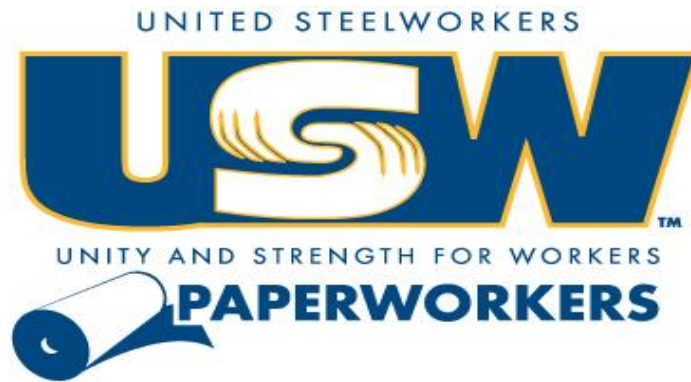
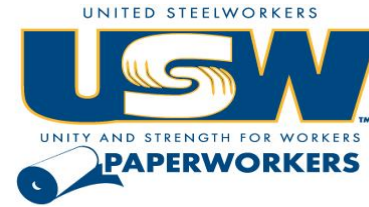


USW's Experience with Significant Injury and Fatality Elimination



Leeann Foster
Steve Sallman

USW Representation



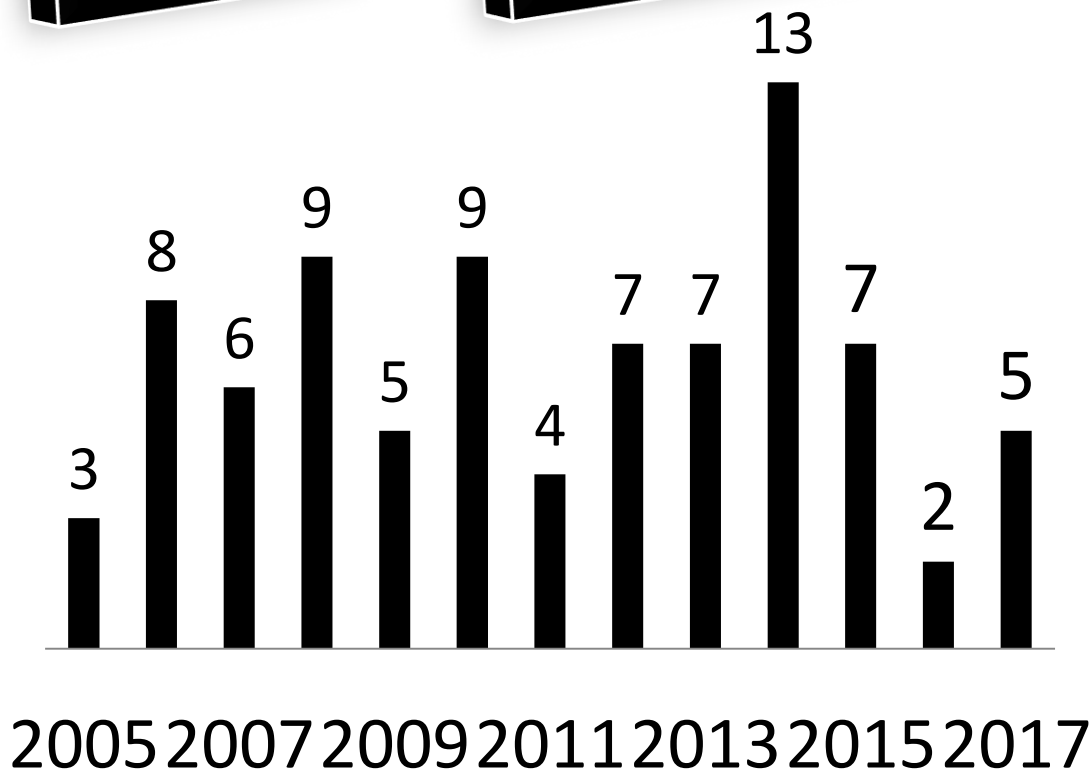
- Largest Union in the Pulp and Paper Sector
- Approximately 70% of the mills
- Approximately 50% of converters



