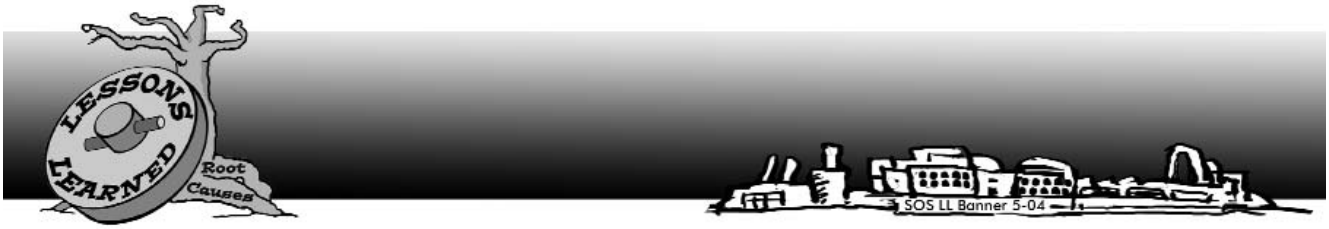

Operator Back Injury

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.

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

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Lessons Learned

Volume 07, Issue 36

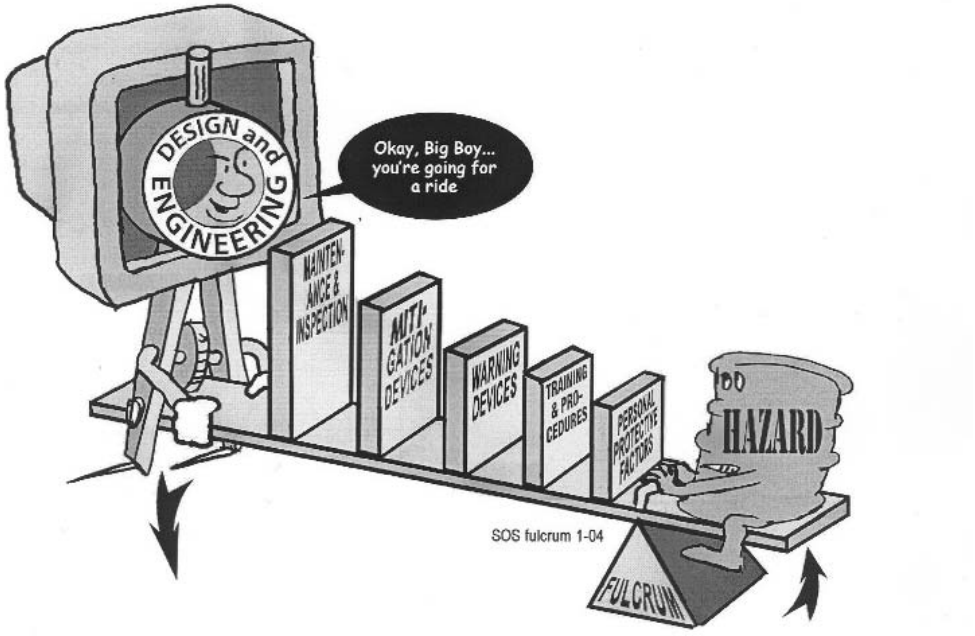
Background Information

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 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 sybsystem 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

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Title: Operator Back Injury

Identifier: Volume 07, Issue 36

Date Issued: March 1, 2007

Lessons Learned Statement:

The inability of a operator to open a valve during a routine procedure where a vessel was being drained led to the operator being injured. ***Systems of Safety*** are utilized to provide prevention from this type of incident. The limited access to the valve due to it location (**Design and Engineering** ***System of Safety)*** and lack of a preventive maintenance program to properly lubricate and inspect valves (**Maintenance and Inspection** ***System of Safety***) were found by the investigation team to be the root causes to this incident. When you combine these system failures with the operator's failure to recognize the physical hazards that could lead to injury, **Personal Protective Factors** ***System of Safety*** provided the last tumbler in this series of events that led to the operator being injured while simply attempting to open a drain valve.

The **Design and Engineering** ***System of Safety*** failure has been identified and recommendations to relocate the drain valves on these vessels to make accessing it more user/ergonomically friendly were issued by the team. It is believed that completion of this item will help to prevent any further reoccurrence of this type of event.

The **Maintenance and Inspection** ***System of Safety*** failure has been identified and the recommendation to have a new policy/procedure which requires that valves get included on a lubrication program could prevent this type of equipment not getting preventative maintenance or manipulated before it is to be used in during critical operations.

Because the valve was sticking and difficult to open by the operator, the failure to have this valve lubricated/inspected on a regular basis was deemed a root cause by the team.

