



AAMI TIR 34 WATER STANDARDS FOR STERILE PROCESSING

Total Water Treatment Systems, Inc.
(100% Employee Owned)

Total Water Treatment Systems, Inc.

- Annual revenue of approximately \$50 million
- 175 employees – started business in 1943
- Specializes in design of ultra pure water systems for Biotech, Laboratory, Healthcare, Kidney Dialysis, and Industrial Applications.
- www.total-water.com

Locations – Total Water

- Georgia – Location in Atlanta
- Illinois – Location in Chicagoland
- Iowa – Location in Eastern Iowa
- Michigan – 6 Locations
- Wisconsin – 6 Locations

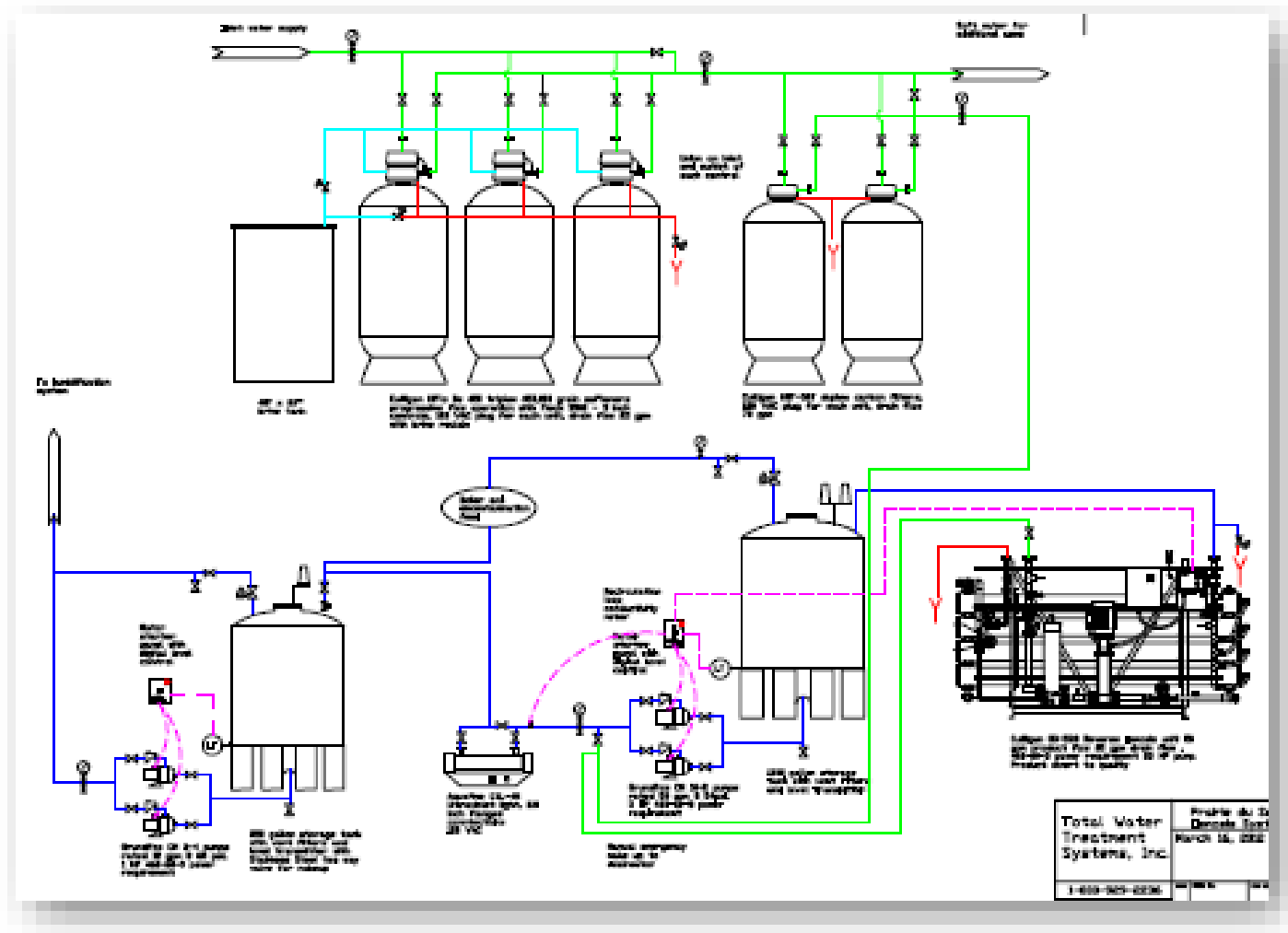
Steris Standards - Critical Water Quality

