

WATER USE SURVEYS AND INSPECTIONS



**PNWS/AWWA CONFERENCE - TACOMA
APRIL 26,2018**



OVERVIEW



What is a Survey, What is an Inspection, What is the Difference Conducting Surveys and Inspections

What Triggers each

Getting Started

At the Site

Completion

Follow-up

Why Surveys and Inspections are so Important

- Real World Events



WHY DO WE PERFORM SURVEYS???



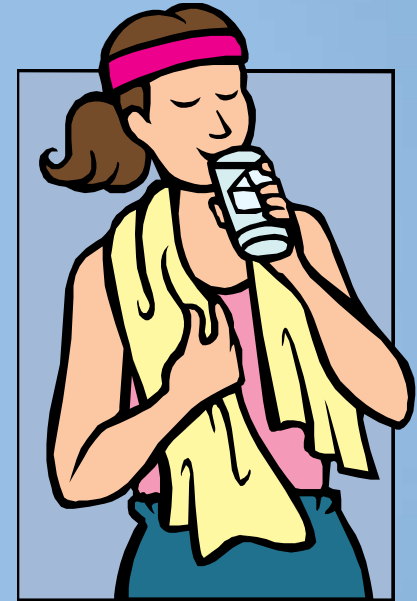
Protect the distribution system?

Protect the customers?

Require backflow prevention assemblies?

Require testing?

Meet a State requirement?



PUBLIC HEALTH



IT IS A SURVEY OR INSPECTION

Survey

- Significant preparation
- Part of a larger plan/strategy
- Meter to tap

Inspection

- Specific item or items to look at
- Reactionary
- Can lead to a survey



What is a survey or inspection **NOT**?

- A plumbing inspection

- An **INVENTORY** of backflow assemblies



SURVEYS

What can trigger a survey or inspection?

Plan review

Building permit application

Tenant Improvement

Windshield survey

High hazard/table 9 facility

Submission of a test report

TV, newspaper, internet information

Information from other entities

Backflow incident



SURVEYS

What are some obstacles to the survey or inspection process?

Lack of jurisdictional cooperation

UPC vs DW regs vs purveyor rqts

Incomplete records

Public mistrust

Politics

Wrong people performing the survey



SURVEYS

Who can perform surveys?

CCS – Cross Connection Control Specialist

**Qualified
vs
Certified**



SURVEYS

Getting Started

Identify facilities in need of a survey

New construction

Existing locations

Prioritize based on Public Health

High hazards

High risk areas of your system

Jurisdictional Issues

Available resources may impact

Establish Schedules

**Ensure you have the support of your
Organization**



SURVEYS

Getting Started

Familiarize yourself with the facility

Review maps & drawings (yours and theirs)