USW Pulp/Paper Sector Fatalities 2005 – 2017

85 lives lost

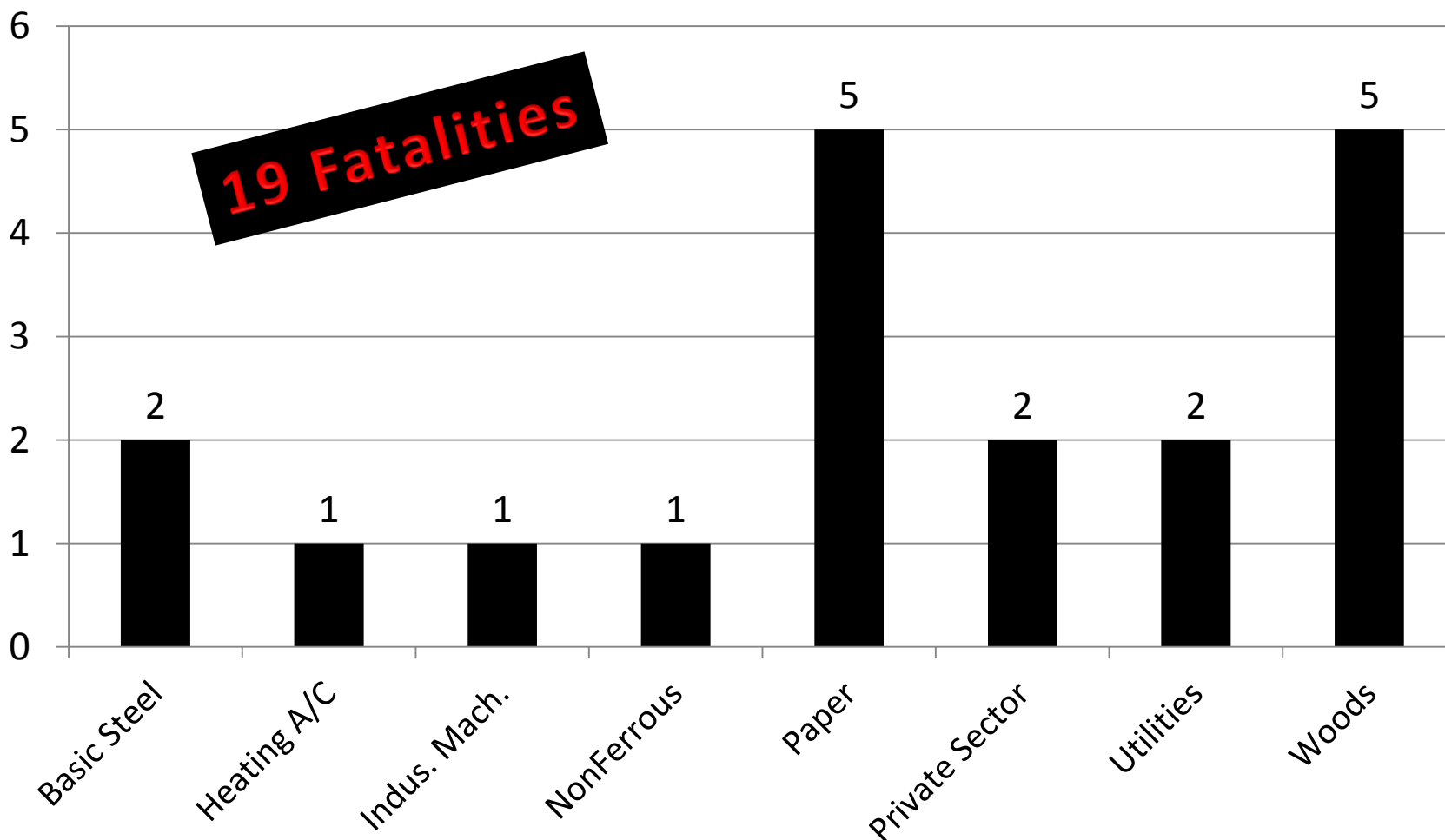
7 lives per year



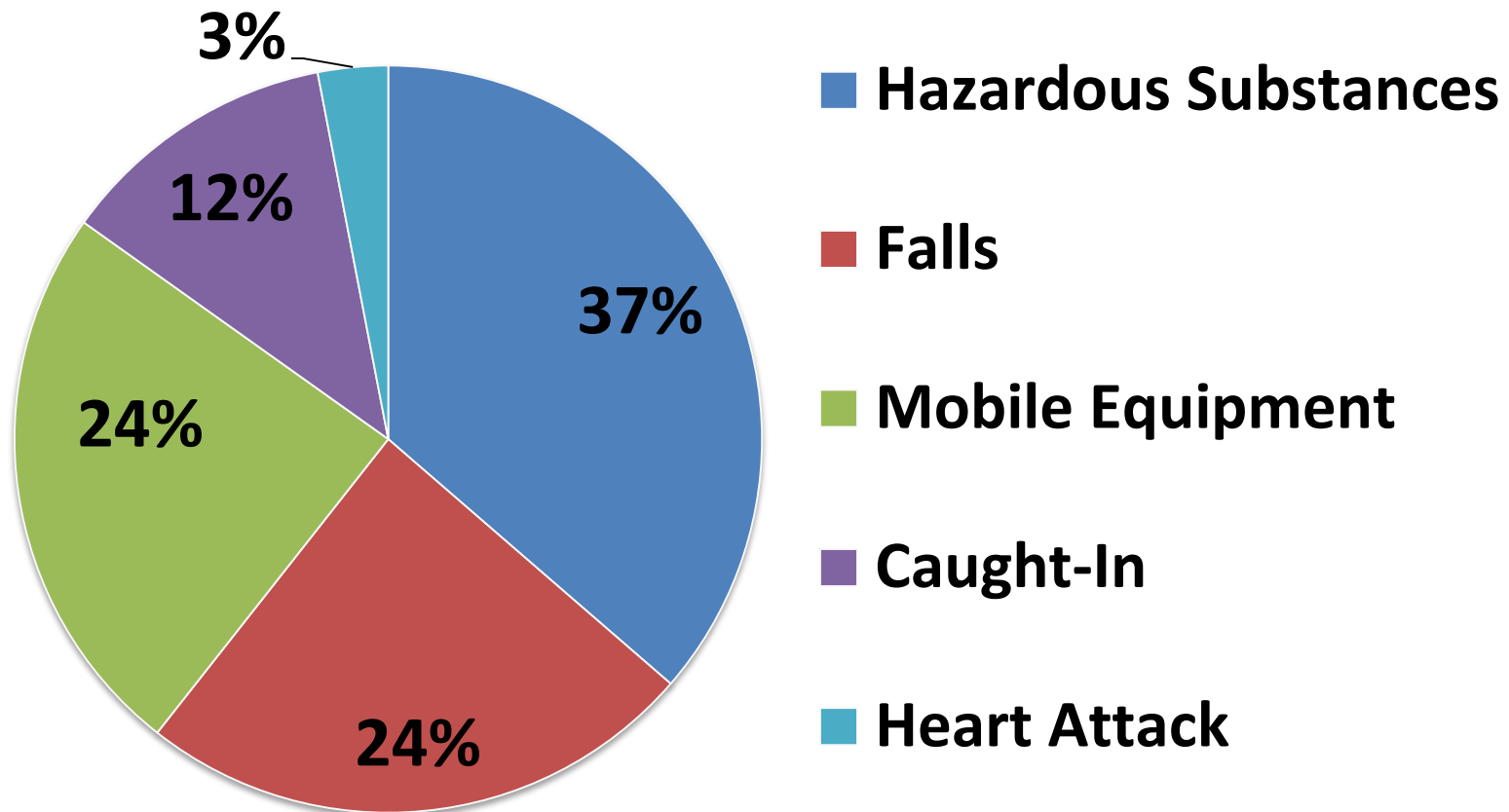
- Only those reported to the USW
- Reporting is better for members than supervisors, contractors and other non-members
- **These statistics do not include occupational disease**

