Draught System Cleaning

A Comprehensive "How To" of Line Cleaning Best Practices in Today's Market

"Presentation includes an in depth look at BA Approved Line Cleaning Practices, New Cleaning Techniques, Chemical Testing and a Discussion of trending topics and practices used in today's market. We will discuss the New "Geisthardt Method" Cleaning - 2X the amount of beer lines with a single pump, Sonic Cleaners, Odd Number cleanings, Titration Devices and a Review of other cleaning practices. All this and more so that you too can maintain Brewery Fresh Flavor all the way to dispense."

Draught System Cleaning

A Comprehensive "How To" of Line Cleaning Best Practices in Today's Market

Presented by

Ben Geisthardt
New Glarus Brewing Co.

&

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Verboten Brewing Co.

A Clean Beer System Equals Repeat Sales!

"Beer-Spoiling bacteria will ruin a beer's flavor and Aroma"

- Brewer's Association

This will lead to…

- Loss of Repeat Business
- Loss of Potential sales

Safety First!

Always…

- Wear Eye and Skin Protection
- Only Mix Approved Chemicals
  - Caustic – removes organic residue
  - Acid – removes inorganic build up

  NEVER mix the two together!!!
- Alert people around you

F

A

S

T

Frequency

Minimum

Every 14 Days

Action

Recirculation / Static Soak

Solution

2% - 3%

Sodium or Potassium Hydroxide

80°F to 110°F

Time

Recirculation / Static Soak

15+ Min. / 20+ Min.

Chemical Contact Time

What is the Best Way to clean Beer Lines?

BA BREWERS ASSOCIATION RECOMMENDED

What are we Cleaning???
Biofilm / Beer Residue

- Sugar ✓ Food for Microbes
- Hop resin ✓ Sticky
- Cereal protein ✓ Gummy
- Minerals ✓ Hard
- Yeasts, Bacteria & Flavors from previous beer ✓ Continued Fermentation & Unexpected Flavors

Common Draft problems…

COMMON DRAFT PROBLEMS					
Condition	**Temperature**	**Pressure**	**Equipment**	**Improper Pour**	**Glassware**
 **Wild Beer** Beer, when drawn, is all foam, or too much foam and not enough liquid beer	Too Warm	Too High	Needs Cleaning	Check Pour	Ice Inside Of Glass
 **Flat Beer** Foamy head disappears quickly; beer lacks brewery fresh flavor	Too Cold	Too Low	Needs Cleaning		Detergent Film Inside Of Glass
 **Cloudy Beer** Beer in glass appears hazy, not clear	Too Cold	Contaminated CO_2 Gas	Needs Cleaning		Needs Cleaning
 **False Head** Large soap-like bubbles, head dissolves very quickly	Too Warm	Too Low		Check Pour	Household Detergent And Dust

Interview with Jon Taffer Bar Rescue

- Kate Bernot from Draftmag.com

What are the hallmarks of a good beer bar?

In a good beer bar, it's all about **Quality**. And it's so easy. It takes three things: the **Right Temperature, Pressure and CLEAN LINES**. It's frustrating to me how many bars can't accomplish those three things.

- Jon Taffer

Tools of the Trade…

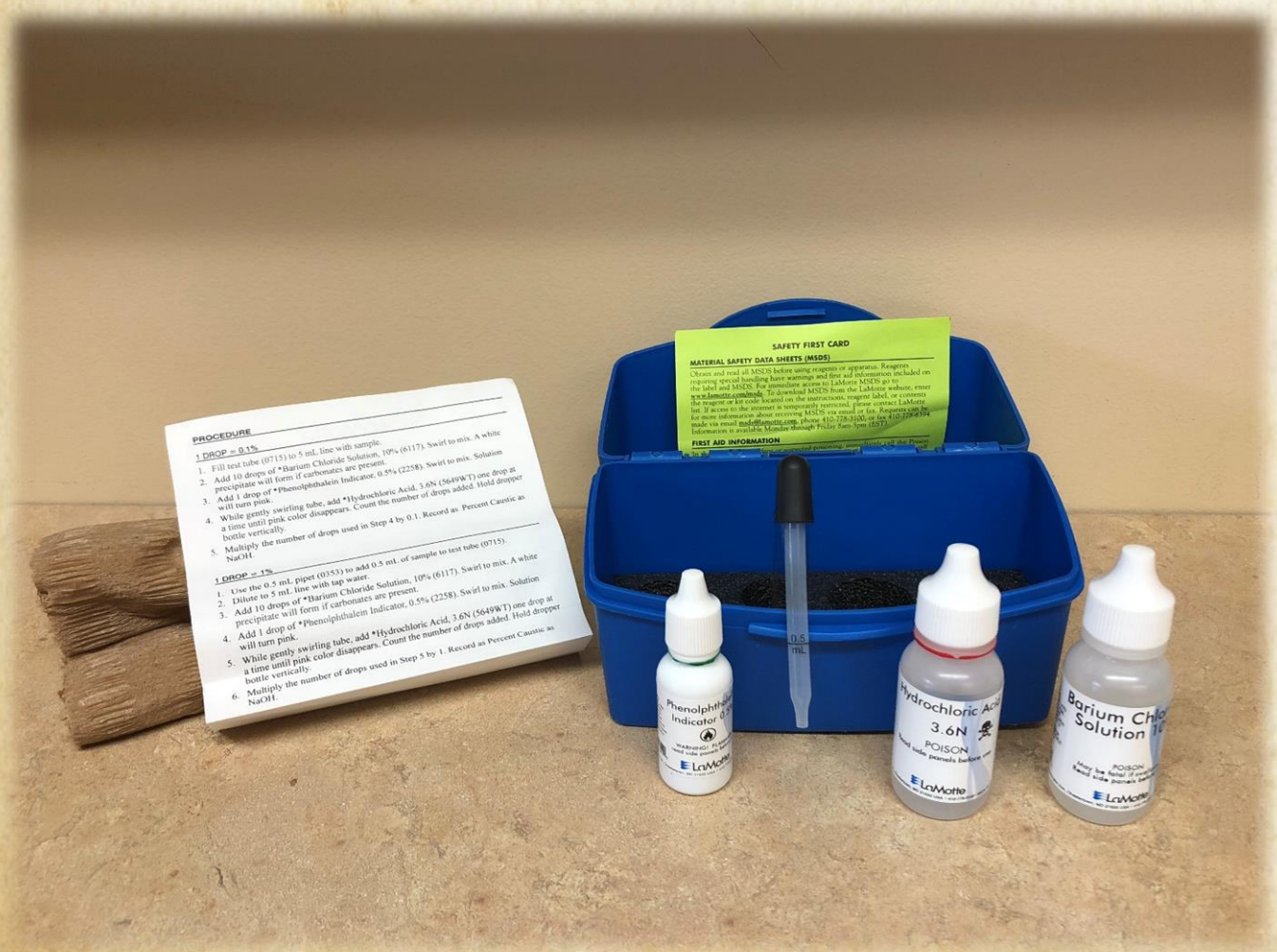
Recirculation Cleaning Tools

Tools of the Trade…

Cleaning Tools

Tools of the Trade…

Titration Device



The ability to check your % of Caustic in Solution.
This helps maintain consistency when Cleaning.

