operational learning
where does it begin and end

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Presentation overview
human performance and operational learning

Our journey
• Our human and organization performance (HOP) principles

Operational learning
• What
• Normal variability of work
• Culture shift from blame and punish to learn and improve
• Operational learning tools
• Learning teams
• Accountability
• Response matters
• Activity
The journey
in their own words from around the world

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“... a fundamental mindset change ...”
The journey
in their own words from around the world
human and organizational performance
the five principles

- Error is normal
- Systems drive behavior
- Blame fixes nothing
- Learning and improving is essential
- Response matters
Operational learning
what is it?

Focus
• How work actually happens
• Normal variability of work
• How workers adapt in order to complete work
• How failure and success occurs in the field where work occurs

Multiple learning avenues
• Both successes and unexpected outcomes provide opportunities to learn and strengthen safeguards
• Learnings can be lost if only held by an individual
• Operational knowledge needs to be incorporated into our systems, technology and processes
The journey
a critical shift in culture

“. . .you can punish or you can learn, you cannot do both. . . “
The journey
a critical shift in culture
Normal variability of work

- Work as Planned
- Work in Practice
- Hazard
Operational learning
why do we want to learn about the blue line?

- Fatality prevention starts with ensuring our safeguards are effective and in place
- Strengthen safeguards so we can fail safely
Feedback loops for continuous learning & improving

1. Identify learning and improvement opportunities
2. Define actions and implement
3. Close actions
4. Verify & Validate

Learn & Improve

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Operational learning tools help learning and culture shift

A variety of tools promote learning and culture shift

- Learning teams
- Start of shift safeguard discussion
- Pre-job JSA
- Pre-job briefing
- Post-job debrief
- Verification and Validation (V&V) coaching
- Safeguard learning tool
Operational learning
learning teams: steps include learn – soak – improve

Learning teams can be applied to safety, reliability, and business processes.

<table>
<thead>
<tr>
<th>Prepare</th>
<th>Session 1: Learn</th>
<th>Soak</th>
<th>Session 2: Brainstorm and prioritize</th>
<th>Take action</th>
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</thead>
<tbody>
<tr>
<td>• Scope is defined - not too broad, not too narrow.</td>
<td>• 60 – 90 minutes.</td>
<td>• Ideally soak time is overnight, but it can be over an extended lunchtime between Session 1 and 2.</td>
<td>• Error traps and latent conditions are identified; safeguards are evaluated.</td>
<td>• Results of the learning team are documented and shared with leadership.</td>
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<tr>
<td>• The right people are pulled together.</td>
<td>• Team learns the real story, discovering how work gets done versus how it is documented.</td>
<td>• Team discusses the conditions that may influence how work is done and where drift may require different safeguards.</td>
<td>• Solutions within the team’s control to explore are captured.</td>
<td>• Approved solutions are tested and evaluated.</td>
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<tr>
<td>- About 5 – 7 people closest to the work.</td>
<td>• Team discusses the conditions that may influence how work is done and where drift may require different safeguards.</td>
<td>• New insights may emerge and are shared in Session 2.</td>
<td>• Team agrees on what to improve first.</td>
<td>• Learnings are shared with others.</td>
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Intro to learning teams
Intro to learning teams
Operational learning
what accountability is and is not

Accountability is . . .
• Willingness to accept responsibility or account for ones actions

Accountability is not . . .
• Punishment
• Retribution
• Demanding
• Dictatorial
• Something you can ‘do’ or ‘extract’ from an individual
But... we need to hold people accountable if they violate a rule! ... right?
How leaders respond matters
Trust is hard to build and easy to lose
If there's time...

Hypothetical Case Study
Joe's story re: #7 pump gasoline flash fire

Background:

- Joe and Paul work at a refinery. Joe is a senior mechanic that has been working at the refinery for over 30 years. Paul is an operator at the refinery. He has 6 years operations experience but is new to the gasoline processing unit.
- The refinery is a primary supplier of gasoline to the nearby fueling terminal. Gasoline is delivered to the terminal through a 10-inch pipeline. The system is designed so that there are two pumps: a main pump (#7 pump) and a backup pump (#8 pump). The #8 pump is only used while performing maintenance on the #7 pump. Due to a severe manufacturing flaw in the pump casing, the #8 pump has been out of service for the past 60 days. The suction and discharge valves for both the #7 and #8 pumps are identical and sit next to each other about 25 feet from the pump pad.
Incident:

- At 6 am, Joe arrives to work and is met immediately by the plant maintenance supervisor who tells him that the #7 pump seal failed during the night shift at about 12 am. Operations only has about 4 hours of storage capacity remaining in the tanks before they'll have to shut down the unit.

- Joe quickly assembles his tools heads over to the pump area. From the pump, he sees a few tags hanging on the suction and discharge valves, indicating to him that the pump has been locked out by operations. Although the procedure requires that mechanics and other crafts apply their own locks and tags, it is common practice at the refinery to work under operations locks without applying additional, “redundant” isolation equipment. Joe calls the unit operator, Paul, on the radio to verify the pump’s been isolated and ready for repair. Joe asks, “Hey Paul, is this pump locked out for repair?” to which Paul replies “Yeah Joe, the pump’s been locked out and bled down for a while now.”

- Before beginning work, Joe checks a local pressure gauge and ¼ inch bleeder valve. With no signs of pressure on the pump and only 3 hours left before the unit will have to shut down, Joe begins removing the seal.

- As he loosens the ½ inch supply line to the pump seal, Joe is sprayed in the face with a mist of gasoline. As Joe struggles to exit the immediate area, gasoline continues to spray out of the tubing fitting, creating a vapor cloud. He notifies Paul over the radio of the release and activates the emergency alarm. Within a few minutes, the vapor cloud ignites, causing a fire.
activity: Joe’s story
# 7 gasoline pump flash fire

1. Based on the information provided, can you guess what happened?
2. Could we have predicted this outcome? Why or why not?
3. Is Joe a “bad” employee? Why or why not?
4. What increased the likelihood of having this incident? What were the error traps and latent conditions?
5. What recommendations would you propose to management, focusing on learning and improving versus blaming and punishing?
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