



Gaining Compliance Through Plan Review & Field Inspections

Presented by:

Jason Browne – CCC Program Field Inspections

Jeremiah Farmer – Plumbing-Mechanical Engineering Review Project Mgr.

Chip Matthews – CCC Program Section Manager

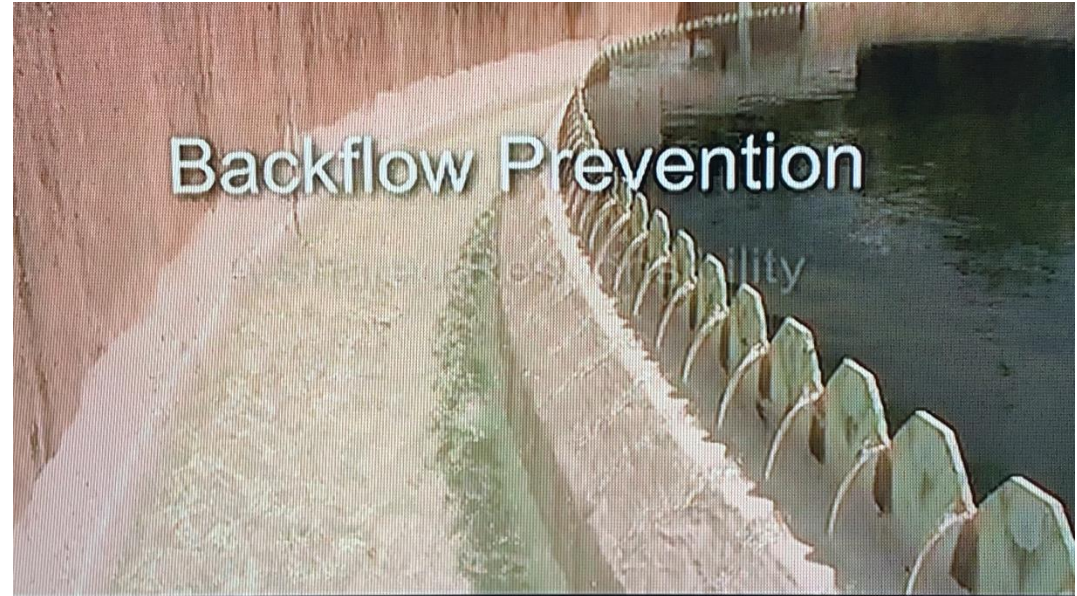
February 4, 2025



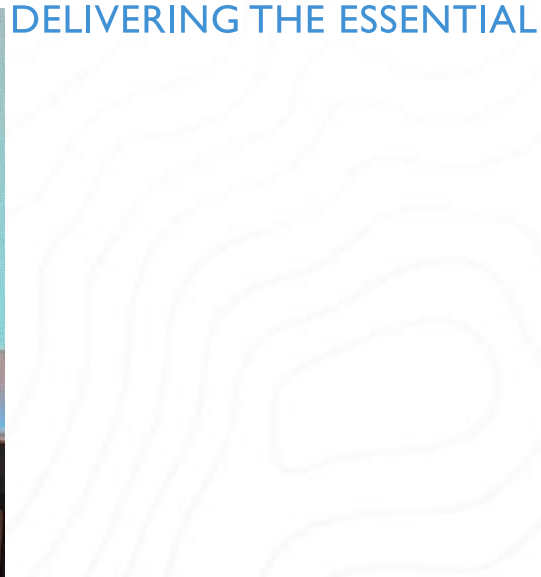
What's Changed for Me?



Poppy Finn



WSSC WATER
DELIVERING THE ESSENTIAL





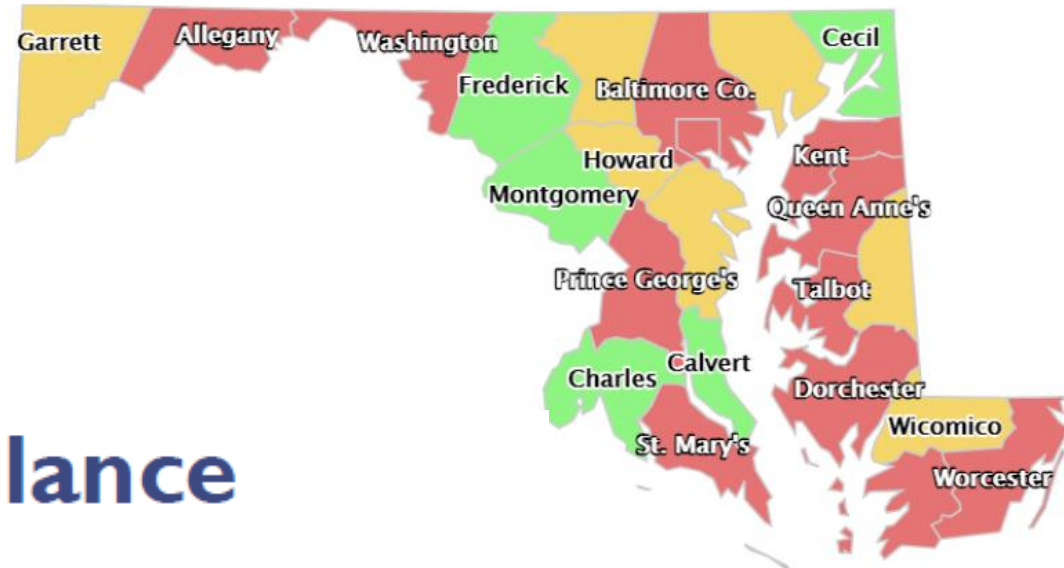


WSSC Water
Cross-Connection Control Program
Company & Program Introduction

Vision – In every home, in every business, we make everything possible by ensuring access to dependable and safe water for everyday life.



Operational Areas



WSSC Water at a Glance



★ **106 years** of no drinking water quality violations, ever.

★ **Platinum Peak Performance** recognition for wastewater treatment and resource recovery excellence.



8th
Largest combined water and wastewater utility in the United States by population served



1.9M
Residents served



162 MGD
Water provided each day



1,000 Sq. Miles
Size of WSSC Water's Service Area



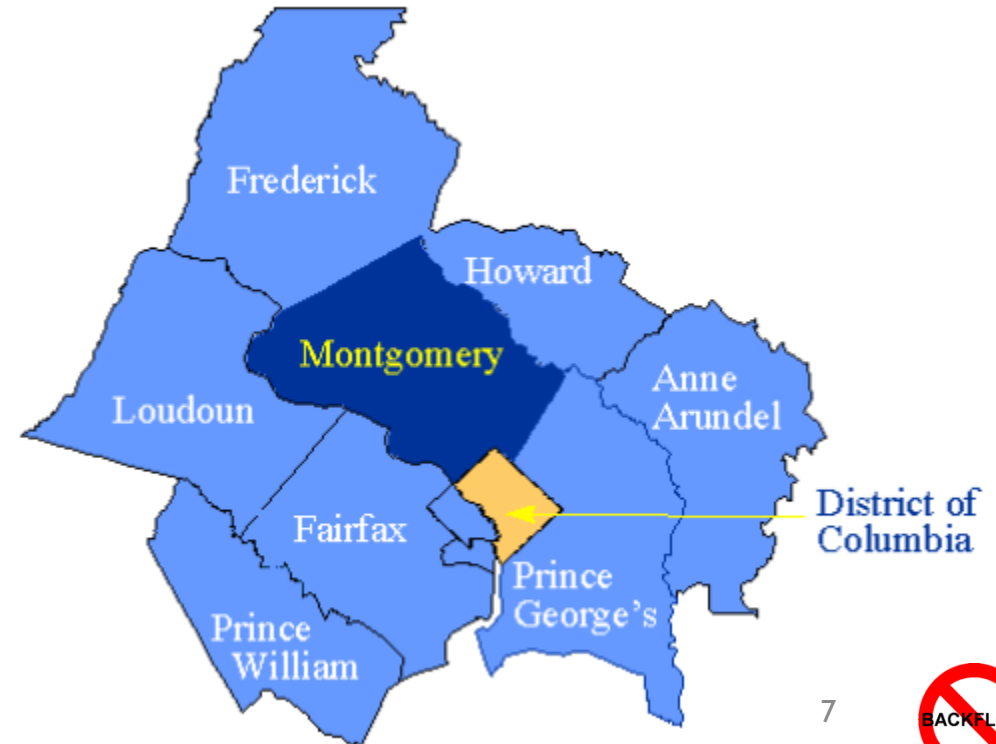
1,700+
Members of Team H₂O deliver on our mission

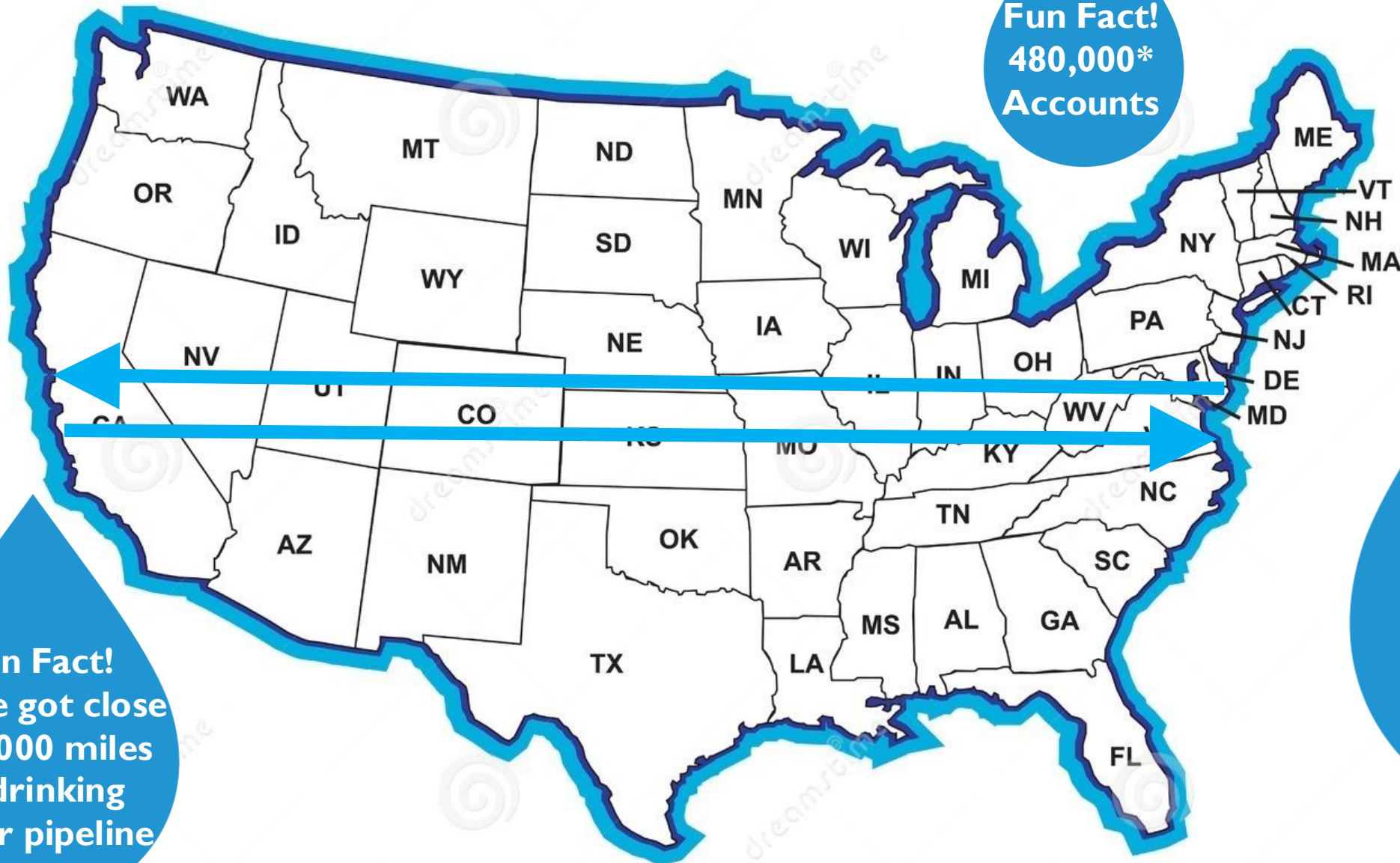


\$114.9B
WSSC Water supports the economic output of Prince George's and Montgomery counties