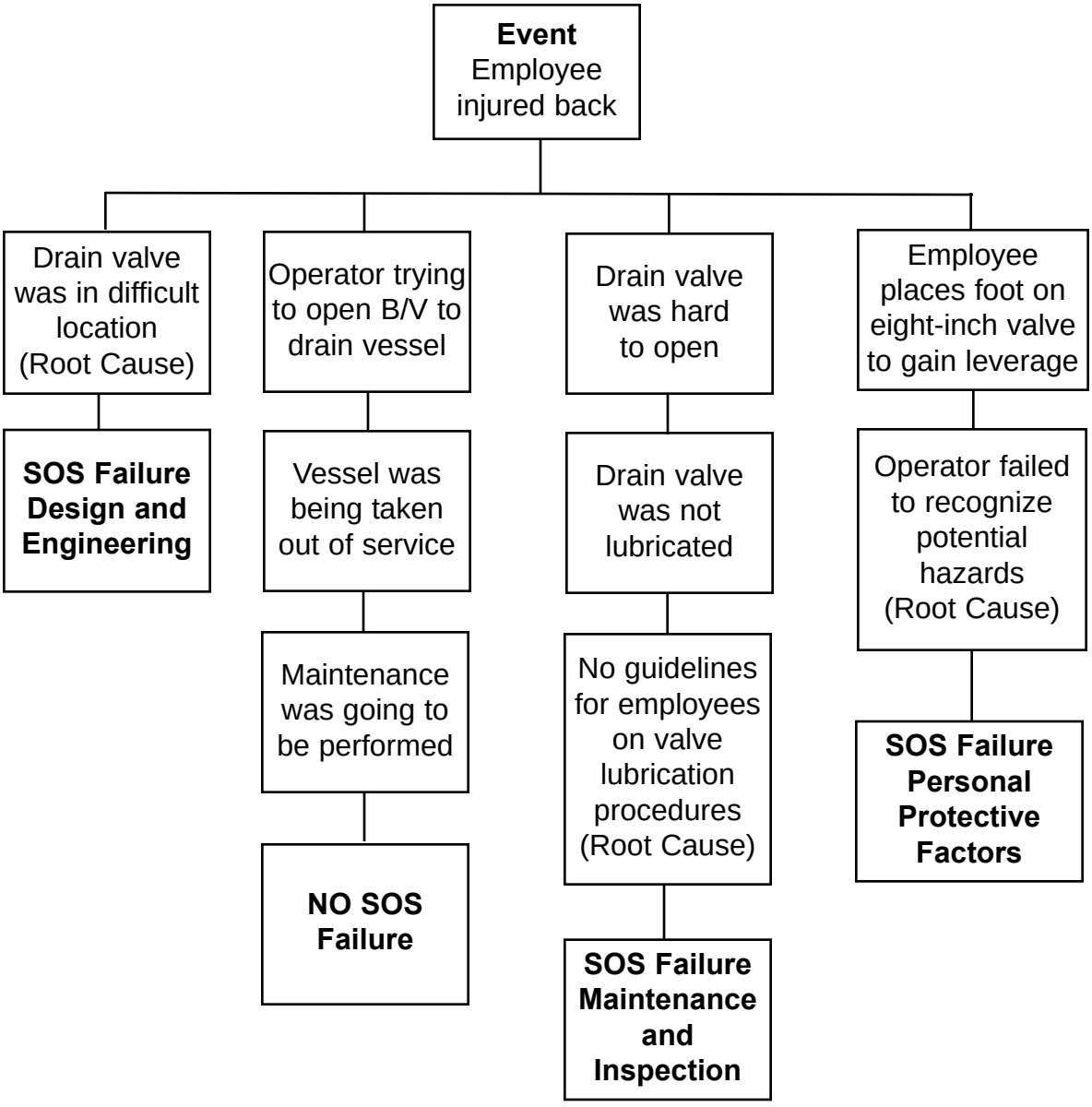
The **Personal Protective Factors** ***System of Safety*** failure was identified because the operator, in an effort to open the stuck valve, chose to take an unusual approach to open the valve. By placing one foot on an eight-inch valve in an attempt to gain leverage, the operator sprained his back on what should have been a rather simple task.

Discussion:

An operator was attempting to open a two-inch gate drain valve on a vessel and was injured. The employee stated that he was having difficulty getting to the valve to open; and once he positioned himself to open the valve, he was not able to open it. So, in an effort to open the valve, the operator repositioned himself by placing his right foot on an eight-inch elbow to gain leverage to open the valve easily. This was not successful. After the operator repositioned himself, he placed the pipe wrench on the valve and begin to tug at the valve and immediately felt a tingle in his lower back on the left side.

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. Relocate drain valves on vessels so that operators can access them easily.
2. Develop a procedure/policy to have valve lubrication and valve manipulation entered into a preventative maintenance program.
3. Refresher training for employees on how to effectively assess risks vs. tasks and how to educate them on importance of JSA (job safety assessments).

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: Operator Back Injury

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 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
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* H	M	Print Name	Signature

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