WORLD BREWING CONGRESS
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#ElevateBeer

Brewery & Laboratory Safety

Mark Jaeggi

Agenda

Introduction

Mark Jaeggi – Retired AB (Sabhailteacht Solutions)

Safety Risks in Breweries

Jody Seamen – Miller Coors

Jamie Wenham – Sierra Nevada

Aaron Golston – Lagunintas

MJ - Background

- Education
  - Undergrad & Graduate School
  - Certified Safety Professional (CSP)
- Started Safety Career – 1982
  - Solid rocket propellants
  - Chemicals
  - Malt Beverages

MJ - Background

Solid rocket propellants

- Mistakes there……..

Chemical Industry

- Mistakes there……..

MJ – Background (cont)

- 1990 Anheuser-Busch - St. Louis Brewery

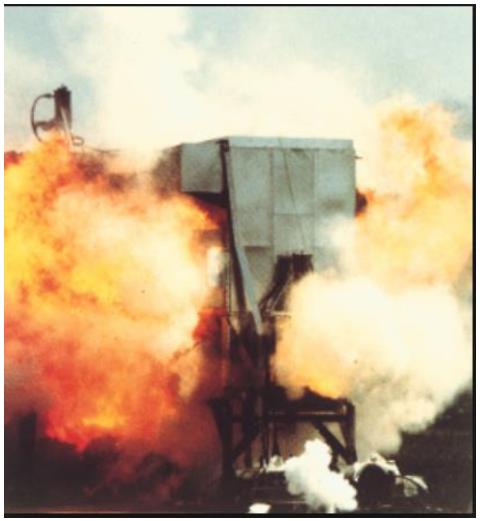
Little did I know……..

Similar to the Explosive Industry

- Grain Handling
  - Grain transfer, milling, housekeeping, spills

Similar to the Explosive Industry

- Combustible Dusts/Dust Collectors
  - Coal dust, card-board dust, paper dust, etc



Similar to the Chemical Industry

- Hot Boiling liquids
  - Hot surfaces
- Corrosive chemicals
  - Acids and Basic materials
- Steam
- Ammonia
- Chlorine

Equipment Hazards

- Compressors, pumps, tanks/vessels, conveyors, boilers
- High speed packaging lines
- Fork Trucks
- Palletizers
- Electrical equipment (classifications for dust/wet areas/flammable vapors)
- Mechanical hazards – point of operation/ pinch points

Industrial Hygiene Issues

- Atmospheric hazards
  - CO_2, CO, H_2S, Dust
- Noise
- Heat
- Cold
- Ergonomics

Regulatory Requirements

- LOTO (Lock, Tag, Try)
- Confined Space Entry
- Chemical Safety
- Arc Flash Protection
- Machine Guarding
- Hot Work (Maint. & Contractors)
- Labeling and Warning Signs
- Personal Protective Equipment (PPE)
- Vendors/Visitors

Regulatory Requirements

- All Regulations – No Matter What Country

WRITTEN IN BLOOD

What Does Safety Come Down To??

Common Sense

Assessing the Risk

Controlling the Risk

Maintaining the Controls

What does all this Mean to Us?

We must use a common sense approach to Safety……

- Safety has to be an integral part of how we brew, package & distribute beer
- It has to be part of every task and process

What Are the Keys to Success?

Everyone must take part……

- We must set the example, provide leadership
- Employees must be engaged & validate understanding
- Safety has to be an integral part of how we manage and operate our brewery
- It has to be part of every task, every process and every employee!

Otherwise – people get hurt….We have to have conversations with families that we don't want to have

Bottomline!

Safety is about Life

Life is about …….

Having Fun!