\$1.8B
FY2025 Operating & Capital Budget





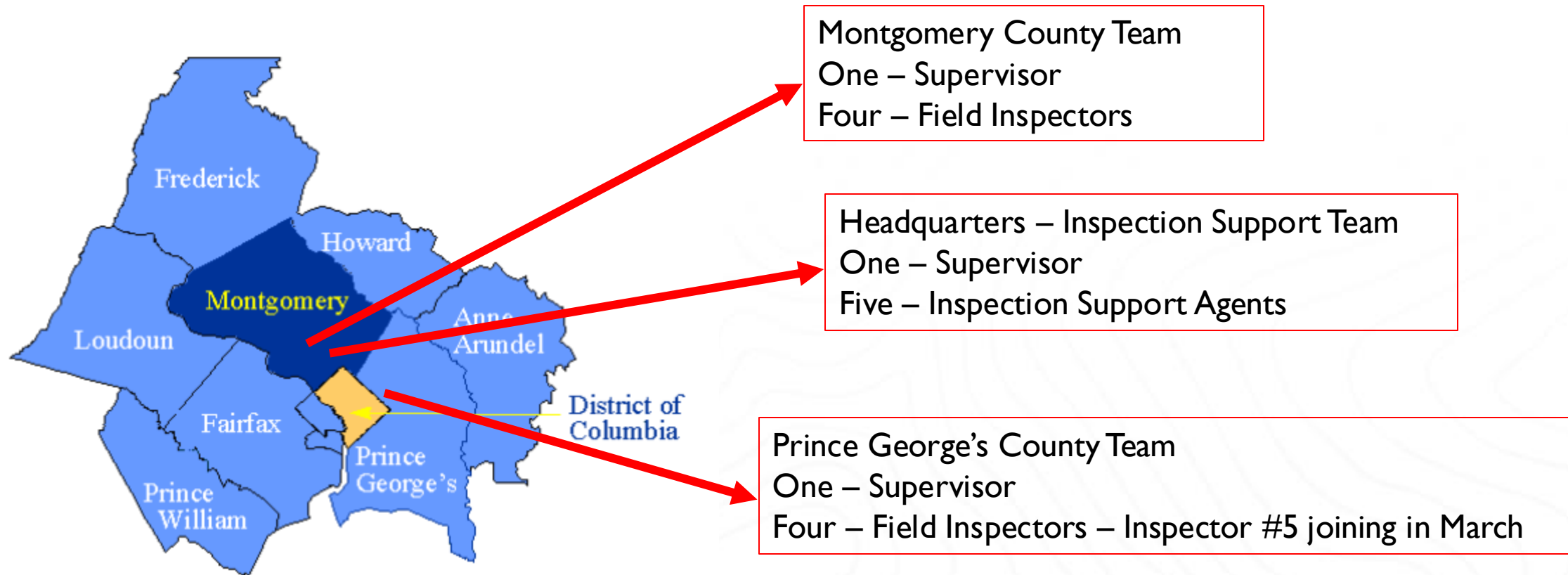
Fun Fact!
480,000*
Accounts

Fun Fact!
We've got close
to 6,000 miles
of drinking
water pipeline

Fun Fact!
There are
1.9 Million
WSSC Water
Customers



Operational Area Staffing – Our Team



Our Authority

- WSSC Plumbing & Fuel Gas Code
- Maryland Department of the Environment
- COMAR 26.04.01.32, 1/1/1986
- Identify, survey, and require testing.

2021 WSSC Plumbing and Fuel Gas Code





Maryland State COMAR CCC Program Requirements



Almost 40 years ago...



COMAR 26.04.01.32

Cross Connection Control Programs

- A. [As of January 1, 1986] Suppliers of water to community water systems...shall prepare and submit for approval to [MDE-Water Supply Program]..., a plan for controlling cross connections.
- B. Following receipt of approval...for the cross connection control program submitted in compliance with...this regulation,...the supplier of water shall implement the approved plan.



What is a Cross-Connection Control Program Plan?



MDE Guidance on Water System Cross-Connection Control Plans

- **What is a cross-connection control program plan?**

Document that describes the actions that will be taken to identify and minimize the potential effects of cross-connections. A cross connection is a link through which it is possible for contaminating materials to enter a potable water supply.



MDE Guidance on Water System Cross-Connection Control Plans

- **What three major components should be included in a cross connection control plan?**

1

Identification of areas or buildings within the system's distribution where potential cross connections may exist or where cross connections control devices should be.

2

Conducting or requiring a survey of these buildings to identify existing cross connections control devices and to identify locations where the devices should be installed.

MDE Guidance on Water System Cross-Connection Control Plans

- What three major components should be included in a cross connection control plan? – cont'd.

Conducting or requiring initial and yearly testing of the devices by qualified individuals. Repairing or replacing devices as needed and overhauling the devices every 5 years or in accordance with the manufacturer's recommendations.

3

WSSC Code requires annual assembly testing with repair as needed and requires device rebuild or replacement every 5 years.

NOTE: OWNER'S RESPONSIBILITY
(IT MAY BE NON-POTABLE WATER BEYOND THIS DEVICE)
"FOR OPTIMUM PERFORMANCE AND SAFETY, WSSC CODE REQUIRES THAT THIS DEVICE SHALL BE REPLACED OR REBUILT EVERY FIVE (5) YEARS."

Installation Date: _____

Replace or Rebuild by: _____

Replacement shall be performed by a WSSC Registered Plumber, or by the Homeowner where applicable. (permit not required)



BACKFLOW PREVENTION
INSPECTION TAG

CERTIFICATION OF
BACKFLOW TEST

Permit No. _____

BACKFLOW TEST DATE _____

WSSC Water Master Plumber ID# _____

Bldg. Address _____

Test Report No. _____

The Washington Suburban Sanitary Commission's Plumbing and Fuel Gas Code require that the backflow preventer be tested a minimum of every 12 months and rebuilt as needed.



Our Mission

Smart One Water Mission

WSSC Water ensures all communities thrive by ethically delivering safe, reliable and sustainable water and wastewater services.



Protect & Serve
our WSSC Water
Customers





7 Essential Elements of a Cross-Connection Control Program

7 Essential Elements

1. Legal Authority
2. Plan Review of New Construction
3. Standards & Specs for “Approved” Assemblies
4. Testing and Maintenance
5. Record Keeping
6. Survey & Retrofit Existing Facilities
7. Training and Education

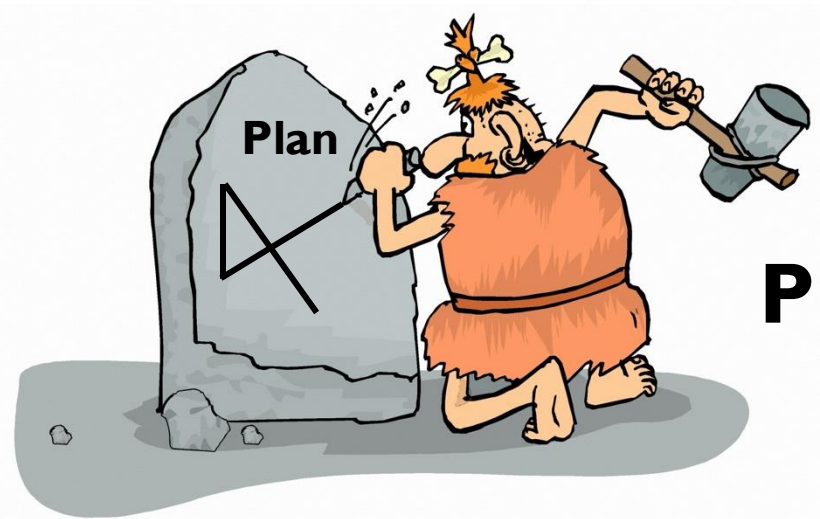
Introduction



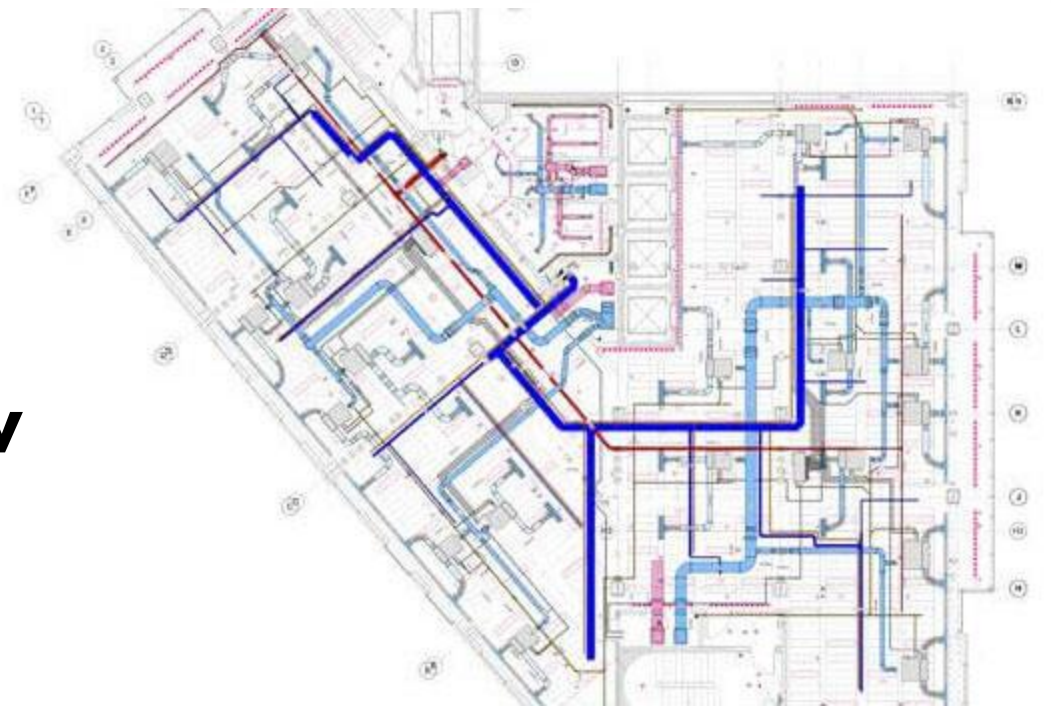
Who is
Jeremiah Farmer?