Google the customer

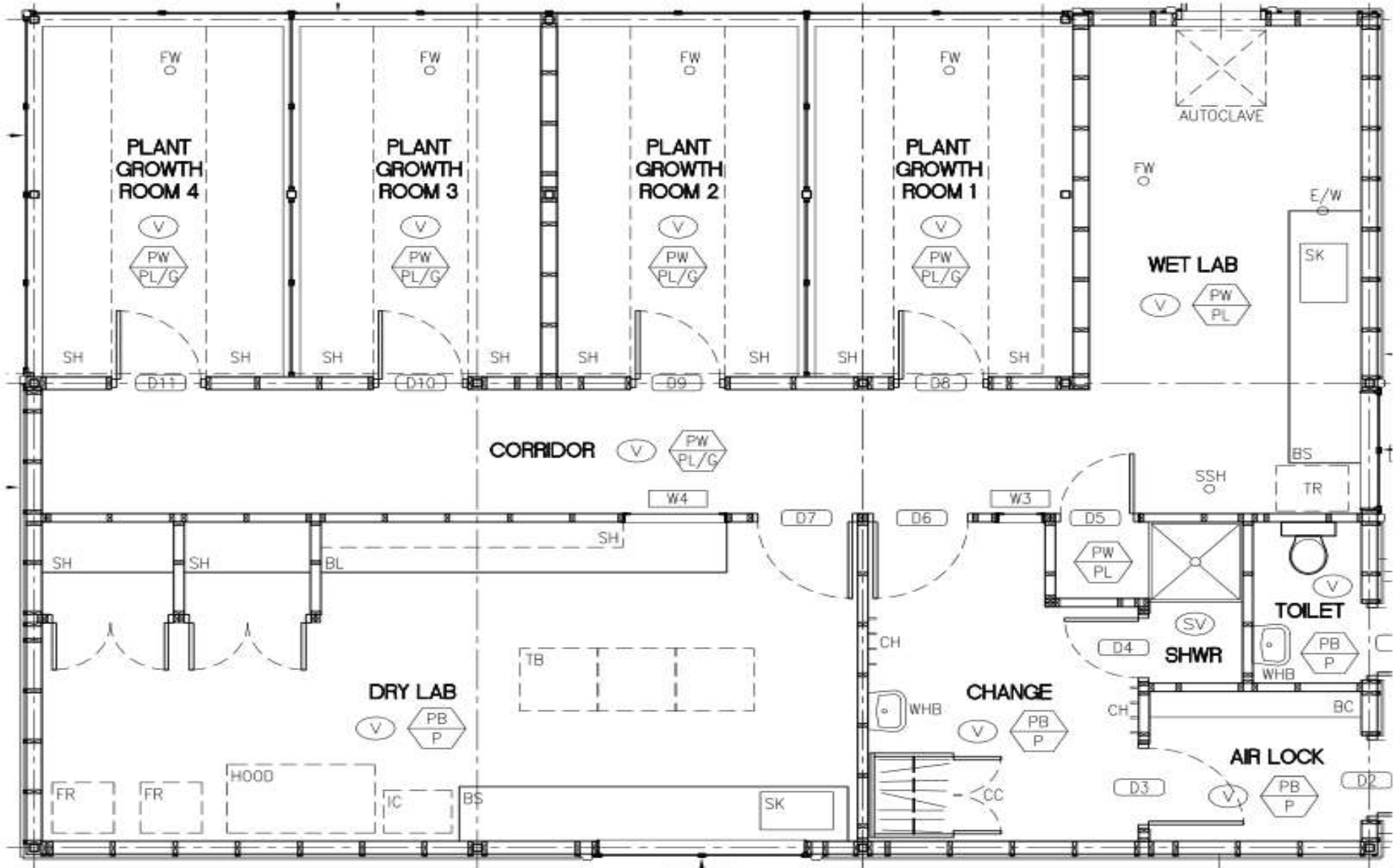
Prepare questions ahead of visit

Have a list of existing or typical hazards

Will help to ask right questions



SURVEYS



SURVEYS

Getting Started

Contact Customer

Get assistance from Chamber of Commerce, Economic Development Board, Account Executives, others....

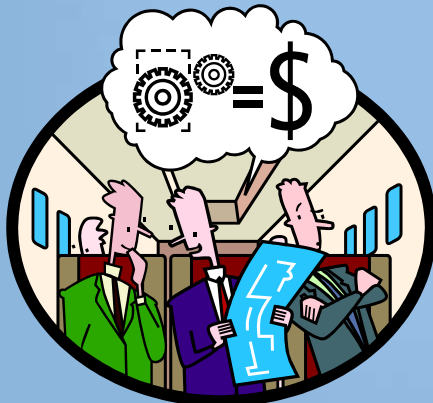
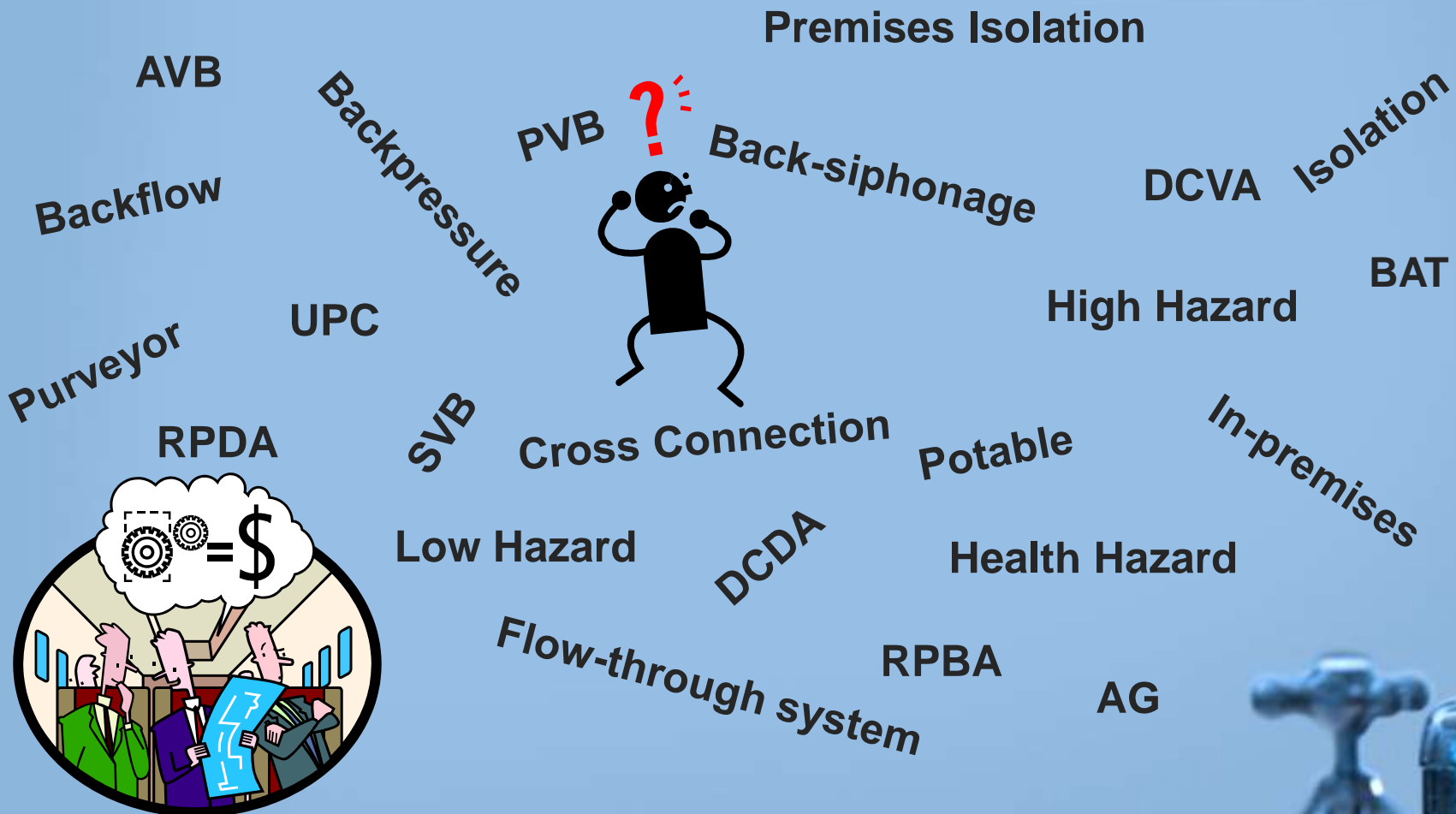
HELP customer understand **WHAT** needs to happen and **WHY**

Communicating effectively with all involved parties is the key to success



TERMINOLOGY

THE LANGUAGE



Speaking the language versus communicating the language



What do customers want to know?

