- Part 1 -

Brewery Safety Bootcamp – ONLINE!

Safety Fundamentals: Safety Culture, Hazard Assessment, and Walking and Working Surfaces

May 13, 2020
CRAFT BREWERS CONFERENCE

& BrewExpo America®

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#CraftBrewersCon
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#SafetyAmBadAssador
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CRAFT BREWERY SAFETY
WHERE DO WE STAND?
Injury Rates Are Up! (ohhh nooo)

Total Recordable Injury Rates, 2010-2018

- Goods Producing
- Brewing
- Bev Ind

INJURIES/200K HRS

New Collaborations and Alliances

Region IV – NC
Region V – OH
Region I – MA
Region II – NY
Region VIII - CO

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### Build on Basics Going Forward

<table>
<thead>
<tr>
<th>GENERAL DUTY CLAUSE</th>
<th>OSHA REGS ARE MINIMUM REQ’D</th>
<th>CREATING A SAFE AND HEALTHFUL WORKPLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer creates a “safe and healthful workplace”</td>
<td>Employers can customize, as long as minimums are met</td>
<td>Build safety into an inclusive company culture with owners, employees, contractors, customers.</td>
</tr>
<tr>
<td>Employees abide by safety instructions, use equipment provided, follow rules</td>
<td>Documentation of hazards, compliance, and training are essential</td>
<td>Employ the Hazard Assessment Process</td>
</tr>
</tbody>
</table>
Rachel Bell
Safety Manager
Kiitos Brewing
Salt Lake City, Utah

@peacelovecoffee66
COMPANY CULTURE AND SAFETY’S ROLE
IMPORTANCE OF CULTURE

“…group change in behavior occurs through changes in cultural beliefs, attitudes, perceived norms and concepts.”

– Trotter & Schensul, 1998

Four Things to Keep in Mind

• Rules, core values do not take the place of culture; just a small part of it
• Culture is all encompassing, constantly growing, changing
• Your brewery will have a culture, make it the one you want
• Yeast makes beer, people make breweries
WHAT YOUR CULTURE SHOULD INCLUDE

• What is right and wrong; acceptable behaviors

• Education, empowerment and respect for all jobs and departments

• Strong leadership and repercussions for rule breaking

• PROACTIVE vs REACTIVE
  • Proactive: think ahead... you care about your employees and product
  • Reactive: employee well-being is an afterthought... more time and money!
WHAT ARE THE IDEAL RESULTS?

• Employees who always act as sales people for your brand without realizing it
• Employees who police themselves and their coworkers
• A company that is built on a good foundation of communication and diversity
SAFETY MANAGER

- No one else’s primary work will suffer
- Able to constantly monitor and update policies and documents
- Ideally heads a safety committee and oversees compliance and projects

SAFETY COMMITTEE

- Must be made up of at least one member of each department
- Must include upper level management
- You can’t force someone to be on it
- Anyone who is enthusiastic about joining should probably be allowed to join
Create Policies and Enact Change

- Get feedback from departments BEFORE policy development
- Identify potential roadblocks
- Listen to those who do the job every day
- Stakeholders with an active role in writing these policies are more likely to follow them
- Be prepared to either adjust the policy or punish noncompliance
Administrative Starting Points

**HUMAN RESOURCES**
- Employee manual, new employee packets, orientation training
- Keep copies of all employee training, licenses, certs, and renewal dates
- Maintain emergency contact info and private medical records

**FACILITY BASICS**
- Emergency Action Plan (EAP)
- Hazard Communication Plan (HazCom)
- Display safety signage, OSHA 300 log, licenses, occupancy, etc.
- Hazard assessment and write SOPs for tasks in all departments
HAZARD ASSESSMENT OVERVIEW

DOCUMENTING SAFETY AND PROCEDURES
What is Safety?

Freedom from hazards in the workplace
What is Hazard Assessment?

1. Outline steps in task
2. Identify hazards
3. Specify hazard controls
4. Revise procedure to include controls

Okay, But How Do I Actually Do It?

1. Understand the task or process
2. Imagine what could go wrong, i.e. hazards and outcomes
3. Think creatively for ways to prevent or reduce the hazards
4. Document your findings in writing, i.e. SOP

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Caustic Washing of a Beer Tank

1. Set up CIP Machine

2. Dispense Caustic

3. Run Caustic in Tank
1. Connect CIP to FV
2. Fill CIP Tanks
3. Load Caustic
4. Circulate Caustic
5. Drain Caustic
6. Load Rinse
7. Circulate Rinse
8. Drain Rinse & Air Dry
1 - Outline the Steps

Basic Outline of Steps in the Task

1. Connect CIP to FV
2. Fill CIP Tanks
3. Load Caustic
4. Circulate Caustic
5. Drain Caustic
6. Load Rinse
7. Circulate Rinse
8. Drain Rinse & Air Dry
1. Connect CIP to FV
2. Fill CIP Tanks
3. Load Caustic
4. Circulate Caustic
5. Drain Caustic
6. Load Rinse
7. Circulate Rinse
8. Drain Rinse & Air Dry

