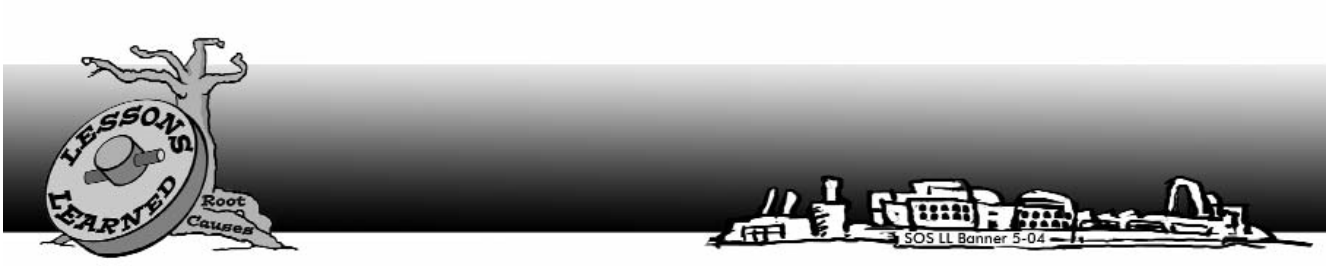

Cushman Sustained a Broken Windshield

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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FOR HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION
A PROJECT OF THE UNITED STEELWORKERS AND THE LABOR INSTITUTE

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Lessons Learned

Volume 08, Issue 2

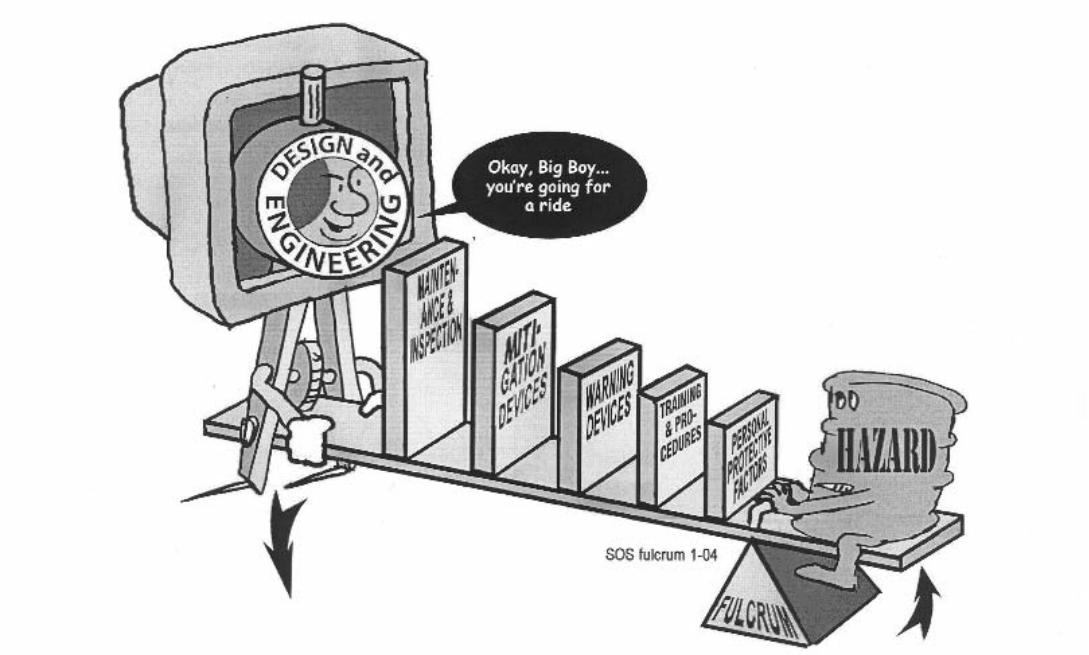
Background Information

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 **Organizational *(must address a root cause)*** Staffing HF Skills and Qualifications HF Management of Personnel Change (MOPC) Work Organization and Scheduling HF Work Load Allocation of Resources Buddy System Codes, Standards, and Policies**	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

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.

