

Basic Cross Connection Control Seminar

Common Hazards & Facilities to Inspect

Chemical Dispensers

Applications

- Glass Cleaners**
• Washed Windows
• Washed Mirrors
• Washed Glass
- Deodorizers & Air Fresheners**
• Washed Restrooms
• Washed Corridors
• Washed Entrances
- Disinfectant Cleaner**
• Washed Floors
• Washed Walls
• Washed Ceilings

Chemical dispensers mounted on a wall, connected to a sink. The dispensers are labeled with various chemical names and colors: pink, yellow, green, blue, and orange. Each dispenser has a corresponding colored hose leading to the sink.

A storage area for cleaning supplies. A white metal shelving unit holds various bottles of cleaning products, including spray bottles and containers. A red sign on the wall reads "RIGHT TO KNOW COMPLIANCE CENTER". A green plastic crate is visible on the floor.



What's a Chemical Dispenser?

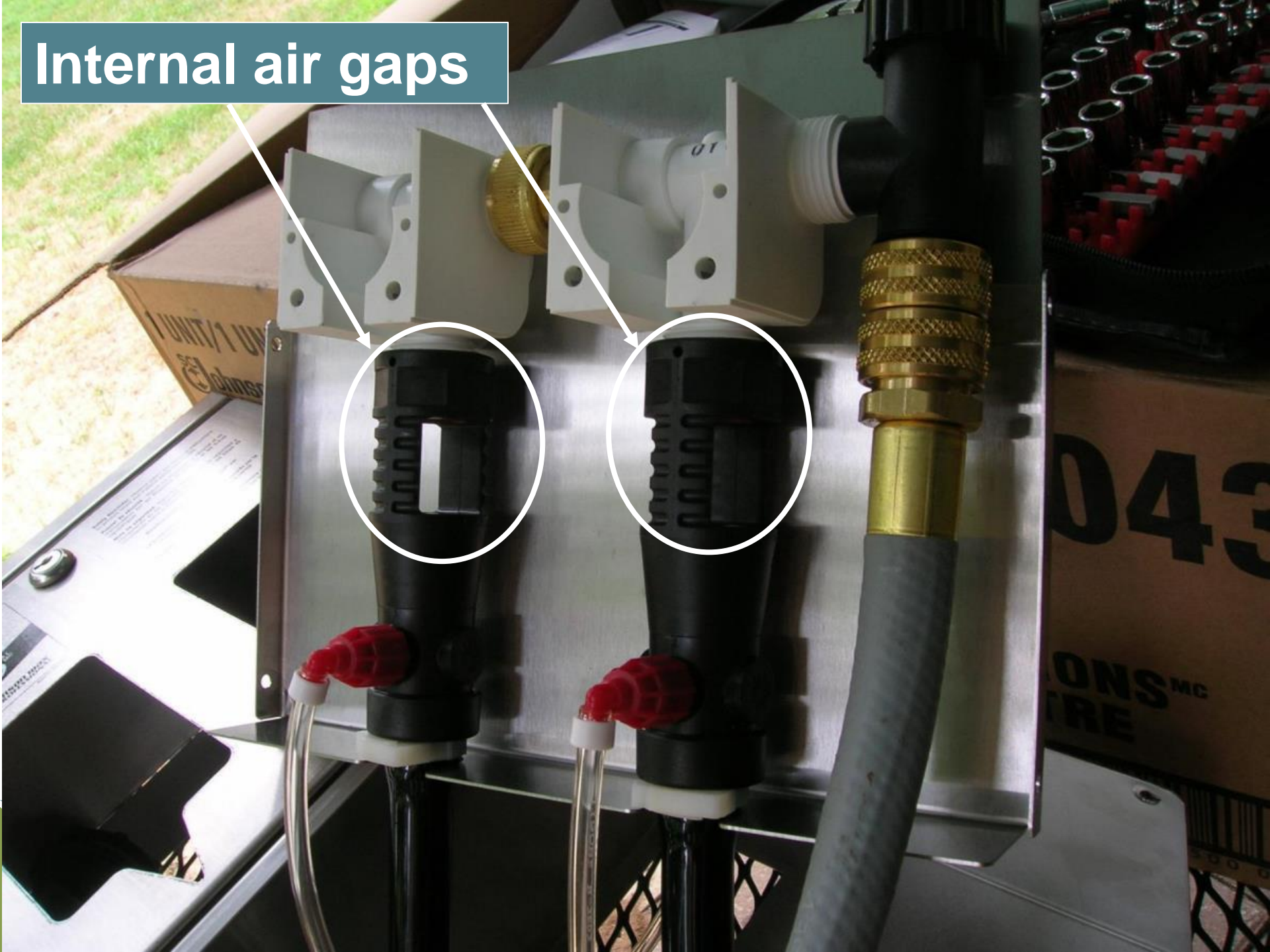
An economical way to dispense a wide variety of automatically diluted solutions into containers at the touch of a button!

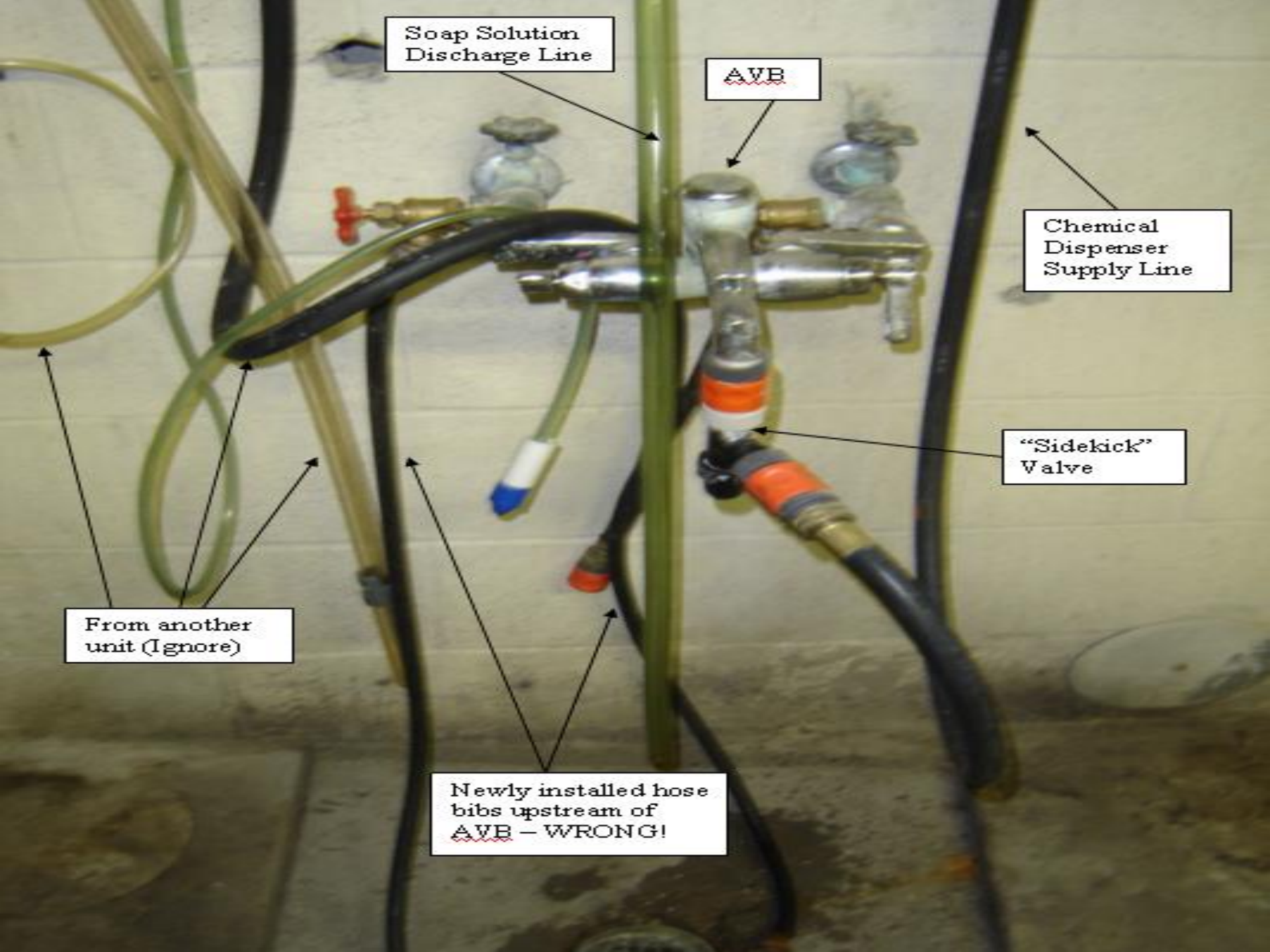
Dilution is controlled by drawing chemical through metering tips of varying size and aspirating this metered amount into the water flow.