(opt.) Drill Down to Instruction Level
a. Add cool water to left tank up to overfill tube
b. Add hot water to right tank up to 1” below overfill tube
c. Dispense 4,000 ml caustic into plastic beaker
d. Add caustic to right (hot) tank
e. Rinse beaker and put back on caustic drum
<table>
<thead>
<tr>
<th>NO.</th>
<th>STEP</th>
<th>HAZARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CIP to FV</td>
<td>Slips &amp; Trips, Electrical</td>
</tr>
<tr>
<td>2</td>
<td><strong>Fill CIP Tanks</strong></td>
<td>Slips &amp; Trips, Temperature, Concentrated Caustic</td>
</tr>
<tr>
<td>3</td>
<td>Load Caustic</td>
<td>Slips &amp; Trips, Temperature, Dilute Caustic</td>
</tr>
<tr>
<td>4</td>
<td>Circulate Caustic</td>
<td>Slips &amp; Trips, Temperature, Dilute Caustic</td>
</tr>
<tr>
<td>5</td>
<td>Drain Caustic</td>
<td>Slips &amp; Trips, Temperature, Dilute Caustic</td>
</tr>
<tr>
<td>6</td>
<td>Load Rinse</td>
<td>Slips &amp; Trips</td>
</tr>
<tr>
<td>7</td>
<td>Circulate Rinse</td>
<td>Slips &amp; Trips</td>
</tr>
<tr>
<td>8</td>
<td>Drain Rinse</td>
<td>Slips &amp; Trips</td>
</tr>
</tbody>
</table>
### Identified Hazards for Step 2, Filling the CIP Tanks

<table>
<thead>
<tr>
<th>NO.</th>
<th>STEP</th>
<th>HAZARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Fill CIP Tanks</td>
<td>Slips &amp; Trips, Temperature, Conc. Caustic</td>
</tr>
</tbody>
</table>

### Slips and Trips Hazard Controls

<table>
<thead>
<tr>
<th>PREVENTION (SWP &amp; AC)</th>
<th>PROTECTION (EC &amp; PPE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid walking in puddles</td>
<td>Textured surfaces</td>
</tr>
<tr>
<td>Keep eyes on the floor</td>
<td>Slotted drain covers (not open)</td>
</tr>
<tr>
<td>Walk like a duck (lower ctr. of grav.)</td>
<td>Waterproof, slip resistant boots</td>
</tr>
<tr>
<td>Organize or stow hoses and cords</td>
<td></td>
</tr>
</tbody>
</table>
## Hot Temperature Hazard Controls

<table>
<thead>
<tr>
<th>PREVENTION (SWP &amp; AC)</th>
<th>PROTECTION (EC &amp; PPE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand back when filling, recirculating</td>
<td>Thermostatic temp. control</td>
</tr>
<tr>
<td>Disconnect tri-clamps carefully with valves closed</td>
<td>Long pants, long sleeved shirt</td>
</tr>
<tr>
<td></td>
<td>Rubber boots, rubber gloves, safety glasses</td>
</tr>
</tbody>
</table>

## Concentrated Caustic Hazard Controls

<table>
<thead>
<tr>
<th>PREVENTION (SWP &amp; AC)</th>
<th>PROTECTION (EC &amp; PPE)</th>
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</thead>
<tbody>
<tr>
<td>Read, understand SDS; Observe labels &amp; placards</td>
<td>Appropriate pumps, non-reactive</td>
</tr>
<tr>
<td>Trained in chemical handling</td>
<td>Long pants, long sleeved shirt</td>
</tr>
<tr>
<td>Good housekeeping</td>
<td>Rubber boots, gloves, apron</td>
</tr>
<tr>
<td>Rinse affected surfaces</td>
<td>Goggles &amp; splash shield</td>
</tr>
<tr>
<td>Dispense where/when others will not be affected</td>
<td></td>
</tr>
</tbody>
</table>
4 – Write/Revise Your S.O.P.

Original Outline of Steps, plus Procedural Instructions and Hazard Controls

1. Connect CIP to FV
2. Fill CIP Tanks
3. Load Caustic
4. Circulate Caustic
5. Drain Caustic
6. Load Rinse
7. Circulate Rinse
8. Drain Rinse & Air Dry
### Hazard Assessment Form

<table>
<thead>
<tr>
<th>TASK:</th>
<th>HA DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPT:</td>
<td>INITIALS:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEP</th>
<th>DESCRIPTION</th>
<th>HAZARDS</th>
<th>CONTROLS</th>
<th>PPE</th>
<th>FMEA NO.</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

### SOP FORM

<table>
<thead>
<tr>
<th>TASK:</th>
<th>SOP NO:</th>
<th>REVISION DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPT:</td>
<td>INITIALS:</td>
<td></td>
</tr>
</tbody>
</table>

1) **Purpose**

This SOP describes Brewery ________________________’s procedure for safe and effective ____________________.

2) **Scope**

This SOP is limited to ____________________________.
RESOURCE HUB

Browse Resource Hub Categories
Explore the Brewers Association’s most high-value resources and tools in one click.

