A decorative background featuring a cluster of green hops on the left and a single stalk of golden barley on the right, set against a light green to white gradient.

Safety in the Brewing Industry

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MJ - Background

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

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**
 - **CO₂, CO, H₂S, 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**

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

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**



Access & Cleaning



Ladders



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?



Prevention

Housekeeping is paramount

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

EDUCATION/INVOLVEMENT

Prevention

Do not design problems into the workplace

- Ensure aiseways 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

Duck Under



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



Prohibited Activities



Driving while distracted



Improper stacking



High rates of speed



Carry people on the forks



Driving with the load raised



Stack pallets too high

Fork Truck Safety Plan

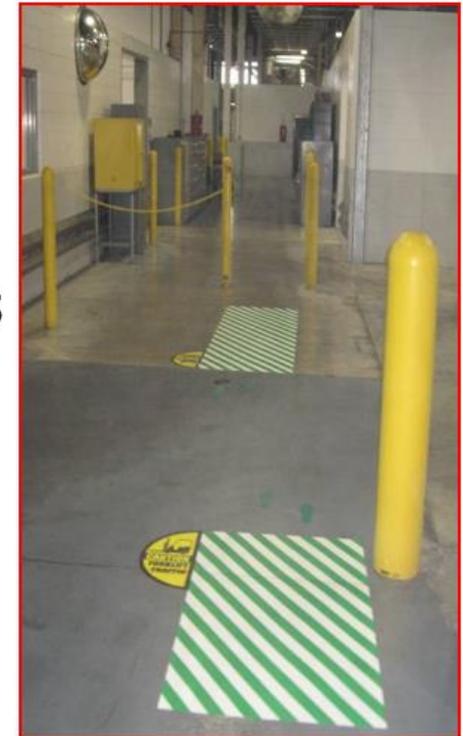
Key Elements

- **Safety Risk Assessment**
 - Traffic Plan
 - Segregation of Pedestrians and Vehicles
 - Fork Truck Features
 - Warehouse Loading/Unloading Procedures
 - Personal Protective Equipment (PPE)

Traffic Patterns

Pedestrian and Vehicle Segregation

- Limited Access To Warehouse
- Fork Truck Only Zones (No Pedestrians)
- Pedestrian Only Zones (No Fork Trucks)
- Use of Signage, Markings and Barriers
- Fork Truck Safety Zone (3 Foot Radius)



Traffic Patterns

Pedestrian and Vehicle Segregation

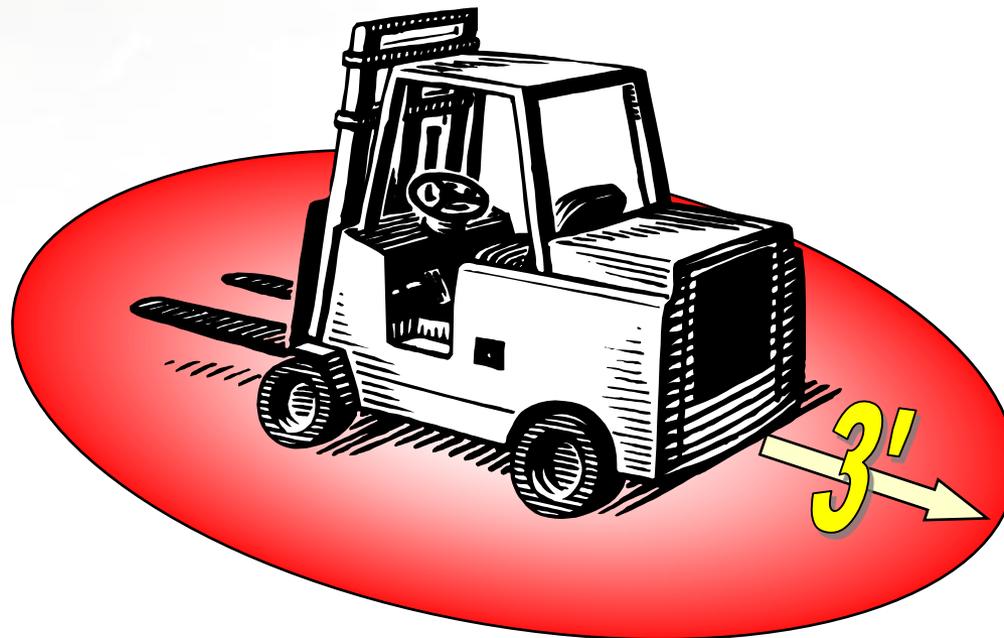
- Access To Warehouse And Loading Areas Must Be Limited To Authorized Personnel
- Areas With Intense Fork Truck Traffic Will Be Designated Fork Truck (Only) zones
 - Pedestrians Allowed Only When Fork Truck Operators Are Notified
 - Fork Truck or Pedestrian Only Zones Must Be Clearly Marked