Why me?

How long will it take?

How much will it cost me?



SURVEYS

Getting Started

Tools & Resources

Safety equipment

Maps/drawings

Consumption records

Permit records

Camera

Tablet

Pen/paper

Flashlight

Informational material for customer

2nd inspector

Past inspections/backflow records



SURVEYS

Getting Started

Review drawings, existing records

Gather tools and equipment

Check –

ID



Camera, flashlight with good batteries

Memory cards

Ink in pen

Correct paperwork

Contact name and number

Business cards

Security requirements – TWIC,





Tacoma Public Utilities

Cross-Connection Control Survey/Inspection Report



Facility Name _____ **Survey Date** _____
Facility Name 2 _____ **Survey By** _____
Service Loc/Address _____
Contact Name _____ **Contact Phone** _____
Area Name _____ **Acct Number** _____
Service Type _____ **Facility Status** _____
Comments

BFP/CC Info

1 **Location Floor** _____ **Location Room** _____ Confined Space
Assy Location _____ UnApproved
 Freeze Protection

Type	_____	_____
Mfr	_____	_____
Size	_____	_____
Model	_____	_____
Serial Num	_____	_____

File # _____ Freeze Protection
Meter # _____ **Map Page** _____
Hazard Type _____
Haz. Level _____ **Protection Type** _____
Install Date _____ **Status** _____

2 **Location Floor** _____ **Location Room** _____ Confined Space
Assy Location _____ UnApproved
 Freeze Protection

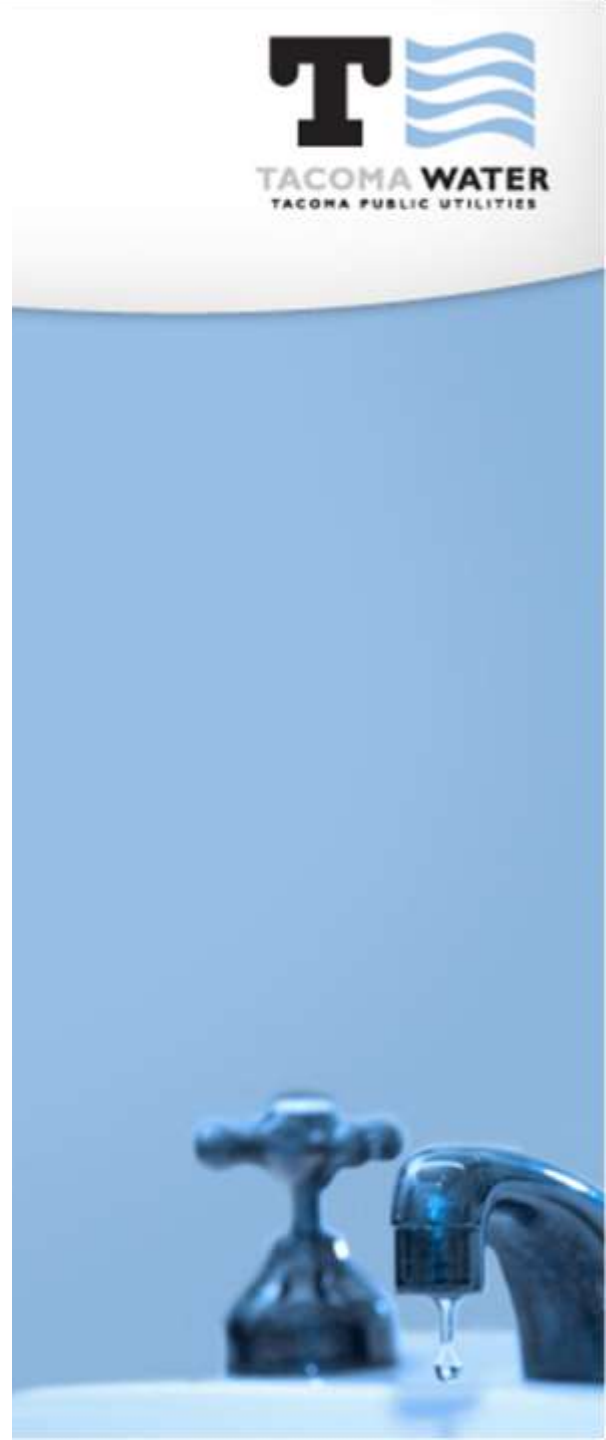
Type	_____	_____
Mfr	_____	_____
Size	_____	_____
Model	_____	_____
Serial Num	_____	_____

File # _____ Freeze Protection
Meter # _____ **Map Page** _____
Hazard Type _____
Haz. Level _____ **Protection Type** _____
Install Date _____ **Status** _____

3 **Location Floor** _____ **Location Room** _____ Confined Space
Assy Location _____ UnApproved
 Freeze Protection

Type	_____	_____
Mfr	_____	_____
Size	_____	_____
Model	_____	_____
Serial Num	_____	_____

File # _____ Freeze Protection
Meter # _____ **Map Page** _____
Hazard Type _____
Haz. Level _____ **Protection Type** _____
Install Date _____ **Status** _____



SURVEYS

On Site

Arrive on time and dressed appropriately

Introduce yourself and describe what to expect

Ensure person showing you around:

Is knowledgeable

Has authority/access/keys

Who should this be?