- Resistivity < 0.1 megohm/cm
 - Reverse osmosis & likely deionized mixed bed resin tanks
- Endotoxin No requirement
- Bacteria No requirement
 - Ultraviolet light and 0.2-micron final filtration recommended
- Chlorides No requirement

Central Sterile Processing - Humidification



Central Sterile Processing - Humidification



AAMI TIR 34 - CSS Utility Water Quality

- Hardness < 150 ppm (8.77 Grains per gallon)
- pH 6 – 9
- Conductivity < 500 uS/cm
- Chlorides < 250 PPM
- Endotoxin N/A
- Bacteria N/A

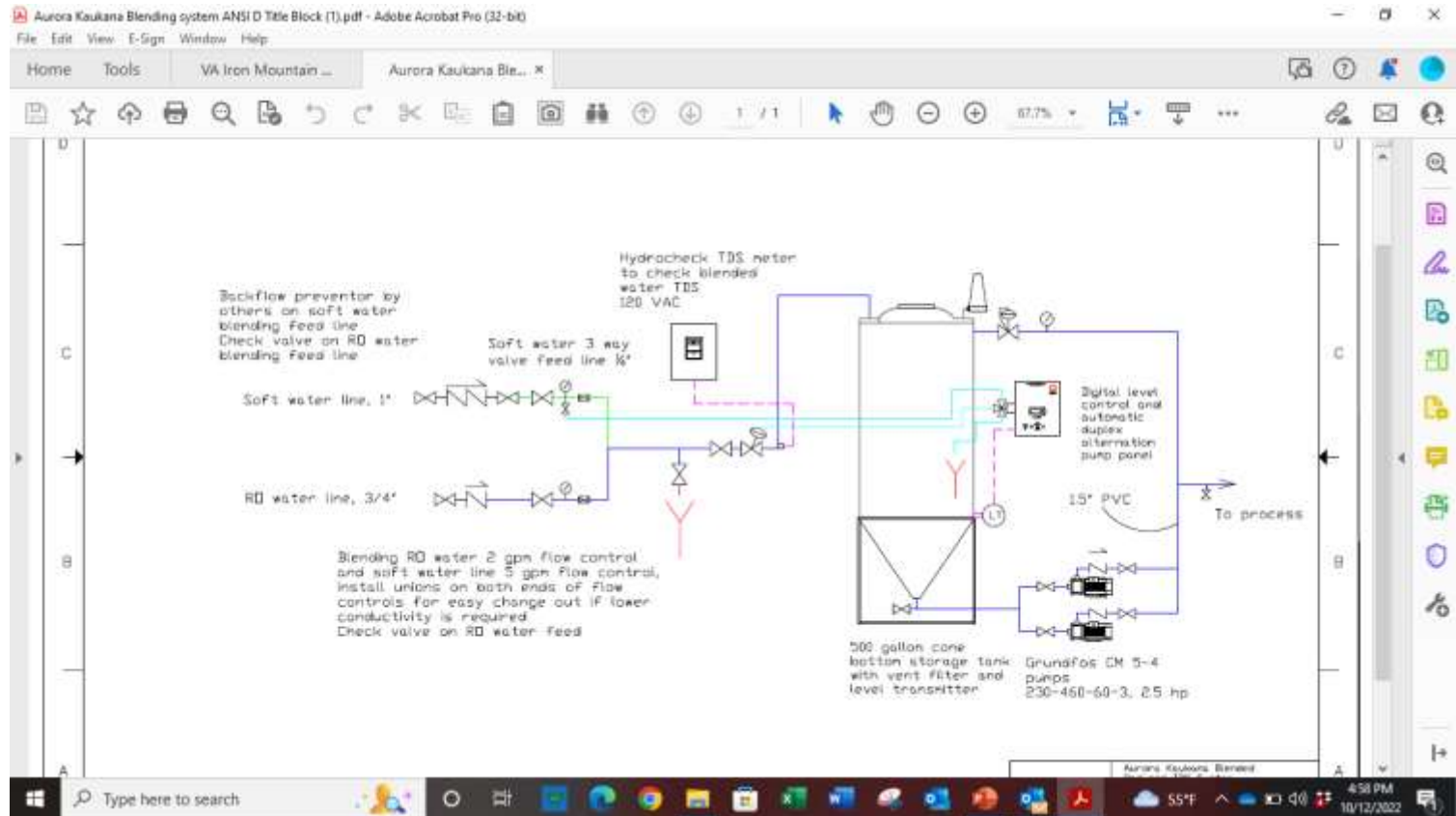
AAMI TIR 34 Requirements for Utility Water

