) 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 Process Elements correspond with the appropriate PEXX number. For example, PE11 refers to the Management of Change Process Element, and is discussed in Section 6 of "Findings for the 15 Longhorn Pipeline Systems (Magellan) SIP Process Elements," and so forth. Recommendations to address the Findings from the Self-Audit are captured in Section 7 of the report.

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 C of this report. The Auditors reviewed the LMP, the SIP, as well as various documents from Longhorn as listed in Appendix A, 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) from El Paso, Midland/Crane, Austin, and Tulsa. Personnel interviewed are from both field operations and the corporate office. A complete list of personnel interviewed is contained in Appendix B to this report. If more than one person had held the same position during 2019, the auditors generally interviewed all those personnel at once. All the interviews for the audit occurred between August and October of 2020.

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, Magellan System Integrity Plan, the Texas Railroad Commission, and in PHMSA Pipeline Safety Regulations, as applicable.

4.0 Significant System Developments in 2019

During 2019, Magellan continued to implement system integrity activities as required by PHMSA pipeline safety regulations, the Longhorn Mitigation Plan and the System Integrity Plan.

There were no significant system developments on the Longhorn Pipeline in 2019. However, improvements of the LMP include: 1) continued development and implementation of the electronic Management of Change (MOC) program; 2) revisions to procedures associated with work processes typically completed by contractors; and 3) enhancements to their regular safety related communications and meetings. They also continue to improve their pipeline integrity assurance processes, including the use of the latest enhancements associated with In-Line Inspection (ILI) pigging operations.

5.0 Summary of Findings from the Self-Audit

As mentioned above, the LMP requires an annual self-audit of the Longhorn Pipeline (Magellan) SIP. 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 fifteen (15) 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 Process Elements sections of this report.

The 2019 audit, conducted in 2020, reviewed the activities and programs used to manage risk. These activities and programs were mature, functioning as designed and were well understood by employees. The Recommendations section of this report describes potential improvements for the programs based on the Magellan SIP manual.

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 in similar condition. 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 2019, MMP did not replace any valve stems, but have plans in 2020 to continue to advance the program based on 1) a prioritization of the potential of leak impact along the pipeline; 2) the location in relation to High Consequence Areas (HCAs); and 3) the severity of leakage. The valve stem replacements will 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 on the station pig trap not being properly closed following maintenance. As a result, work was done to allow for remote control of the existing pig trap isolation valves on the Longhorn Pipeline System beginning in October 2018, to prevent this type of incident from reoccurring. This work continued into 2019, until all pig trap locations were completed. These remotely controlled valves can be operated from the Operations Control Center.

MMP issued five (5) Magellan wide "Safety Alert" bulletins in 2019. 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 had implemented a Human Error Report and Distraction Training to address incidents associated with human error and incorrect operations.

Magellan conducted three (3) incident investigations on the Longhorn Pipeline in 2019. These investigations include the following:

- One (1) incident was associated with Third Party Unauthorized Encroachment, ROW Near Miss or One Call Violation.
- Two (2) incidents were small volume releases and not reportable to PHMSA. Both of these incidents were the result of failed valve stems.

- None of the incidents were DOT reportable due to the small volumes released.
- In summary, the incident classifications are listed below:

Table 2 – 2019 Incident Investigations and Incidents

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

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

A 5-Year Revalidation Process Hazard Analysis (PHA) was completed for the El Paso Terminal operation in 2019. The LPS El Paso Facility receives hydrocarbon products via pipeline and was used for product storage, product delivery through truck loading rack and pipeline delivery through lateral lines to the El Paso Junction. Some additives are received by truck and mixed into product. The truck loading rack VCU piping and equipment are protected by various venting and relief systems that connect to a thermal oxidizer for safe and environmentally sound destruction of vapors.

This Revalidation PHA was conducted by a team with expertise in the operation and engineering of the terminal process and the PHA methodology. The purpose of the PHA was to analyze hazards associated with the Longhorn Mitigation Plan Project using the Hazard and Operability (HAZOP) methodology. The PHA looked at impacts covering all of the terminal operating practices and production processes. For each scenario, hazards to onsite personnel, the environment, the public and equipment were evaluated.

The study team conducted a comprehensive review of all potential terminal risks, ending up with five (5) recommendations to further reduce risks associated with operating the El Paso Terminal. Results of the study can be found in the El Paso Facility Project PHA, AFS Project: 020711 document.

Right of Way (ROW) technicians assigned for part of the LPS began to meet quarterly in 2019 with their counterparts from other pipeline operators. These meetings are to share experiences about the pipelines in the areas where the operators share the same ROW corridor. These meetings also allow for the sharing of information about plans for upcoming ground disturbances and changes, such as cathodic protection changes, to their pipelines and how these plans could impact each other. These meetings are not occurring over the full length of the LPS; however, other locations are considering adopting this practice. The Houston area was identified as a difficult area to bring in this practice due to large number of pipeline operators.

Magellan enhanced their Facility Integrity Management Program in late 2018 and early 2019 and began conducting more rigorous integrity related assessments for their surface facilities and equipment in 2019.