Approved Dispensers

1. The chemical dispenser is labeled **ASSE 1055A** and is provided with a dedicated water supply that terminates with other than a hose thread;
2. The chemical dispenser is labeled **ASSE 1055B**, is connected to a janitor sink faucet and is served by a pressure bleeding device (wasting tee or a Flow Diverter)

Internal air gaps





Soap Solution Discharge Line

AVB

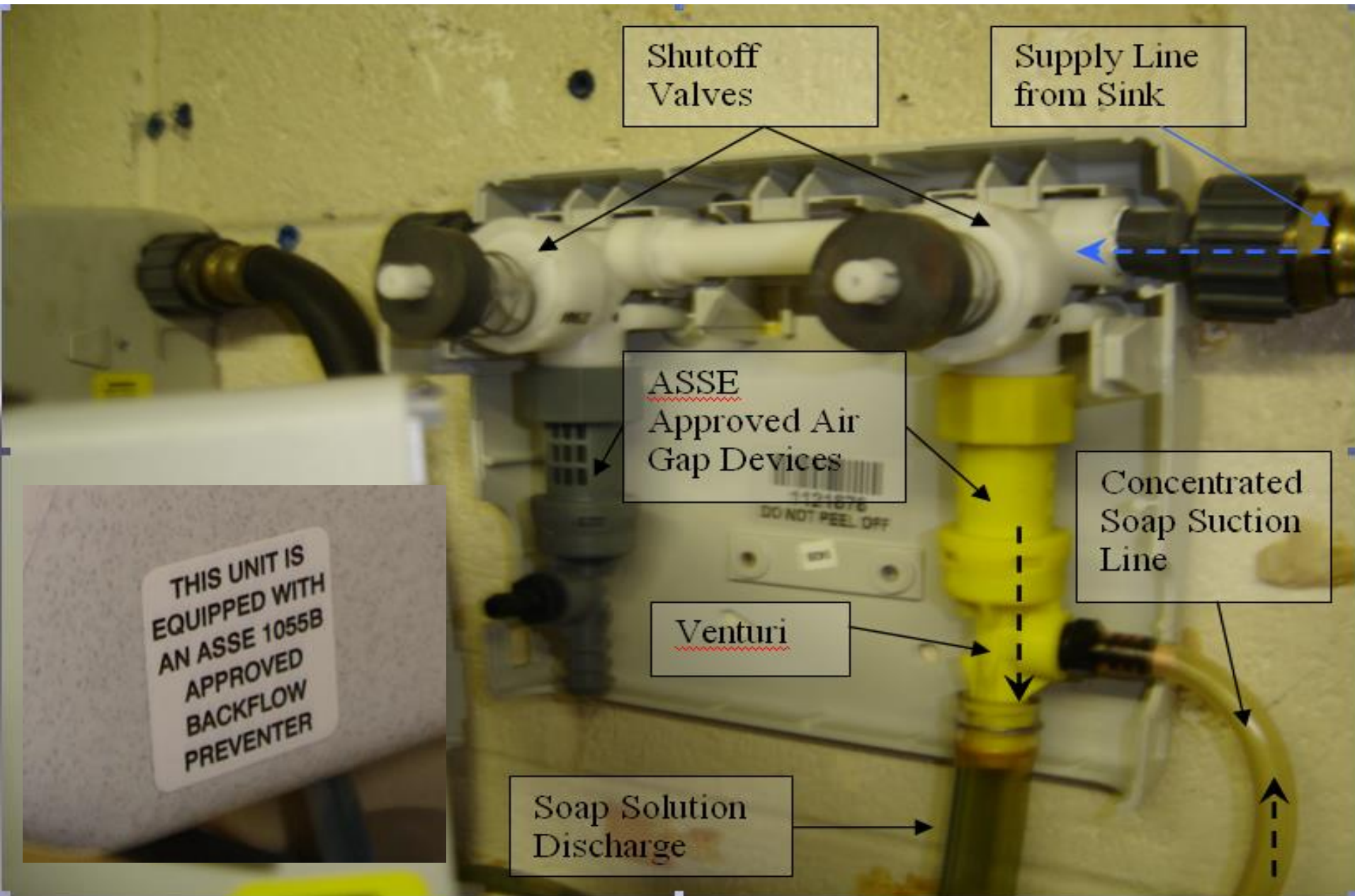
Chemical Dispenser Supply Line

"Sidekick" Valve

From another unit (Ignore)

Newly installed hose bibs upstream of AVB - WRONG!

Chemical Dispensers





**For a Type B device,
a pressure bleeding
device is required to be
installed on the faucet
outlet.**

**This is the S. C.
Johnson & Son Inc.,
“Flo-thru” device.**

**This is an approved
device.**

AVBs



AVBs can become fouled if they are subject to continuous pressure.