Contact Information

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Jody Seaman - Background

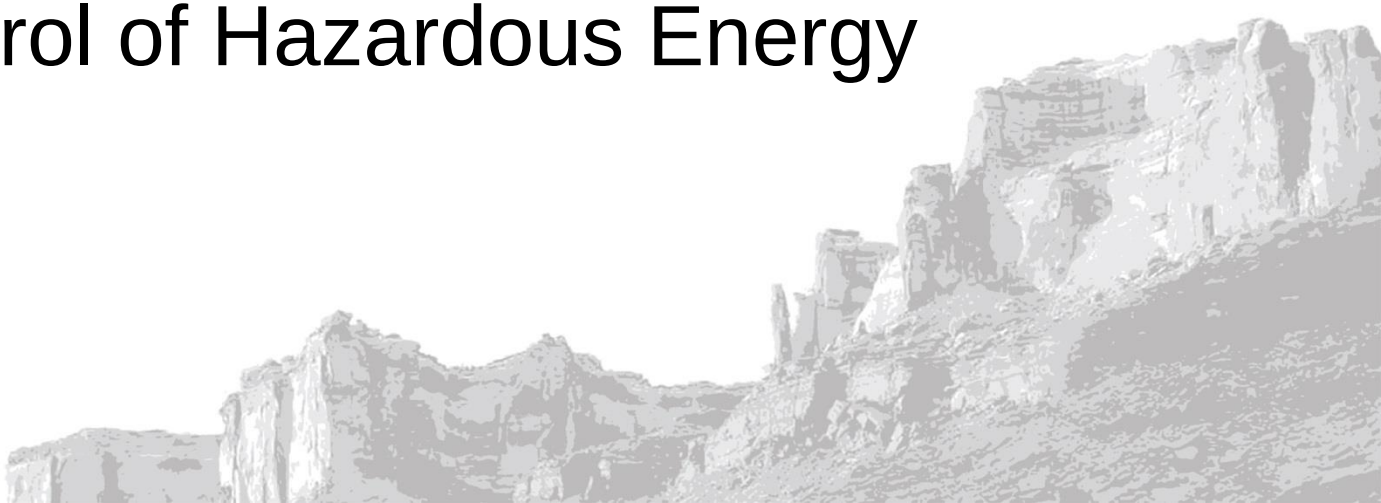
Has worked at MillerCoors for 15+ years.

- 7 years in Packaging, Distribution and Quality.
- 8 ½ years in Environmental Health & Safety (EHS)
- Has overall Corporate EHS responsibility for 20 sites in the Western Region and is based out of Golden, Colorado.

Top 3 Safety Hazards in Breweries

Although there are many safety hazards within all Breweries, there are some that are more prevalent than others.

- Slips, Trips and Falls
- Powered Industrial Trucks
- The Control of Hazardous Energy



Slips, Trips and Falls

Slips, Trips and Falls make up the majority of General Industry injuries according to the US Department of Labor

- 15% of all accidental deaths; 2nd leading behind motor vehicle incidents
- ~12,000/year
- One of the most frequently reported injuries (~25% of reported claims/year)
- Over 17% of all disabling occupational injuries result from falls

Most could have been prevented

Slips, Trips and Falls

Types of Injuries

- Sprains and Strain
- Bruises and Contusions
- Fractures
- Abrasions and Lacerations

Injured Body Parts

- Knee, Ankle/Foot
- Wrist/Elbow
- Back/Shoulder
- Hip
- Head

Definitions

Slip

- Too little friction or traction between feet (footware) & walking/working surface, resulting in loss of balance

Definitions

Trip

- Foot or lower leg hits object & upper body continues moving, resulting in loss of balance
- Stepping down to lower surface & losing balance

Potential Trip Hazards?