2017 USW Fatalities Reported to HSE (by Industry)

As of May 8, 2017

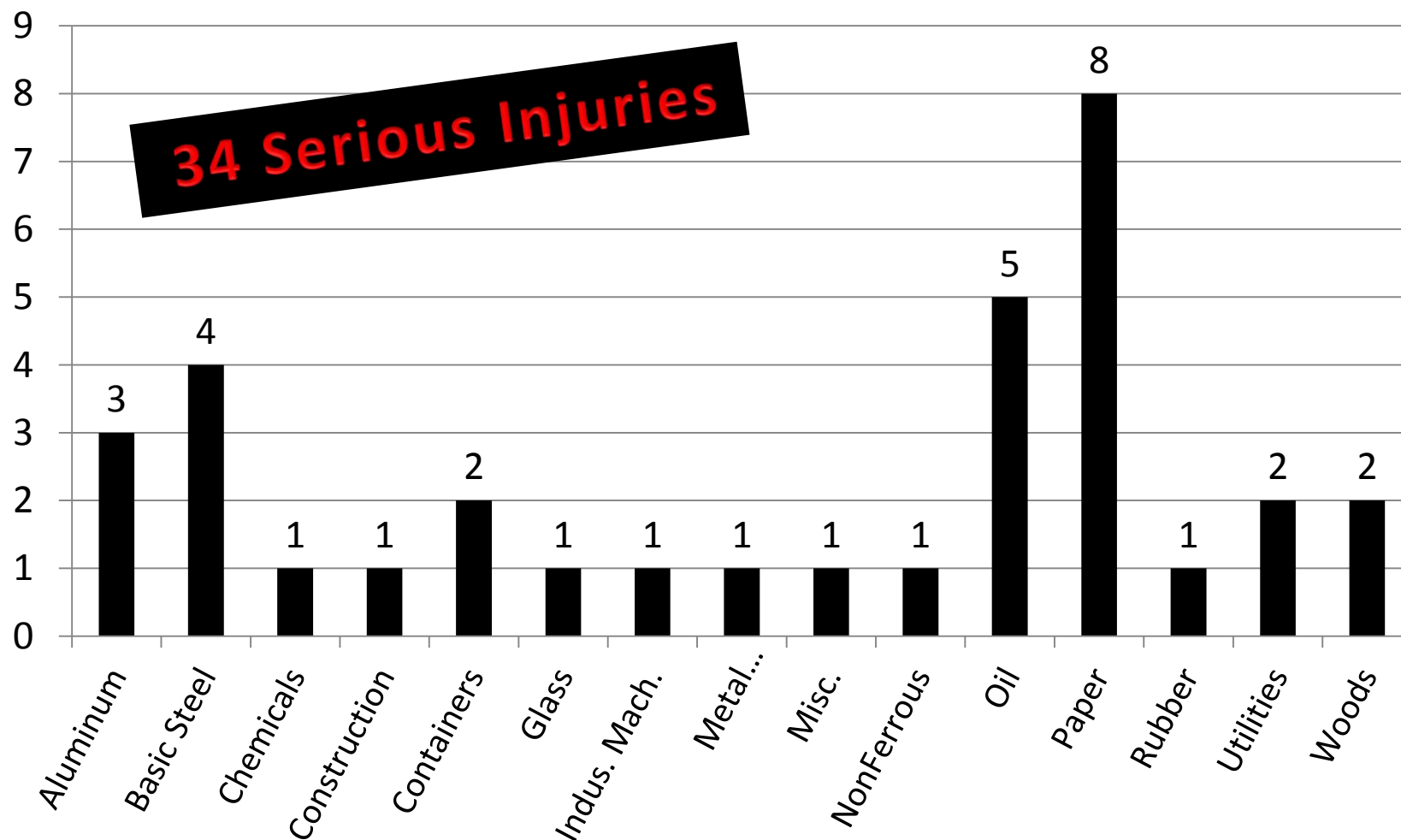


USW Paper Sector Fatalities 2013 – 2017



2017 USW **Serious Injuries** Reported to HSE by Industry

As of May 8, 2017



Examples of USW Activities with Paper Sector Employers

- Top level UMHSECs
- Annual Safety and Health Conferences
 - Domtar
 - International Paper
 - PCA
 - Resolute Forest Products
- Many other negotiated projects

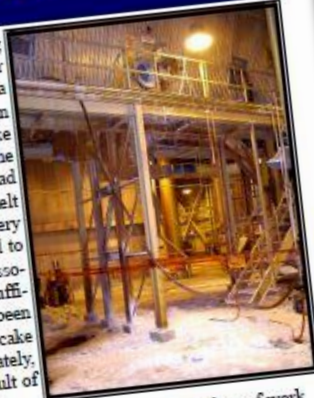
USW Sharing Information within the Industry



HAZARD ALERT

Fatal Incident Involving a Recovery Boiler and Salt Cake Engulfment at a Paper Mill

Two USW mechanics were attempting to replace a broken drag chain conveyor inside the economizer ash hopper of a recovery boiler on the third floor, when they were engulfed by falling salt cake they were engulfed by falling salt cake approximately 40-50' above from the fifth floor. The recovery boiler had been down for three days due to a smelt (molten salt) leak. While the recovery boiler was water washed, some hard to reach areas of the economizer and associated outlet ductwork were not sufficiently cleaned. A contractor had been called in to clean out the salt cake around the drag chain. Unfortunately, one of the mechanics died as a result of the incident, the other was taken to an area hospital where he was treated and released, but will miss days of work.



Considerations to Prevent an Occurrence:

- Identify all areas where salt cake can build up on tapered walls, in ductwork, etc. Working with the recovery boiler manufacturer, eliminate and/or control these areas with the hierarchy of controls.
- Work with the recovery boiler manufacturer to have sufficient access doors available in the duct work and other hard to see/cleaning areas for maintenance and inspections.
- Explore options to prevent salt cake build up i.e. vibrators, blowers and air cannons.
- All employees must be task trained, provided with written procedures that calls for opening all access doors, on all floors, for inspection and complete water washing from the top floor down to the bottom floor, including outlet ductwork.
- Develop training materials, videos, photos, etc., to aid with hazard identification and controls needed for safe operation, servicing and maintenance of recovery boilers, including water washing inside all areas of the recovery boiler and problem areas.
- Install scaffolding where possible to provide overhead protection for work crews.
- Ensure a robust Permit-Required Confined Space program and procedures.
- Ensure effective communications are established and maintained with contractors when their services are needed.
- Maintain an experienced workforce of both salaried and hourly employees.
- Evaluate Management Of Change for both processes and personnel changes.



80 Blvd of the Allies
Pittsburgh, PA 15222
safety@usw.org
(412) 682-2681

This hazard alert is based on an actual incident, and reflects our best understanding of the incident at the time it was written. However, many incidents have multiple causes, this alert may not cover all of them. The purpose of the alert is to illustrate a specific hazard. It is not intended to be a comprehensive report on the incident.

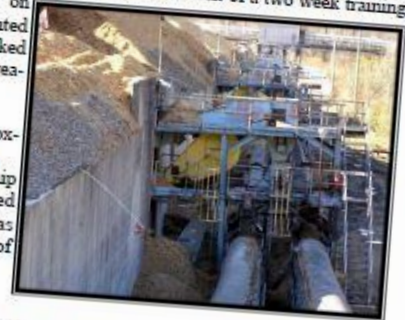


HAZARD ALERT

Fatal Incident Involving a Wood Chip Reclaimer at a Paper Mill

A 20-year employee and USW member who recently transferred from the converting plant to the woodyard was on his last shift of a two week training period running a dozer on the chip pile. He dismounted from the dozer and walked parts of the chip pile for reasons unknown.