All findings from these assessments are captured in a company database and tracked to completion. Results of these assessments will go into finalizing the Facilities Integrity Management Plan each year.

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

5.3.1 Monthly Safety Engagement Meetings

The Longhorn Pipeline System developed an enhancement to their regular Monthly Safety Meeting format in 2019. The HSE and Operational groups jointly redesigned the safety meetings to be more interactive and more structured in nature. The meetings are now called Monthly Safety Engagement Meetings and encourage all attendees to actively participate in the meetings. The HSE and Operational Groups selected a total of twelve (12) safety topics, one to be discussed at each of the monthly safety meetings based on 2019 safety performance data. The HSE Group provided structured videos, handout materials, etc. to be used in all monthly safety meetings across LPS operations for the month. Leadership of the monthly safety meetings was rotated amongst the HSE staff, Operational Leaders and Technicians. The redesign was completed in 2019 and implemented starting in January, 2020. Examples of monthly safety meeting topics include: 1) Operational Discipline; 2) Fatal Assumptions; 3) Managing Change; and 4) Missing the Obvious.

5.3.2 Digging in LPS Right-Of-Ways

The Public Awareness Group, along with the LPS Right-Of-Way group continue to work to improve public awareness around digging in LPS ROWs. The focused message is an effort to improve response time of local emergency response agencies (Fire Dept., Police, etc.), along with LPS employee response time. When an event/incident occurs, the message is to call 911 first, followed by the LPS emergency number. LPS works to get the word out in company mail-outs and at various public events about calling 811 prior to digging in LPS ROWs. In conjunction with that, they worked to educate the public about reporting events/incidents.

6.0 Findings for the 15 Longhorn Pipeline (Magellan) SIP Process Elements

The fifteen (15) process elements described in the LMP are addressed below:

6.1 PE1: Magellan Commitment

The Longhorn Pipeline System (LPS) develops specific safety and operational goals and objectives each year. These goals and objectives are documented in their Operational Performance Report. These goals include specific operational and safety targets like pipeline volumes, operating expenses, spills, recordable injury rates, etc. Performance against these targets is measured and documented in their Performance Dashboard.

The LPS uses the Magellan System Integrity Plan (SIP) to define all the overall operational and system integrity requirements. LPS uses the Magellan SIP to ensure they met the requirements of the API RP 1173, Pipeline Safety Management System, for all their operating assets. Magellan's SIP goals and objectives are as follows:

- Ensuring that their assets are built and operated on sound technical and business principles, in compliance with regulatory requirements and in accordance with industry standards.
- Applying Magellan standards and practices to compliment prescriptive regulations.
- Ensuring that employees are trained to safely perform their respective duties.
- Ensuring selection of contractors with demonstrated histories of safe, compliant and responsible performance.
- Incorporating external experience and best practices.

In addition, the Longhorn Mitigation Plan defines the integrity assurance focus areas and specific commitments planned for the year. Progress against these commitments is monitored on a regular basis. The SIP Council is the approval body for all planned improvements to the LPS, including the Longhorn Mitigation Plan commitments. The SIP Council meets twice per year to review progress against the planned improvements.

The LPS had Element Owners for each of the fifteen (15) SIP Elements, who are responsible for monitoring performance against the Element requirements and suggesting improvements to the requirements when needed. Metrics for measuring performance against the requirements are included in the Performance Dashboard, but are not specifically spelled out for each Element. There is not a singular meeting where all expectations of the SIP are reviewed, but the expectations are covered in the variety of meetings scheduled throughout the year.

The LPS has a solid rewards and recognition program in place for all employees, including both an Annual Incentive Plan and an Annual Bonus. Both incentive programs include safety performance as a significant percentage of the reward mechanism.

Workload is monitored by watching employee overtime levels and on-time O&M tasks completion metrics. Contractors are used to meet any peak workload requirements. If higher long term workloads are anticipated, additional LPS employees are considered to be added to the permanent company workforce. One additional Technician was added in 2019.

6.2 PE2: Training

A comprehensive training matrix exists for all field/operational safety critical positions in the company. The matrix lists these safety critical roles, along with the training requirements for each of those positions. LPS uses Magellan's Learning Management System (LMS) to store all training requirements. Training plans for all field personnel exist in the LMS for all LPS employees. Completion of all training requirements is handled by the individual's Supervisor or Manager.

The training matrix covers all Operator Qualification (OQ) needs for the pipeline field/operational safety critical activities. The OQ task lists are updated each year, ensuring they met all the latest regulatory requirements. All OQ verification requirements are documented and managed through ISNetworld for all company employees and contractors.

Engineers, Managers and other office-based safety critical positions are not included in the LPS training matrix, nor does Magellan have skill/competency profiles for these roles. Training and competency assurance for these roles is handled by the individual and their respective Supervisor or Manager, which can lead to inconsistencies in the training and skill/competency requirements.

