

May 6, 2016



WHERE WATER AND SEWER MEET

By Donald Popoff P.E.

Panel Presenters:

- Dan Kegley – City of Spokane WA
- Morgan Wayman – City of Ashland OR
- Marshall Thompson – SUEZ Boise ID

PRESENTER HISTORY

Donald G. Popoff P.E.

Senior Project Manager for RH2 Engineering

East Wenatchee, WA Office

Been employed with RH2 for 15 years

Previous Public Works Director

- Mechanical Engineer
- Certified Water Rights Examiner in WA State
- Previous Water Conservancy Board Commissioner Douglas County, WA
- Small Systems Chair for PNWS – AWWA

Spent the last 15 years designing and providing construction inspection of infrastructure projects including pipelines, roads, sewer, water, and storm systems.



ESTEEMED PANEL OF PURVEYORS

Dan Kegley – City of Spokane, WA

- WDM IV and Cross Connection Control Specialist.
- Worked for 25 years for the City of Spokane in the Water Department.
- Currently also in charge of City of Spokane's Wastewater Collection System.
- Involved with AWWA for 15 years, serves as trustee to the Section Board / Chair Elect

Morgan Wayman – City of Ashland, OR

- Senior Project manager at City of Ashland
- More than 25 years of experience delivering public projects across the United States.

Marshall Thompson – SUEZ, Boise, ID

- Director of Boise Operations for SUEZ.
- Oversees the areas of production, system maintenance, water quality, and information technology.

DISCUSSION OUTLINE

Our presentation today focuses on Domestic Water System connections to Waste Water Treatment Plants.

Where Sewer and Water Meet.

Specifically –

- Briefly walk through resources for the rules in all three states.
- Discuss the type of Domestic Water connections typically found at WWTP plants
- Real life examples - Panel Overview
- Check list to start a conversation with you WWTP.

THE RULES – BASIS



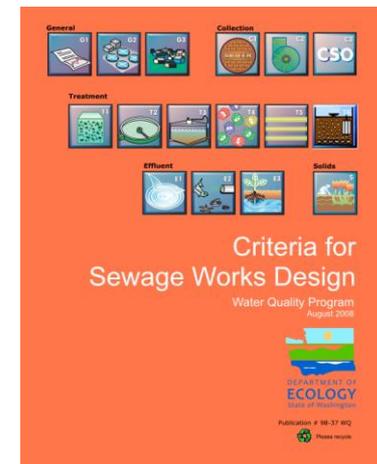
All three states acknowledge;

- *Manual of Cross-Connection Control* published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California (USC Manual);
- *Cross-Connection Control Manual, Accepted Procedure and Practice* published by the Pacific Northwest Section of the American Water Works Association (PNWS-AWWA Manual)
- *EPA Cross Control Manual*
water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/crossconnectioncontrol_manual.cfm

THE RULES – WASHINGTON



- Water Jurisdiction: Washington State Department of Health (DOH)
- Sewer Jurisdiction: Washington State Department of Ecology (DOE)
- DOH Guidance Document:
Water System Design Manual
- DOE Guidance Document:
Criteria for Sewage Works Design
(Orange Book)



THE RULES – WASHINGTON



TABLE 9
SEVERE* AND HIGH HEALTH CROSS-CONNECTION HAZARD PREMISES REQUIRING PREMISES ISOLATION BY AG OR RPBA

Table 9 –

From WAC 246-290-490

Agricultural (farms and dairies)
Beverage bottling plants
Car washes
Chemical plants
Commercial laundries and dry cleaners
Premises where both reclaimed water and potable water are provided
Film processing facilities
Food processing plants
Hospitals, medical centers, nursing homes, veterinary, medical and dental clinics, and blood plasma centers
Premises with separate irrigation systems using the purveyor's water supply and with chemical addition+
Laboratories
Metal plating industries
Mortuaries
Petroleum processing or storage plants
Piers and docks
Radioactive material processing plants or nuclear reactors*
Survey access denied or restricted
Wastewater lift stations and pumping stations
Wastewater treatment plants*
Premises with an unapproved auxiliary water supply interconnected with the potable water supply

+ For example, parks, playgrounds, golf courses, cemeteries, estates, etc.