Verify permission to take photo/video

Ask if they have any questions



SURVEYS

Begin the Survey

Start at the water meter and

FOLLOW THE FLOW

Multiple meters

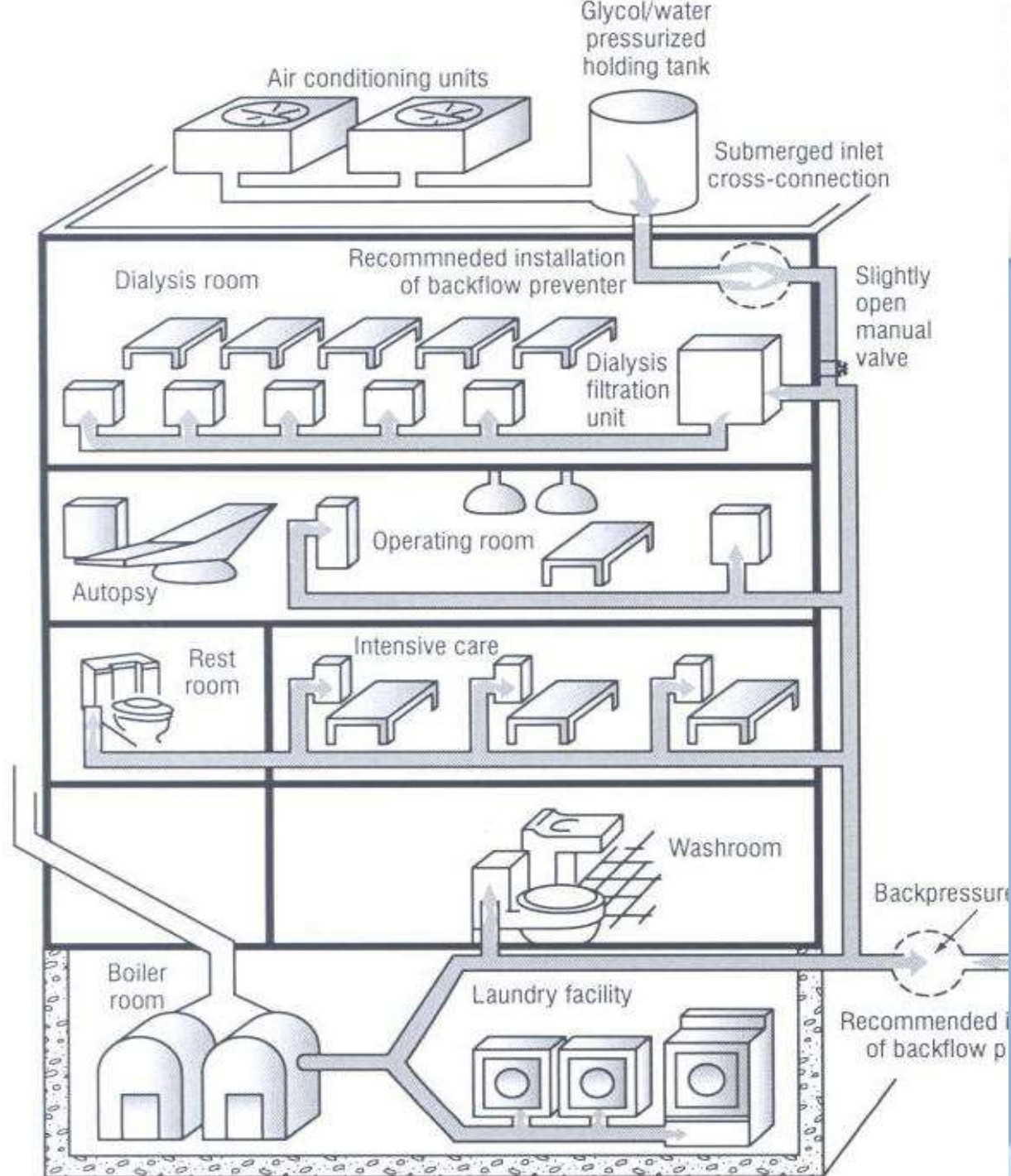
Branch lines

Outside the building

Under slab

Riser room(s)





SURVEYS

Follow the piping runs

Open doors

Lift deck plates and ceiling tiles

Ask

What is in there?

What is this?

Where does that go?

What does this do?



SURVEYS

Don't forget about existing assemblies

Observe pipe labels

Are they accurate

Are they consistent

**Do labels tell you something you
don't know or were not told**

Alternate water sources

Inter-connections aka

Cross-connections

“Nothing to see in there”



Things to ask yourself

Facility psi greater than Purveyor psi?

Actual or potential cross connection?

Probability of a backflow occurrence?

What is the recommended BFP?

What is the acceptable risk?



SURVEYS

Take notes

Locations

Process streams

Backflow prevention present/missing/inadequate

Take pictures

Hazards

Labels

Backflow Installations

Draw sketches

Tablet with a pen

Do not rely on memory alone



SURVEYS



SURVEYS



SURVEYS



SURVEYS



SURVEYS



Limpiar el Disp

1. To disconnect the **empty box**:
1. Press both white buttons on Quick Disconnect
2. Pull blue ring back
3. Position box on shell with perforation for spout
4. Press in on the thumb

Completion of Survey

Provide verbal summary for customer

Let them know a written report will follow and what to expect in it

Observations

Discrepancies

Corrective actions



Completion of Survey

Provide a timeline for corrective action.