While standing in the proximity of a chip reclaimer, a portion of the wood chip bed unexpectedly collapsed underneath him. He was working alone at the time of the incident.



Recommendations to Prevent Recurrence:

- ALL employees new to the job, process, and/or task must be provided with written procedures including, but not limited to, instructing the dozer operator to stay in the cab unless there is an emergency.
- Unless the dozer is broken down or an emergency, always exit the cab in designated areas.
- Establish a safety zone around the infeed of the wood chip reclaimers by working with employees and their representatives. Dozer manuals can provide assistance.
- Develop training materials, videos, photos, etc., to aid with hazard identification and controls needed for wood chip pile safety—including upset conditions. [Note: Check sheets are not a substitute for proper training materials and procedures. Signatures do not mean compliance, only attendance].
- Training quality must be based on the experience, not the number of calendar days.
- Ensure trainers are provided with the tools, skills and knowledge needed.
- Ensure effective communications are maintained by using radios, headsets with microphones, warning lights, etc.
- Evaluate Management Of Organizational Change process to ensure downsizing, transfers and staffing issues, that impact the line-of-progression, training and manning cushions, don't result in negative consequences on health and safety. This applies to the whole organization.



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Employers Sharing of Information

INTERNATIONAL  PAPER

INTERNAL MEMORANDUM
TECHNOLOGY MANUFACTURING ALERT

ISSUE DATE: February 22, 2017

TO: Team Members

SUBJECT: Pensacola Digester Incident

Purpose

This Alert covers the Pensacola Mill continuous digester vessel incident which occurred during the evening of January 22, 2017. The investigation is still on-going. This communication is to advise the mill system of the findings to date. Initial indications as to the cause of the incident are described as well as recommended procedures to avoid such an incident in the future. This document is not all inclusive, and some requirements are likely to be mill and/or digester specific. Additionally, an amended Manufacturing Alert covering all details of the incident and follow-up will be issued at a later date.

Background

The Pensacola continuous digester system is a Two-Vessel Vapor Phase system. This is also referred to as a two vessel Steam/Liquor Phase digester. Below is a simplified flow diagram of the Pensacola system.



PCA PRELIMINARY DERIDDER MILL INCIDENT ALERT

The PCA DeRidder Mill operates two containerboard machines with the pulp being supplied by a Kraft pulping process and OCC/DLK recycle operation. Vapors from the Kraft pulping process are condensed and drain to a decanter where the turpentine and water separate into two liquid phases and overflow from the top and bottom respectively. This water, (foul condensate) is then collected in a foul condensate collection tank which is approximately 24 feet in diameter and 30 feet tall, for subsequent environmental treatment prior to its re-introduction as usable clean condensates in the process.

On February 8, 2017, during the mill's annual maintenance outage, a welding contractor was performing hot work on a clean condensate pipeline located on a pipe bridge above the foul condensate collection tank. This line was locked out, opened to atmosphere, and tested free of flammable vapors at the time. The clean condensate line was not connected to the foul condensate tank during the hot work, nor were the welders working directly on the foul condensate tank. At approximately 11:00 a.m., an explosion occurred in the foul condensate tank, likely from combustion of vapors inside the foul condensate tank, which landed approximately 375 feet from its original location. This explosion resulted in three contractor fatalities.

PCA is continuing to investigate the incident, including potential ignition sources that may have led to combustion in the foul condensate tank. Preliminary analysis indicates that the hot work activities conducted in the area above the foul condensate tank were likely the ignition source for the vapors present.

Recommendations:

Based on this incident, mill operators with similar operations should meet with their contract business partners to evaluate effective hot work procedures on or near non-condensable gas systems and foul condensate storage, including a focus on:

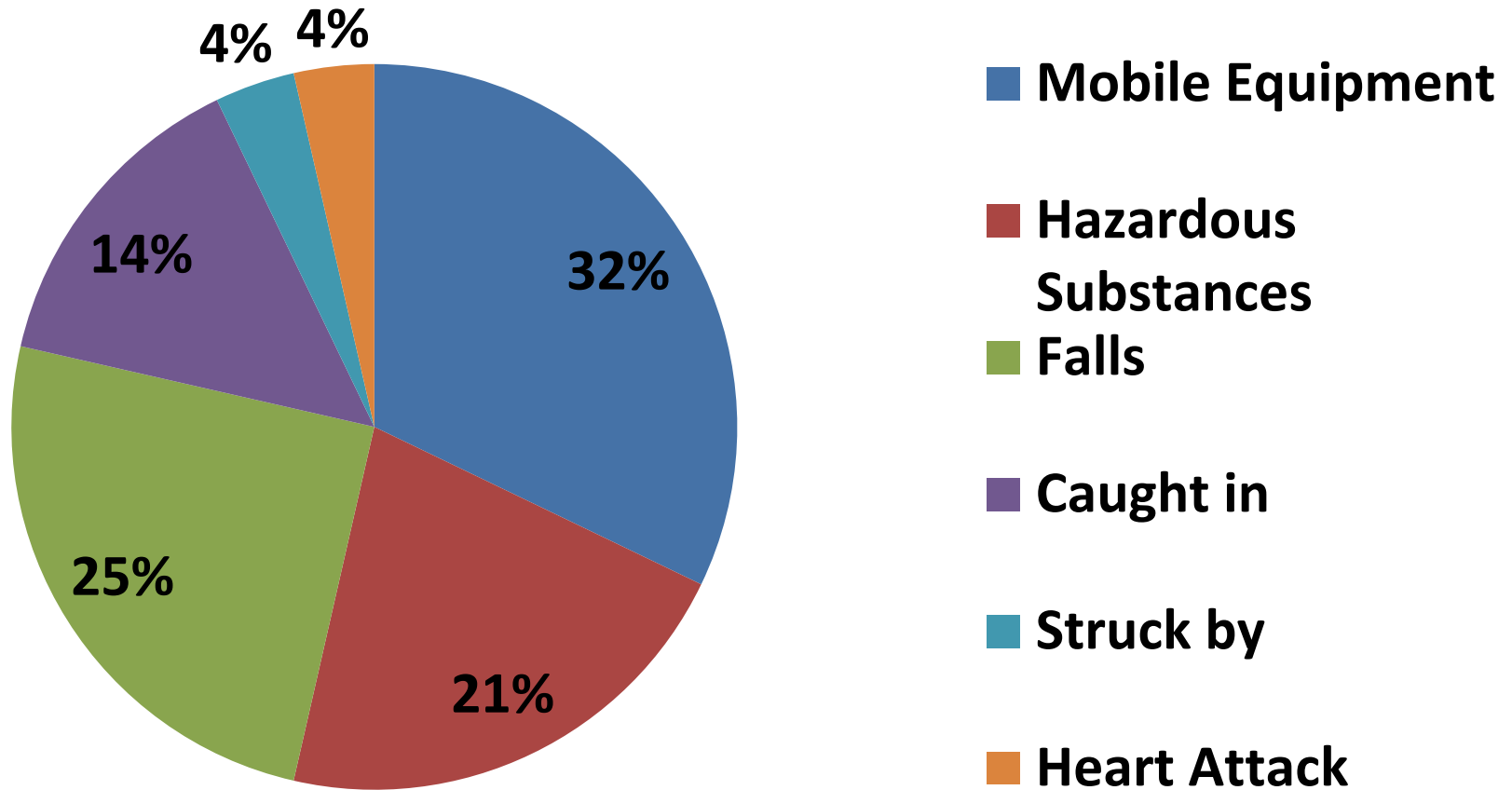
- Handling of hot work equipment;
- Hazard assessment;
- Use of appropriate guards; and
- Flammable vapor / potential sources of air.