Revised October 2006

Title: Cushman Sustained a Broken Windshield

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Lessons Learned Statement:
The lack of priority in transferring data from the PM database to the new database added up to property damage and a near-miss incident. ***Systems of Safety*** are utilized to provide prevention from this type of incident. The protection provided by the **Design and Engineering** ***System of Safety*** *Management of Change* subsystem should have been used to identify all problems in updating the database. Staffing and low priority assigned to reviewing PMs and loss of previous Lessons Learned contributed to this incident.

Despite previous reports and Lessons Learned of the poor condition of the doors and hazard of the doors' uncontrolled closing, there was little action taken within the **Maintenance and Inspection** ***System of Safety*** to repair or replace the doors. Low priority was made within the **Design and Engineering** ***System of Safety*** to replace the doors with new technology that was available.

Maintenance personnel should be trained on how do visual checks to assure all springs are operable prior to closing each PM **(Training and Procedures** ***System of Safety*****)**.

Discussion:

A chemical operator was entering a roll up door in a Cushman (small work vehicle) when the door fell. The Cushman sustained a broken windshield, but no one was hurt. The falling door and broken glass presented hazards for the driver and any other workers in the area.

There have been numerous problems with roll up and overhead doors on site. Over the last few years, there has been a systematic effort to replace the older style gear operators versus repairing them. This has been particularly focused on high-use doors. Additionally, doors receive adjustments and periodic repairs when they are reported to operate erratically or when there is damage inflicted by contact. As the doors continue to age, a number of spring failures have been detected, but these failures are typically one of the two springs.

The following summarizes the history of the door in question:

- Eight months earlier, the door was reported to be binding. It was adjusted which corrected the problem.
- Inspection PM had last been performed three and a half years earlier.
- Lubrication PM was last completed about two years earlier.

Currently there are over 200 doors of various types at the plant. In the outfall of a previous Lessons Learned, PMs for inspection and lubrication were established for each door. Inspection and maintenance schedules were established based on level of use and the associated wear and risk for each door. These PMs were loaded in the old PM database. In making the transition to the new database from the old database approximately two years ago, it was determined that non-safety related PMs (some 20,000) would be analyzed for validity prior to inclusion of the new database. To the extent feasible, this effort was prioritized. To date, most of this material has not been reviewed by Engineering, resulting in a delay in reaction of valid PMs.