* RPBA's for connections serving these premises are acceptable only when used in combination with an in-plant approved air gap; otherwise, the purveyor shall require an approved air gap at the service connection.

THE RULES – OREGON



- Water Jurisdiction:
Oregon Health Authority (OHA)
- Sewer Jurisdiction:
Oregon Department of Environmental Quality (DEQ)
- OHA Guidance Document:
Oregon Administrative Rules Chapter 333 Division 61
- DEQ Guidance Document:
Refer to USC / PNWS-AWWA

THE RULES – OREGON

From OAR

Table 42

Premises Requiring Isolation* By an Approved Air Gap or Reduced Pressure Principle Type Of Assembly Health Hazard
Agricultural (for example, farms, dairies)
Beverage bottling plants**
Car washes
Chemical plants
Commercial laundries and dry cleaners
Premises where both reclaimed and potable water are used
Film processing plants
Food processing plants
Medical centers (for example, hospitals, medical clinics, nursing homes, veterinary clinics, dental clinics, blood plasma centers)
Premises with irrigation systems that use the water supplier's water with chemical additions (for example, parks, playgrounds, golf courses, cemeteries, housing estates)
Laboratories
Metal plating industries
Mortuaries
Petroleum processing or storage plants
Piers and docks
Radioactive material processing plants and nuclear reactors
Wastewater lift stations and pumping stations
Wastewater treatment plants
Premises with piping under pressure for conveying liquids other than potable water and the piping is installed in proximity to potable water piping
Premises with an auxiliary water supply that is connected to a potable water supply



THE RULES – IDAHO



- Water Jurisdiction:
Idaho Department of Environmental Quality (DEQ)
- Sewer Jurisdiction:
Idaho Department of Environmental Quality (DEQ)

The Idaho Rules for Public Drinking Water Systems (IDAPA 58.01.08) contain the full text and complete requirements for cross-connection control programs.

