
Water System Survey Tips

Partner Fall Training

October 22, 2019

Kari Salis, PE



(Enter) DEPARTMENT (ALL CAPS)

(Enter) Division or Office (Mixed Case)

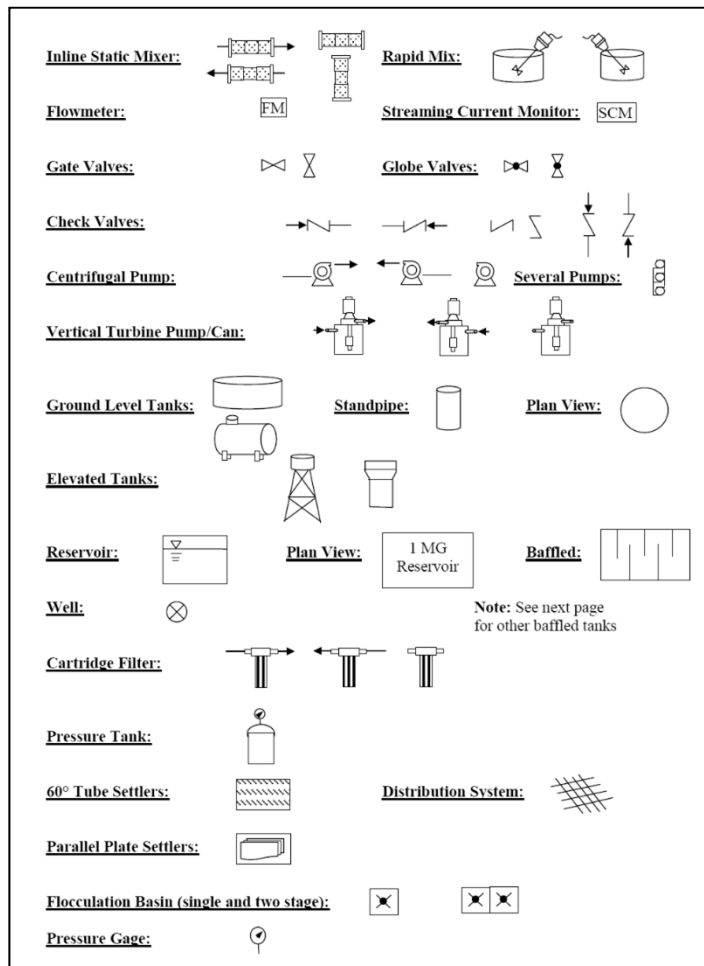
Presentation outline

- By-passes
- Treatment codes
- Setbacks
- Storage tanks, hatches, and pressure tanks
- Plumbing code vs distribution
- ASR look up
- O&M, Emergency Response Plans
- Reminders

Survey forms overview

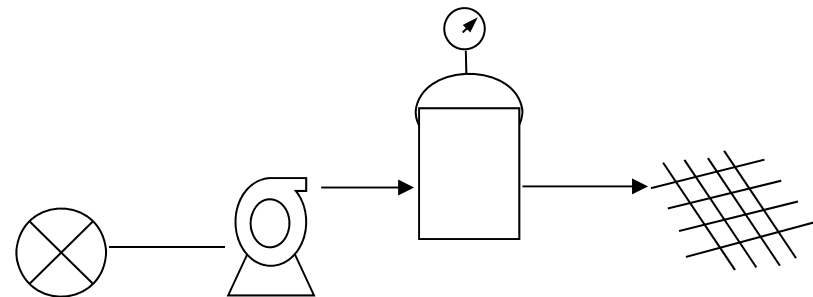
- Don't leave blanks, mark "Yes, No, or N/A"
- Comments sections
 - Follow up of "no's"
 - Allows for further details
- Information pages (back sides usually) to assist with filling in sections (service area, treatment codes)
- Deficiencies: check for consistency between cover letter, summary checkboxes, and forms

Schematics



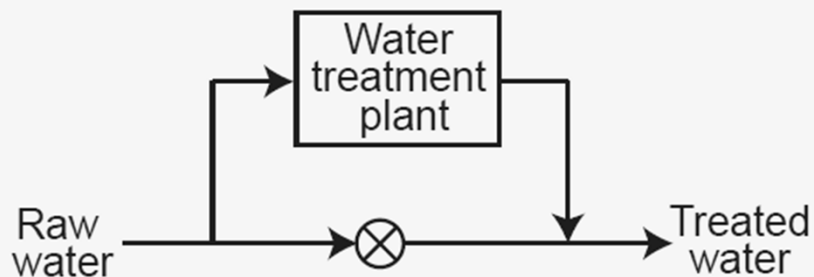
Symbols.doc

- Pre-made graphics to copy & paste into schematics page
- Easy to move/re-size
- Also contains example schematics