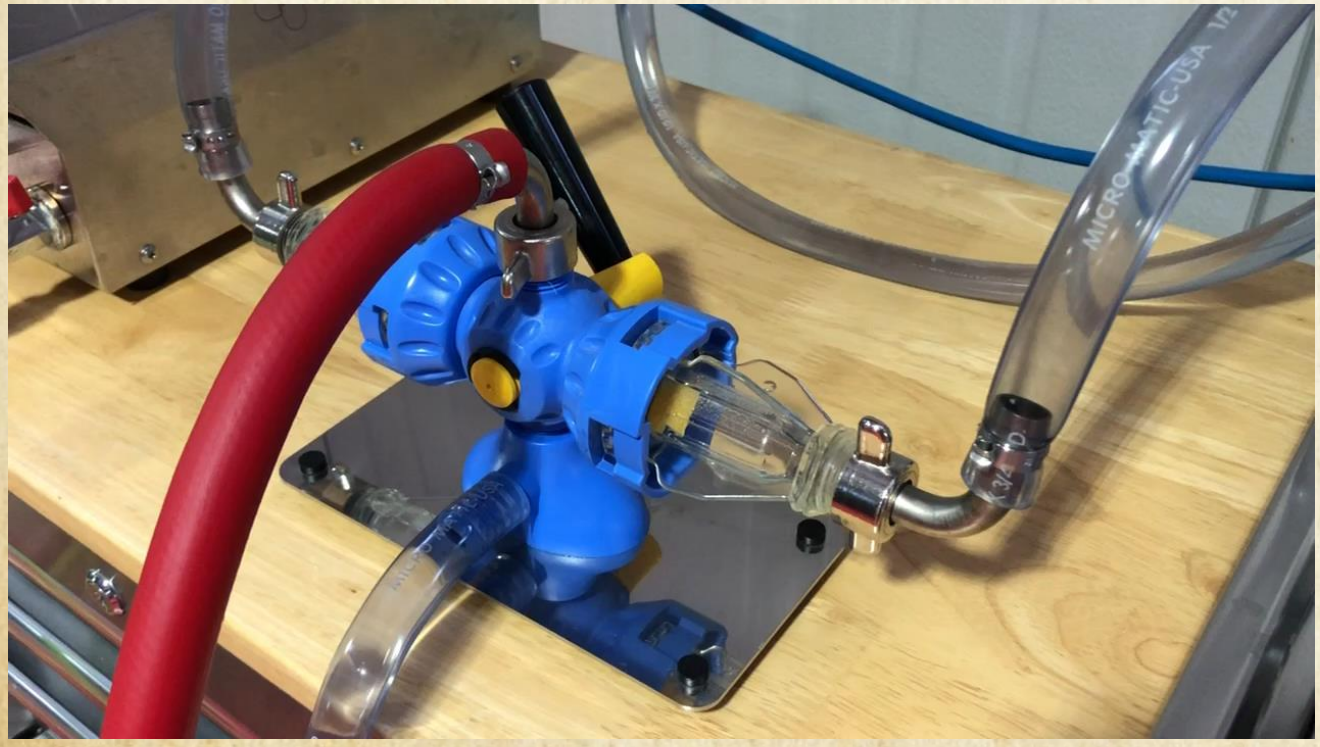
Tools of the Trade…

Static Cleaning Tools

Other Cleaning Methods:

Sponges -

"Mechanical cleaning" scrubbing of the inside of the beer line. Use extreme caution to not harm the system or leave the sponge in the lines.



Video


HUSKY

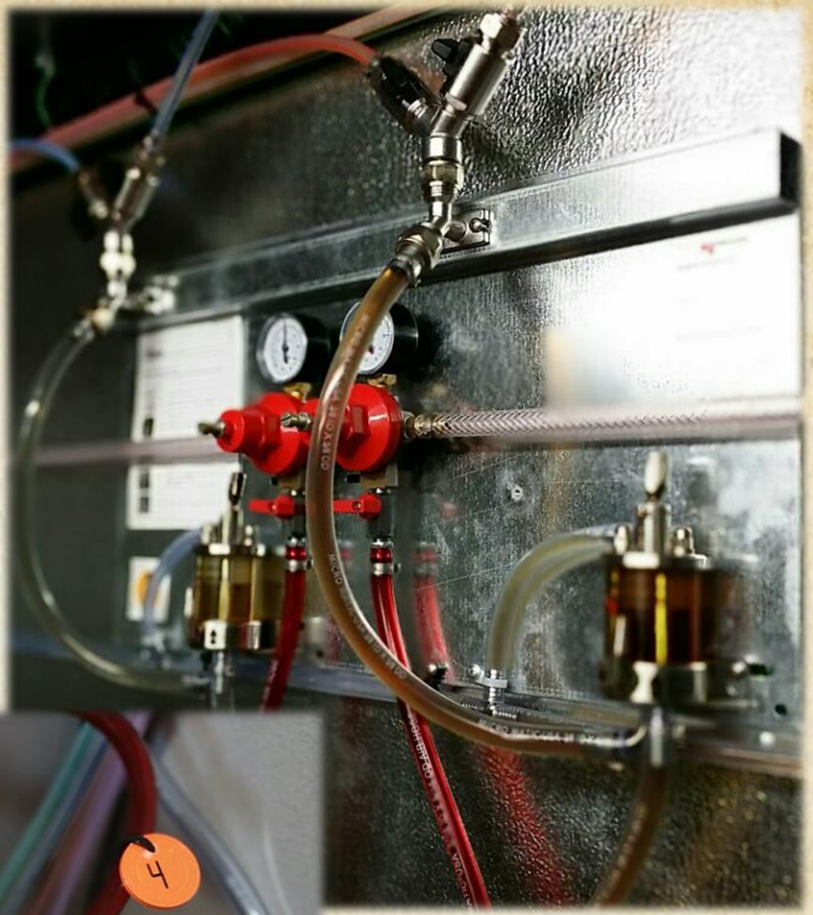
Other Cleaning Methods:

Sonic Cleaners –

The Brewers Associations stance on Sonic Cleaners is this…

"Devises that send electrical or sonic waves to clean draught lines are not a suitable substitute for chemical line cleaning. It has been shown to enhance the cleaning process, but not in replacement of physical and chemical cleaning."