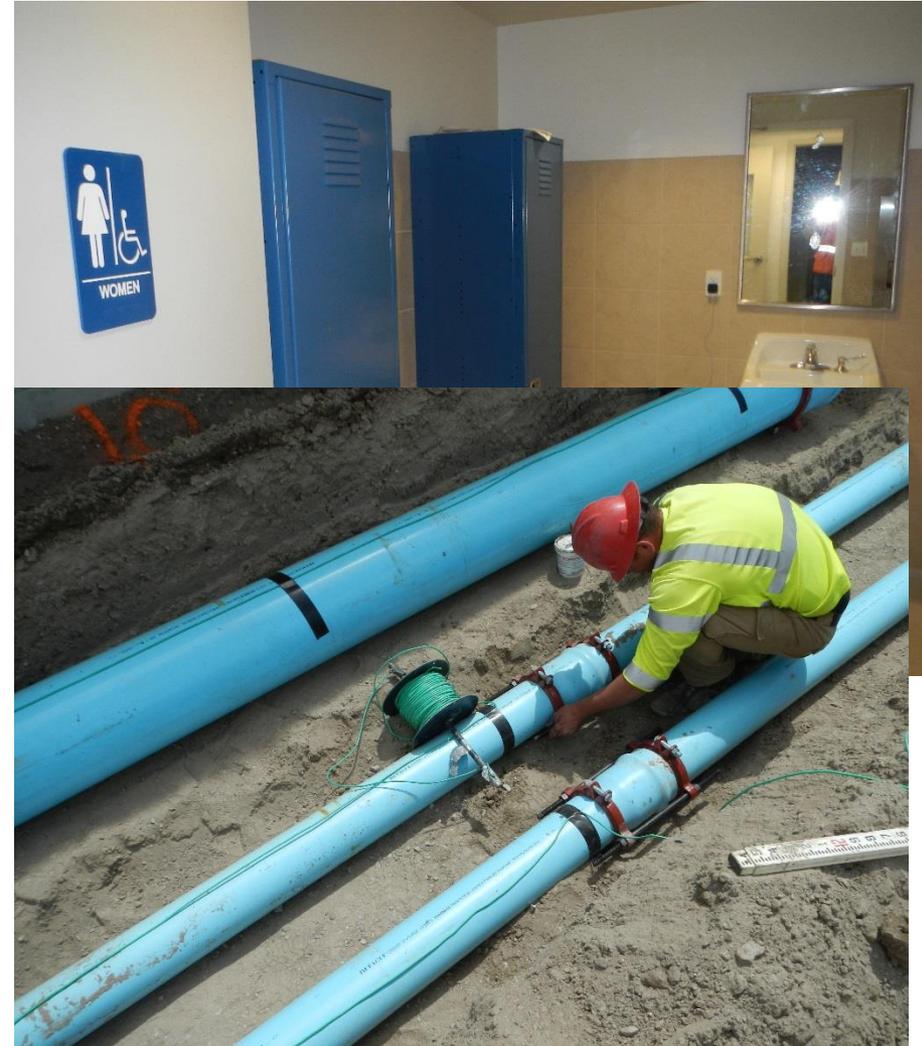
WHAT CONNECTIONS ARE TYPICAL

As a water purveyor it helps to know what kind of connections you are likely to see at a wastewater treatment facility.

1. Potable water inside the plant (C1)
2. Non-Potable Make Up Water (C2/C3)
3. Irrigation (C4)
4. Fire Flow (FP)

POTABLE WATER (C1)

- WWTP have workers who shower, wash hands, provide kitchen facilities etc. A potable water system is typically required per building code at these facilities.
- Potable water is sometimes installed in separate pipelines from separate taps to keep the water less stagnant



NON-POTABLE MAKEUP WATER (C2 / C3)

Process water around the plant that sometimes may require domestic water.

This type of use is where an airgap is typically used inside the premises.



FIRE FLOW (FP)

- Must have fire protection around the plant.
- Typically these systems come off of a separate tap.
- Larger mains with premises isolation. (RPDA)



IRRIGATION (C4)

- Some treatment plants use recycled / non-potable water for their irrigation.
- Some plants use irrigation water, from an irrigation purveyor.
- Some plants use potable water – simply because the re-use of non-potable water concerns them.



REAL LIFE EXAMPLES – SPOKANE WA

Location: Spokane WA

WWTP Plant

Size: Serves 237,000 people.

