

Glass Filament Punctures Finger

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

Volume 06 Issue 15

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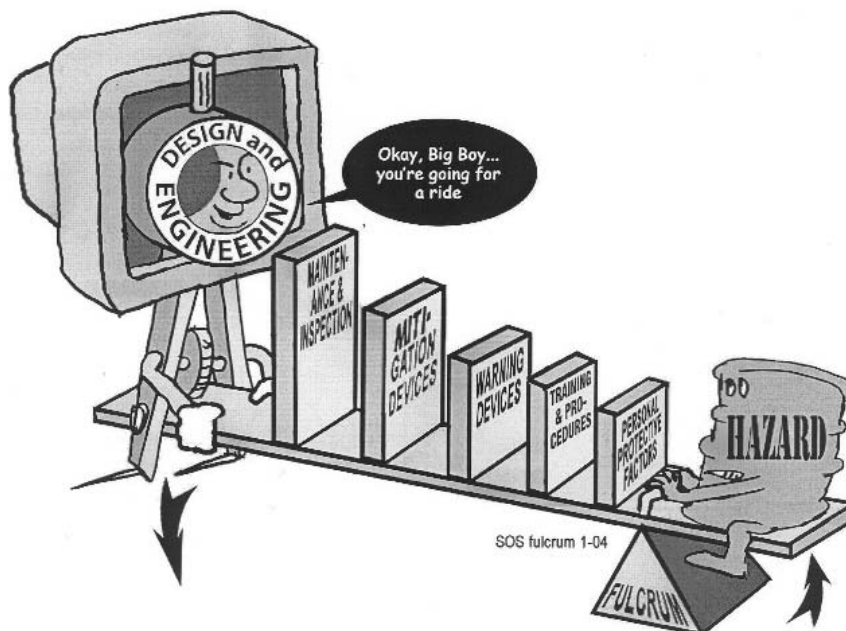
Background Information

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.

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Lessons Learned Statement

Equipment design, a lack of proper tools and inadequate gloves for the job task all added up to an injured worker. *Systems of Safety* are utilized to provide prevention of this type of incident. The use of an implement such as a wire brush removes the worker from direct contact with glass filaments and provides a defined **Design and Engineering** *organizational Systems of Safety* approach.

An engineering review of the process provides for a *Systems of Safety Design and Engineering technical* approach to a more effective process.

A procedure that provides and requires the use of puncture proof gloves is a **Training & Procedures** *Systems of Safety* approach to minimize hazards.

