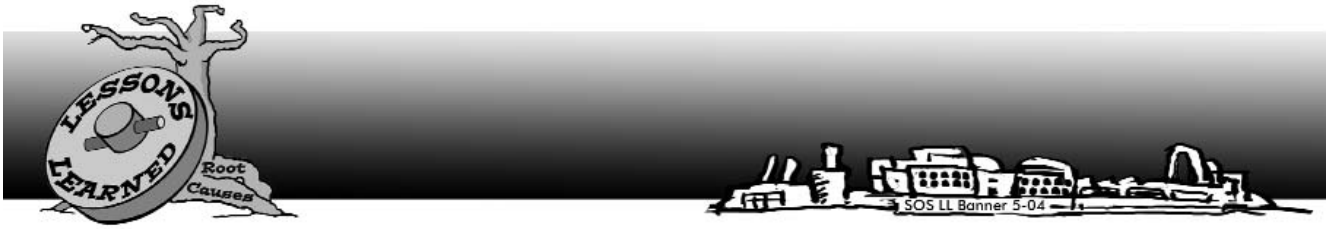

Triplex Cable Ripped from Light Pole

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 15

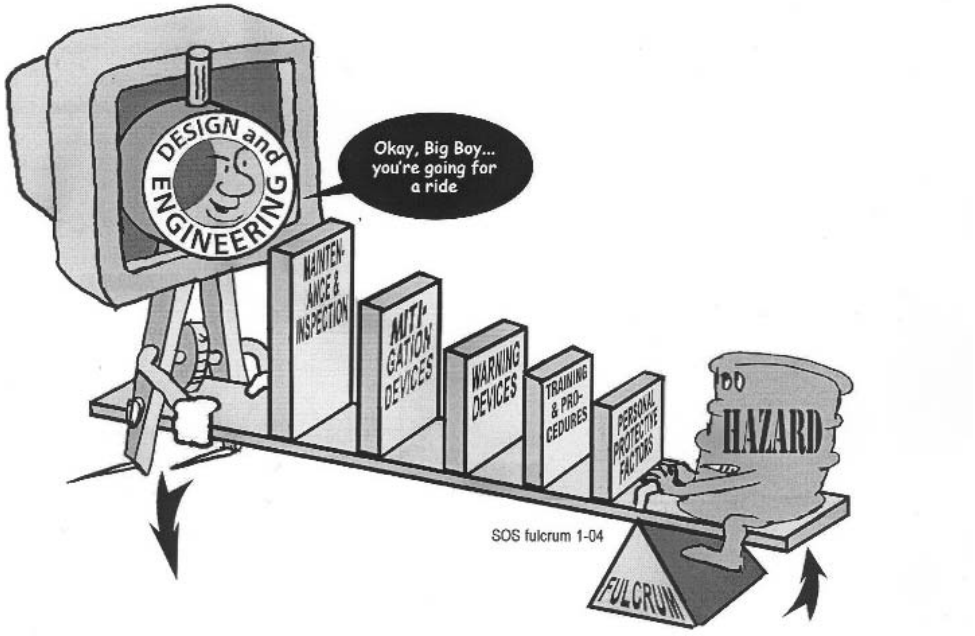
Background Information

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.

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Title: Triplex Cable Ripped from Light Pole

Identifier: Volume 07, Issue 15

Date Issued: January 31, 2007

Lessons Learned Statement:
When overhead work is done, we have to have people on the ground to monitor the job, keeping the area clear of personnel and vehicles. We need to utilize our **Design and Engineering** *Organizational* ***System of Safety*** and have enough people to do the job safely. The people performing the work cannot be traffic monitors while trying to troubleshoot and repair overhead lights.

A lot of times when we schedule a routine **Maintenance** job, it turns out to be anything but routine. When we **inspect** the area to be worked on, unforeseen hazards can come to light. When these hazards have not been addressed and planned for, work should stop immediately so a job hazard analysis can be performed and any corrections needed can be made.

In these days of downsizing and layoffs, we find ourselves multi-tasking more and more. When hazardous jobs are performed, we cannot cut costs by cutting manpower.

Discussion
Two electricians were assigned to troubleshoot and repair a defective street light at an intersection of the roads that surround the workplace. The electricians used cones to block access to the turning lane of the access road into the facility. The bucket truck was moved into position, and Electrician #1 began to ascend to the troubled street light. Electrician #1 noticed that the messenger cable was being held up by only one strand of wire. All other strands were broken in two, probably caused by swaying in the

wind over many years of service. The messenger cable is a seven strand aluminum cable that supports the weight of the two insulated wires supplying electricity to the light fixture. These three wires make up the triplex cable.

Electrician #1 decided that he would do the assigned job first and then would report the problem with the messenger cable to his supervisor when he returned to the shop. After troubleshooting the streetlight, Electrician #1 determined the streetlight would need to have new ballast installed. He felt this would be best accomplished by removing the light and returning to the shop to do the repair. He removed the light and placed it in the bucket.

