



Worker Injured While Moving Forklift Tines

Purpose

To share “lessons learned” gained from incident investigations through a small group discussion method format.

To understand “lessons learned” through a Systems of Safety viewpoint.



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Lessons Learned

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Background Information

Before beginning this Lessons Learned, please review this and the next page which contain information that will introduce the concepts of Lessons Learned and Systems of Safety.

Creating a safe and healthy workplace requires a never ending search for hazards that sometimes are not obvious to us. These hazards exist in every workplace and can be found by using various methods. Lessons Learned are just as the name suggests: learning from incidents to prevent the same or similar incidents from happening again.

Systems Are Not Created Equal: Not equal in protection and not equal in prevention.

Using our Systems Focus to uncover system flaws or root causes is only one part of controlling hazards. We also need to look at the systems involved to decide on the best way to deal with the problem. The most effective way to control a hazard is close to its source. The least effective is usually at the level of the person being exposed. The system of safety in which the flaw is identified is not necessarily the system in which you would attempt to correct the flaw.



Major Safety System	Design & Engineering	Maintenance & Inspection	Mitigation Devices	Warning Devices	Training & Procedures	Personal Protective Factors
Level of Prevention	Highest—the first line of defense	Middle—the second line of defense			Lowest—the last line of defense	
Effectiveness	Most Effective	←————→				Least Effective
Goal	To eliminate hazards	To further minimize and control hazards				To protect when higher level systems fail
EXAMPLES OF SAFETY SUB-SYSTEMS**	Technical Design and Engineering of Equipment, Processes and Software Management of Change (MOC)** Chemical Selection and Substitution Safe Siting Work Environment HF	Inspection and Testing Maintenance Quality Control Turnarounds and Overhauls Mechanical Integrity	Enclosures, Barriers Dikes and Containment Relief and Check Valves Shutdown and Isolation Devices Fire and Chemical Suppression Devices Machine Guarding	Monitors Process Alarms Facility Alarms Community Alarms Emergency Notification Systems	Operating Manuals and Procedures Process Safety Information Process, Job and Other Types of Hazard Assessment and Analysis Permit Programs Emergency Preparedness and Response Training Refresher Training Information Resources Communications Investigations and Lessons Learned Maintenance Procedures Pre-Startup Safety Review	Personal Decision-making and Actions HF Personal Protective Equipment and Devices HF Stop Work Authority
	Organizational (must address a root cause) Staffing HF Skills and Qualifications HF Management of Personnel Change (MOPC) Work Organization and Scheduling HF Workload Allocation of Resources Buddy System Codes, Standards, and Policies**					

HF - Indicates that this subsystem is often included in a category called Human Factors.
 * There may be additional subsystems that are not included in this chart. Also, in the workplace many subsystems are interrelated. It may not always be clear that an issue belongs to one subsystem rather than another.
 ** The Codes, Standards and Policies and Management of Change subsystems listed here are related to Design and Engineering. These subsystems may also be relevant to other systems; for example, Mitigation Devices. When these subsystems relate to systems other than Design and Engineering, they should be considered as part of those other systems, not Design and Engineering.

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Lessons Learned Statement

Repositioning forklift tines with hands and feet may be a common task; however, it does present an opportunity for injury, especially on larger forklift trucks with very heavy tines. *Systems of Safety* are utilized to provide prevention for this type of incident.

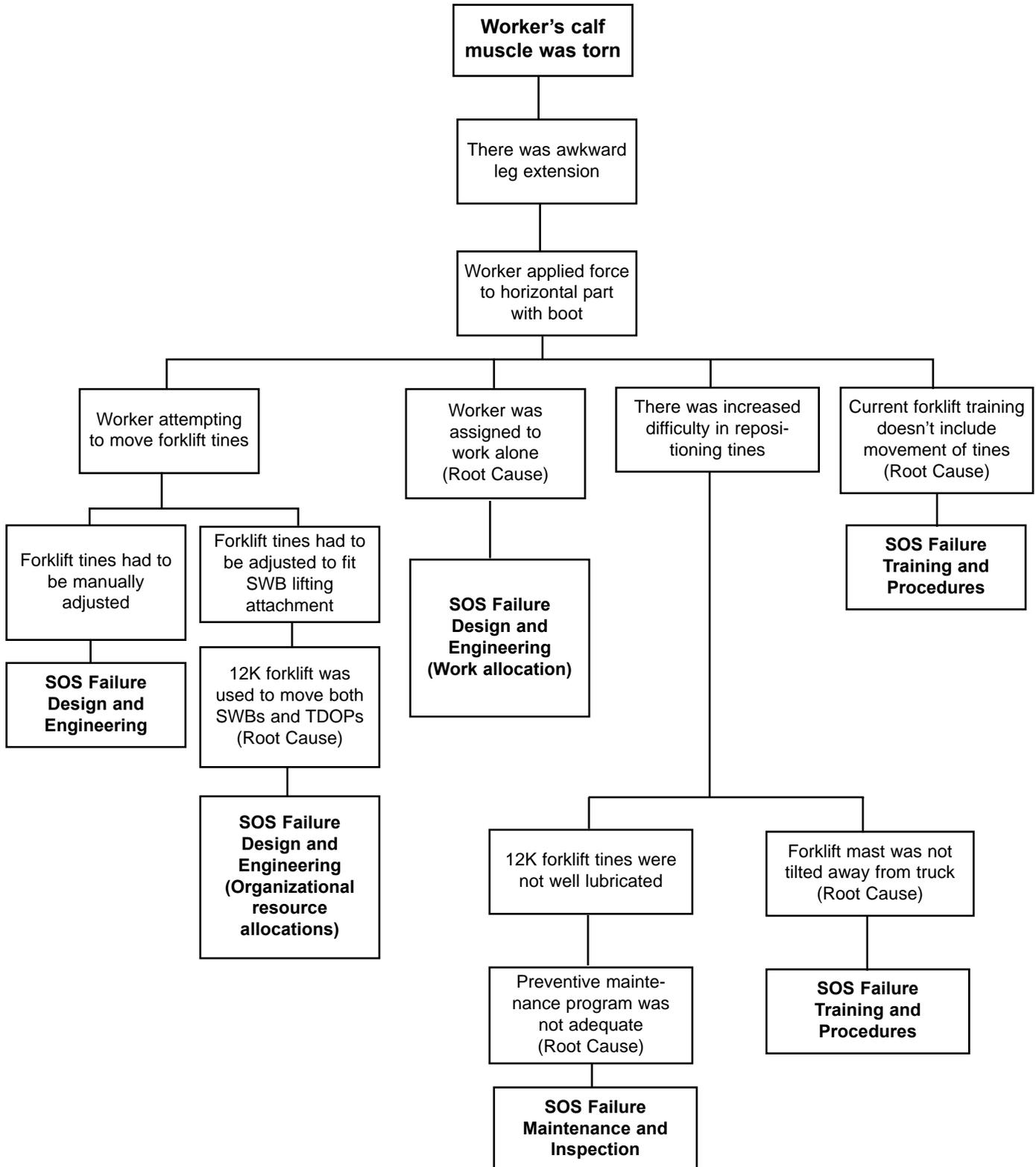
Due to failures in the **Design and Engineering, Maintenance and Inspection** and **Training and Procedures** *Systems of Safety*, the potential for a serious injury was present. Maximum prevention provided through the **Design and Engineering System of Safety**, sub-system/*Management of Change*, would include safety considerations when using new equipment. A maintenance and inspection program that included lubricating the forklift tines would provide prevention through the **Maintenance and Inspection System of Safety**. Training on how to safely move forklift tines would provide additional prevention through the **Training and Procedures System of Safety**.