Agenda



Plan Review

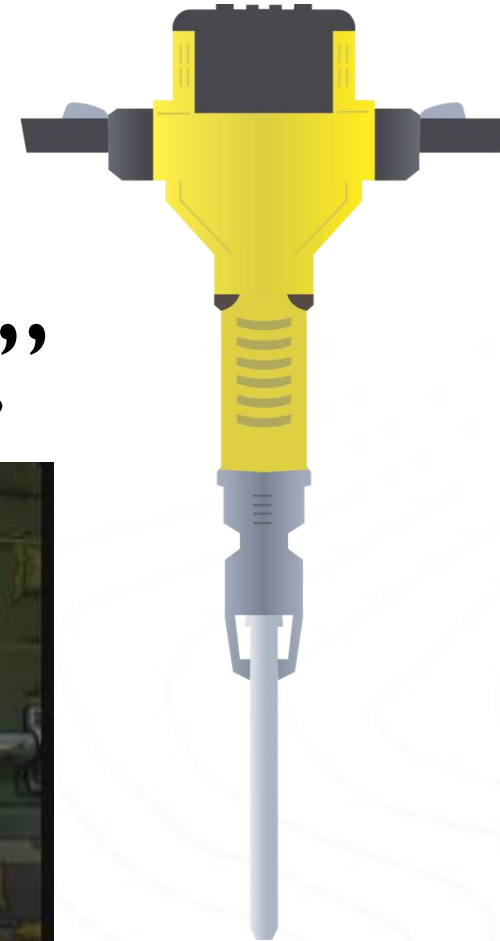


Agenda

1. Plan Review's methodology
2. Plan examples where attention was needed
3. Our Plan Review process
4. Our Internal & External stakeholders
5. What we review
6. Complicated plans & top rejection reasons

Plan Review Methodology

“It’s easier to fix with an eraser or mouse click than with a jackhammer.”

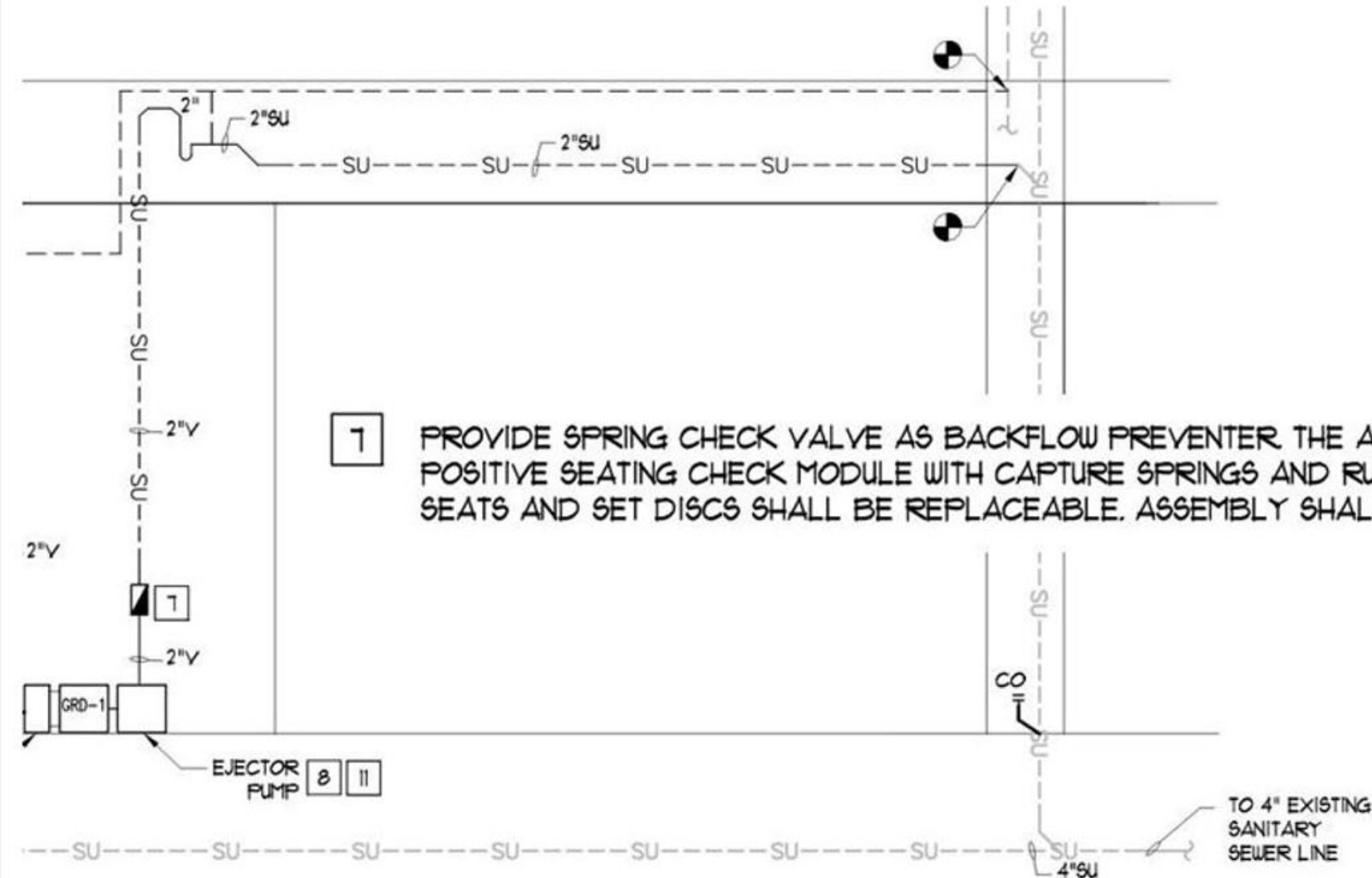


But the Plan said....

12. BACKFLOW PREVENTER FOR LOW HAZARD CROSS-CONNECTIONS: (ICE MACHINES, SODA MACHINES ETC. 2" AND SMALLER) DOUBLE CHECK VALVE TYPE, CAST BRONZE WITH INDEPENDENT SPRING LOADED POPPET-TYPE CHECK VALVE ASSEMBLY, ALL INTERNAL PARTS SHALL BE REMOVABLE FOR REPAIR WITHOUT REMOVING THE ENTIRE ASSEMBLY FROM THE LINE. MEET ANSI/ASSE 1024. WATTS MODEL 7. USE CHROME PLATED WATTS 7-C FOR LINES HANDLING CARBONATED BEVERAGES.

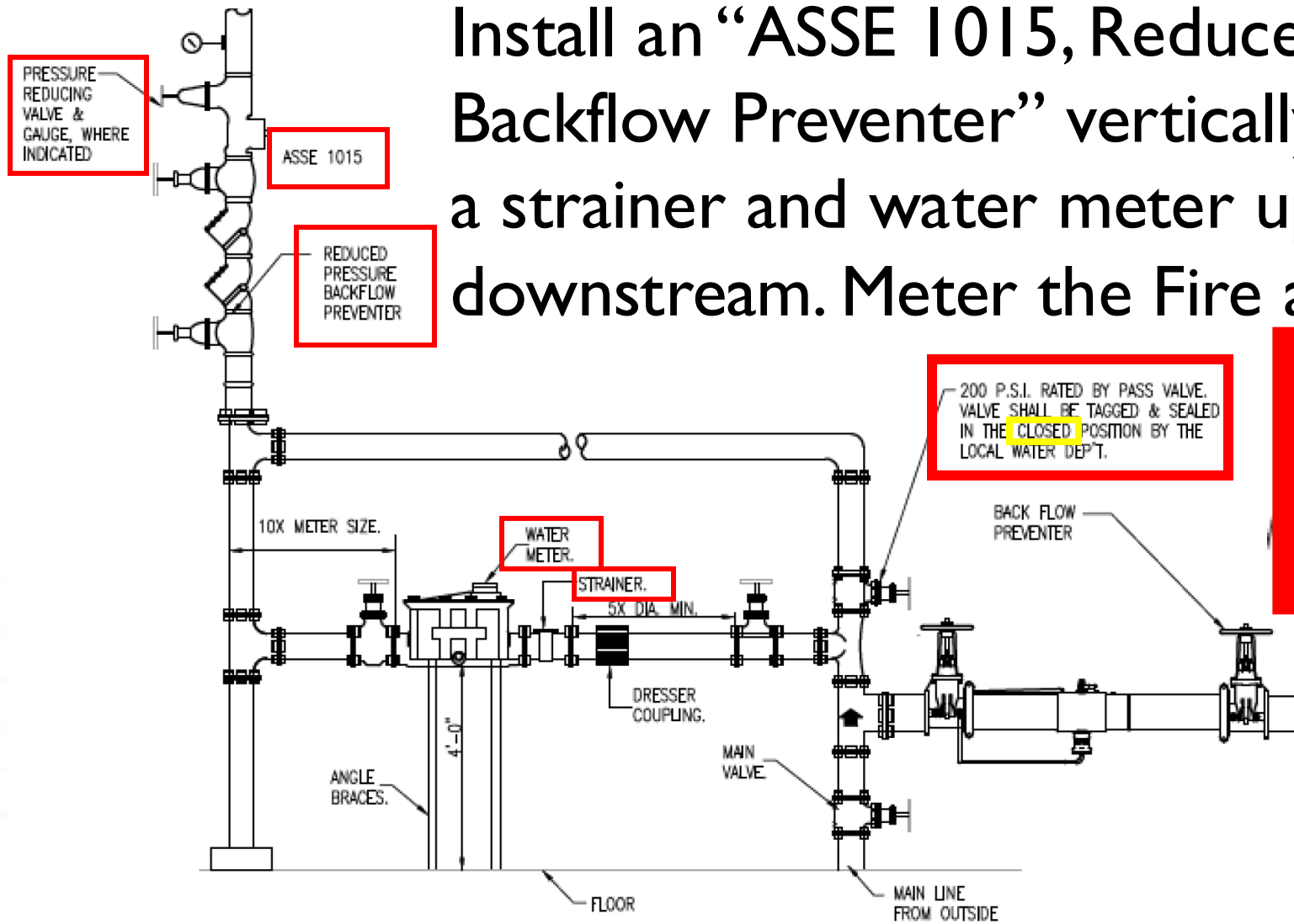
But the Plan said....

Put a DCVA on the GRD Sewage Ejector Pump Discharge!



But the Plan said....

Install an “ASSE 1015, Reduced Pressure Backflow Preventer” vertically on the fire line, with a strainer and water meter upstream, and PRV downstream. Meter the Fire and not the Domestic.



Product Changes

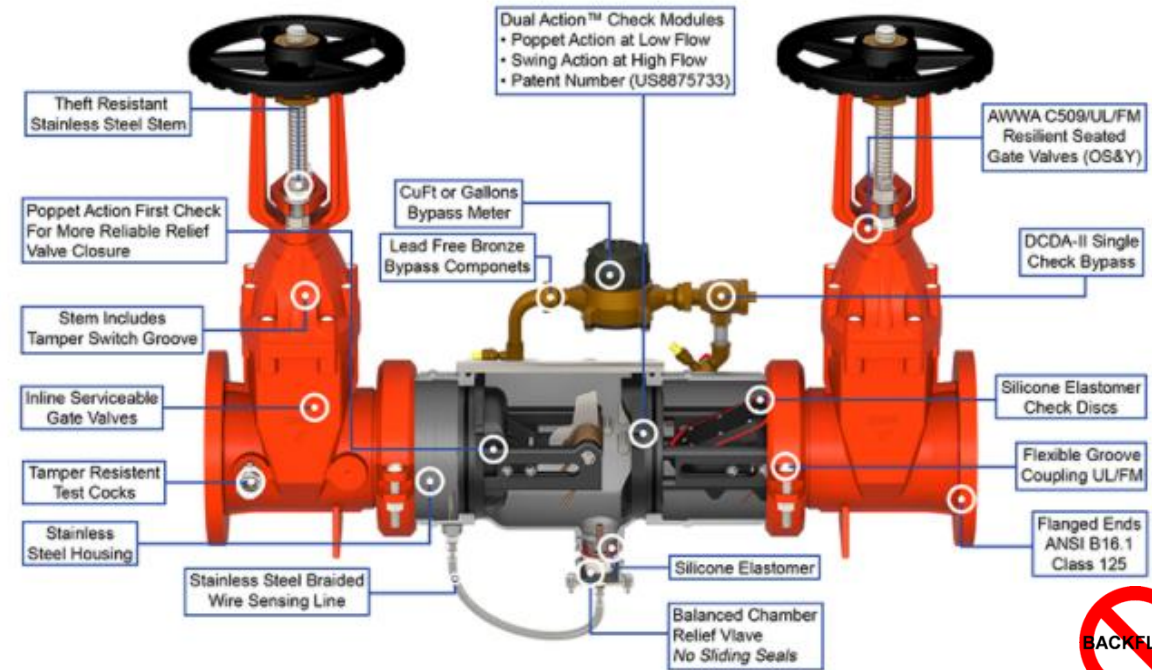
DCDA/RPDA - Type 1 and Type 2 - Still meter fire water?????