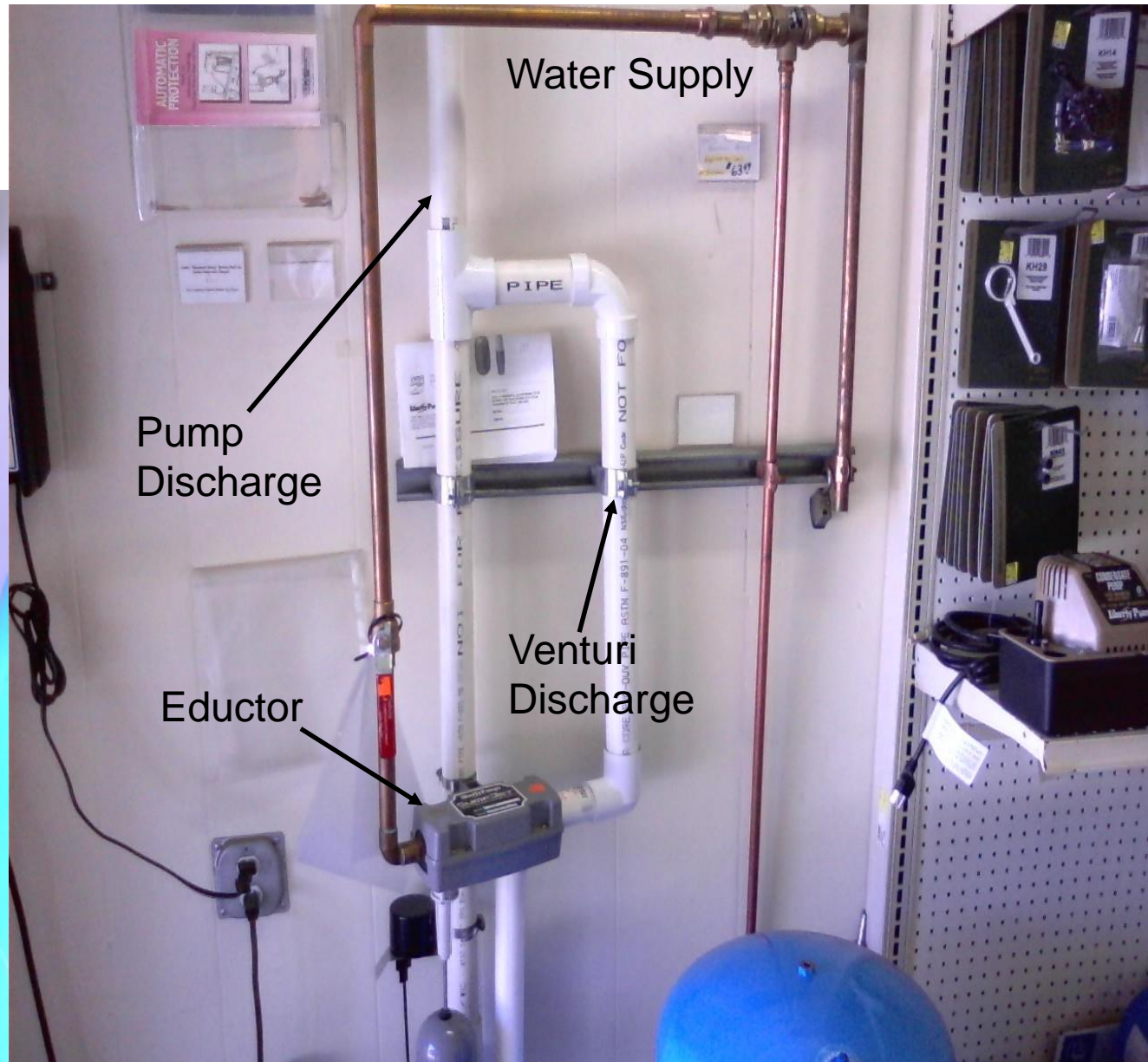
More Chemical Dispensers



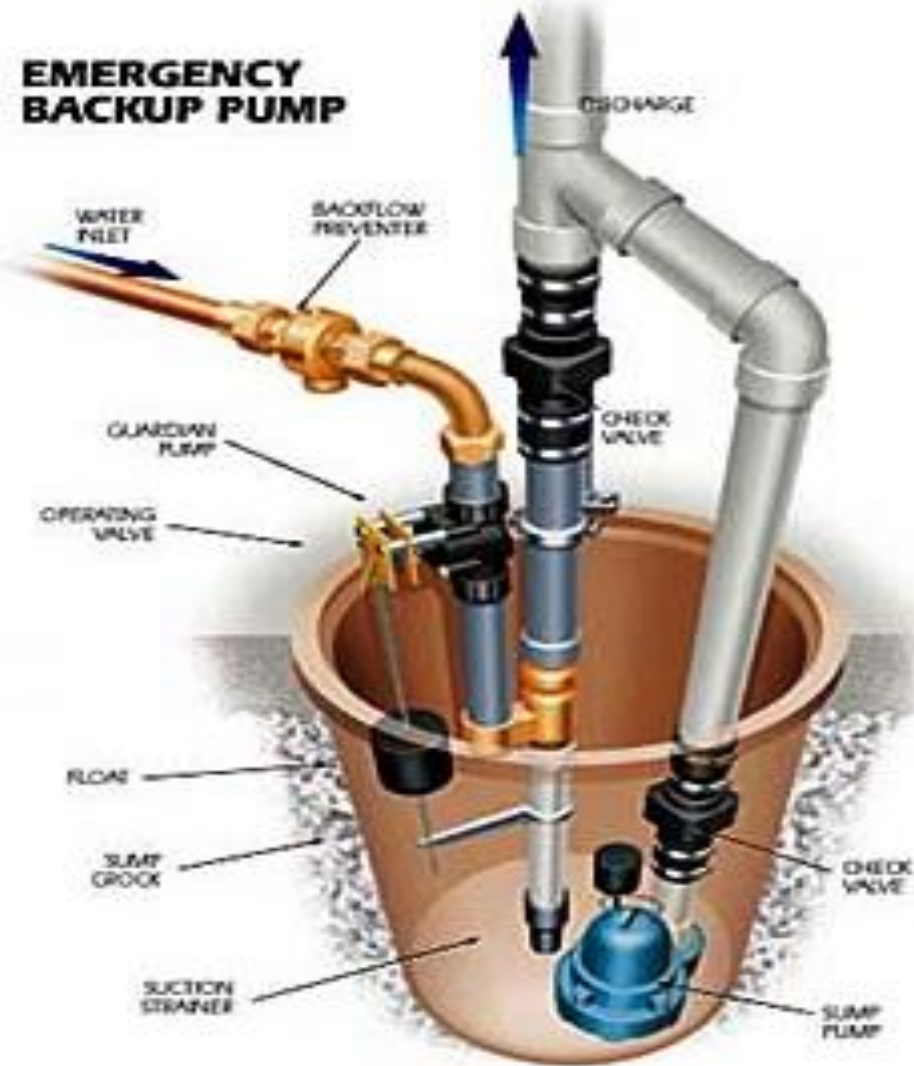
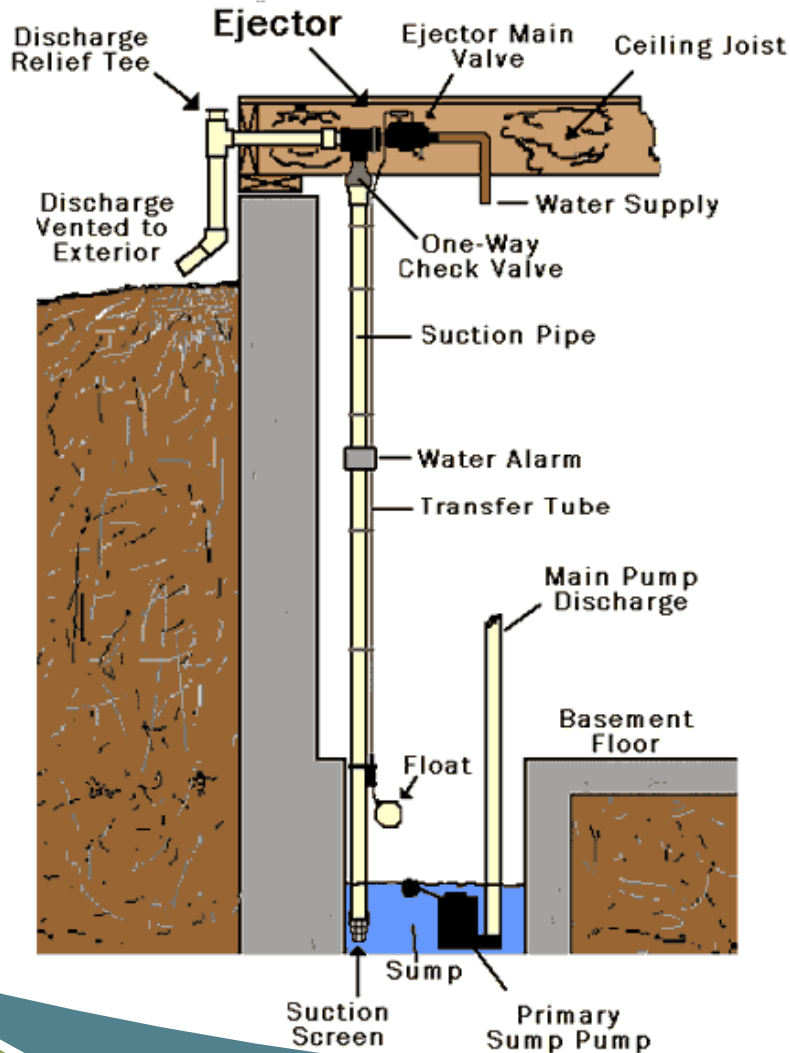
More Chemical Dispensers



Water Powered Sump Pump



Water Powered Sump Pump



Water Powered Sump Pumps

- Usually require an **RPZ** on water line
- If educator is “in-line” with electric pump or has a common discharge pipe - **RPZ**
- Separate discharge pipes or not connected in any way – **PVB** 6-inches above high discharge point (in floor joists)

Air Conditioners

Potable water flowing to a heat exchanger

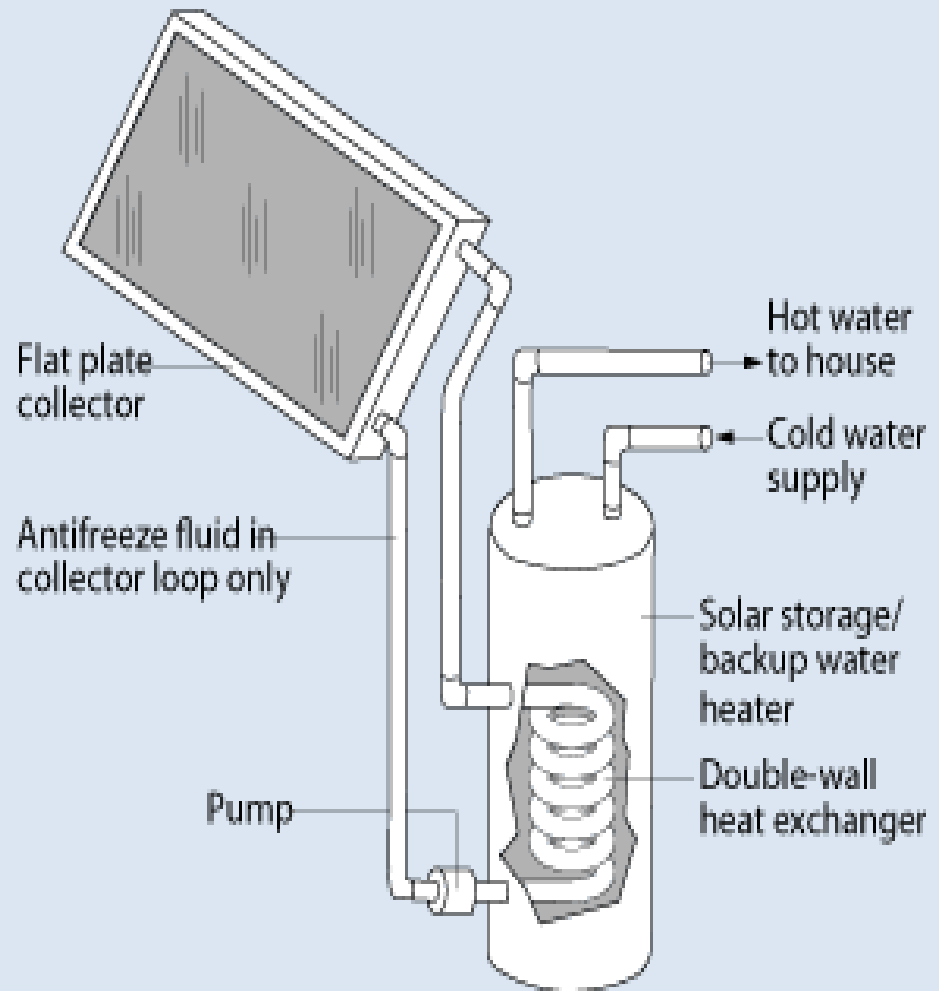
- Single wall OK if non toxic transfer fluid or high hazard backflow preventor
- Double wall w/ leak detection is OK

May also apply to cooling towers, drinking fountains, ice machines, chilled water systems, water cooled engines & compressors, coolers, etc.

