Learning Teams: Advancing Human Performance LyondellBasell Clinton Complex

History

In 2015, a new HOP pilot was conducted at the Clinton Complex. Partnering with a consultant, 12 coaches were trained in a new methodology called Learning Teams. The philosophy pivots somewhat from traditional root cause incident investigations to look at potential human factors. The Learning Teams approach recognizes that improving human performance requires the acknowledgement that human based processes may be prone to failures without the presence of adequate defenses.

Investigations

- Asks Why something happened?
- Finds root and contributing causes
- Independent lead
- Potential discipline

Learning Teams

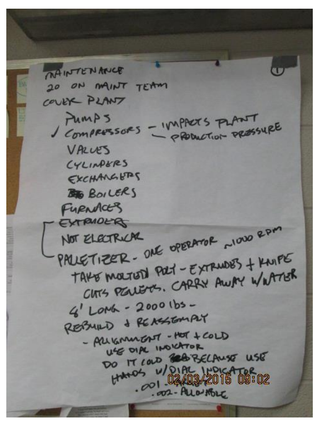
- Asks How something happened?
- Identifies defenses
- People involved with the incident
- Unlikely for there to be discipline

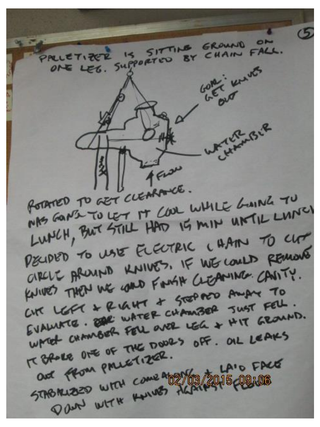
How It Works

Step 1: Learning

- Leave biases at the door
- Start with discussing how the work gets done
- Take visible notes
- Avoid discussing fixes, conclusions, or aha moments
- Product is a process flow
- Visit site of the incident

Wall of Discovery





Step 2: Identify Defenses

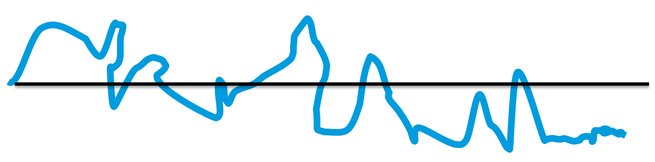
- What can we change to prevent reoccurrence?
- What ideas do you have to improve how this process works?
- How could we fix the issue?
- Brainstorm and rank the defenses

★ Easy to implement

★★ Needs MOC/resources

★★★ Redesign or project

The Black Line…How the job is performed according to the procedure

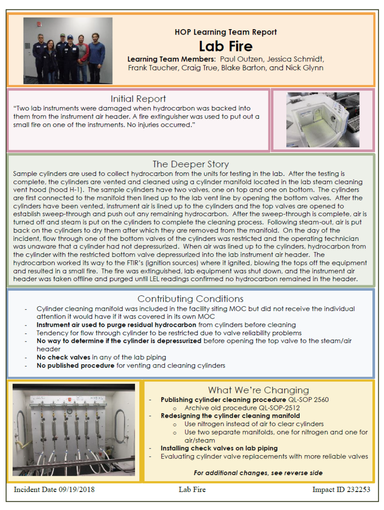


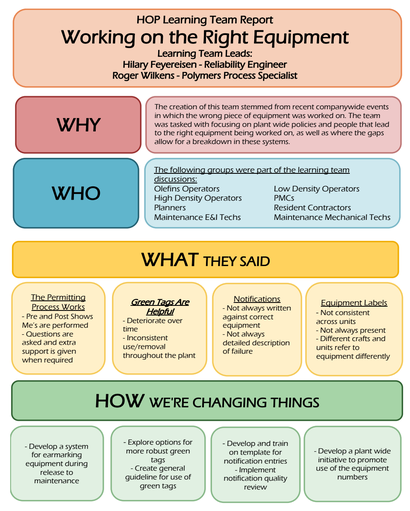
The Blue line…Tells the story as each person saw and experienced the event