6.3 PE3: Contractor Management

LPS uses contractors to execute many of their work activities, including inspection services, ROW management, valve repairs, line locating, environmental assessments, detailed engineering, etc. All contractors are handled thru the Magellan Contracting Group via specific service agreements. A number of factors are considered when selecting contractors, such as safety performance, operational experience, price, and past history with the LPS. If safety performance (TRIR) was too high, the contractor is not considered for use. There is an exception process that can be used, if needed, for contractors not meeting the performance requirements. These exceptions are signed off by Senior LPS Management.

Contractors are provided with access to applicable LPS/Magellan O&M procedures, as well as all safe work practices via an external website called 3E. They are engaged in developing and reviewing the Job Safety Analysis (JSA) for all work activities in which they were involved. JSAs include a description of all potential hazards/threats and mitigation measures for the planned work.

All contractors use ISNetworld (ISN) to store all training accomplishments and certificates/qualifications achieved for each employee. While there is not a formal process for auditing the data quality in ISN on a regular frequency, LPS Project Managers and Area Supervisors check the ISN data on occasion to ensure LPS skills/competency requirements are being met. Company work site inspectors are used to verify qualifications for the planned work activities.

6.4 PE4: Project Management

LPS uses contractors for all major construction work and/or major repair work. There was no major construction work executed in 2019. LPS was continuing with the remote control modifications to pig trap isolation valves in 2019, which started in 2018.

Standard engineering design packages are used for most pipeline modifications or additions on the LPS. Where standard designs are not available, designs based on good industry practices are to be used. If changes are made to any project-related standard, a Project Change Document is to be developed and approved before executing the work activity. Similarly, when project execution type changes (cost, schedule, etc.), a formal Project Change Document is to be used to document the review and approval of the change.

Pre-Start-up Safety Reviews (PSSRs) are conducted for all pipeline system additions or modifications. There is a standard process and form for conducting the PSSRs. Actions from the PSSRs are captured and tracked to completion, prior to start-up of the pipeline system modifications. The PSSR process is identified as the handover process from project groups to the operations organization. However, a couple of the Operational leaders interviewed did not seem to fully understand how the PSSR process fits into the formal handover process and how it is used to assist with the transfer of any new pipeline systems or modifications from the projects group to the operational organization.

6.5 PE5: Safety Management

The LPS holds monthly safety meetings in each of their operational areas. These meetings are historically called System Integrity Plan meetings. In 2019, there was an effort made to enhance the engagement and participation at these safety meetings. The meetings were redesigned by a group of LPS Technicians, Leaders and HSE staff. The redesigned safety meetings were renamed Safety Engagement meetings and began in January 2020. Safety Engagement meetings across all LPS operational areas are now standardized going forward. A common theme, such as Operating Discipline, Managing Change, Fatal Assumptions and Missing the Obvious, will be used for these meetings. The themes were driven by 2019 safety and operational performance. Sharing current safety performance metrics will feature more prominently in the new meeting structure. Facilitation of the local Safety Engagement meetings will be shared, giving all LPS employees a chance to lead meetings. There is also a more structured mechanism for providing safety meeting feedback going forward.

The LPS has a strong Stop Work culture. The SIP clearly stated that all employees do not need permission to stop any work, if they have any safety concerns about the work task(s). While there is not a formal Stop Work Authority policy, the practice is well entrenched across their operations. There is also a strong permitting process in place in the LPS. A formal Authority to Work (ATW) process is used for assessing potential hazards and ensuring safe execution of all safety critical work tasks.

A strong Drug and Alcohol program is in place across the LPS. The LPS employee drug and alcohol testing process is managed by the HR organization. LPS's Drug & Alcohol program was audited by PHMSA in 2019, finding only very minor observation. LPS expects all their contractor companies to have equivalent Drug and Alcohol programs in place. LPS reviews the contractor programs on a regular basis.

Magellan conducted another Safety Culture survey in 2018, which included all LPS employees. The company had an exceptional 90% participation/response rate for the survey. Survey results were shared with all District Managers and Area Supervisors, who in turn shared it with their employees in 2019. Actions were taken to drive improvement in all areas of concern.

6.6 PE6: Environmental Protection

The SIP does a thorough job of covering all environmental requirements for water, air, ground and waste management. The requirements cover all state and federal regulations, exceeding the expectations in some areas.

All environmental compliance management requirements in the SIP are loaded into the company's Compliance Management System (CMS). Compliance management reminders are sent out to the responsible parties 30 days and 5 days ahead of the due dates. In general, compliance tasks are executed on time and in a comprehensive manner.

All environmental data required to be collected is stored in a common electronic database for the LPS, covering all air, water, ground and waste management requirements. The data is readily available and used for all regulatory reporting needs.

Site remediation work was still ongoing adjacent to the Bastrop Station in 2019. The oil spill occurred in 2017. The work was being handled by a third party contractor that specializes in site remediation clean-up work.