More Heat Exchanger Examples



Active, Closed Loop Solar Water Heater



Aspirators

- Potential for backsiphonage
- Should have appropriate backflow prevention on supply line.



Auxiliary Water Supply

- Private well systems
 - Potable system is subject to back pressure
 - Water is of questionable quality
 - Make sure it is physically disconnected



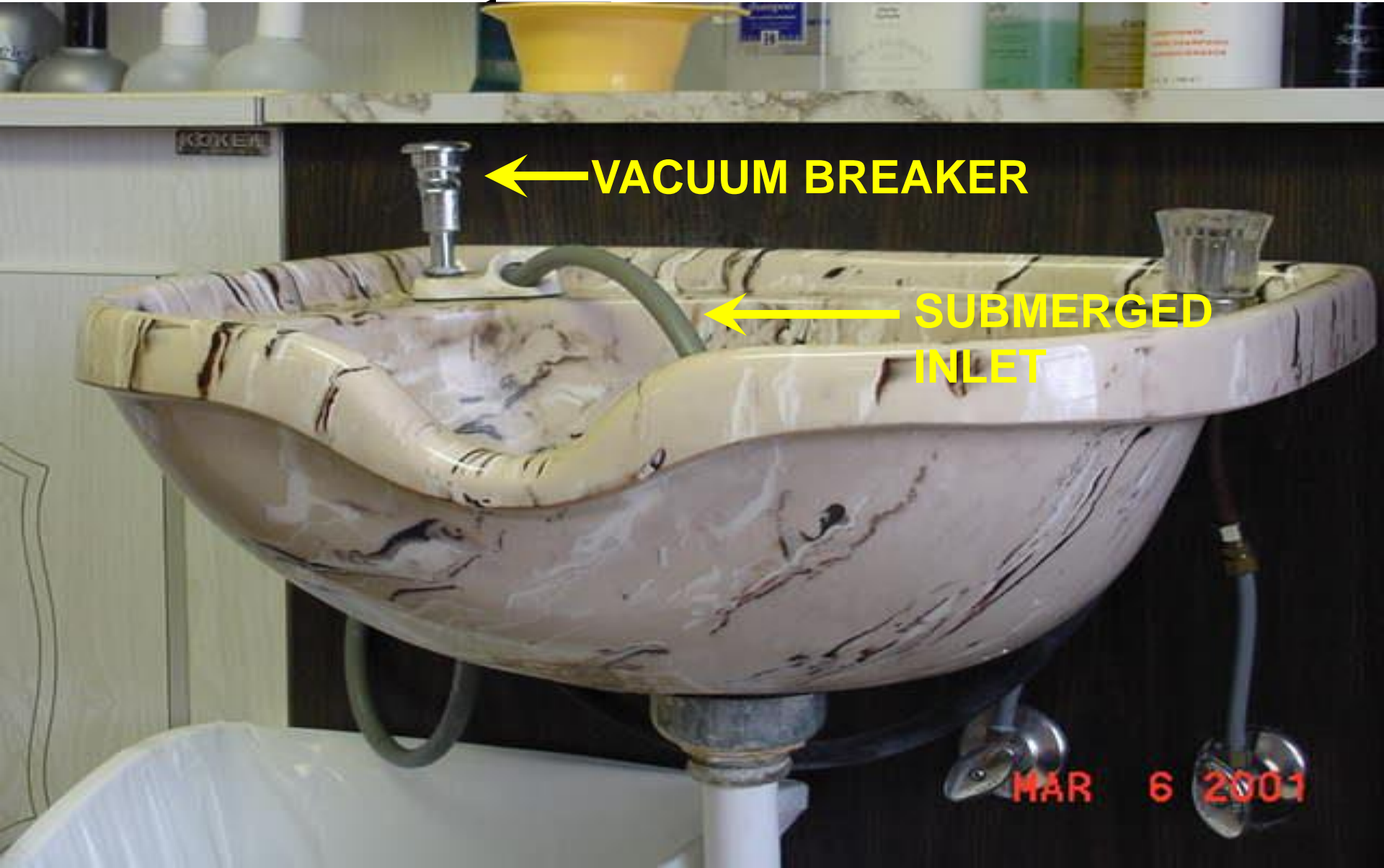
Bait Shops & Pet Stores



- Water connections to aquariums
- High Hazard??



Beauty Salon



← **VACUUM BREAKER**

← **SUBMERGED INLET**

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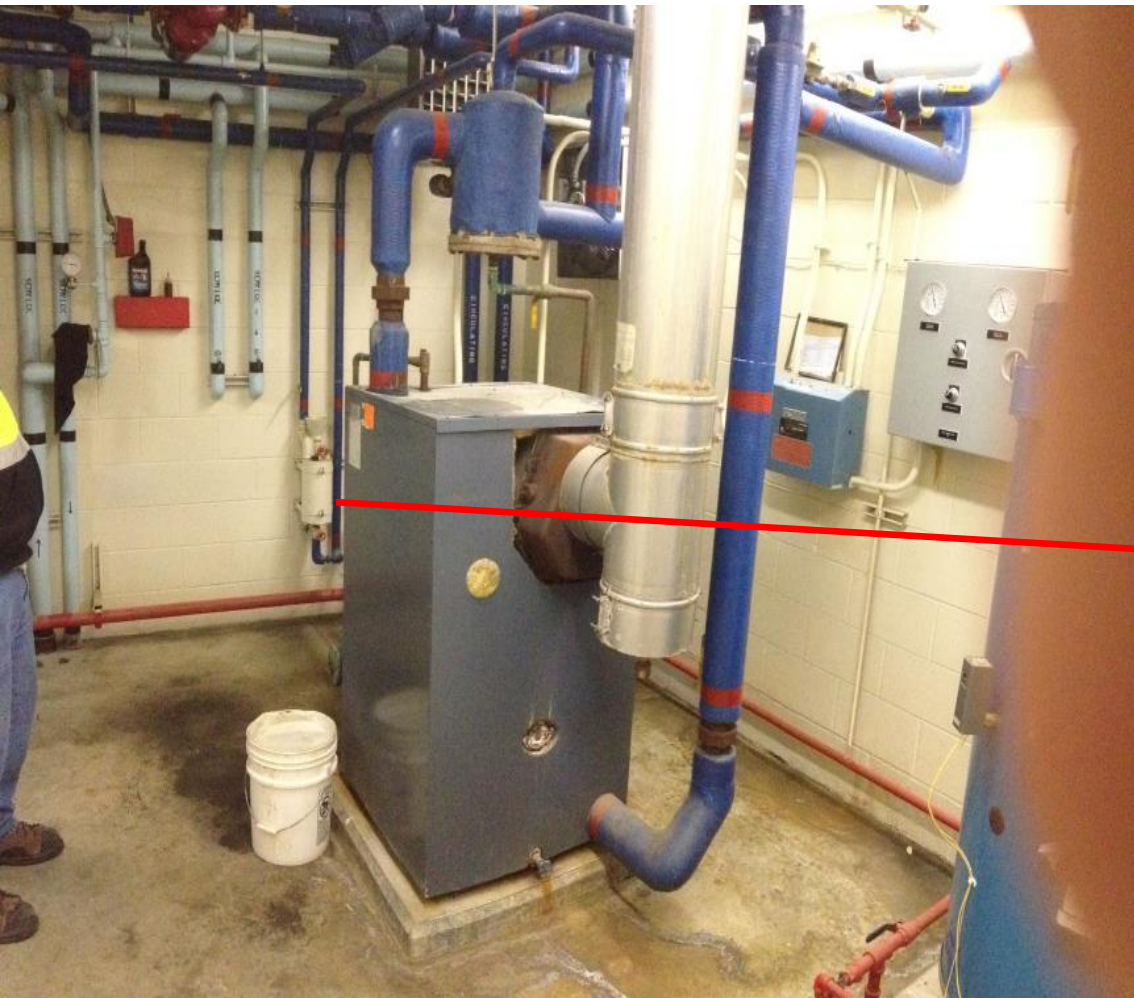
Boilers

