



Contract Employee Burned by Caustic

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.



This material was produced by the Labor Institute and the United Steelworkers International Union under grant number 46DO-HT11 Susan Harwood Training Grant Program, for the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial product or organizations imply endorsement by the U. S. Government.

Lessons Learned

Volume 07, Issue 23

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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	Inspection and Testing	Enclosures, Barriers Dikes and Containment	Monitors	Operating Manuals and Procedures	Personal Decision-making and Actions HF
	Design and Engineering of Equipment, Processes and Software	Maintenance	Relief and Check Valves	Process Alarms	Process Safety Information	Personal Protective Equipment and Devices HF
	Management of Change (MOC)**	Quality Control	Shutdown and Isolation Devices	Facility Alarms	Process, Job and Other Types of Hazard Assessment and Analysis	Stop Work Authority
	Chemical Selection and Substitution	Turnarounds and Overhauls	Fire and Chemical Suppression Devices	Community Alarms	Permit Programs	
	Safe Siting	Mechanical Integrity	Machine Guarding	Emergency Notification Systems	Emergency Preparedness and Response Training	
	Work Environment HF				Refresher Training	
	Organizational (must address a root cause)				Information Resources	
	Staffing HF				Communications	
	Skills and Qualifications HF				Investigations and Lessons Learned	
	Management of Personnel Change (MOPC)				Maintenance Procedures	
	Work Organization and Scheduling HF				Pre-Startup Safety Review	
	Work Load					
	Allocation of Resources					
	Buddy System					
	Codes, Standards, and Policies**					

HF - Indicates that this sub-system 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 sub-systems listed here are related to Design and Engineering. These subsystems may also be relevant to other systems; for example, Mitigation Devices. When these sub-systems relate to systems other than Design and Engineering, they should be considered as part of those other system, not Design and Engineering.

Revised October 2006



Title: Contract Employee Burned by Caustic

Identifier: Volume 07, Issue 23

Date Issued: March 1, 2007

Lessons Learned Statement:

A contractor was in the process of doing a general cleanup of a lay down yard. He was hand loading tubing in the back of a pickup truck when he inadvertently spilled caustic onto his leg. The caustic had been left in some tubing that had not been properly flushed before being placed in the area.

An application of the **Training and Procedures System of Safety** would have prevented this kind of accident from happening by having the proper Haz-Com tag (a tag that identifies chemical hazards such as piping, tubing, tanks, hoses, etc.) prior to being removed from the unit.

Discussion:

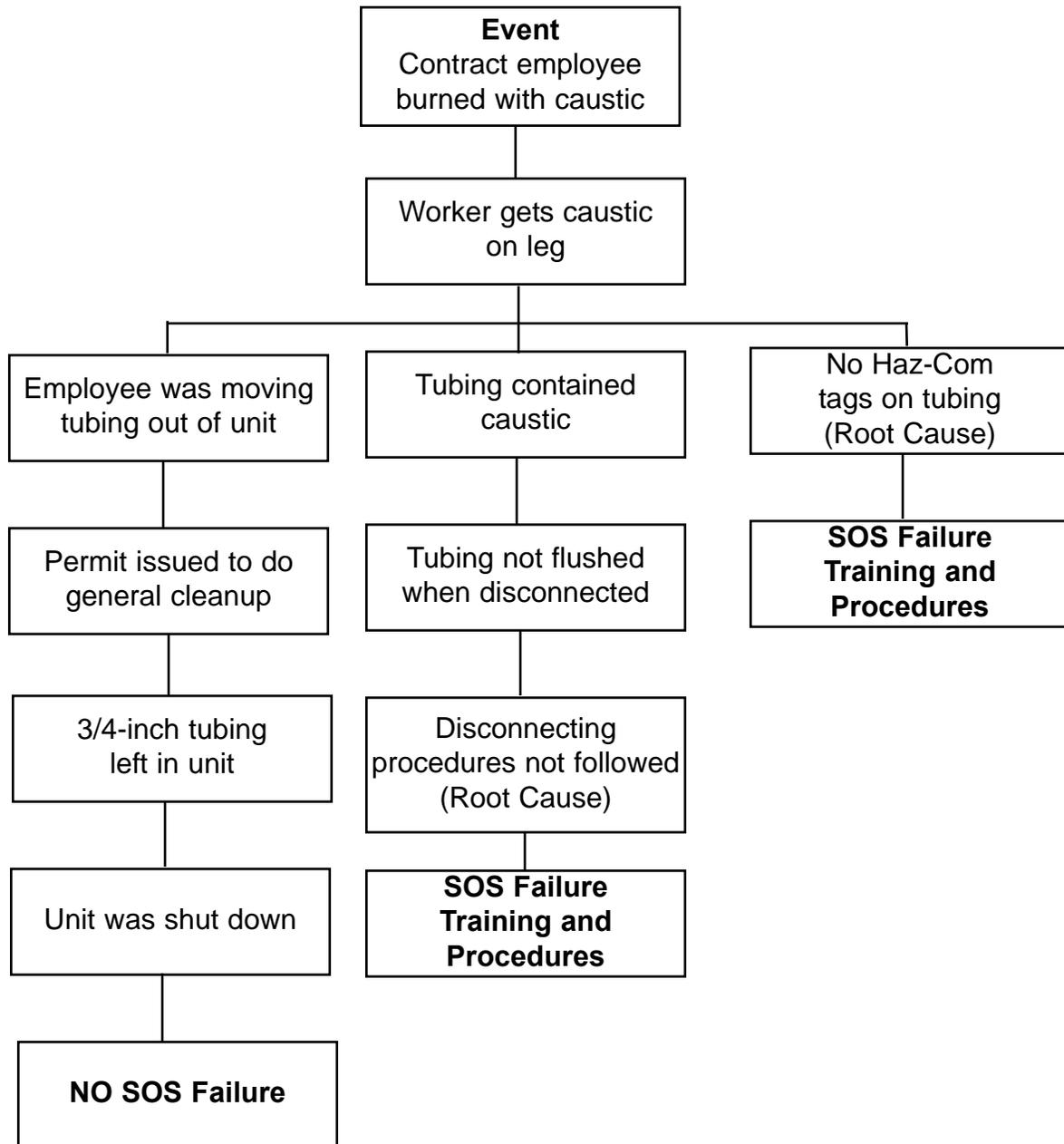
Several months prior to when this event occurred, a length of 3/4-inch tubing was removed from Tank 1400. This tubing connected the tank to the adjacent unit (which is now permanently shut down). The tubing was left in the caustic tank area. Sometime later, a truck driver moved the tubing from the tank area to an area just west of the balance basin area of the unit (an area designated as lay down by operations).

A laborer got a permit to do general cleanup on the south side of the department. In cleaning up the area, the laborer went into the shutdown unit and started to clean up the piping and tubing in the lay down area. While hand loading the tubing into the back of a pickup truck, he unknowingly spilled some liquid from the tubing onto his leg. The worker realized he would require some help loading some bigger pieces onto the rack of the truck and walked about 50 feet to where a coworker was talking on a phone to ask him for help. At this time he started to feel a burning sensation on his leg; and it was getting worse. His coworker helped him get to a safety shower and both worked at getting his pant legs cut off while under the shower.

All plant emergency personnel were notified. When help arrived, the laborer was transferred to the Medical Center for treatment. The worker received first aid at the Medical Center and was able to return to work with minimal discomfort.

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. Have all Operating and Maintenance departments refresh workers on the need for using proper procedures to ensuring that necessary safety precautions are followed. Reinforce requirement to flush and tag all equipment (piping, tubing, tanks, hoses, etc.) that is being dismantled.
2. Instruct Operators that Haz-Com tags must be on all equipment leaving the Unit for maintenance, cleaning, etc.
3. Have Operations review the scope of work to clarify what the permit will cover on a "General cleanup." Give guidance on hazards or equipment issues that require more detail.
4. Have contractors and operators complete JSA's so that the proper hazard identification can take place.

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 ore 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: Contract Employee Burned by Caustic

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