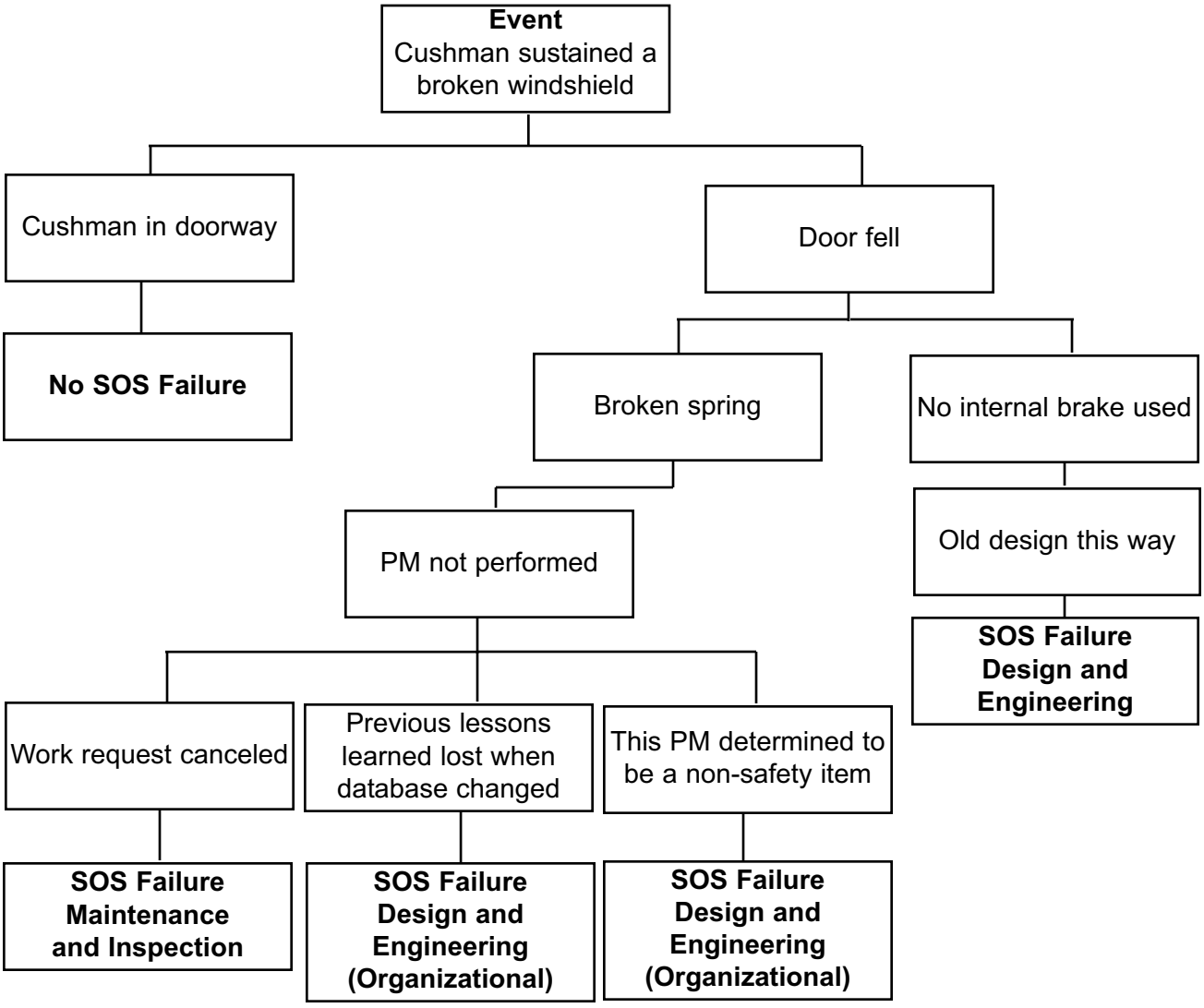
continued

Discussion *(continued)*

Specifically, the PM's related to lubrication and inspection of roll up doors were submitted to Engineering in November of 2000 and have yet to be processed. Some PM's have been performed in the interim by the Crane crew and its planner. Any door receiving a service call has been checked out and repaired and improved as necessary. Any of the old style operators found with deficiencies are being replaced with new operators. Additionally, numerous springs have been replaced on roll up doors as deficiencies are noted; however, detection of a single failed spring is difficult.

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. Add PM's into new database.
2. Complete Engineering review of corrective action related to PM's.
3. Reevaluate roll up door inspection checklist for improvements. If possible, develop guidance for checking the condition of the springs during PM's.
4. Complete walkdown of all roll up doors.
5. Update all doors to new style with brake.

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.

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

Thank you for completing this form.

EVALUATION

Lessons Learned: Cushman Sustained a Broken Windshield

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

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 9);
3. The Trainer's LL Success Inventory form (pages 10 and 11);
4. The evaluation for each participant (page 11); and
5. The Sign-in sheet (page 14) to:

If you are a TOP Site (excluding DOE TOP Sites)	**Send to: Steve Cable 2915 Gradient Drive St. Louis, MO 63125**
All other sites (including DOE TOP Sites)	**Send to: Doug Stephens United Steelworkers 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* H	M	Print Name	Signature

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