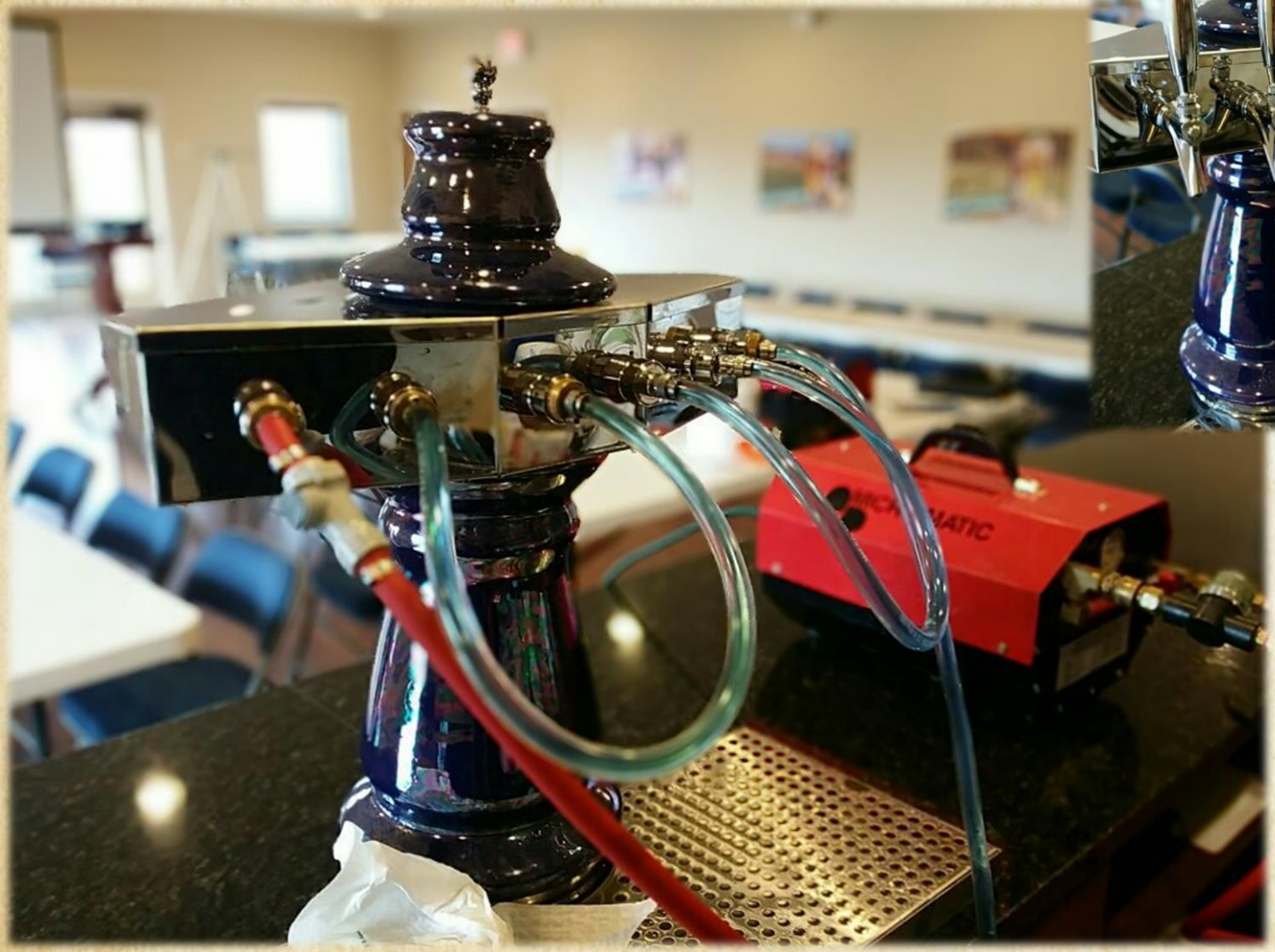
Set up starts in the cooler



So what if we only have 3 lines to clean???

You will then use a **"Y"** Style set up and you are still able to re-circulate. See also **"Y"** Style Drain set up on slide 9.