- Treated - Requires an RPZ
- Untreated – Requires a DCVA or RPZ



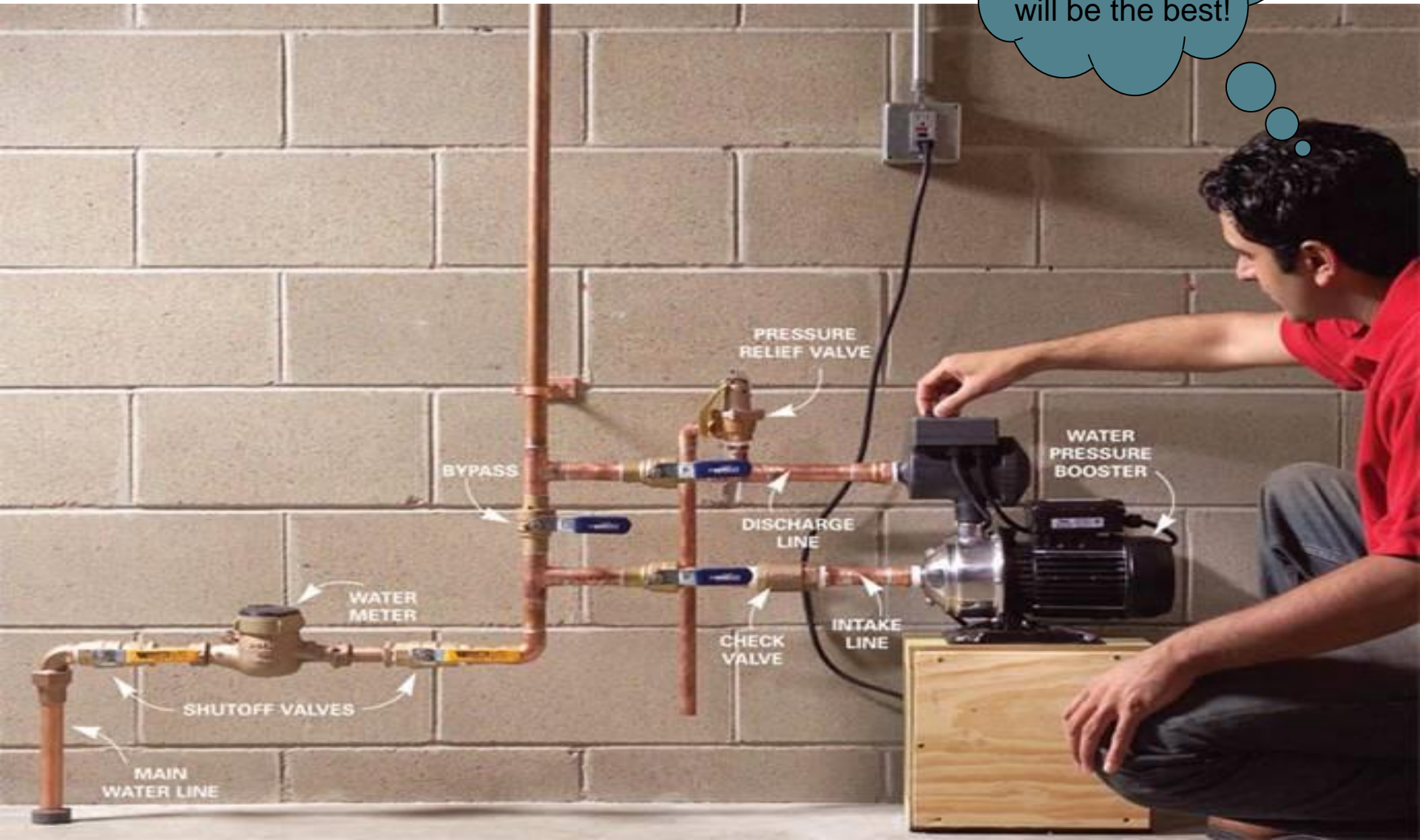
Boilers

If a chemical is added
there will be clues...



Booster Pumps

Eat your heart out Jones's. Soon my lawn will be the best!



CAR WASHES





CHEMICAL DISPENSING SYSTEM



SUBMERGED INLETS



WATER SOFTENERS

ONLY THING TO DO...



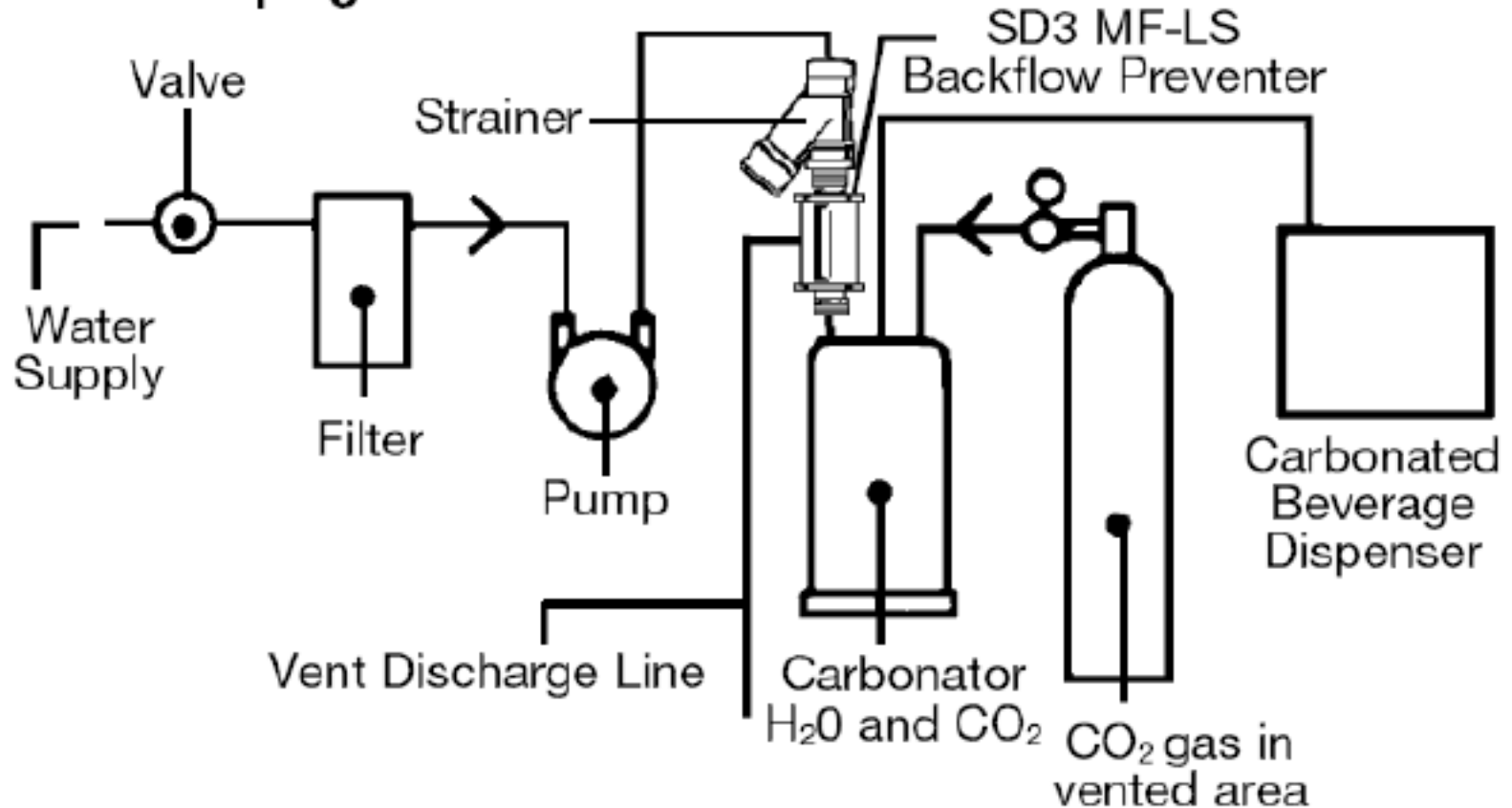
IS CONTAIN THE SERVICE LINE WITH AN RPZ!

Carbonated Beverage Dispensers

- Mixes water, flavored syrup, & carbon dioxide.
- Carbon dioxide can corrode piping releasing toxic copper.
- The carbonated water must not come in contact with copper components.
- The backflow preventer and downstream piping must not contain copper.