6.7 PE7: Asset Integrity

LPS considers Asset Integrity to be a large part of the overall risk management program. Asset Integrity issues are being managed by a variety of groups within LPS and Magellan. The pipeline integrity management program meets the regulatory requirements. Non-pipe assets such as storage tanks are included in the Facilities Integrity Management program. LPS has an annual process to identify and evaluate new threats to the pipeline. Every 5-years, a complete review of the threats and the associated mitigations is conducted.

Magellan maintains pipeline data used in threat evaluation. This data is distributed across several groups within Magellan. Many attributes associated with the pipeline data are in the process of being consolidated into the Magellan ArcGIS Portal System, MAPS, which is based on the overall companies ArcGIS platform. While all the pipeline data is available for use to all appropriate personnel, we did get some feedback that navigating inside of MAPS was difficult and required assistance. This was likely tied to the newness of the system. Educational materials are readily available through Compass supplemented by routine communication from the MAPS team.

LPS regularly uses 'Smart' ILI Tool runs. See Table 3 below. Parts of the LPS were constructed with Electrical Fusion Welded (EFW) pipe, which Magellan recognizes could have potential manufacturing threats. LPS is using its own company data, as well as industry data, to identify any trends for threats to the LPS pipeline, especially EFW pipe locations. These trend analyses are typically completed on at least an annual basis.

A more intensive threat trend analysis is done every five years as part of the formal PHA revalidation process, looking to identify integrity or operations related risks. Threats from the more intensive analysis are assigned to appropriate risk categories, like external or internal corrosion, scouring, aging infrastructure, welding practices, etc. For higher risk segments of the pipeline, like the Llano River crossing, more rigorous threat analyses are conducted.

A variety of groups are tasked with most of the day to day identification of pipeline threats, including the air patrol personnel, ROW Technicians and Corrosion Technicians. The DPOs at some sections of the LPS are meeting quarterly with their counterparts from other pipeline operators to help identify and manage threats to their collective pipelines. LPS expressed a desire to be able to have the ROW technician meetings along the length of LPS but recognized this may be difficult for areas highly congested with pipe and/or operators.

Table 3 – Historical Tool Use and Outcomes

	2019	2018	2017	2016	2015	2014	2012
"Smart" ILI Tool Runs[1]	6 (UCD & MFL)	3	4	2 (SMFL & MFL)	1 (TFI)	2 (SMFL & MFL)	MFL
2018 Resultant Digs	34	10	2	4	51	12	4

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 risk model are available. 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 2018 operating year was performed in 2019 and resulted in no areas along the pipeline exceeding the failure rate commitment.

6.8 PE8: Security

The SIP defines the Facility Security procedures in the document, including all Department of Homeland Security (DHS) requirements. It describes what was considered sensitive and non-sensitive information associated with the LPS. All security-related drills and inspections are considered to be sensitive information.

A Facility Vulnerability Assessment (FVA) is conducted each year by local operational leadership using guidance and a formal template from the Security organization. Any issues identified during these assessments are captured in the company's Compliance Management System (CMS). The results of the FVAs are used to update the Facility Security Plans (FSP). The FSP are updated annually.

[1] *Tool runs completed prior to 2017 had associated repairs that were completed prior to 2017.*

6.9 PE9: Operations

The LPS goals and objectives are used to develop local goals for each of the three main operational areas: Austin, Odessa/Crane, and El Paso Operations. Zero HSE events, zero spills and zero releases are the goals of the LPS each year for all operational areas.

Safety meetings are held on a monthly basis. There was a strong focus in 2019 to enhance the LPS safety meeting quality and value. The enhancements were put in place starting in January, 2020. Details of the meeting enhancements are described in Section 6.5 above. Current HSE and operational performance metrics, as well as the results of any recent incident investigations, are discussed at every monthly meeting. Results of recent Abnormal Operation events are also covered during these meetings.

Company-level operating procedures are kept in the Magellan/LPS O&M Manual and are reviewed for potential updates on an annual basis. These procedures are used in all three LPS operational areas. Site-specific procedures are developed to handle local operational activities. All procedures are available to company employees in LiveLink and via mobile connections. Safe Operating Limits for all LPS systems are managed by the Operations Control Center and available via LiveLink.

All three (3) LPS operational areas have Authorization to Work (ATW) processes in place for handling Working at Heights, Hot Work, Confined Space Entry, etc. type work. All employees and/or contractors sign off on the ATW before the work begins.

Several new Technicians were brought in to LPS operations in 2019, to replace employees who moved on to other roles in the company. Each employee had an Individual Training Plan (ITP) developed for them, based on their knowledge level and past applicable work experience. Each was placed with an experienced Technician for 3-6 months, until they demonstrated the ability to handle the work tasks on their own. All experienced Area Supervisors and Technicians working in LPS operation also had an ITP in place, which was updated annually. LPS Supervisors ensured that individuals completed the training requirements listed in their respective ITP.

Area Supervisors actively participate in the LPS contractor management process, from being a part of the contractor selection process to filling out contractor evaluation forms at the end of their work. The SIP requires a minimum of six on-site contractor inspections each year. A review of the Contractor Inspection Checklists showed them to be complete and high quality. In addition, the contract inspectors in each of the three operational areas are to conduct spot checks of the ISN database to ensure all training and certifications (including OQ certifications) are complete and up-to-date.