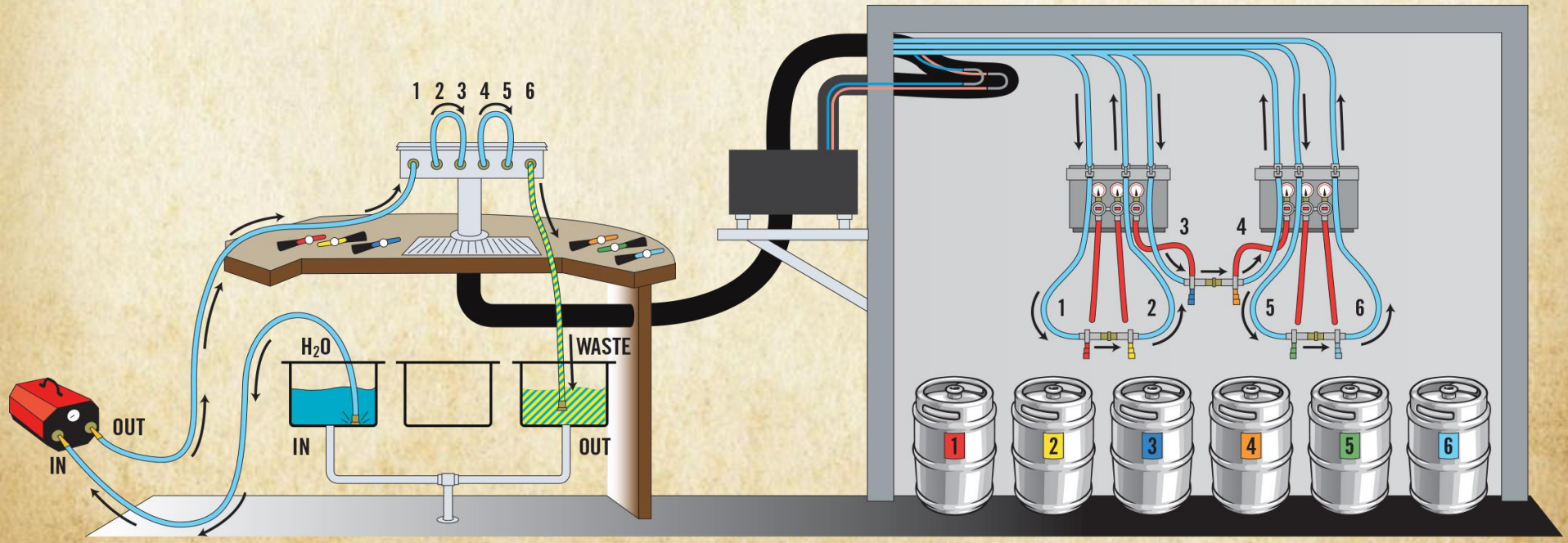
Draught Tower Set up



Recirculation Cleaning

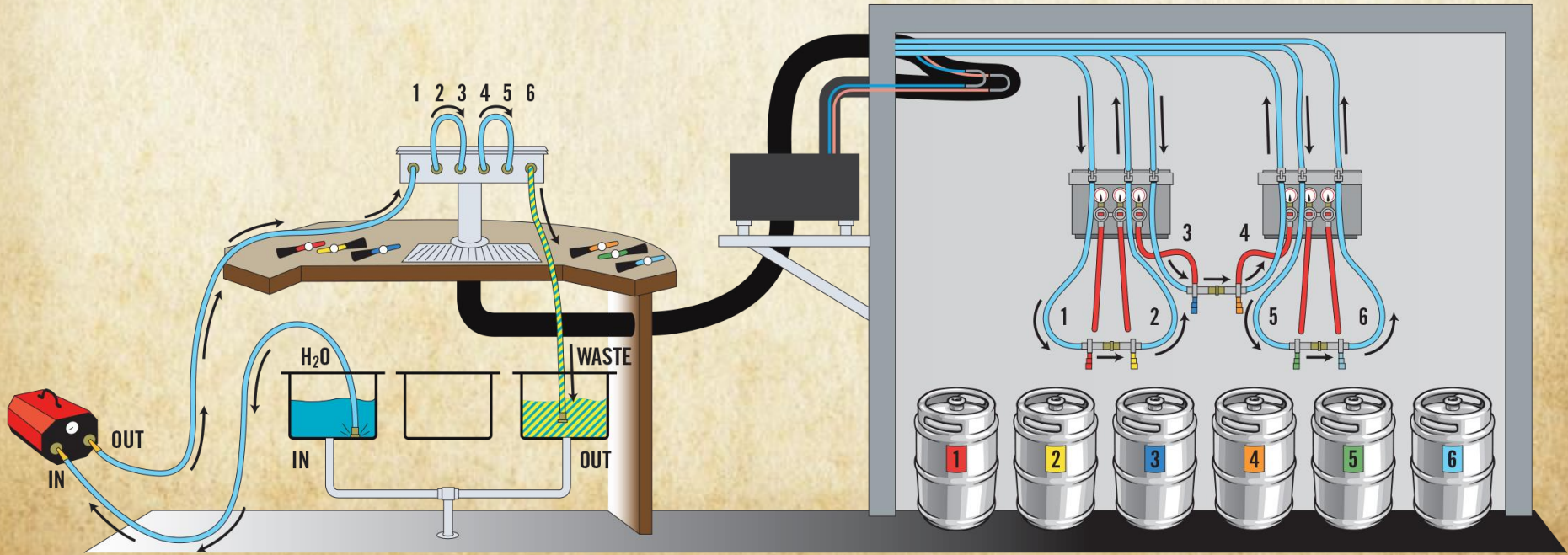
Step 1.

- Prime Pump – Less stress on the pump
- Hook up the tower
- **Flush all beer from the system with water**



Initial Check… (Goes along with step 1.)

- Watch that flow is going the correct way
  - Alternate flow direction bi-weekly
- Work pump up to a set point of 40-45psi
  - Flow Rate 2+ oz. per second (at or better than beer flow rate)
- Watch for leaks
- Inside cooler fill F.O.B.'s and check for leaks



Line Cleaning Myths!

- The hotter the Water the better
  - Can cause lines to delaminate and break down.
  - Can also cause lines to expand / Burst.
- More Pressure the better the clean!
  - This can cause lines to expand and create growth points
  - This can also cause lines to burst.

Damage done due to Ineffective cleaning…

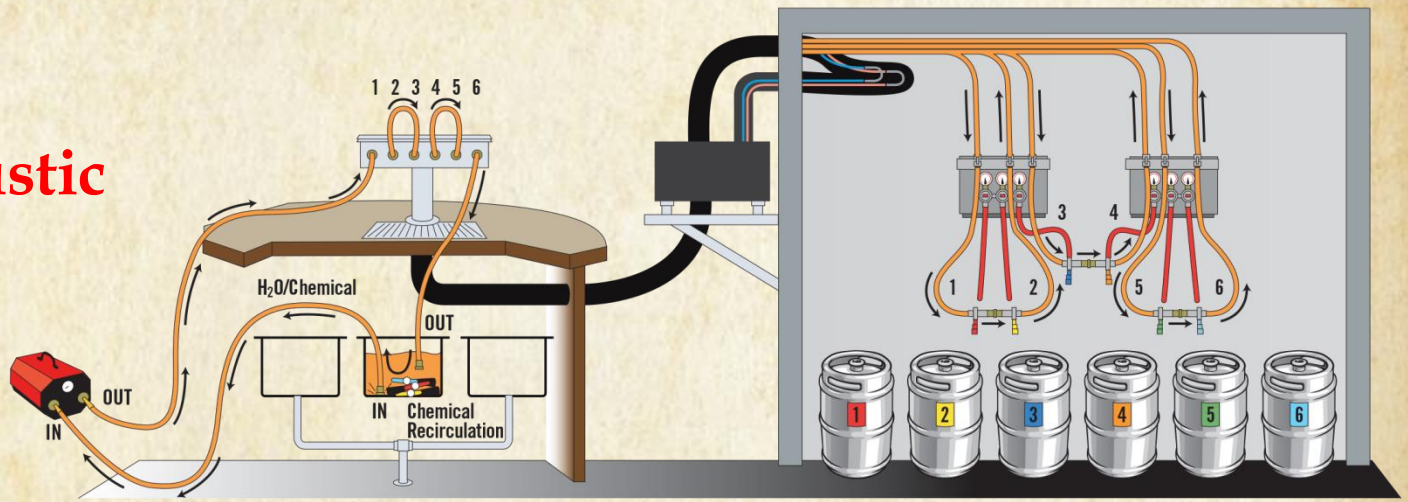
Video

Caustic Chemical Cleaning & Flush

Step 2.