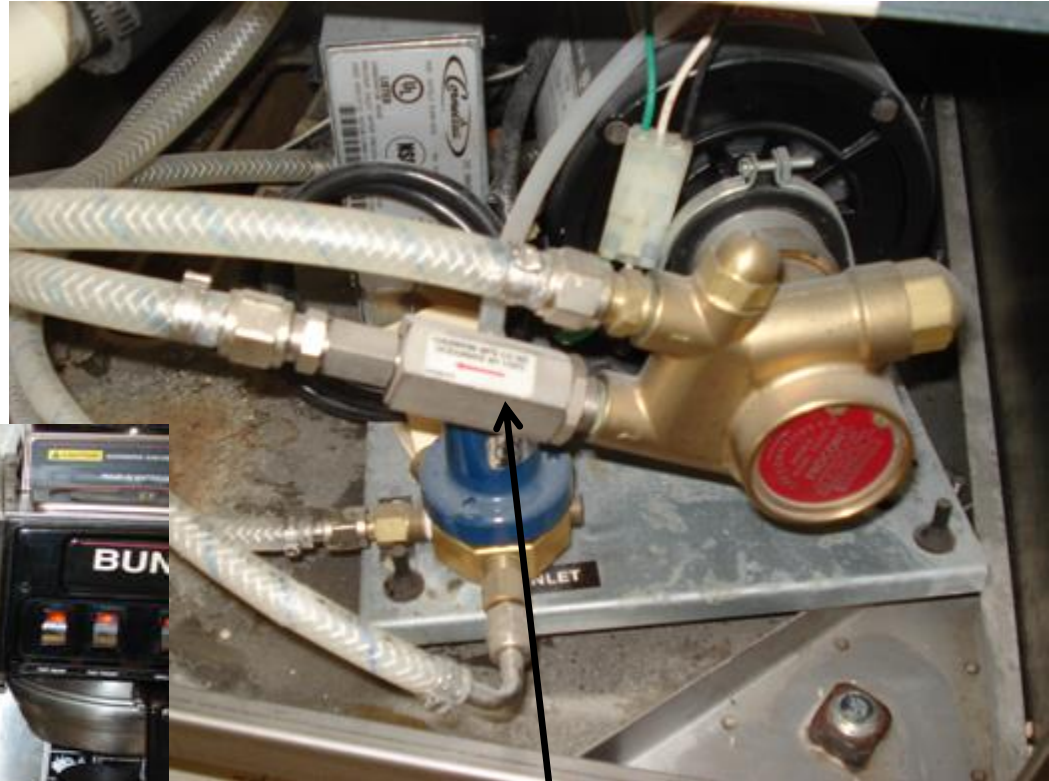
Carbonated Beverage Dispensers

Post Pumping Installations



Carbonated Beverage Dispensers Continued...

- **ASSE 1022** devices required
- Made with noncorrosive materials
- Vented



Approved device?

ASSE 1012 & 1022

- ASSE 1012 (Backflow Preventer with Intermediate Atmospheric Vent)
- ASSE1022 (Backflow Preventer for Carbonated Beverage Machines)



Coffee Makers and Non-carbonated beverage dispensers

- 2006 MI Plumbing Code requires 1022 DCVA
- Not in previous versions of Plumbing Code
- If installed prior to 2006, 1022 may not be necessary



Cooling Towers

- Reservoirs usually treated to control biological growth
- High hazard!
- Air gap or RPZ required



Decorative Ponds & Fountains

- Must inspect the connection
- Common at
 - Mini Golf
 - Restaurants
 - Churches
 - City Parks
 - Shopping Malls
 - Airports



Fire Suppression Systems

- Consider high hazard if chemicals are added (i.e. antifreeze)
- Consider high hazard if a F.D. exterior pumper connection exists



**FIRE DEPT
CONNECTION**



FIRE SUPPRESSOR

CLEAR WATER

INSTRUCTIONS FOR
OPERATING THE
AUTOMATICALLY
OPERATED SYSTEM
MANUAL

FIRE SUPPRESSOR

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POTABLE WATER SUPPLY

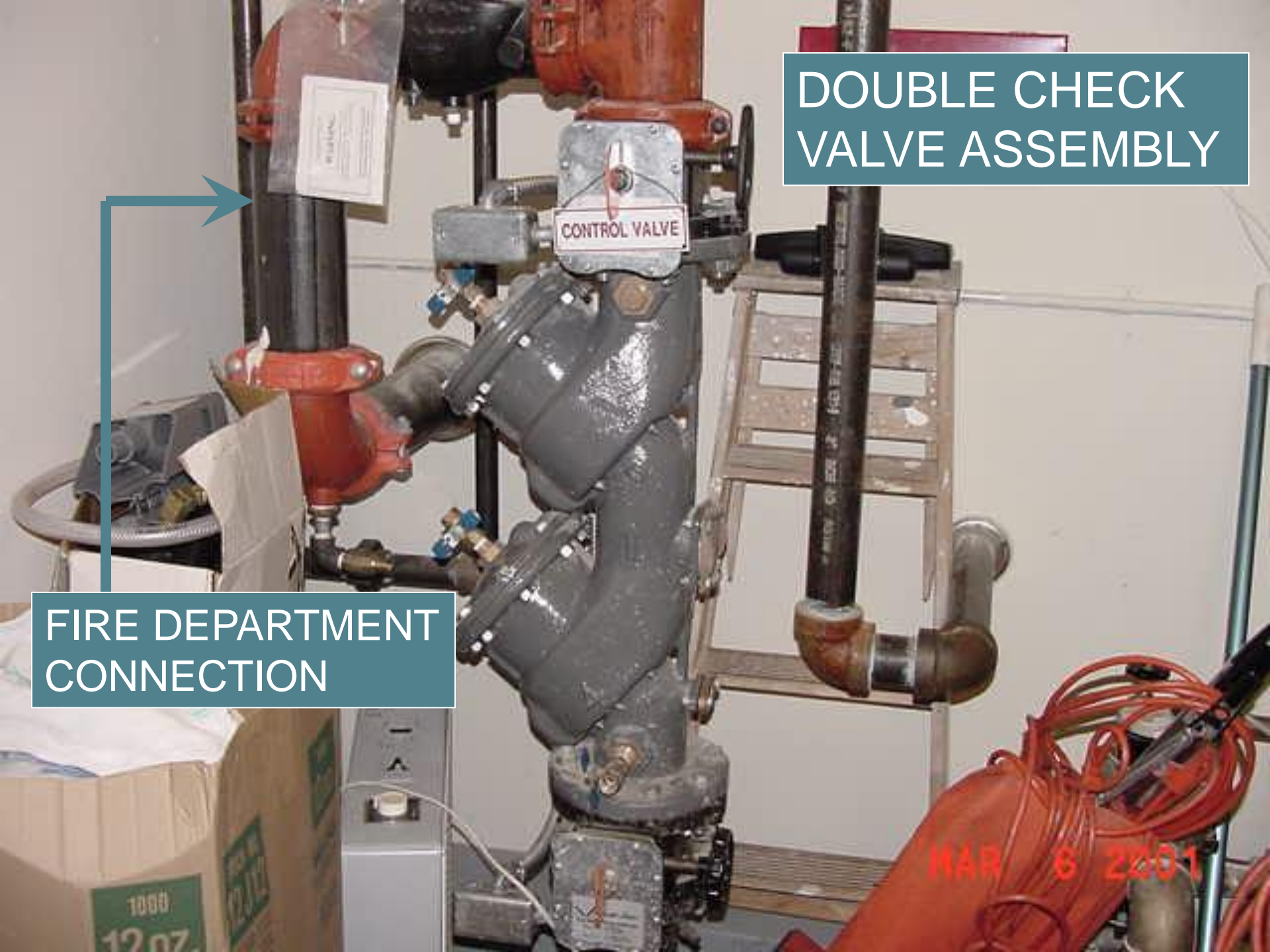
BACKFLOW PREVENTER – WHAT TYPE?



WHAT'S WRONG?

DOUBLE CHECK
VALVE ASSEMBLY

FIRE DEPARTMENT
CONNECTION







FIRE SYSTEM WITH A SINGLE CHECK VALVE

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Lawn Irrigation Systems

- Considered High Hazard
 - Fertilizers
 - Chemical Weed Control
 - Animal Droppings