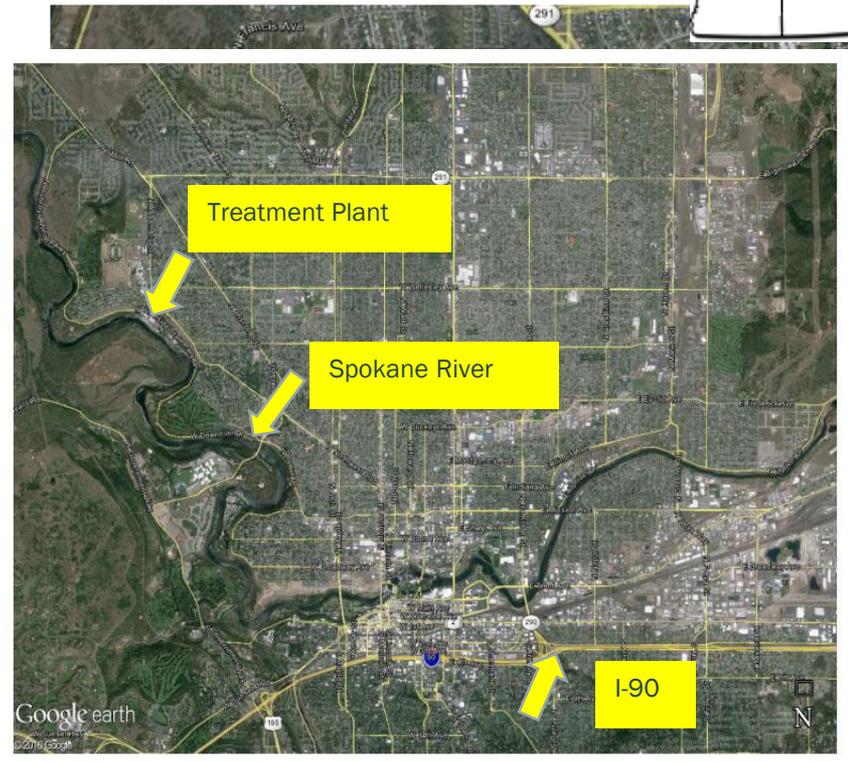
- Rated for Average Wet Weather Flow of 60.6 Million Gallons/Day
- Maximum Peak Hour Flow of 130 MGD

Domestic Water System

Size: Serves 217,000 people

Connections: 75,000

City of Spokane, WA



REAL LIFE EXAMPLES – SPOKANE WA



RPBA (100' above treatment plant)

Feed for potable water into admin buildings

Air Gap – for water in contact with processes

REAL LIFE EXAMPLES – SPOKANE WA

Key Elements for potential Domestic Water Connections



Source/Use

- ✓ Non-potable make-up water
- ✓ Potable plant water
- ✓ Fire Flow
- ✓ Irrigation

Protection Device

- Air Gap
- RPBA
- RPBA
- Plant Effluent - Reuse or Air Gap



RPBA from City Domestic system before Air Gap.