Type 1

Type 2

The Deringer 50G Reduced Pressure Detector Assembly prevents non-health hazard pollutants from entering a potable water supply system when backpressure and/or backsiphonage conditions occur. Used primarily on fire sprinkler systems when monitoring of unauthorized water use is required.

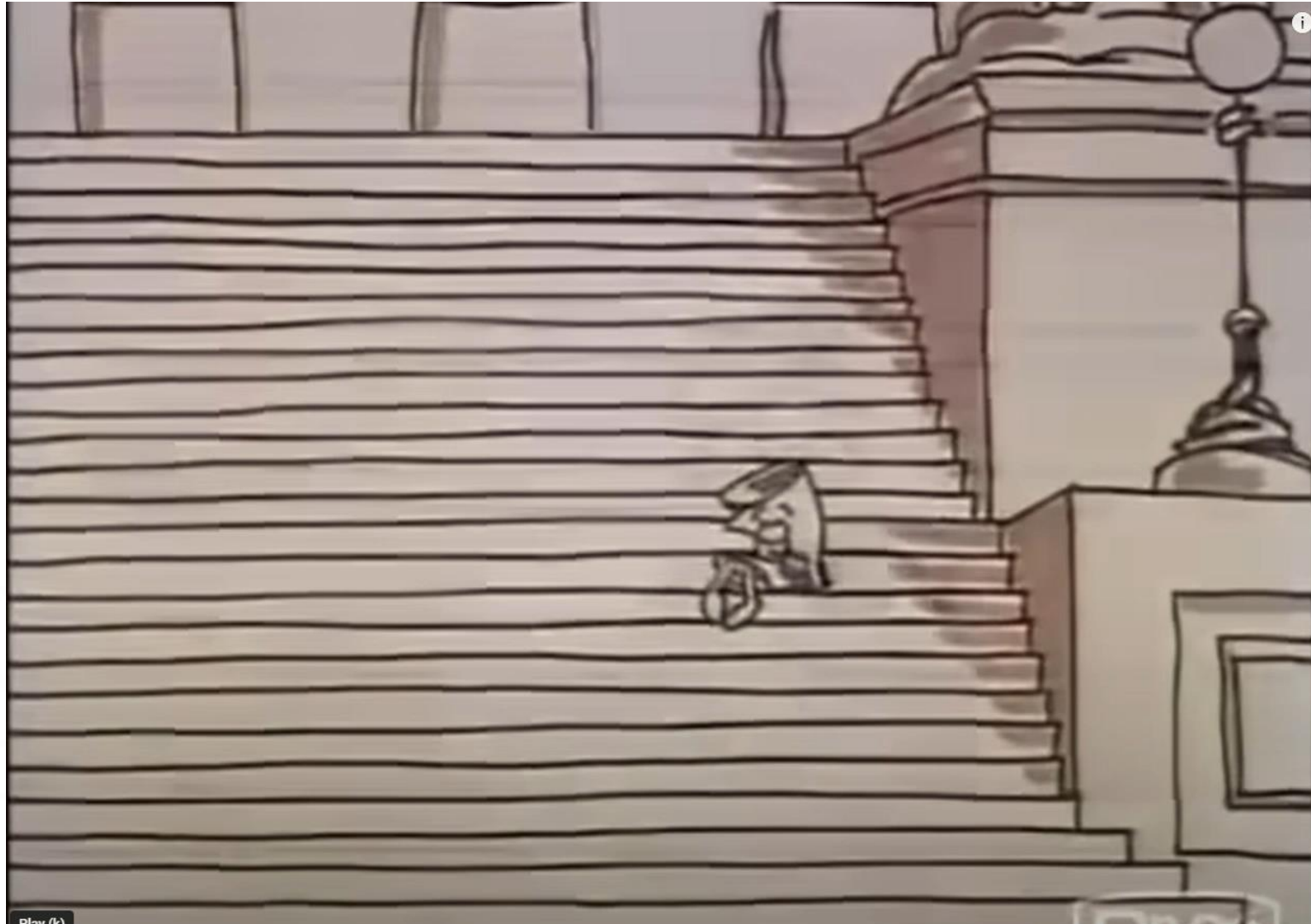




Our Plan Review Process (Abbreviated)

Plan Review Process

WSSC WATER
Return to Applicant
Plan NOT Approved
J. Farmer

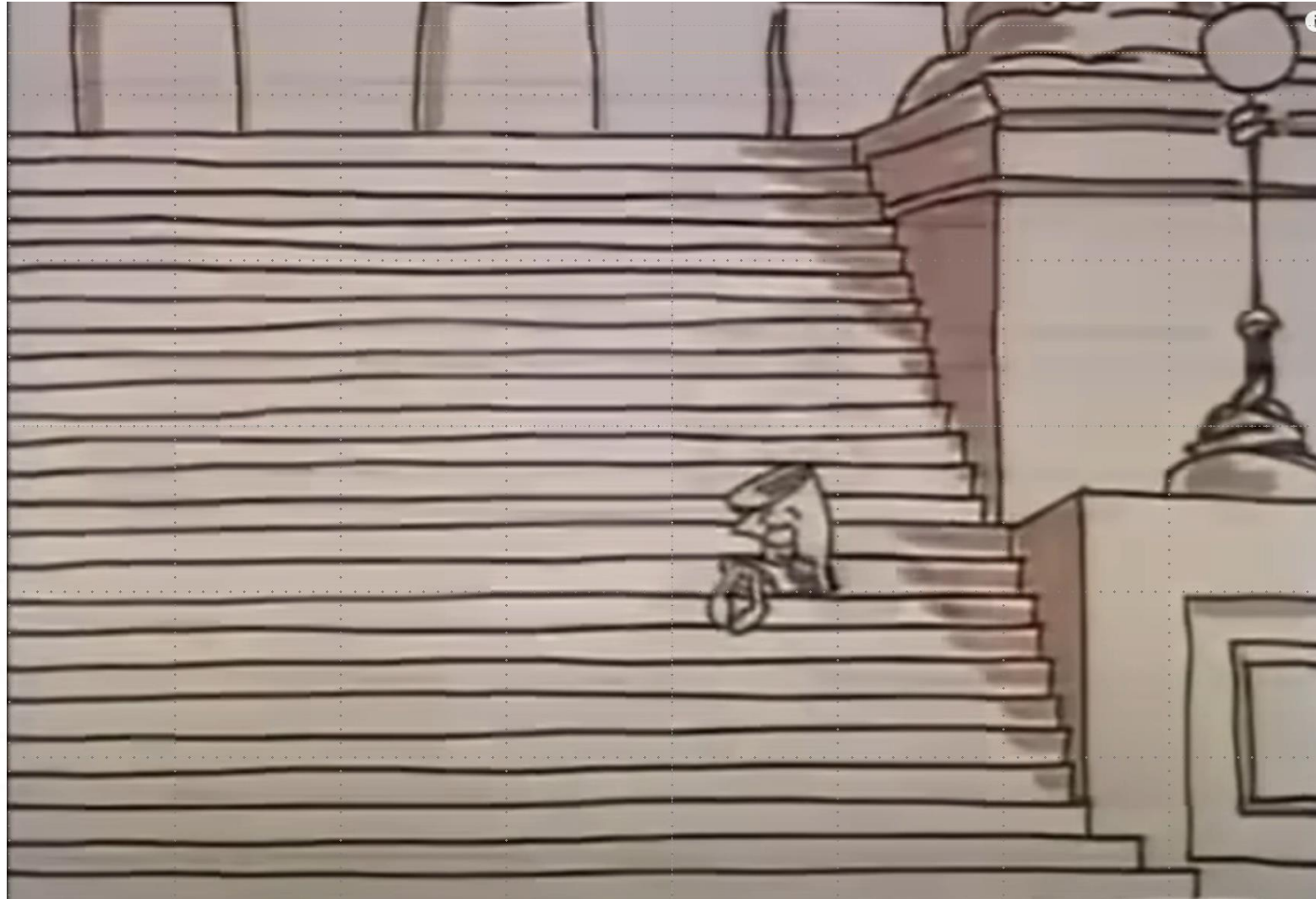


WSSC WATER
Return to Applicant
Plan NOT Approved
J. Farmer



Many Plans Hope to be Approved, But... Not All Are 

Plan Review Process



WSSC WATER

Return to Applicant
Plan NOT Approved

J. Farmer

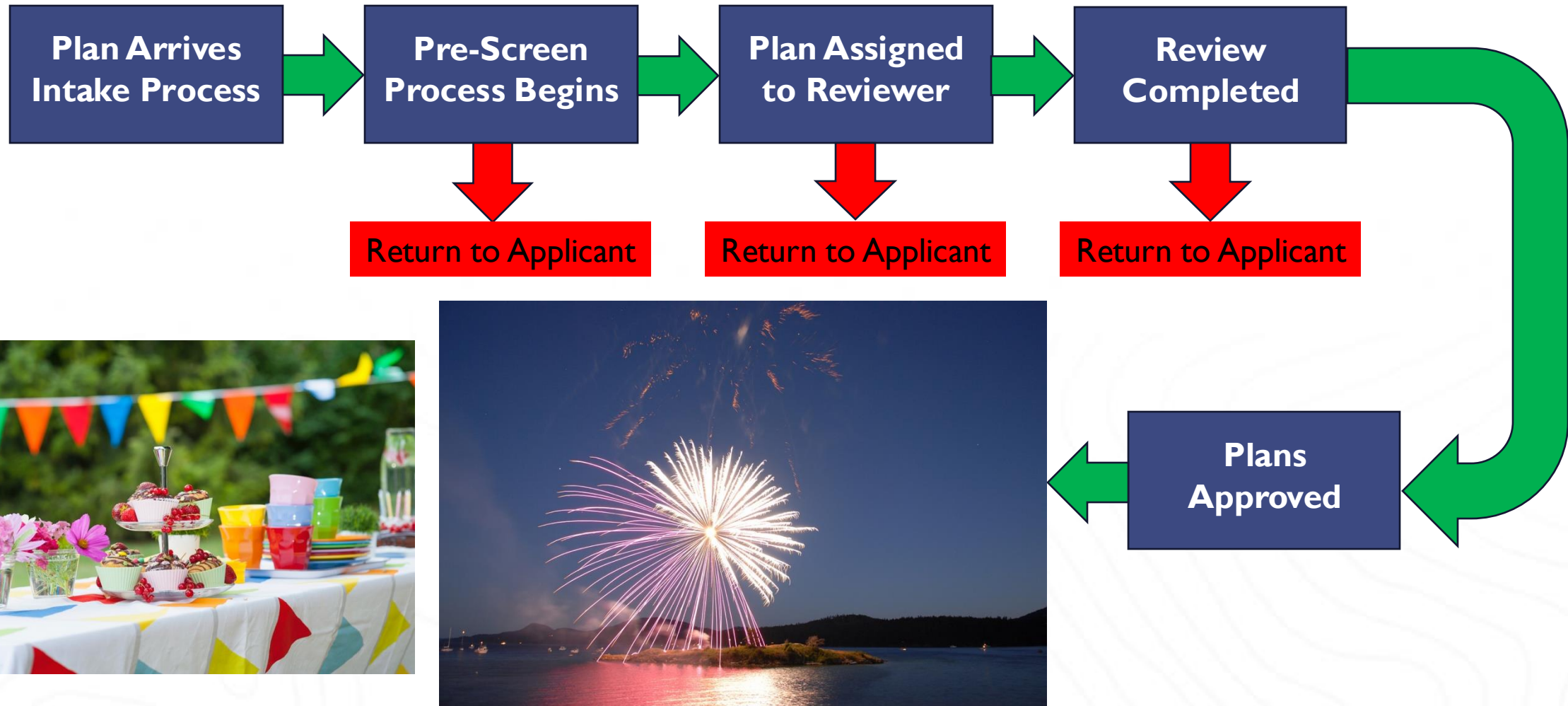
WSSC WATER

Return to Applicant
Plan NOT Approved

J. Farmer

Many Plans Hope to be Approved, But... Not All Are 

Plan Review Process



Plan Review Process

What we manage during initial intake – **violation verification**

- **Review of inbound permits**
- **ALL Long Form Permits flow through Plan Review where Project Managers review the permit details for Cross-Connection (FOG & other) violation corrections.**
- **If there are 20 non-testable devices on a permit, its likely related to a violation**
- **Internal stakeholder coordination by Plan Review team**