Hose Bibs & Wall Hydrants

ASSE 1011



ASSE 1019



ASSE 1052



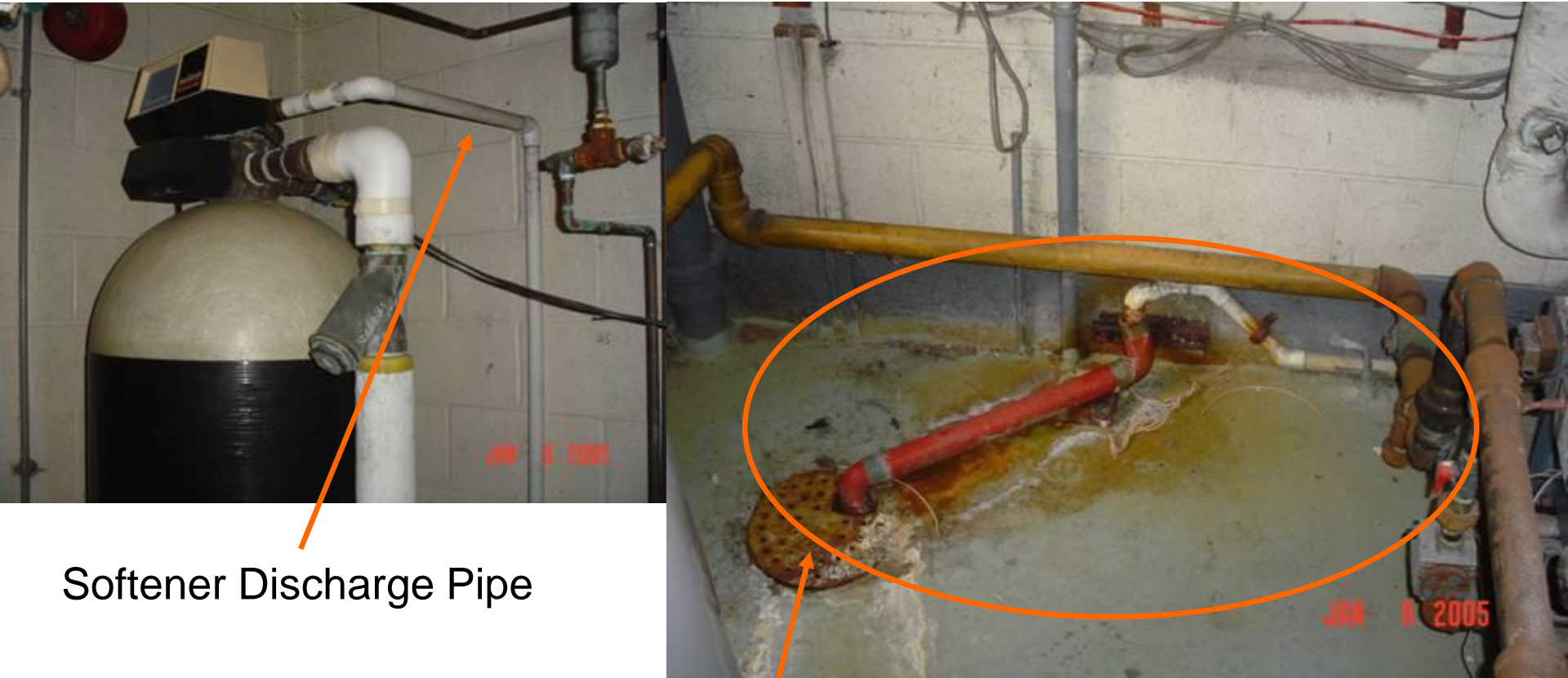
Fire Hydrants

- Must protect from unauthorized use



- Permit system with backflow preventer and meter is recommended

Water Softener



Softener Discharge Pipe

No Air Gap

Toilets & Urinals

Unapproved Anti-Siphon Valve



Laboratories

- Variety of hazards
 - Chemicals
 - Hoses
 - Eyewash Stations
 - Sinks
 - Aspirators
 - Water Treatment Units



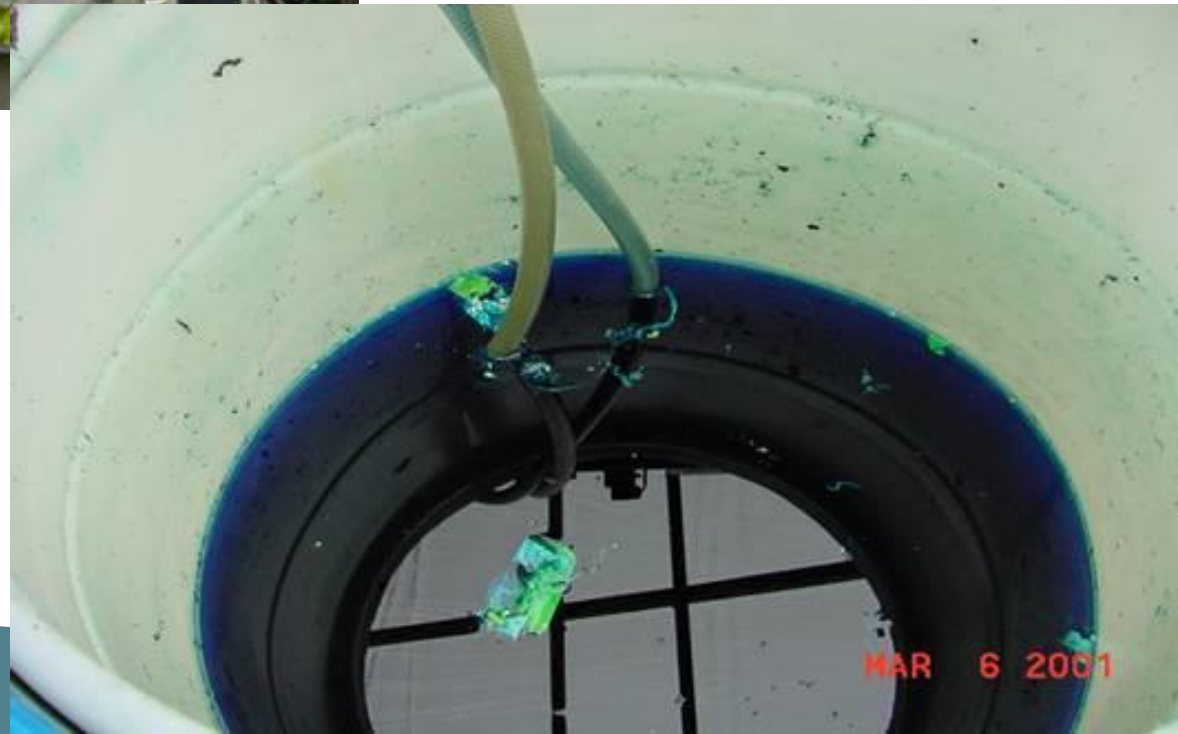
GREENHOUSES AND FLOWER SHOPS





CHEMICAL APPLICATION DEVICES

ZONE CONTROL SYSTEM





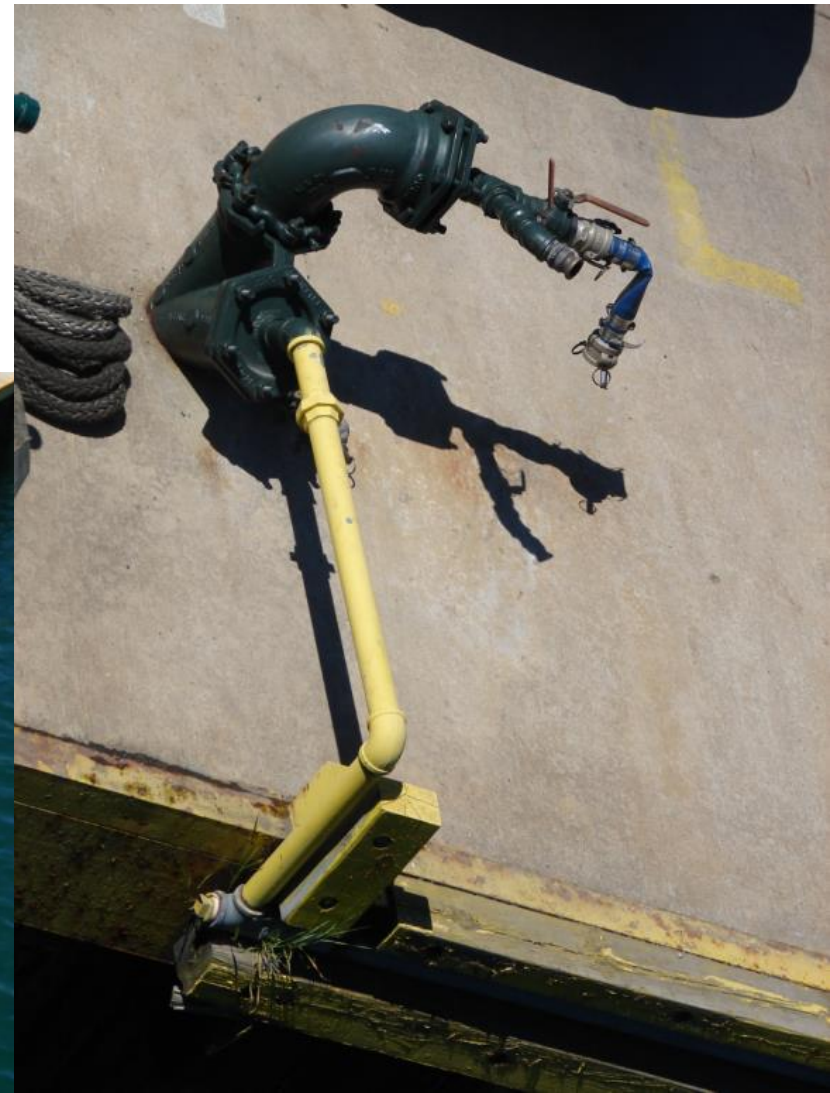
WHAT IS THIS?

Marinas



Marinas

- Filling boat water tanks
- Cleaning deck with hose
- Filling Live Wells



Medical & Dental Equipment

- Lots of Potential Hazards
 - Cuspidors
 - X-Ray Machines
 - Dental Vacuums
 - Specimen Tanks
 - Laboratories
 - Autopsy Equipment
 - Aspirators
- Service Line Containment Recommended





ANY PROBLEMS?