Provide a person (inspector) for the customer to contact directly with questions

Check-in with customer as due date approaches

Partnership – Common Goal



Completion of Survey

**Considerations when requiring
backflow prevention assemblies to be
installed**

Hydraulic conditions/effect

Installation creates a hazard

Cost to customer

Planned work

Notify AHJ/Fire Marshall

Acceptable Risk



Completion of Survey

Jurisdictional Communication Methods

**Building Occupancy Sign off
Tags
Inspection Certificates**



Completion of Survey



Tacoma Water
3628 S. 35th Street
P.O. Box 11007
Tacoma, WA 98411

Address _____

Make _____

Model _____

Size _____

S/N _____

Purpose _____

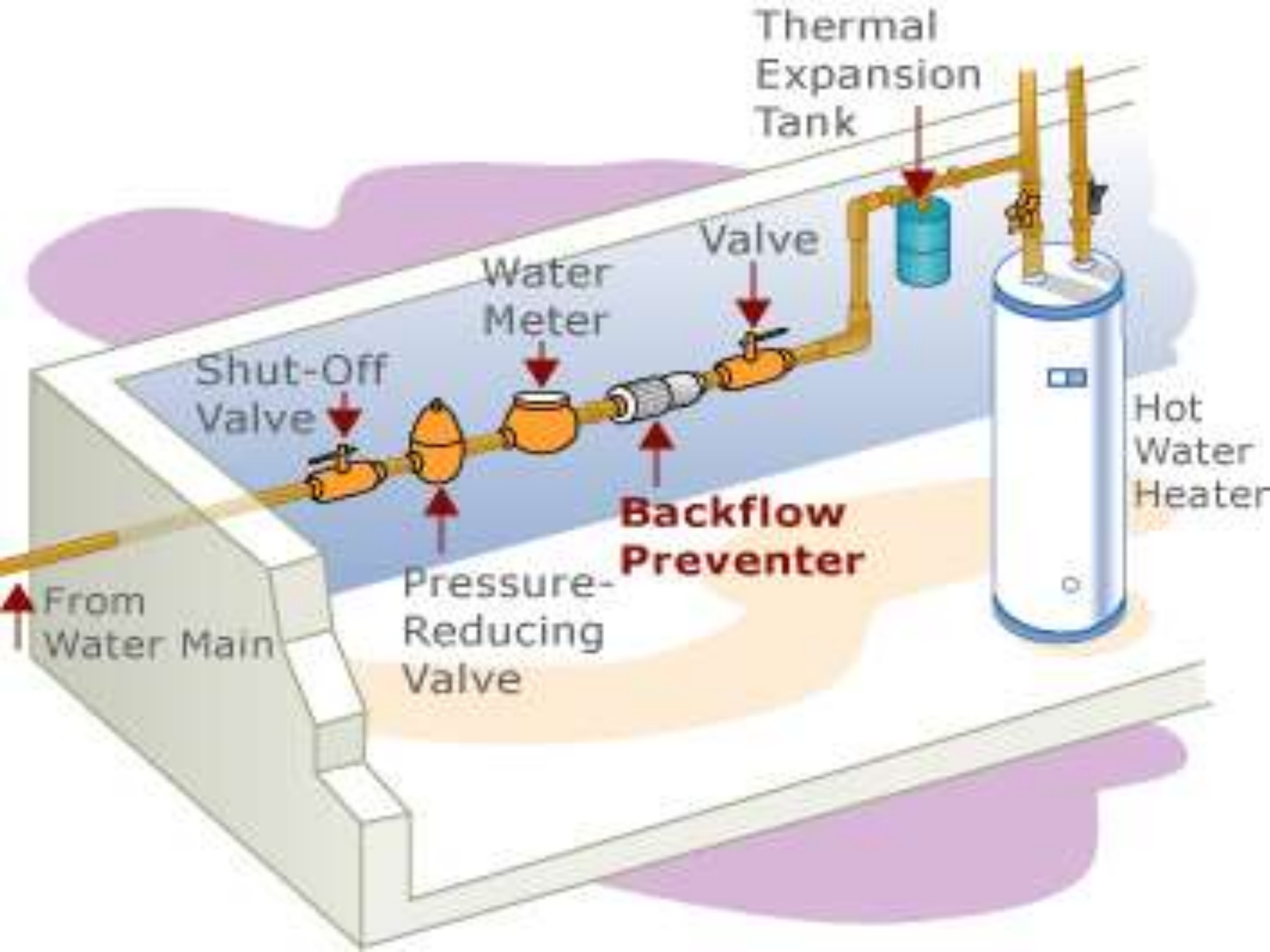
Inspected by _____

Cert. # _____

Date _____

The backflow prevention assembly listed above meets all requirements for this installation per Tacoma Water and WAC 246-290-490. Any questions regarding this approval may be directed to Tacoma Water at 253-502-8215.





June 28, 2017

ABC Bottling Company
3101 Any St S
Tacoma, WA 98409

Dear ABC Bottling Company

On June 23, 2017 a water use survey was conducted at your establishment. The purpose of this survey was to assess any potential health hazards that may exist and to ensure that they are eliminated or isolated from the public water supply. During the inspection it was noted that the several items do not have the required backflow protection.

The water supply lines to the following items must be isolated by State of Washington approved reduced pressure backflow assemblies (RPBA).

Vehicle Repair Area

- Water supply to the vehicle repair shop
- Water supply to the parts washer.

Solution Mixing Room

- Water supply to the dilution system.
- Water supply to the carbonation mixing system – No copper allowed on outlet side of RPBA.

Equipment Repair Area

- Water supply to the wash down system

In addition, the water supply line to your fire service is required to have a double check valve assembly (DCVA) installed between the Tacoma Water meter and the riser manifold. All connections including fire department connections must be located downstream of the DCVA.

All assemblies except the DCVA for the fire system must be installed and tested prior to August 25, 2017. A suitable timeline for installation of the DCVA on your fire system will be established upon further review of your fire system hydraulic conditions and after consultation with the Tacoma Fire Department

After the required assemblies have been installed they are required to be inspected by my department and tested annually by a State of Washington certified backflow assembly tester. I have enclosed a list of certified testers for your convenience.

Please contact me with any question regarding the survey or these requirements. I can be reached by telephone at 253-502-8215 or email at shallenb@vityoftacoma.org.