A total of twenty-one (21) Abnormal Operations (AO) were recorded in 2019. Most of these events occurred during start-up or shutdown of various systems on the LPS. Each of these events was thoroughly investigated, ensuring root causes for the events were well understood. Corrective actions were identified and put in place to help ensure similar events did not happen again in the future. Quarterly AO Reports were sent out across the company to share details and lessons learned from the events.

Table 4 – Historical Incorrect Operations/Near Miss Breakdown

	2019	2018	2017	2016	2015	2014	2013
Abnormal Operations	21	18	12	14	44	75	110
Hazardous Near Misses	0	0	4	4	9	2	4

6.10 PE10: Community Relations

LPS does much of its community outreach through its Public Awareness and Damage Prevention programs. However, LPS did expand these programs to include other methods to build relationships with the local communities. There are programs for reaching out to schools and teachers. LPS provides information about the One Call/811 System at construction equipment rental locations. In certain areas, LPS places door hangers at residences. Information is provided in English and Spanish. LPS participates with other pipeline operators in partnership with Paradigm to meet with local Emergency Response organizations.

LPS encourages persons along the ROW to not hesitate to contact Magellan if they suspect a pipeline leak. This included natural gas leaks. If the suspected release does not belong to Magellan, then they assist the caller by contacting the potentially correct pipeline operator. At the same time, LPS immediately shuts down pipeline operations and dispatches personnel to determine if Magellan assets were the cause. Approval to restart is leadership led, including Operations, Operations Control and Asset Integrity.

The terminals have additional outreach activities to the Local Emergency Planning Commissions (LEPC). If possible, Magellan personnel participate in LEPC-sponsored training and outreach activities. The terminals also use fence line space to promote One Call/811 systems and Magellan's emergency call number. The terminals were not part of industry mutual aid organizations.

6.11 PE11: Change Management

LPS/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. It appears to be a standard practice throughout their operations, especially since implementing the Velocity EHS tool in 2016. The MOCR process was not used for key Leader changes or organizational changes in 2019, which would include a description of the planned onboarding process for all impacted individuals. Of note, Magellan has made the decision to incorporate organizational changes into the Change Management program beginning in 2021.

There is not a separate review and approval process for emergency MOCRs. The same process and tool are used, they simply speed up the process by making phone calls and face-to-face visits. A total of 87 MOCRs were developed for the LPS in 2019.

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. A 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 2019 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 5 – MOCRs Reviewed

No.	Description	Date	Notes
1	Change a number of Cartman station MOVs to ROVs.	01/28/2019	This gives the Operations Control Center parallel control of the valves.
2	New conduit and wire will be installed in order to provide power to five Crane Terminal manifold MOVs	09/03/2019	New wire to five MOVs located on the terminal manifold after it was discovered the existing wires were no longer providing power to the appropriate valves.

6.12 PE12: Emergency Response and Preparedness

The LPS has a comprehensive Emergency Response Plan (ERP) in place and available for all employees and contractors to use, as needed. There are over 120 tactical sites populated in the plan, describing what type of response would be needed for an emergency event at any one of the sites. Most of these detailed site response descriptions are around water crossings and natural aquifers in the Austin area. The LPS has a special spill response team in place and are trained to handle any and all types of product/crude spill along the pipeline route, including how to deal with spills to all water environments (lakes, rivers, etc.). Training on the ERP is completed annually for new hire and experienced employees, as well as contractors.

The ERP includes a thorough assessment of the risks to the pipeline operations, listing all of the potential risks and their respective mitigation efforts in the plan. The ERP lists risks such as hurricanes, fires, tornados, spills, gas releases, etc. Wildfire response is not currently included on the potential risks list in the ERP. Site-specific drills and/or tabletop exercises are conducted on an annual basis for the LPS. These drills routinely involve local emergency response agencies like the Fire Department and the city of Austin response agencies. After drills are executed, the LPS responders conduct an After Action Review to capture learnings from the drill. An After Action Review form is filled out and circulated to all other appropriate company organizations to share the learnings.

An Incident Command Structure (ICS) is firmly in place and set up to respond to different levels of emergencies for the LPS. The ICS team is trained and conducts drills on a large number of the potential

risks identified in the ERP. All members of the ICS team ware trained in multiple roles for the ICS system, which gives them flexibility in dealing with any emergency that could occur.

6.13 PE13: Incident Management

The LPS uses Magellan's Incident Management procedure. The procedure uses several different incident/event classifications, including: Near Misses, Minor, Significant and Major. Each of these classifications has their own incident investigation requirements. All investigations are currently based on actual incidents/events and do not include "potential" events.

There is an Incident Oversight Group that reviewed all incidents/events within Magellan, including those for the LPS. The group is made up of various Sr. Magellan/LPS Leaders. The Corporate HSE organization summarizes all incidents/events and make recommendations to the Oversight Group on how to investigate them. The Group then reviews the recommendations and decides on the classification of the incident/event, as well as the need for root cause analysis. Actions coming out of the incident investigations are loaded into the CMS database and tracked to completion.