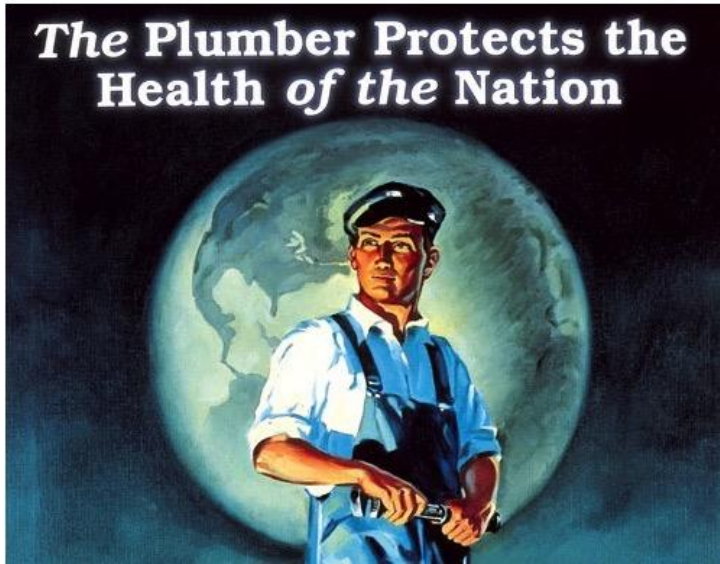
Internal & External Stakeholders

Internal Stakeholder Engagement

1. Industrial Discharge Control
2. Fats/Oils/Grease (FOG)
3. Cross-Connection Control
4. Inspection Services (Plumbing & Gasfitting)
5. Development Services (Permit Services)
6. Strategic Metering Services
7. Customer Service
8. Billing & Revenue Protection



External Stakeholder Engagement



Plumber



Engineer/
Architect



Contractor

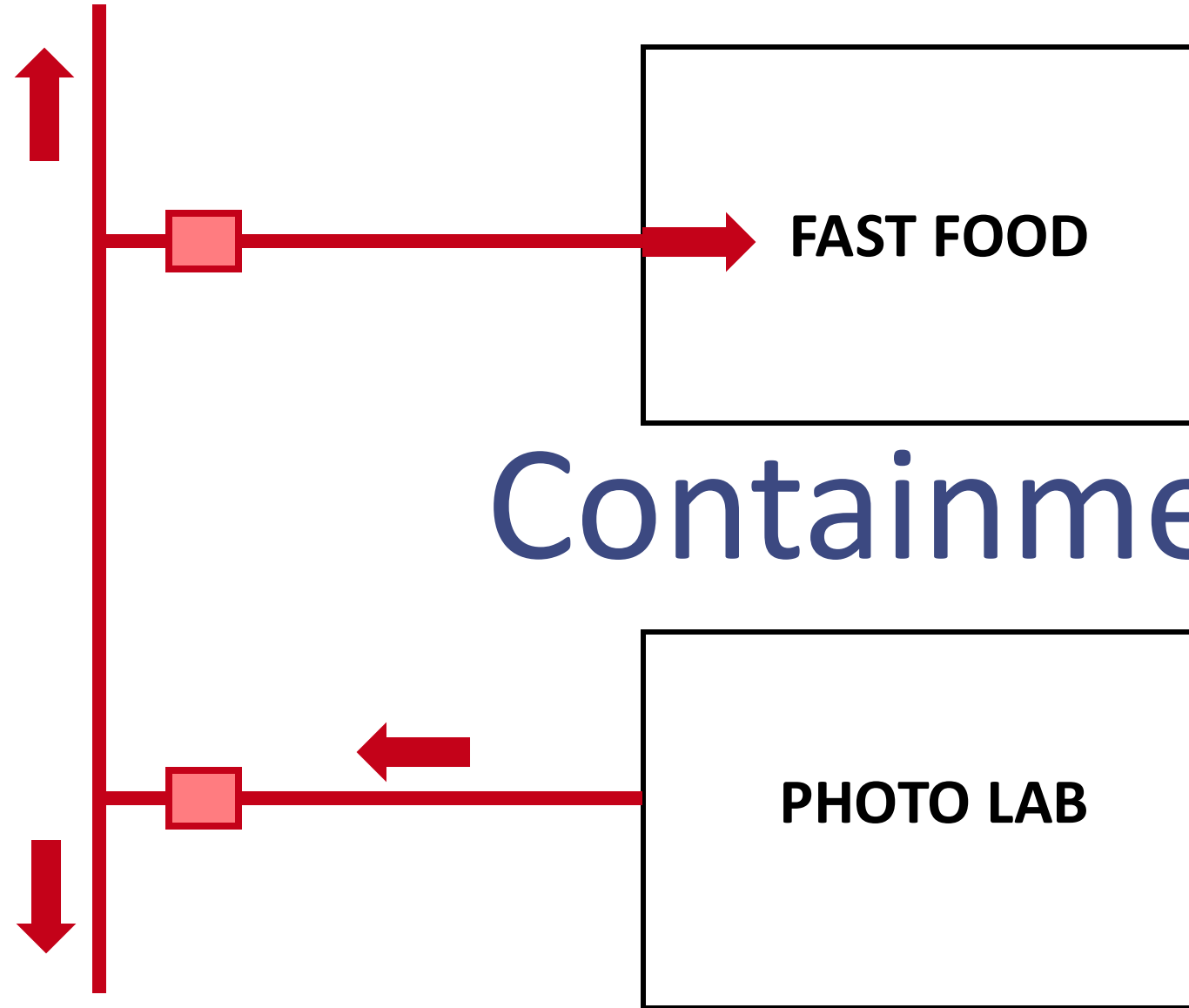


Owner





**Containment, Isolation, &
Water Meter
Review & Coordination**



Containment



Individual Fixture Isolation

“Isolation” means backflow preventer installed to protect against backflow at individual cross-connections.

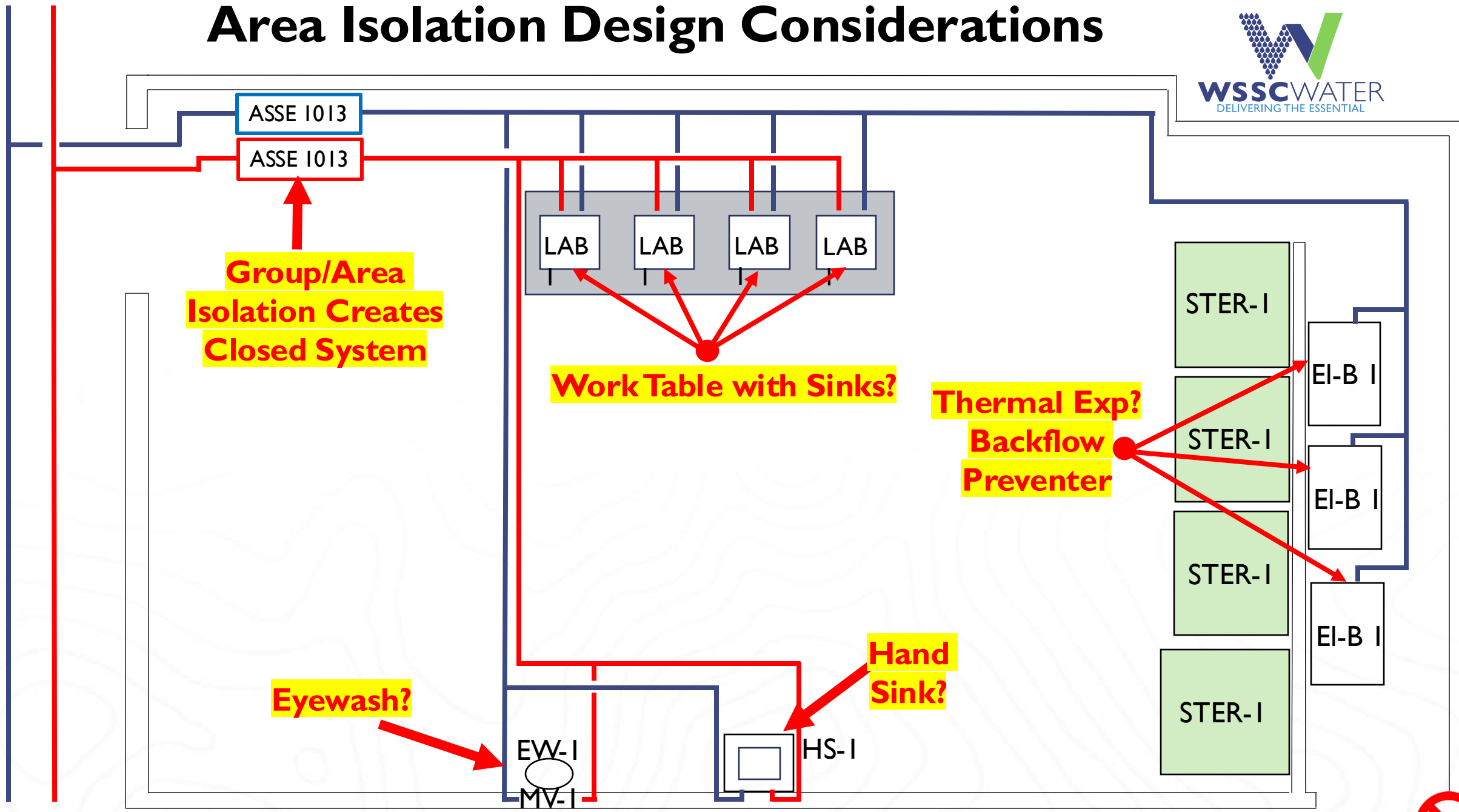


Group Fixture Isolation

“Group Isolation” means a backflow preventer(s) installed to protect against backflow downstream of containment and at a collection of identical end outlet uses.



Area Isolation Design Considerations



Group/Area Isolation Creates Closed System

Work Table with Sinks?