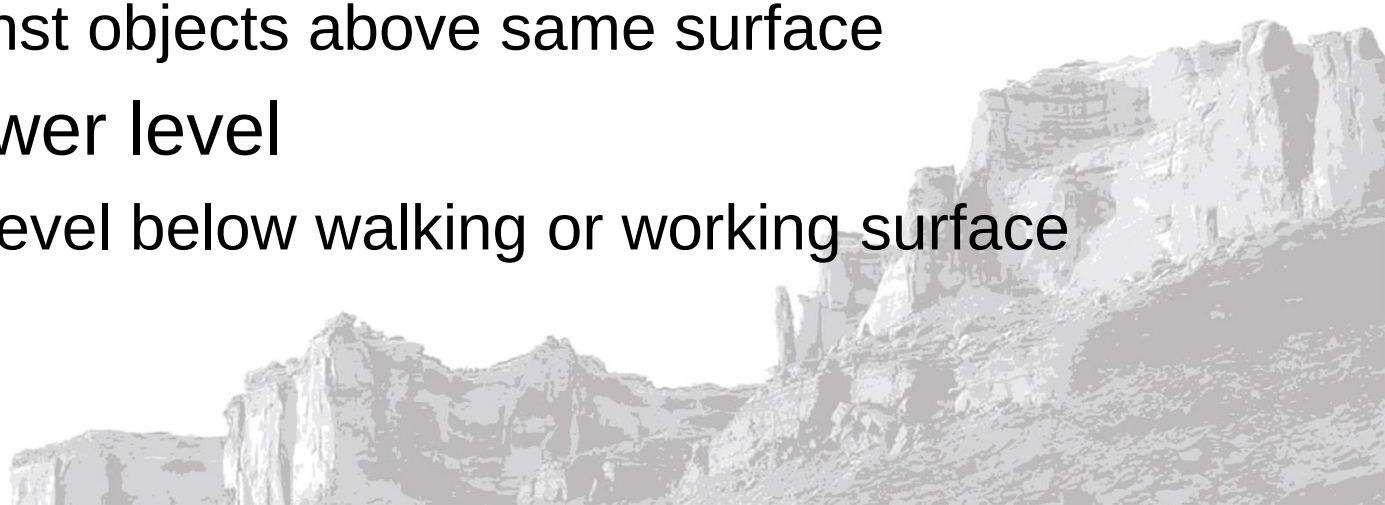
Definitions

Fall

- Occurs when too far off center of balance

Two types

- Fall at same level
  - Fall to same walking or working surface, or fall into or against objects above same surface
- Fall to lower level
  - Fall to level below walking or working surface



Prevention

Housekeeping is paramount

- Store supplies out of pedestrian aisleways
- Roll up hoses
- Replace drain covers
- Place signage during cleaning operations to warn others
- Ensure floor mats do not create a trip hazard

Prevention

Do not design problems into the workplace

- Ensure aisleways do not have trip hazards built in
- Ensure all ladders and walkways have hand rails and the steps are at equal elevation
- Eliminate platforms and steps where possible
- Audit your workspaces for issues and address them appropriately

Powered Industrial Trucks

- PIT accidents cause over 100 fatalities and 36,340 serious injuries in general industry and construction annually
- It is estimated that 20 - 25% of the accidents are, at least in part, caused by inadequate training
- PITs are also capable of causing damage to property and equipment if not correctly managed

Common Injuries

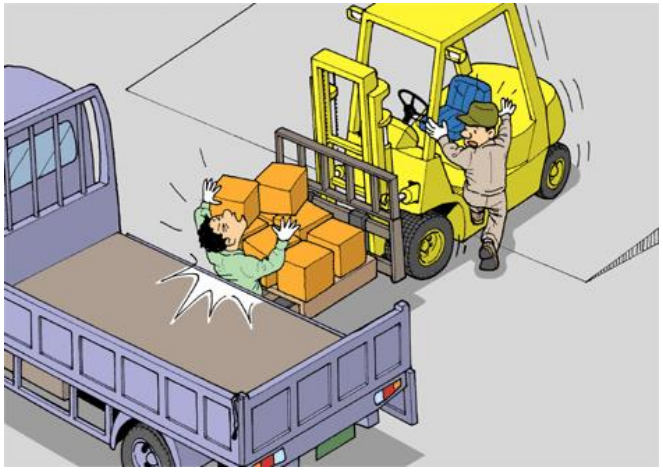
Common Injuries

- Hitting a pedestrian
- Tipping over
- Improperly positioned loads falling from raised forks
- Falling from a ladder struck with a forklift
- Falling material

Reasons for Incidents

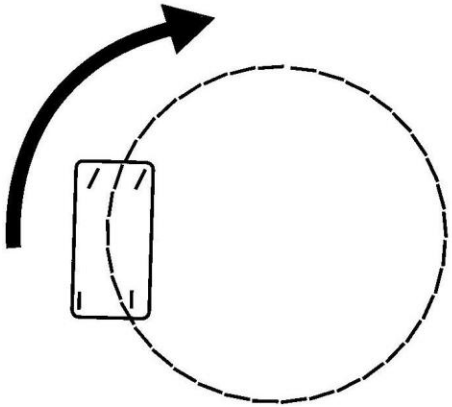
Generally these incidents result from:

- Lack of operator training and awareness
- Lack of co-worker/pedestrian awareness
- Poor maintenance
- No safe systems of work regarding lift truck operations

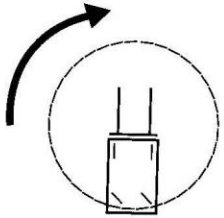


Why do PITs present a work place hazard?