Sincerely,

Scott D. Hallenberg
Operations Manager
Tacoma Water - Water Quality



Completion of Survey

Maintain record of survey

Determine next survey date

Share your experience with others in your group, Utility, industry

No need to reinvent the wheel



Past Survey Experiences



Army Reserve Center Pier

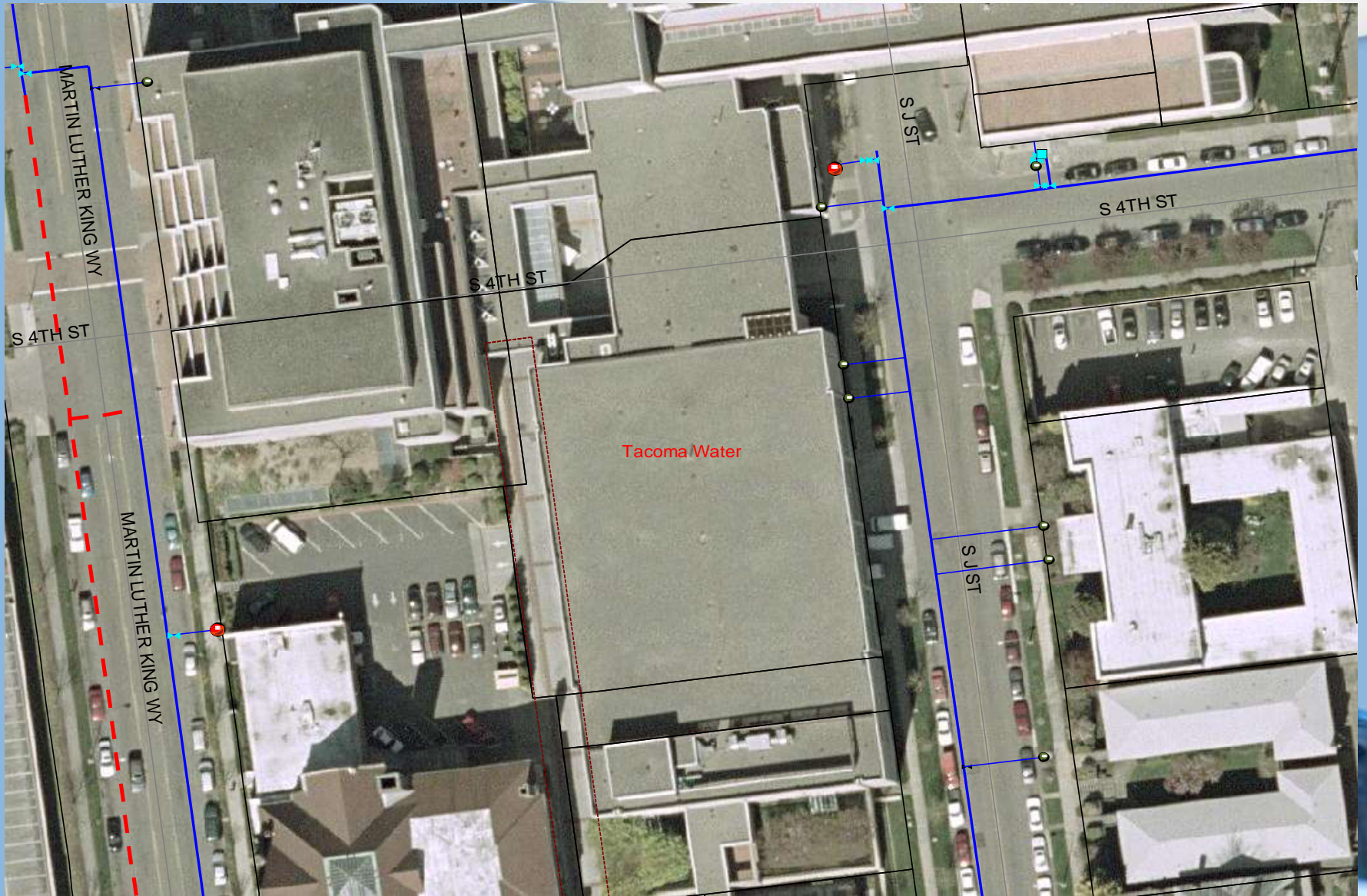


Past Survey Experiences



Tacoma Hospital





HOSPITAL CONTAMINATION EVENT



IDENTIFYING THE SOURCE

WORK HAD BEEN PERFORMED ON THE HVAC SYSTEM FOR THE NEW FLOORS BEING ADDED TO THE AFFECTED WING

ATTEMPTS MADE TO RECALL THE MECHANICAL CONTRACTOR

REVIEWED THE PLUMBING PLANS FOR THE EXISTING FLOORS OF THE HOSPITAL



HOSPITAL CONTAMINATION EVENT



IDENTIFYING THE SOURCE

MECHANICAL CONTRACTOR FINALLY ARRIVES AT HOSPITAL

CONTRACTOR CONFIRMS THAT NEW PORTION OF HVAC SYSTEM WAS FILLED AND VENTED FOR CLEANING, BUT ASSURES ME THAT THERE IS NO CONNECTION WITH THE POTABLE WATER SYSTEM

INSPECTION OF HVAC FILL POINT REVEALS A PORTABLE HOSE CONNECTED BETWEEN AN EXPANSION TANK AND A HOSE BIB



12.11.2003



craft
clean
company
SYSTEMS



HOSPITAL CONTAMINATION EVENT



KEY POINTS

CONTRACTOR CONVINCED THAT AN AVB WOULD PREVENT BACKFLOW

THERE WAS A HOSE BIB INSTALLED ON A NON-POTABLE WATER LINE AFTER AN RPBA SPECIFICALLY FOR THIS USE. APPROXIMATELY 10 FEET AWAY FROM THE TANK

HOSPITAL STAFF RESPONDED QUICKLY TO SECURE WATER USE IN AFFECTED AREA AND TO RESTORE WATER QUALITY





MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



MARCH 20, 2014

During a planned maintenance shutdown oil was found at the water meter connection while establishing a highline.