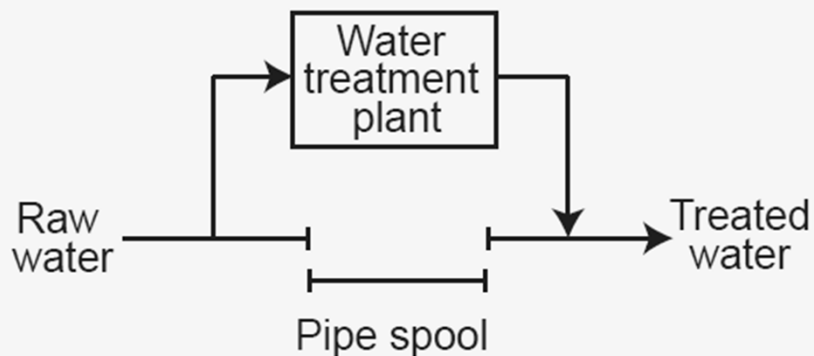


By-passes

Not allowed: any number of valves



Allowed: physical separation



- **Need physical separation!**
 - Valves can and do leak!
 - Mistakes happen!
- Applies to
 - Filtration plants
 - Arsenic or nitrate removal
 - UV for disinfection credit
 - Chlorine contact tank

Setbacks

- While preparing for a survey, check to see if a setback issue was previously identified and how it was resolved.
 - If waived, no deficiency
 - If waiver was denied, mark it as a deficiency but note that they should resolved it (though not enforced unless WQ problems)
 - If not previously identified, mark it as a deficiency and have PWS request a waiver
- See “Setback issues found in survey” Procedure

Treatment Codes

- For survey form, use codes that correspond to the purpose of the treatment
 - X is for residual maintenance
 - D is for when we have determined that 4-log or other pathogenic disinfection is occurring
 - Z for other: UV for kicks, particulate filters, etc.

Disinfection for Surface Water/GWUDI

D200 Chloramines
D220 Chlorine Dioxide
D401 Gaseous Chlorination, Post
D403 Gaseous Chlorination, Pre
D421 Hypochlorination, Post
D423 Hypochlorination, Pre
D455 Iodine
D541 Ozonation, Post
D543 Ozonation, Pre
D720 Ultraviolet Radiation
D800 Mixed Oxidants(MIOX® systems only)

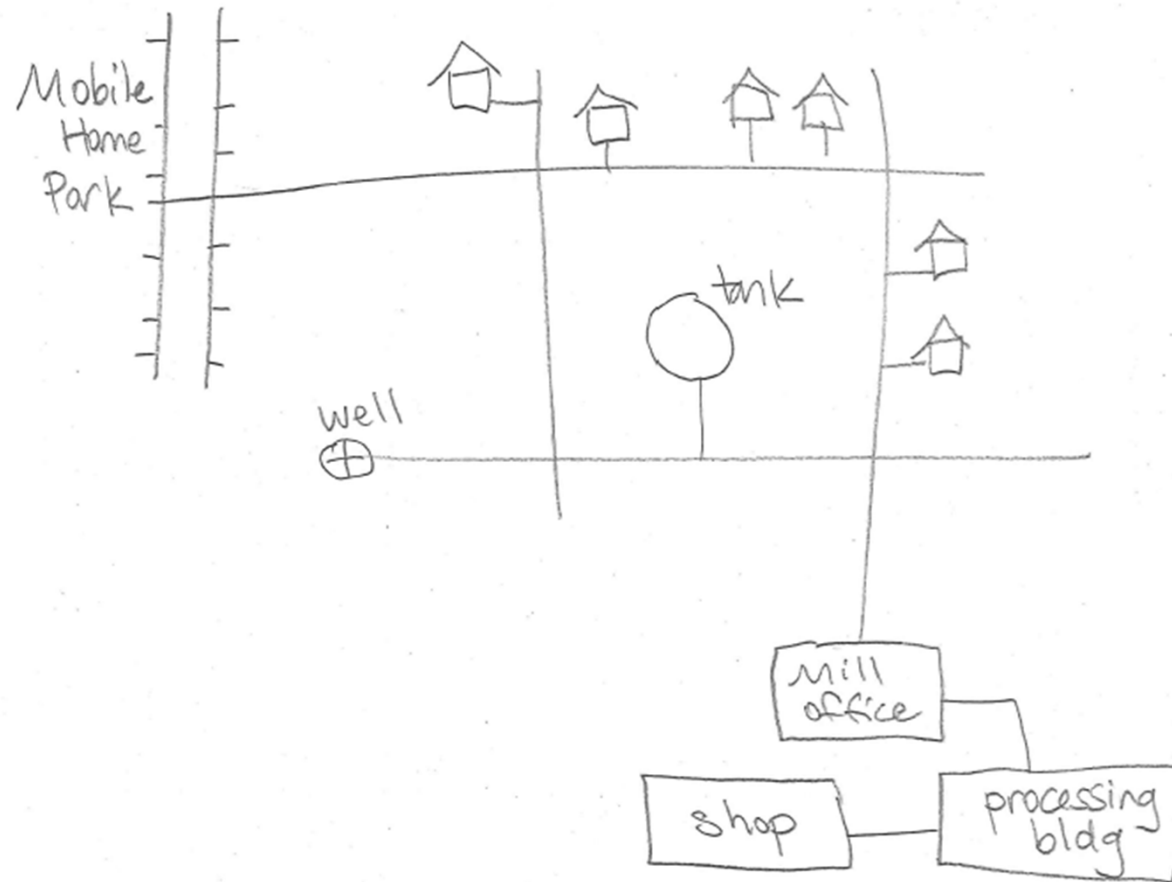
Disinfection or Residual Maintenance/Other for Groundwater