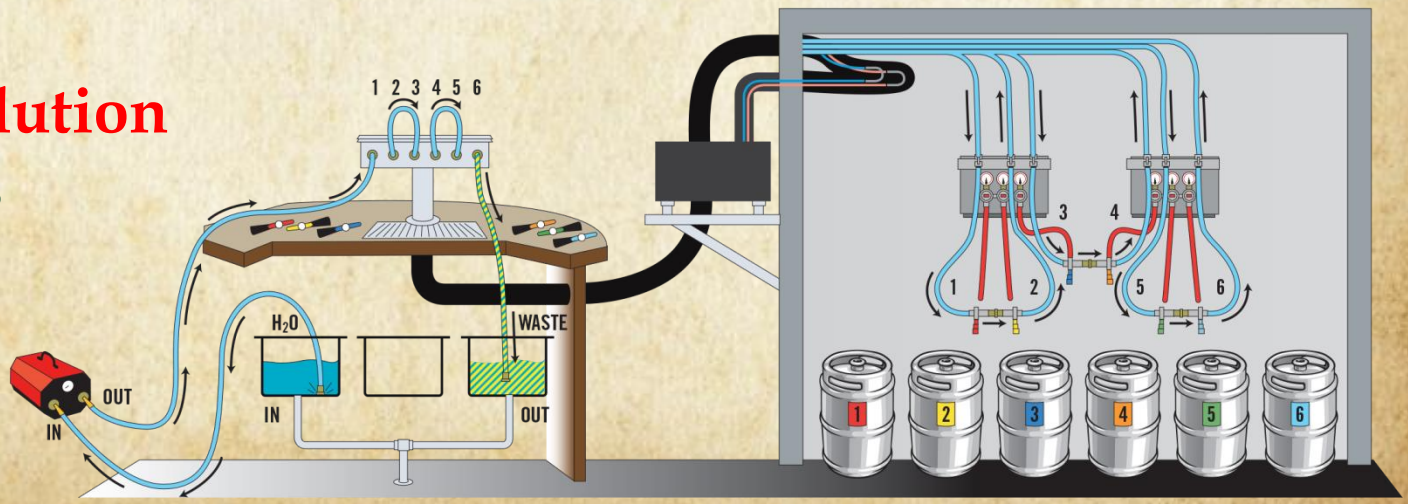
Insert a 2-3% Caustic Solution

Minimum 15 Min.
Chemical contact time



Step 3.

Flush Caustic Solution until water is pH neutral

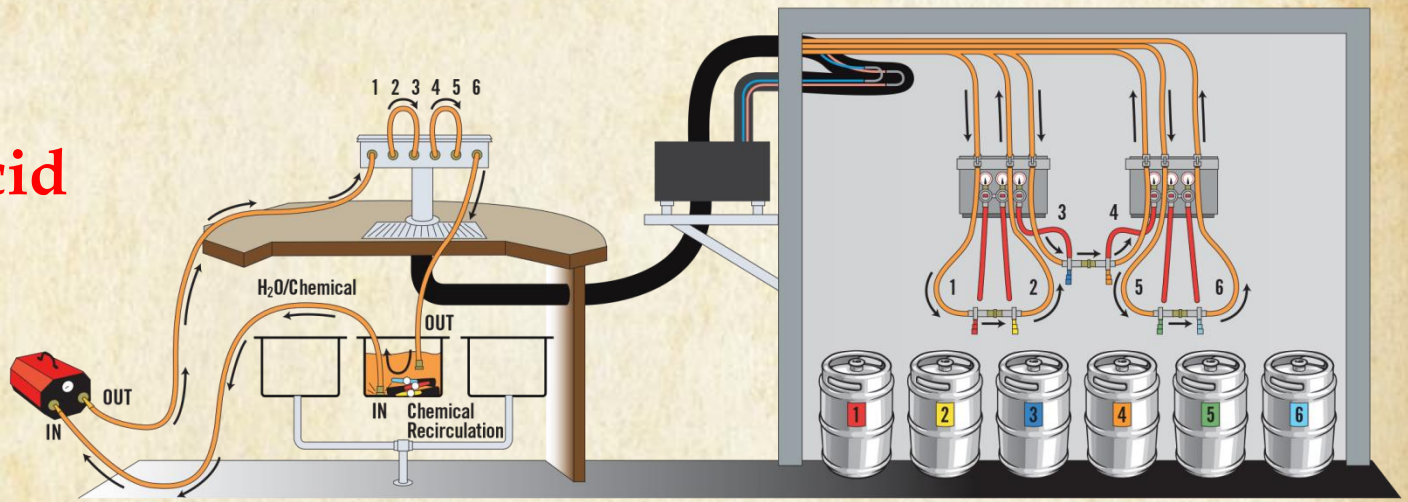


Quarterly Acid Cleaning & Flush

Step 2.