All Abnormal Operations (AO) are also classified and followed up on by an AO Controls group, including any investigations required.

Results of all incident and AO investigations are shared across LPS, including those from Magellan operations. Lessons Learned Bulletins are developed for all appropriate investigation results and are shared across all LPS operations. AO event learnings are also sent out as part of a quarterly AO Report. Learnings from these investigations are typically shared with field personnel during the monthly HSE meeting or during tailgate safety meetings.

Table 6 – Historical Incident Investigation Breakdown

	2019	2018	2017	2016	2015	2014	2013	2012	2011
Hazardous Near Misses	0	4	8	4	5	2	4	3	7
Incident Investigations	3	3	24	8	18	10	8	9	13

6.14 PE14: Compliance Management

Magellan used a Compliance Management System (CMS) to document its regulatory requirements and associated tasks. The tasking system sends out reminder emails to the task owners about upcoming task deadlines. Magellan updates CMS as regulations and permits are added or changed. Besides DOT/PHMSA regulations, CMS also tracked environmental regulatory requirements, with the water regulations having the larger impact. Most of the applicable air regulations are associated with terminal operations and not with pipeline operations. The LPS sites are exempt from hazardous waste regulations as conditionally exempt small quantity generators. Water discharge issues are addressed at a corporate level.

Magellan addresses several regulations related to ground disturbances. These include endangered species issues, segregation of clean and contaminated soil and remediation activities.

Magellan conducts several types of audits or compliance reviews. CMS compliance reviews are conducted on a one to three-year cycle. The Magellan internal audit group conducts environmental audits approximately every five years. Regulatory agency inspections had been occurring on a regular basis, but none were conducted in 2019.

6.15 PE15: Commercial Operations

This SIP element is not covered under the 2019 self-audit as it does not impact LPS operations.

7.0 Recommendations for Consideration

During the calendar year of the assessment (2019), LPS effectively executed the requirements of their System Integrity Plan; however, there are opportunities for continued process improvement in the opinion of the auditors.

7.1 Consideration – Competency Management Program Enhancement

Engineers, Managers and other office-based safety critical roles (DIMP, TIMP personnel) are not included in the LPS training matrix, nor does Magellan have skill/competency profiles for these roles. Training and competency assurance for these roles are handled by the individual and their Supervisor or Manager. Magellan should consider enhancing their existing competency management program to include all office-based safety critical roles.

7.2 Consideration – Incident Investigation of Near Misses

Magellan does not have a formal process for evaluating when to conduct investigations on near misses. Near miss investigations are conducted as outlined in Section 6.13 of the report. Magellan should consider documenting the criteria for the investigation of near misses. The documented criteria could include criteria for identifying what is a near miss, along with which near misses will be investigated by what investigation method, and how the results of those investigations will be communicated to the organization.

8.0 Conclusions

Magellan's SIP was effective in 2019 and served its function for managing risks on the Longhorn Pipeline 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, improving. The Auditors have made two (2) recommendations for improvement and consideration by Magellan leadership.

9.0 Appendices

- Appendix A: Key Documents Reviewed for the 2019 SIP Self-Audit
- Appendix B: Personnel Interviewed
- Appendix C: Statements of Qualifications for the Auditors

9.1 Appendix A: Key Documents Reviewed for the 2019 SIP Self-Audit

2019 Longhorn Pipeline (Magellan) PSIP Self-Audit Backup Docs - Appendices

No	Document Name
1	Magellan System Integrity Plan
2	2019 Mitigation Plan - Commitment Implementation Status Report
3	Incorrect Operations Spreadsheet
4	Hazard/Near Miss (HNM) Reports
5	ROW near miss reports
6	Asset Integrity Report (year-end for 2019)
7	Action Item Spreadsheet for EOY 2019
8	2019 Longhorn Year End Preventative Maintenances Tasks Summary
9	Abnormal Operating Condition (AOC) Report
10	Incident Data Reports and 2019 Incident Investigation Reports and actions
11	Facility Inspection Forms
12	Asset Integrity Report – 2019
13	Public Awareness Summary Report – 2019
14	Management of Change Data, including • Selected MOCR Reports • Open MOCR list • Closed MOCR list • Pre-Startup Safety Reviews (PSSRs)
15	Lessons Learned and Safety Alert Bulletins – 2019
16	All correspondence to/from local, state and federal agencies regarding incidents, drills, inspections or other issues
17	Valve Inspection Report data – 2019
18	Operational Reliability Assessment Reports and related actions summary
19	Corrosion Control Records – 2019, including: • MPL Longhorn Rectifier Maintenance Activity Report • MPL Longhorn Test Point Exception Report • Atmospheric Maintenance Report • Close Interval Survey Results for Tier III • Coupon Test Results • NACE Rust Test Results • And other maintenance requirements
20	CMS Summary Report – December 2019
21	2019 Third Party Damage Prevention Program (TPDPP) Annual Assessment
22	2019 Longhorn Mitigation Plan – Annual Commitment Implementation Status Report
23	Damage Prevention Notebook (website monitoring statistics, non-emergency call log, etc.)
24	Dig list (per Tulsa interviews)
25	Aerial photogrammetry results (per Tulsa interview)