D361 GWR 4-log Virus Compliance Mon
X200 Residual Maintenance, Chloramines
X401 Residual Maintenance, Gas Chlorination
X421 Residual Maintenance, Hypochlorination
X455 Residual Maintenance, Iodine
X541 Residual Maintenance, Ozonation
X800 Residual Maintenance, Mixed Oxidants (MIOX® systems only)
Z361 Interim 4-log Virus Compliance Mon
Z720 Other, Ultraviolet Radiation

Distribution vs Plumbing: Definitions

- Distribution system = portion of the water system....conveyed.... to the premises of a consumer.
- Point of Delivery = point of connection between PWS and the user's water system. Beyond the POD, the Oregon Plumbing Specialty Code applies.
- See also: Service connection, Premises

Distribution vs Plumbing



Xconn: Annual Summary Report look up

Cross Connection Control (CWS, NTNC, and TNC)

Yes	No	N/A		Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	● Assemblies tested annually? (CWS, NTNC, TNC)	<input type="text"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	● Ordinance or enabling authority? (CWS)	<input type="text"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	● Annual Summary Report submitted? (CWS)	<input type="text"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	● Certified Cross Connection Control Specialist? (CWS \geq 300 connections)	<input type="text"/>

Answers to these questions can be found on Data On-line

Cross Connection/Backflow Prevention Information (Last 3 Records)		
<u>Enabling Authority Received</u>	<u>Annual Summary Report Received</u>	<u>Fee Invoice Paid</u>
Yes (PDF)	2018 (PDF)	2019
	2016	2018
	2015	2017

PUBLIC HEALTH DIVISION
Drinking Water Services

Xconn: Annual Summary Report look up

2018 Annual Summary Report (ASR)

Enabling Authority Yes

Row 281

Primary

Entered



		Do you have RP?	Yes	DC - How Many	8
CCCS Name	Charles Downey	RP - How Many	7	DC - Tested	8
		RP - Tested	7	DC - Passed	8
		RP - Passed	7	DC - Failed	0
		RP - Failed	0	DC - Comments	N/A
		% Tested	100%		
Current written backflow prevention program plan?		Yes			
PUBLIC HEALTH DIVISION Drinking Water Services					

Xconn: Annual Summary Report look up

CCCS Name

Annual Summary
Report Received

Enabling
Authority

No, please attach a copy below

2016

2013

2012

Do you have any **Reduced Pressure Backflow Prevention Assemblies** (RP, RPBA, & RPDA) installed in your water system? ☒ Yes ☐ No (if you answered yes, answer the questions below)

a. How many assemblies are installed in your water system?

16

b. How many assemblies were tested?

12

c. How many assemblies passed their annual test?