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USW analysis of 28 fatalities in USW pulp/paper sector



Fatalities in the Pulp and Paper Sector, Jan 2012-Dec 2014

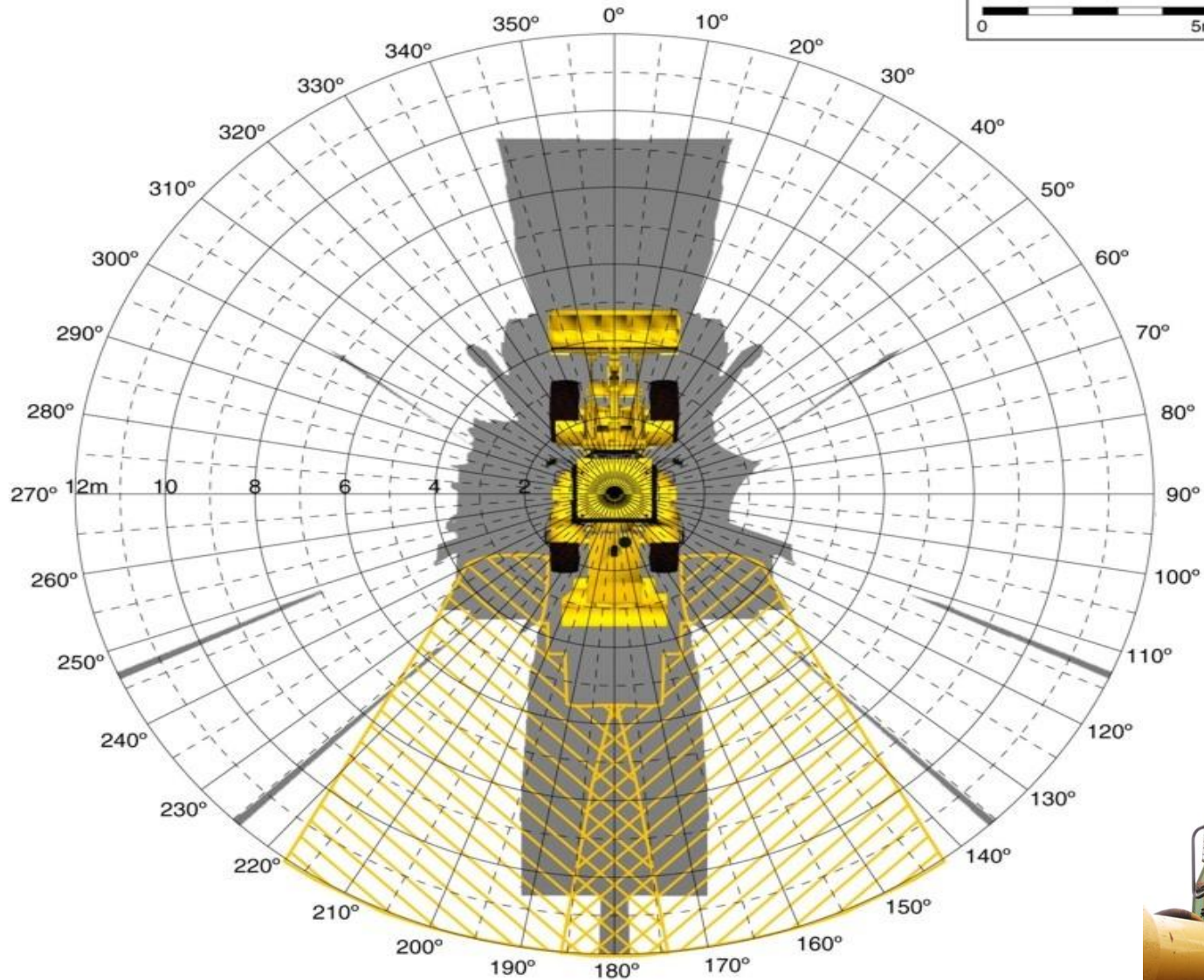
Fatality Areas: Underlying Findings

Mobile Equipment

- Cranes, fork/clamp trucks, semi-trailers, struck or pinned
- Circumstances: poor lighting, obstructed visibility Conditions: large cement cracks, pits filled with water, lack of floor markings
- In many instances equipment failure preceded accident