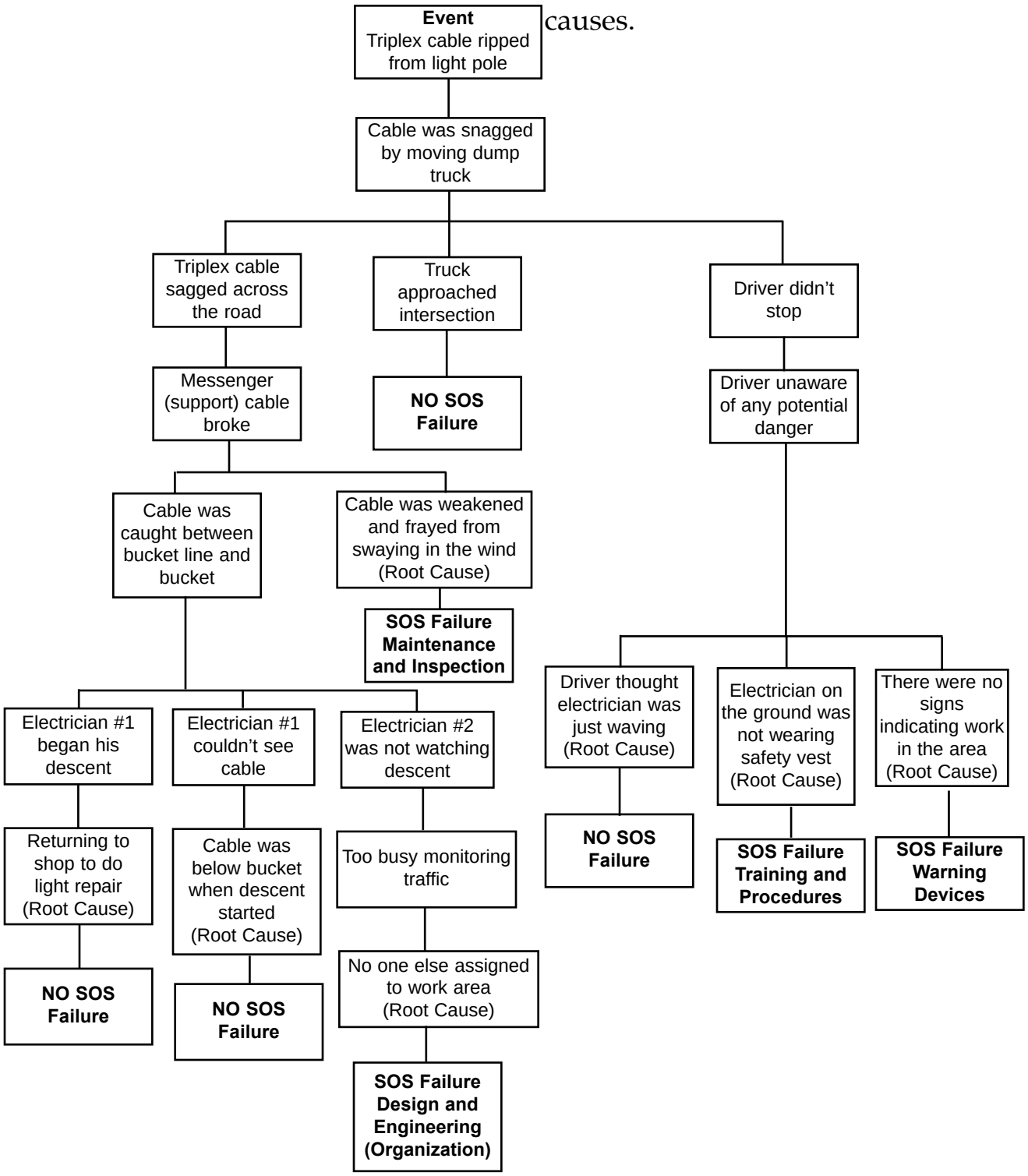
As Electrician #1 started his descent, the messenger cable got caught between the bucket liner and the bucket, which resulted in the cable breaking. The breaking of the messenger cable caused the triplex cable to sag across the road. At this time, a dump truck was approaching the area of the sagging cable. The truck was coming from a different direction than the area where the cones were placed. The electricians saw the truck approaching and Electrician #2 quickly opened the disconnect switch, interrupting the power supply to the triplex cable. Electrician #2 then attempted to stop the truck by waving him down.

The driver of the dump truck reported that he thought the electrician was just waving because he was not wearing a safety vest, and there was no signage or indication that work was being preformed in the area. In addition, a van had passed through the intersection just before he came through. The driver did not see the cable hanging down over the road. Since he did not stop, the truck snagged the cable and ripped it from the light pole, resulting in damage to a nearby traffic light.

Fortunately, no injuries occurred. The electricians cut the triplex cable and dragged it out of the road. They then contacted the proper authorities to report the problems with the cable and traffic light.

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. Evaluate the types of support for overhead lines; look for alternatives to present ones (messenger cables), perhaps formed-wire, dead-end grips for tying off cables.
2. Inspect all overhead connections that are using a messenger cable for support; repair or replace as needed.
3. Revise procedures to include the responsibility of ground person(s) to watch ascent and descent to help aerial lift operator to monitor and maintain safe distances from hazards.
4. Require traffic control at site of overhead work. Don't depend on people performing overhead work to monitor and control traffic. The traffic control needs to include signs and barriers, along with someone to direct traffic away from work area.
5. All workers performing duties on public or company roads need to have a reflective vest.
6. Update procedures to include stipulation that when a new or unexpected hazard (not previously identified in JHA or work order) is identified in the course of performing a task, or conditions change, the work is to be stopped and the supervisor notified for further instructions.

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.**)**.

EVALUATION

Lessons Learned: Triplex Cable Ripped from Light Pole

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 this page **plus the Education Exercise and Evaluation for each participant and the Sign-in sheet** 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