Production
- Brewhouse
- Cleaning

Ingredients
- Barley
- Hops

Brewing Supplies
- Kegs
- Caps

Quality
- Analysis
- Lab
- Microbiology
- Sensory
- Food Safety

Safety
- Safety Culture & Training
- Hazards & Prevention
- OSHA

Sustainability
- Benchmarking
- Energy
- Green Building
- Solid Waste
- Wastewater
- Water Usage

Sales & Marketing
- Beer & Food
- Distribution

Laws & Regulation
- Government Affairs
- FDA

Human Resources
- Employee Health & Safety

Hazard Assessment Toolbox

Hazard Assessment Principles Guide

SOP Form

Assessment Form

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EXAMPLE HAZARD ANALYSIS

TASKS

• Examples of typical brewery tasks that carry one or more hazards
EXAMPLE HAZARD ANALYSIS

HAZARDS

OUTCOMES

- Some bad things that can happen to you if you experience the hazard
EXAMPLE HAZARD ANALYSIS

CONTROLS

• Substitution or Elimination
• Safe Work Practices
• Engineering Controls
• Administrative Controls
• PPE
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Health and Safety Manager
Bell’s Brewery
Comstock, Michigan

[LinkedIn profile link] andy-clearwaters-3069989a
WALKING AND WORKING SURFACES & HOUSEKEEPING

AVOIDING SLIPS, TRIPS AND FALLS…
...AND OTHER HORRIBLE INCIDENTS
WALKING AND WORKING SURFACES…

...Wherever Your Feet Touch

- Floors
- Elevated surfaces
- Ladders

Why Are They Important?

- We interact with them constantly
- Slips and falls account for 15% of accidental deaths
- OSHA regulates them
- Let me tell you a story
<table>
<thead>
<tr>
<th>TASKS</th>
<th>OUTCOMES</th>
<th>CONTROLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Daily brewery work</td>
<td>• Slips, trips, falls</td>
<td>• Good housekeeping</td>
</tr>
<tr>
<td>• Brew deck stairs</td>
<td>• Falls from height</td>
<td>• Proper use of surfaces and ladders</td>
</tr>
<tr>
<td>• Tank cleaning</td>
<td>• Falling items</td>
<td>• Fall Protection</td>
</tr>
<tr>
<td>• Dry hopping</td>
<td>• Increased severity of other incidents</td>
<td>• SWP – caution</td>
</tr>
<tr>
<td></td>
<td>• Electrocution</td>
<td>• Emergency planning and egress</td>
</tr>
</tbody>
</table>
WALKING AND WORKING SURFACES

GENERAL REQUIREMENTS

General Requirements
• Good condition
• Clean
• Orderly
• Good lighting

Examples in Brewery
• Hoses, cords, buckets
• Wet surfaces and chemical puddles
• Drains, older floors
• Clutter
### WHY IS GOOD HOUSEKEEPING IMPORTANT?

#### Eliminates Hazards
- Slips and trips (water, ice, glycol)
- Emergency egress
- Access to critical devices
  - Eyewash stations
  - Fire extinguishers
  - Electrical panels
- Falling items (wrench on a ladder)
- Combustible dust build up

#### Increased Efficiencies
- Better flow of materials and byproducts
- Inventory control
- Effective use of space
- Reduced janitorial services
- Greater productivity
- Improved worker morale
GOOD HABITS

• Put away tools/equipment after each task
• Manage hoses, cords, and drain grates ("good hose-keeping")
• Label storage areas
• Position storage space close to work areas
• Keep brooms, mops, squeegees, spill cleanup supplies on hand & in good repair
• Wear PPE appropriate for the housekeeping activity
• Develop SOPs for common housekeeping activities
LADDER USE – ALL WRONG!!!
Step Ladders

- Stepladder only used in locked-open position
- No lean against tanks
- Do not stand on top two steps/rungs

Platform Step Ladders

- Nice to use
- Electricity and metal don’t mix
TYPES OF STAIRS AND LADDERS

Extension Ladders

- 4 to 1 pitch
- If exiting, extend 3ft above the surface exiting to

Fixed Ladders

- Before installation understand the rules around clearance and fall protection.
LADDER ALTERNATIVES

**Fixed Stairs**
- Required railings
- Uniform pitch

**Mobile Platform / Stairs**
- Required railings
- Good for dispensing from height
Hop Dispensers

- Avoids working at heights
- Avoids hop volcano

Catwalks

- Required railings or fall protection
- Expensive
LADDER USE – MUCH BETTER!!!

3 POINTS OF CONTACT  4:1 ANGLE  BELT BUCKLE RULE
REMEMBER

Most Falls Occur from Lower Heights

• Majority of fall deaths are less than 4 ft drop
• That “dangerous feeling”
ELEVATED WORK SPACES

GENERAL REQUIREMENTS

Engineering Controls

• “Engineer it Out”
• Guard rails/toe boards
• Equipment below
• Guard openings

Fall Protection Systems

• ABC’s
• #1 Rule… Don’t hit the ground