- Blended Water System maybe required if Utility Water does not meet the standards
- RO blended with softwater
- Does not require bacteria control

PROCESS DRAWING BLENDED WATER



PROCESS DRAWING BLENDED WATER



AAMI TIR 34 - CSS Critical Water Quality

- Hardness < 1 ppm
- pH 5 – 7
- Conductivity < 10 uS/cm
- Chlorides < 1 PPM
- Endotoxin < 10 EU
- Bacteria < 10 cfu/ml

AAMI Requirements for Central Sterile

- Polypropylene or PVDF Piping with IR Butt Fusion Welding
- RO System sometimes is enough – depends on water quality
- RO Polished with DI required on most well water applications
- UV System and 0.05-micron final filters - bacteria/endotoxin
- Recirculated loop with Velocity of 3 – 8' per second
- DI a good idea for backup

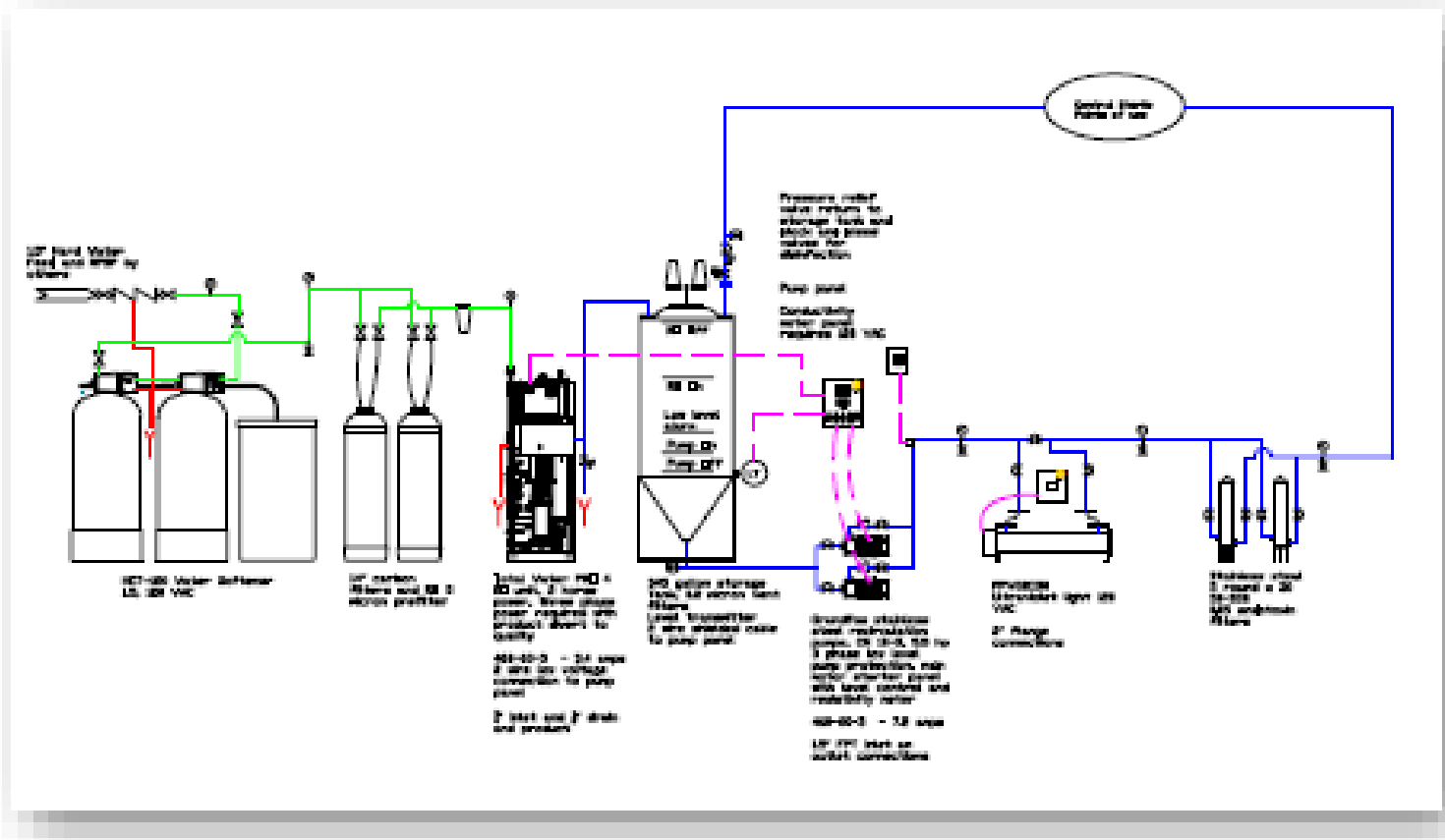
SPD System with RO System – AAMI TIR 34



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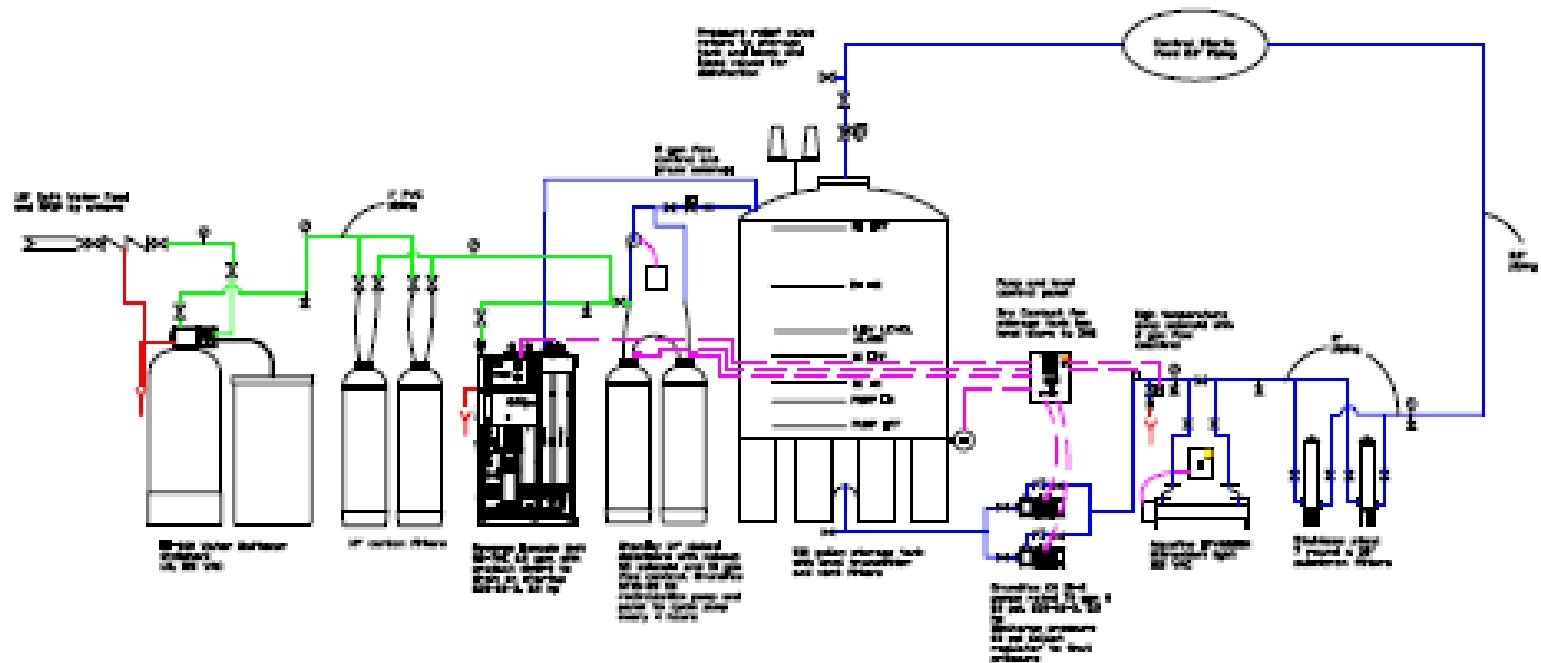
SPD System with RO & Backup DI