12

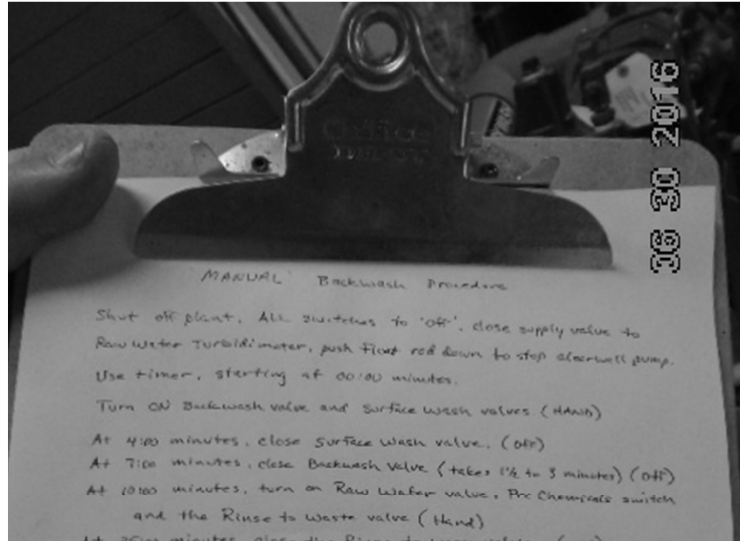
d. How many assemblies failed their annual test?

0

Comments: WE HAVE 4 ASSEMBLIES WE ARE WORKING ON GETTING IN
COMPLIANCE, DID NOT RESPOND TO LETTERS WILL BE TERMINATING
WATER SERVICE.

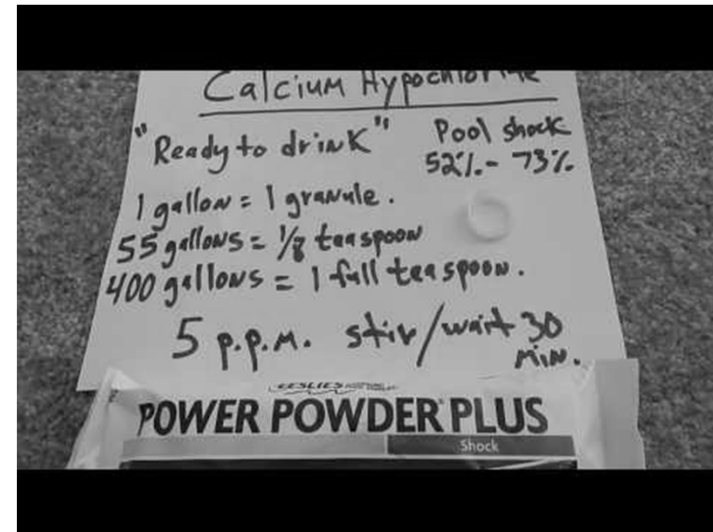
PUBLIC HEALTH DIVISION
Drinking Water Services

Informal O&M



Soda ASH		Polymer 10/29	
∞ Ounces/cuft	7	ml/cuft	300
Pump Setting	60 ml/min	Pump Setting	ml/min
		P.P.M	

THIS IS TOM



PUBLIC HEALTH DIVISION
Drinking Water Services

Emergency Response Plans

- Resilience is becoming a bigger state priority
- Does their plan address realistic risks?
 - Water quality issues: Ecoli, vandalism, pressure loss
 - Natural disasters: earthquake, fire, drought, flood
 - Alternate water source?
- After-hours phone number: 503-704-1174
- ORWARN