REAL LIFE EXAMPLES – SPOKANE WA



Pumping plant from Air Gap reservoir

Air Gap – From City's Domestic Water System

REAL LIFE EXAMPLES – CITY OF ASHLAND OR

Location: Ashland, OR

WWTP Plant

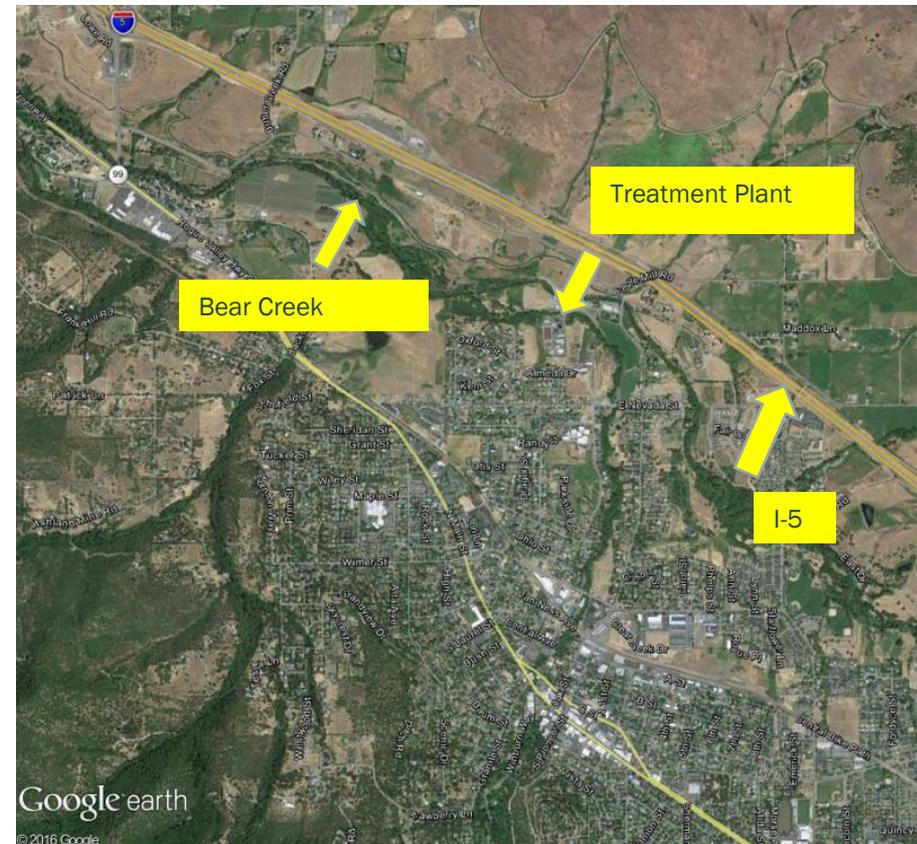
Size: 8500 Connections

Rated for Average Wet Weather Flow of 8.5 MGD

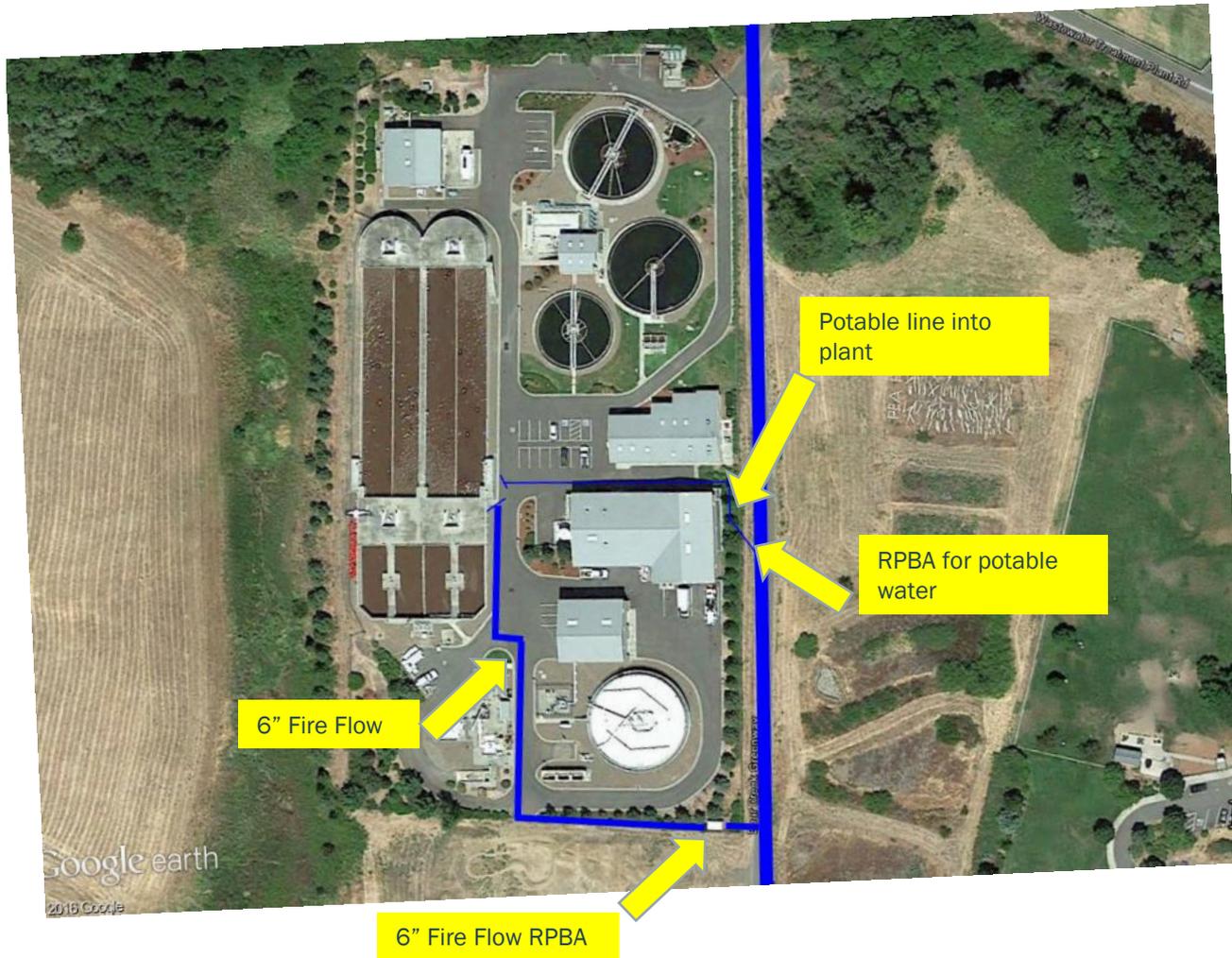
Domestic Water System

Size: 8500 Connections

Serves: Population of 22,000



REAL LIFE EXAMPLES – CITY OF ASHLAND OR