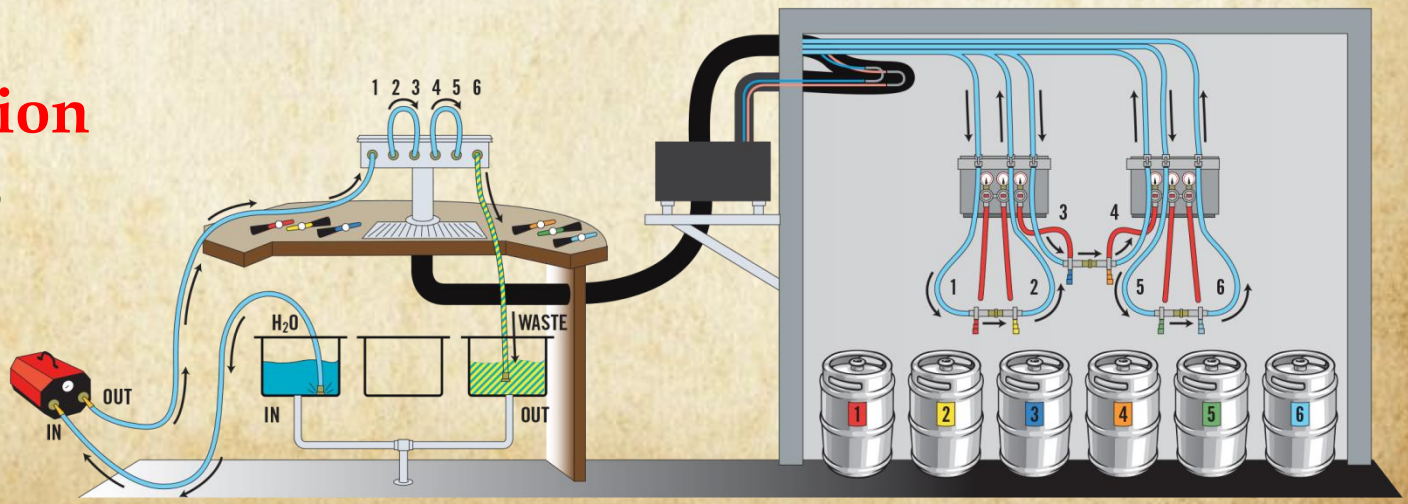
Insert a 1-2% Acid Solution

Minimum 15 Min.
Chemical contact time

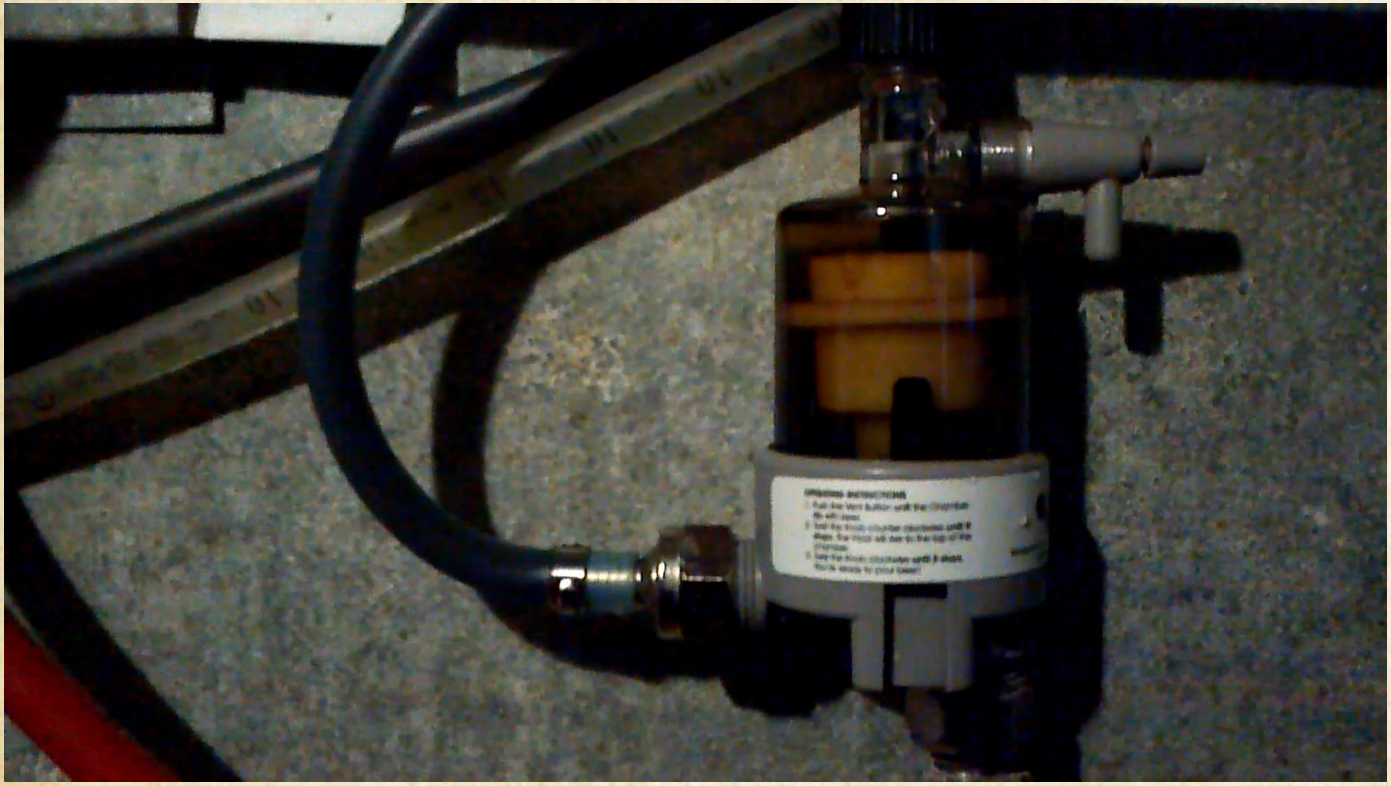


Step 3.

