Process Safety and the Front Line
Simplification of Learning

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Laurence Pearlman
Senior Vice President

Gabe Onofre
Vice President
Today’s Roadmap

1. Reaching the Front Line
2. Better Practices
3. The Future of Learning
4. So What?
Learning Imperatives
Importance of the Front Line

- Closest to process safety.
- Eyes and ears for issues.
- In safety critical roles.
- Must be competent.
- Responsible for making the right decisions all the time.

Without the front line, you don’t have a PSM program!
Safety Critical Equipment (SCE) Reaching the Front Line

- Really understand barrier thinking.
- Understand the “what” and the “why” of SCE.
- Defined SCE maintenance.
- Defined SCE competence.

If *everything* is SCE, then *nothing* is SCE.

“Don’t teach me to work the machine, teach me how the machine works.”
Principles for Reaching the Front Line

- **Engagement**: Provide a structured forum for discussion and involvement, utilizing group exercises and a minimum number of slides.

- **Adult learning theory**: Include a variety of topics presented in multiple formats (tell, show, and do) and media types (video, case studies, discussion, presentations, etc.) in order to address all learning styles.

- **Pacing and facilitation**: Participants' attention spans rarely exceed 30 minutes. Design the courses to be fast paced and actively facilitate to keep discussions meaningful.

- **Collaboration**: Sessions run best when leaders are actively involved in content discussions, making learning points real.
Strategies to Influence the Front Line
Self-Assessment Criteria

1. We use “straight talk” and not “engineering speak.”
2. We provide short, focused messages and avoid providing “too much” information.
3. We engage the front line through interactive leaning sessions (not just PowerPoint).
4. We use “tell-show-do” in our learning delivery to account for multiple learning styles.
5. We set clear behavioral expectations.
6. We have a set of clear process safety requirements.
7. Case studies are local and clearly apply to the work being done.
8. Leadership is engaged in the learning process.
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Understanding Barriers, SCE, and Bow Ties

You can make this fun!
Drew Brees injury
Crawfish boil
Thanksgiving dinner

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Barriers to eliminate and prevent causes of hazardous events.

Barriers to control consequences and effects.

Loss of control

Build a bowtie!
Pocket Guides and SpinFos

- Pocket-sized guides.
- Clear expectations.
- Simple wording.
- Keep them handy!
Simple Language, Clear Mantra

“Plug the Holes” in the Swiss cheese.

**Great Leadership!**
- Lead PS as part of daily leadership
- Provide PS guidance and leadership
- Focus on PS elements
- Lead the PS culture development

**Equipment Specs**
- Follow Sinclair, industry, and licenser specs
- Follow Sinclair, industry, and codes and standards
- Follow EQ, considering Sinclair and industry codes and standards

**Workforce Involvement**
- Involve everyone!

**Hazard Recognition and Prevention**
- Use Hazard Recognition to recognize PS Hazards
- Recognize and prevent PS Hazards

**Safety Systems Never Bypassed**

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**WE PLUG THE CHEESE**

**KEY PROCESS SAFETY CONSIDERATIONS**
- Safe Work Permit Completed?
- Am I on the Right equipment?
- Has the Job Walk been completed?
- Could a loss of primary containment occur?

**OPERATIONS & MAINTENANCE**
- Does this job require a procedure?
- Am I taking a short-cut?
- Does this job require an MOC?
- Am I by-passing a safety system?
- Is the procedure completed?
- If so, is the proper procedure limit?
- Will I exceed an operational limit?
- Hem I vented proper equipment preparation?
- Drained? Purged? De-pressured?
- Is my JOC site set-up adequate for Hot Work?
- Spark containment? Updated/continuous monitoring?
- Are my materials compatible with the process?
- Positive Material Identification? Correct Gaskets? Metallurgy?
- Is the job ready to start?
- If a loved one was standing beside me, would I proceed with the job?
Interactive Discussions
Learning Maps

Deepwater HSSE Case

Activity A:
Depicted on the map are a series of hazards and risk scenarios.
Review each incident and discuss the cause.
Identify what safety critical tasks should have been done to prevent this occurrence.

Activity B:
Identify which Safety Critical tasks you are responsible for in your daily role. Capture these on your "Critical Task Form."

Taking process safety concepts (Major Accident Hazards) and turning them into an interactive “learning map.”

Stratalyst Solutions
dan@stratalystsolutions.com
(M) 312-485-8177
Micro-Learning

Short, focused, and readily available training:

- **Four-minute or less** modules.
- Delivered via phone or other **smart device**.
- Cover a **single aspect** of training.
- Delivered and tracked via Learning Management Systems (LMS).
Regular engagement:

- Review top hazards (or incidents/near misses).
- Ask “What if?” and “How would we respond?”
- Modify conditions.
- Barrier strength reviews.
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Future of Learning
Virtual Reality

Interactive Animation
https://youtu.be/XMQ2luCXqi0

Rare
Impossible
Dangerous
Expensive

www.strivr.com
Future of Learning
Games, Geofence, and iBeacons

- **93% of millennials** say their smartphone is “very” important in their life, more than a toothbrush.
- **27 times per hour** is how often an average smartphone user aged 18-24 looks at his or her phone.

Source: http://fuel.tech/gamification/

- The current generation spends an average of **10,000 hours** playing video games by the time they go to college.
- Using games and competitions has proven to be a highly-effective training tool for these employees.
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• Be clear what you want from the front line.
• It has to be simple.
• It has to matter.
• Engage in a meaningful way.
• The world of learning is changing.
• Think about today’s demographics.
Contact

Laurence Pearlman
Senior Vice President
Laurence.Pearlman@Marsh.com
617.763.9008

Gabe Onofre
Vice President
Gabe.Onofre@marsh.com
+1 713 276 8412
Marsh is one of the Marsh & McLennan Companies, together with Guy Carpenter, Mercer, and Oliver Wyman.

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Make It Fun
Team Collaboration – Process Safety Music Video

https://vimeo.com/73918800
Keeping Process Safety Conversations Simple: Your Role in Keeping Barriers Healthy

- **Equipment**: Do you know the barriers in your area?
- **Tasks**: Are they being done properly by competent people?
- **Roles**: Do people maintaining the barriers understand the importance of their roles?
- **Verification**: How do you know? Are you certain?
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<thead>
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<th>Title</th>
<th>Questions</th>
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Preventing Holes in the Swiss Cheese
Your Role in Keeping Barriers Healthy