Pedestrian Safety

Fork Truck Safety Zone

“Safety Zone” Is 3 Foot Radius Surrounding A Fork Truck



Fork Truck Safety Zone

Scenario: *Interacting with the Driver* – The following must occur prior to a pedestrian entering the 3 foot safety zone:

1. The pedestrian and driver must make eye contact and verify through a visual indicator (hand gesture).
2. The driver must set the parking brake.
3. The driver will then motion to the pedestrian that it is okay to approach within the 3 foot safety zone.
4. Upon completion of the interaction, the pedestrian will exit the 3 foot safety zone, and the driver will disengage the parking brake and proceed with normal activity.

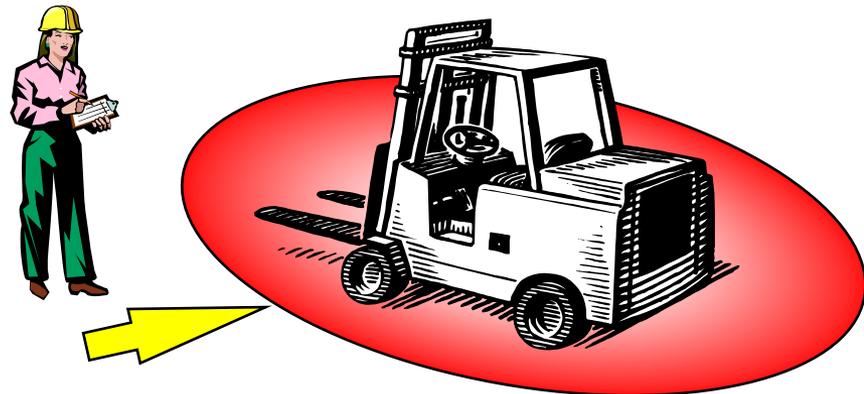


Fork Truck Safety Zone

Scenario: *Pedestrian Traffic* – The following should occur when a fork truck and pedestrian are traveling within close proximity and the 3 foot safety zone cannot be maintained:

1. The pedestrian and driver must make eye contact and verify through a visual indicator (hand gesture).
2. The driver will reduce fork truck speed to a “crawl” speed.
3. Once the fork truck has passed and the pedestrian is out of the 3 foot safety zone, then the driver can resume normal speed.
4. If approaching pedestrian from the “blind side”, the driver will sound the horn to gain the pedestrian’s attention

“Crawl Speed” is defined as 1-2 mph. (this would equate to 1.5 – 3 ft of travel per second)



Safe Practices



Fork Truck Safety

Personal Items *(tools, water bottles, jackets, etc)*

- Must Be Stored In An Approved Storage Container
- Must Be Accessible To The Driver From Within Confines Of Cab
- Jacket Or Sweatshirt May Be Stored On The Back Of The Driver's Seat
- Driver Should Never Dismount The Fork Truck To Access Items

Walk Like Your Invisible



Forklifts



Construction



Pedestrian Responsibilities

- Use Designated Pedestrian Walkways
- Wear High Visibility Safety Vests
- Limit Activities in Fork Truck Traffic Areas
- Follow Warehouse Access Procedures
- Follow Sample Taking and Inventory Procedures
- Stop at Intersections, Use Mirrors and Barriers

Make Eye Contact and Use Hand Gestures

Act Like You Are Invisible

Motion Detectors



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**



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
- Electrocutation
- Chemical exposure
- Loss of life



Exemptions

Provided work is performed using alternate measures of protection (E-Stops and Interlocked guards or doors) minor servicing activities during normal production operations are not covered by this procedure if they are routine, repetitive **and integral to the use of the equipment for production.**



This has VERY limited applications and can only be used under the conditions stated above. REMEMBER that alternate protective measures must be used to prevent injury during use of this exception.

Exemptions (cont.)

In addition, there is a specific exception to the requirement for the use of LOTO when energy sources can be controlled simply by unplugging the machinery (no additional energy sources, accumulated or stored).

HOWEVER, this exception is **VERY** specific and can only be valid when the authorized employee has “exclusive control” of the plug.



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 LOTO the equipment properly
- Audit employees for compliance
- 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!

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!





“Questions”

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