SERVICE LINE TO THE WHIRLPOOL BATH

Photo Developing Equipment

- Toxic chemicals used to develop film
- Water used in processing (rinsing) film
- Consider High Hazard



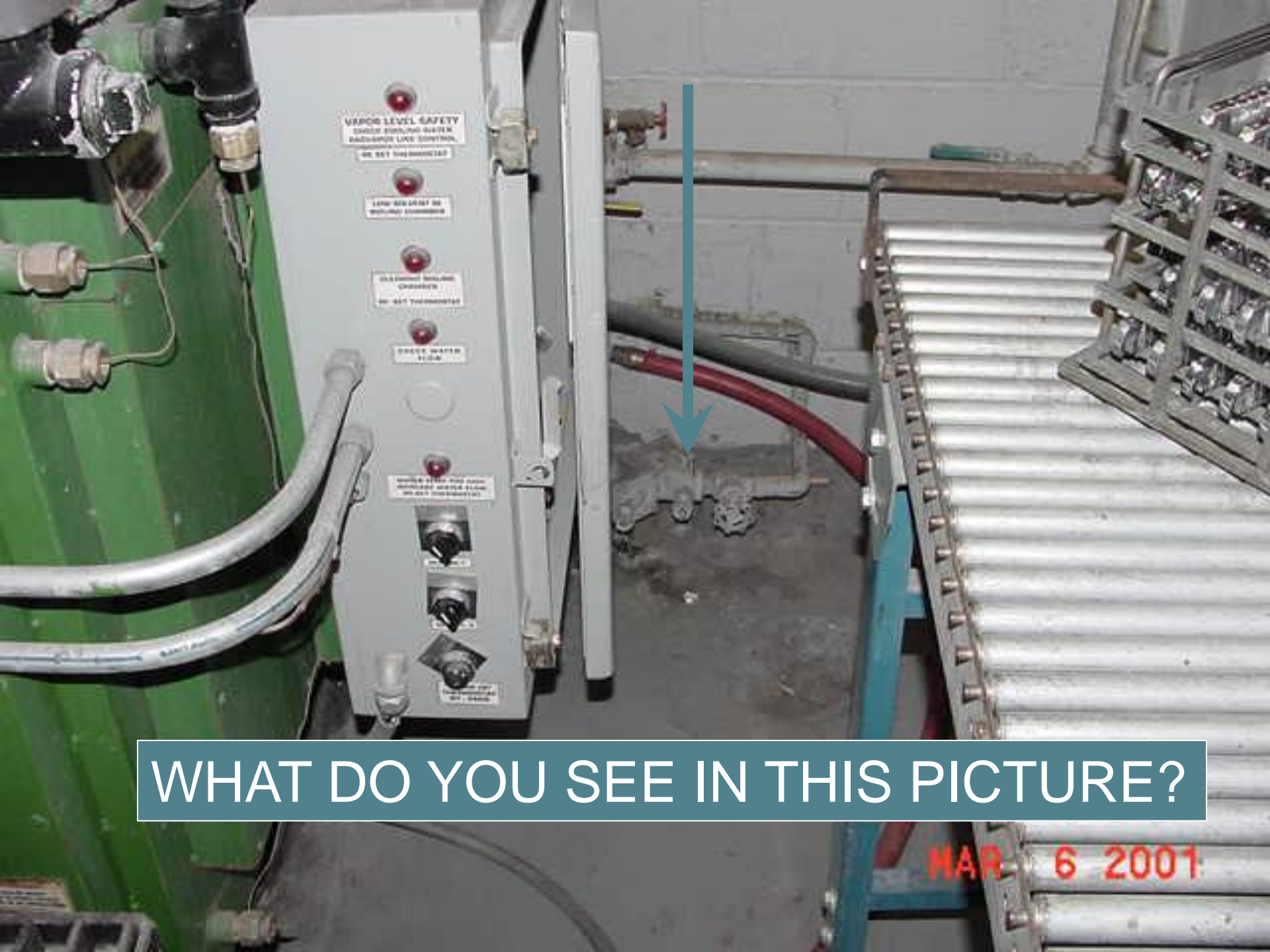
DO YOU SEE ANY CROSS CONNECTIONS?



WHAT IS THIS?

PLATING FACTORY





VAPOR LEVEL SAFETY
CHECK BURNING WATER
RECHARGE LIQUID SYSTEM
NO SET TEMPERATURE

LEAK DETECT NO
REFILLING ALLOWED

EXCESSIVE HEATING
CHECKED
NO SET TEMPERATURE

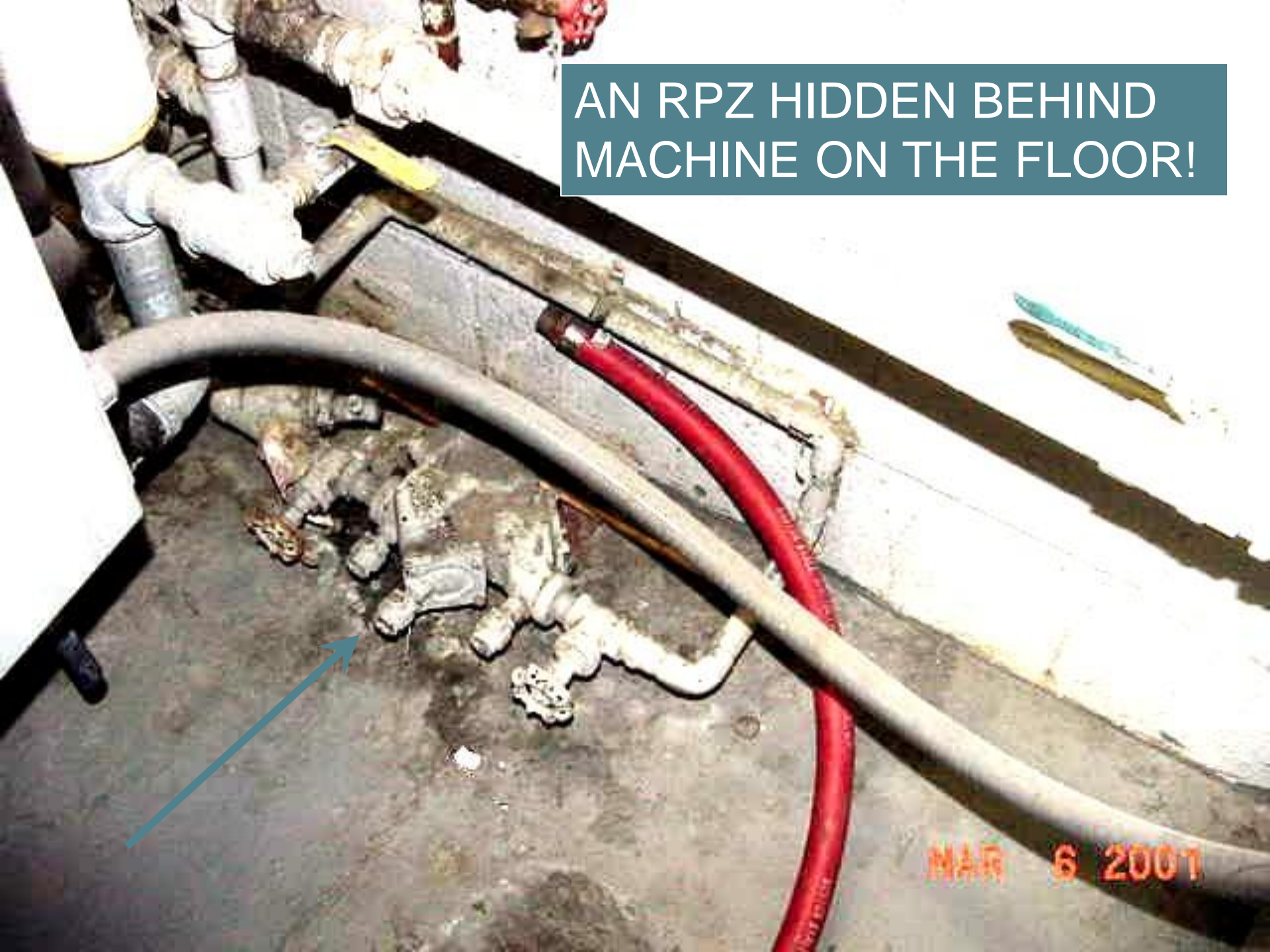
FRESH WATER
FLOW

WATER FLOW THE SYSTEM
CHECKED
NO SET TEMPERATURE

WHAT DO YOU SEE IN THIS PICTURE?

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AN RPZ HIDDEN BEHIND
MACHINE ON THE FLOOR!





SUBMERGED
INLETS

SO WHAT DO YOU LOOK FOR?



EYE WASH STATION

THIS DRINKING
FOUNTAIN IS
CROSS
CONNECTED WITH
PLATING TANKS



DRINKING FOUNTAIN

Swimming Pools



Waste Water Facilities

- Variety of hazards
 - Treatment chemicals
 - Mixing tanks & basins
 - Pumping equipment
 - Laboratory
 - Wash Down Areas



POTABLE WATER



POTABLE WATER



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← WATER
LUBE LINE

→ RAW SEWAGE
LEAKAGE

RAW SEWAGE PUMP

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RV Dump & Fill Stations

- Water supply fill lines must have an air gap or AVB
- Wash out lines?



Common Hazards & Facilities to Inspect

Questions?

[EGLE - Community Water Supply \(michigan.gov\)](http://michigan.gov/egle)

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