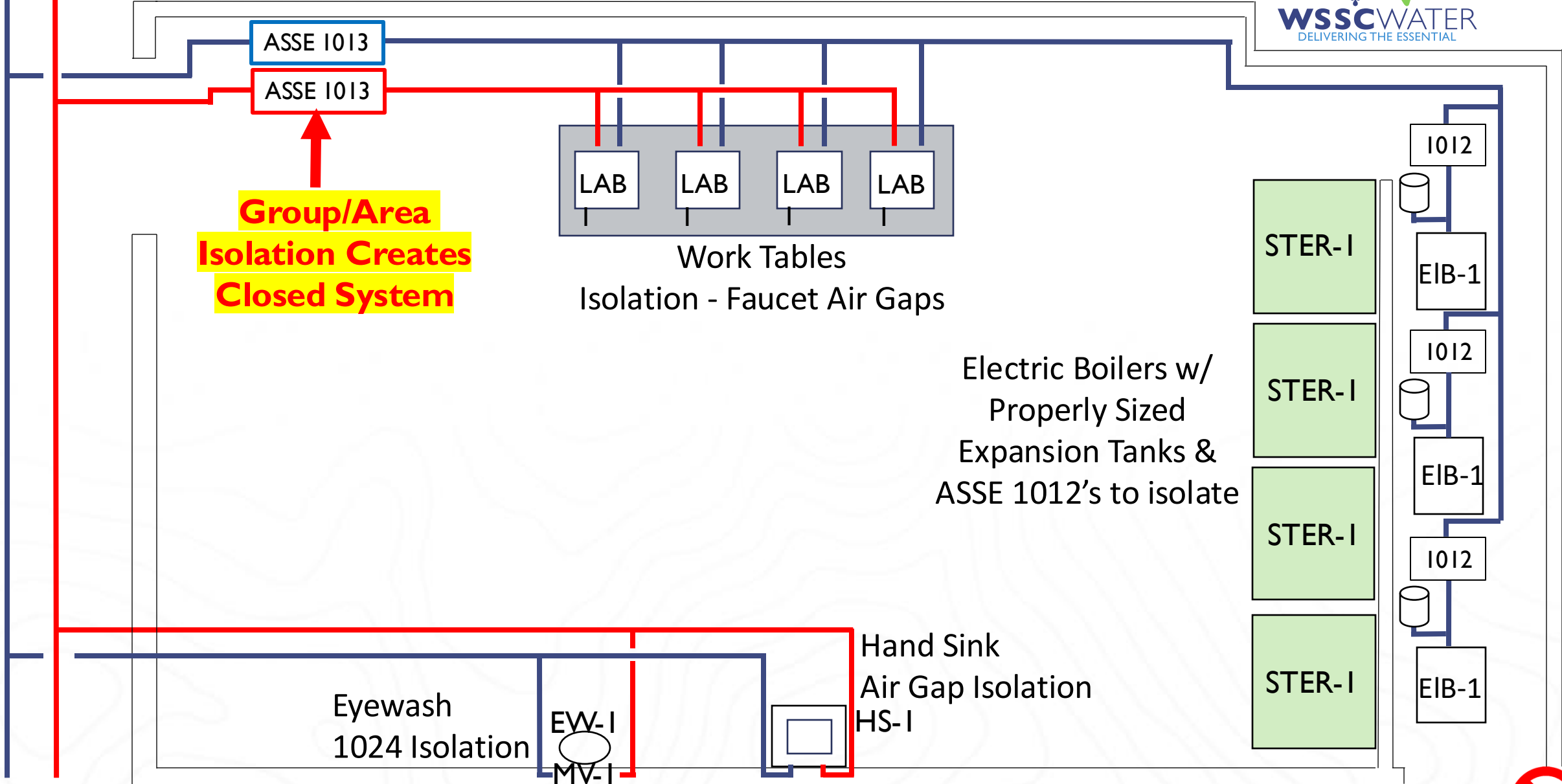
Thermal Exp? Backflow Preventer

Eyewash?

Hand Sink?



Area Isolation Design Considerations



Area Isolation Design Considerations

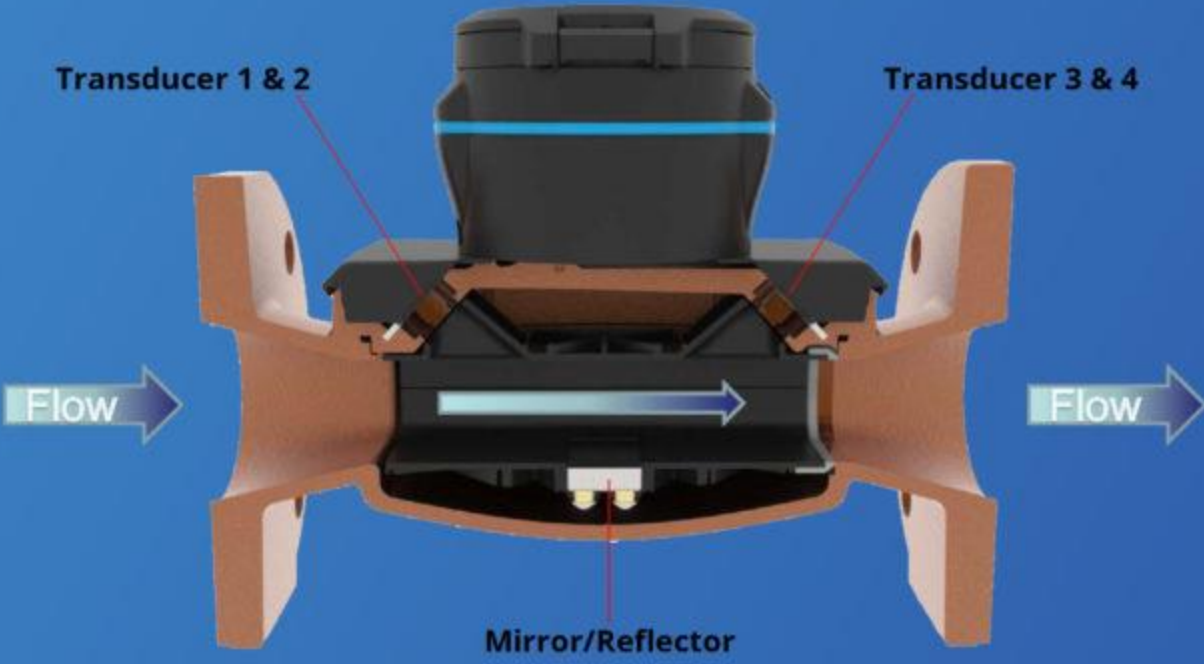
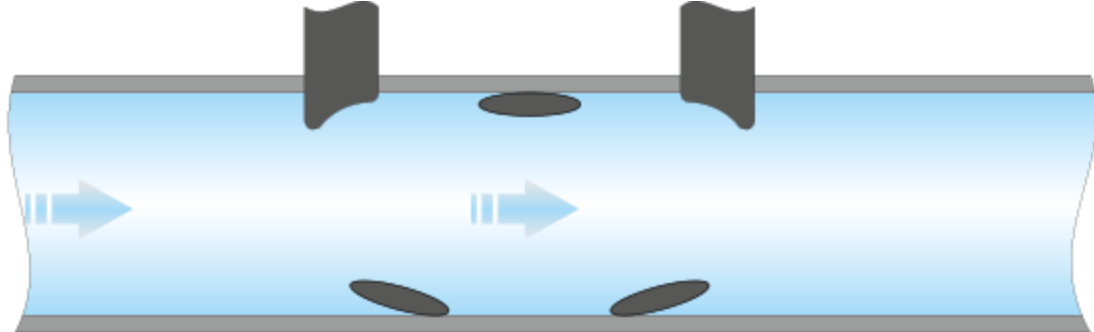
Summary

- ✓ Consider the customer – Laboratory, Federal, etc.
- ✓ Verify downstream uses
- ✓ Verify thermal expansion necessity
- ✓ Verify any required sub-containment (downstream isolation)
- ✓ Consider applications downstream & line pressure fluctuation
 - ✓ If Line Pressure fluctuation possible/present – consider soft seat single check isolator

Product Changes for us



Ultrasonic meters



Ultrasonic Meter Accuracy

Operating Characteristics and Dimensions	3" (80 mm)	4" (100 mm)	6" (150 mm)
Safe Maximum Operating Capacity	500 GPM (114 m ³ /h)	1,000 GPM (227 m ³ /h)	1,600 GPM (363 m ³ /h)
Normal Operating Range (98.5% - 101.5% Accuracy)*	1 – 500 GPM (0.23 – 114 m ³ /h)	1.5 – 1,000 GPM (0.34 – 227 m ³ /h)	3 – 1,600 GPM (0.68 – 363 m ³ /h)
Extended Low Flow (95% - 105% Accuracy)	0.5 GPM (0.11 m ³ /h)	0.75 GPM (0.17 m ³ /h)	2 GPM (0.45 m ³ /h)
Length	12" (305 mm)	14" (356 mm)	18" (457 mm)
Width	7-1/2" (190 mm)	9" (229 mm)	11" (280 mm)
Height	8-1/2" (216 mm)	9-7/8" (250 mm)	10-7/8" (276 mm)
Height from Center Pipe	3-1/2" (90 mm)	4-1/2" (115 mm)	5-1/8" (130 mm)
Weight	23 lbs (10.5 kg)	35 lbs (16 kg)	51 lbs (23 kg)

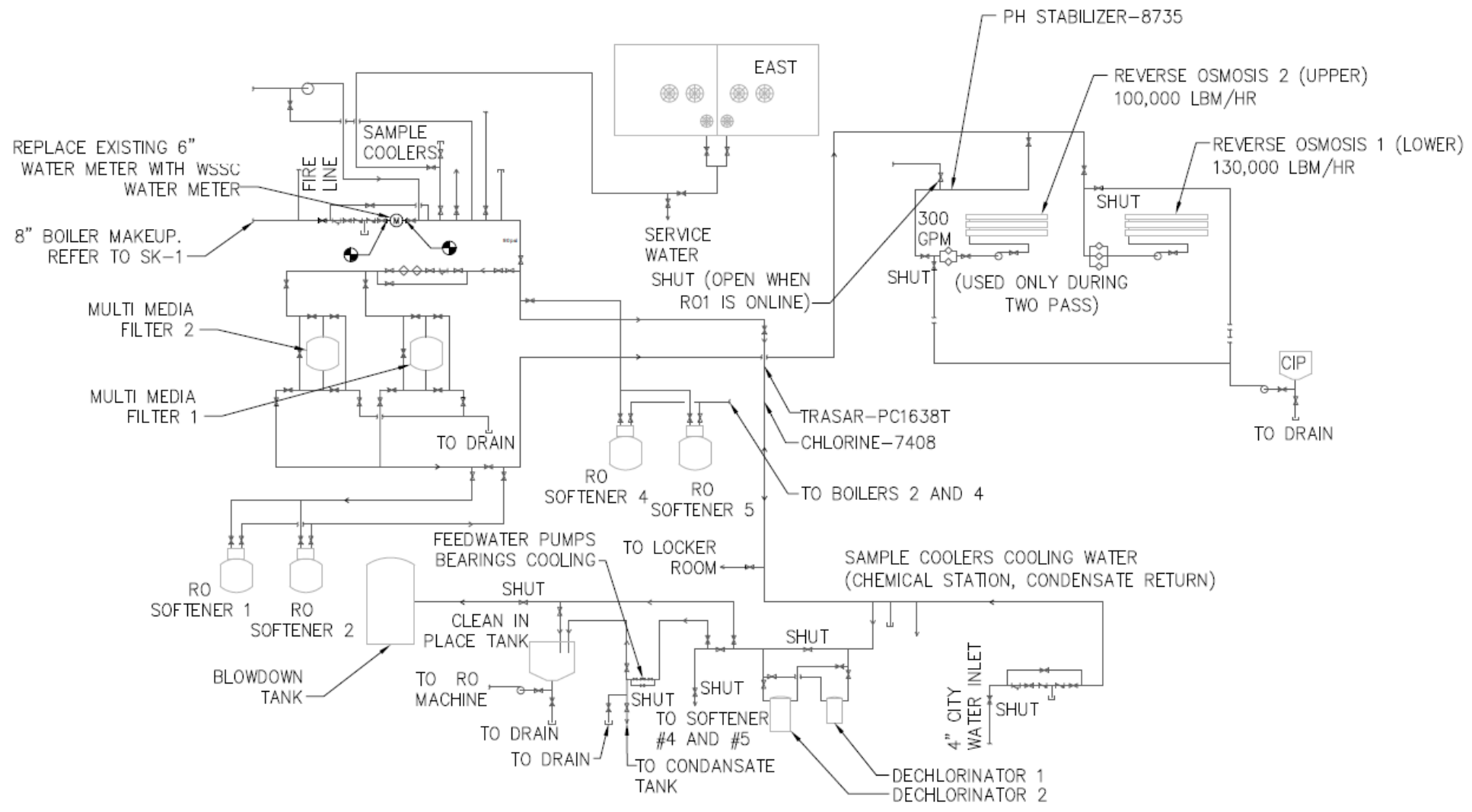
* In the water temperature of 45° to 85° F (7° to 30° C), meter consumption is accurately measured at:

- +/- 1.5% in the Normal Operating Range
- +/- 5% in the Extended Low Flow



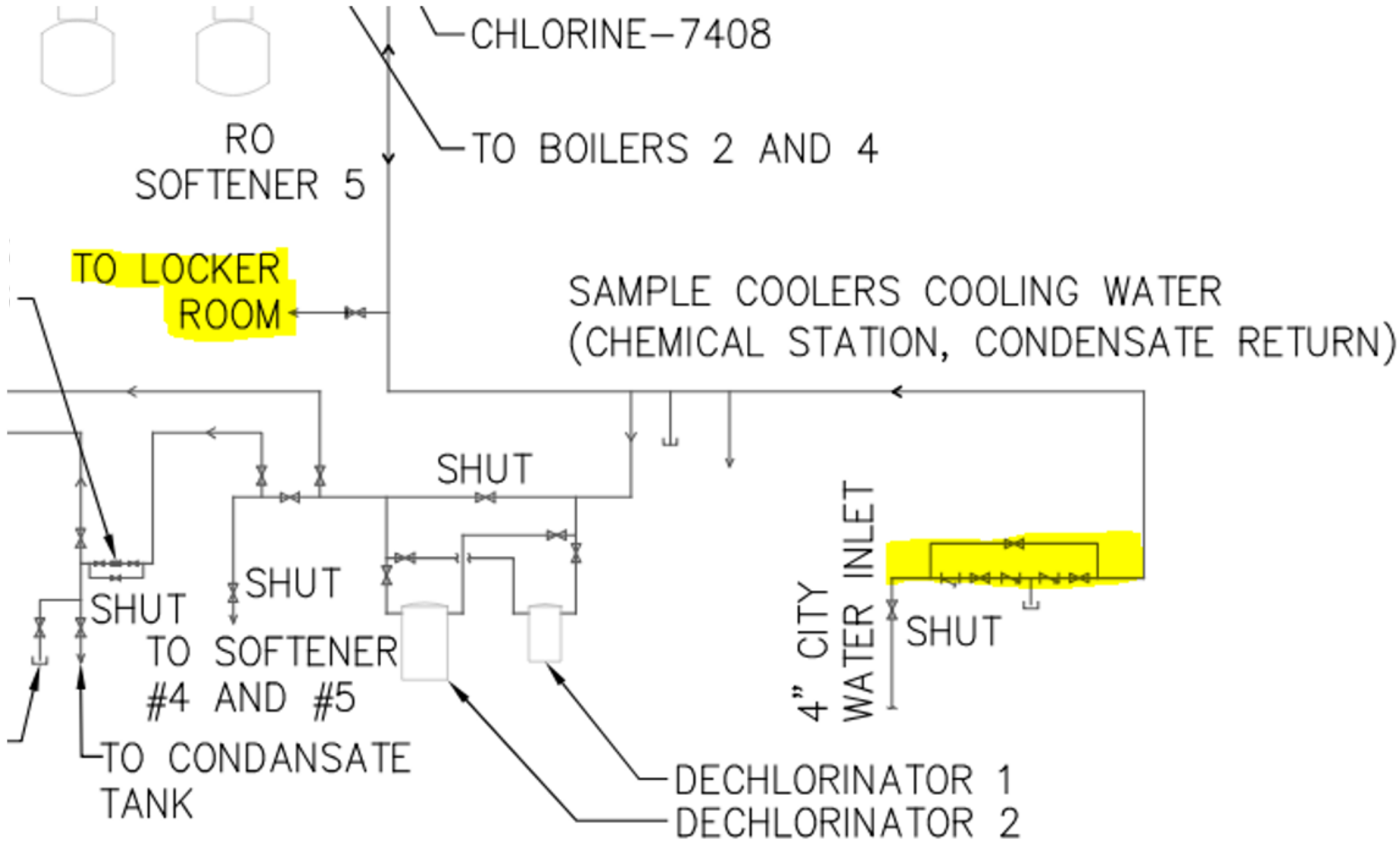
**Complex Design
Review & Coordination**

Complicated plans require more coordination

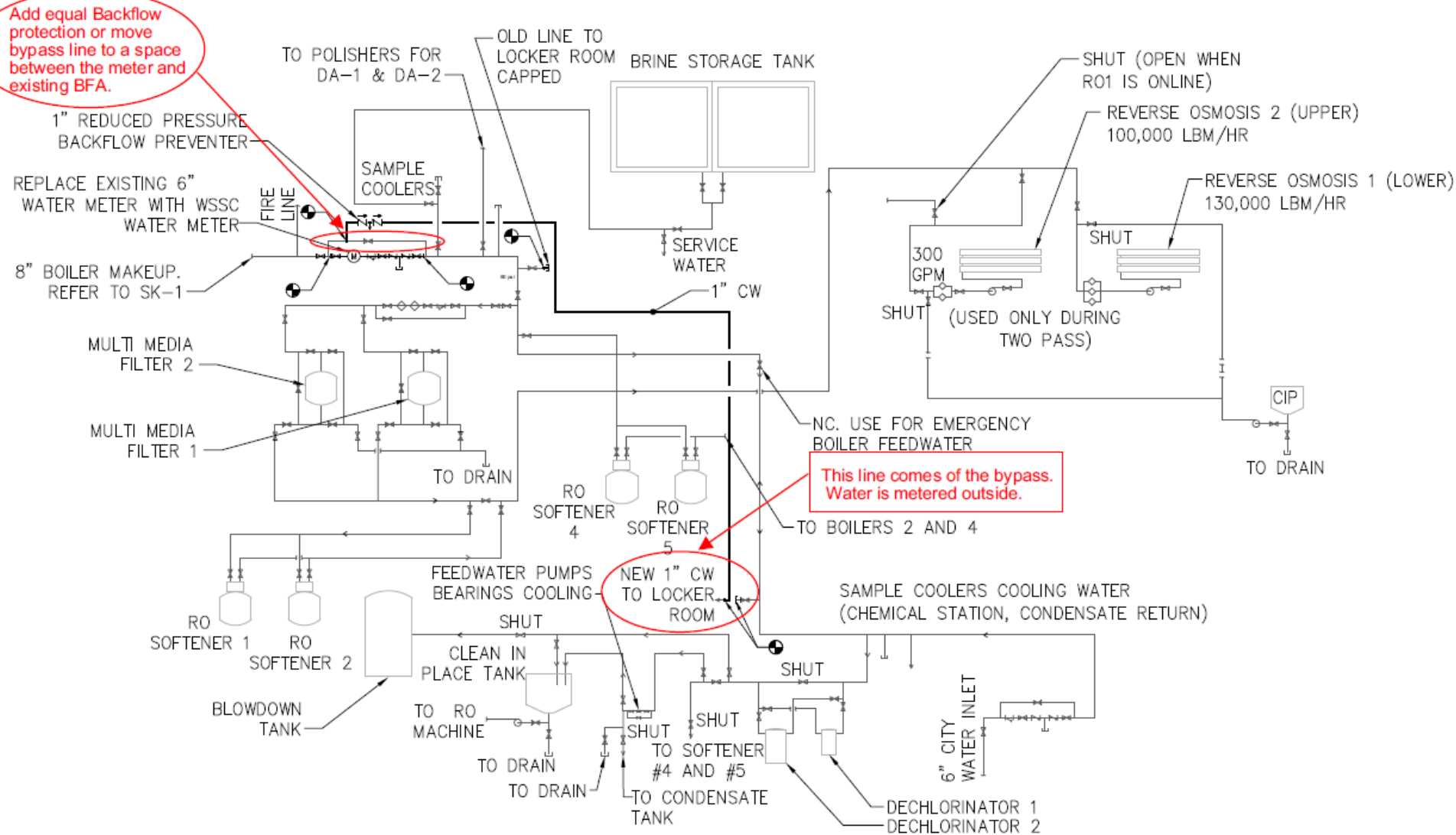


PROJECT NAME SOUTH WING ELECTRICAL RELOCATION 2023 - WSSC SUB-METER		PROJECT NO.: TBD	DOMESTIC WATER FLOW DIAGRAM
BUILDING NAME STEAM PLANT	BUILDING NUMBER 001	DATE: 2/14/2024	
		DRAWING SCALE: NTS	DRAWING NUMBER SK-5

Complicated plans require more coordination



Complicated plans require more coordination



PROJECT NAME
**SOUTH WING ELECTRICAL RELOCATION 2023 - WSSC
 SUB-METER**

PROJECT NO.: TBD

DOMESTIC WATER
 FLOW DIAGRAM

BUILDING NAME
STEAM PLANT

BUILDING NUMBER
001

DATE: 4/26/2024

DRAWING SCALE: NTS

DRAWING NUMBER
SK-5

Complicated plans require more coordination

Add equal Backflow protection or move bypass line to a space between the meter and existing BFA.

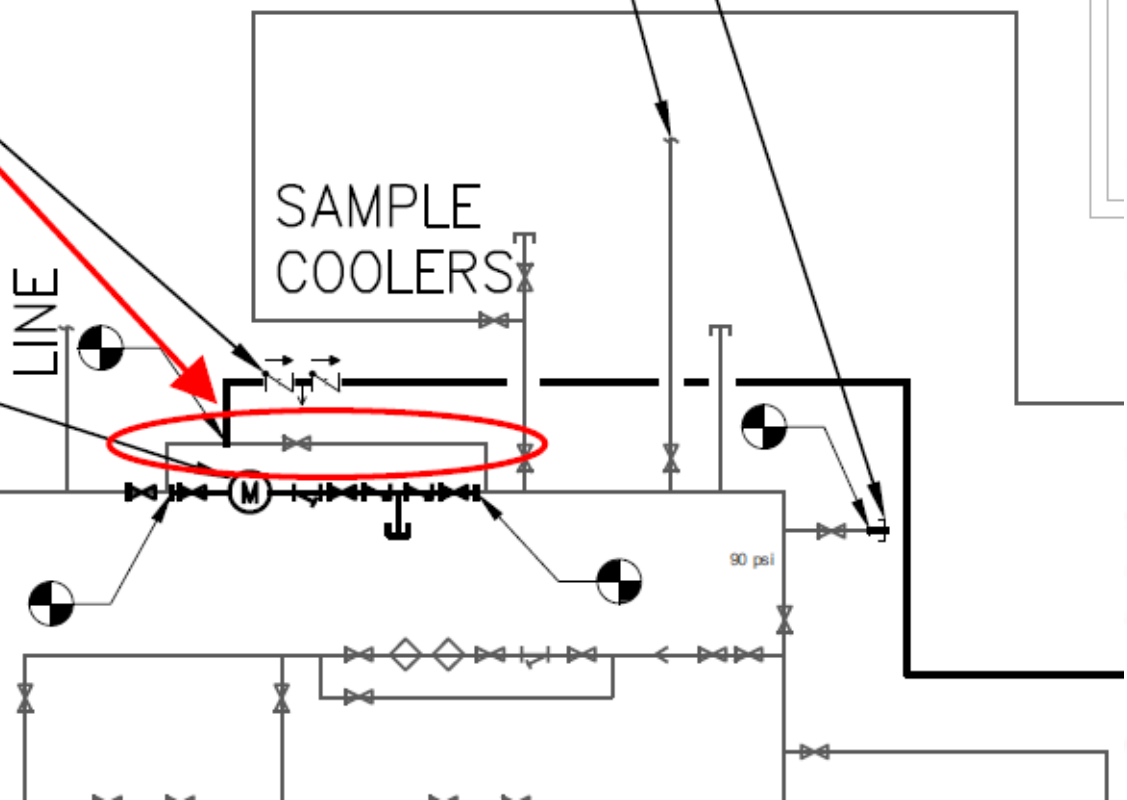
- 1" REDUCED PRESSURE BACKFLOW PREVENTER
- REPLACE EXISTING 6" WATER METER WITH WSSC WATER METER
- 8" BOILER MAKEUP. REFER TO SK-1