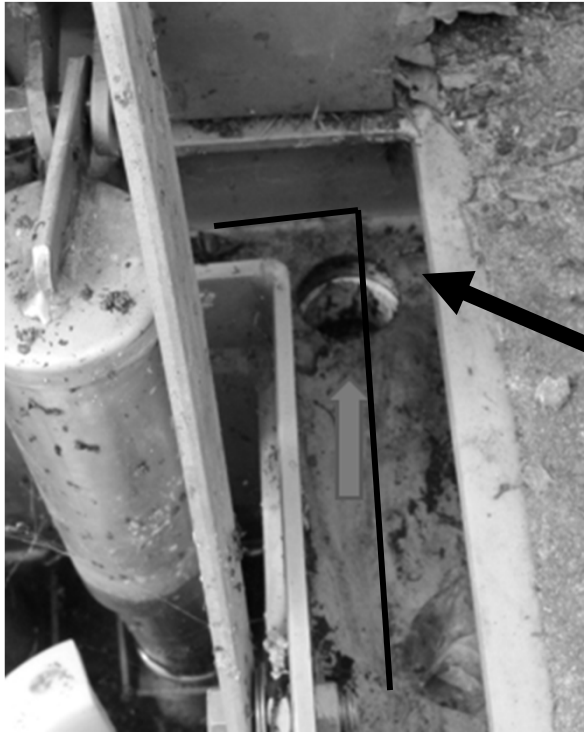
Reservoir hatches and vents



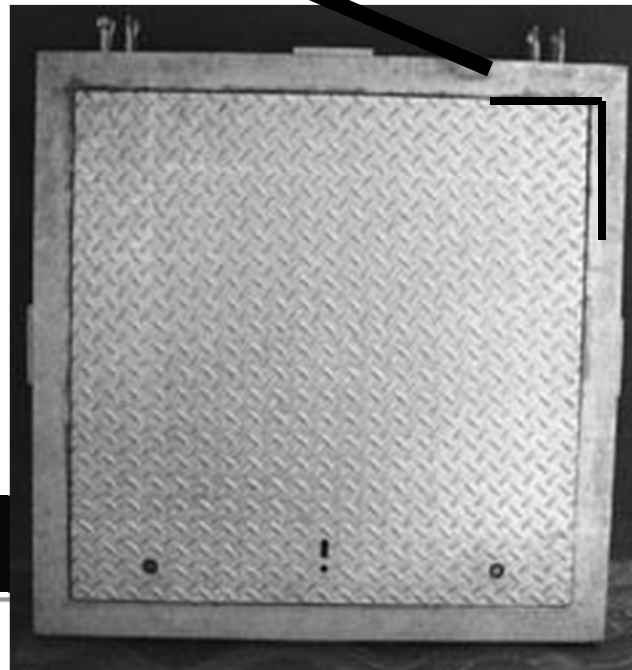
- For safety reasons, DWS no longer climbs tanks to inspect the vent or hatch
- Request photos when you schedule the inspection



Gutter – drain hatches



- For a time, DWS considered gutter-drain style hatches equivalent to an overlapping lid.
- No new installations will be allowed. Existing ones should be checked for a pathway to contamination.



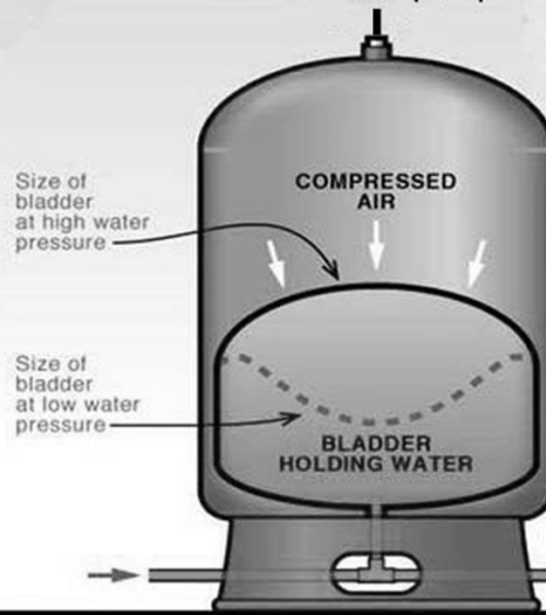
Different Types of Pressure Tanks

One Compartment Stainless Steel (old style) pressure tank



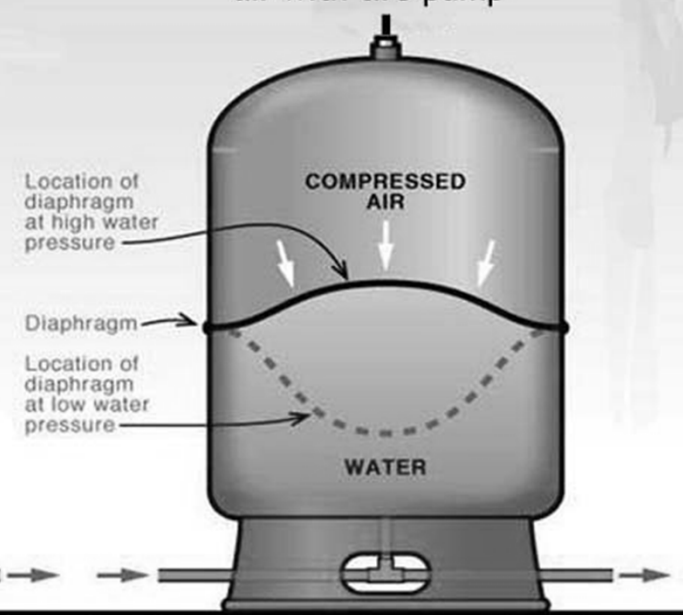
Bladder Pressure Tank

Tire type valve for adding air with tire pump



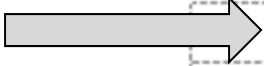
Diaphragm Pressure Tank

Tire type valve for adding air with tire pump



(Enter) DEPARTMENT (ALL CAPS)
(Enter) Division or Office (Mixed Case)