SPD System with RO & Backup DI



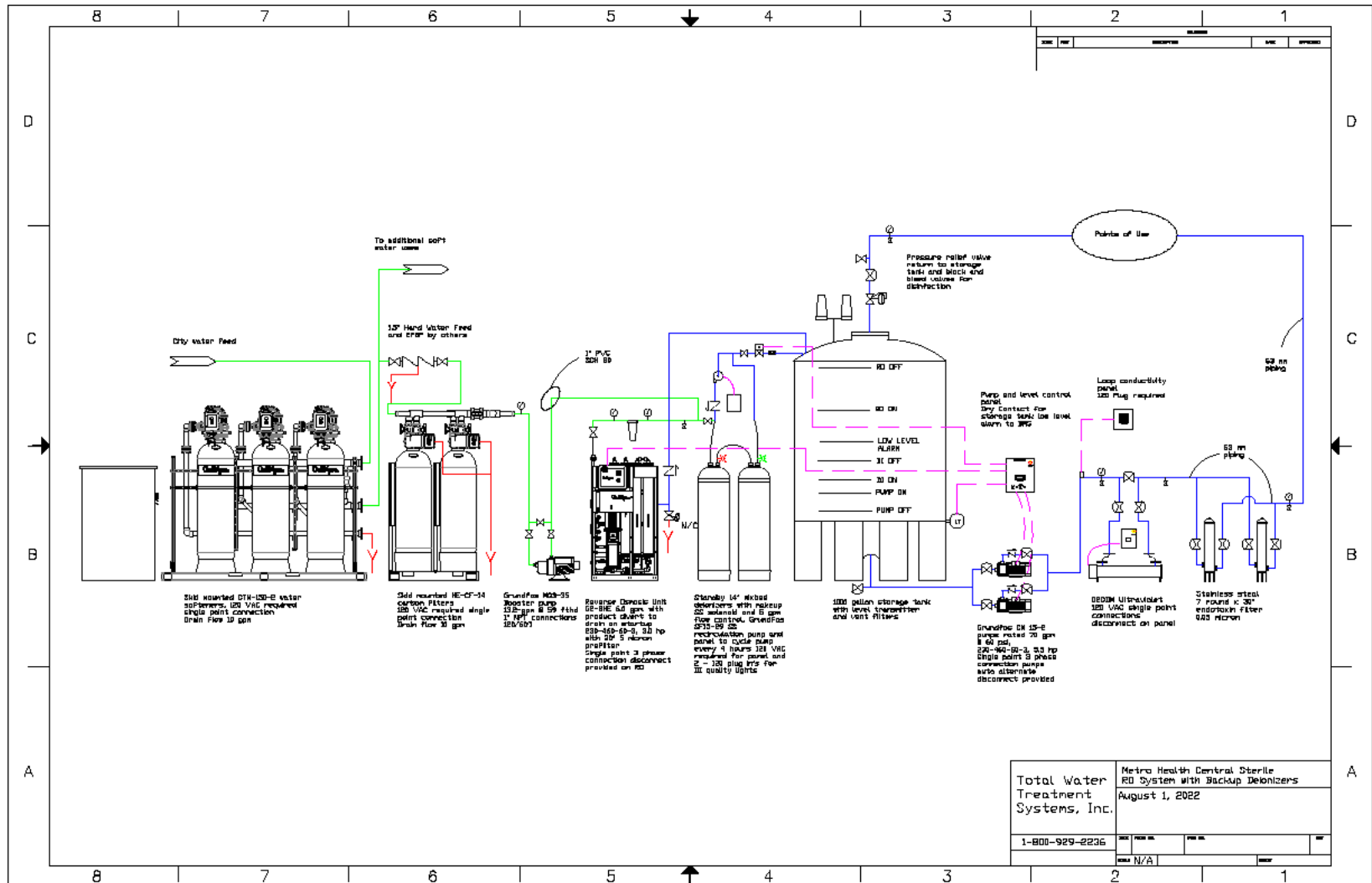
SPD System with RO & Backup DI



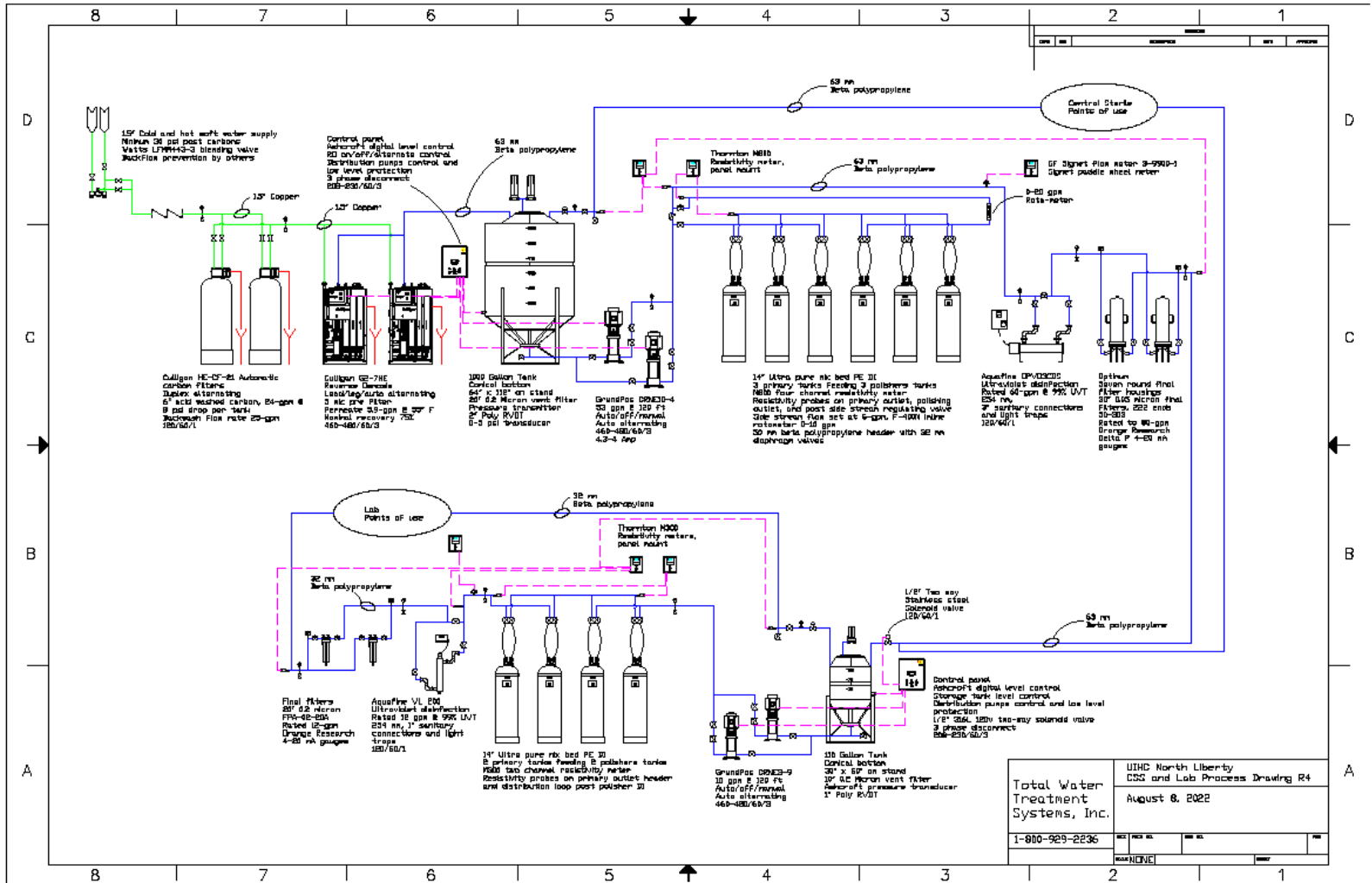
AAMI TIR 34 - CSS Critical Water Quality & Lab



AAMI TIR 34 - CSS Critical Water Quality



SPD System with Side-Stream DI & Lab



DOES PIPING MATTER?

- What are we finding with PVC and CPVC Systems
- Disinfections every 3 – 6 months
- Downtown for SPD: 6 – 8 Hours
- Systems designed correctly –
Disinfection 12 months or more

General Mistakes in Hospital Systems

- One system for boiler, humidification, lab, and central sterile