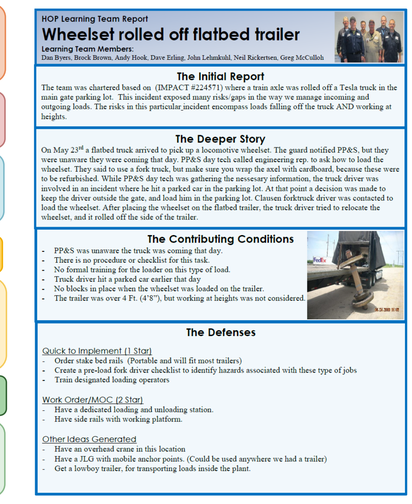
No one is surprised the event happened
End session 1 and reconvene the next day

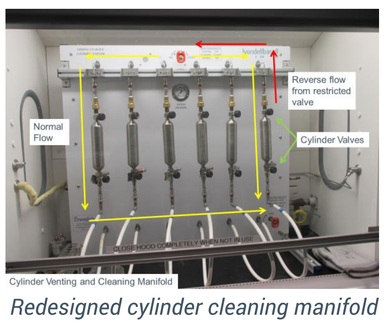
Experience

Process Safety | Equipment Release | Near Miss









Redesigned cylinder cleaning manifold

Invented Show-Me streamers

Fork Lift Pre-Lift Checklist
Ask these QUESTIONS BEFORE you Lift
Is a Fork lift the best option for safe lifting
Can I lift and transport this safely
How much does load weigh
Is load on pallet or have fork slots
Is load secured to pallet
Is load secured or stabilized for transport
Is load intact/ no damage for safe lifting

Developed visible pre-lift checklist

- Quality Issues
- First Aid Injuries
- Dropped Objects
- High Potential Incidents
- Valve Line Ups
- Waste Management
- Maintenance Operations
- Workflow Improvements

Averaging 7 Learning Teams per year from 2015-18

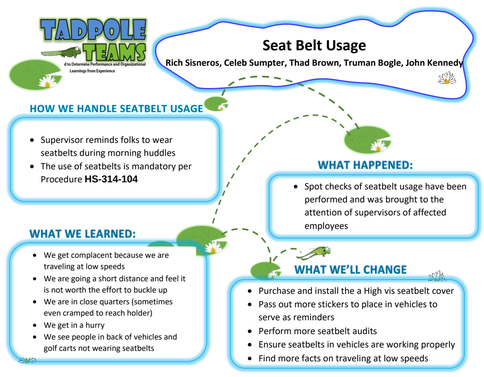
Evolution

TADPOLE TEAMS
Teams Assigned to Determine Performance and Organizational Learnings from Experience

Introduction – Review the orientation and ground rules (5 min)
Learn the Who – Meet the team/establish purpose (10 min)
Learn the How – Discuss the event (30 minutes)
Short break (5-10 minutes)
Identify the 'What Next' – Brainstorm ideas how this could be prevented in the future (10 minutes)
Define the Solution – Organize and prioritize recommended action items (5 minutes)

In 2018, a new type of Learning Team was introduced called a Tadpole Team. The process works similarly to a traditional Learning Team, but the process is executed in one session. The incidents/events are typically less technical and isolated to a smaller work group or process. Tadpole teams are led by a first line supervisor, or even an informal leader familiar with the process. Tadpole Teams were conceived to open the power of HOP and Learning Teams up to more people in an organic way. Whereas Learning Teams are formally chartered, Tadpole Teams can be carried out by a group of interested parties in the course of a day.

Vehicle Safety



LEARNING FROM EACHOTHER H.O.P. LEARNING FROM EXPERIENCE

Please contact Michael.Vopatek@lyondellbasell.com for more info

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fact sheet

learning teams

learn. soak. improve.

What is a learning team?

A learning team is a diverse group of people who are directly involved in a work activity or have useful information concerning an event.

The purpose of a learning team is to learn and improve our operational knowledge. Applying learning teams to the prevention of fatalities, serious injuries, and losses of containment results in stronger safeguards.

What are the key benefits?

Learning teams help tell the story about the complexity of the work we do and how work gets done in the field.