Discussion

A worker was preparing to use a 12K forklift to transport a Solid Waste Box (SWB). The worker attempted to adjust the forklift tines to the required position by removing the locking pin, pushing on the top (vertical part) with his hands and by applying force to the lower horizontal part with the arch/instep of his boot. Force was applied to the tine twice, but it did not move. On the third try, the impact landed on the toe section of the boot, causing awkward leg extension and injury to the worker's calf muscle. An investigation of the event indicates that use of hands and feet to reposition tines on 5K forklifts had been a common practice at this location. They had recently started using a 12K forklift to move Solid Waste Boxes and Ten Drum Overpacks. The tines on the 5K forklift weigh 120 lbs. While the tines on the 12K forklift weigh 350 lbs. More force is required to move the 12K forklift tines than to move the 5K forklift tines. The use of the 12K forklift also increased the frequency of repositioning the forklift tines to accommodate the different configuration of the waste containers. The equipment was not well lubricated which increased the difficulty in repositioning the tines. The vendor manual does not provide specific direction on repositioning the tines. Current forklift training does not include direction for repositioning the tines.

Analysis

The Logic Tree is a pictorial representation of a logical process that maps an incident from its occurrence, “the event,” to facts of the incident and the incident’s root causes.



Recommended Actions

1. Use a second person to assist in moving 12K tines.
2. Lubricate forklift truck on a weekly basis.
3. Operators check lubrication before attempting to move tines.
4. Include repositioning of forklift tines in forklift training.
5. Add hydraulic adjusts to forklift tines.

Education Exercise

Working in your groups and using the Lessons Learned Statement, Discussion, Analysis and Recommended Actions, answer the two questions below. Your facilitator will give each group an opportunity to share answers with the large group.

1. Give examples of ways to apply the Lessons Learned Statement at your workplace.

2. Of the examples you generated from Question 1, which will you pursue in your workplace? (**Note:** When we say something you may pursue, we mean a joint labor-management activity or a union activity rather than an activity carried out by you as an individual.)

Trainer’s Lessons Learned Success Inventory

Following a Lessons Learned (LL) session, **the trainer who led the LL** should complete this form. This information will: 1) Help you reflect on the successes and challenges of the session; 2) Help USW with new curriculum development; and 3) Help USW as a whole better understand how the LL Program is supporting their workers.

By reviewing LL from different sites or from other areas of their workplaces, workers are able to analyze the information and apply these lessons to their own workplaces in order to make their workplaces healthier and safer.

1. Site name (if there are participants from more than one site, please list all).

2. Date of LL training _____
3. LL number used in today’s Training _____
4. Your name _____
5. **Summary of Education Question 1:** Please summarize participants’ examples of ways to apply this LL Statement to their workplace.

Please continue on reverse side.

- 6. Summary of Education Question 2:** Please summarize which actions or recommendations participants discussed pursuing at their workplace(s).

Thank you for completing this form.

EVALUATION

Lessons Learned: Worker Injured While Moving Forklift Tines

Please answer the two questions below:

1. How important is this lessons learned to you and your workplace? (Circle one.) Rate on a scale of 1 to 5, with 5 being the most important.

1	2	3	4	5
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2. What suggestions would you make to improve this Lessons Learned?

End of Training Trainer's Instructions

Please complete the information below.

Trainer's Name _____
(Please Print)

Date of training: _____

No. of Participants: Total _____ Hourly _____ Management _____

Location of Training: _____

USW Local # _____

Send:

1. This page;
2. The Education Exercise (page 8);
3. The Trainer's LL Success Inventory form (pages 9 and 10);
4. The evaluation for each participant (page 11); and
5. The Sign-in sheet (page 13) to:

Doug Stephens
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Nashville, TN 37211

Thank you for facilitating the sharing of this
Lesson Learned with your coworkers.