No	Document Name
26	PLM reports – explanations. (per Tulsa interviews)
27	5 Year PHA for El Paso Area – December, 2019
28	2019 Scenario Based Risk Mitigation Analysis (SBRMA)
29	MOCRs • September, 2019 • December, 2019
30	Magellan LPS AO and IOC List – 2019

9.2 Appendix B: Personnel Interviewed

(In each case, Matt Argo was in attendance and supported the interview process.)

9.2.1 Austin Interviews

Name	Title
Danny Stokes	Area Supervisor
Darcy Madsen	Compliance Coordinator

9.2.2 Tulsa Interviews

Name	Title
Nicole Knapp	Damage Prevention Program Public Awareness Specialist
Mark Lepich	Corrosion Supervisor
Clyde Clausen	Manager Pipeline Integrity
Dennis Vasicek	Supervisor Asset Integrity (Pipeline)
Dyan Gillean	Supervisor One Call
Chris Sellars	Manager Asset Inventory Management
Amber Kistler	Health & Safety Specialist
Mike Sixsmith	HSE Manager
Pat McKenzie	Director of Operations
Buddy Cronk	Operations Manager
Joe Butler	Director Operations Control
Zach Howard	Director Facility Integrity
Darian Thomas	Engineer Sr., PSM
Jamie Graves	Emergency Response Program Manager
Richard Bondy	Manager, Engineering & Construction
Brandon Cox	Manager, Engineering & Construction
Kevin Howell	Manager, Engineering & Construction
Doug Mitchell	Environmental Manager
Terri Holloman	Air Compliance Manager
Matt Davison	Supervisor Training Programs
Ryan Addison	Supervisor Ops Control Training
Monica Olson	Environmental Specialist
Troy Bronson	Manager, Operations

9.2.3 Crane Interviews

Name	Title
Mike Blankendaal	Manager, Operations
Jake Johnson	Area Supervisor

Name	Title
Matt Lodgson	Area Supervisor

9.2.4 El Paso Interviews

Name	Title
Cliff Bryant	El Paso Area Supervisor
Jason Flores	Operations Supervisor

9.3 Appendix C: Statements of Qualifications for the Auditors

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," Presented at the 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.

Rick Lide

Director – Programs and Audits

Executive Summary

Rick Lide has 20+ years of experience as a Health, Safety, Security and Environmental (HSE) Engineer and Management Systems Professional. He is skilled in implementing and auditing management systems and regulatory compliance, and is a negotiator for mediating regulatory issues. His areas of expertise include: OSHA PSM, EPA RMP; Pipeline Safety Management Systems (API RP 1173); Responsible Care®; UK COMAH and Health and Safety Executive; Environmental and Social Impact Assessments; ISO 9002, 14001, 18001 and 55001; US security management and regulations; maritime requirements (SOLAS, MARPOL); US environmental air, water waste, emergency response, fire protection systems and equipment, transportation and hazardous / dangerous materials regulations; risk management; and compliance management systems.

Accomplishments / Experience

Rick Lide is a seasoned petrochemical and oil & gas professional that has been involved with the development and management of safety / environmental / transportation processes and regulatory compliance, and a liaison with regulatory agencies. Rick Lide is currently RCP's Director for Programs and Audits and manages a team of engineers and technical writers that support the development and maintenance of safety management systems and pipeline management programs. Rick Lide has led more than 75 regulatory management and HSE / Quality Management audit teams in upstream, midstream and downstream oil and gas operations; chemicals; logistics and major capital projects in 21 different countries. His past and present experience includes:

- Assisting clients in their API RP 1173 implementation projects. Conducting gap assessments, developing action plans and projects and suggesting industry best practices to fill management system gaps.
- Developed assessment program tools for API's Global Industry Services (GIS) for assessing RP 1173. Trained and lead the initial pilot assessment team for API.
- Lead Assessor for multiple API GIS assessments for hazardous liquid transmission and gas transmission and distribution operators.
- Developed educational and gap assessment materials about API RP 1173 (Pipeline Safety Management System Requirements) for AOPL / API.
- Active member of AGA's Process Safety Committee for safety management systems.
- Leading third-party investigations and studies of specific management system elements for clients complying with their agency enforcement orders.
- Implemented an OSHA PSM program including participating and coordinating process hazards reviews.
- Identifying opportunities to improve regulatory compliance with associated cost reductions by implementing management system concepts for managing regulatory compliance.
- Developing management system standards documentation.