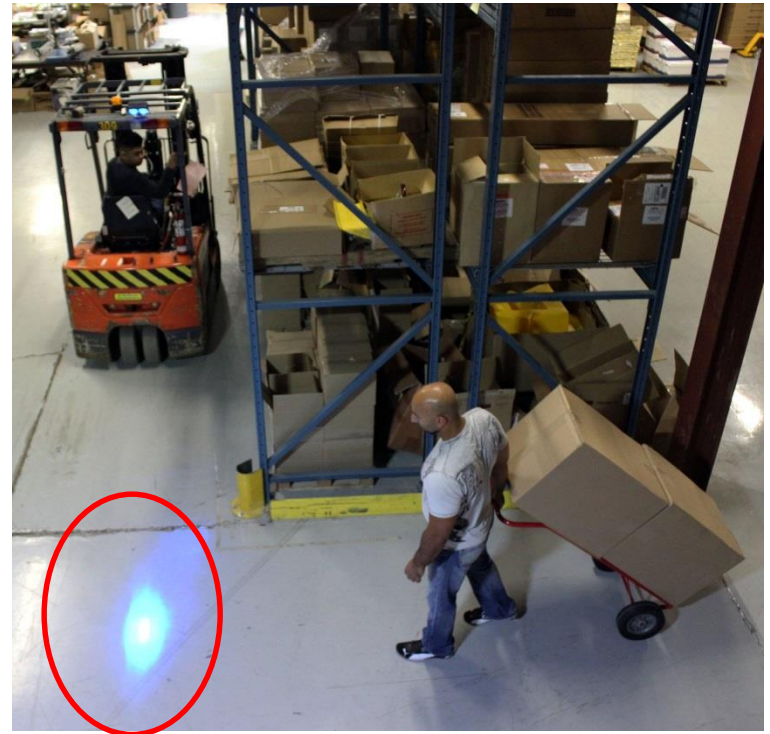
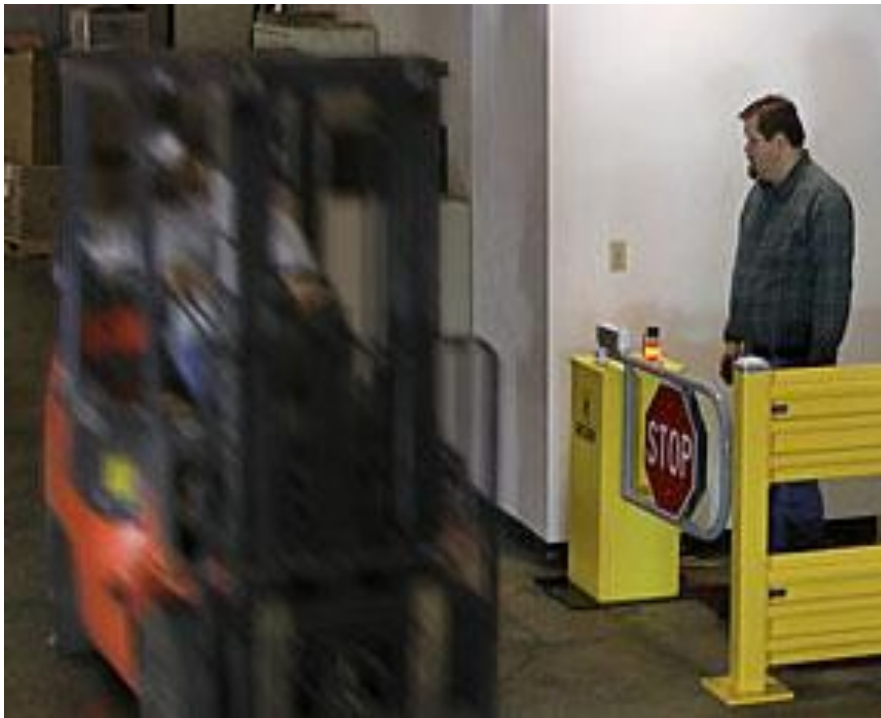
Cat 950G Ground Level



NIOSH Safety & Health Topic: Highway Work Zone Safety

Mobile Equipment and Foot Traffic

- Vision Plus – Mobileye Pedestrian Detection Aid video <http://www.visionplussafety.com/visionplus-video2.html> (Not an endorsement by the USW)



Fatality Areas: Underlying Findings

Falls

- Faulty, old, damaged, unstable equipment or structures
- Open or unguarded vats or tanks
- Use of substandard or damaged equipment normalized



Fatality Areas: Underlying Findings

Hazardous Substances

- Chemical fumes, fly ash, black/white liquor, steam, fluid under pressure, combustible dust
- Valve or emergency systems malfunctioned