Pressure Tanks			
Accessible for maintenance?		<input type="checkbox"/>	<input type="checkbox"/>
Bypass piping?	yes	<input type="checkbox"/>	<input type="checkbox"/>
Drain?		<input type="checkbox"/>	<input type="checkbox"/>
Pressure relief device?		<input type="checkbox"/>	<input type="checkbox"/>
Air bladder/diaphragm?		<input type="checkbox"/>	<input type="checkbox"/>
Valve for adding air?		<input type="checkbox"/>	<input type="checkbox"/>



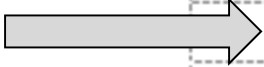
Pressure tanks have “tee” connections so water can always bypass the tank when the well pump runs.

Pressure Tanks		
Accessible for maintenance?	<input type="checkbox"/>	<input type="checkbox"/>
→ Bypass piping?.....?	<input type="checkbox"/>	<input type="checkbox"/>
Drain?	<input type="checkbox"/>	<input type="checkbox"/>
Pressure relief device?	<input type="checkbox"/>	<input type="checkbox"/>
Air bladder/diaphragm?.....	<input type="checkbox"/>	<input type="checkbox"/>
Valve for adding air?	<input type="checkbox"/>	<input type="checkbox"/>



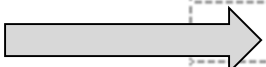
Large pressure tanks may or may not have bypass piping.

Pressure Tanks		
Accessible for maintenance?	<input type="checkbox"/>	<input type="checkbox"/>
Bypass piping?	<input type="checkbox"/>	<input type="checkbox"/>
Drain? ?	<input type="checkbox"/>	<input type="checkbox"/>
Pressure relief device?	<input type="checkbox"/>	<input type="checkbox"/>
Air bladder/diaphragm?	<input type="checkbox"/>	<input type="checkbox"/>
Valve for adding air?	<input type="checkbox"/>	<input type="checkbox"/>



Bladder or diaphragm tanks may need to be disconnected to drain if no tap is near the isolation valve.