- Wrong type of piping type and size
- Flat bottom storage tank with/without bacteria control
- Dead legs in piping or multiple sizes in distribution loop piping with velocity less than 3 feet per second (Increased potential for microbial growth)
- Dead leg piping from cross-connection device. The cross-connection device needs to be located close to each washer if required.

Steris Sizing Sheet



Date: 2/14/2022

University of Iowa ASC
 North Liberty
 H-NUMBER: 14364

Qty	Product Description	Number Cycles per Hour	Pure H2O Gallons per Hour	Minimum Flow Rate (GPM)	TOTAL Gallons per Hour (GPH)	TOTAL Minimum Flow Rate (GPM)
2	AMSCO 7053HP (electric) WITH Acu-Rinse Reservoir	2	24.00	5.50	48.00	11.00
2	Innowave PRO Disinfection Cycle - With Pure Water (Pro)	1	38.50	3.00	77.00	6.00
2	Vision 1330L Cart Washer-Disinfector (Electric) Pure Water-All Cycles	4	53.00	12.00	106.00	24.00
2	Adj.Ht.-2 Bay Reprocessing Sink 77"	1	15.00	1.50	30.00	3.00
2	Evolution 26 x 37.5 x 66 (electric)	1	12.00	1.90	24.00	3.80
GRAND TOTAL:					285.00	47.80

Piping Distance from Product to Water System: 50 Feet

Questions