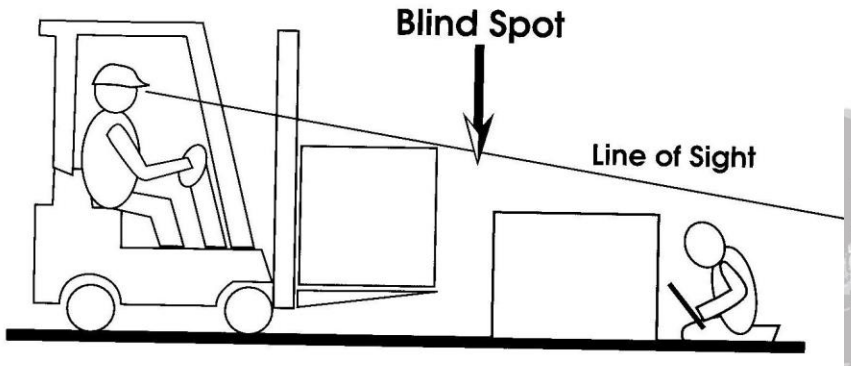
The dangers associated with use of PITs in the workplace are often underestimated. Employees working with or around them often become complacent because they are quiet, busy, in frequent use and part of the environment.



AUTOMOBILE



FORKLIFT



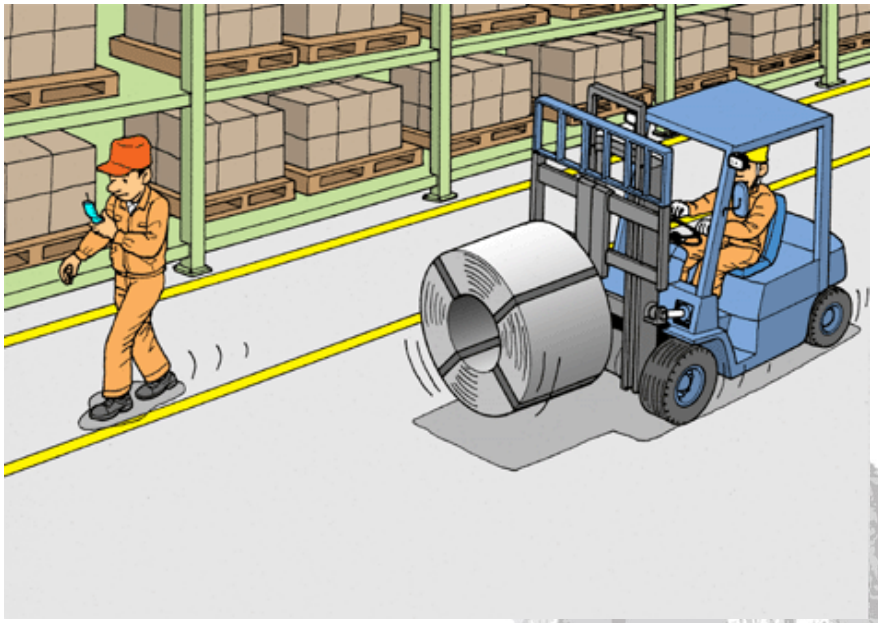
RESTRICTED VISIBILITY

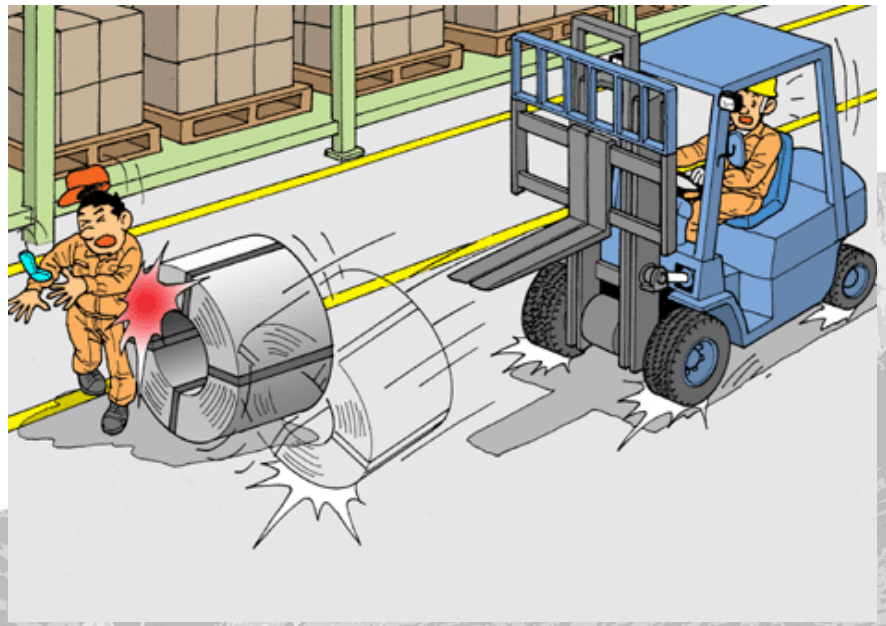
Prevention

- If a PIT is approaching, make eye contact and hand signal to ensure you are seen by the PIT operator and intent is known. Pedestrians and PITs have a shared responsibility to yield to each other.
- Do not approach within 2 feet of an operating PIT to communicate with the driver.
- Wear high visibility clothing in areas wear PIT's and pedestrians interact.

Prevention

- Minimize cell phone/communication device usage when walking to maintain attention to traffic.
- No texting in PIT areas.





Prevention

- No one should stand or pass under elevated forks, with or without a load.
- Be alert for tripping hazards on lowered forks when forklift trucks are parked.

The Control of Hazardous Energy (Lock Out Tag Out Try Out)

According to the **Occupational Safety and Health Administration**:

- Incorrect Lock-out / Tag-out results in an estimated 120 fatalities and 50,000 injuries each year
- Average lost work days for failure to LOTOTO is 24 days per injury
- Control of hazardous energy (LOTOTO) was the 5th most frequently cited OSHA standards violated in 2015 for general industry

OSHA

Reasons for a LOTOTO Program

According to the **Bureau of Labor Statistics** injuries while servicing equipment revealed that:

- 80% failed to turn off equipment
- 10% equipment activated by someone else
- 5% failed to control potential energy
- Most of remaining 5% disconnected power but **failed** to verify effectiveness

Common Injuries

Common Injuries

- Amputations
- Lacerations
- Fractures
- Electric shock
- Electrocution
- Chemical exposure
- Loss of life

What is Lock Out Tag Out Try Out (LOTOTO)?