REAL LIFE EXAMPLES – CITY OF ASHLAND OR

Key Elements for potential Domestic Water Connections



Source/Use

- ✓ Non-potable Make-up Water
- ✓ Potable plant water
- ✓ Fire Flow
- ✓ Irrigation

Protection Device

- 2" - RPBA
- 2" - RPBA
- 6" - RPBA
- None



RPBA for potable use from City Domestic system.

REAL LIFE EXAMPLES – CITY OF ASHLAND OR



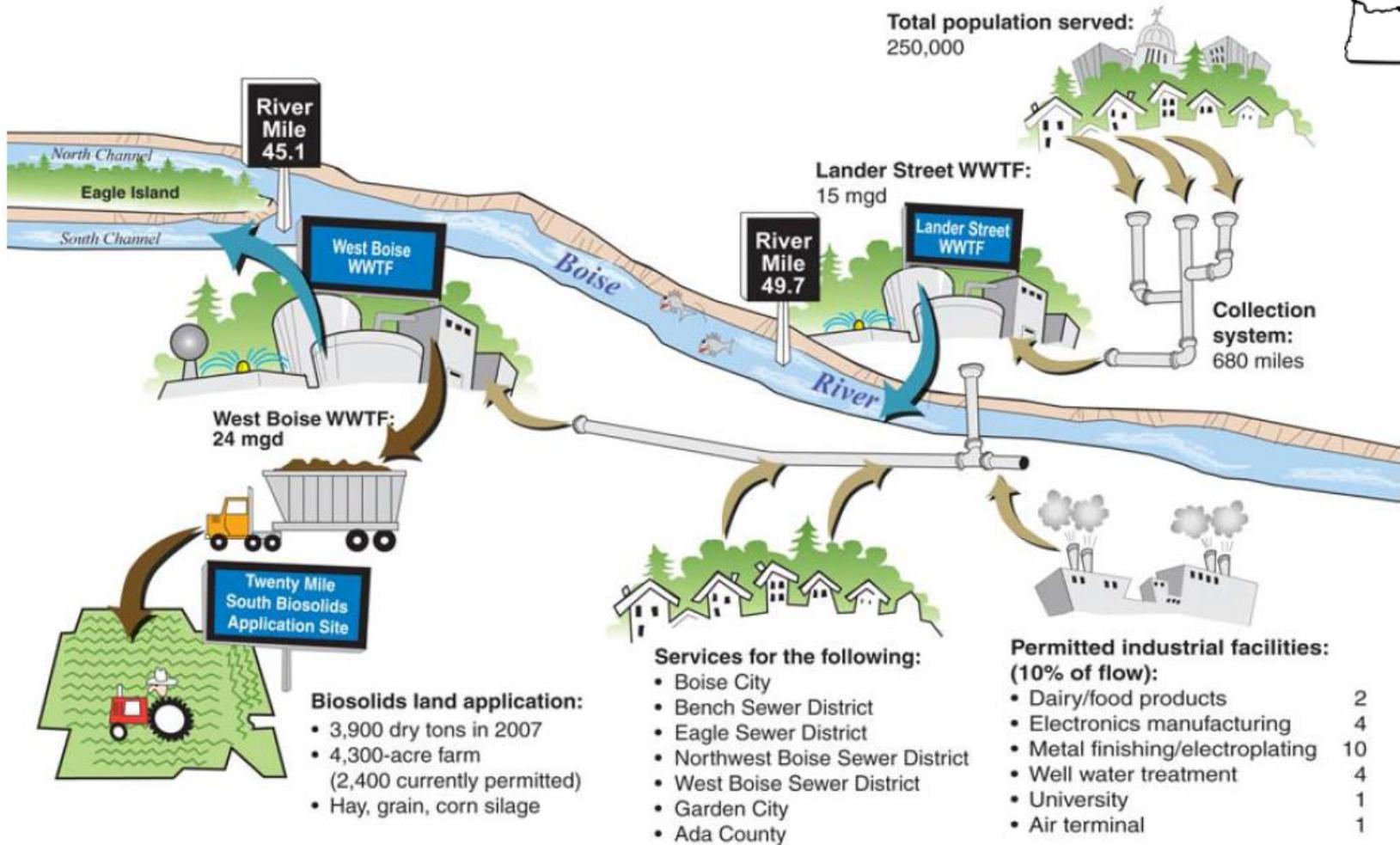
RPBA for fire flow from City Domestic system.