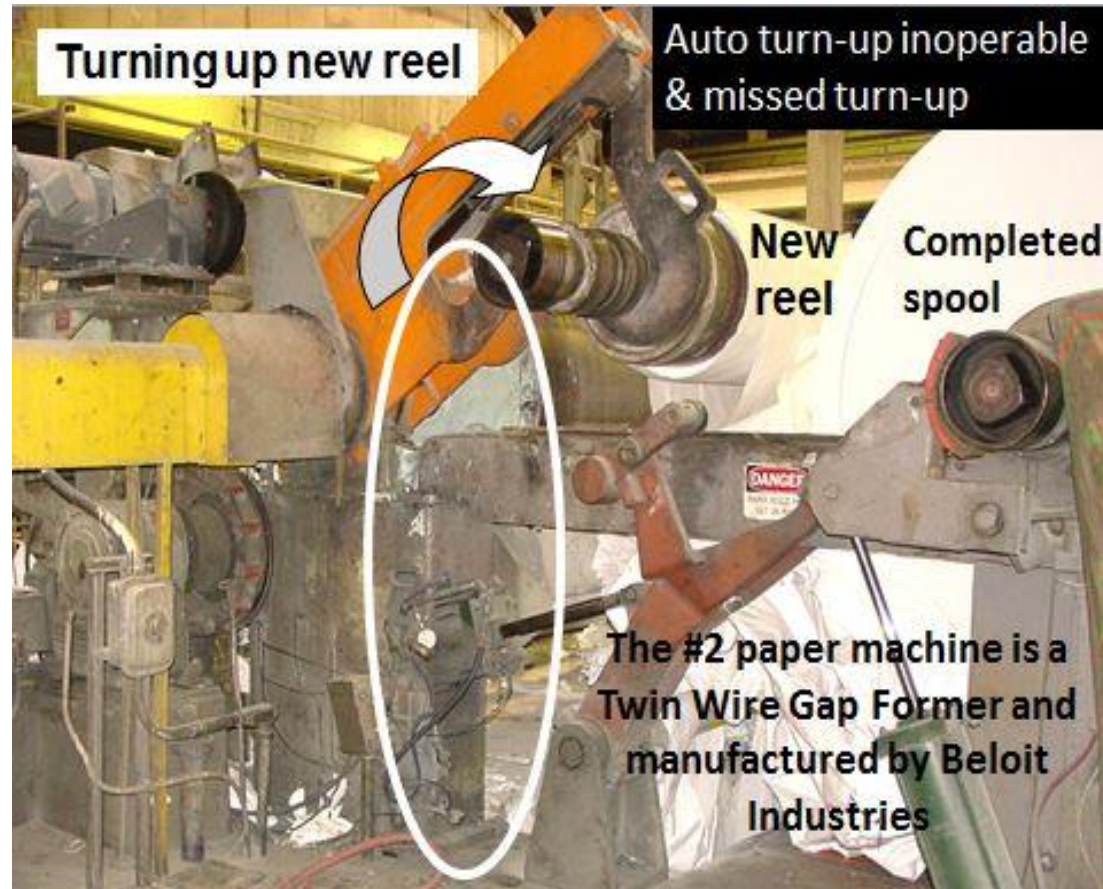


May 28, 2012

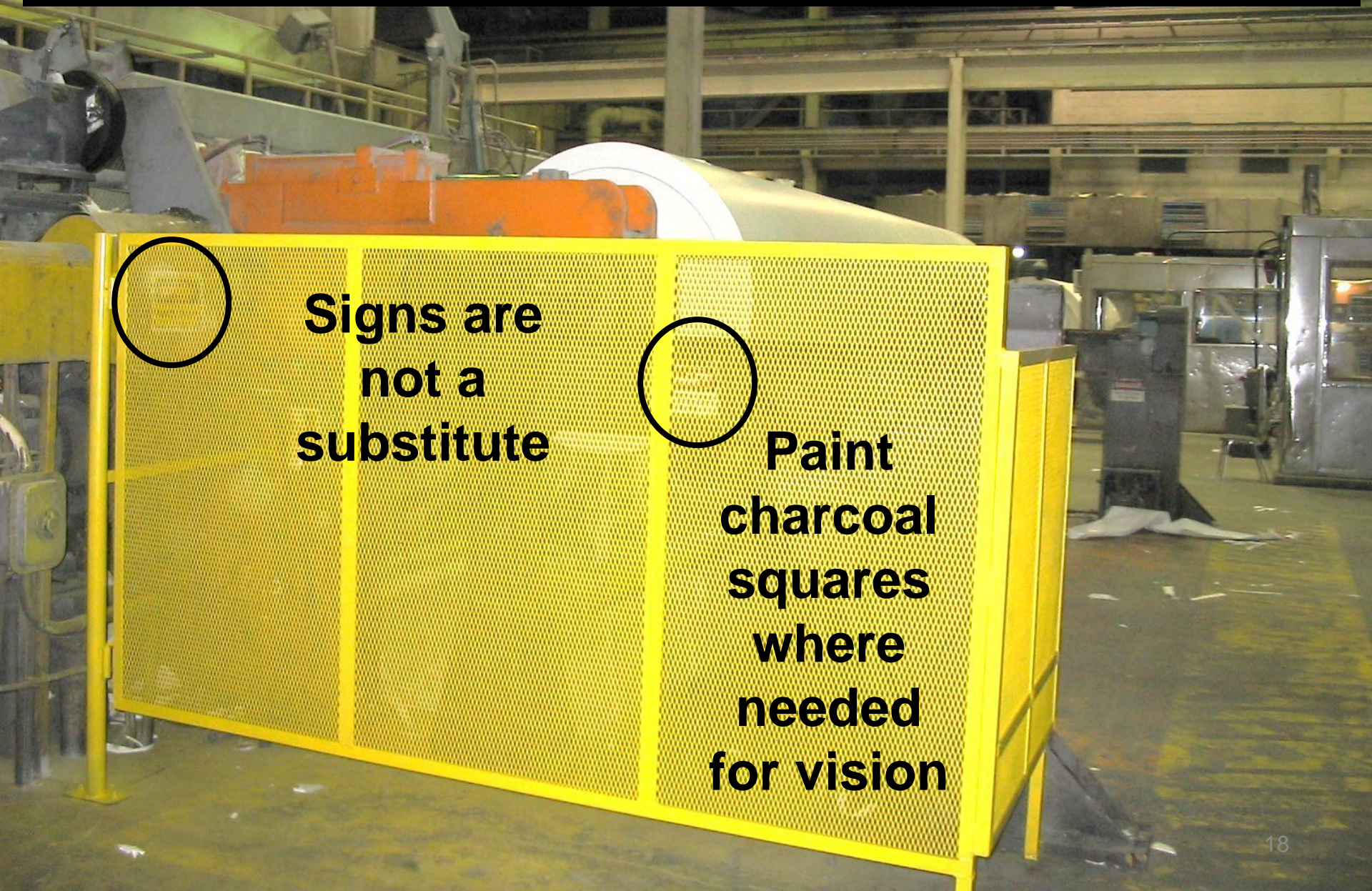
Fatality Areas: Underlying Findings

Caught-in

- In-going nip points
- Inadequate safeguarding



Don't just focus on "in-going" nip points!



**Signs are
not a
substitute**

**Paint
charcoal
squares
where
needed
for vision**

Fatality Areas: Underlying Findings

Struck-by

- Machinery components
- flying object/debris



Trends/Common Threads

- Long-term employees – high seniority/new to task
- 12-hour shifts** (getting days off?)
- Beginning or end of shift and first day back from vacation or time off
- Hazards known in advance of fatality with no abatement or previous fatality in same workplace by same or similar hazard
- Non-routine work – upset conditions – inadequate MOC and MOOC

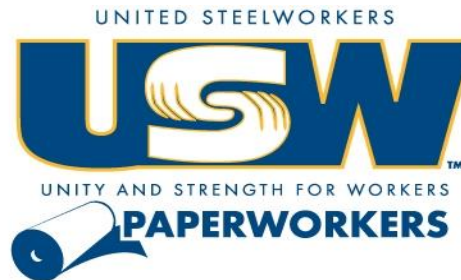
**It is difficult to assess 12-hour shifts in relation to fatalities – as a significant amount of the industry is on that work schedule, so it is very likely that the fatality victims were also; however, it is a trend

Trends and Common Threads

- Working alone
- Culture:
 - Management: fix it on the fly
 - Labor: reluctance to exercise Right to Act on unsafe work
- Equipment not maintained and/or inspected
- Drift and deviation acceptance (normalized hazards)
- Outside contractors
- Inadequate training by qualified trainers (including new training new)
- Inadequate ambulance pick-up points and emergency response personnel routes

Making and Converting Paper Safely

- A **10-point plan** to address fatalities in the U.S. Paper Sector
- OSHA leadership suggested to industry leaders they work with USW in **OSHA partnership** to address the fatalities
- **Corporate leaders expressing interest** – meeting on April 27, 2016 with AF&PA safety professionals from member companies across industry
- This 10-Point Plan endorsed by USW local leaders at the 2016 PBC is a **powerful starting point for our work together**



Making & Converting Paper Safely A Plan to Prevent Fatalities In the US Paper Industry

Fatalities in the US Paper Industry center around five major areas:

- Mobile Equipment – maintenance powered equipment pushes, pulls, stacks, carries, transfers
- Hazardous Substances – chemical fumes (including white or black liquor) in confined spaces, combustible dust, electrical, heat, chemical and thermal burns
- Falls – from heights and walking working surfaces (substandard, open, unguarded or damaged equipment normalized, pits, tanks)
- Caught In -- machine safeguarding and LOTO
- Struck By – mobile equipment and foot traffic, machinery components move, flying object/debris

Making and Converting Paper Safely

1. Develop **five educational modules** on the main fatality areas that are *particular to the industry*:

Mobile Equipment

Hazardous Substances

Falls

Caught In

Struck By

And Keeping the Underlying Findings in Mind

Making and Converting Paper Safely

2. Develop blueprint to address **inherent hazards** in papermaking and converting processes:

Removing Broke Conveyors Stock Tanks

Confined Spaces Tail and Web Threading Pulpers

Head Box Wires Agitators Press Section **Corrugators**

Press Dryer Section **Black & White Liquor** Sheeters

WAX MACHINES **UPSET CONDITIONS** Hot Work

Calenders Jams In-going Nip Points

Reel Ups

Making and Converting Paper Safely

3. Develop systems for **clear and effective hazard identification, controls and communications** – from reporting to abatement
4. Develop and sustain **effective near-miss and injury reporting systems** to identify and control hazards – No discrimination or retaliation

These must be viewed as integral safety tools!