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



Arrived at scene conducted inspection of service connection and premises. Two businesses sharing a common water service

Found 3 BFP's in 1st customer location. One appeared to be for service protection, others for boiler and hydraulic lift

Further inspection showed a branch line ahead of RPBA's serving hydraulic lift and oil cooler.



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



None of these backflow assemblies were known to Tacoma Water

This facility had not been inspected by Tacoma Water

Directed water meter to be physically removed from the system. Wiped inside of meter and pipe on city side of meter to check for oil residue – none found.



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



Had Tacoma Water portable RPBA delivered to site and restored water service to facility via highline through RPBA. RPBA was tested upon installation

Facility still without fire service

NW Detention Facility also without fire and domestic water service – main depressurized

Concerns with restoration of main due to contamination possibility



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



Spent next two days inspecting affected property for cross-connection issues

Identified several cross-connections

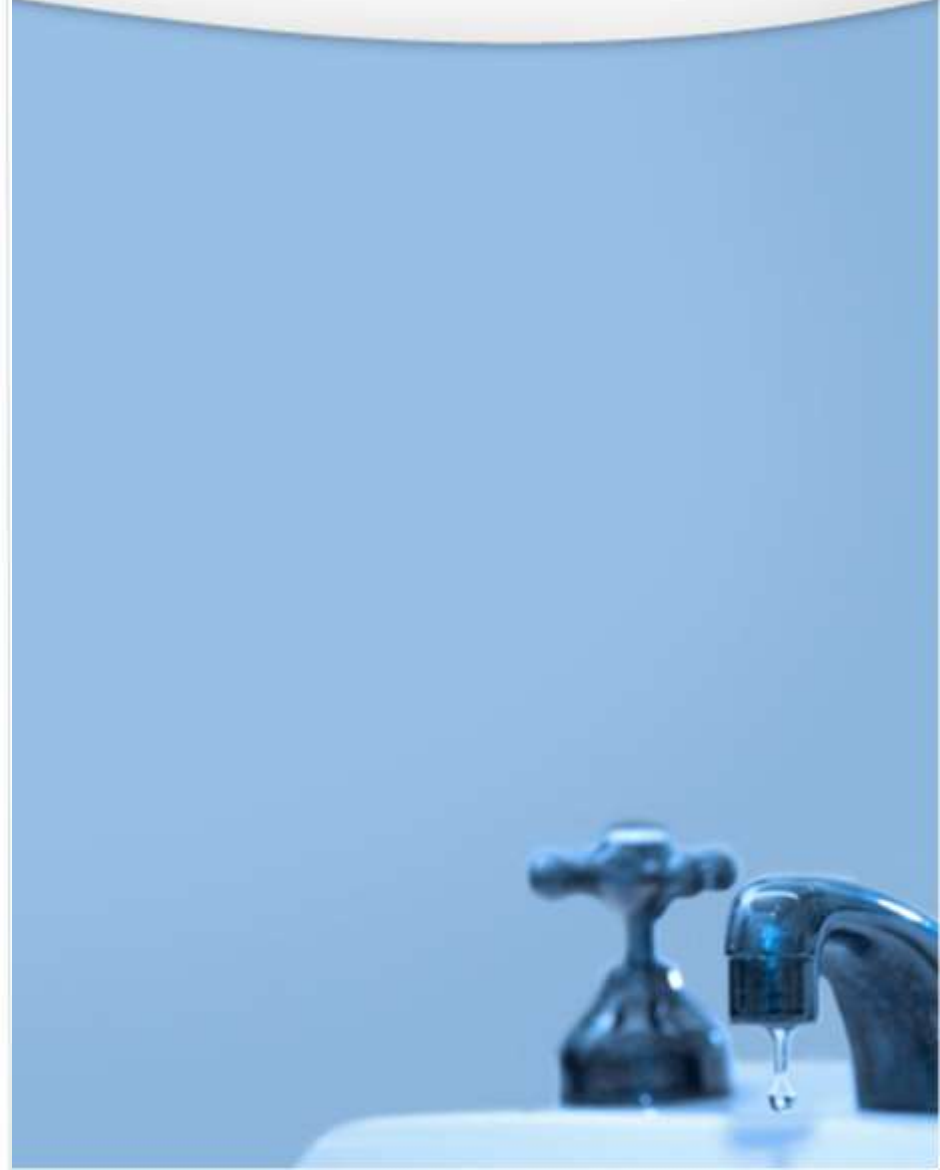
Old building with complicated piping runs