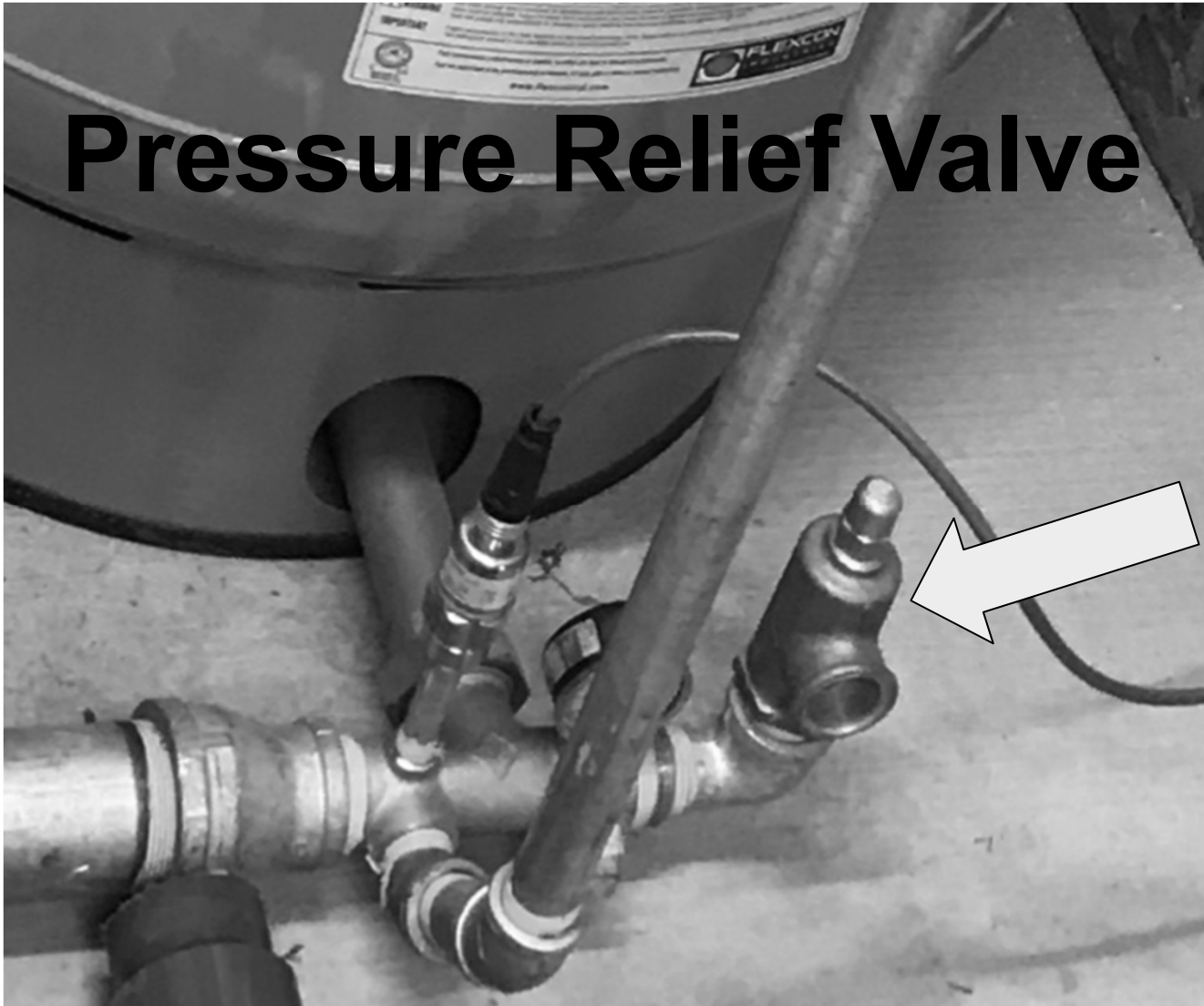
Pressure Tanks		
Accessible for maintenance?	<input type="checkbox"/>	<input type="checkbox"/>
Bypass piping?	<input type="checkbox"/>	<input type="checkbox"/>
Drain?	<input type="checkbox"/>	<input type="checkbox"/>
Pressure relief device?	<input type="checkbox"/>	<input type="checkbox"/>
Air bladder/diaphragm?	<input type="checkbox"/>	<input type="checkbox"/>
Valve for adding air?	<input type="checkbox"/>	<input type="checkbox"/>

