Operational Risk Management

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Agenda

- Who We Are
- PAA OMS
- Operational Risk Management
- PDCA Cycle
- Questions
Plains All American Pipeline (PAA) owns and operates a midstream energy infrastructure and provides logistics services for crude oil, natural gas liquids (NGL) and natural gas.

PAA owns an extensive network of pipeline transportation, terminals, storage and gathering assets at major market hubs in the United States and Canada

- 18,700 miles of active lines
- 111 million bbls of storage capacity
- 1,600+ trucks and trailers
- Over 10,000 rail cars
- 60 barges
Who We Are

[Map of pipeline systems and infrastructure across the US, with various markers indicating different types of facilities and services offered.]

- Plains All American HQ
- Plains Midstream Canada HQ
- Crude Oil Pipeline
- NGL Pipeline
- Natural Gas Pipeline
- Under Construction
- Crude Storage
- NGL Storage
- Natural Gas Storage
- Refined Products Storage
- Crude by Rail Capability
- NGL by Rail Capability
- Condensate Processing
- NGL Fractionation
- Natural Gas Processing
- Crude Marine Capability
- NGL Marine Capability
- Refined Products Marine Capability
- Crude Oil/NGL Producing Regions
PAA Operations Management System
• Risk: An operational risk is something that could go wrong…it is the combination of likelihood of an event happening and consequence if it does happen. People, the environment, and our assets may be impacted by operational risk.

• Operational Risk Management (ORM) is a continuous improvement process that uses company performance data to determine the effectiveness of our risk management controls and identifies improvements to be implemented to support the company’s overall goal of reducing risk.
ORM PDCA Cycle

- Adjust Plans as needed
- Risk Management Plan for each Operational Risk Area
  Procedures and processes for each Risk Control
- Periodic Review
  Compare performance measured against targets
- Execute plans
  Collect metrics
  Track incidents, close calls and good catches
PLAN – Getting Started

Company Review
- Meetings with various groups engaged with risk management activities
- Understand current controls (programs/processes/procedures) in place

Mapping
- Mapped controls to Risk Areas
- Developed consistency in approach

Risk Management Plans
- Developed plans demonstrating Plains’ approach to managing Risk
- Initially focused on six areas:
  - Pipeline Releases
  - Facility Releases
  - Motor Vehicle Incidents
  - Pipeline Operations
  - Trucking
  - Personal Injuries
  - Trucking Releases
  - Contractor Incidents
## PLAN – Risk Area & Risk Controls Example

### Facility Releases

<table>
<thead>
<tr>
<th>Company Operating Procedures</th>
<th>Design and Construction Specifications</th>
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<tbody>
<tr>
<td>Preventive/Predictive Maintenance</td>
<td>Material Quality Specifications</td>
</tr>
<tr>
<td>Station Awareness Inspections</td>
<td>Construction Quality</td>
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<tr>
<td>Hazard Awareness</td>
<td>Pre-Startup Safety and Operations Review</td>
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<tr>
<td>External Corrosion Program</td>
<td>Leak Detection</td>
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<td>Internal Corrosion Program</td>
<td>Remote Monitoring</td>
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<td>No-flow and Low-flow Station Piping Initiatives</td>
<td>Damage Prevention Program</td>
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<td>Non-Destructive Testing</td>
<td>Emergency Preparedness and Response</td>
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<td>Visual Inspections</td>
<td>Security Management</td>
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<tr>
<td>Tank Inspection Program</td>
<td>Work Permitting and Job Safety Analysis</td>
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<td>Lockout Tagout</td>
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### Supporting Processes

| Close Call, Good Catch, and Incident Reporting |
| Operator Qualifications |
| Training |
| MOC |
| Document Management |
| Records Management |
| Data Management / GIS |
DO – Execute and Report

• Risk control policies, processes, and procedures are followed

• Incidents, near misses, and hazard IDs are reported in the incident management tool

• Data is collected to enable data-driven reviews of performance (focused on effectiveness, not just completion)
CHECK – Risk Review

• Periodic risk review for each Risk Area

• Cross-functional team of Operations and control owners

• Review
  • Performance metrics
  • Incidents, near misses, and hazard IDs related to controls
  • Feedback from field
  • Significant changes
• Adjust plan for Operational Risk Area or Risk Control depending on results of “Check”

• Risk Review recommendations provided to control owner for action – coordinate and communicate change

• Operational Risk Review Summaries provided to participants and stakeholders after each review; includes recommendations and status of previous entries
THANK YOU!

Visit us at: pipelinesms.org

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