Making and Converting Paper Safely

5. Accident/Incident Investigation

- **Fatalities and Life Altering Accidents**

- Develop systems for review and **fixing of same/similar hazards** in affected workplace, all like employer facilities, domestic and globally, and to rest of industry (domestic and globally)
- Insure communication of actions taken
- CSB Hot Work Bulletin and the “Pensacola Door” (recovery boiler hopper saltcake)

- **Potential Fatality and Life Altering Accidents**

- Develop same systems and communicate in same way
- TAPPI communication and CSB Hot Work Bulletin

Making and Converting Paper Safely

6. Develop **Mechanism for Exercising Right to Act and Education** for all Employees and FLSs

- A.k.a. The Right-to-Refuse Unsafe Work
(Reactive – This needs to be more proactive)
- Leading Companies inviting mechanisms on RTA
- It is a cultural issue that management and labor need to overcome together

Making and Converting Paper Safely

7. Develop and implement **effective maintenance and inspection** programs:

- Preventative
- Periodic
- Predictive

8. Develop and execute **Contractor S&H** programs:

- Controlling
- Contributing
- Exposing
- Correcting



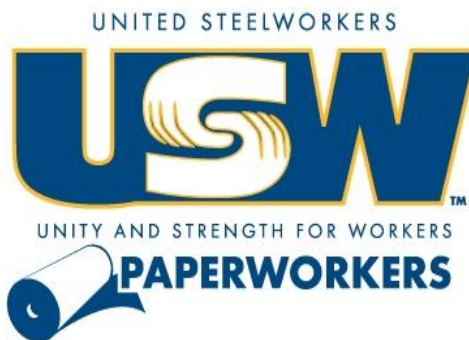
Making and Converting Paper Safely

9. Develop **Union Paper S&H Representative** in each workplace
- Full-time hourly position (at most locations) –Union preference key to selection and to chair the Union's side of the UMHSEC, develop best practices and guidelines
 - Assist in facilitating Right to Act
 - Making and Converting Paper Safety subject matter experts
 - On-going training on program, Union-Management investigations and inspections, hazard id and controls, and the USW's Looking for Trouble
 - Interface with training programs in the workplace to insure it is adequate and does not create safety issues, including training on new equipment
 - Insure ambulance pick up points and emergency response personnel routes are in place and emergency supplies/equip.

Making and Converting Paper Safely

10. Conduct **Effective Union-Management S&H Committee Training**

- Improves communication and committee function so committee isn't just a "fix it" committee
- Committees to take action and monitor effectiveness on the Making and Converting Paper Safely Program
- Union Paper S&H Representative co-chairs the Union-Management HS&E Committee
- Union should be involved in corporate safety audits



STAND UP, SPEAK OUT, FOR SAFETY

The Right to Act:

A Mechanism for Raising and Addressing Safety Issues Requiring Immediate Action

Stand Up. Speak Out. For Safety:

The Right to Act

- Creates a concrete process for workers to use to speak out when s/he believes assigned task(s) could cause substantial risk of harm.
- Step 1:
 - Worker does NOT have to raise issue with supervisor or manager
 - Can raise ONLY with Union Paper S&H Representative/Union S&H Committee Members – or with supervisor/manager as well.
 - Worker's choice.

Stand Up. Speak Out. For Safety: The Right to Act

- Step 2: Union S&H Representative notifies Union officers and engages appropriate supervisor and they conduct a comprehensive Job Safety Analysis (JSA).
- If parties agree on JSA outcome, they refer to the Safety Manager for confirmatory risk assessment.
- If parties do not agree, proceed to Step 3.

Stand Up. Speak Out. For Safety: The Right to Act

- Step 3: The matter is referred to Senior Manager on site at the time for a Full Risk Assessment (FRA).
- All parties abide by results of FRA, but disagreement shall be noted.
- Step 4: Any remaining concerns referred to USW International Paper Sector and Corporate Labor Relations and Safety Officials of both parties.

Stand Up. Speak Out. For Safety: The Right to Act

- Additional Fundamentals:
 - Essential that all employees and FLSs introduced and educated on the process and that respect is fostered for it. All levels of management supports shutting a machine and/or process down if necessary.
 - FLSs, Union Paper S&H Rep, S&H Committees and Senior Managers are trained, competent and authorized to carry out specified tasks.

Stand Up. Speak Out. For Safety:

The Right to Act

- Additional Fundamentals:
 - Discrimination/retaliation for exercising Right to Act will not be tolerated.
 - Right to Act process does not prohibit employees from reporting issues to OSHA, but employees are encouraged to use the Right to Act.
 - JSA Analysis Form & Subsequent Action
 - Documents the issues and steps
 - Logs hazards, when like or similar hazards reviewed
 - Actions to take on hazards using the hierarchy of controls

[USW Paper Sector Logo]

[Company Logo]

The Right to Act Job Safety Analysis

Department:

Date:

Manager:

Union Safety Representative:

Task in Question:

Stand Up, Speak Out, For Safety

- Adopted Making and Converting Paper Safely 2016 Paper Conference – 10 point plan
 - Focus: Inherent Hazards in Papermaking Process, Right to Act and Union Full-Time Safety Representatives
- OSHA Harwood Grant – Preventing Fatalities in the Paper Sector
 - Focus: Effective Labor-Management Safety Committees – 21st Century Safety and Continuous Improvement for Committees
 - Full-Time Safety Representative Training on Hazards Inherent to Papermaking and Converting

Save the Date!

- 2018 USW HS&E Conference
 - March 26 – 30, 2018
 - Pittsburgh, Pennsylvania
 - David L. Lawrence Convention Center/Westin Hotel
 - Plenary sessions and workshops