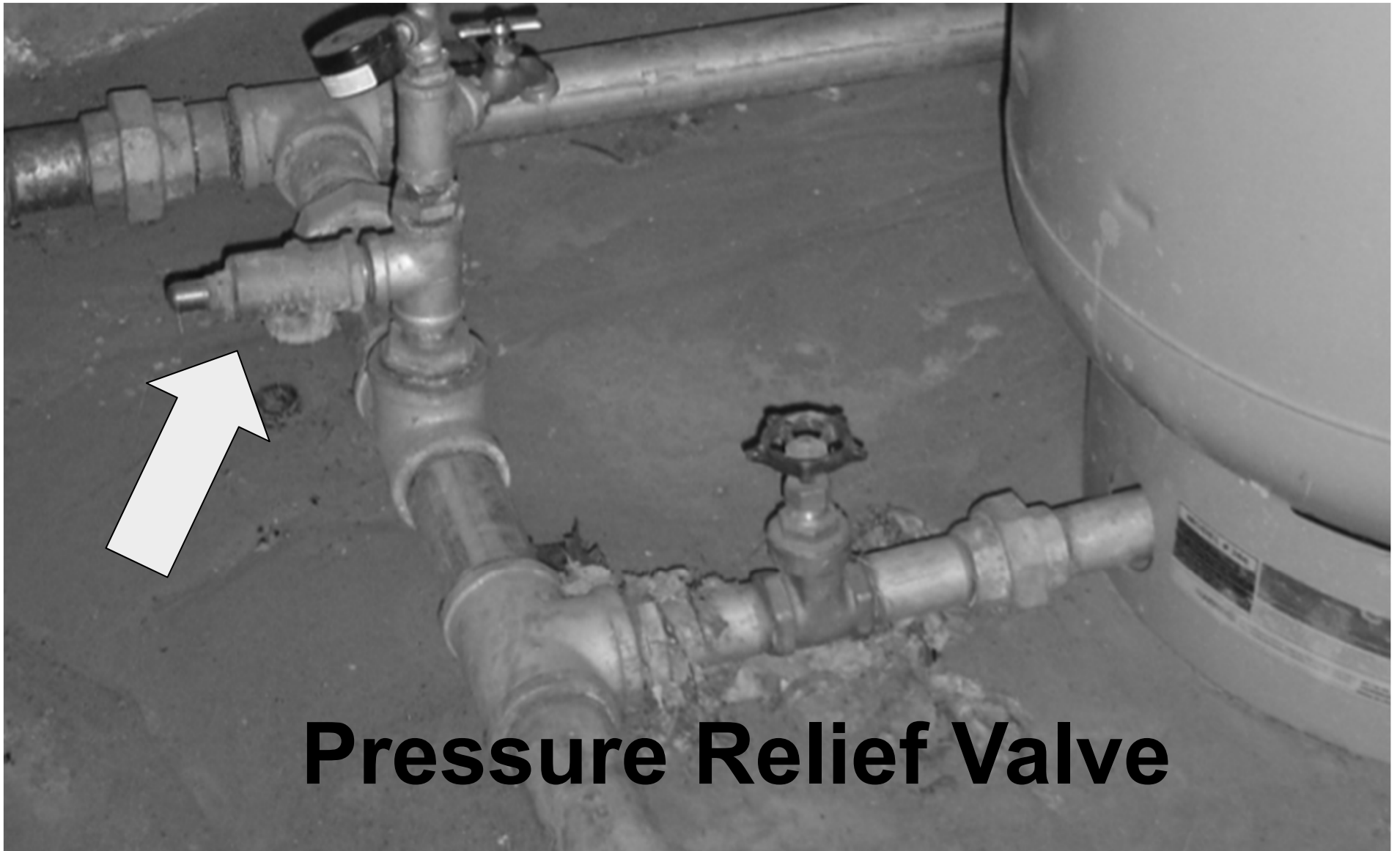


Pressure Relief Valve



Pressure Relief Valve





Pressure Relief Valve

PUBLIC HEALTH DIVISION
Drinking Water Services

Pressure Tanks			
Accessible for maintenance?		<input type="checkbox"/>	<input type="checkbox"/>
Bypass piping?		<input type="checkbox"/>	<input type="checkbox"/>
Drain?		<input type="checkbox"/>	<input type="checkbox"/>
Pressure relief device?		<input type="checkbox"/>	<input type="checkbox"/>
Air bladder/diaphragm?	no	<input type="checkbox"/>	<input type="checkbox"/>
Valve for adding air?		<input type="checkbox"/>	<input type="checkbox"/>

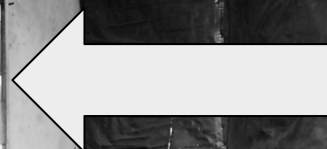
sight glass



Old style and large pressure tanks have a direct air-water interface that can allow the tank to become “flooded” or “waterlogged”.

Pressure Tank with Sight Glass

A sight glass allows you to see the water level in the tank.



Thanks Bill Goss
for these slides!

Reminders - report

- Use the cover letter template!
- Check your survey report and letter to make sure black dot items, checklist, and letter match!
- Have your DWS contact review your survey if not yet cleared

Dear :

Thank you for your time and assistance in conducting a **Water System Survey at [Water System Name] on [Date of Survey]**. The main purpose of the survey is to evaluate the entire water system in terms of supplying safe drinking water to the public. I have enclosed a copy of the report for your records. Please let me know if any corrections need to be made.

Example Language - if deficiencies are found:

The first page of the report lists significant deficiencies and rule violations in the system that will have to be corrected as soon as possible. You must contact me within 30 days and correct all deficiencies and violations by **[18 weeks from the date of this letter]**, or be on an approved

Reminders - training

- Partners are responsible for on-boarding new employees to drinking water work.
- DWS can accompany a new REHS on a survey, meet up to ask questions, etc



Past presentations & Resources

- Survey Basics 2017 Fall Training (recording on-line)
- Partner Resources: Training and Conferences
 - 2016 Silver Falls New Survey Forms
 - 2016 Fall Survey Forms and Contact Reports
 - 2017 Silver Falls Survey Review
 - 2017 Fall Survey forms tips and tricks
 - 2018 Fall Survey Basics (webinar)

Other survey questions?



Oregon Health Authority
Drinking Water Services

Water System Survey Reference Manual

October 2018

Kari Salis, PE
Technical Manager
971-673-0423
Karyl.I.salis@state.or.us

PUBLIC HEALTH DIVISION
Drinking Water Services