Discussion

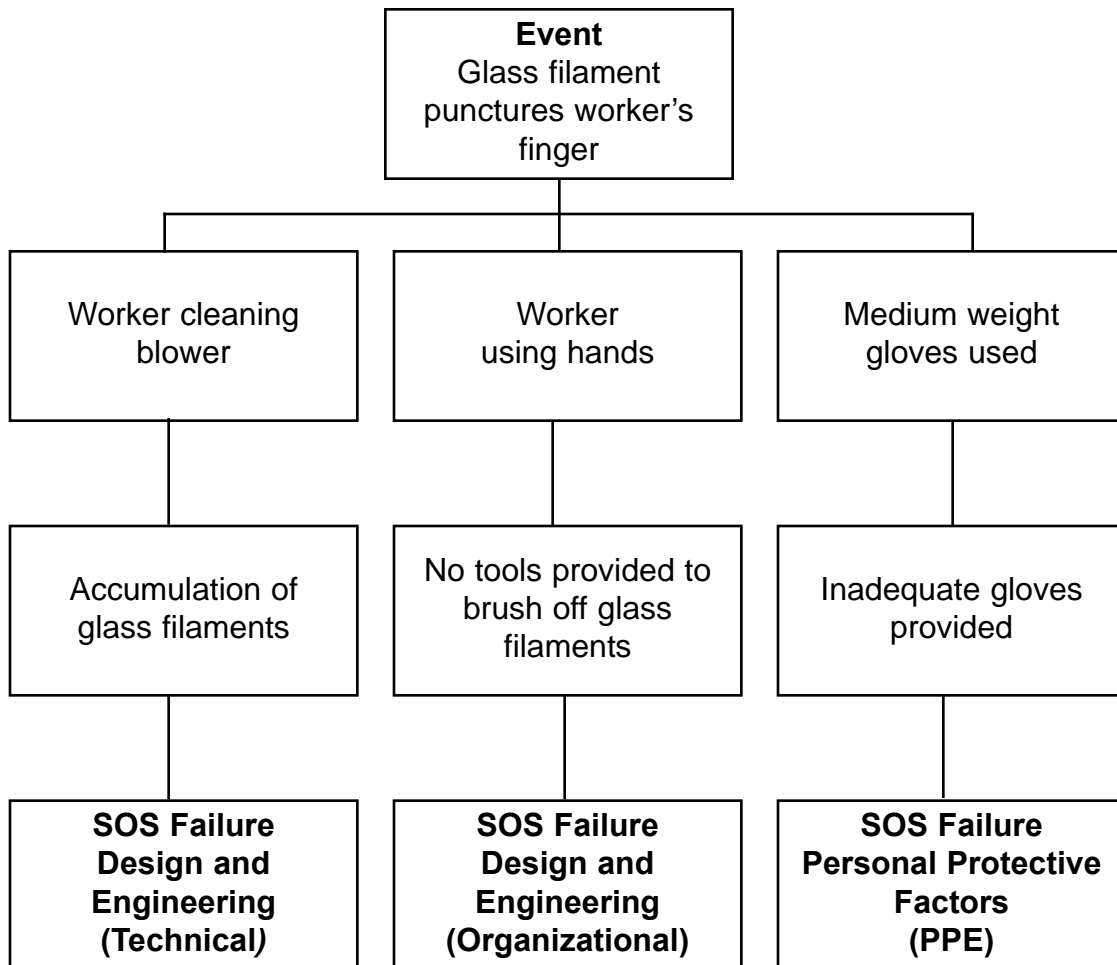
A piece of glass filament punctured a worker's finger when he used his hand to brush glass filaments from the top of a hot gas blower.

During the process, very sharp glass filaments (the size of pencil lead) accumulate on top of the blower. This accumulation of glass filaments needs to be cleaned off. This is accomplished by the worker taking his hand, while wearing medium weight leather gloves, and brushing the glass filaments off the blower. It is not unusual for a worker to get glass in his/her hand during this part of the job. The strands fall to the floor and are later swept up.

This injury needed medical attention and resulted in a recordable injury.

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. Provide puncture-proof gloves to workers.
2. Provide adequate tools for workers to use instead of their hands.
3. Have Engineering evaluate the process to reduce or eliminate the accumulation of glass filament.
4. Develop a procedure that requires the use of puncture-proof gloves and implements to remove glass filament.

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. Complete the chart below by:

- Putting an "X" beside the recommended actions you think your employer would implement at your workplace.
- Putting an "X" beside the recommended actions you think should be implemented at your workplace.
- Prepare to share with the group the reasons for your answers.

Employer	Recommended Actions	You
	1. Provide puncture-proof gloves to workers.	
	2. Provide adequate tools for workers to use instead of their hands.	
	3. Have Engineering evaluate the process to reduce or eliminate the accumulation of glass filament.	
	4. Develop a procedure that requires the use of puncture-proof gloves and implements to remove glass filament.	

EVALUATION

Lessons Learned: Glass Filament Punctures Finger

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 this page **plus the Education Exercise and Evaluation for each participant** to:

**Doug Stephens
United Steelworkers International Union
3340 Perimeter Hill Drive
Nashville TN 37211**

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

Sign-In Sheet

Name of Class _____ Date of Class _____

Instructors: _____

Please Check One*		Print Name	Signature
H	M		

***H = Hourly Worker**
M = Management or Salaried Worker