LOTOTO is the process of disabling machinery or equipment, thereby preventing the release of **hazardous energy** while employees perform **servicing and maintenance activities**.

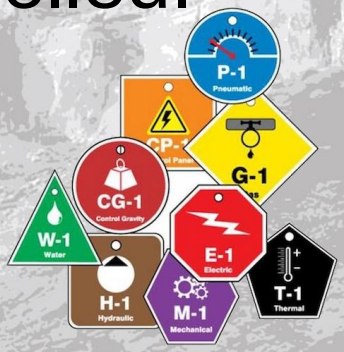
This is accomplished by placing **locks** and **tags** on energy isolation devices prior to starting work and **verifying** their effectiveness.

Types of Hazardous Energy

Types of energy include:

- Electrical
- Pneumatic
- Hydraulic
- Mechanical
- Thermal
- Chemical
- Radiation
- Steam
- Spring-Driven
- Suspended Parts

Some energy sources can be turned on/off.
Others can only be dissipated or controlled.



When is LOTOTO applied?

When to use LOTOTO:

- "while employees perform **servicing and maintenance activities"**

Examples include:

- Adjusting
- Inspecting
- Modifying
- Replacing parts
- Tool changes
- Clearing jams
- Lubricating
- Cleaning

What is are Energy Isolation Devices?

How to implement LOTOTO:

- "…accomplished by placing locks and tags on **energy isolation devices**…"

<u>Examples include:</u>

- Electrical breaker switch
- Hydraulic valve
- Pneumatic valve
- Line valve
- Electrical disconnect switch

A device that physically prevents the transmission or release of energy…pushbuttons, selector switches, and other control circuit devices are **NOT** energy isolation devices.

Prevention

- Ensure employees are trained in the hazardous energy sources in which they are exposed
- Ensure employees have locks and tags to control the hazardous energy sources
- Ensure there are written procedures showing employees how to LOTOTO the equipment properly
- Audit employees for compliance and identify any equipment that is not capable of being Locked Out and address accordingly
- Get employees involved

Employee Involvement

It is very important to have all employees involved in identifying hazards within your facilities.

- Your employees are **your** greatest resource
- They have their eyes on the floor everyday
- They must have an avenue to participate in identifying and eliminating safety issues

As leaders we must Care, we must Act, and we must Lead in order to keep employees safe while making great beer!