Service off of Fire Flow Line after RPBA

REAL LIFE EXAMPLES – SUEZ BOISE ID

Illustration of Boise's Wastewater Management System



REAL LIFE EXAMPLES – SUEZ, BOISE ID

Location: Boise ID



West Boise WWTP Plant

Size: 250,00 population Served

Rated for 25 MGD

Domestic Water System

Size: 90,000 Connections

Serves: Population of over 200,000

REAL LIFE EXAMPLES – SUEZ BOISE ID

Key Elements for potential Domestic Water Connections



Source/Use

- ✓ Non-potable Make-up Water
- ✓ Potable plant water
- ✓ Fire Flow
- ✓ Irrigation

Protection Device

- 8" - RPBA
- 8" - RPBA
- 12" - RPDA
- Internal Ground Water well

Plant is served by a 16" water main.

Also has 2 groundwater wells for irrigation and testing lab.

REAL LIFE EXAMPLES – SUEZ BOISE ID



REAL LIFE EXAMPLES – SUEZ BOISE ID



Fire Service Isolation



Domestic Service Isolation

REAL LIFE EXAMPLES – SUEZ BOISE ID



Plant Facility Pipe Labeling

REAL LIFE EXAMPLE – TREATMENT PLANT USA

- Working on sewer plant.
- All water was shut down and isolated....
- Upgrading non-potable water lines.



TAKE HOME MESSAGE

- Understand where and what the connections to your local WWTP are.
- Identify how many connections you have.
- Checklist to start a conversation...

Questions?

Where Water and Sewer Meet - Simple Checklist - A place to start the conversation as a water purveyor

Conversation with:	
Date:	
Is there a schematic of the major plant piping - even if it's old or out of date. Map helps paint the picture.	
Does your plant have a separate drinking water line that feeds into the WWTP?	
What is the sanitary device used for separation of the drinking water line?	
Does your plant have a separate fire flow line that feeds into the WWTP?	
What is the sanitary device used for separation of the fire flow line?	
Does your plant have irrigation water that is fed from the domestic system?	
What is the sanitary device used for separation of the irrigation line?	
Does your plant have make-up water for processes from the domestic system (non-potable make-up water)?	
What is the sanitary device used for separation of the make-up water?	
Do you have re-use water heading out of the plant?	