TO POLISHERS FOR DA-1 & DA-2

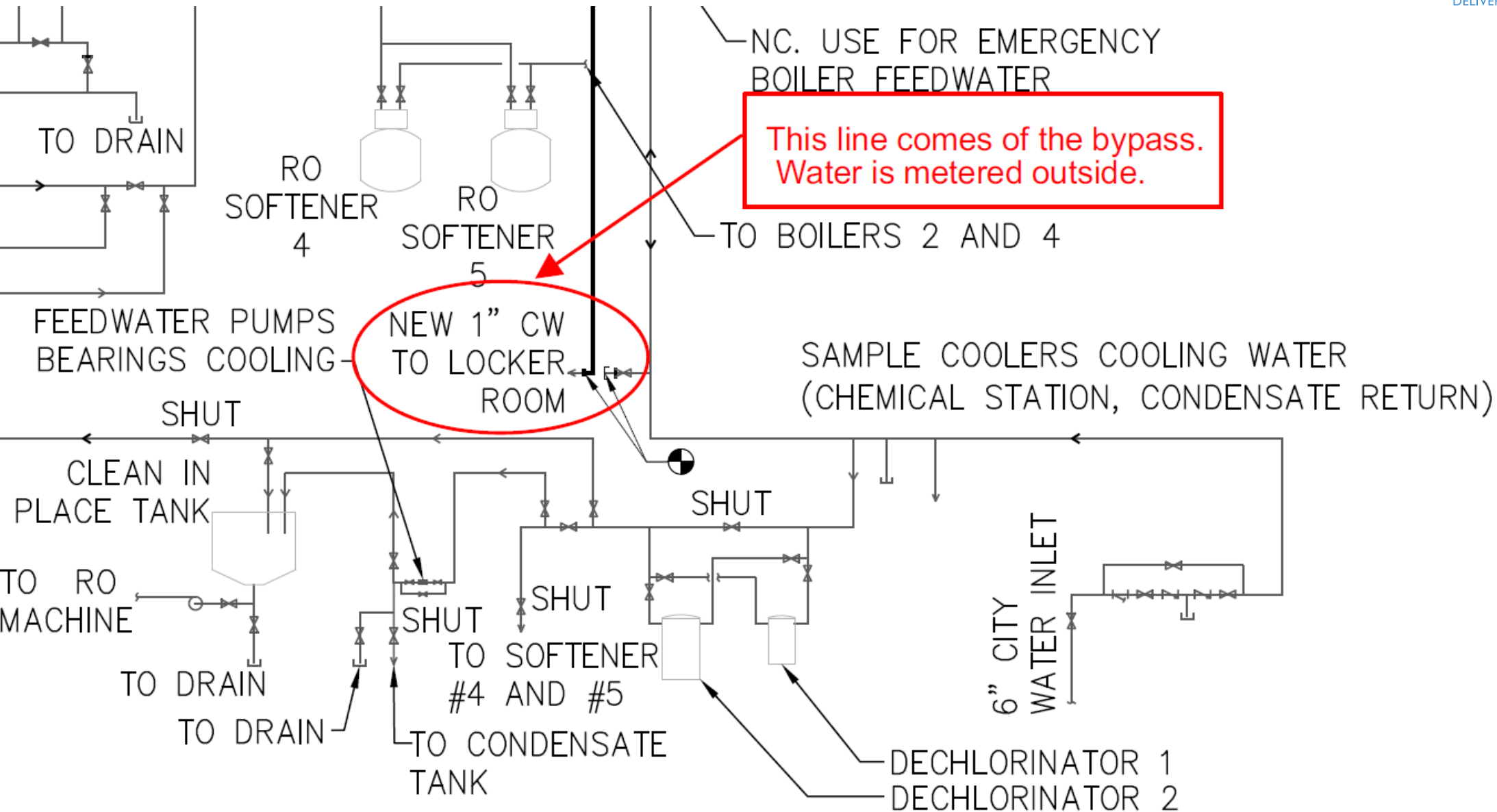
OLD LINE TO LOCKER ROOM CAPPED

SAMPLE COOLERS

FIRE LINE



Complicated plans require more coordination



Top 5 Rejection Causes

1. Incomplete Plans (missing pages or details)
2. Insufficient/incorrect backflow protection
3. Sizing issues (water, waste, vent, gas)
4. Required corrections from prior submission not reflected in resubmission
5. Metering



Questions?

Ask Later...

Introduction



Who is
James “Jason” Browne?



Jason Browne

WSSC Water

CCC Field Inspections



Agenda

1. Cross-Connection Program statistics
2. Field Inspection methodology
3. Cross-Connection field inspection process
4. Field data collection, test reports, violation process
5. Our Program's Goal

Field Survey Statistics

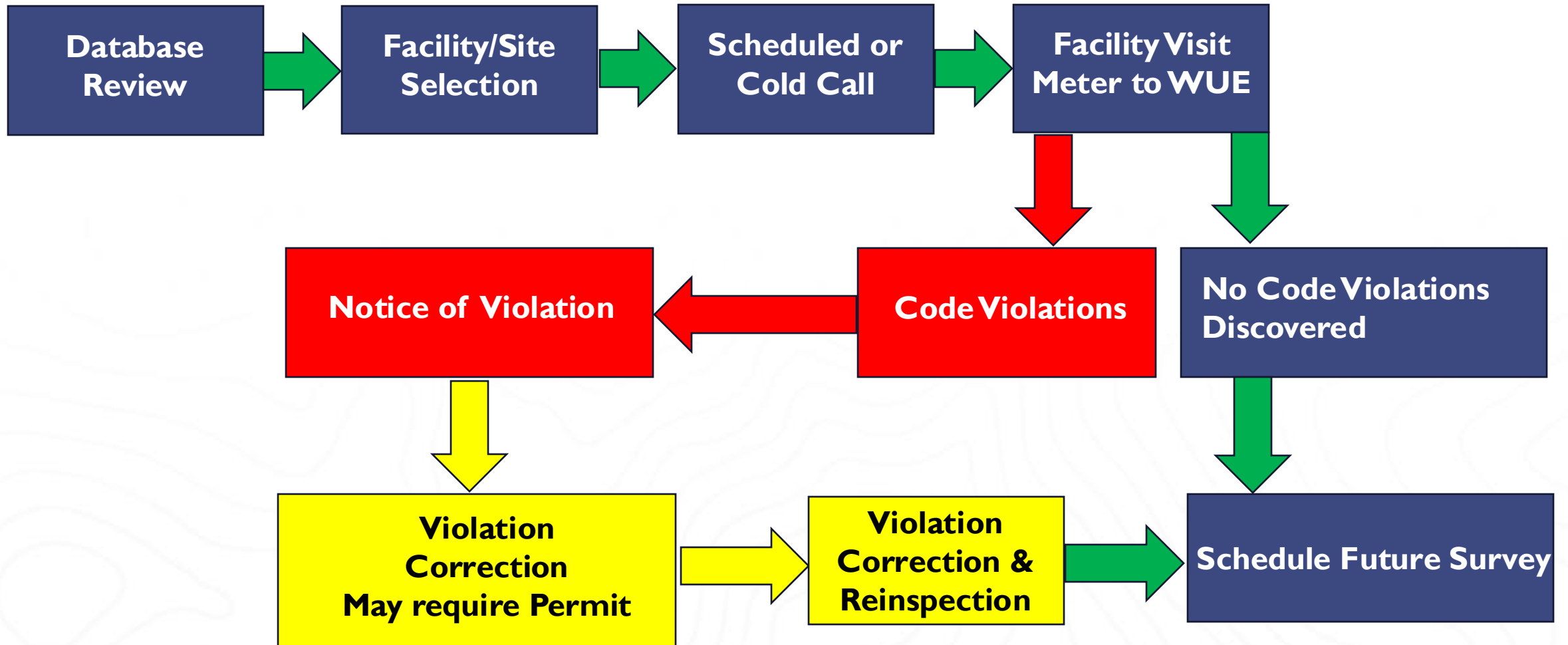
- 3,273 Cross-Connections discovered
- 13,000+ Violation notices issued
- 78,500+ Field inspections
- 250,000+ Customer reminders

Field Inspection Methodology

We are a community-oriented program where our team relentlessly supports our customers and assists with ensuring compliance.



Field Inspection Process



Field Survey Process

FIELD INSPECTIONS AGENDA

1. We research the facility and location prior to visiting the facility.
2. We respectfully manage the Customer engagement process – Cold Call challenges. Sometimes the customer doesn't even know who WSSC Water is.
3. We verify the meter information, verify all end outlet uses, verify all outlets are protected.
4. We issue enforcement actions through a Notice of Violation (NOV) (issued to the customer (sometimes plumbing contractors)).
5. We support the customer during the NOV resolution process.
6. We perform the permitted inspections, if applicable.

**We have to be aware of new
products & new businesses**

New Products

ASSE 108 I Standard

IPC 2021 - New



PRODUCTS ▾

SUPPORT ▾

TRAINING ▾

SOFTWARE ▾

From This



To This



Home / Products / Valves / Boiler Feed & Backflow / 3450 Combination Boiler Feed & Backflow Valve

To Now This



New Products – CO2 Faucet



Boiled, Chilled, and Sparkling Water from One Tap

HydroTap Elite Plus for Home

If minimalist and understated is more your style in the heart of the home, the streamlined design and clean lines of the HydroTap Elite Plus are sure to please.

To view HydroTap price and product specifications for each unique HydroTap Elite Plus multi-function tap simply select your preferred water type from the dropdown menu.



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Choose Your Water Type

Boiling, Chilled, Sparkling ▼

Starting from
\$5,849



New Facilities



Colon Cleansing Businesses



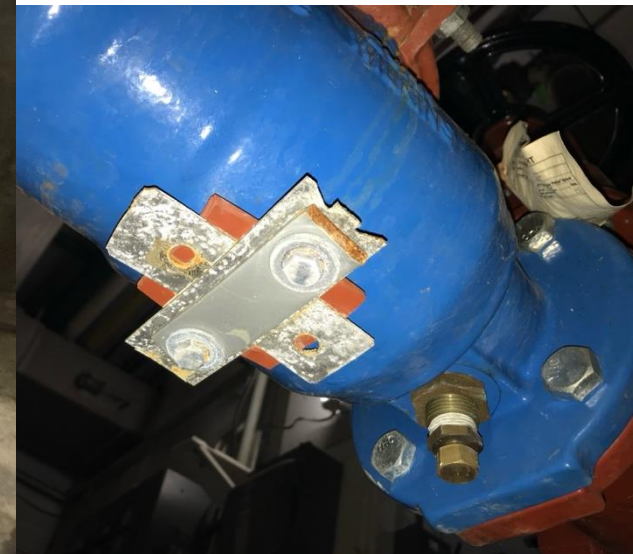
Our Mission

Smart One Water Mission

WSSC Water ensures all communities thrive by ethically delivering safe, reliable and sustainable water and wastewater services.



**Protect & Serve
WSSC Water &
our Customers**





Questions?