Flush Acid Solution until water is pH neutral

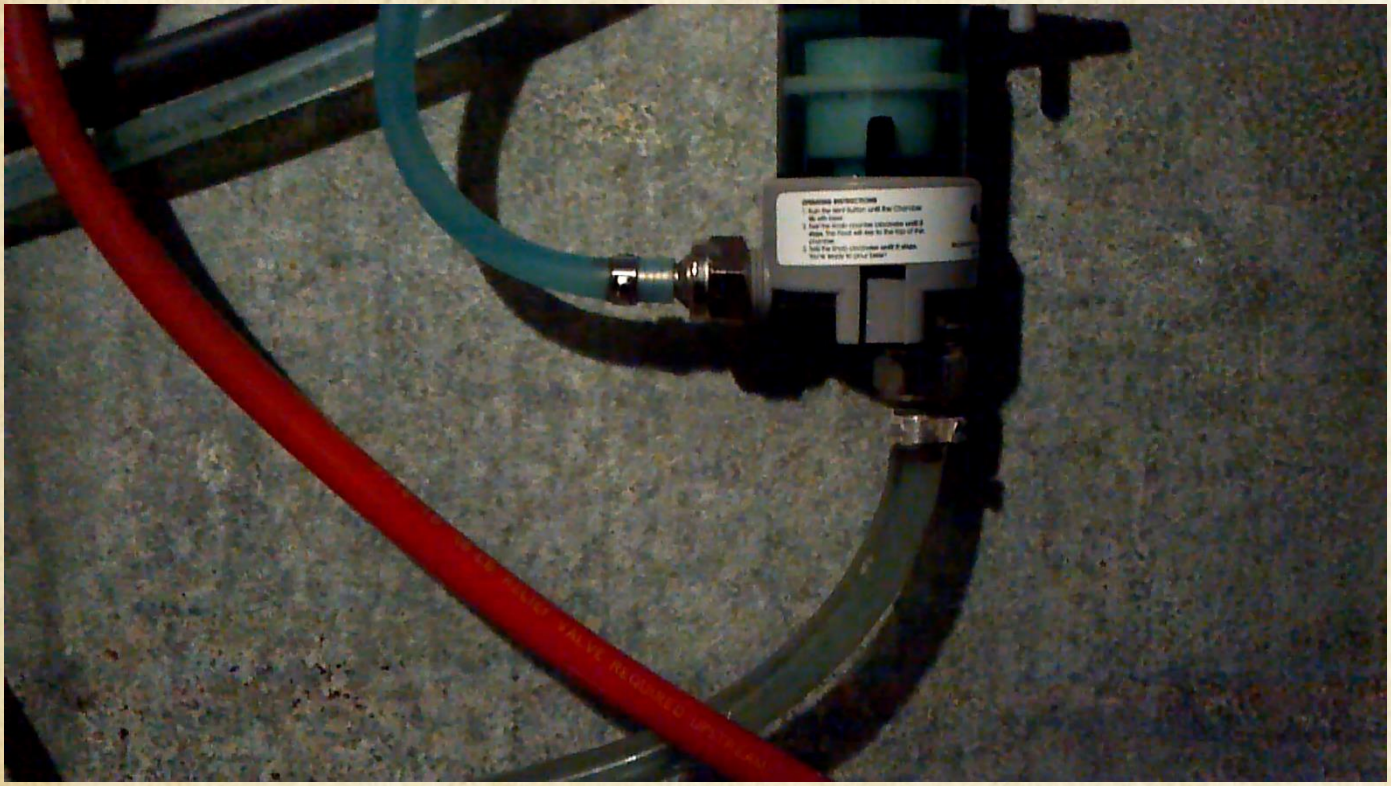


Large deposits being pulled out of the system!



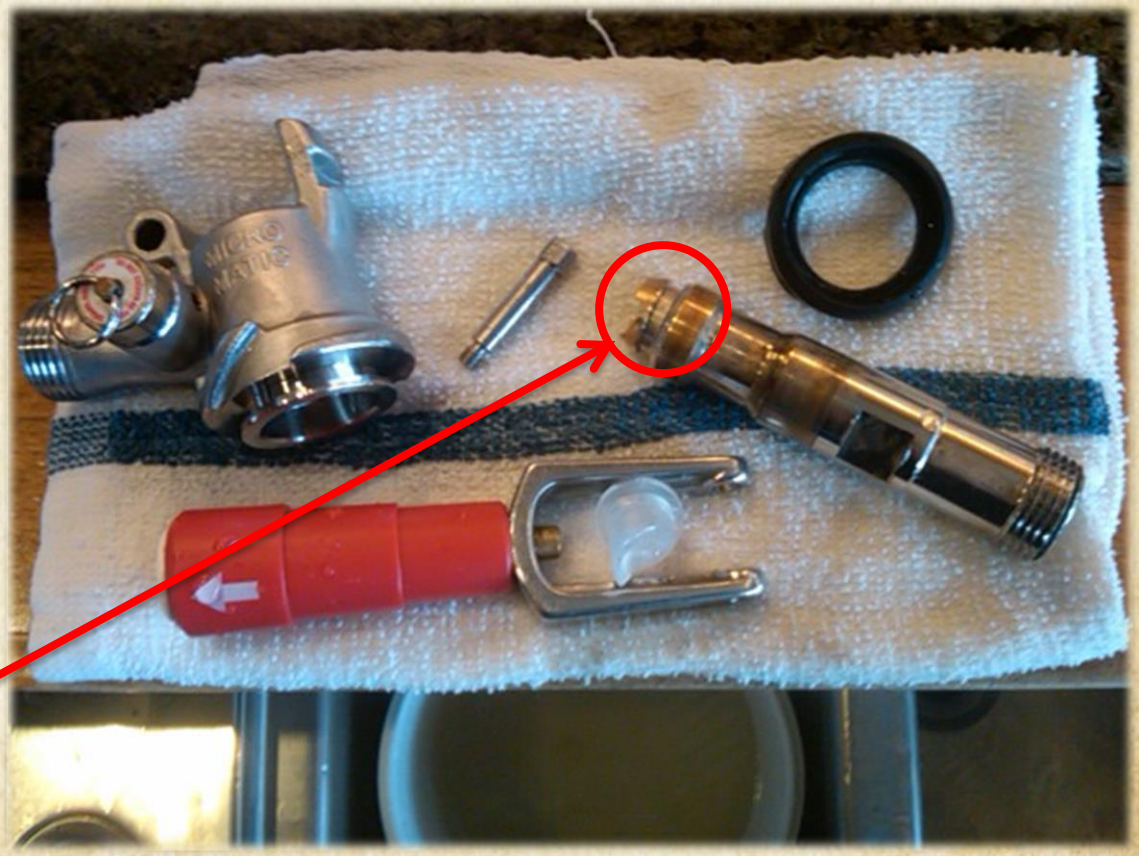
Video

Free of any organic buildup!