- Focus on identifying and strengthening safeguards
- Generate possible solutions in hours not weeks
- Identify error traps and latent conditions that other tools may not detect
- Engage the people that do the work resulting in practical solutions
- Make it ok to talk about mistakes

When do we use them?

Learning teams can be used when things have gone well or when things have gone wrong. Learning teams can be applied to safety, reliability, and business processes.

- *Explore normal and successful work (Proactive Learning)*: Evaluate our safeguards and examine if they are aligned with how work is done.
- *Learn from events (Reactive Learning)*: Understand the context and identify broken or missing safeguards. Pinpointed solutions are developed by those who do the work.

learning team basics 5 steps...

1

prepare

- Scope is defined - not too broad, not too narrow
- The right people are pulled together - about 5-7 people closest to the work

2

session 1: learn

- 60-90 minutes
- Team discovers how work gets done versus how it is planned
- Team discusses the conditions that may influence how work is done and where drift may require different safeguards

3

soak

- Ideally soak time is overnight, but it can be over an extended lunchtime between session 1 and 2
- New insights may emerge and are shared in session 2

4

session 2: brainstorm & prioritize

- Error traps and latent conditions are identified; safeguards are evaluated
- Solutions within the team's control to explore are captured
- Team agrees on what to improve first

5

take action

- Results of the learning team are documented and shared with leadership
- Approved solutions are tested and evaluated
- Learnings are shared with others

Learning teams bring together those who are closest to the work to create a shared understanding of how work actually gets done in the field. This approach creates an environment of open communication, making it easier to understand the complexity of the work.

learning teams rely on leaders for success

1

prepare

- Review the proposed learning team topic and suggest participants.
- The team should be approximately 5-7 people and those closest to the work.

2

session 1: learn

Leaders set the tone.

- You will be asked to come in to kick off the learning team.
- The objective is to set the tone, encourage open and honest communication. After you kick off the session, leave the room and allow the learning team session to start.
- Use these cues to craft your kick off message:
  1. Thank the team for their participation
  2. Our goal is to understand how work is actually done and the conditions surrounding the work.
  3. We will use this information to improve our operational knowledge and ensure we have effective safeguards in place.
  4. This approach offers a way of looking at work from a different perspective. It may feel messy at the beginning. Trust the process.
  5. You are closest to the work and we need your help to identify and implement the best possible safeguards and solutions. You are here because you are the ones who know most about this work.
  6. It's important to be open and honest – no discipline will occur as a result of the information you share (unless of course there is criminal or illegal behavior).
  7. I look forward to hearing about what you learn.

3

soak

- Protect soak time – it allows participants to reflect and process session 1. Often new insights emerge to share in session 2.
- Soak time is usually overnight or over an extended lunch period.

4

session 2: brainstorm & prioritize

Anticipate complexity.

- At the end of session 2, the team may invite you to briefly share the learnings.
- Observe the wall of discovery – acknowledge the complexity.
- Be curious – ask questions for understanding.
- Acknowledge the group's courage to communicate a difficult message when necessary.
- If you've made this a safe environment, you are going to hear things that may surprise you. That's what we are looking for – how work is actually happening. If you hear something you don't like, don't react.

5

take action

- The facilitator will write up a summary and share it with you.
- Demonstrate learning behaviors:
  - Accept the results as a gift – it's information you would not normally receive.
  - The team may not find the "silver bullet" (one perfect solution). Support the team's initiative to test proposed solutions.
  - Encourage the team to keep learning. It may take more than one learning team session to get to the solutions.

Leaders / management sponsors support success by:

- Encouraging the team to focus on learning more than fixing
- Establishing an environment of trust and open communication
- Asking the team to focus on the conditions that lead to (or can lead to) the event versus the event itself
- Ensuring majority of the participants are those who are closest to the work activity being discussed

building trust is the most important part of learning teams

Hypothetical Case Study – Joe's Story regarding #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.

human and organizational performance application

As a member of the learning team, reflect on the incident and answer the following questions:

1. Based on the information provided, can you guess what happened?
2. Could we have predicted this outcome? Why or why not?
3. Should Joe be disciplined? 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?