- Developed audit protocols for OSHA PSM / EPA RMP, environmental and social impact assessments, regulatory management, maritime, security and operating management systems.
- Directing root cause investigations and evaluated incident trends for systemic issues resulting in improved recordable injury rates, reduction in the magnitude of episodic emission events, improved on-spec product quality with lower storage / transportation costs and management system improvements. Evaluated investigations for effectiveness.
- Created compliance assurance approaches for Title V air permit reporting requirements and trained the responsible parties on the compliance certification assurance techniques.
- Identified standardization opportunities and successfully lobbied regulatory agencies to modify regulations.
- Managed regulatory and quality audit programs for a major chemical company.
- Participated in process hazards reviews for ethoxylation process, synthesis gas process, hydrogen purification, railroad logistics, reactive monomer storage, wastewater treatment process and LPG storage and logistics.
- Conducts DOT jurisdictional and regulatory applicability determinations.
- Conducts underwater pipeline risk and inspection interval assessments. Developed risk model for pipeline water crossings.
- Conducts due diligence reviews for potential pipeline ownership changes.
- Developed a comprehensive comparison of OSHA PSM & DOT regulations.
- Researched and presented evidence to counter alleged violations from an EPA multimedia inspection. Successfully reduced 35 alleged violations to 3 violations. Successfully demonstrated a regulatory management system resulting in a 70% reduction in the final fine.
- Designed new synthesis gas burners and a new reactor catalyst layout resulting in manufacturing cost reductions, improved performance, increased life cycle and improved product quality.
- Managed the air permit program - prepared and submitted 15 Texas Voluntary Emission Reduction Permit applications and approximately 20 NSR permit applications. Negotiated permit language resulting in uniform conditions across the site and enforceable emission reduction credits resulting in almost $100,000 in emission credits.
- Coached European Union Regulatory Management Center personnel during EU development of new emission monitoring and trading legislation.

Rick Lide is recognized in the industry as a regulatory management and audit expert and has presented audit trends and best practices to peer groups. Rick has also conducted pre-audits before regulatory agencies visits from PHMSA, US EPA, US OSHA and various state regulatory agencies, as well as pre-audits at sites in advance of corporate internal audits. In addition to coordinating externally initiated audits, Rick Lide has audited as a team leader and auditor for internal audits and at other corporate sites and businesses. He hired, trained and managed local regulatory experts for the U.S. and international audits within allotted budgets. Rick has audited both the regulatory compliance and management of:

- Pipelines in the United States, Canada, Australia, Azerbaijan, Georgia and Trinidad including requirements of PHMSA, AMSE B31, US Clean Fuel regulations and Air Transport Association for adherence to design standards, mechanical integrity, product quality, risk, damage prevention,

pipeline corridor management (inspections, river crossing, landslide zones and invasive species management).

- Hazardous material transport (rail, road and air) in the United States, European Union, United Kingdom, South Africa, Australia and New Zealand.
- Environmental requirements of 21 countries for air, water, waste, emissions trading and environmental impact including new projects, existing production facilities, permitting activities, emissions monitoring, reporting and remediation.
- Process safety requirements under US OSHA PSM, US EPA RMP and UK COMAH.
- Emergency response requirements in 10 countries.
- Major capital projects, specifically compliance management and adherence to international standards for oil and gas projects in the developing world.
- Personal safety and industrial hygiene requirements of 21 countries including medical and food requirements at remote locations such as drilling sites and pipeline construction sites.
- Security requirements in the United States under Coast Guard, DOT and Homeland Security regulations and management of and conformance to security standards in Iraq, Azerbaijan and Indonesia.
- Oil and gas exploration requirements onshore (various states and provinces in the United States and Canada) and offshore (Gulf of Mexico, North Sea, Caspian Sea, Indonesia and Angola) including the management of subsea pipelines, well integrity management and drilling operations.

Education

B.S., Chemical Engineering, University of Houston

Certifications / Training

- 40 Hour Basic Mediation, Center for Public Dispute Resolution, University of Texas School of Law
- Failure Modes and Effects Analysis
- Layers of Protection Analysis
- Apollo Root Cause
- ISO 14001, CEEM
- Louisiana Air Regulatory Seminar, Louisiana Chemical Manufacturer Association
- Total Quality Management
- Petroleum Refinery Compliance Workshop, EPA
- Statistical Process Control
- Six Sigma Greenbelt Certification
- US Greenhouse Gas Permitting

Publications

(Excluding in-house presentations sessions)

Lide, R. and Green, M., “Auditing Global Logistics Operations - A Process Safety Focus”, Published in "Process Safety Progress", September 2009 and in "Chemical News", October 2009.

Lide, R., “API RP 1173 Pipeline Safety Management System Requirements”, Texas Gas Association, September 2015.

Lide, Rick, “Implementation of RP 1173, Pipeline Safety Management System, in a Time of Turmoil”, AGA PSMS Conference, February 2018.

Lide, Rick, “Implementation of RP 1173, API Tools”, Texas Gas Association Transmission Roundtable, November 2018.

Lide, Rick and Nowaczewski, Steve, “Safety Management Systems for UGS and Pipelines – Leveraging SMS and Human Factors to Reduce Risk”, American Gas Association Spring Operations Meeting, June 9, 2020.