Video

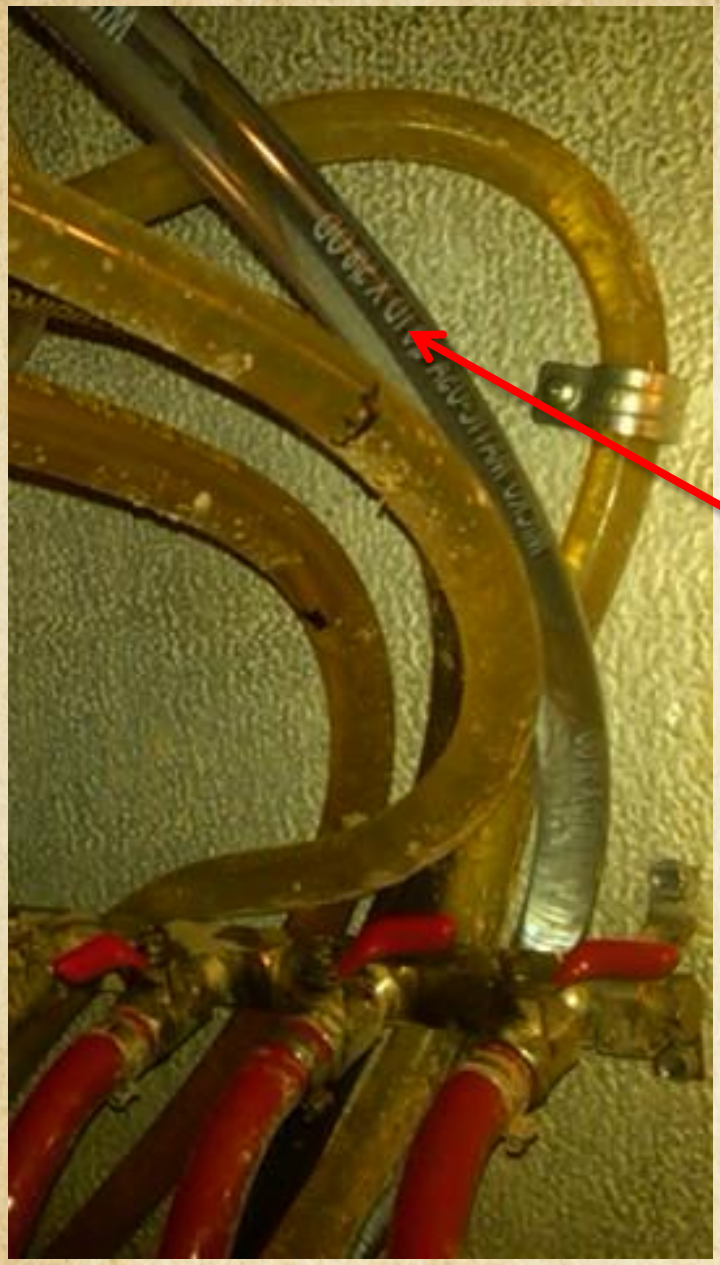
BA Recommends you Breakdown Components - Quarterly



Missing
O-Ring
Replaced after
inspection

F.O.B's (Foam On Beer)…

Brewer's Association recommends these be disassembled and cleaned Quarterly.



Maintenance

For Consistent results…
The Brewer's Association recommends
Replace Jumper and Direct Draw Box lines Yearly.

Line Cleaning Log

BAR NAME The Library Bar

DATE	INITIALS	ACID/CAUSTIC	LIQ. TEMP.
8/22/18	BG	C	37°
9/05/18	JB	C	37.5°
9/19/18	JB	C/A	37.5°

Document your work

What are the… Maintenance Recommendations

- ✓ **Clean Beer Lines a Minimum of Every 14 Days**
- ✓ **Remove Faucets at EVERY Cleaning**
- ✓ **Purge** beer from system with 80˚F **Water**
- ✓ **Use a 2%-3% Caustic Solution** @ 80˚F-110˚F
- ✓ **Chemical Contact Time**
  - **Minimum 15 Minutes for Pump Cleaning**
  - **Minimum 20 Minutes for Static Cleaning**
- ✓ Flush caustic solution with cold/ph neutral **Water**
- ✓ **Detail all Components that touch beer**
- ✓ Quarterly, Clean with an **Acid treatment**
- ✓ **REPLACE lines with flavor change / 10+ yrs. of service**
  - **Jumper Lines and Direct Draw Box lines should be replaced yearly.**
- ✓ Post documentation of draught system maintenance

Geisthardt Method

Cleaning Multiple Draught lines or systems with a single pump

My Thought Process:

If I can Reduce/Split the resistance on my cleaning pump I can clean more lines.

Example:

If I can maintain a proper flow rate cleaning a set number of lines, than technically I can double said amount of lines by splitting my pumps outgoing hose and reducing the overall resistance of said lines.

Geisthardt Method

Cleaning Multiple Draught lines or systems with a single pump

Video

Draft System Cleaning | New Glarus Brewing Co. | Ben Geisthardt

Case Study of the
Geisthardt Method

Cleaning Multiple Draught lines or Systems with a single pump

- **Two Towers 3 Taps on each**
  - 780+ Total ft.
- **130+ ft. of 3/8" Barrier Tubing**
  - (.20lbs. Restriction per foot)
  - (.75 oz. of beer in line per foot)
- **100+ oz. of beer per line**
  - (including F.O.B's and Jumpers)
- **Lines Restricted to pour at 2oz. Per Sec.**
- **392+ Ft. of Total Beer Line per Tower**
  - (including F.O.B.'s and Jumpers)
- **Pump - Micro-Matic EBC300**
  - (with a built in 50psi safety bypass)

1st. Cleaning – Hooked up all 6 Lines

It took **14 minutes and 15 seconds** to flush beer out of system. At that rate I was pushing **0.92 ft.** of beer line every second.
Or 0.36 oz. per second
Or 64 oz. in 2 minutes and 59 sec.

Outgoing Pump Hose Split 3 Ways
2nd. Cleaning – 6 Lines Split 2x2x2

It took **2 minutes and 30 seconds** to flush beer out of system. At that rate I was pushing **5.2 ft.** of beer line every second.
Or 2.06 oz. per second
Or 64 oz. in 31.07 sec.

How do we know all this works?

- **BA Research, Training, Testing & Application**
- **Sensory & Off Flavor Training**
  - **Does the beer taste the way the Brewer Intended?**
  - **Common Off-Flavors from Draught Systems**
    a. **Flat, or Over carbonated**
    b. **Diacetyl –** Butterscotch, Movie Theatre popcorn
    c. **Lactic –** Sour Milk, Yogurt
    d. **Acetic –** Vinegar, Solvent
    e. **Metallic –** Copper Penny
- **Overall Training, Experience and Communication**

DBQ Manual

Quick Reference Pages

- What to know for cleaning beer lines – Summary page 66
- What to know for troubleshooting – Summary pages 67-70
- Off Flavors in On-Premise – pages 71-72

www.draughtquality.org

Thank You, & Cheers

Presented by

Ben Geisthardt
New Glarus Brewing Co.

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Verboten Brewing Co.

Help us Improve this Class

1. Was the information taught in this class?
    A. Too Basic
    B. Too Difficult
    C. Appropriate
2. Quality of Presentation? (Verbal, Written Material, Videos)
    A. Excellent
    B. Good
    C. Fair
    D. Poor
3. Anything we could do to improve this presentation?