Owner was very cooperative and willing to address all issues

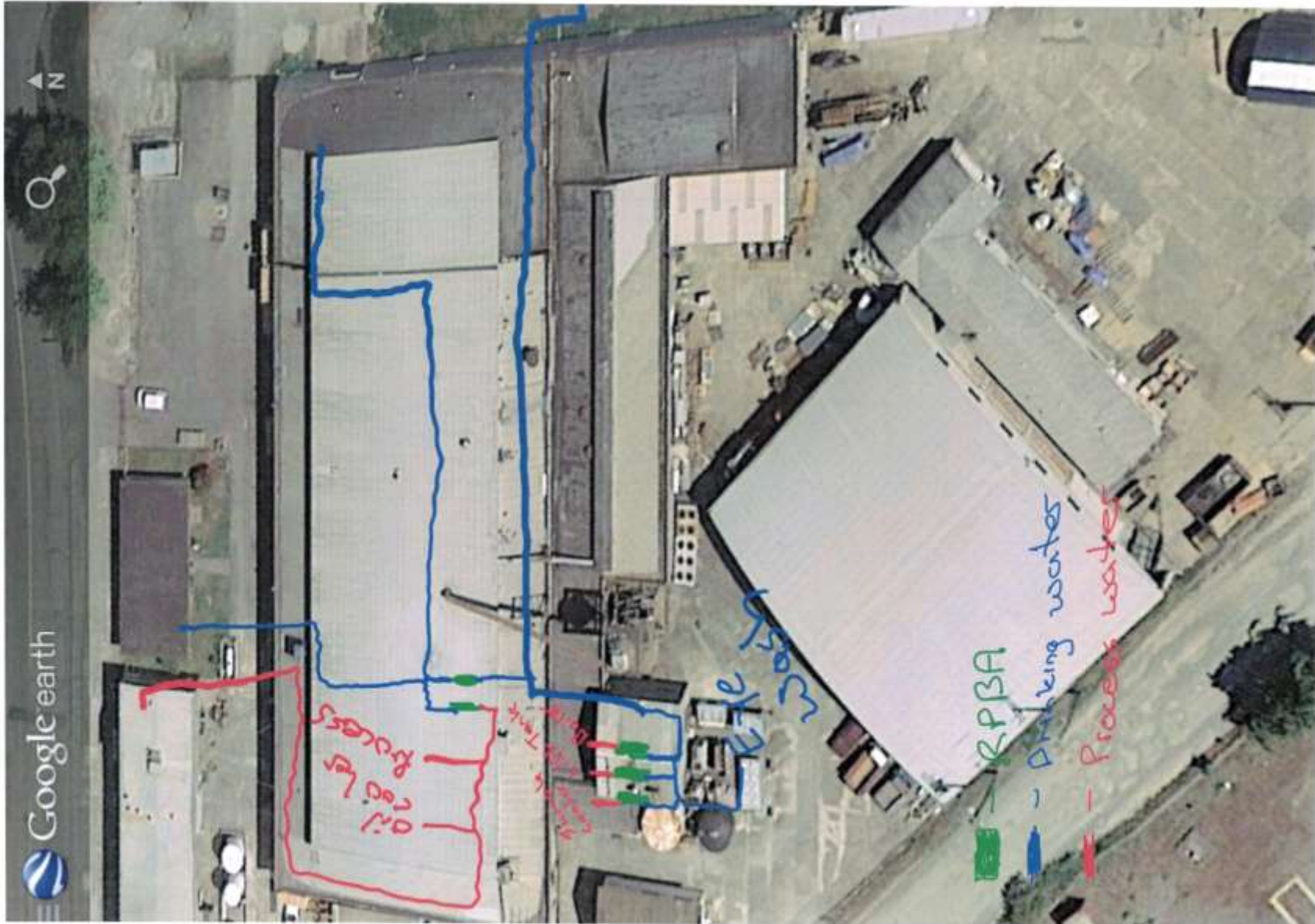
Several RPBA's were installed and/or replaced



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



MANUFACTURING FACILITY CONTAMINATION EVENT DURING SYSTEM DEPRESSURIZATION



THE PAPERWORK

**Crane Connection Control Program
BACKFLOW INCIDENT REPORT FORM**

Form 100-100-0000-0000

Form 100-100-0000-0000

Part 1. Public Water System (PWS) Information

PWS Name: Tacoma Water

Part 2. Backflow Incident Information

A. Incident Identification

Incident date: 1/20/2024

B. Information on Preventer where Backflow Occurred

Name of preventer: Backflow Preventer (Type: Backflow Preventer - Manual backflow preventer)

Address: 1234 5th St, Tacoma, WA 98401

C. Method of Discovery of Backflow

How was backflow discovered? Visual observation

D. Backflow Incident Details

Contaminant: Lead

8. Types and Effects of Contamination

Estimated amount of contamination: 1000 gallons

Table 1: Cross-Connection List of Substances at Backflow Site

A. Name of Contaminant

Lead

B. Substances System Processes Conditions in the Vicinity of the Backflow Incident

Type of backflow: Backflow

C. Backflow Preventer Information/Installation/Approval Status of Site of Backflow

Complies with all requirements

9. Backflow Preventer Inspection/Testing Information at Site of Backflow

Inspection date: 1/20/2024

Table 2: Backflow Preventer Inspection/Testing Information

Inspection type: Visual inspection

Table 3: Cross-Connection List of Substances at Backflow Site

A. Name of Contaminant

Lead

B. Substances System Processes Conditions in the Vicinity of the Backflow Incident

Type of backflow: Backflow

Table 4: Backflow Incident Summary

Incident date: 1/20/2024

Table 5: Backflow Incident Details

Contaminant: Lead

Table 6: Backflow Incident Investigation

Investigation date: 1/20/2024

Table 7: Backflow Incident Resolution

Resolution date: 1/20/2024



CONCLUSION



**SURVEYS ARE CRITICAL TO PROTECTING
YOUR WATER SYSTEM, YOUR
CUSTOMERS AND **PUBLIC HEALTH****

THINGS MAY NOT BE AS THEY SEEM

**COOPERATION BETWEEN ALL PARTIES
INVOLVED IS ESSENTIAL**



QUESTIONS?



CONTACT INFORMATION:



**SCOTT HALLENBERG
OPERATIONS MANAGER
TACOMA WATER – WATER QUALITY
PO BOX 11007
TACOMA, WA 98411-0007**

**DESK – 253-502-8215
CELL – 253-208-5345
FAX – 253-502-8721**

**SHALLENB@CITYOFTACOMA.ORG
BACKFLOW@CITYOFTACOMA.ORG**

